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# A/T - NO START AFTER HEAT SOAK: WIRE LENGTH INCREASED CAT. G, NO. 001/93

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### NO START AFTER HEAT SOAK

Model(s): 1993 Mazda RX-7 (A/T) with a VIN of JM1FD3\*\*\*P0200001  
through JM1FD3\*\*\*P0210498  
Category: "G" Engine Electrical  
Bulletin No.: 001/93  
Date: 7/2/93

### DESCRIPTION

Hard restart after running the vehicle at high speeds on hot days. Vehicle restarts easily after engine compartment cools down. This hard start condition is caused when heat from the engine increases the electrical resistance in the starter wire. This decreases the amount current received at the "S" terminal on the starter. To correct this problem, the starter harness length has been changed and the amount of current applied to the "S" terminal during starting increased.

### REPAIR PROCEDURE

If the condition exists, install the countermeasure starter wire harness.

1. Disconnect the vehicle battery.
2. Raise the vehicle on a hoist or raise the front end with ramps.
3. Disconnect the connectors at the starter.

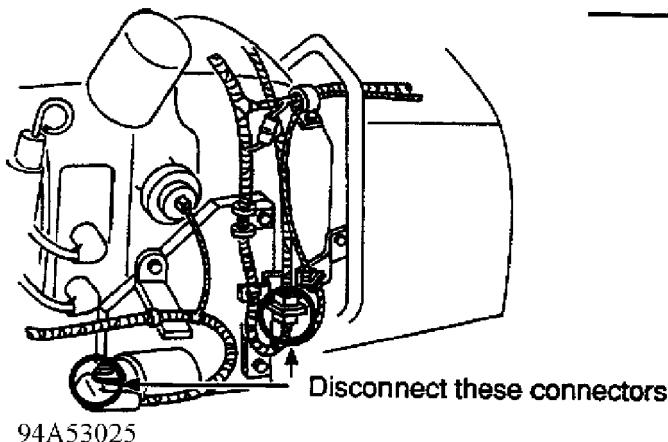


Fig. 1: Disconnecting Starter Solenoid Connectors

4. Connect countermeasure harness FDY1 67 SH0 as shown in Fig. 2.

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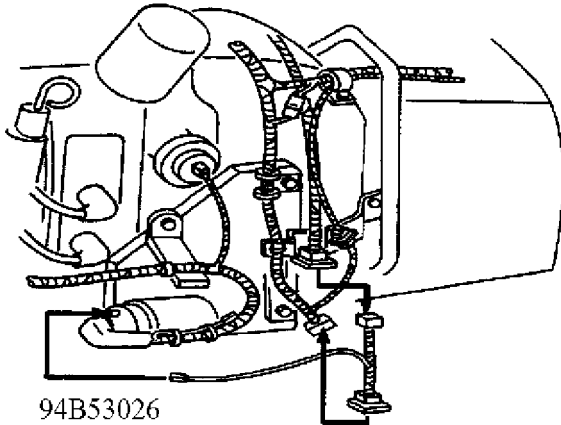


Fig. 2: Installing Countermeasure Harness

5. Tape off OEM starter solenoid wire. Secure countermeasure harness with 4 tie-wraps E018 67C92, see Fig. 3. Confirm there is no interference between the brake and fuel lines.

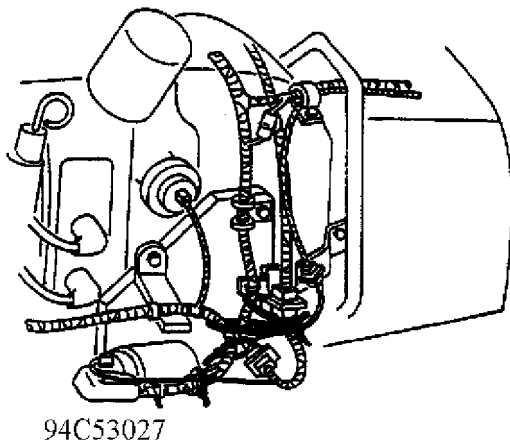


Fig. 3: Securing Starter Solenoid Wiring Harness

PARTS INFORMATION TABLE

Part Number	Description	Qty.
FDY1 67 SH0	Starter Wire Harness	1
E018 67 C92	Tie-Wrap	4

WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
 Customer Comment Code: 02

**A/T - NO START AFTER HEAT SOAK:WIRE LENGTH INCREASED CAT. G, NO. 001/93**

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Damage Code:	99
Part No. of Main Cause:	FDY1 67 SH0
Operation No.:	XX0568RX
Labor Hours:	0.4 Hrs.

**END OF ARTICLE**

# AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### AIR CONDITIONING MALFUNCTION

Model(s): 1993-95 Mazda RX-7 (Canadian)  
Category: U - Heater & Air Conditioning  
Bulletin No.: 95-09  
Date: August 1995

### APPLICABLE MODELS/VINS

All 1993-95 RX-7 vehicles with a VIN of JM1FD333\*S0400026 and lower.

### DESCRIPTION

Either of the following conditions may occur when the air conditioning system is operated:

- \* No compressor engagement when A/C is switched on.
- \* Air flow mode switch fixed in defrost position.

These conditions may be caused by insufficient contact at the hazard switch connector (1994-95 - G-06, 1993 - G-01). See Fig. 1

NOTE: The hazard switch harness also contains the A/C control connector.

This improper connection does not affect the hazard switch operation.

Changes in the production process have eliminated this problem. Customers complaining of the above symptoms should have the problem verified and if necessary, corrected.

### REPAIR PROCEDURE

1. Verify the complaint.
2. Remove the control panel and the heater control unit. See Fig. 1. Refer to section G of the BETM for removal instructions.

## AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

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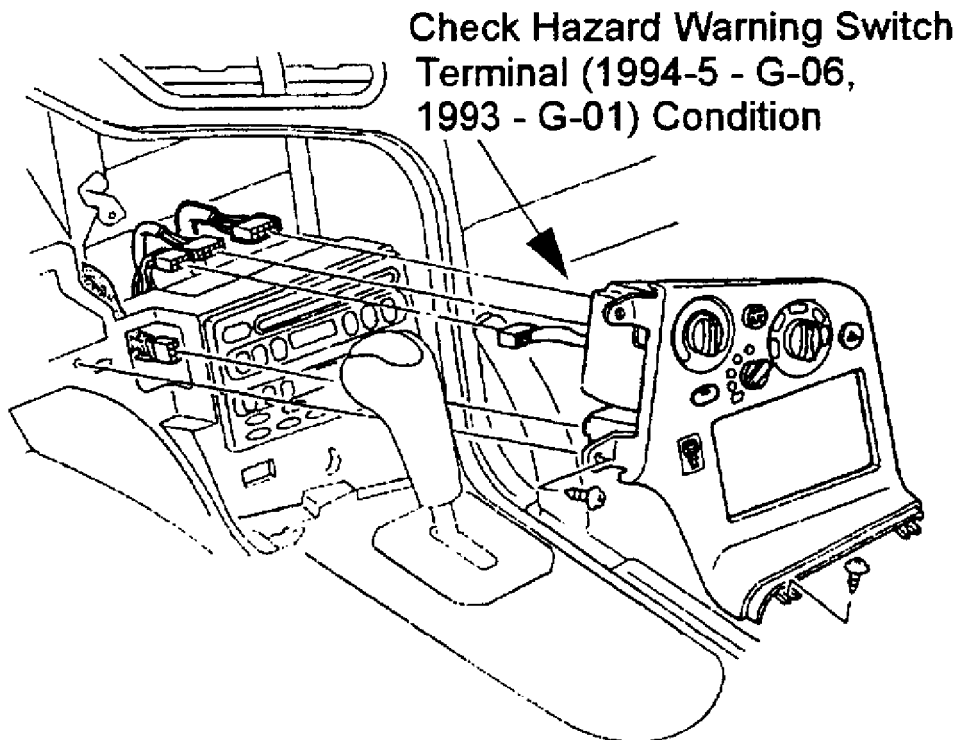


Fig. 1: Removing Control Panel/Heater Control Unit

3. Check the hazard warning switch terminals. Refer to information in the TERMINAL CONNECTION EXAMPLES for problem examples.

- \* If the female terminals are damaged (expanded), remove the switch from the A/C control unit and replace it with a new part.
- \* If the terminals are normal, re-assemble and test. If problems still exist, refer to the BETM or workshop manual for troubleshooting information.

CAUTION: Avoid damage to pins by inserting the connectors straight. Refer to TERMINAL CONNECTION EXAMPLES.

### TERMINAL CONNECTION EXAMPLES

#### MALE CONNECTORS

1. Hold the housing when connecting and disconnecting.
2. To avoid connector pin damage:
  - \* align the connector and housing at the appropriate angle.
  - \* Slightly wiggle the connector right and left then slowly insert straight into the assembly. Refer to Fig. 2 and Fig. 3.
  - \* Avoid forcing the connection or mis-alignment.

**AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09**

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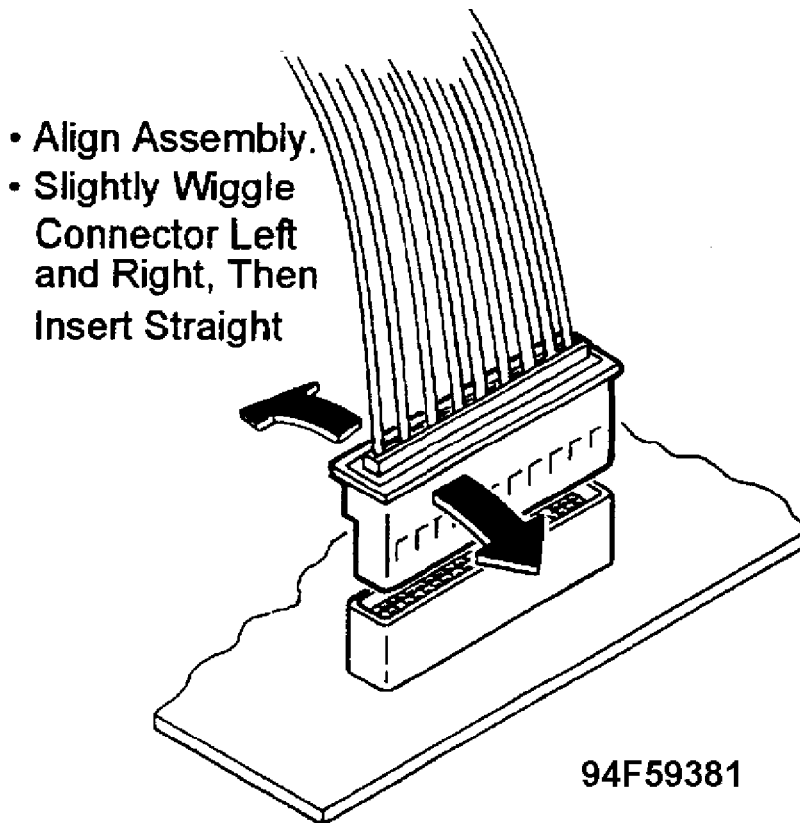


Fig. 2: Correct Installation of Male Connectors

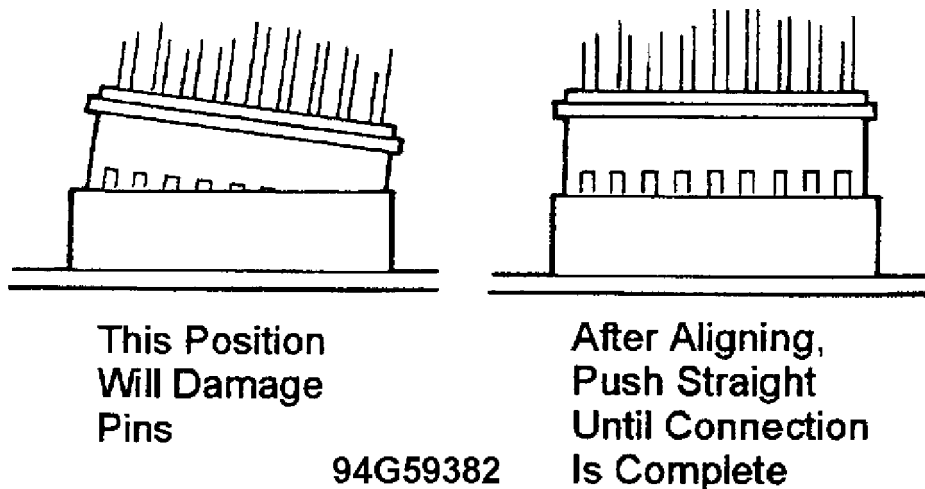


Fig. 3: Installation of Male Connectors

**HARNESSES**

1. DO NOT STRETCH harnesses to connect connectors.
2. Route harnesses to provide slack in harness and no stress on connector. Refer to Fig. 4.

**AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09**

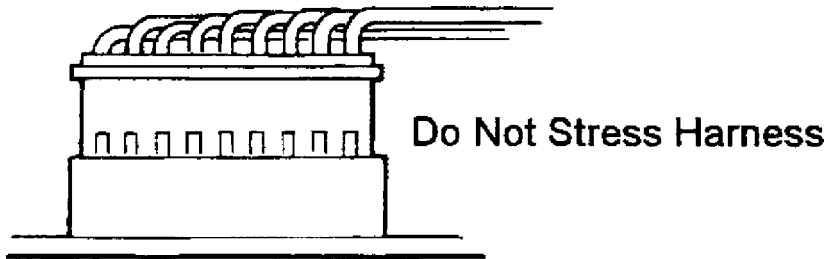
**Article Text (p. 4)**

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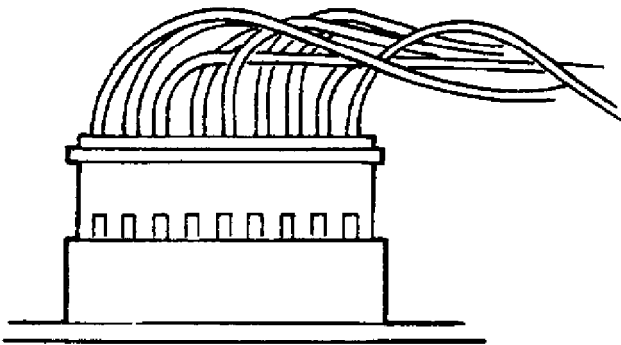
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**Allow Slack When Routing**



**94H59383**

Fig. 4: Correct Installation of Harness

**WARRANTY INFORMATION**

(Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT Microfiche for warranty term information).

Warranty Type:	A
Symptom Code:	60
Damage Code:	9G
Part Number Main Cause:	FD01 66 4H0
Quantity:	1
Operation Number:	T0204XRX
Labor Hours:	0.3Hrs.

**END OF ARTICLE**



**ANNOUNCEMENT OS SST UPDATE PROGRAM #001 CAT. ST, NO. 001/94**

**Article Text**

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**ARTICLE BEGINNING**

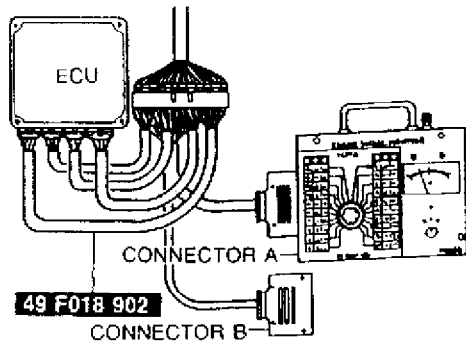
TECHNICAL SERVICE BULLETIN

**ANNOUNCEMENT OF SST UPDATE PROGRAM**

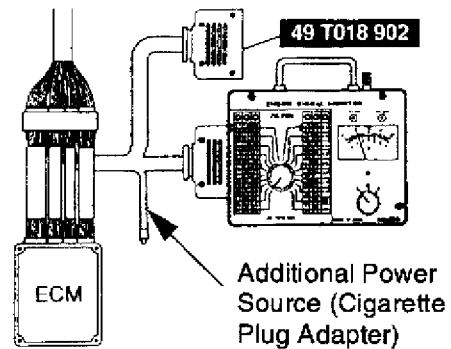
Model(s):           1993-94 Mazda RX-7  
                       1995     Mazda Millenia  
 Group:             ST  
 Bulletin No.:     001/94  
 Date:              6/22/94

**DESCRIPTION:**

The Special Service Tool (SST) involved in this program is the RX-7 harness adapter (49F0-18-902). It was a Minimum Required Tool (MRT). This harness adapter has been discontinued by Mazda's tool vendor (America Kowa Seiki, Inc.) and has been replaced by a new harness adapter (49T0-18-902) which is applicable to both the RX-7 and the new 1995 Millenia. This new tool is now a MRT. The cost of this new harness is adapter is \$457.71. The visible difference between the two harness adapters is that the new harness adapter has an added power source (a cigarette plug adapter).



**NEW 49 F0 18 902 Harness Adapter**  
 94B52481



**NEW 49T0 18 902 Harness Adapter**

Fig. 1: New 49F0 18 902 & 49T0 18 902 Harness Adapter

**PARTS INFORMATION TABLE**

Description	Part Number	Cost
	Old	New
Harness Adapter	49F0 18 902	49T0 18 902
		\$457.71
		See Benefit Below

**ANNOUNCEMENT OS SST UPDATE PROGRAM #001 CAT. ST, NO. 001/94**

**Article Text (p. 2)**

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PURPOSE OF PROGRAM

The purpose of this program is to offer your dealer an opportunity to have the old 49F0-18-902 harness adapter updated to the new 49T0-18-902 harness adapter specifications. The update includes the relabeling if the harness adapter with the new part number.

BENEFIT

Your dealer's cost for this update is \$50.00 as opposed to purchasing the new harness adapter for \$457.71. The result is a savings's of \$407.71 to your dealer.

PROGRAM IMPLEMENTATION

1. Your Mazda Regional Office has an update harness adapter available to loan to you during the implementation of this program. Therefore, in the event your dealer has a need for the new harness adapter for a critical repair and you do not have one available, contact your regional of lice. They can loan an updated harness adapter to your dealer
2. This program has been developed with a tracking system that will ensure the original harness adapter that your dealer submitted is the same one returned back to you.
3. Since Mazda cannot update all 900+ dealer harness adapters at once, the program will be implemented one region at a time. This will help alleviate potential confusion and delays. The following table lists each regional office and the date their dealers will be sent a Fed Ex box for them to begin participating in the program. Be sure to note when your dealer will be shipper its Fed Ex box.

DATE IMPLEMENTATION TABLE

Mazda Office	Implementation Date
Mazda Great Lakes	7/11/94
Gulf	7/18/94
Northeast	7/5/94
Northwest	7/25/94
Pacific	6/27/94
Southeast	7/25/94

The program will take approximately seven weeks to complete. After

**ANNOUNCEMENT OS SST UPDATE PROGRAM #001 CAT. ST, NO. 001/94**

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that time, the program will be terminated and no further updates will be performed. Therefore, if your dealer does not responded to the program within 2 weeks of receipt of its box, or does not have a serviceable 49F0-18-902 harness adapter, you will automatically be shipped a new 49T0-18-902 harness adapter. Your parts account will then be billed \$457.71.

**4. DETAILED PROCEDURES:**

STEP 1: MONDAY - A Fed Ex box is shipped (Economy - 2nd day) to your dealer on the implementation date illustrated in the above table. The box will contain an instruction/order form, return label with vendor's address, and a return Fed Ex box.

STEP 2: WEDNESDAY - Your dealer receives and unpacks the box. If your dealer elects to participate in the program, you:

- A. Complete the instruction/order form and inserts into the return Fed Ex box with their old 49F0-18-902.
- B. Complete the enclosed return label and applies it to the return box.. The box is then sealed.
- C. Your dealer telephones Fed Ex (800-238-5355) to pick-up the sealed box the next day (Thursday).

If your dealer elects not to participate in the program, disregard the box (see note below).

NOTE: If 1) your dealers old harness adapter is not received within 2 weeks of your receipt of the box, or

- 2) your old harness adapter is non-serviceable, a new harness adapter will be shipped to you. Your dealer's parts account will then be debited for \$457.71.

STEP 3: FOLLOWING THURSDAY- Your dealer receives its updated harness adapter.

STEP 4: Your dealer's parts account is debited for \$50.00.

If there are any questions regarding this program be sure to contact Special Tools Manager at (714) 442-6520.

**END OF ARTICLE**

# ANTENNA MAST REPLACEMENT SERVICE CAT. T, NO. 017/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### ANTENNA MAST REPLACEMENT/SERVICE

Model(s): 1992 Mazda 929  
1993 Mazda MX-6, 626 & RX-7  
Category: T  
Number: 017/92  
Date: 9/22/92

### DESCRIPTION

Vehicles specified in "Applicable Models" have antenna masts available as replacement parts. It is not necessary to replace the entire antenna assembly (motor and mast) when only a mast is required.

At times, the mast does not retract fully due to dirt build-up around the mast area. Periodic cleaning of the mast with a moist wash cloth is recommended.

### END OF ARTICLE

## **AUDIO SYSTEM WIRING CHANGES MT 0794-07**

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### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

### **AUDIO SYSTEM WIRING DIAGRAM**

Model(s): 1993 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0794-07  
Date: July, 1994

### **DESCRIPTION**

The 1993 RX-7 wiring Diagram (WG) (Pg. Z-84) and Body Electrical Troubleshooting Manual (BETM) (pg. J1-11) incorrectly show a radio relay at connector J1-06 for the base audio system. This relay only exists for the high grade (BOSE) audio system.

Mazda has corrected the 1994 publications (pg. Z-86, WD; pg. J1-11, BTEM) to show J1-06 as the connector for the center speaker amplifier.

### **END OF ARTICLE**

## BATTERY CHARGER CAUTION CAT. 01, NO. 012/99

### Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### BATTERY CHARGING CAUTION

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 012/99  
Date: April 19, 1999

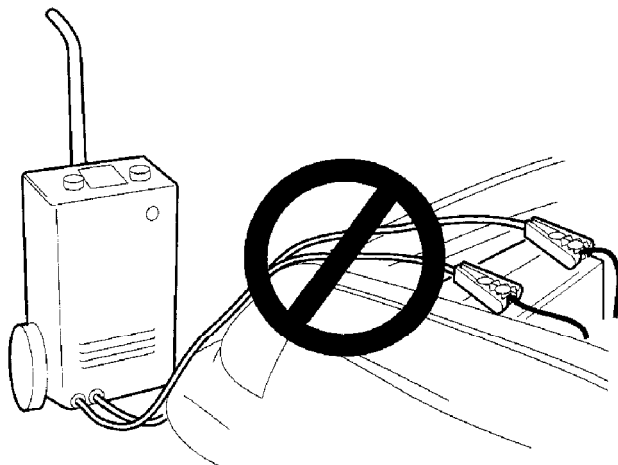
### DESCRIPTION

When attempting to charge a battery, apply caution and remove it from the vehicle. If a battery is charged in the vehicle with the battery cables connected, excessive voltage produced by the charger may result in damage to the Powertrain Control Module (PCM), audio system, memory back-up circuits and other electrical devices. The maximum voltage for vehicle electrical components is approximately 15 volts. Battery chargers generate at least 15 volts and in some cases as much as 20 volts.

Damage may also occur to power window switches, lights and other similar components that are activated or that are in use while the battery is being charged in a vehicle with the battery cables connected.

Be sure to apply the above caution when attempting to charge a battery.

NOTE: Removing battery cables will erase memory circuits for audio, PCM and other devices in the vehicle.



98154153

Fig. 1: Battery Charger

END OF ARTICLE

# BATTERY RECHARGING - DISCONNECT NEGATIVE TERMINAL MT 08-10

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### BATTERY RECHARGING

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 08-10  
Date: 1995

### DESCRIPTION

Always disconnect the negative cable from the battery before connecting a battery charger to it. Leaving the negative cable connected could damage the control unit or cause the air bag to inflate as the battery recharges.

### END OF ARTICLE

## DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-07  
Date: May, 1997

### DESCRIPTION

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- \* Incomplete connection
- \* Loose female terminals
- \* Terminals that are pushed out of their connectors
- \* Water inside the connector
- \* Terminal corrosion

Also check each related harness for damage.

**END OF ARTICLE**



**ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93**

**Article Text**

1993 Mazda RX7

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**DIAGNOSTIC PROCEDURES FOR ECU'S, AIR FLOW METERS, FUEL PUMPS, AND ALTERNATORS**

Model(s): 1988-94 Mazda Vehicles (except Navajo and 1994 B-Series)

Category: "G" Engine Electrical, No.: 002/93, Date: 9/16/93

Category: "G" Engine Electrical, No.: 93-03, Date: Oct, 93

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. Outline Of Diagnostics, Parts Requirements And Warranty Application  
- Illustrates the steps from diagnostics through parts return and warranty submission.
2. Diagnostic Procedures - Step by step testing of the component and circuit.
3. Component Check Sheet - Details of the customer complaint and events leading to the repair.

NOTE: Proper completion of the check sheets are required for warranty claim submission.

INDEX

SECTION 1

- Outline
- ECU Diagnostics
- ECU Check Sheet

SECTION 2

- Outline
- Air Flow Meter Diagnostics
- Air Flow Meter Check Sheet

SECTION 3

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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Outline
Fuel Pump Diagnostics
Fuel Pump Check Sheet

SECTION 4

Outline
Charging System Diagnostics
Alternator and Battery Check Sheet

SECTION 5

Warranty Information

Refer to the appropriate service information for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER
UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAU 3
3 MMA 3
UAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAA; 3
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
3 AAAAAAAAAAAAAAAAAA 3
Trouble Found 3 3
3 3
UAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAA; 3
3 Complete 3 3 Hot Line 3 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAA 3
AAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU
Review
3 Receive Parts 3 Diagnostics
AAAAAAAAAAAAAAAAU
3
UAAAAAAAAAAAAAAAAA;
3 Return Repl. Part 3
3 With Check Sheet 3
3 To Your Servicing 3
3 PDC 3
AAAAAAAAAAAAAAAAU
3
UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAU

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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### SECTION 1 - ECU DIAGNOSTICS PROCEDURE

1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor And Adapter) as shown in Fig. 1. Place application panel sheet on the Engine Signal Monitor.

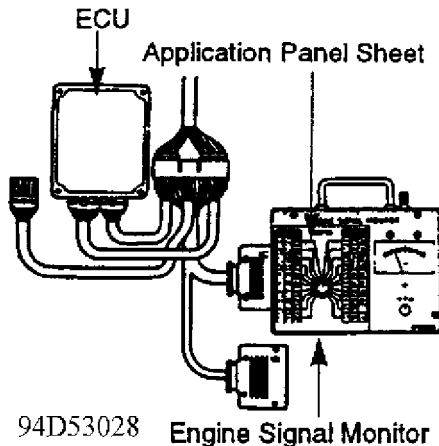


Fig. 1: Engine Signal Monitor and ECU

3. Measure the voltage according to the specifications in the appropriate service information
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

**CAUTION:** Terminals A & B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings. See Fig. 2 for illustration. Never apply current to these terminals, damage to the ECU will result.

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

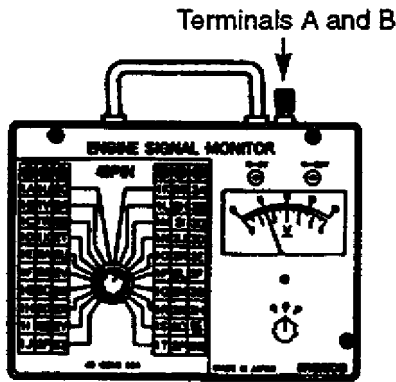
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94E53029

Fig. 2: Engine Signal Monitor

ECU CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_ Yes \_\_\_\_\_ No

3. Reason for replacement:

Terminal Voltage Out Of Specification: \_\_\_\_\_ Yes \_\_\_\_\_ No

Terminal Number	Voltage Reading	Factory Specification

According to Service Bulletin instructions: \_\_\_\_\_ Category \_\_\_\_\_ No.

According to DSM or Hot Line Authorization: \_\_\_\_\_ (Authorization #)

Other: \_\_\_\_\_  
 \_\_\_\_\_

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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Repair Type: \_\_\_\_\_ Warranty \_\_\_\_\_ Customer Pay

Technician's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

NOTE: This check sheet must be returned with the replaced part to your servicing PDC

AIR FLOW METER - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3

3 MMA 3
UAAAAAAAAAAAAAAAAA; 3
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
3
Trouble Found 3 3
3

UAAAAAAAAAAAAAAAAA; 3
3 Complete 3 3 Hot Line 3 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;
3 Receive Parts 3 Review
AAAAAAAAAAAAAAAAAU Diagnostics
3

UAAAAAAAAAAAAAAAAA;
3 Attach Copy Of 3
3 Check Sheet To 3
3 R.O. 3
AAAAAAAAAAAAAAAAAU
3

UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU

SECTION 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES

NOTE: Procedures listed below do not apply to the following model/year vehicles:

- 1988-92 B2600
1989-90 RX-7 (up to and including vehicles with a VIN of JM1FC3\*\*\*L0806489)
1993 RX-7

**ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93**

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1. Check the air intake temperature sensor resistance.

A) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.

B) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time. See Fig. 3 for terminal identification.

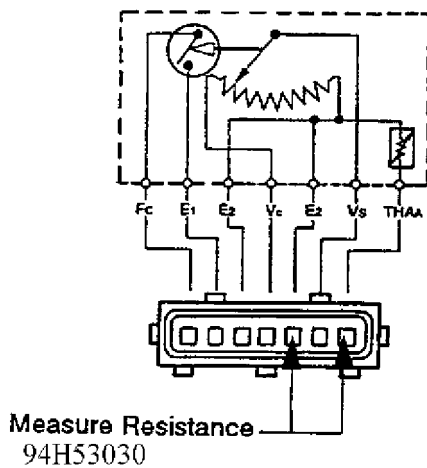


Fig. 3: Air Flow Meter Terminal

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

CAUTION: Refer to Fig. 3 and the "Standard Values" table when measuring resistance.

STANDARD VALUES TABLE

Ambient Temp. (F)	Resistance (K, Ohms)	Ambient Temp. (F)	Resistance (K, Ohms)
0	11.1 - 18.7	70	1.9 - 2.9
10	8.2 - 13.7	80	1.5 - 2.3
20	6.4 - 10.3	90	1.2 - 1.9
30	4.9 - 7.9	100	0.9 - 1.5
40	3.8 - 6.0	110	0.8 - 1.3
50	3.0 - 4.7	120	0.6 - 1.1
60	2.4 - 3.7		



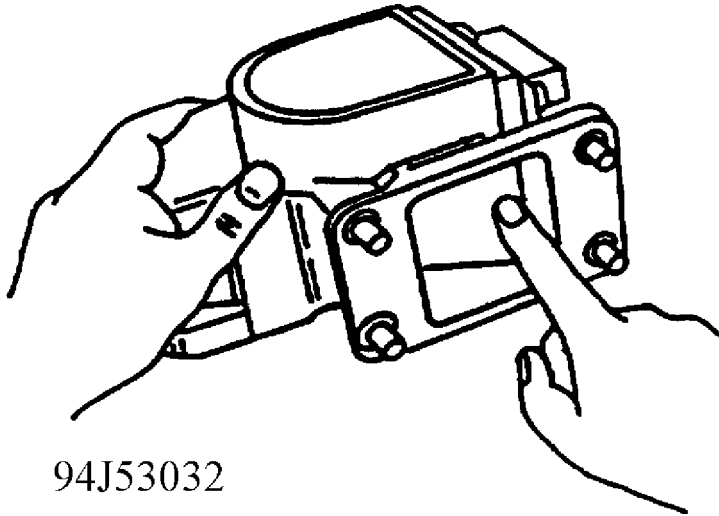
ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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94J53032

Fig. 5: Checking Air Flow Meter Door

- If no problem is found in the air flow meter, contact the Technical Hotline for assistance.

AIR FLOW METER CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_\_/\_\_\_/\_\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_ Yes \_\_\_\_\_ No

3. Reason for replacement:

Air Flow Meter Out Of Specification: \_\_\_\_\_ Yes \_\_\_\_\_ No

Measurement	Factory Specifications
Intake Air	
Temperature Sensor	
Base Resistance (E2-VC)	

Measure Plate Does Not Move Smoothly \_\_\_\_\_ YES \_\_\_\_\_ NO

According to Service Bulletin instructions: \_\_\_\_\_ Category \_\_\_\_\_ No.



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According to DSM or Hot Line Authorization: \_\_\_\_\_ (Authorization #)

Other: \_\_\_\_\_

Technician's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3

MMA 3

UAAAAAAAAAAAAAAAAA;
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
3
Trouble Found 3 3
3

UAAAAAAAAAAAAAAAAA;
3 Complete 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU

Review
Diagnostics

UAAAAAAAAAAAAAAAAA;
3 Receive Parts 3
AAAAAAAAAAAAAAAAAU
3

UAAAAAAAAAAAAAAAAA;
3 Keep Check Sheets 3
3 At Dealer 3
3 (Attach to R.O.) 3
AAAAAAAAAAAAAAAAAU
3

UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU

SECTION 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

- 1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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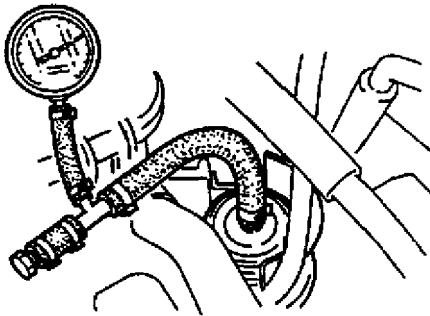
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3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

**WARNING:** Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the appropriate service information for further instructions.

4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter. See Fig. 6 for illustration.



94A53033

Fig. 6: Checking Fuel Pressure

6. Short circuit the fuel pump test terminals (yellow 2 pin connector) with a jumper wire on the following vehicles (see Fig. 7).

1988-89 323	1993 626/MX-6
1990-91 929	1989-92 MPV
1989-91 RX-7	

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles (see Fig. 7).

1990-93 323/Protege	1993 626/MX-6
1992-93 929	1992-93 MX-3
1990-93 MX-5	1993 RX-7

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1993 Mazda RX7

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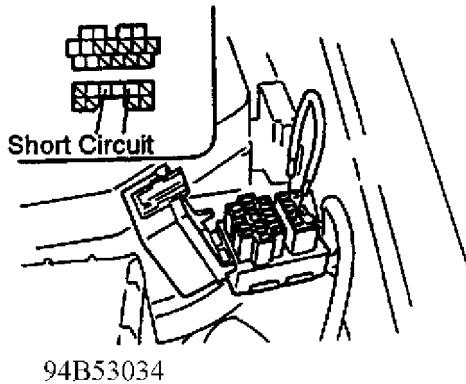


Fig. 7: Short Circuiting Fuel Pump

8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires. See FUEL PRESSURE TABLE For standard values

FUEL PRESSURE TABLE

Year/Model	Standard Value (PSI)
1988-89 323	49 or Over
1990-91 323/Protege	
1990-92 626/MX-6	
1990-91 929	
MPV (All)	
1992-93 323/Protege	52 or Over
1992-93 929	
1993 626/MX-6	
MX-3 (All)	
MX-5 (All)	
1989-91 RX-7	56 or Over
1993 RX-7	53 or Over

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

- A) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.
- B) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side). See Fig. 8 for illustration

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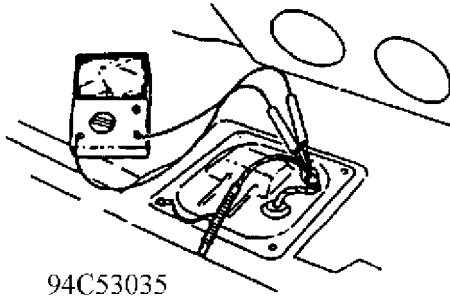
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94C53035

Fig. 8: Measuring Fuel Pump Voltage

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)  
9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.
11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance

FUEL PUMP CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_ Yes \_\_\_\_\_ No

3. Reason for replacement:

Fuel Pump Did Not Operate \_\_\_\_\_ Yes \_\_\_\_\_ No

Insufficient Fuel Pressure: \_\_\_\_\_ yes \_\_\_\_\_ No

Maximum Fuel Pressure: \_\_\_\_\_ (PSI) Factory Specification: \_\_\_\_\_

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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According to Service Bulletin instructions: \_\_\_\_\_ Category \_\_\_\_\_ No.

According to DSM or Hot Line Authorization: \_\_\_\_\_ (Authorization #)

Other: \_\_\_\_\_

Technician's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3

MMA 3

UAAAAAAAAAAAAAAAAA;
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
AAAAAAAAAAAAAAAAAU 3

Trouble Found 3 3

UAAAAAAAAAAAAAAAAA;
3 Complete 3 3 Hot Line 3 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU

Review
Diagnostics

UAAAAAAAAAAAAAAAAA;
3 Receive Parts 3
AAAAAAAAAAAAAAAAAU 3

UAAAAAAAAAAAAAAAAA;
3 Return Replacement 3
3 Part With Check 3
3 Sheet To Your 3
3 Servicing PDC 3
AAAAAAAAAAAAAAAAAU 3

UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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1. Start the engine and confirm that the alternator warning light is not illuminating.

NOTE: If the warning light is illuminated, see Fig. 9, the self diagnosis operation is functioning. Check the alternator and related harness' according to appropriate service information.

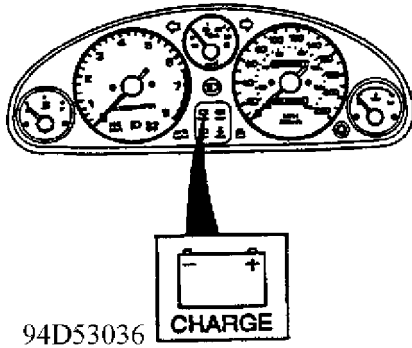


Fig. 9: Charge Indicator Light

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).
4. Apply the load test referring to the LOAD TEST TABLE. The final voltage must be above the standard minimum value shown in MINIMUM VOLTAGE TABLE.

LOAD TEST TABLE

Model	Test Load (Amps)
323/Prot.	180
626/MX-6	174
929	180
	195
MX-3	150
	180
	165
MX-5	105
RX-7	180

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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3	3	165	3
3	3	195	3
AAA...AAA			
3	MPV	3	150
3		3	195
AAA...AAA			
3	B-Series	3	150
3		3	195
3		3	195
AAA...AAA			

MINIMUM VOLTAGE TABLE

UAAA...AAA;			
3	Aprox Battery Temperature	3	Minimum Voltage
3	70F (21C)	3	9.6V
3	60F (15C)	3	9.5V
3	50F (10C)	3	9.4V
3	40F (4C)	3	9.3V
3	30F (-1C)	3	9.1V
3	20F (-7C)	3	8.9V
AAA...AAA			

If the voltage measures at or above the minimum, proceed to step 5.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 5.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the appropriate service information for instructions.

5. Start the vehicle and raise the RPM to 2500.
6. Connect a battery load tester (VAT 40/70 or equivalent)
7. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and







# ETR OPERATION - CASSETTE CHANGES BEFORE TAPE ENDS MT 0297-05

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DEALER HINT: ETR OPERATION

Model(s): All Mazda Models  
Category: Mazda Tip  
Bulletin No.: 0297-05  
Date: February, 1997

### DESCRIPTION

Bob White of the Southeast Region worked with Ferman Mazda In Tampa, Florida on an ETR (audio unit) concern. The customer complaint was that the auto reverse cassette player switched directions intermittently when it wasn't at the end of the tape. After trying to duplicate the concern with different tapes, they found it was specific just to some cassette tapes. Certain tapes had too much internal resistance and caused the ETR to sense "end of tape", and reverse.

If a customer complains that the auto reverse function of the ETR operates incorrectly, see if it occurs only on certain tapes. Then manually check the movement of the tape with a pencil to see if it rolls easily compared to other tapes. If the resistance is significantly higher, the tape is most likely the cause of the concern, not the ETR.

### END OF ARTICLE

## FRONT WIPER MOTOR INOPERATIVE MT 0394-15

### Article Text

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

### FRONT WIPER MOTOR INOPERATIVE - RENEWABLE CIRCUIT BREAKER

Model(s): 1986-94 Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0394-15  
Date: March, 1994

### DESCRIPTION

If the front wipers don't work, you may not need to replace the wiper motor. The wipers may only be temporarily disabled.

Here's why: A wiper motor circuit breaker deactivates the wipers for about five minutes if it senses an overload, like heavy snow build-up on the windshield. It's a fail-safe designed to prevent wiper damage. After the short period, the wipers will start working again.

### END OF ARTICLE

# FRONT WIPER MOTOR OPERATION/INSPECTION CAT. 15, NO. 070/88

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WIPER MOTOR INOPERATIVE CIRCUIT BREAKER ACTIVATION

Model(s): All Mazda Vehicles Except B-Series & Navajo  
Category: T - Body Electrical System  
Bulletin No.: 013/97  
Date: June 19, 1997

NOTE: This bulletin supersedes Technical Service Bulletin Category 15-070/88 and Category G 003/97, dated May 19, 1997.

### DESCRIPTION

The wiper motor is equipped with a built-in circuit breaker to protect the circuit and motor from over heating due to motor overloading. See Fig. 1. Overload may occur when:

- \* Motor temperature exceeds 150 degrees C, 302 degrees F.
- \* Wipers are frozen to the windshield.
- \* Wiper motion is restricted due to heavy loads (snow or mud build-up).

NOTE: Circuit automatically resets when motor temperature decreases below 90 degrees C, 194 degrees F.

The information in this bulletin is provided to answer customer questions regarding occasional wiper motor perceived problems and prevent unnecessary wiper motor replacement.

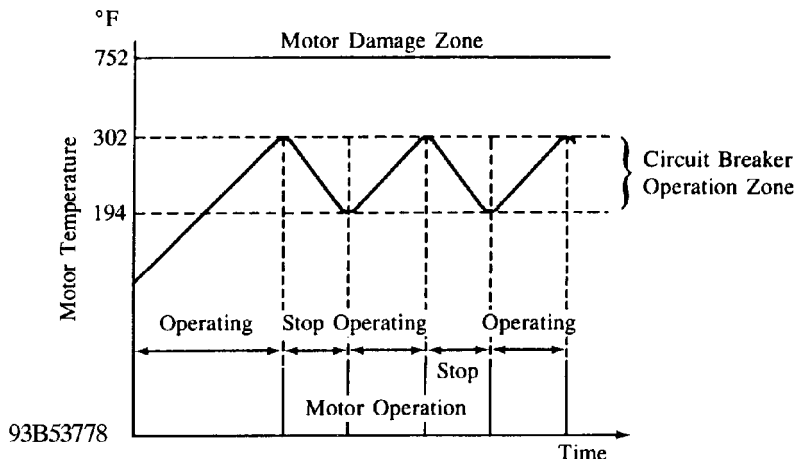


Fig. 1: Motor Temperature & Motor Damage Zone Chart

### CUSTOMER NOTE

**FRONT WIPER MOTOR OPERATION/INSPECTION CAT. 15, NO. 070/88**

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1. To prevent wiper motor binding:
  - a. Remove ice or snow build-up from windshield with a suitable tool.
  - b. Confirm the wiper is free by carefully raising blades from glass.
  - c. NEVER operate wipers on dry windshield.
2. If the wiper operation stops:
  - a. Guide the vehicle to the side of road and stop.
  - b. Turn wipers "OFF".
  - c. Wait approximately 5 minutes and turn the wiper switch "ON".
  - \* If the wipers activate, the wiper motor and circuitry are functioning properly (circuit breaker activated).
  - \* If the wipers fail to activate, proceed to your nearest dealer when you can safely drive the vehicle.

TECHNICIAN'S NOTE: If the wiper motor does not operate, check the wiper motor circuit (Refer to Workshop Manual for the specific model) and replace wiper motor if necessary.

3. To prevent wiper motor binding: When wiper blades become stuck to the windshield due to freezing, heavy snow build-up or non use for long period, follow the procedures described below.

WIPER BLADES INFORMATION TABLE

Condition	Action
Wiper blades will not move because of freezing or heavy snow build-up.	Remove ice or snow. Confirm that blades are free.
Wiper blades stuck to windshield because of long term non-use.	Carefully raise blades from glass, being careful not to damage them.

CAUTION: NEVER operate the wipers when the windshield is dry. Squirt washer fluid on the glass before using the wipers to clean the windshield.

Service Managers and Service Advisors should relay the following to customers with this concern.

## FRONT WIPER MOTOR OPERATION/INSPECTION CAT. 15, NO. 070/88

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#### CUSTOMER NOTE:

- \* If the circuit breaker opens and stops operation of the wiper motor, operation will resume once the circuit resets itself (approx. 5 minutes).
- \* If while the circuit breaker is open, the wiper switch is turned "OFF", the wiper will automatically move to the "PARK" position once the circuit breaker resets.

If the wiper motor stops while the vehicle is in motion:

- \* Carefully guide the vehicle off the road and stop. Turn the wiper switch "OFF".
- \* Wait approximately 5 minutes then turn the wiper switch "ON" to verify wiper operation. If the wipers operate, the wiper motor is functioning correctly (circuit breaker opened momentarily).

TECHNICIAN'S NOTE: If the wiper motor DOES NOT operate, check the wiper motor circuit. Refer to Workshop Manual or specific model and replace wiper motor if necessary.

**END OF ARTICLE**

# FUSIBLE LINK REFERENCE CHART NO. T-2-3

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### FUSIBLE LINK REFERENCE CHART

Model: All Mazda  
Date: November 1, 1990 (Revised - April 27, 1992)  
No: T-2-3  
Group: Parts Bulletin

### SERVICE INFORMATION

For easy reference, the following list of Fusible Links have been compiled.

### FUSIBLE LINK REFERENCE CHART

AA

Year	Model	Location	P/N
1979-82	626	Engine Compartment	8174-66-760B
1983-85	626 Gas	Engine Compartment	3775-67-099
1983-85	626 Diesel	Engine Compartment	H047-67-099
1983-85	626	Alternator	HA67-67-099
1979	RX-7	Under Dash	1175-66-710A
1980	RX-7	Under Dash	8130-66-710
1980	RX-7	Engine Compartment	8341-18-055
1981	RX-7	Under Dash	FA02-67-099
1981-85	RX-7	Engine Compartment	3777-67-099
1981-85	RX-7	Transmission	8341-18-055
1981-85	RX-7	Engine Compartment	8871-67-099
1984-85	RX-7	Engine Compartment	3775-67-099
1981-85	GLC	Engine Compartment	B003-67-099
1981-85	GLC	Engine Compartment	B005-67-099
1981-85	GLC	Engine Compartment	B006-67-099
1977-82	B2000	Engine Compartment	B094-67-099
1983-84	B2000/B2200	Engine Compartment	UA47-66-099
1988-93	MX-6 M/T, Non-Turbo A/T	Engine Compartment	FB01-67-099
1988-93	626 Sedan	Engine Compartment	FB01-67-099
1988-93	626 Hatchback M/T, Non-Turbo A/T	Engine Compartment	FB01-67-099
1990-92	929, 929S	Engine Compartment	FB01-67-099
1986-92	323	Engine Compartment	FB01-67-099
1987-89	323 Wagon	Engine Compartment	FB01-67-099
1986-91, 93	RX-7	Engine Compartment	FB01-67-099

**FUSIBLE LINK REFERENCE CHART NO. T-2-3**

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1992	MX-3	Engine Compartment	FB01-67-099
1984-86	GLC Wagon	Engine Compartment	8573-66-760
AA			

**END OF ARTICLE**



# HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### HESITATION (JERKING/BUCKING) WHILE DRIVING

Model(s): 1993-95 Mazda RX-7  
Category: F - Fuel & Emission Control System  
Bulletin No.: 005/97  
Date: March 10, 1997

### DESCRIPTION

A jerk or bucking condition may occur under any of the following conditions:

- \* Under light to moderate acceleration.
- \* Cruising at engine speed of 2000-2200 rpm.
- \* A/C ON.

This concern may be caused by improperly grounded engine harness, creating high resistance in the engine ground circuits. This condition affects the fuel control system. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

### REPAIR PROCEDURE

1. Clean and retorquer harness ground. See Fig. 1.
  - a. Locate ground on left side of engine, mounted to bracket behind A/C compressor. Refer to the applicable BETM or wiring diagram.
  - b. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
2. Clean and retorquer main battery ground and bracket mounting bolts (bracket used for mounting the ground). See Fig. 2.
  - a. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
  - b. Remove the original ground strap and terminal bracket between the engine hanger and the bulkhead.
  - c. Install new style ground strap using the original bolts. See Fig. 3.
  - d. Tighten Torque: 16-23 N.m (12 - 17 ft-lb) engine hanger side), 7 - 11 N.m (69.5 - 95.4 in-lb), (engine room bulkhead side).

3. Verify repair.

**HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97**

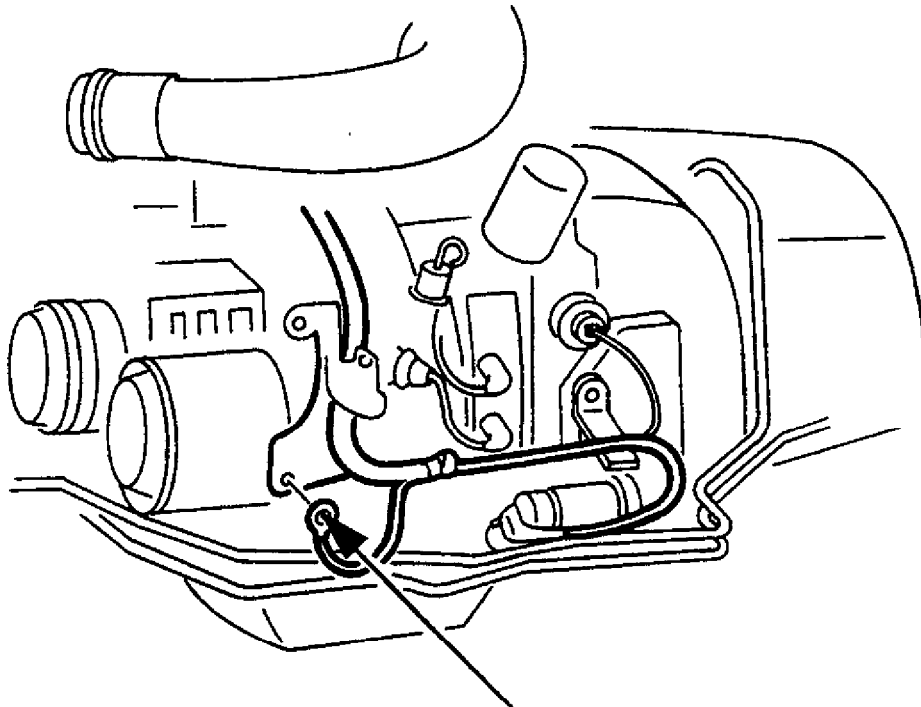
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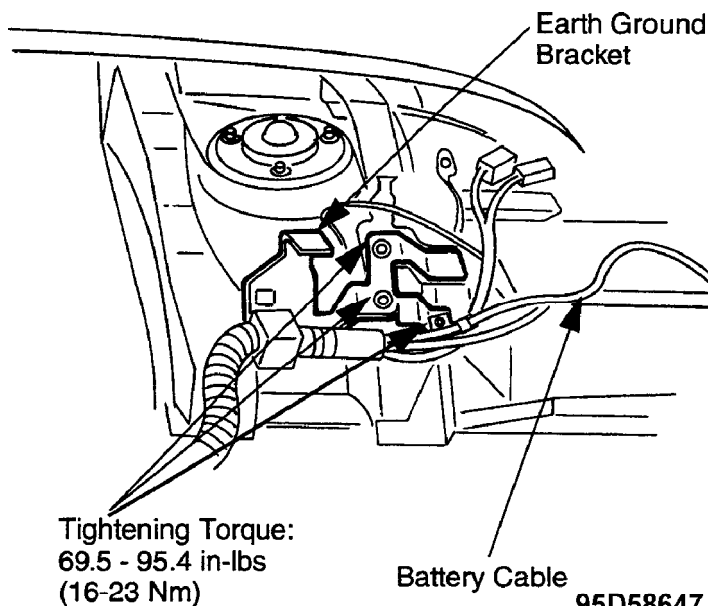


**Harness Ground**

**Tightening Torque: 69.5 - 95.4 in-lbs  
(7-11 Nm).**

**95C58646**

Fig. 1: Harness Ground - Location & Tightening Torque Measurement



**Tightening Torque:  
69.5 - 95.4 in-lbs  
(16-23 Nm)**

**Battery Cable**

**95D58647**

Fig. 2: Earth Ground Bracket - Location & Tightening Torque

**HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97**

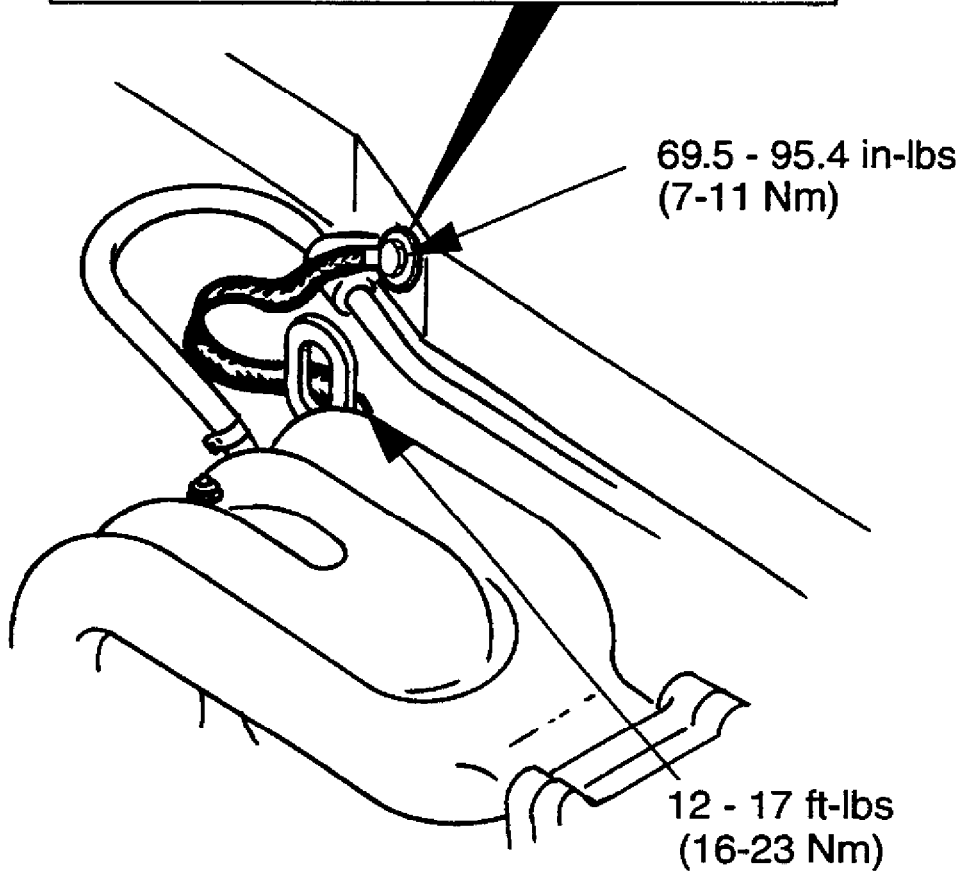
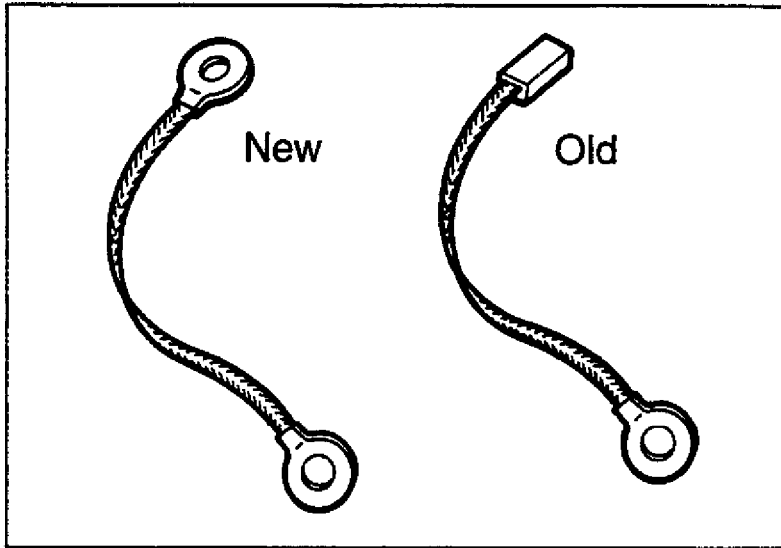
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**95E58648**

Fig. 3: Ground Strap - Location & Tightening Torque

**PARTS INFORMATION**

PARTS INFORMATION TABLE

UAAA;

³ New P/N	³ Old P/N	³ Description	³ Qty.	³ Interchangeability³
-----------	-----------	---------------	--------	-----------------------

**HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97**

**Article Text (p. 4)**

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~~~~~  
3 FD02-67-E70 3 FD01-67-E70A 3 Earth Wire 3 1 3 A 3  
~~~~~  
3 NOTE: Interchangeability "A" = The new part can be used in place 3  
3 of the old part but the old part CAN NOT be used in place 3  
3 of the new part. 3  
~~~~~

**WARRANTY INFORMATION**

Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty Term Information.

Warranty Type: A  
Symptom Code: 08  
Damage Code: 9S  
Part Number Main Cause: FD02-67-E70  
Quantity: 1  
Operation Number: XX899XRX  
Labor Hours: 0.2 hrs.

**END OF ARTICLE**

# INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER CAT. ST, NO. 006/98

## Article Text

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## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

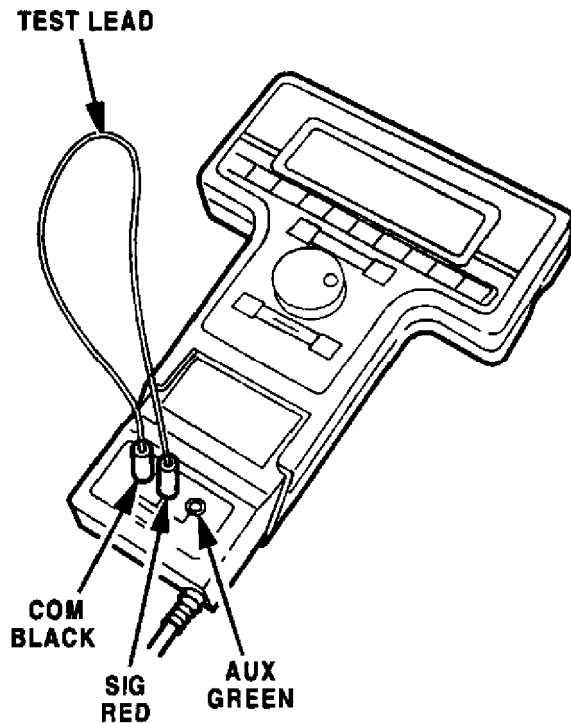
## INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER

Model(s): All Mazda Models  
Category: ST - Service Tool  
Bulletin No.: 006/98  
Date: September 30, 1998

## DESCRIPTION

The NGS test lead connectors may become loose or corroded causing incorrect readings. Before using the ohm meter function of the NGS tester for diagnosing electrical circuits, check for excessive resistance in the test leads and connectors and repair them if necessary.

NOTE: Two types of connectors (screw and solder) are used on the NGS test leads.



98E54134  
Fig. 1: NGS Tester

## INSPECTION PROCEDURE

1) Verify concern.

# INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER CAT. ST, NO. 006/98

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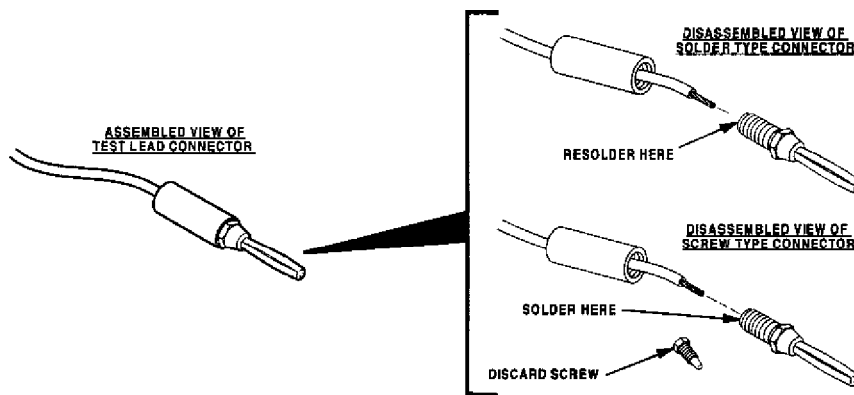
2) Select "Ohm Meter" on the tester and connect a test lead between the COM (black) and SIG (red) terminal on the NGS tester and note the reading.

\* A reading of 0 ohms indicates that the test lead and connections do not have excess resistance.

\* A reading other than 0 ohms may indicate a poor connection (go to STEP 3).

3) Disassemble the connectors and check for corrosion, solder breakage, or looseness. Resolder connections to repair as necessary. See Fig. 2.

4) Verify repair.



98F54135

Fig. 2: Assembled\Disassembled Connectors

**END OF ARTICLE**

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### MAINTENANCE FREE BATTERY DIAGNOSTIC & CHARGING PROCEDURE

Model(s): All Mazda Models  
Category: G - Engine Electrical System  
Bulletin No.: 001/97  
Date: April 8, 1997

NOTE: This bulletin replaces the previously released bulletin  
Cat. G, No. 002/95, dated April 5, 1995.

### DESCRIPTION

The information in this bulletin describes:

- \* Conditions that may lead to battery failure.
- \* Correct inspection and servicing procedures.
- \* Samples of current inspection sheets and maintenance records.
- \* Requirements for Warranty Submission.

### CONDITIONS LEADING TO BATTERY PROBLEMS

If a customer complains of poor battery performance (i.e. slow start, no start), perform the following quick checks prior to detailed diagnosis or parts replacement.

#### BATTERY PROBLEMS TABLE

| Item                               | Check                                                                             |
|------------------------------------|-----------------------------------------------------------------------------------|
| Condition Prior To Battery Problem | Door open, lights left on, radio on etc.                                          |
| Vehicle Condition                  | Add-on accessories installed properly (alarms, cellular phones, stereo amp. etc.) |
| Battery Condition                  | Correct fluid level. Check Indicator "Eye" (if equipped) and note color.          |
| Cable Condition                    | Must be free of corrosion, terminals tight.                                       |
| Vehicle Wiring Grounds             | Check by voltage drop measurements.                                               |
| Alternator                         | Check alternator output (between 13.5 and 15.5 volts)                             |

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```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
3  Alternator Drive Belt       3  Must be set to correct tension and 3  
3                             3      in good condition.                 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

A preliminary check of these items will, in most cases, reveal the problem without time consuming detailed diagnostics.

NOTE: As a result of product testing on returned parts, 60% of the returned alternators and 20% of returned batteries are classified NTF (No Trouble Found).

**BATTERY MAINTENANCE RESPONSIBILITY**

Mazda Motor of America has instituted a comprehensive battery maintenance program at port facilities to maintain peak battery performance until delivery to the dealer. After wholesale delivery, it is the dealer's responsibility to maintain the condition of the batteries in new Mazda vehicles while in inventory and at the time of new car delivery.

Batteries must be periodically recharged to maintain a measured 12.4 volts or better. Loss of battery voltage is dependent on ambient temperature, demo use and time in inventory. Mazda recommends voltage checks at one month intervals and just prior to retail delivery. The maintenance and inspection process will vary based on dealer inventory and environmental factors that affect battery life (i.e. extreme temperatures).

**BATTERY MAINTENANCE RECORD**

Mazda has installed a "Battery Check Tag" on the mirror of all vehicles (except B-Series and Miata) starting June 1, 1996. The tag will document the maintenance efforts of the port personnel, and subsequent maintenance of the dealership. A sample of the "Battery Check Tag" is included in this bulletin. DO NOT remove this tag from the mirror until retail delivery. The dealer is responsible for entering the vehicle's battery voltage onto this tag on the following occasions:

- \* Wholesale Delivery
- \* Planned Dealer Inventory Maintenance
- \* Retail Delivery

NOTE: Entries must be identified by the dealership employee number for quality tracking purposes. After retail delivery, the tag must be kept with the vehicle service file.

If a battery claim is made on the vehicle while in inventory or within 90 days after retail, a copy of the "Battery Check Tag" must be attached to the repair order.



# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

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### SERVICING EQUIPMENT REQUIREMENTS

In order to accurately and quickly check the condition of maintenance free, batteries, you should have available a digital volt meter capable of reading to 0.01 V and a battery tester utilizing load cells (VAT 40, or equivalent) or electronic testing (Midtronics Power Sensor Plus).

\* VAT 40 testers require the battery to be charged to 12V or higher.

\* Midtronics tester requires 10.2V or higher to test and provides an indicator lamp confirming that the battery is OK to test. See Special Tool Bulletin Cat. ST, No. (003/95 for Midtronics purchase information.

### CHARGING AND LOAD TESTING INFORMATION

The table below gives specific charging amps, times and load test amps for 1993-97 vehicles. Refer to the applicable workshop manual for other model year vehicles and additional troubleshooting information.

#### FACTORY INSTALLED BATTERIES INFORMATION TABLE

| Model       | Battery  | Max. Charge Current (AMP) | Charge Time (Min.) | Load Test (AMP) |
|-------------|----------|---------------------------|--------------------|-----------------|
| Protege/323 | 55D23L   | 30                        | 30                 | 180             |
| 626/MX-6    | GROUP58R | 30                        | 30                 | 174             |
| 929         | 55D23L   | 30                        | 30                 | 180             |
|             | 80D26L   | 35                        | 30                 | 195             |
| Millenia    | 75D26L   | 35                        | 30                 | 195             |
|             | 80D26L   | 35                        | 30                 | 195             |
| MX-3        | 50D20L   | 25                        | 30                 | 150             |
|             | 55D23L   | 30                        | 30                 | 180             |
|             | 65D23L   | 30                        | 30                 | 165             |
| MX-5 Miata  | S46A24L  | 20                        | 30                 | 105             |
| RX-7        | 55D23L   | 30                        | 30                 | 180             |
|             | 65D23L   | 30                        | 30                 | 165             |
|             | 75D26L   | 35                        | 30                 | 195             |
| MPV         | 50D20L   | 25                        | 30                 | 150             |
|             | 80D26L   | 35                        | 30                 | 195             |
| B-Series    | 50D20L   | 25                        | 30                 | 150             |
|             | 75D26L   | 35                        | 30                 | 195             |
|             | 80D26L   | 35                        | 30                 | 195             |

**MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97**

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|            |            |    |    |     |
|------------|------------|----|----|-----|
| 1994-97 B- | BX-58C     | 35 | 20 | 270 |
| Series     | BXT-65-650 | 35 | 20 | 325 |
| Navajo     | BXT-65-650 | 35 | 20 | 325 |

**BATTERY DIAGNOSTIC PROCEDURES**

**VAT 40 LOAD TESTER OR EQUIVALENT**

1. Start engine and confirm that alternator warning light is not illuminated.

NOTE: If the warning light is illuminated, the self diagnostic function is operating. Check the alternator and related harness. Refer to the instructions in section G of the applicable workshop manual.

2. Check the alternator belt tension and condition.
3. Turn the vehicle headlights "ON". Check engine belt and alternator bearing for unusual noise by raising and lowering the engine RPM.
4. Turn ignition and all accessories "OFF".
5. Connect the load tester.
6. Apply the load test referring to the FACTORY INSTALLED BATTERIES INFORMATION TABLE and flow charts below (depending on the test equipment). The final voltage must be above the minimum value shown in the table. Record the voltage on the "Battery Check Sheet".
  - \* If the voltage is more than the minimum, measure the open circuit voltage. Charge the battery if less than 12.4V.
  - \* If the voltage is less than the minimum, "quick" or "boost" charge the battery for 30 minutes.

CAUTION: DO NOT "Quick" or "Boost" charge MX-5 Miata batteries. These batteries are gel type and must NOT be charged at more than 20 amps.

- \* Perform a load test again. If the battery is still below the minimum voltage replace the battery and proceed to step 8.
7. Start the vehicle and raise the RPM to 2500.
  8. Connect the battery load tester and apply a load equal to the alternator rating.
    - \* If the voltage is 13.5V to 15.0V, the alternator and battery are







# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

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3 Condition Scale Of The Meter 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; RED - REPLACE

3 Meter shows "Good" or "Replace" AAAAAAAAAAAAAAAAAAAAAA;

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAAA;

3 GREEN -

3 Replace Battery 3

3 GOOD

AAAAAAAAAAAAAAAAAAAAAAAAUU

3

UAAAAAAAAAAAAAAAAAAAAA;

3 Switch to "C" Position To 3

3 Check Voltage 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAAA; YES UAAAAAAAAAAAAAAAAAAAAA;

3 Voltage is Greater Than AAAAAA Return To Service 3

3 12.4 Volts? 3

AAAAAAAAAAAAAAAAAAAAAAAAUU

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

3 NO

UAAAAAAAAAAAAAAAAAAAAA;

3 Recharge Until Voltage is 3

3 12.4V or Greater 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

NOTE: When testing in the vehicle, turn the headlights "ON" for 15 seconds to remove the surface charge before testing.

### PARTS INFORMATION

PARTS INFORMATION TABLE (MAZDA FINISH LINE BATTERIES)

UAAAAAAAAAAAAAAAAAAAAA;

| 3 Make | 3 Year | 3 Model | 3 OEM | 3 Part Number | 3 CCA |
|--------|--------|---------|-------|---------------|-------|
| 3      | 3      | 3       | 3     | 3             | 3     |

|   |           |       |       |                   |       |
|---|-----------|-------|-------|-------------------|-------|
| 3 | 3 1981-85 | 3 FWD | 3 320 | 3 0000 80 026R WB | 3 525 |
|---|-----------|-------|-------|-------------------|-------|

|       |           |                      |       |                   |       |
|-------|-----------|----------------------|-------|-------------------|-------|
| 3 GLC | 3 1981-85 | 3 Optional For Above | 3 360 | 3 0000 80 0035 WB | 3 550 |
|-------|-----------|----------------------|-------|-------------------|-------|

|   |           |           |       |                   |       |
|---|-----------|-----------|-------|-------------------|-------|
| 3 | 3 1977-80 | 3 GLC RWD | 3 320 | 3 0000 80 0024 WB | 3 460 |
|---|-----------|-----------|-------|-------------------|-------|

|   |           |            |       |                   |       |
|---|-----------|------------|-------|-------------------|-------|
| 3 | 3 1992-95 | 3 All 1.6L | 3 310 | 3 0000 80 026R WB | 3 525 |
|---|-----------|------------|-------|-------------------|-------|

|        |           |                      |       |                   |       |
|--------|-----------|----------------------|-------|-------------------|-------|
| 3 MX-3 | 3 1992-95 | 3 Optional For Above | 3 360 | 3 0000 80 0035 WB | 3 550 |
|--------|-----------|----------------------|-------|-------------------|-------|

|   |           |                |       |                   |       |
|---|-----------|----------------|-------|-------------------|-------|
| 3 | 3 1992-95 | 3 All V-6 1.8L | 3 415 | 3 0000 80 024F WB | 3 525 |
|---|-----------|----------------|-------|-------------------|-------|

|   |           |       |       |                   |       |
|---|-----------|-------|-------|-------------------|-------|
| 3 | 3 1993-97 | 3 All | 3 582 | 3 0000 80 058R WB | 3 582 |
|---|-----------|-------|-------|-------------------|-------|

|        |           |                     |       |                   |       |
|--------|-----------|---------------------|-------|-------------------|-------|
| 3 626/ | 3 1983-92 | 3 All Except Diesel | 3 320 | 3 0000 80 026R WB | 3 525 |
|--------|-----------|---------------------|-------|-------------------|-------|

|   |           |                      |       |                   |       |
|---|-----------|----------------------|-------|-------------------|-------|
| 3 | 3 1983-92 | 3 Optional For Above | 3 360 | 3 0000 80 0035 WB | 3 550 |
|---|-----------|----------------------|-------|-------------------|-------|

|   |           |          |       |                   |       |
|---|-----------|----------|-------|-------------------|-------|
| 3 | 3 1984-85 | 3 Diesel | 3 620 | 3 0000 80 124F WB | 3 700 |
|---|-----------|----------|-------|-------------------|-------|

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

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|         |         |                               |     |      |    |      |    |     |
|---------|---------|-------------------------------|-----|------|----|------|----|-----|
|         | 1979-82 | All                           | 235 | 0000 | 80 | 0024 | WB | 460 |
|         | 1993-95 | M/T                           | 420 | 0000 | 80 | 026R | WB | 525 |
| RX-7    | 1984-92 | All                           | 320 | 0000 | 80 | 026R | WB | 525 |
|         | 1979-83 | All                           | 370 | 0000 | 80 | 0024 | WB | 460 |
| 323/    | 1988-97 | All                           | 310 | 0000 | 80 | 026R | WB | 525 |
| Protege | 1988-97 | Optional For Above            | 585 | 0000 | 80 | 0035 | WB | 525 |
|         | 1988-95 | All w/o Cold Package          | 320 | 0000 | 80 | 0035 | WB | 550 |
| 929     | 1988-95 | All with Cold Package         | 585 | 0000 | 80 | 124F | WB | 700 |
| Milenia | 1995-97 | All                           | 490 | 0000 | 80 | 124F | WB | 700 |
|         | 1973-93 | All Except Diesel             | 375 | 0000 | 80 | 0024 | WB | 460 |
| B2000   | 1973-93 | Optional For Above            | 375 | 0000 | 80 | 026R | WB | 525 |
| B2200   | 1982-84 | Diesel                        | 600 | 0000 | 80 | 0124 | WB | 675 |
|         | 1994-97 | B2300/B3000 Std. Cab          | 540 | 0000 | 80 | 58HD | WB | 582 |
| B2300   | 1994-97 | B2300, B3000, Opt. Cold Spec. | 650 | 0000 | 80 | 0065 | WB | 875 |
| B3000   |         |                               |     |      |    |      |    |     |
| B4000   |         |                               |     |      |    |      |    |     |
|         | 1994-97 | B4000, Cab Plus               | 850 | 0000 | 80 | 0065 | WB | 875 |
|         | 1989-93 | All                           | 310 | 0000 | 80 | 0024 | WB | 460 |
| B2600   | 1987-88 | All B2600                     | 320 | 0000 | 80 | 026R | WB | 525 |
| B2600i  | 1987-88 | Optional For Above            | 390 | 0000 | 80 | 224F | WB | 525 |
| Navajo  | 1991-94 | All                           | 650 | 0000 | 80 | 0065 | WB | 875 |
|         | 1991-97 | All                           | 310 | 0000 | 80 | 026R | WB | 525 |
| MPV     | 1991-97 | Optional Cold Package         | 585 | 0000 | 80 | 124F | WB | 700 |

WARRANTABLE CHARGING AND/OR REPLACEMENT

The information below outlines when battery charging or replacement that is covered under vehicle warranty.

# MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97

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### \* Charging/Testing

Charging/testing is not covered under vehicle warranty and is considered part of normal dealer processing responsibility. Boost charging is covered within 48 hours of vehicle delivery.

NOTE: This operation will require completion of the Battery Check Sheet.

### \* Wholesale Delivery Inspection

Battery Replacement requires DCSM authorization. Additionally, the Battery Check Sheet and Battery Check Tag must be completed and attached to the repair order. If the documentation is not attached to the repair order, the claim will be subject to debit.

### \* After Retail Delivery

Replacement is covered under normal warranty if the battery is judged defective after charging and diagnosing the battery according to the procedures in this bulletin. The Battery Check Sheet must be completed and attached to the repair order. If the documents are not attached to the repair order, the claim will be subject to debit.

### \* After Retail Delivery

Replacement is covered under normal warranty if the battery is judged defective after charging and diagnosing the battery according to the procedure in this bulletin. The Battery Check Sheet must be completed and attached to the repair order. If the documentation is not attached to the repair order, the claim will be subject to debit.

## WARRANTY CLAIM SUBMISSION

Dealers submitting warranty claims must retain copies of the Battery Maintenance Record and the Battery Check Sheet. The operation number listed below is used for Battery Inspection, Charging and Testing. This includes:

- \* Battery Load Test
- \* Battery Replenishment
- \* Charging and Capacity Test
- \* Charging Test
- \* Dark Current Test

## WARRANTY INFORMATION (FOR BATTERY INSPECTION, CHARGING AND TESTING)

Symptom Code:                      Complete Actual Code  
Damage Code:                      Complete Actual Code



**MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97**

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Part Number Main Cause: Complete Actual Part Number  
Operation Number: G0501ACX  
Labor Hours: 0.5 hrs (Vehicles other than 929)  
0.6 hrs (929 Vehicles)

NOTE: \* If a charging problem still exists after battery charging and/or replacement, follow the charging diagnostic procedures covered under operation number G0001\*DX to identify the problem.  
\* Basic diagnostic operations require separate punch/flag time. Hours shown on the SRT microfiche are the maximum allowable times.

**BATTERY CHECK SHEET**

NOTE: Attach this Check Sheet to the reverse side of Repair Order

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1. Was the customer's complaint verified? \_\_\_\_ Yes \_\_\_\_ No

2. Battery Inspection Results

| Information                     | Reading |
|---------------------------------|---------|
| Instrument Used For Test        |         |
| Battery Voltage (Open Terminal) | Volts   |
| Battery Voltage (Load Test)     | Volts   |

Authorization Number: \_\_\_\_\_ (if battery was replaced prior to retail sale or within 90 days of retail sale)

Vehicle Year: \_\_\_\_\_  
Model: \_\_\_\_\_  
VIN: \_\_\_\_\_  
Mileage: \_\_\_\_\_

Repair Date: \_\_\_/\_\_\_/\_\_\_ R.O. Number: \_\_\_\_\_

Technician Number: \_\_\_\_\_

These check sheets are available through HELM, Inc. (free of charge) in pads (1 pad = 100 sheets).

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**BATTERY TAG**

**MAINTENANCE FREE BATTERY-REVISED DIAG. & CHARGING CAT. G, NO. 001/97**

**Article Text (p. 12)**

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See Fig. 1, battery tag.

TSD / LOGISTICS

Mazda

DO NOT REMOVE TAG  
FAILURE TO  
MAY JEOPARDIZE

UNTIL RETAIL DELIVERY.  
COMPLETE THIS LOG  
WARRANTY CLAIM.

|       |    |               |
|-------|----|---------------|
| MODEL | YR | LAST 8 OF VIN |
|       |    |               |

**PORT**

SCHEDULED VOLTAGE CHECK

| CHECKER    | DATE           | VOLTAGE     | NOTES                   |
|------------|----------------|-------------|-------------------------|
| <i>DRW</i> | <i>9/11/25</i> | <i>11 5</i> | <i>REPLACED 9/11/25</i> |
|            |                |             |                         |
|            |                |             |                         |

LOAD LINE VOLTAGE CHECK

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

**DEALER**

ON-RECEIPT VOLTAGE CHECK

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

INVENTORY MAINTENANCE VOLTAGE CHECK

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |

VOLTAGE CHECK JUST PRIOR TO RETAIL DELIVERY

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

NOTE TO DEALER

CHECK AND NOTE IF BATTERY VOLTAGE IS LESS THAN 12.4 VOLTS AFTER SUITABLE CHARGE. USE VAT 40 OR MIDTRONICS ELECTRONIC TESTER TO DIAGNOSE ACCORDING TO SERVICE BULLETIN 002/95.

IDENTIFY AS MILL, 626, MX6, ETC;  
I.E.: SUITABLE 3 OR 4 LETTER OR  
NUMBER CODE

PORT OR DEALER STAFF  
MEMBER INITIALS FOR QUALITY  
TRACKING PURPOSES

NOTES ON POSSIBLE REPLACE-  
MENT BATTERY OR OTHER  
SPECIAL SERVICING

FINAL V+ READING JUST  
PRIOR TO SHIPMENT TO DEALER

V+ ON RECEIPT AT DEALER.  
MMAWILL USE TO EVALUATE  
PERFORMANCE OF THE SYSTEM

VOLTAGE AT TIME OF RETAIL  
DELIVERY. CRITICAL MEASURE  
OF BATT. CONDITION TO NEW  
RETAIL CUSTOMER.

94D59900

Fig. 1: Battery Tag

END OF ARTICLE

# NEW V4.0 NGS CARD AND REPROGRAMMING OF V2.02 CARD CAT. ST, NO. 004/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### NEW V4.0 NGS CARD (49T0-88-010E) AND REPROGRAMMING OF V2.02 (49T0-88-010E)

Model(s): 1988-98 Mazda Models  
Category: ST - Special Tool  
Bulletin No.: 004/97  
Date: October 10, 1997

### DESCRIPTION

Per Special Tool Service Bulletin 006/96, issued November 21, 1996, your dealer should currently have two reprogrammable New Generation Star (NGS) cards. One card contains an older Version 2.02 (P/N 49T0-88-010C) and the other card contains your most current Version 3.0 (P/N 49-T0 88-010D).

Your most current Version 3.0 has been superseded to Version 4.0 (P/N 49T0-88-010E). It includes new 1998 service information. This new version is a Mazda Required Tool (MRT) since it is used with the NGS tester to properly service MAZDA vehicles.

Mazda's tool vendor, America Kowa Seiki, Inc. (AKS), is offering a reprogramming service which will update your older Version 2.02 to Version 4.0 at a substantial savings. Follow the REPROGRAMMING PROCEDURE to participate in this service.

NOTE: If your dealer chooses NOT to participate, or cannot participate in this reprogramming service, a new card with V4.0 will automatically be shipped to your dealer at a substantially higher price.

### APPLICATION

This card is used with your NGS tester to properly service 1988-98 Mazda Vehicles. Refer to your Workshop Manual for the application of this card and the tester.

### PRICING

The price for the V4.0 reprogramming service is \$210.00 plus return shipping costs. If you DO NOT participate in the V4.0 reprogramming, or miss the October 31, 1997 cut-off date, your cost will be \$313.32 plus shipping costs.

### SHIPPING & BILLING INFORMATION

# NEW V4.0 NGS CARD AND REPROGRAMMING OF V2.02 CARD CAT. ST, NO. 004/97

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Your NGS card with V4.0 will be shipped to you by November 14, 1997. DO NOT send payment to America Kowa Seiki, Inc. Your parts account will be billed for the appropriate amount.

Please contact your District Customer Support Manager, America Kowa Seiki (800 824-9655 or 310 638-1000) or Tools/Equipment Manager (714 442-6531) if you have any questions regarding this information.

### REPROGRAMMING PROCEDURE

Use the following procedure to have your Version 2.02 card updated to Version 4.0:

1. Identify your card by using ballpoint pen or permanent marker and enter your dealer information. See Fig. 1.

NOTE: We recommend that you identify your card to ensure that you will receive the same card that you submitted for reprogramming.

2. Carefully package your card and address it to the following address:

America Kowa Seiki, Inc.  
RE: Mazda NGS Card Reprogramming  
20013 S. Rancho Way  
Rancho Dominguez, CA 90220

3. Send your package prepaid. Your dealer is responsible for shipping costs. Be sure it arrives at America Kowa Seiki, Inc. no later than October 31, 1997.

NOTE: \* DO NOT SEND YOUR V3.0 CARD. You are to use this card with your NGS tester while your older card is being updated.

\* Your older card will be returned to you if you miss the October 31, 1997 cut-off date and a new card with V4.0 will automatically be shipped to you .

Your reprogrammed V4.0 card will be shipped to you no later than November 14, 1997.

**NEW V4.0 NGS CARD AND REPROGRAMMING OF V2.02 CARD CAT. ST, NO. 004/97**

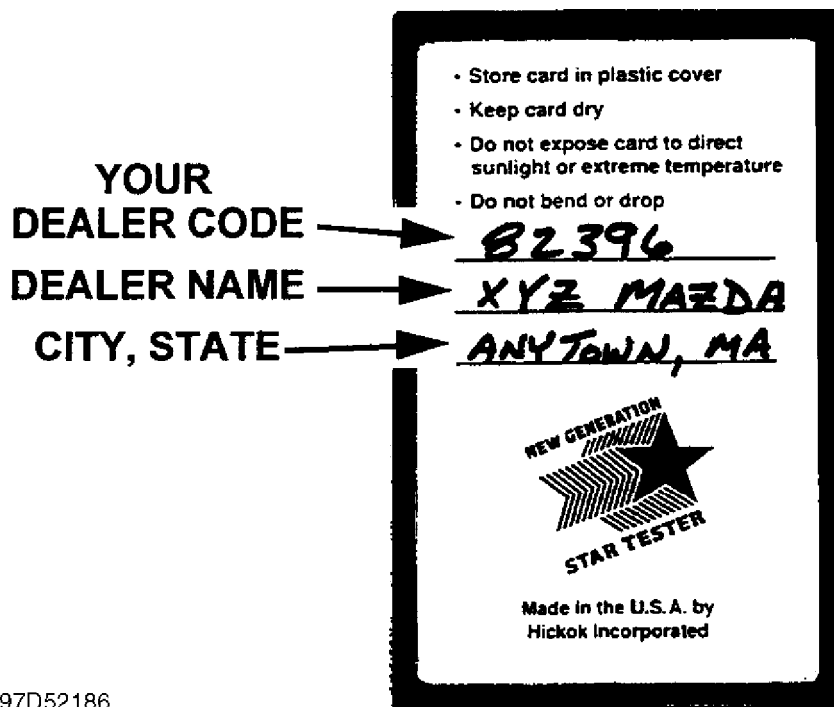
**Article Text (p. 3)**

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97D52186

Fig. 1: New Generation Star Tester Card Identification

**END OF ARTICLE**

# NON FACTORY ACCESSORY INSTALLATION PRECAUTIONS MT 0897-09

## Article Text

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

NON-FACTORY ACCESSORIES

Model(s): All Mazda Models

Category: Mazda Tips

Bulletin No.: MT 0897-09

Date: August, 1997

### DESCRIPTION

Do not splice circuits for non-factory accessories into existing wire harnesses. Splicing of non-approved accessories into the wire harness can increase the chance of water entering the harness and causing corrosion. Splicing power circuits of non-factory accessories can also cause faulty signals to be sent to electronic systems in the vehicle. Separate fused power circuits should be run to non-factory accessories if they are installed.

END OF ARTICLE

# OCTOBER 1995 SPECIAL TOOLS SHIPMENT CAT. ST, NO. 007/95

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SPECIAL TOOLS OCTOBER 1995

Model(s): 1988-96 Mazda Models  
Category: ST - Special Tools  
Bulletin No.: 007/95  
Date: October 24, 1995

### DESCRIPTION

The NGS Program Card (P/N 49T0-88-010A; version 2.0 {refer to Mazda TSB Cat. ST, No. 002/94 for additional information}) used with your New Generation Star tester has been discontinued. It has been replaced by a revised card (P/N 49T0-88-010B; version 2.01) that includes all 1996 model information. Fig. 1 is an illustration of this new Special Service Tool (SST). It is a Mazda Required Tool (MRT) and will be automatically shipped to your dealer by Mazda's tool vendor, America Kowa Seiki, Inc.

### APPLICATION

Refer to the NEW APPLICATIONS FOR NGS PROGRAM CARD VERSION 2.01 TABLE for the application of this revised card.

### PRICING

The price of this tool is \$235.75.

### SHIPPING AND BILLING INFORMATION

This tool will be shipped prepaid via UPS to your dealer during the week of October 23, 1995. Your parts account will be billed for this tool upon its receipt. Please advise your shipping/receiving personnel of this tool shipment.

NOTE: This program card is small. Therefore, we recommend that your service manager, shop foreman, or lead technician install this card in the NGS tester and discard the discontinued card immediately. This will prevent misapplication or misdiagnosis when using the NGS tester to service a Mazda vehicle.

OCTOBER 1995 SPECIAL TOOLS SHIPMENT CAT. ST, NO. 007/95

Article Text (p. 2)

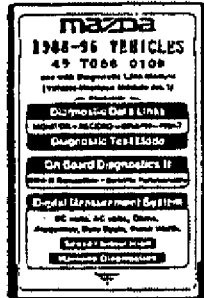
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**49T0-88-010B**  
**NGS Program Card Version 2.01**  
**\$235.75**



**Ship Date: Week of 10/23/95**

**95F51933**

Fig. 1: NGS Program Card Version 2.01

**NEW APPLICATIONS FOR NGS PROGRAM CARD VERSION 2.01**

NEW APPLICATIONS FOR NGS PROGRAM CARD VERSION 2.01 TABLE

| NEW | APPLICABLE MODEL              | PCM*1 | TCM*2 | ABS | A/C | CCM*3 |
|-----|-------------------------------|-------|-------|-----|-----|-------|
| X   | 1995-96 MILLENNIA             | 0*4   | (0)   | 0*5 | 0   | 0     |
| X   | 1996 PROTEGE (MT)             | 0*4   | ---   | 0   | --- | 0     |
| X   | 1996 PROTEGE (AT)             | 0*4   | (0)   | 0   | --- | 0     |
| X   | 1996 626/MX-6 (MT)            | 0*4   | ---   | 0   | --- | 0     |
| X   | 1996 626/MX-6 (AT)            | 0*4   | (0)   | 0   | --- | 0     |
| X   | 1996 MIATA (MT)               | 0*4   | ---   | 0   | --- | ---   |
| X   | 1996 MIATA (AT)               | 0*4   | (0)   | 0   | --- | ---   |
| X   | 1996 MPV                      | 0*4   | (0)   | 0   | --- | 0     |
| X   | 1996 B2300, B3000, B4000 (MT) | 0*4   | ---   | 0   | --- | ---   |
| X   | 1996 B2300, B3000, B4000 (AT) | 0*4   | (0)   | 0   | --- | ---   |

\*1: PCM = Powertrain Control Module  
 \*2: TCM = Transmission Control Module



OCTOBER 1995 SPECIAL TOOLS SHIPMENT CAT. ST, NO. 007/95

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- 3 \*3: CCM = Cruise Control Module 3
- 3 \*4: On-vehicle control unit equipped with OBD-II 3
- 3 \*5: Includes Traction Control System 3
- 3 (O): Means there is no TCM, but it is possible to diagnose 3  
3 the TCM from the PCM menu. 3
- 3 (X): Means these year/models are newly added to the program 3  
3 card. 3

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END OF ARTICLE

# PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT CAT. T, NO. 007/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT

Model(s): 1993-97 Mazda 626/MX-6  
1992-95 Mazda 929  
1995-97 Mazda Millenia  
1993-97 Mazda MPV  
1994-95 Mazda MX-3  
1990-97 Mazda MX-5 Miata  
1995-97 Mazda Protege  
1988-91 Mazda RX-7 (Conv.)  
1993-95 Mazda RX-7  
Category: T - Body Electrical System  
Bulletin No.: 007/97  
Date: April 25, 1997

### DESCRIPTION

If you repair a vehicle in which the driver's side and/or passenger side air bag deployed due to collision, always replace the SAS or Diagnostic Module in addition to damaged components. Replacement will ensure the system is completely operational. Use the table below to determine which system is installed in the vehicle.

#### DIAGNOSTIC MODULE INFORMATION TABLE

| SAS Unit   |         | Diagnostic Module |           |
|------------|---------|-------------------|-----------|
| Model      | Year    | Model             | Year      |
| MPV        | 1996-97 | MPV               | 1993-95*  |
| 626/MX-6   | 1995-97 | 626/MX-6          | 1993-94   |
| MX-5 Miata | 1995-97 | MX-5 Miata        | 1990-94   |
| Protege    | 1995-97 | RX-7 (Conv.)      | 1988-91** |
| Millenia   | 1995-97 | RX-7              | 1993-95   |
|            |         | 929               | 1992-95   |
|            |         | MX-3              | 1994-95   |

CAUTION: Never attempt to repair the air bag system wiring; always replace any damaged wiring.

**PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT CAT. T, NO. 007/97**

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3 \* - 1993 MPV incorporated air bag systems 3  
3 during a mid-year production change. 3  
3

3 \*\* - 1992 RX-7 convertibles were available only 3  
3 in the Canadian market. 3

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**END OF ARTICLE**

# POOR WIPER BLADE PERFORMANCE CAT. A, NO. 93-07

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WIPER BLADE PERFORMANCE

Model All Mazda Models  
Category A  
Bulletin No. 93-07  
Date August, 1993

SPECIAL ATTENTION: ALL P.D.I. Service Technicians

### DESCRIPTION

Results from the Certified Delivery Program have revealed that there are a large number of customer complaints about wiper blade performance. The complaints usually relate to one of the following three problems (see Fig. 1):

- \* Streaking
- \* Chattering (blade hopping)
- \* Partial cleaning



Streaking



Chattering  
(Blade hopping)



Partial cleaning

94G50233

Fig. 1: Wiper Blade Complaints

### INSPECTION/REPAIR PROCEDURE

During the pre-delivery inspection, operate the windshield wipers and washers at each speed interval, (low and high) to ensure that the wiper blades operate without the above-mentioned problems.

If there is a problem, soak a clean cloth with an alcohol based solution and wipe the windshield and the windshield wiper blades to remove all dirt, grime and any remaining transit coating. Check the operation again, and if there are any problems, replace the wiper blades with new ones. See Fig. 2.

NOTE: Never use a corrosive or caustic solution such as:

- \* Gasoline
- \* Thinner
- \* Benzene
- \* Alkaline detergent

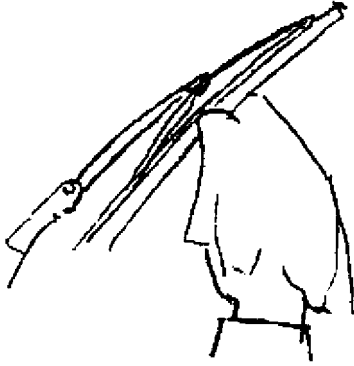
**POOR WIPER BLADE PERFORMANCE CAT. A, NO. 93-07**

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94H50234

Fig. 2: Cleaning Wiper Blade

**END OF ARTICLE**

# POWER ANTENNA MAST - REPAIR PROCEDURE MT 0195-08

## Article Text

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

### POWER ANTENNA MAST REPAIR

Model(s): All Mazda Models with Power Antennas  
Category: Mazda Tips  
Bulletin No.: MT 0195-08  
Date: January, 1995

### DESCRIPTION

You don't need to replace the entire power antenna assembly if only the mast is defective. Repair the mast using the following procedure:

- 1) Remove the mounting nut with snap-ring pliers or a hook wrench.  
See Fig. 1
  - 2) Have an assistant turn on the radio while holding the mast, to avoid damaging the paint. If the mast does not pop up, use slip-joint pliers to pull it up. See Fig. 1.
- NOTE: If part of the plastic rack wire is broken inside of antenna motor, the antenna assembly must be replaced.
- 3) Clean the mounting hardware, then spray a bit of lubricant on the nut.
  - 4) On the replacement mast, carefully bend 3/4 inch of the plastic rack wire (or feeder) back about 3/8 inch, for easy installation.
  - 5) Insert the rack wire into the assembly until it touches the pinion gear.
  - 6) Have an assistant turn off the radio. At the same time, guide the mast as it is retracted into the housing.
  - 7) Don't forget to tighten the mounting nut.

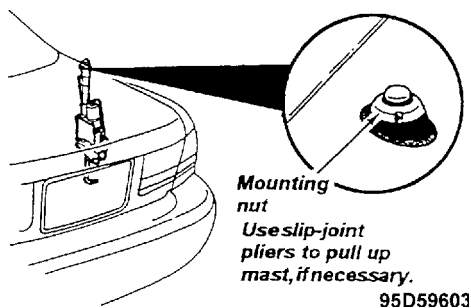


Fig. 1: Antenna Location

**POWER ANTENNA MAST - REPAIR PROCEDURE MT 0195-08**

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# POWER ANTENNA MAST REPLACEMENT (CANADIAN) CAT. T, NO. 95-06

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### POWER ANTENNA MAST REPLACEMENT

Model(s):           1983-95 Mazda 626 (Canadian)  
                      1988-95 Mazda 929 (Canadian)  
                      1989-95 Mazda MX-6, MX-5/Miata (Canadian)  
                      1995     Mazda Millenia (Canadian)  
Category:           T - Body Electrical  
Bulletin No.:       95-06  
Date:                April, 1995

### APPLICABLE MODELS/VINS

All vehicles equipped with a power antenna.

### DESCRIPTION

It is not necessary to replace the entire antenna assembly if an antenna mast is damaged. Follow the procedures below to replace only the mast portion of the assembly.

NOTE: Bent or broken antenna masts (i.e. damage not due to defects in material and workmanship) are not covered under vehicle warranty.

### REPAIR PROCEDURES

1. Remove the mounting nut with snap ring pliers or a spanner wrench.
2. Hold the mast and have an assistant turn the radio "ON". If the antenna mast does not pop up, use slip joint pliers to pull the mast up.

NOTE: Holding the antenna mast is necessary to prevent paint damage.

3. Remove any debris from the ground plate, rubber bushing and mounting nut.
4. Apply a small amount of lubricant to these pieces.
5. Bend the plastic rack as shown in Fig. 2. This will facilitate installation.
6. Insert plastic rack into assembly until contact is made.
7. Have an assistant turn the radio "OFF" to retract the antenna mast into the assembly. Carefully guide the replacement mast into the



**POWER ANTENNA MAST REPLACEMENT (CANADIAN) CAT. T, NO. 95-06**

**Article Text (p. 2)**

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base of the antenna motor.

NOTE: For replacement parts, refer to the applicable parts microfiche.

8. Assemble rubber bushing and mounting nut. Tighten nut.

9. Verify operation.

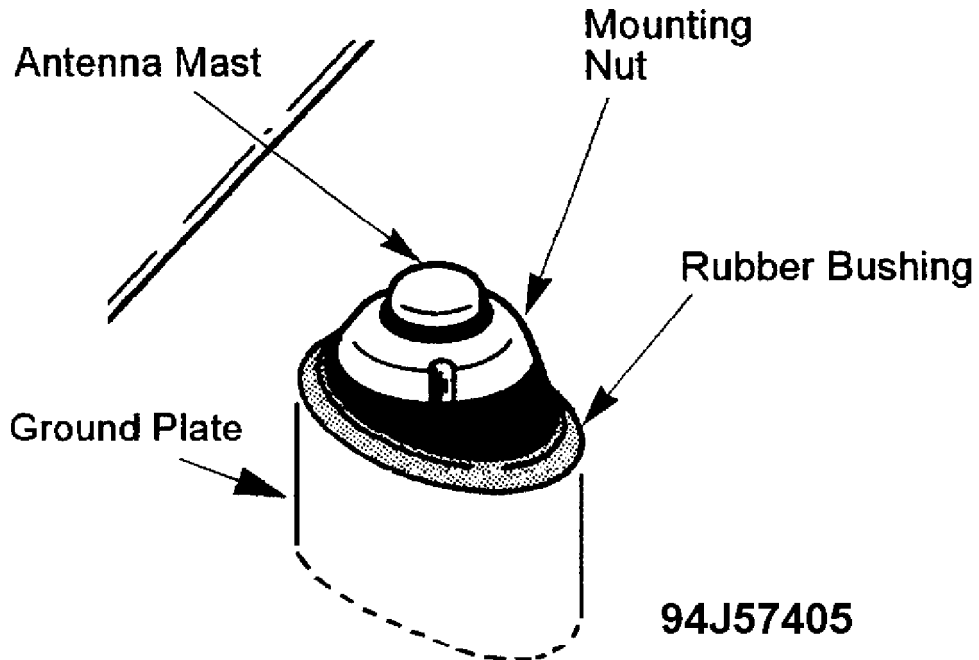


Fig. 1: Exploded View of Power Antenna Mast

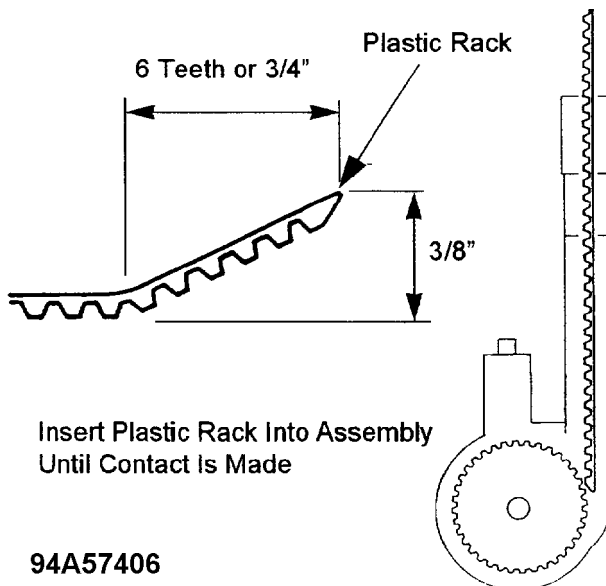


Fig. 2: Plastic Rack Insertion Into Power Antenna Assembly

**END OF ARTICLE**

## RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

### Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RADIO REMOVAL TIPS (W/CD PLAYER)

Model(s): 1993 Mazda RX-7  
Category: T  
Bulletin No.: 018/92  
Date: 11/9/92

### DESCRIPTION

Some 1993 RX-7 radios have been returned for service with damaged antenna leads. This is caused by improper radio removal. The removal procedures below should be followed to avoid damage to the antenna leads.

NOTE: After installing the replacement radio, advise vehicle owner to input the radio's anti-theft code. If needed, refer to the owner's manual for details.

### REMOVAL PROCEDURE

1. Remove the anchor clip from the right lower console panel. See Fig. 1.
2. Remove the right lower console panel. See Fig. 1.

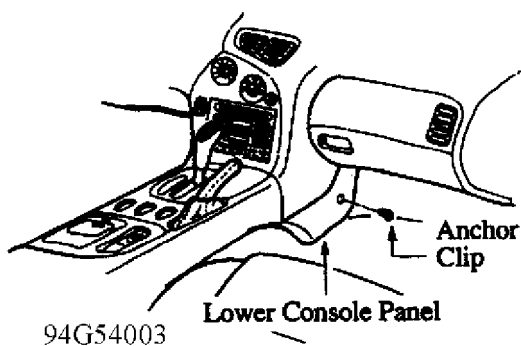


Fig. 1: Console Panel Removal

3. Fold back the carpeting and pull down the antenna connectors. See Fig. 2.

**RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92**

**Article Text (p. 2)**

1993 Mazda RX7

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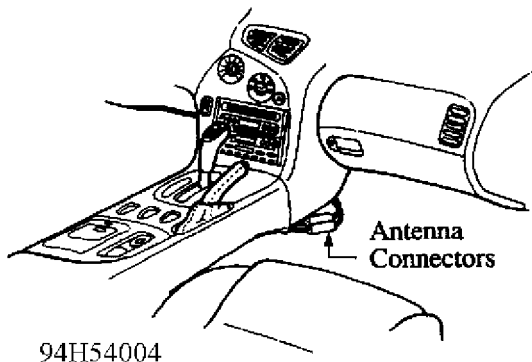


Fig. 2: Exposing Antenna Connectors

4. Disconnect the antenna connectors.
5. Remove the service hole covers from both the radio and CD player using a small, flat blade screwdriver wrapped with tape. See Fig. 3.

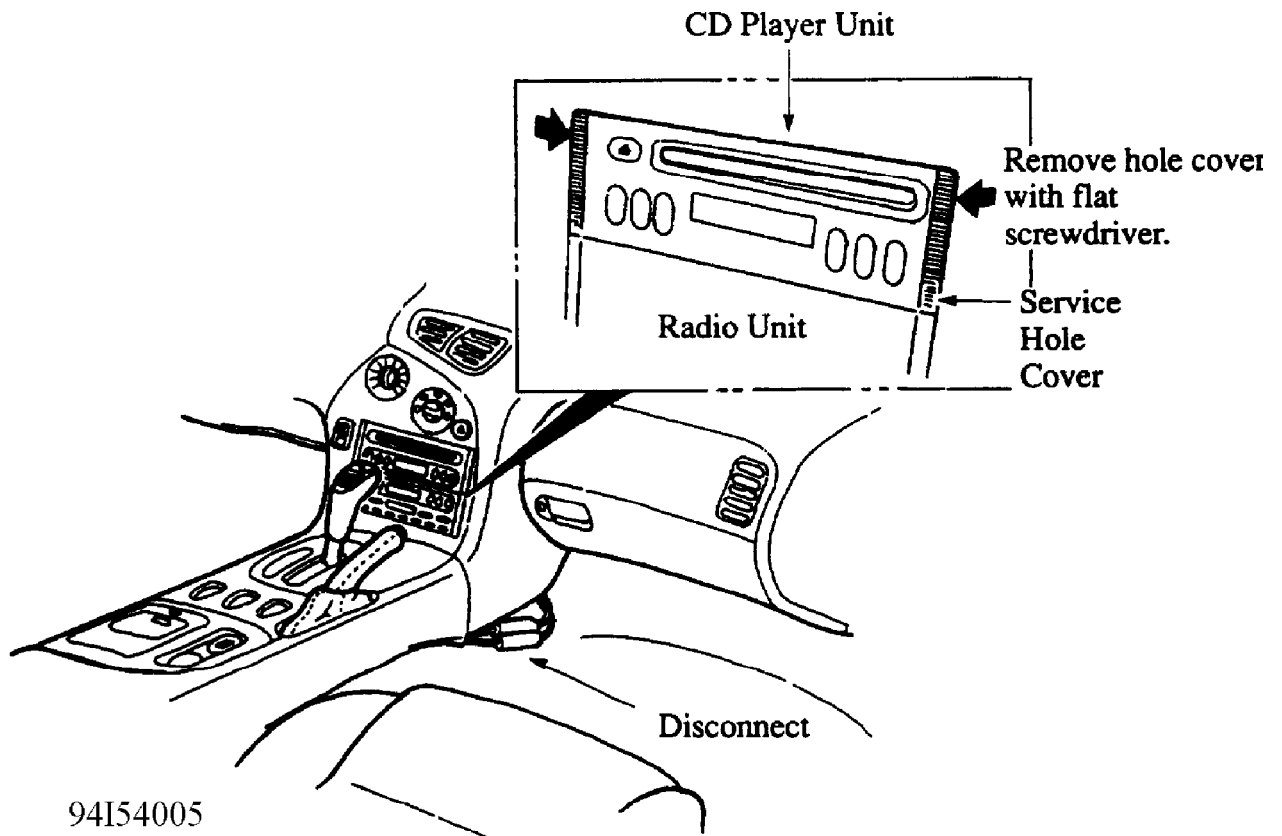


Fig. 3: Hole Cover Removal

6. Push the stereo removal tool, SST (Part No. 49 UN01 050), into the holes on the CD player until it locks firmly. See Fig. 4.

NOTE: This tool is used on the following models:  
1992-93 MX-3                      1993 RX-7

**RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92**

**Article Text (p. 3)**

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1992-93 MX-6  
1992-93 626

1991-92 Navajo  
1992 929

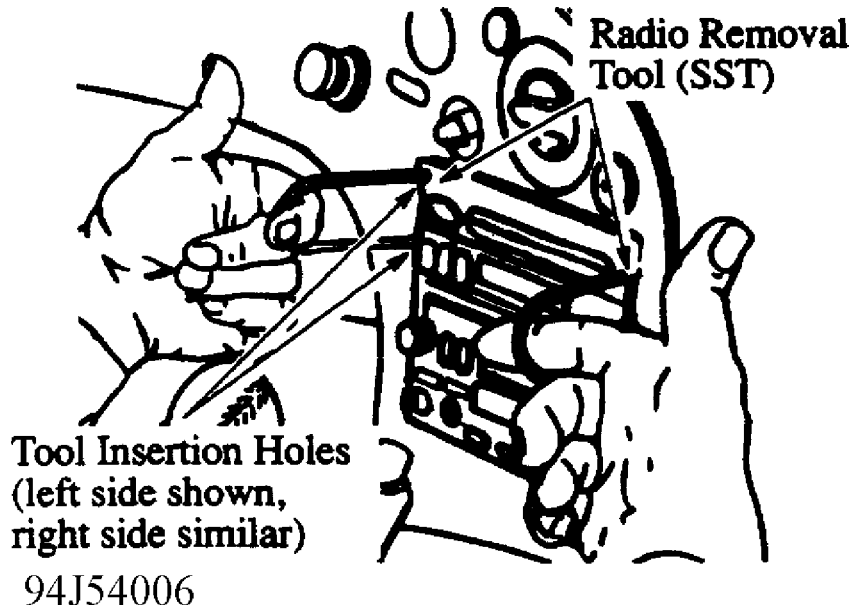


Fig. 4: CD Player Removal

7. Spread the SST toward the outside and pull the CD player straight out.
8. The CD player should hang to the left of the radio.

NOTE: Prop up the CD player so there is no unnecessary tension on the CD player wiring.

9. Push the SST into the holes on the sides of the radio until it locks. See Fig. 5.

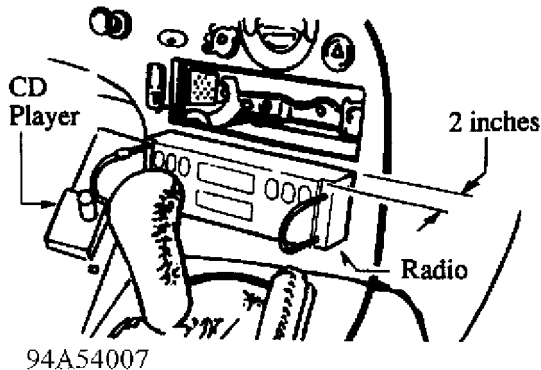


Fig. 5: Radio Disconnection

10. Pull the stereo out about two inches.
11. The electrical connectors must now be removed from the back of the

## RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92

### Article Text (p. 4)

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radio. Since it is not possible to see the connectors, refer to Fig. 6. Remove the connectors in the order shown below and note the locations of the locking tabs.

- A. 8-Pin White connector: locking tab is on top and should be pressed down.
- B. 12-Pin White connector: locking tab is on the passenger's side (right) of the connector and should be pressed towards the driver's side (left).
- C. 13-Pin DIN connector: has no locking tab and should be pulled straight out.
- D. 1-Pin Ground connector: locking tab is on top and should be pressed down.

NOTE: The antenna leads going into the back of the radio are not removable.

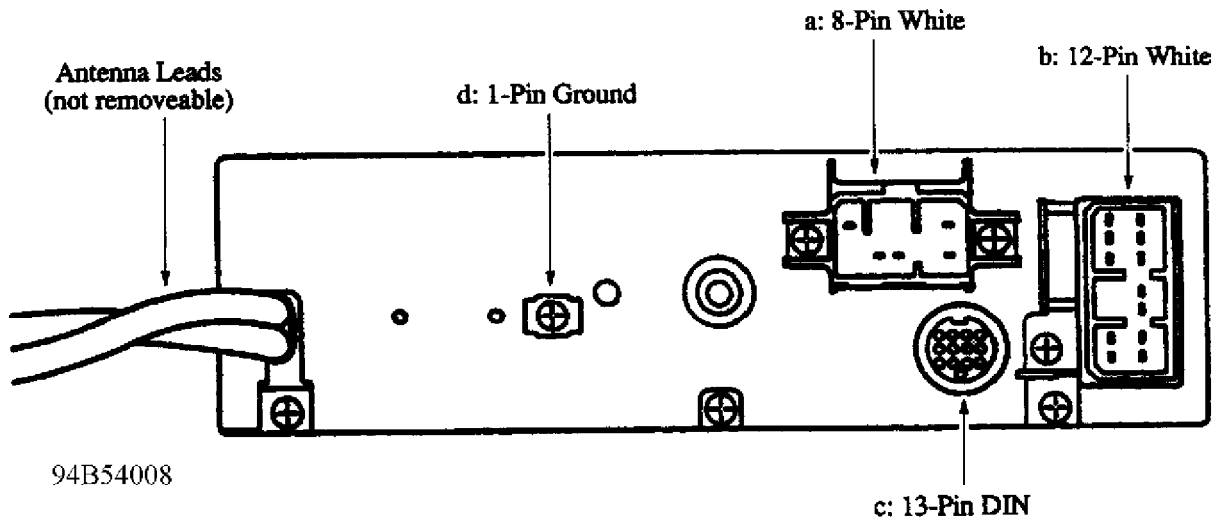


Fig. 6: Rear View of Radio

12. Pull the radio straight out. Make sure that you carefully feed the antenna leads through the radio opening as you pull out the radio. See Fig. 7

**RADIO REMOVAL TIPS (W/CD PLAYER) CAT. T, NO. 018/92**

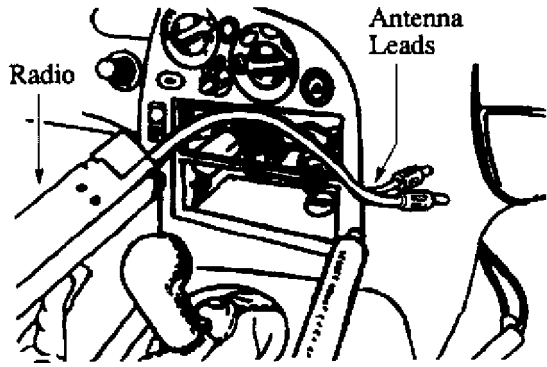
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Fig. 7: Radio Removal

**END OF ARTICLE**

# REAR WINDOW DEFROSTER GRID LINE REPAIR PROCEDURE CAT. T, NO. 015/95

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### REAR WINDOW DEFROSTER GRID LINE REPAIR

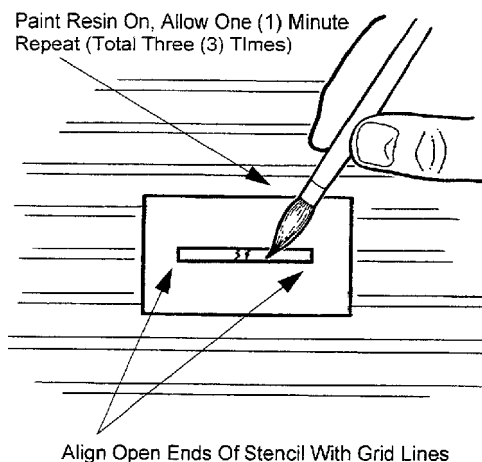
Model(s): All Mazda Models  
Category: T - Body Electrical System  
Bulletin No.: 015/95  
Date Issued: November 14, 1995  
Date Revised: December 21, 1995

### DESCRIPTION

The following procedure should be used to repair broken grid lines on rear window defrosters. Place a copy of these procedures in the appropriate section of the workshop manual.

### REPAIR PROCEDURE

1. Turn the defroster switch on with the ignition in the on position.
2. Determine the broken grid line visually or with a test light or voltage meter.
3. Turn the defroster and ignition Off.
4. Clean the area with a glass cleaner.
5. Remove the protective backing from the stencil.
6. Align both ends of the broken grid line with the opening in the stencil and press firmly to attach. See Fig. 1



95B51939

Fig. 1: Resin Application Location

# REAR WINDOW DEFROSTER GRID LINE REPAIR PROCEDURE CAT. T, NO. 015/95

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NOTE: Make sure both ends are aligned prior to attaching.

7. Shake the bottle of resin well.

CAUTION: Continuity failure will occur if the ingredients are not mixed completely.

8. Brush on the resin overlapping both ends of the broken grid line.

NOTE: Use paint remover to clean brush for future applications.

9. Repeat application (total of 3 times) when the surface is tack-free (approximately one (1) minute).

10. Allow to dry twenty (20) minutes.

11. Carefully peel stencil from glass.

12. Allow twenty-four (24) hours before activating rear defroster.

### PARTS INFORMATION

#### PARTS INFORMATION TABLE

| Part Number  | Description |
|--------------|-------------|
| 0000 88 5067 | Resin       |

### WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

Warranty Type: A  
Symptom Code: D5  
Damage Code: AA  
Part Number Main Cause: 0000 88 5067  
Quantity: 0  
Operation Number: XX0777RX  
Labor Hours: 0.3 Hrs.

END OF ARTICLE



# SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SEAT BELT EXTENDERS

Model(s):           1989-98 Mazda MPV  
                      1995-99 Mazda Protege  
                      1994-95 Mazda MX-3  
                      1994-97 Mazda Miata  
                      1999       Mazda Miata  
                      1993-97 Mazda 626/MX6  
                      1998-99 Mazda 626  
                      1993-95 Mazda RX-7  
                      1988-89 Mazda 929  
                      1992-95 Mazda 929  
                      1995-99 Mazda Millenia  
                      1991-94 Mazda Navajo  
                      1994-98 Mazda B-Series

Category:           S (08) - Body

Bulletin No.:       005/98

Date:               August 5, 1998

NOTE: This bulletin supersedes Technical Service Bulletin number 005/98, dated April 22, 1998. The Parts Information section has been corrected and revised to include 1999 models.

### DESCRIPTION

If a fully extended seat belt will not reach across the lap of the vehicle occupant, a seat belt extender may be available which can lengthened a seat belt by 8, 9 or 12 inches. Refer to the PARTS INFORMATION for applicable models and available lengths.

Fig. 1 shows the "Warning Label" which is affixed to the seat belt extender. The proper usage and safety related warnings listed on the extender must be explained to the customer when the extender is delivered.

It is also the dealer's responsibility to explain the following Owners Manual Warning information to the customer:

#### WARNING:

- \* Using a seat belt extender when not necessary is dangerous. The seat belt will be too long and not fit properly. In an accident, the seat belt will not provide adequate protection and you (customer) could be seriously injured. Only use the extender when it is required to fasten the seat belt properly.
- \* Using an extender that is too long is dangerous. The seat belt

# SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98

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will not fit properly. In an accident, the seat belt will not provide adequate protection and you could be seriously injured. DO NOT use the seat belt extender or choose one shorter in length if the distance between the extender's buckle and the center of the user's body is less than 6 inches.

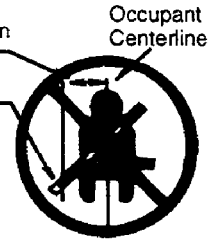
- \* Using a seat belt extender that is for another person or a different vehicle or seat is dangerous. The seat belt will not provide adequate protection and the user can be seriously injured in an accident. Only use the extender provided for you and for the particular vehicle and seat. Never use an extender in a different vehicle or seat.

### PARTS INFORMATION

Seat belt extender availability application table for the different models is at Fig. 2.

| LAP BELT EXTENDER                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NEVER USE:</b>                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"><li>• When lap strap will not adjust snugly to hips.</li><li>• When intersection of lap and upper torso straps (measured along the lap strap) is less than 6 inches from an imaginary center line of occupant's body.</li></ul> |

**NAVAJO and B-SERIES**

| SEAT BELT EXTENDER                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>WARNING</b>                                                                                                                                                                                                                                                                                               |
| <p>Do Not Use Extender:</p> <ul style="list-style-type: none"><li>• Unless it is physically required in order to wear the vehicle's safety belt.</li><li>• If it causes the distance between the front edge of the extender buckle and the center of the occupant's body to be less than 6 inches.</li></ul> |
|                                                                                                                                                                                                                          |
| <p>Incorrect use of the extender may cause a serious injury. Use extender only in the vehicle and seating position it was provided for.<br/>Remove and stow when not in use by person it was provided for.</p>                                                                                               |

**ALL OTHER MODELS**

97H57528

Fig. 1: Seat Belt Extender Warning Label

SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98

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| Yr./Model                                     | VIN                        | Seat Position |            |   |   |    |    |         |               |   |          |   |   | Part Number     |                 |                  |     |
|-----------------------------------------------|----------------------------|---------------|------------|---|---|----|----|---------|---------------|---|----------|---|---|-----------------|-----------------|------------------|-----|
|                                               |                            | front seat    | 2nd seat   |   |   |    |    |         | separate seat |   | 3rd seat |   |   | 8 Inch Extender | 9 Inch Extender | 12 Inch Extender |     |
|                                               |                            |               | bench seat |   |   | LH | RH | 3 pass. |               |   | L        | C | R |                 |                 |                  |     |
|                                               |                            |               | 2 pass.    | L | R |    |    | L       | T             | H |          |   |   |                 |                 |                  | H   |
| 89-90 MPV                                     | ALL                        | X             | X          | X | X | X  | X  | X       | X             | X | X        | X | X | X               | ---             | ---              | --- |
| 91-92 MPV                                     | ALL                        | X             | X          | X | X | X  | X  | X       | X             | X | X        | X | X | X               | ---             | ---              | --- |
| 93-95 MPV                                     | ALL                        | X             | X          | X | X | X  | X  | X       | X             | X | X        | X | X | X               | ---             | ---              | --- |
| 96-98 MPV                                     | ALL                        | X             | X          | X | X | X  | X  | X       | X             | X | X        | X | X | X               | ---             | ---              | --- |
| 95 PROTEGE                                    | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 96 PROTEGE                                    | JM1BB14**T0300001-T0349419 | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 97-98 PROTEGE                                 | JM1BB14**T0349420          | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 1999 PROTEGE                                  | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 94-95 MX-3                                    | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 94-97 MIATA                                   | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 99 MIATA                                      | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 93-97 626/MX-6                                | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 98-99 626                                     | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 93-95 RX-7                                    | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 88-89 929                                     | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 92-95 929                                     | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 95-99 MILLENIA                                | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 91-94 NAVAJO<br>(bright, side release buckle) | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 91-94 NAVAJO<br>(black buckle)                | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 94-97 B-SERIES                                | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |
| 98 B-SERIES                                   | All                        | X             |            |   |   |    |    |         |               |   |          |   |   |                 | ---             | ---              | --- |

NOTE: It is the dealer's responsibility to explain to the customer that the extender should be used only at the designated seat position(s) as shown above.

97J58619

Fig. 2: Seat Belt Extender Availability Application Table

WARRANTY INFORMATION

Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term

**SEAT BELT EXTENDERS DESCRIPTION/ORDERING INFO CAT. S, NO. 005/98**

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Information.

|                         |                            |
|-------------------------|----------------------------|
| Warranty Type Code:     | A                          |
| Symptom Code:           | 99                         |
| Damage Code:            | 99                         |
| Part Number Main Cause: | Refer to Parts Information |
| Quantity:               | 1                          |
| Operation Number:       | N/A                        |
| Labor Time:             | N/A                        |

**END OF ARTICLE**

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL REPAIRS

Model(s): 1993-94 Mazda RX-7  
Category: AD  
Bulletin No.: 002/96  
Date: February, 1996

### PURPOSE OF THIS INFORMATION

- 1) Emphasize the importance of proper repair.
- 2) Provide diagnostic tips-if repairs are not performed correctly.

### CONTENTS

- \* January 1994 M-Tips contents related to this recall.
- \* General, Driveability and Component Troubleshooting Tips
- \* Service Bulletin AD, 002/96
- \* Up dated reference pages for the applicable Wiring Diagrams.

NOTE: Many driveability concerns occur from improperly performed repair procedures. This information is provided to emphasize this point and give direction to prevent these concerns.

### REPAIR PROCEDURE

IMPORTANT: Read this information thoroughly prior to performing recall repairs

#### MAZDA TIPS (Jan. 1994 ed.)

When performing the Fuel Line Recall on RX-7 (Recall #60504), the following precautions and tips could save you a lot of extra time, and eliminate unnecessary expenses.

- \* Use extreme caution when removing the Fuel Pressure Regulator vacuum line. The plastic solenoid pipe can be easily broken when removing the hose if caution is not exercised.
- \* Secondary Fuel Rail Hose Replacement: The fuel injector rails are very fragile and can be easily broken. Remove the fuel distributor assemblies before you remove the Fuel Connector bolt. Do not mount the fuel distributor in a vice. Hold the distributor in your hand

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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and remove the Fuel Connector bolt with an air impact wrench. When installing the new fuel hose, hold the fuel distributor by hand and torque. The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs)

- \* Fuel Hose Clips: The double clips used on the primary fuel distributor inlet hose are narrower than the other clips. They also have a red holder. The single clips for use on the secondary distributor outlet hose is wider and has a pink holder.
- \* Fuel System Pressure Test: It is essential that this test be properly completed. The fuel line clips may appear to be properly seated, when in fact they are slightly mispositioned. Only when this pressure test is performed for the full five minutes can you be certain that all joints are well sealed.
- \* When performing fuel system leak test, it is important to connect the battery negative cable and then install jumper wire from the ground to the fuel pump terminals in the diagnostic connector before tuning the ignition switch on. When the test is completed, turn the ignition switch off, remove the jumper wire, and then disconnect the battery negative cable. Failure to follow this order could result in damage to electrical components, such as the PCM.
- \* Be sure to use the proper 10mm nuts to install the coil assembly. The proper nuts have grooves on the underside to ensure a complete ground.
- \* Be sure that the 0-ring gasket is properly seated on the base of the oil filler. The gasket may come off during removal without being noticed.
- \* When installing the Catch Tank during reassembly, be sure to route the vacuum hose from the purge control and to the catch tank on the outside of the oil filler. Otherwise, the vacuum hose could interfere in proper operation of the throttle linkage.
- \* The Fan Control System fastener A is a gray plastic-phillips screw in fastener. Remove and discard the fastener. The bolt at the top of the ECU should be loosened to allow the ECU to be slid down and away from the kick panel. It is not necessary to remove the wiring connectors from the ECU to perform this procedure. Just move the ECU over toward the center of the passenger area floor.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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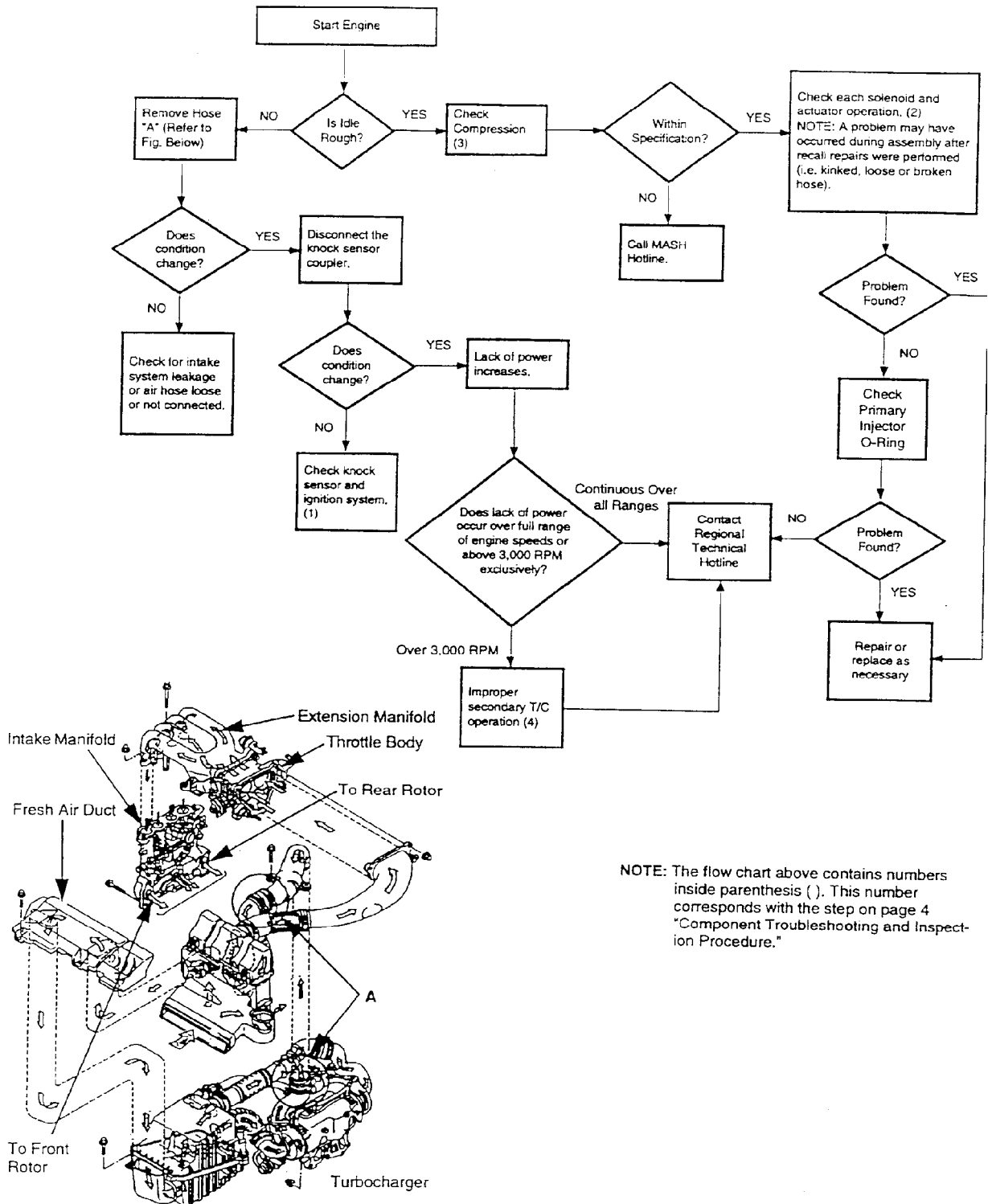
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### DRIVEABILITY TROUBLESHOOTING TIPS (Lack of Power, Rough Idle and Hesitation)



NOTE: The flow chart above contains numbers inside parenthesis (.). This number corresponds with the step on page 4 "Component Troubleshooting and Inspection Procedure."

Fig. 1: Driveability Troubleshooting Tips, Poor Power/Idle, Hesitates

### GENERAL TROUBLESHOOTING TIPS

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TROUBLESHOOTING CHART

| Trouble                                                                          | Possible Cause                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engine will not start, spark plugs are wet or fouled.                            | On older vehicles, the injectors may leak under extremely high pressures developed during the fuel system pressure test.<br>* Remove and clean plugs.<br>* With plugs remove, hold the throttle completely open and crank the engine to dechoke.<br>DO NOT REPLACE THE INJECTORS. Injectors will not leak under normal system pressure.                                                                         |
| Engine does not get fuel. Cranks but will not start.                             | The PCM may have been damaged during the fuel leakage test if the proper procedure was not followed. To test the PCM:<br>* Connect a jumper wire from the pump terminal in the diagnostic connector directly to a good ground (not in the connector).<br>* Crank the engine.<br>* If the engine starts and remains running only as long as the connector is connected, the PCM is damaged and must be replaced. |
| Engine cuts out on hard throttle, but accelerates normally under light throttle. | Check the secondary fuel injector connectors.<br>* If the connectors are not fully locked during reassembly, they can be mis-positioned when the vacuum pipe assembly is installed.<br>* Connectors may appear to be in place but not fully connected.                                                                                                                                                          |
| No fast idle.                                                                    | * Check the idle speed control valve connector for good connection.                                                                                                                                                                                                                                                                                                                                             |
| Excess fuel consumption after recall repair work.                                | Improper vacuum may result in faulty fuel regulator operation.<br>* Check fuel regulator vacuum hose connection.                                                                                                                                                                                                                                                                                                |
| Unusual air noise from center of engine (just off idle).                         | If the Air Control Valve check valve is not properly seated, the ACV can not seat properly.<br>* Check that the ACV check valve is                                                                                                                                                                                                                                                                              |



**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

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|                                                                                         |   |                                                                                                 |   |
|-----------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------|---|
| 3                                                                                       | 3 | properly installed.                                                                             | 3 |
| <b>AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA</b> |   |                                                                                                 |   |
| 3                                                                                       | 3 | Cooling fan will not operate.                                                                   | 3 |
| 3                                                                                       | 3 | If the cooling fan will not operate under any conditions during the fan test.                   | 3 |
| 3                                                                                       | 3 | * Check the wire harness ground strap for proper connection.                                    | 3 |
| <b>AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA</b> |   |                                                                                                 |   |
| 3                                                                                       | 3 | Cooling fan shuts off when the key is turned off during the fan test.                           | 3 |
| 3                                                                                       | 3 | Memory needs cleared.                                                                           | 3 |
| 3                                                                                       | 3 | * Disconnect the battery and start fan test over.                                               | 3 |
| <b>AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA</b> |   |                                                                                                 |   |
| 3                                                                                       | 3 | Cooling fan comes on immediately when the key is turned on and the check connector is grounded. | 3 |
| 3                                                                                       | 3 | If the vehicle was produced before April 1, 1993 (VIN of JM1FD331* P0210660 or less):           | 3 |
| 3                                                                                       | 3 | * The fan should come on immediately when the key is turned on.                                 | 3 |
| 3                                                                                       | 3 | * Leave the key on and the fan operating for at least 150 seconds                               | 3 |
| 3                                                                                       | 3 | * Turn the key off and proceed with the test.                                                   | 3 |
| <b>AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA</b> |   |                                                                                                 |   |
| 3                                                                                       | 3 | Fan operates only on medium speed during fan test.                                              | 3 |
| 3                                                                                       | 3 | * Check that the harnesses with the Black wires are connected.                                  | 3 |
| 3                                                                                       | 3 | NOTE: The other two (2) harnesses are interchangeable.                                          | 3 |
| <b>AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA</b> |   |                                                                                                 |   |

**COMPONENT TROUBLESHOOTING AND INSPECTION PROCEDURE**

- 1) Perform Spark Plug and Ignition Coil Inspection.
- 2) Intake System Inspection, check the following:
  - \* If the air hose is coming off.
  - \* If oil is present inside the hose and there is no sign of breakage, remove the oil. It is not necessary to replace the hose.
  - \* If the hose is broken, replace the hose with a new part and tighten to the specified torque.
  - \* If the hose is loose (coming off) insert properly and tighten to specified torque.

NOTE: The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs).

CAUTION: Do not allow foreign material to enter related parts when replacing or reinstalling intake system parts.

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3) Compression Measurement.

4) Turbocharger Operation Controls Inspection:

TURBOCHARGER OPERATION CONTROLS INSPECTION TABLE

| Part Name                                                                                                                                      | Inspection Item                                                    | Procedure                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Check Valve "A" and "B"                                                                                                                        | Reverse Flow                                                       | * After checking the check valve, confirm that air hoses C, D, E, F, are connected. See Fig. 2.                                                                                                                                                  |
| Turbo Control Valve Actuator, Charge Control Valve Actuator, Charge Relief Valve, Turbo Control Actuator, Turbo Pre-Control Actuator in Fig. 2 | Improper Operation, Improper Piping Bent, Nicked and Removed Hoses | * Refer to Fig. 2 to identify components for damaged (bent, nicked) or removed condition. Carefully check the following:<br>* Improperly connected piping around area "G."<br>* Removed hoses around area "H."<br>* "I" hose for bent condition. |

Repair or replace defective parts as necessary.

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

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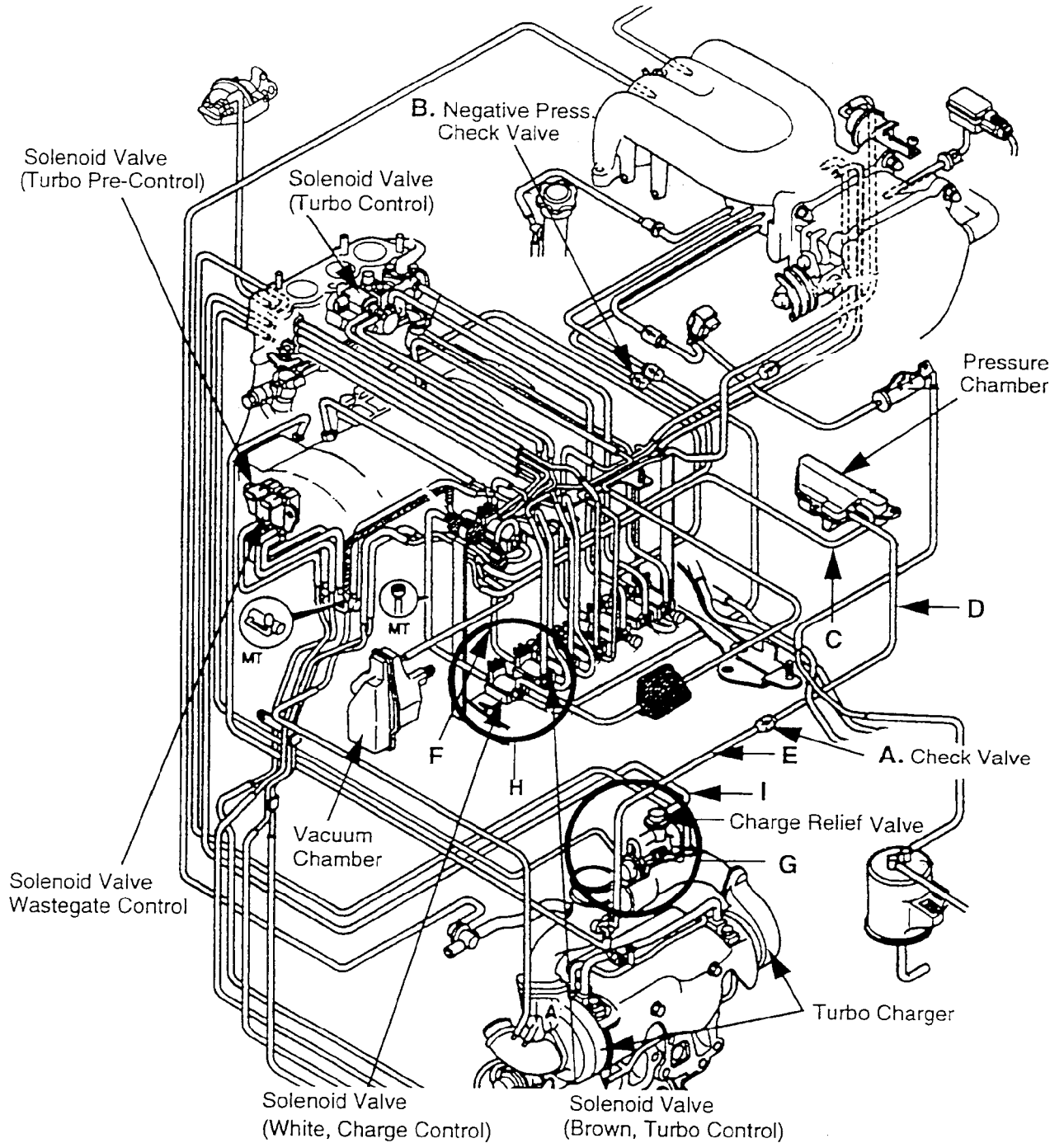
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**SYSTEM SCHEMATIC**



98D5161B

Fig. 2: Intake System Schematic

SYSTEM SCHEMATIC PARTS IDENTIFICATION TABLE

| Item | Description | Part No. (1) |
|------|-------------|--------------|
|      |             |              |

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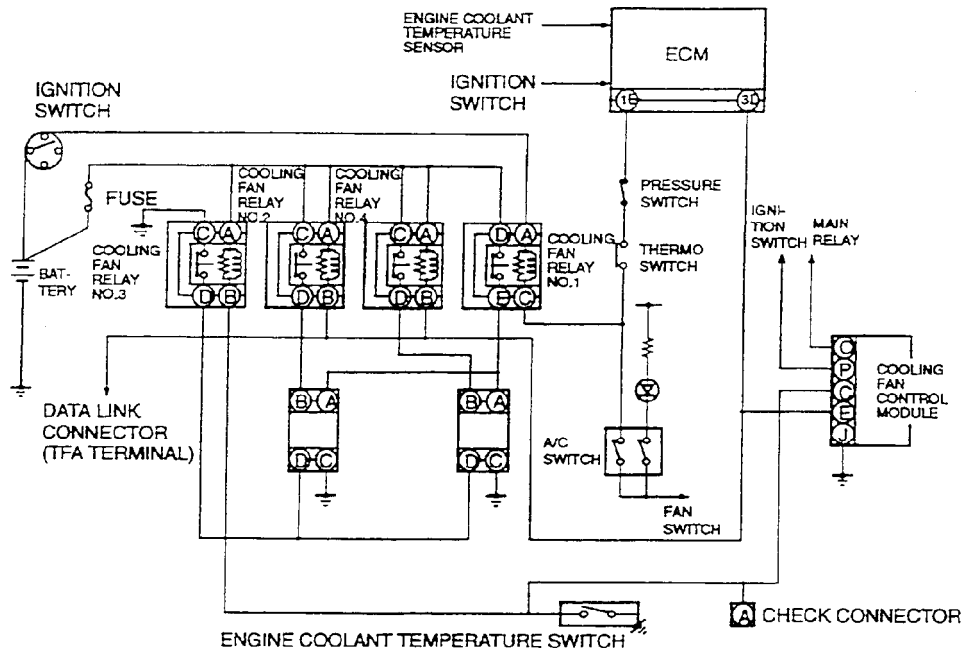
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- 3 A 3 Check Valve (Positive Pressure) 3 N390-13-995A 3  
 ~~~~~
  - 3 B 3 Check Valve (Positive Pressure) 3 N390-13-995A 3  
 ~~~~~
  - 3 C 3 Vacuum Hose (Pressure Chamber 3 N3A1-20-341 3  
 3 3 Exit) 3 3  
 ~~~~~
  - 3 D 3 Vacuum Hose (Pressure Chamber 3 N3A1-20-342 3  
 3 3 Entrance) 3 3  
 ~~~~~
  - 3 E 3 Vacuum Hose (Check Valve 3 N350-13-B96 3  
 3 3 Entrance) 3 3  
 ~~~~~
  - 3 F 3 Vacuum Hose (CCV No. 3 N3A2-20-362 3  
 3 3 Solenoid) 3 3  
 ~~~~~
- 3 (1) If part is removed, replacement is necessary 3  
 ~~~~~

**COOLING FAN CONTROL SYSTEM 1993 RX-7**

**DESCRIPTION**

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 3 and 4.



98E51619  
 Fig. 3: Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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Engine condition (No electrical load)		A/C operation	Cooling fan relay No.1	Cooling fan relay No.2	Cooling fan relay No.3	Cooling fan relay No.4	Cooling fan operation
Engine coolant temperature below 105 °C {221 °F }		OFF	OFF	OFF	OFF	OFF	OFF
		ON	ON	OFF	OFF	OFF	LOW
Engine coolant temperature 105—108 °C {221—226 °F }		OFF	OFF	ON	OFF	ON	LOW
		ON	ON	ON	OFF	ON	MIDDLE
Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)		OFF	OFF	ON	ON	ON	MIDDLE
		ON	ON	ON	ON	ON	HIGH
In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF.	Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF	—	OFF	ON	ON	ON	MIDDLE
	Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF	—	OFF	ON	OFF	ON	LOW
Engine coolant temperature sensor malfunction		—	OFF	ON	OFF	ON	LOW
TFA terminal ground		—	OFF	ON	OFF	ON	LOW

98E51742  
Fig. 4: Cooling Fan Control System Operation

### SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) (Up to VIN JM1 FD331' PO 210660) Turn the ignition switch to ON and verify that the cooling fan operates. Wait for approximately 150 seconds. (From VIN JM1 FD331' PO 210661) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

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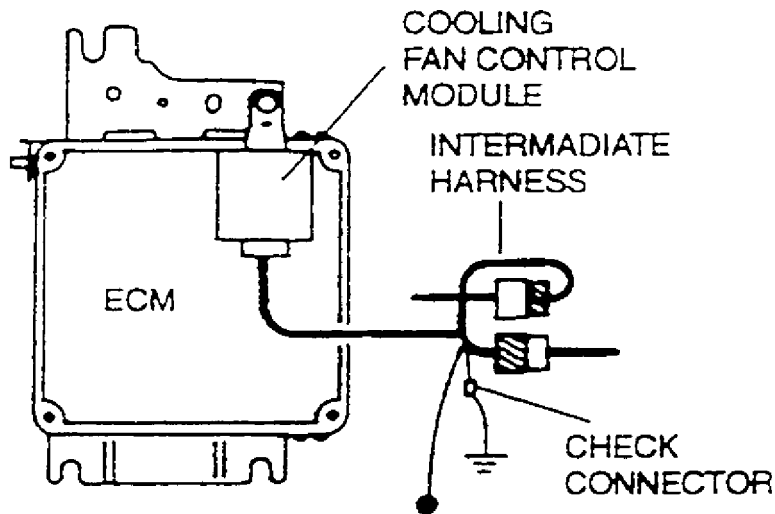
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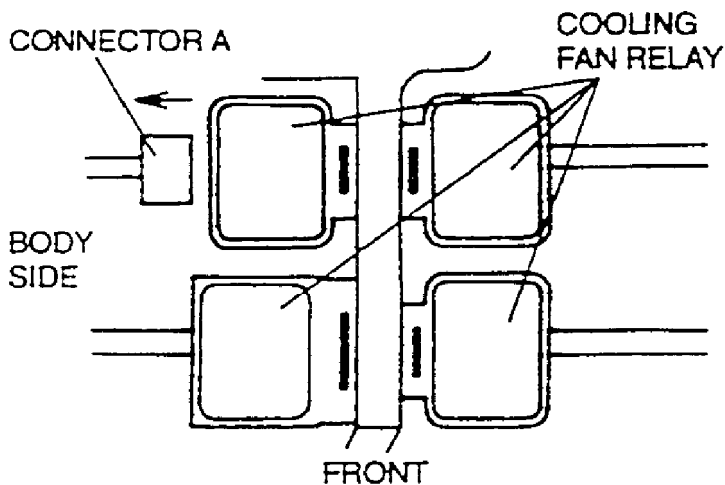
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- 7) Turn the ignition switch to OFF.
- 8) Verify that the cooling fan keeps operating after the ignition switch is turned to OFF.
- 9) If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.



98H51620  
Fig. 5: Cooling Fan Control Module



98I51621  
Fig. 6: Cooling Fan Relay Connector

- 12) If not, inspect the cooling fan relay.

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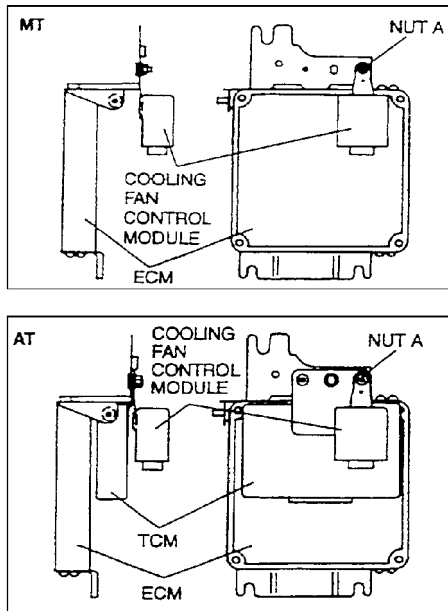
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- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module

### COOLING FAN CONTROL MODULE 1993 RX-7

#### REMOVAL/INSTALLATION

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).



98151622  
Fig. 7: Cooling Fan Control Module

INSPECTION 1993 RX-7

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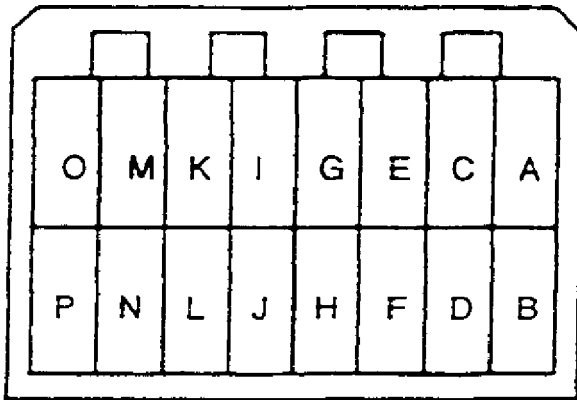
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1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.

2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module



98A51623

Fig. 8: Fan Control Module Connector Terminal Locations

Terminal Voltage				B+: Battery positive voltage	
Terminal	Signal	Connected to	Test condition	Voltage (V)	Possible malfunction
A	—	—	—	—	—
B	—	—	—	—	—
C	Engine coolant temperature (for cooling fan)	Engine coolant temperature switch	Engine coolant temperature below 108 °C {226 °F }	B+	<ul style="list-style-type: none"> <li>• Engine coolant temperature switch</li> <li>• Cooling fan relay (Refer to F-146-1)</li> </ul>
			Engine coolant temperature above 108 °C {226 °F }	Below 1.0	
D	—	—	—	—	—
E	Cooling fan relay No.2, 4	Cooling fan relay No.2, 4	Cooling fan not operating	B+	<ul style="list-style-type: none"> <li>• Cooling fan relay (Refer to F-146-1)</li> </ul>
			During cooling fan operating	Below 1.0	
			TFA terminal of data link connector is grounded	Below 1.0	
F	—	—	—	—	—
G	—	—	—	—	—
H	—	—	—	—	—
I	—	—	—	—	—
J	Ground	Ground	Constant	Below 1.0	<ul style="list-style-type: none"> <li>• Cooling fan control module terminal J -Ground</li> </ul>

98F51743

Fig. 9: Terminal Voltage Chart A-J



**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

**Article Text (p. 13)**

1993 Mazda RX7

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B + : Battery positive voltage

Terminal	Signal	Connected to	Test condition	Voltage (V)	Possible malfunction
K	—	—	—	—	—
L	—	—	—	—	—
M	—	—	—	—	—
N	—	—	—	—	—
O	Power supply	Main relay	Ignition switch OFF	Below 1.0	• Main relay
			Ignition switch ON	B +	
P	Power supply (Condenser fan)	Battery	Constant	B +	• A/C fuse

<sup>98G51744</sup> Fig. 10: Terminal Voltage Chart K-P

**COOLING FAN RELAY (NO. 1, 2, 3, 4) 1993 RX-7**

**INSPECTION**

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

TERMINAL CONTINUITY TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
 3 Operation 3 A Type - Terminals D-E 3
 3 3 B Type - Terminals C-D 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
 3 B+ applied 3 Continuity 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
 3 B+ not applied 3 No continuity 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
  
```

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 12 and 13

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

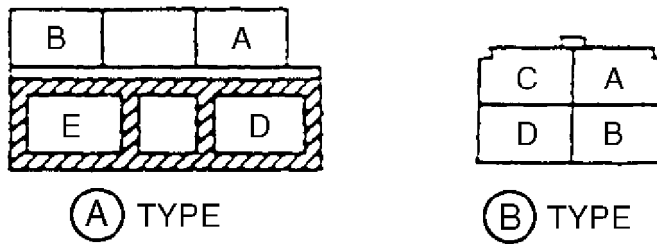
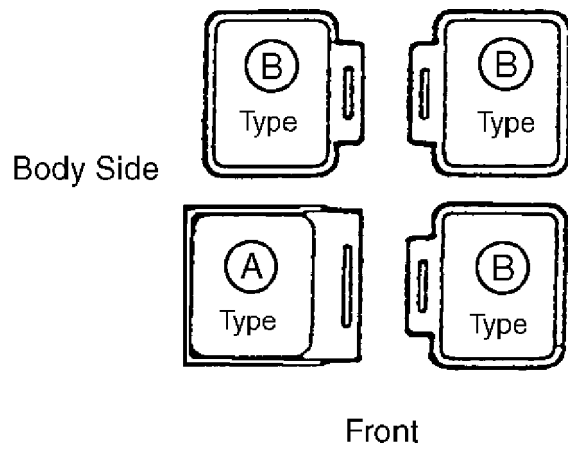
**Article Text (p. 14)**

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98B51624  
Fig. 11: Terminals A and B

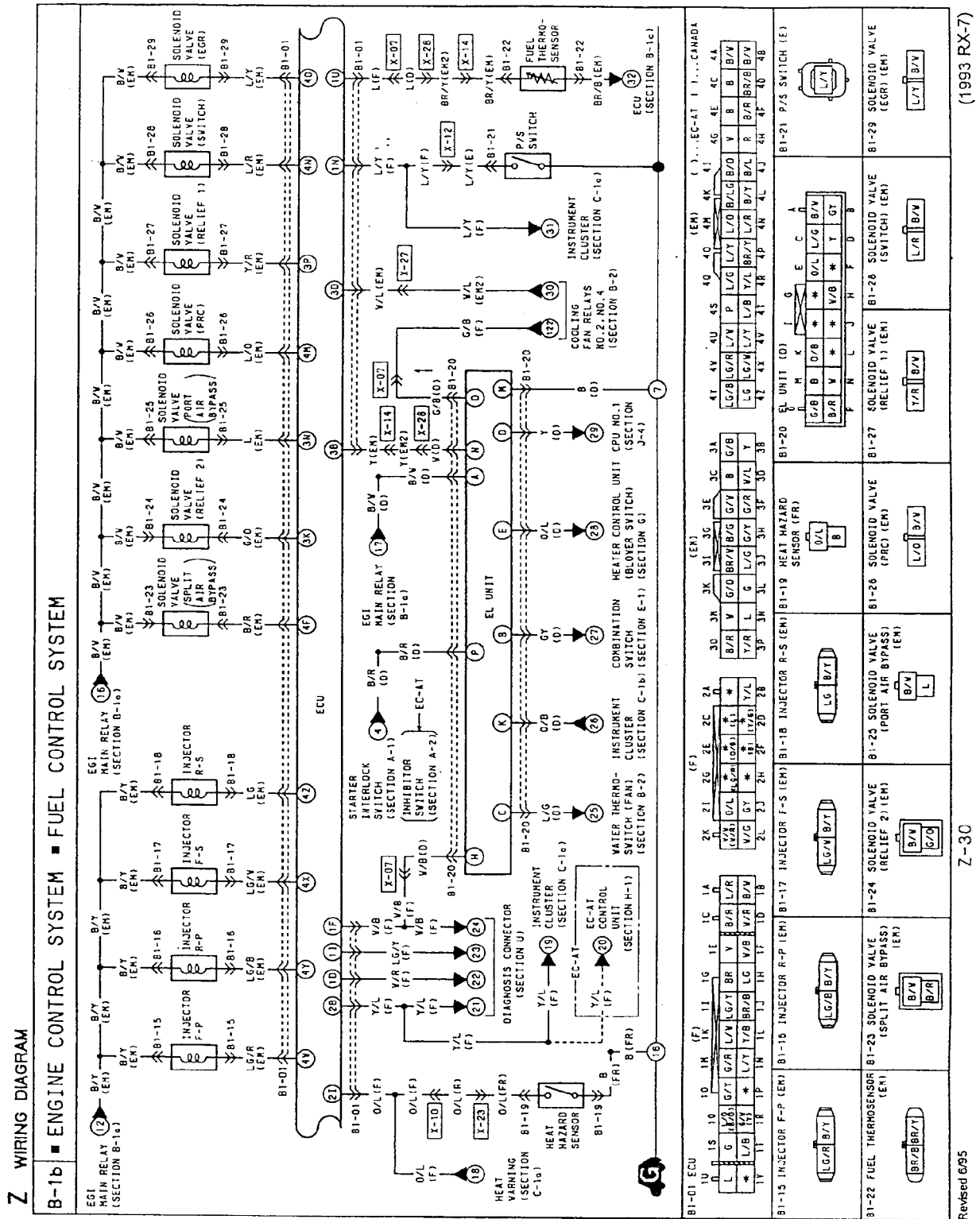


Fig. 12: Wiring Diagram Engine & Fuel Control System 1993 RX-7

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Revised 6/95

Z-30

(1993 RX-7)

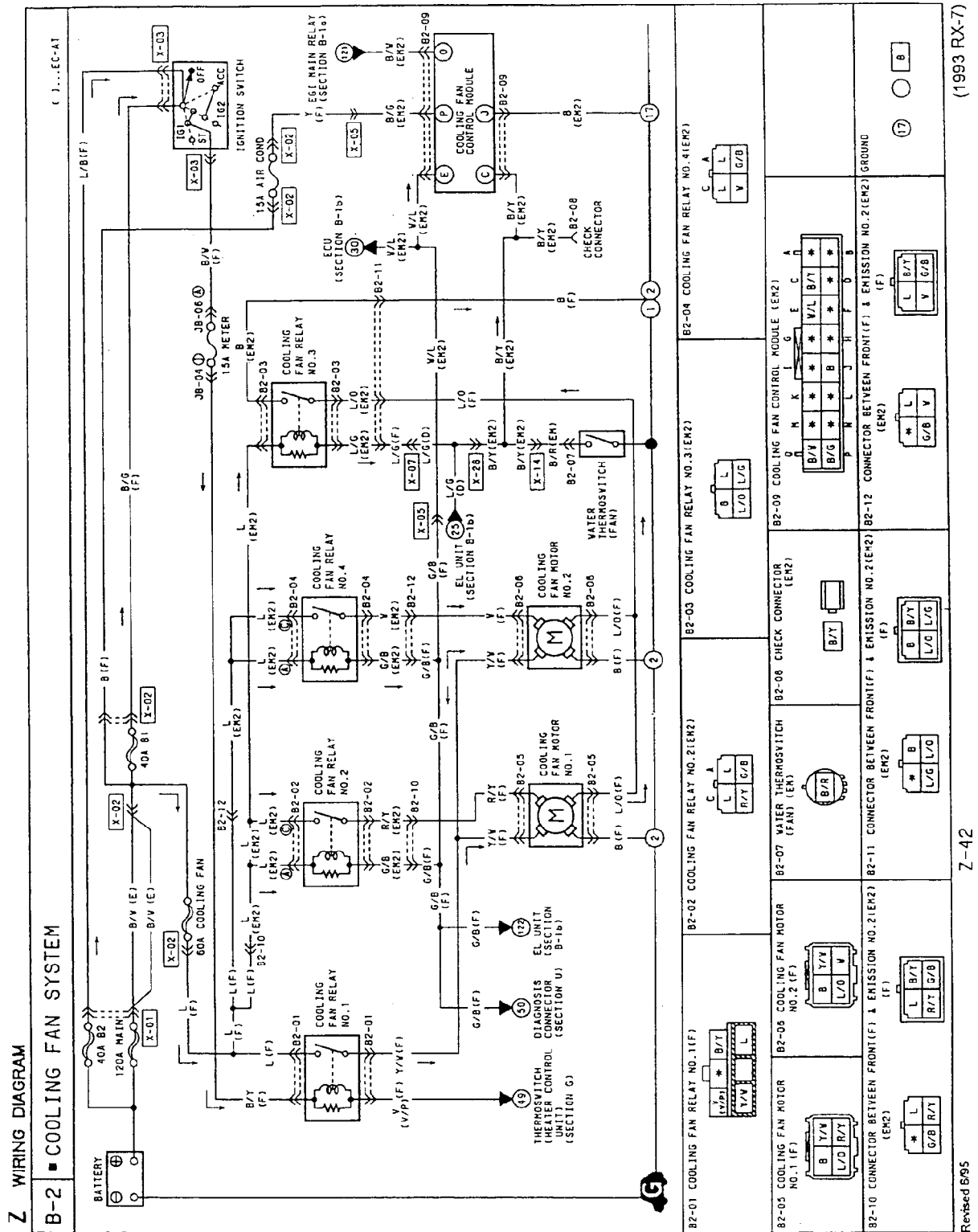


Fig. 13: Wiring Diagram Coolant Fan System 1993 RX-7

COOLING FAN CONTROL-SYSTEM 1994 RX-7

(1993 RX-7)

Z-42

Revised 6/95

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 17)

1993 Mazda RX7

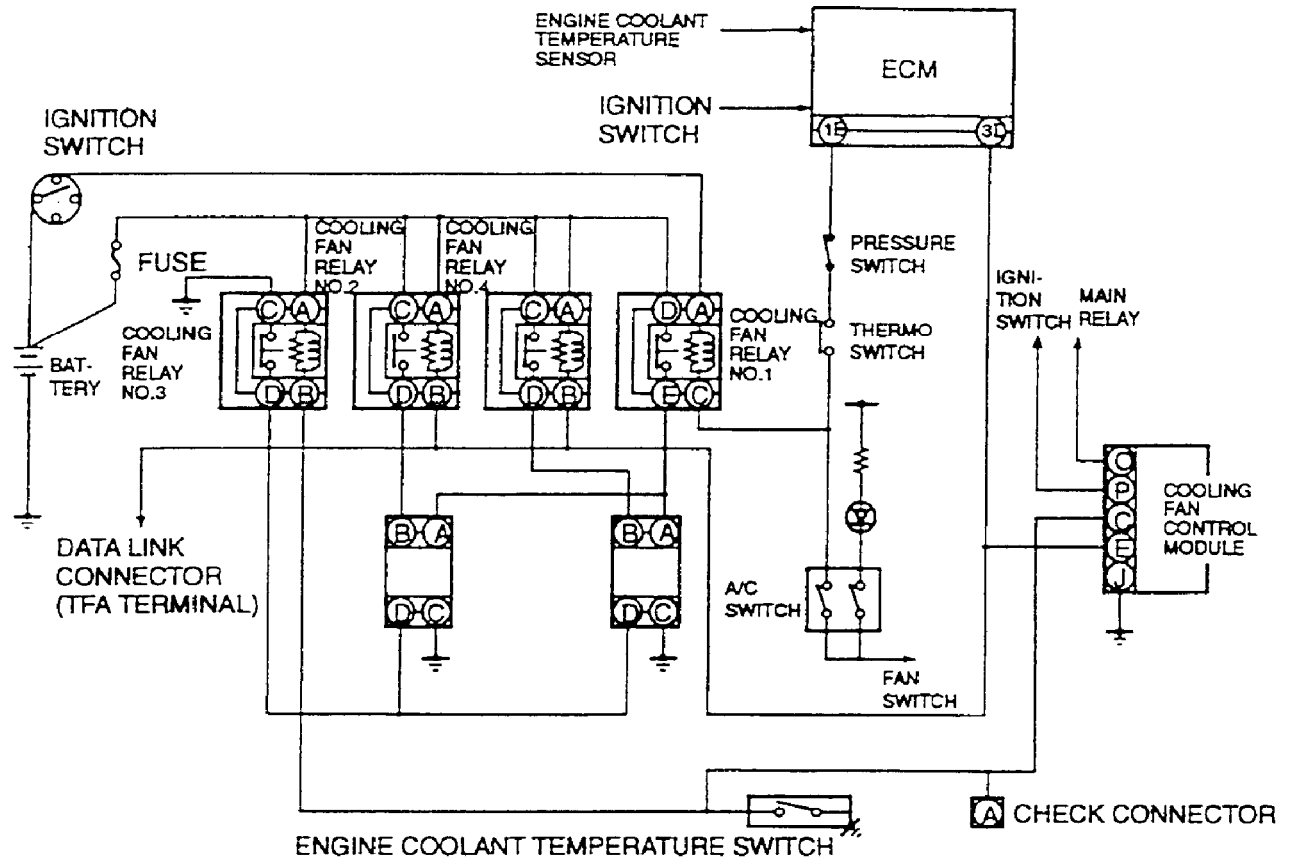
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### DESCRIPTION

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 14 and 15.



98E51627  
Fig. 14: Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 18)

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### Operation

Engine condition (No electrical load)		A/C operation	Cooling fan relay No.1	Cooling fan relay No.2	Cooling fan relay No.3	Cooling fan relay No.4	Cooling fan operation
Engine coolant temperature below 105 °C {221 °F }		OFF	OFF	OFF	OFF	OFF	OFF
		ON	ON	OFF	OFF	OFF	LOW
Engine coolant temperature 105—108 °C {221—226 °F }		OFF	OFF	ON	OFF	ON	LOW
		ON	ON	ON	OFF	ON	MIDDLE
Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)		OFF	OFF	ON	ON	ON	MIDDLE
		ON	ON	ON	ON	ON	HIGH
In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF.	Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF	—	OFF	ON	ON	ON	MIDDLE
	Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF	—	OFF	ON	OFF	ON	LOW
Engine coolant temperature sensor malfunction		—	OFF	ON	OFF	ON	LOW
TFA terminal ground		—	OFF	ON	OFF	ON	LOW

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Fig. 15: Cooling Fan Control System Operation

### SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

## **SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

### **Article Text (p. 19)**

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- 7 Turn the ignition switch to OFF.
- 8 Verify that the cooling fan keep operating after the ignition switch is turned to OFF.
- 9 If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.
- 12) If not, inspect the cooling fan relay.
- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module.

### **COOLING FAN CONTROL MODULE 1994 RX-7**

#### **REMOVAL/INSTALLATION**

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).

#### **INSPECTION**

- 1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.
- 2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module.

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

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**COOLING FAN RELAY (NO. 1, 2, 3, 4) 1994 RX-7**

**INSPECTION**

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

**TERMINAL CONTINUITY TABLE**

UAAA;		
⊗ Operation	⊗ A Type - Terminals D-E	⊗
⊗	⊗ B Type - Terminals C-D	⊗
AAA~		
⊗ B+ applied	⊗ Continuity	⊗
AAA~		
⊗ B+ not applied	⊗ No continuity	⊗
AAAU		

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 16 and 17.



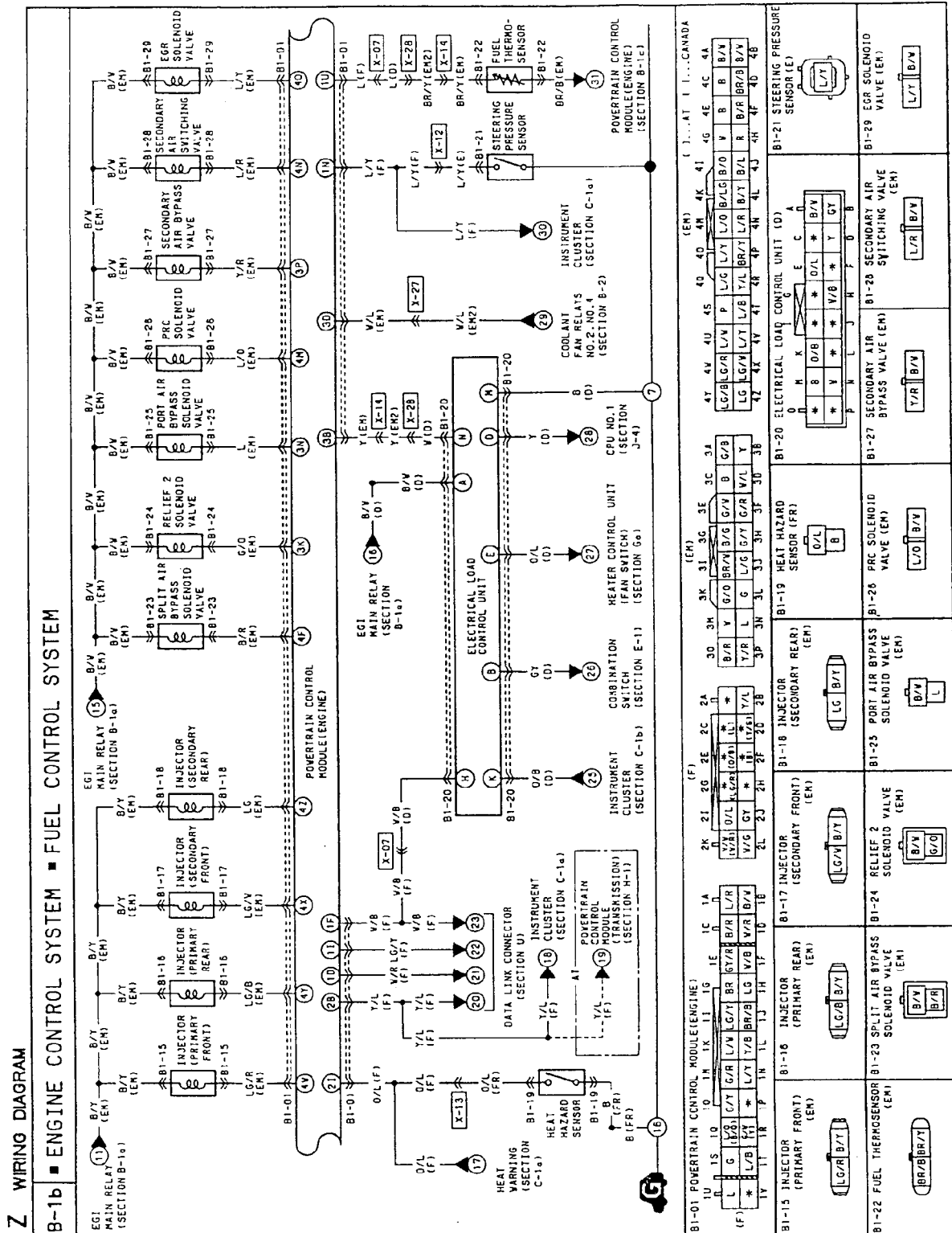


Fig. 16: Wiring Diagram Engine & Fuel Control System 1994 RX-7

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# **SPEEDOMETER REPLACEMENT PROCEDURE CAT. AD, NO. 003/97**

## **Article Text**

1993 Mazda RX7

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### **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **SPEEDOMETER REPLACEMENT PROCEDURE**

Model(s): All Mazda Models  
Category: AD - Administrative  
Bulletin No.: 003-97  
Date: February 25, 1997

### **DESCRIPTION**

In accordance with Federal regulations, follow the procedures listed below when replacing a speedometer.

#### **NOTE:**

1. Mazda vehicles are manufactured with tamper-proof speedometers and the mileage CAN NOT be altered or adjusted.
2. When a speedometer is replaced, the new speedometer will read zero.
3. This procedure is extremely important to accurately represent actual vehicle mileage.
4. The "Speedometer Replacement Label" referenced below is available through the Mazda Program Center for a limited time. Mazda Motor of America, Inc. is providing 1 sheet of 20 labels with this bulletin.

### **REPLACEMENT PROCEDURE**

1. Remove and replace the speedometer according to the workshop manual.
2. Complete the following information on the "Speedometer Replacement Label". See Fig. 1.
  - a. Mileage before speedometer replacement.
  - b. Date of replacement.
  - c. Dealer code.
3. Attach the label to the driver's side "B" pillar.
4. Complete the "Speedometer Replacement Record" in the Warranty Information Booklet. See Fig. 1.

**SPEEDOMETER REPLACEMENT PROCEDURE CAT. AD, NO. 003/97**

**Article Text (p. 2)**

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**SPEEDOMETER REPLACEMENT**

Mileage: \_\_\_\_\_  
(Before Replacement)

Date Replaced: \_\_\_\_/\_\_\_\_/\_\_\_\_

Dealer Code: \_\_\_\_\_

**Complete Information and Install  
On Driver's Side "B" Pillar**

**SPEEDOMETER REPLACEMENT RECORD**

Speedometer replaced on \_\_\_\_\_ with \_\_\_\_\_ miles

Dealer Name \_\_\_\_\_

Dealer Signature \_\_\_\_\_

After the speedometer is replaced, total mileage should be determined by adding the mileage listed here to the current mileage shown on the speedometer installed.

**95H58641**

Fig. 1: "Speedometer Replacement Label" & Record - Identification

**END OF ARTICLE**



# WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

## Article Text (p. 2)

1993 Mazda RX7

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Reimbursement is based on Dealer Net Price (DNP) plus 30% on 1993 and earlier models and DNP plus 40% on 1994 and later models.

### REPLACEMENT BATTERY (WET BATTERY)

- \* Covered for the first 12 months and a Pro-Rated warranty applies from 13 months to 36 months.
- \* Reimbursement for Labor - Labor charges related to warrantable repairs on replacement batteries are fully covered up to 12 months. Labor is not covered on replacement batteries replaced under the 13 to 36 month pro-rate.
- \* The customer's responsibility is the Pro-rate amount based on the retail price of the replacement battery.
- \* Warranty claims must be submitted with warranty type code "P" (Parts Warranty) or "K" (Over-the-Counter), for proper processing.
- \* Battery warranty start date on the Replacement battery begins on the installed date. The warranty coverage starts over on the date of each battery installation.
- \* Over-The-Counter battery warranty starts on purchase date. The customer is responsible for labor charges, if any. Warranty is only applicable to Mazda vehicles.
- \* Replacement Miata batteries are covered under the Replacement Battery warranty.
- \* Replacement Batteries which fail within 12 months: Interstate will provide the dealer a new battery at no cost. If the dealer installs the warranty battery, the dealer should submit a warranty claim for labor and handling charges. Enter X5555-95-BATT" as the PNMC with a quantity of one. This will reimburse the dealer \$15.70 for handling charges (see example #2).
- \* Replacement Batteries which fail after 12 months: If the dealer installs the battery, the dealer should submit a warranty claim for the pro-rated battery only. NOTE: Pro-rate applies to replacement batteries replaced after 12 months.

Replacement Battery (48 Month Pro-rate)

Chart II

Months In Use	Customer's Responsibility	% Dealer Claims
0-12	0%	Labor Only
13-24	50% (plus labor)	50%
25-36	75% (plus labor)	25%

Reimbursement is based on Dealer Net Price (DNP) plus 30% on 1993 and earlier models and DNP plus 40% on 1994 and later models.

### GENERAL INFORMATION

# WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

## Article Text (p. 3)

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(applies to all warranty battery claims):

### TOWING

Towing is covered for warrantable repairs during the Mazda New Vehicle Limited 36 Month/50,000 Mile Warranty.

Towing is not covered under the replacement battery warranty (or any other applicable warranty) unless the vehicle falls under the New Vehicle Limited Warranty.

### MILEAGE ALLOWANCE

Battery warranties are based on Time (months) and are not limited by mileage considerations.

### BATTERY CHECK SHEET

A Battery Check Sheet must be completed and retained with repair order for any battery replacement under warranty.

### EMERGENCY REPLACEMENT

Reimbursement for battery emergency replacement must reflect applicable pro-rate. Refer to "Emergency Repairs" in the Resources section for more information. Note: All emergency battery replacements require DCSM authorization.

### WARRANTY CONDITIONS

Unless specified, all warranty coverage and application limitations apply to battery warranty repairs (as referenced in the vehicle's Warranty Information booklet).

All batteries are covered for defects in material and workmanship. Coverage does not extend to batteries that have been improperly stored, or that show sign of:

- \* Abuse
- \* Improper handling
- \* Lack of proper maintenance

### DCSM AUTHORIZATION

Battery replacement for vehicles in dealer inventory and during the first 90 days following retail sale requires DCSM authorization.

### STORAGE

All batteries must be properly tagged and held for inspection and core credit.

WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

Article Text (p. 4)

1993 Mazda RX7

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CLAIM PROCESSING EXAMPLES

Example #1.

A 1994 626 Original Equipment Battery, fails after the vehicle has been in service for 13 months with 11,000 miles on the odometer.

WARRANTY INFORMATION TABLE - EXAMPLE #1

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3          Claim Submission:                      3 Dealer Reimbursement:      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Warranty type:      E                          3 Warranty labor          3
3                                                            3 rate = $50.00/hr.      3
3 Symptom code:      20                          3                            3
3 Damage code:       81                          3                            3
3 Vendor code:       KN212                       3                            3
3 Part number
3 main cause:        0000-80-058R-WB             3                            3
3 Quantity:          1                          3                            3
3 Pro-Rate:          50                          3 $35.67 = (DNP + 40%)/50% 3
3 Related part(s):  0 (wet battery, acid        3                            3
3                   is not required)           3                            3
3 Labor operation:   G0501ACX                   3                            3
3 Labor Hours:      0.5                         3 $25.00                  3
3                                                            3 Total                    3
3                                                            3 reimbursement = $60.67 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 CUSTOMER'S RESPONSIBILITY: battery pro-rate only, 3
3                   (retail price $78.95 x 50%) = $39.48 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

Example #2.

A 1993 Protege battery has failed. This is the second time the battery has failed. The first battery failed 6 months ago.

WARRANTY INFORMATION TABLE - EXAMPLE #2

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3          Claim Submission:                      3 Dealer Reimbursement:      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Warranty type:      P                          3 Warranty labor          3
3                                                            3 rate = $50.00/hr.      3
3 Symptom code:      20                          3                            3
3 Damage code:       81                          3                            3
3 Vendor code:       KN999                       3                            3
3 Part number
3 main cause:        5555-95-BATT               3                            3
3 Quantity:          1 (must enter             3                            3
3                   quantity of one)           3                            3
3 Pro-Rate:          100                        3 $15.70 (handling charges 3
3                                                            3 only)                    3
3 Related part(s):  0 (wet battery, acid        3                            3
3                   is not required)           3                            3
3 Labor operation:   G0501ACX                   3                            3

```





WARRANTY BULLETIN - MAZDA BATTERY WARRANTY CAT. G, NO. 1

Article Text (p. 6)

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```

3 Symptom code: 20 3
3 Damage code: 81 3
3 Vendor code: KN999 3
3 Part number 3
3 main cause: 0000-80-0065-WB 3
3 Quantity: 1 3
3 Pro-Rate: 50 3 $42.22 = (DNP + 30%)/50% 3
3 Related part(s): 0 (wet battery, acid 3
3 is not required) 3
3 Labor operation: no labor, 3
3 Labor Hours: customer's/dealer's 3
3 responsibility 3
3 Total 3
3 reimbursement = $42.22 3

```

```

^-----^
3 CUSTOMER'S RESPONSIBILITY: battery pro-rate, 3
3 (retail price $99.95 x 50%) = $49.98 3
^-----^

```

BATTERY VENDOR CODES TABLE

```

U-----U;
3 Vendor 3 Vendor Code 3
^-----^
3 Delco Freedom 3 KN160 3
^-----^
3 GS 3 K4239 3
^-----^
3 Hitachi 3 K5204 3
^-----^
3 Panasonic 3 K6021 3
^-----^
3 Yuasa 3 K7412 3
^-----^
3 Mazda OEM (Empak) 3 KN212 3
^-----^
3 Motorcraft 3 KM001 3
^-----^
3 Mazda Replacement 3 *KN999 3
^-----^
3 * Includes Exide/Interstate 3
^-----^

```

END OF ARTICLE

# WIRING DIAGRAM CORRECTIONS - PAGES Z-37 & Z-40 CAT. Z, NO. 008/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WIRING DIAGRAM CORRECTIONS

Model(s): 1993 Mazda RX-7  
 Category: Z  
 Bulletin No.: 008/92  
 Date: 11/19/92

### DESCRIPTION

The following figures represent revised wiring diagrams for the 1993 Mazda RX-7 Wiring Diagram service manual. The affected pages are listed below.

Page Z-37 - Correction to terminal 2K Test Condition item; correction to terminal 3D Test Condition item.

Page Z-40 - Correction to terminal 2K Test Condition item; correction to terminal 3D Test Condition item.

B-1				V <sub>B</sub> Battery voltage																			
Terminal ID	Input	Output	Connected to	Test condition	Correct voltage	Remark	Terminal	Input	Output	Connected to	Test condition	Correct voltage	Remark										
10	O		Clutch switch (MT)	Clutch pedal released	V <sub>B</sub>	Ignition switch ON	2K	O		-2 switch (MT)	1st and 2nd position	V <sub>B</sub>	Ignition switch ON										
				Clutch pedal depressed	Below 1.0V						Other	Below 1.0V											
			EC-AT control unit (AT)	Idle when shifting from 1st to 2nd or from 2nd to 3rd with the throttle opening above 1.5#	Below 1.0V	Reduce torque signal					EC-AT CU (AT)	2nd or 3rd position		Below 1.0V	While running								
				When slip lockup with the throttle opening below 0.5#	Below 1.0V	Slip lock up signal					Other	V <sub>B</sub>											
1R	O		Neutral switch (MT)	Neutral	Below 1.0V	Ignition switch ON	3A	O		Ignition switch ON	3rd or 4th position	Below 1.0V	While running										
				In gear	V <sub>B</sub>						Other	V <sub>B</sub>											
			EC-AT control unit (AT)	For N range	Below 1.0V	Inhibitor signal					EC-AT CU (AT)	10-4.2V		Voltage increase when accelerating									
				Other	V <sub>B</sub>	Ignition switch ON					Other	Approx. 1.1V											
1S	O		Stoplight switch	Brake pedal released	Below 1.0V	Ignition switch ON	3B	O		E/L unit	Headlight switch position 1, 2, 3	Below 4.0V											
Brake pedal depressed	V <sub>B</sub>																						
1T	O		Circuit opening relay	Ignition switch ON	V <sub>B</sub>						3C	O			Oxygen sensor	Idle	Approx. 0V						
				Idle (after warm-up)	1.5-3.0V																		
1U	O		Fuel pressure sensor	Idle	1.5-3.0V		3D	O		Cooling fan relay	Idle	Below 1.0V	Ignition switch ON										
1V	-	-	-	-	-						3E	O			Water thermostat	Engine coolant temperature 20°C (68°F)	Approx. 2.5V	Ignition switch ON					
1W	-	-	-	-	-											3F	O			Throttle sensor (Narrow range)	Accelerator pedal released	0.75-1.25	Ignition switch ON
1X	-	-	-	-	-																3G	O	
1Y	-	-	-	-	-		3H	O		Solenoid valve (Brake)			Ignition switch ON										
1Z	-	-	-	-	-						3I	O		Throttle sensor	Constant			Approx. 5.0V					
2A	-	-	-	-	-										3J	O		EGR switch	EGR valve operates	V <sub>B</sub>			California only
2B	-	-	-	-	-														3K	O		DRL relay	
2C	-	-	-	-	-		3L	O		Solenoid valve (Relief)													
2D	-	-	-	-	-						3M	O		Brake air thermometer									
2E	-	-	-	-	-										3N	O							After warm up
2F	-	-	-	-	-														3O	O			After warm up
2G	-	-	-	-	-		3P	O															After warm up
2H	-	-	-	-	-						3Q	O											After warm up
2I	-	-	-	-	-										3R	O							After warm up
2J	-	-	-	-	-														3S	O			After warm up
2K	-	-	-	-	-		3T	O															After warm up
2L	-	-	-	-	-						3U	O											After warm up
2M	-	-	-	-	-										3V	O							After warm up
2N	-	-	-	-	-														3W	O			After warm up
2O	-	-	-	-	-		3X	O															After warm up
2P	-	-	-	-	-						3Y	O											After warm up
2Q	-	-	-	-	-										3Z	O							After warm up
2R	-	-	-	-	-														3AA	O			After warm up
2S	-	-	-	-	-		3AB	O															After warm up
2T	-	-	-	-	-						3AC	O											After warm up
2U	-	-	-	-	-										3AD	O							After warm up
2V	-	-	-	-	-														3AE	O			After warm up
2W	-	-	-	-	-		3AF	O															After warm up
2X	-	-	-	-	-						3AG	O											After warm up
2Y	-	-	-	-	-										3AH	O							After warm up
2Z	-	-	-	-	-														3AI	O			After warm up
3A	-	-	-	-	-		3AJ	O															After warm up
3B	-	-	-	-	-						3AK	O											After warm up
3C	-	-	-	-	-										3AL	O							After warm up
3D	-	-	-	-	-														3AM	O			After warm up
3E	-	-	-	-	-		3AN	O															After warm up
3F	-	-	-	-	-						3AO	O											After warm up
3G	-	-	-	-	-										3AP	O							After warm up
3H	-	-	-	-	-														3AQ	O			After warm up
3I	-	-	-	-	-		3AR	O															After warm up
3J	-	-	-	-	-						3AS	O											After warm up
3K	-	-	-	-	-										3AT	O							After warm up
3L	-	-	-	-	-														3AU	O			After warm up
3M	-	-	-	-	-		3AV	O															After warm up
3N	-	-	-	-	-						3AW	O											After warm up
3O	-	-	-	-	-										3AX	O							After warm up
3P	-	-	-	-	-														3AY	O			After warm up
3Q	-	-	-	-	-		3AZ	O															After warm up
3R	-	-	-	-	-						3BA	O											After warm up
3S	-	-	-	-	-										3BB	O							After warm up
3T	-	-	-	-	-														3BC	O			After warm up
3U	-	-	-	-	-		3BD	O															After warm up
3V	-	-	-	-	-						3BE	O											After warm up
3W	-	-	-	-	-										3BF	O							After warm up
3X	-	-	-	-	-														3BG	O			After warm up
3Y	-	-	-	-	-		3BH	O															After warm up
3Z	-	-	-	-	-						3BI	O											After warm up
4A	-	-	-	-	-										3BJ	O							After warm up
4B	-	-	-	-	-														3BK	O			After warm up
4C	-	-	-	-	-		3BL	O															After warm up
4D	-	-	-	-	-						3BM	O											After warm up
4E	-	-	-	-	-										3BN	O							After warm up
4F	-	-	-	-	-														3BO	O			After warm up
4G	-	-	-	-	-		3BP	O															After warm up
4H	-	-	-	-	-						3BQ	O											After warm up
4I	-	-	-	-	-										3BR	O							After warm up
4J	-	-	-	-	-														3BS	O			After warm up
4K	-	-	-	-	-		3BT	O															After warm up
4L	-	-	-	-	-						3BU	O											After warm up
4M	-	-	-	-	-										3BV	O							After warm up
4N	-	-	-	-	-														3BW	O			After warm up
4O	-	-	-	-	-		3BX	O															After warm up
4P	-	-	-	-	-						3BY	O											After warm up
4Q	-	-	-	-	-										3BZ	O							After warm up
4R	-	-	-	-	-														3CA	O			After warm up
4S	-	-	-	-	-		3CB	O															After warm up
4T	-	-	-	-	-						3CC	O											After warm up
4U	-	-	-	-	-										3CD	O							After warm up
4V	-	-	-	-	-														3CE	O			After warm up
4W	-	-	-	-	-		3CF	O															After warm up
4X	-	-	-	-	-						3CG	O											After warm up
4Y	-	-	-	-	-										3CH	O							After warm up
4Z	-	-	-	-	-														3CI	O			After warm up
5A	-	-	-	-	-		3CJ	O															After warm up
5B	-	-	-	-	-						3CK	O											After warm up
5C	-	-	-	-	-										3CL	O							After warm up
5D	-	-	-	-	-														3CM	O			After warm up



**YEAR 2000 COMPLIANCE CAT. 01, NO. 018/99**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**YEAR 2000 COMPLIANCE**

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 018/99  
Date: May 28, 1999

**DESCRIPTION**

Because all Control Units, including the Powertrain Control Modules used in Mazda vehicles do not use the day, month, or year to operate, Mazda vehicles are completely immune to the effects of the year 2000 concern.

**END OF ARTICLE**

# A/C O-RING REPLACEMENT CAT. U, NO. 95-10

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### A/C O-RING REPLACEMENT

Model(s): All Mazda Models (Canadian)  
Category: U - Heater and Air-Conditioning Systems  
Bulletin No.: 95-10  
Date: October 1995

### DESCRIPTION

Refer to the figures on the following pages and the charts below when replacing air conditioning system O-rings. These O-rings are designed for use in both R12 and R134 air conditioning systems.

Fig. 1 indicates where a new O-ring is measured to determine diameter and thickness. Use this information and the chart above to identify the proper part if the O-rings are accidentally mixed.

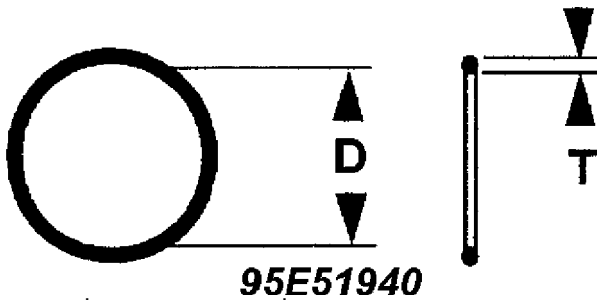


Fig. 1: Measuring New O-Rings

### O-RING APPLICATION TABLE

1989-94 323/PROTEGE O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	5
D	12mm	10.8 x 1.78	LB54 61 J1X	3
F	16mm	14.0 x 1.78	LB56 61 J1X	2

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 2 for O-Ring Identification.

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Protege (1989-94)

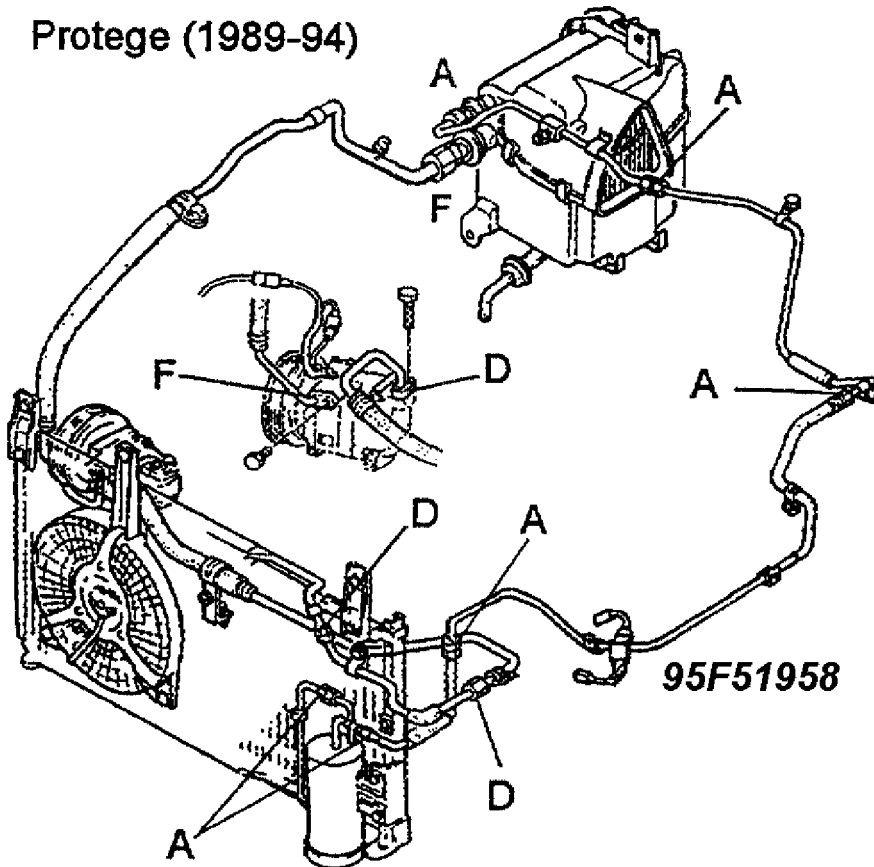


Fig. 2: 1989-94 323/Protege O-Ring Identification

1992-96 MX-3 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	5
D	12mm	10.8 x 1.78	LB54 61 J1X	3
F	16mm	14.0 x 1.78	LB56 61 J1X	2

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 3 for O-Ring Identification.

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**MX-3 (1992-96)**

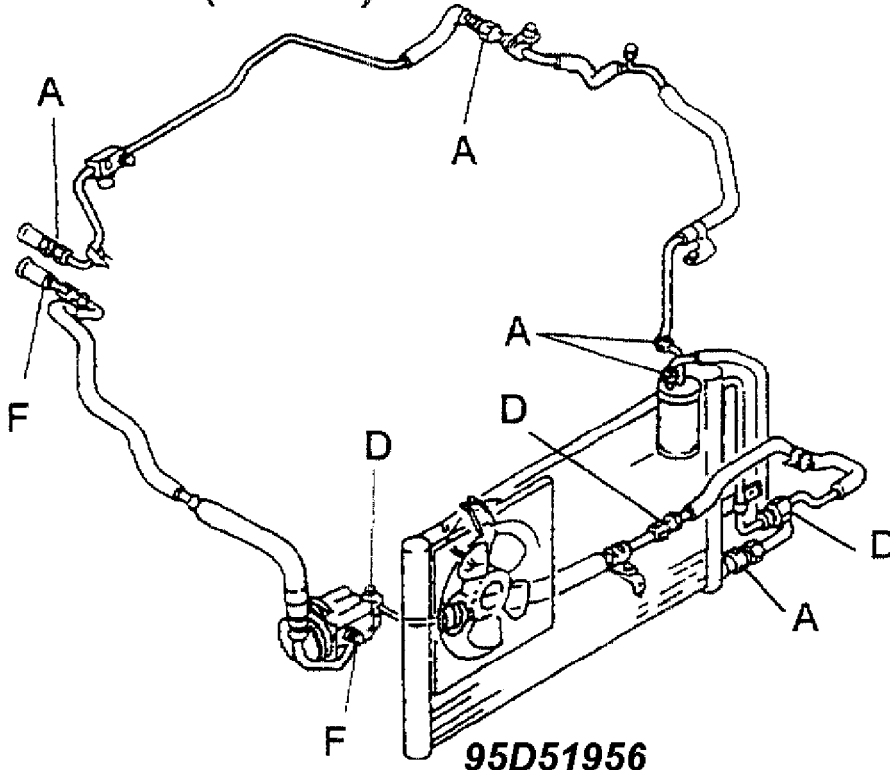


Fig. 3: 1992-96 MX-3 O-Ring Identification

1990-93 MX-5 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	4
D	12mm	10.8 x 1.78	LB54 61 J1X	3
F	16mm	14.0x 1.78	LB56 61 J1X	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 4 for O-Ring Identification.



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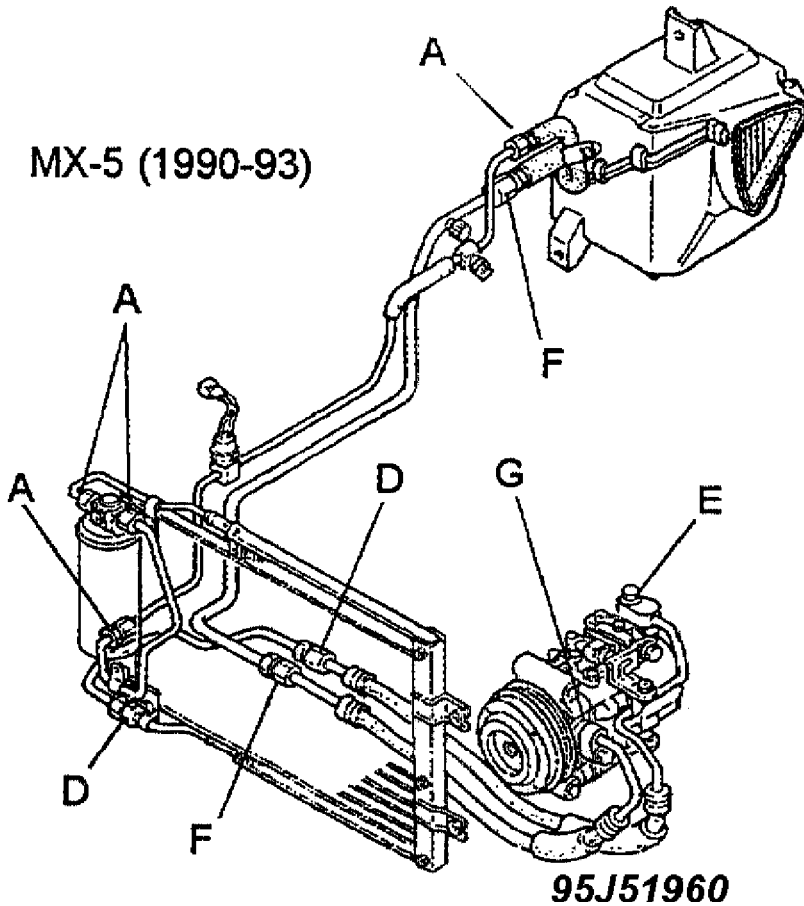


Fig. 4: 1990-93 MX-5 O-Ring Identification

1994-96 MX-5 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	4
D	12mm	10.8 x 1.78	LB54 61 J1X	1
E	12mm axial	10.8 x 2.4	LB55 61 J1X	1
F	16mm	14.0 x 1.78	LB56 61 J1X	2
G	16mm axial	13.4 x 2.4	LB57 61 J1X	1

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 5 for O-Ring Identification.

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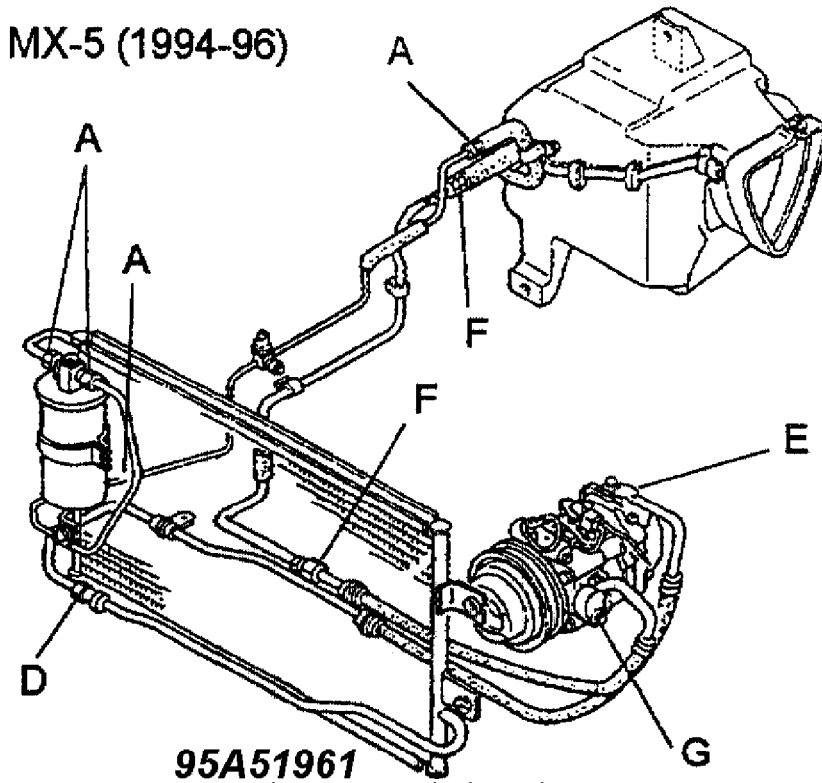


Fig. 5: 1994-96 MX-5 O-Ring Identification

1988-92 626/MX-6 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	5
D	12mm	10.8 x 1.78	LB54 61 J1X	1
F	16mm	14.0x 1.78	LB56 61 J1X	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 6 for O-Ring Identification.

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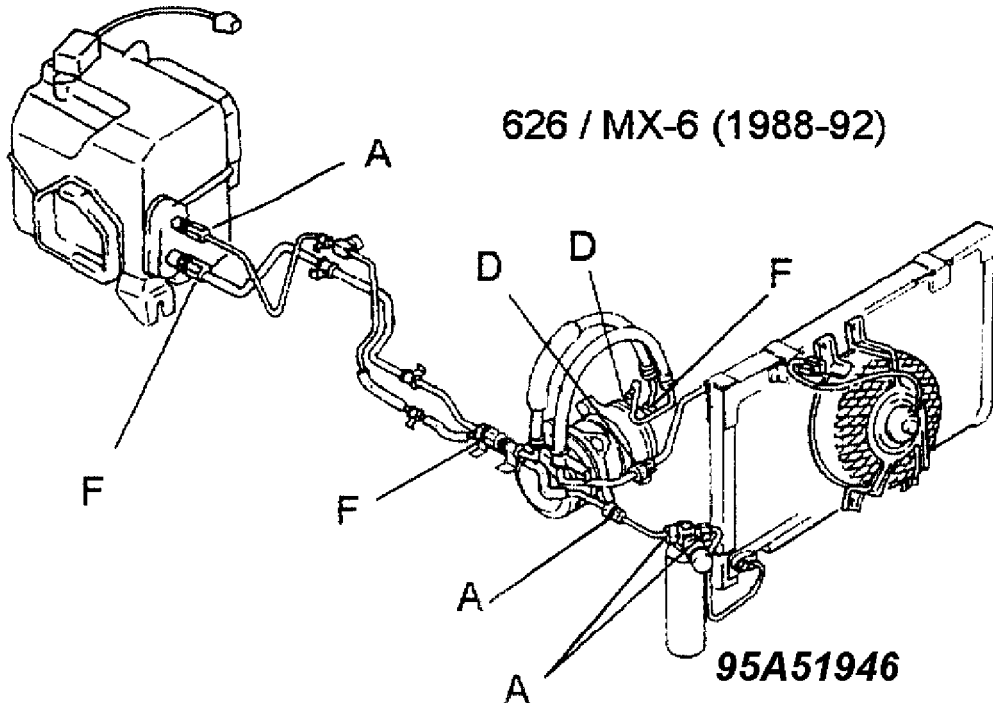


Fig. 6: 1988-92 626/MX-6 O-Ring Identification

1993-96 626/MX-6 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	5
D	12mm	10.8 x 1.78	LB54 61 J1X	2
F	16mm	14.0x 1.78	LB56 61 J1X	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 7 for O-Ring Identification.

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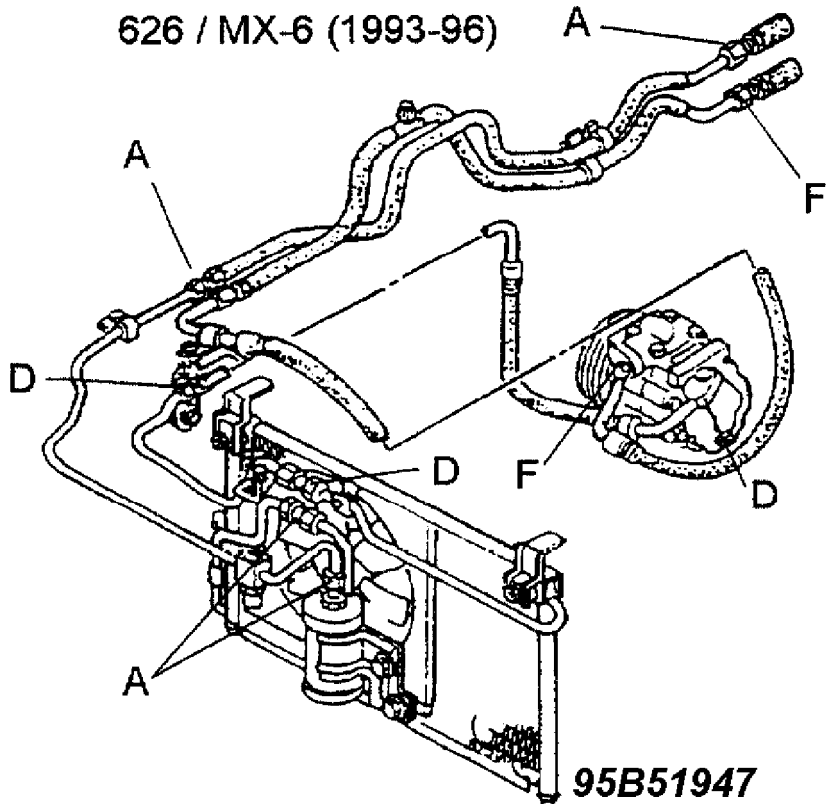
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**95B51947**

Fig. 7: 1993-96 626/MX-6 O-Ring Identification

1989-94 RX-7 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	6
D	12mm	10.8 x 1.78	LB54 61 J1X	2
F	16mm	14.0x 1.78	LB56 61 J1X	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 8 for O-Ring Identification.

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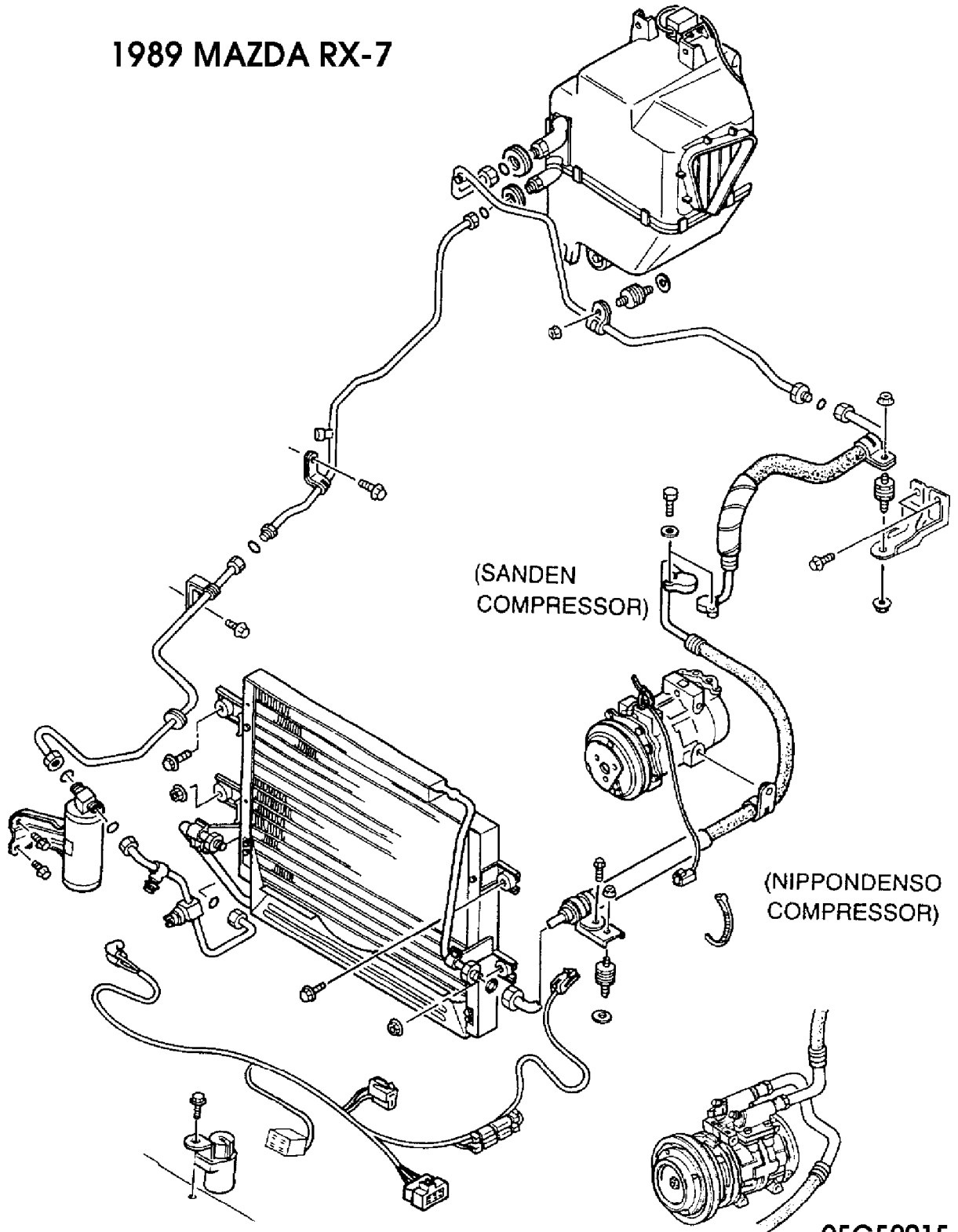
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**1989 MAZDA RX-7**



**95G52015**

Fig. 8: 1989-94 RX-7 O-Ring Identification

1995-96 RX-7 O-RING DESCRIPTION TABLE



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G	16mm	13.4 x 2.4	LB57 61 J1X	3
	axial			
H	3/8in	7.36 x 1.80	ZZL0 61 J19(KIT)	3
J	1/2in	10.16 x 1.85	ZZL0 61 J19(KIT)	2
K	5/8in	12.95 x 1.85	ZZL0 61 J19(KIT)	2

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 10 for O-Ring Identification.

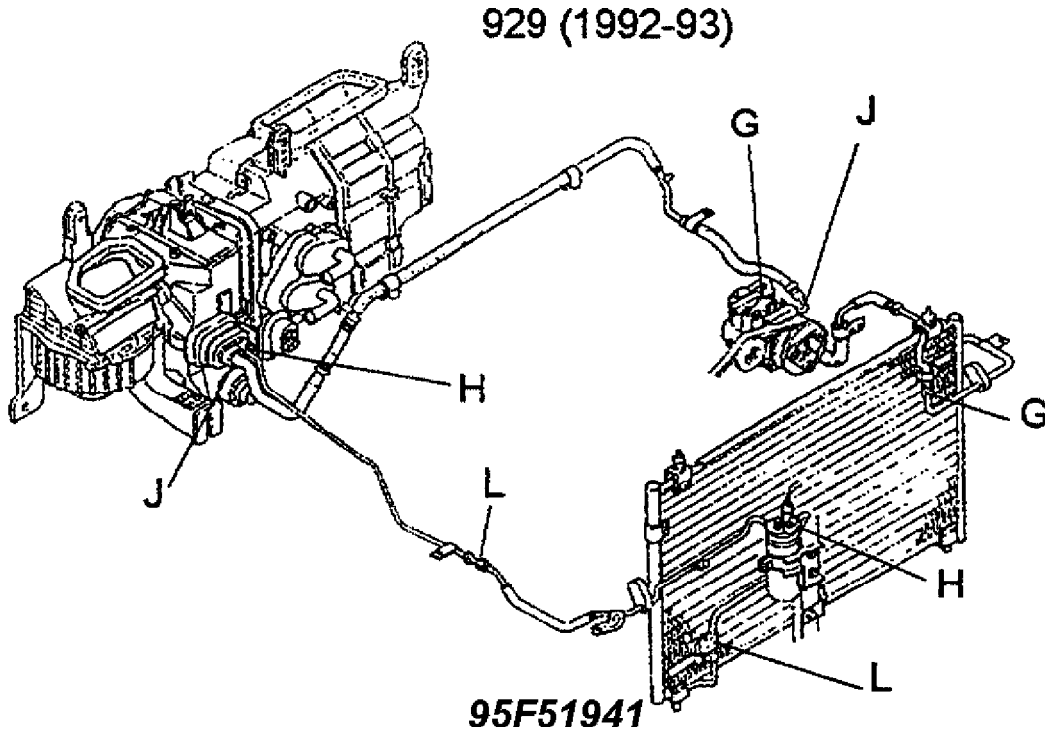


Fig. 10: 1992-93 929 O-Ring Identification

1994-95 929 O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
G	16mm	13.4 x 2.4	LB57 61 J1X	3
	axial			
K	5/8in	12.95 x 1.85	LB57 61 J1X	2
L	5/8in	6.1 x 1.8	C003 61 J17	5

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.

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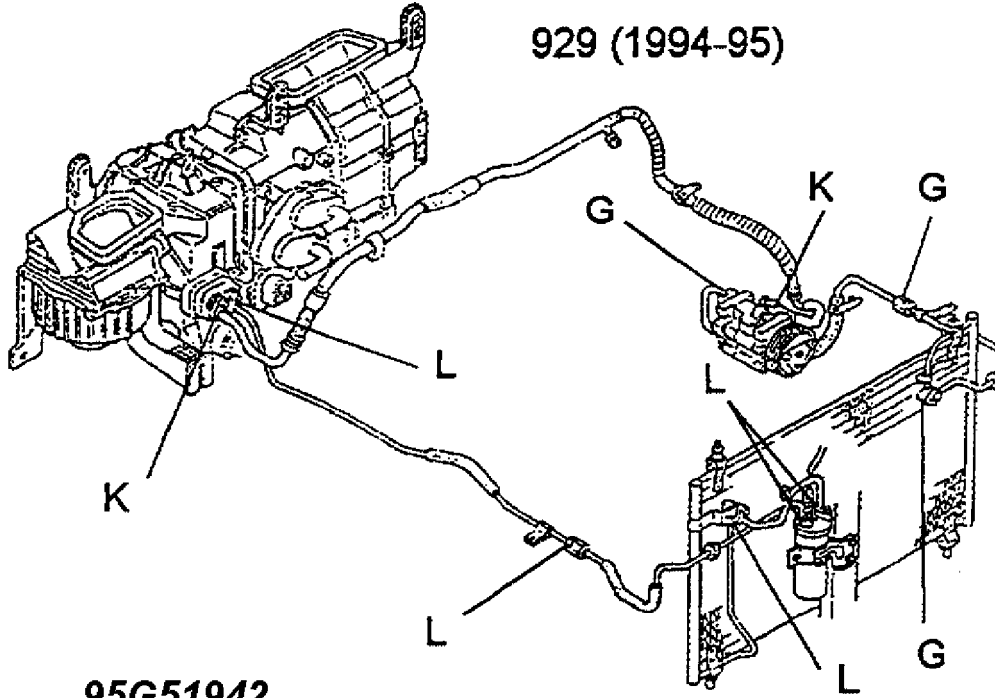
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See Fig. 11 for O-Ring Identification.



**95G51942**

Fig. 11: 1994-95 929 O-Ring Identification

1995-96 PROTEGE O-RING DESCRIPTION TABLE

O	Pipe	O-Ring	Part Numbers	Quantity
Ring	Size	Size D X T	and	Per
Code			Kit Numbers	Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	6
D	12mm	10.8 x 1.78	LB54 61 J1X	2
F	16mm	14.0x 1.78	LB56 61 J1X	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 12 for O-Ring Identification.



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**Protege (1995-96)**

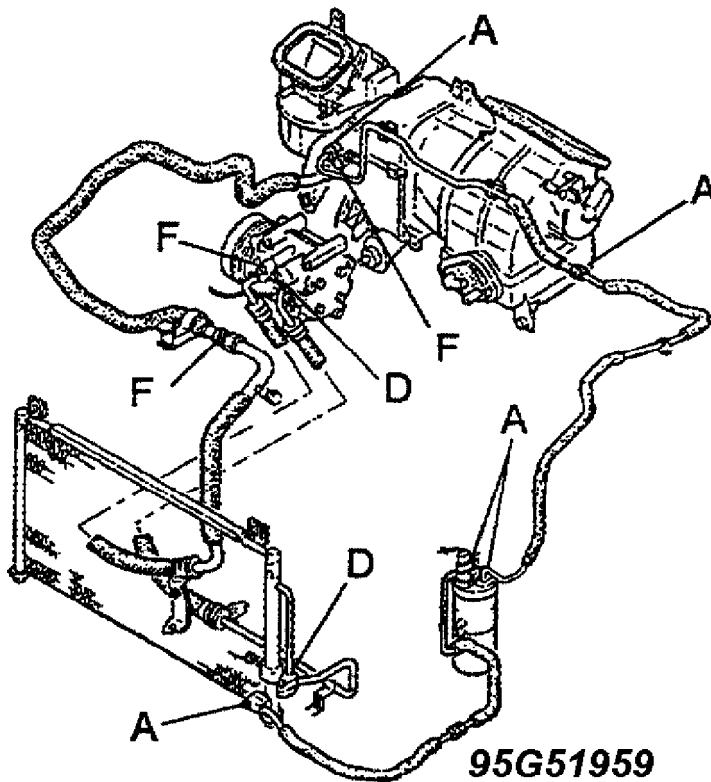


Fig. 12: 1995-96 Protege O-Ring Identification

1995 MILLENIA O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
G	16mm axial	13.4 x 2.4	LB57 61 J1X	3
K	5/8in	12.95 x 1.85	ZZLO 61 J19(KIT)	3
L	5/8in	6.1 x 1.8	C003 61 J17	4

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 13 for O-Ring Identification.

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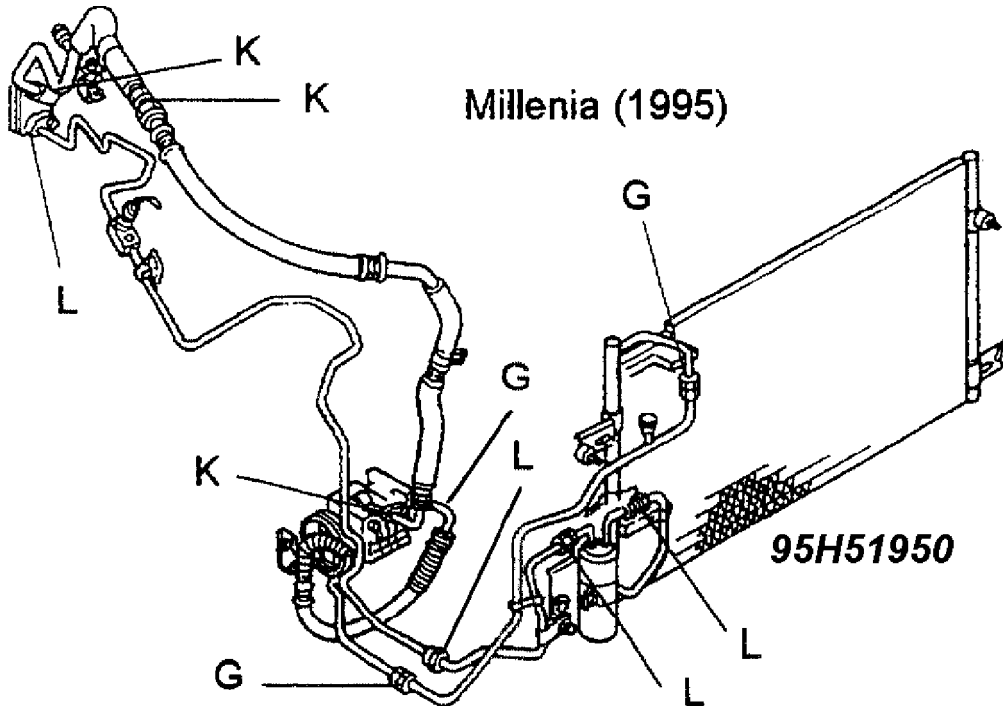


Fig. 13: 1995 Millenia O-Ring Identification

1989-93 MPV (DUAL AIR) O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
A	8mm	6.9 x 1.78	LB51 61 J1X	14
C	3/8in	7.65 x 1.78	L853 61 J1X	3
E	12mm axial	10.8 x 2.4	LB55 61 J1X	11

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 14 for O-Ring Identification.

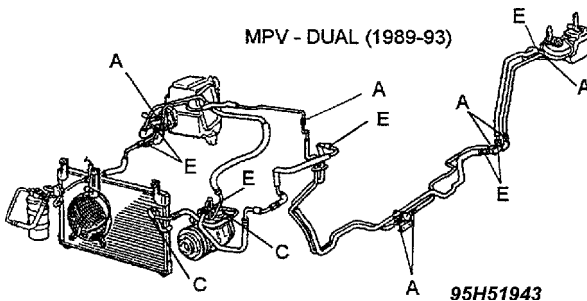


Fig. 14: 1989-93 MPV (Dual Air) O-Ring Identification

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1994-95 MPV (DUAL AIR) O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
B	5/16in	6.8 x 1.5	LB52 61 J1X	13
D	12mm	10.8 x 1.78	LB54 61 J1X	3
F	16mm	14.0x 1.78	LB56 61 J1X	9

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 15 for O-Ring Identification.

**MPV - DUAL (1994-95)**

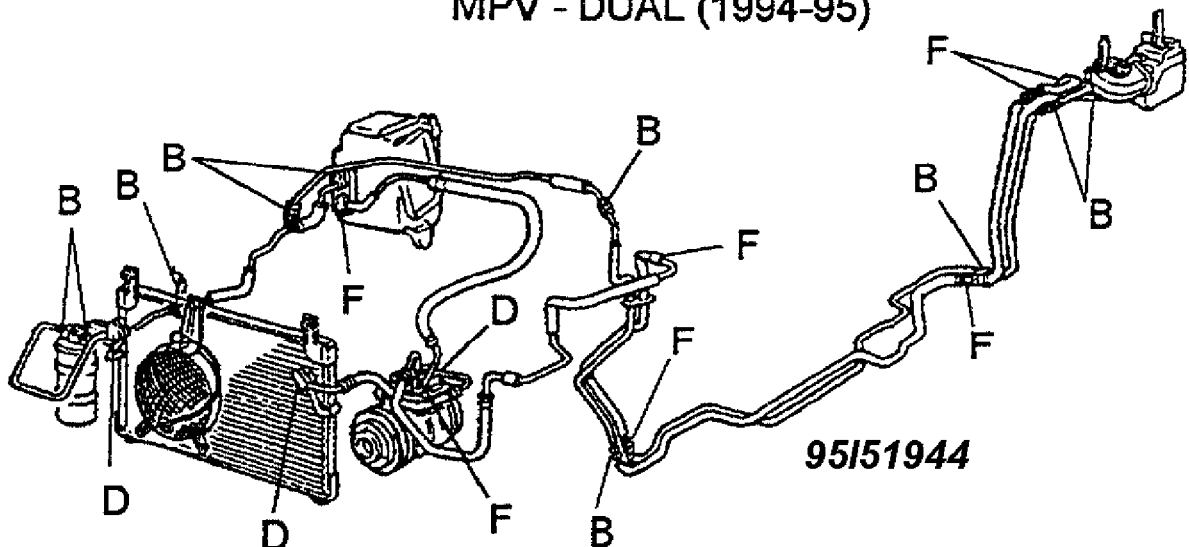


Fig. 15: 1994-95 MPV (Dual Air) O-Ring Identification

1989-93 MPV (SINGLE AIR) O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
B	5/16in	6.8 x 1.5	LB52 61 J1X	3
C	3/8in	7.65 x 1.78	L853 61 J1X	1
D	12mm	10.8 x 1.78	LB54 61 J1X	3
F	16mm	14.0x 1.78	LB56 61 J1X	2

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 16 for O-Ring Identification.

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1994-95 MPV (SINGLE AIR) O-RING DESCRIPTION TABLE

O Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	Quantity Per Vehicle
B	5/16in	6.8 x 1.5	LB52 61 J1X	3
C	3/8in	7.65 x 1.78	L853 61 J1X	1
D	12mm	10.8 x 1.78	LB54 61 J1X	2
E	12mm axial	10.8 x 2.4	LB55 61 J1X	1
F	16mm	14.0x 1.78	LB56 61 J1X	1
G	16mm axial	13.4 x 2.4	LB57 61 J1X	1

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10. See Fig. 16 for O-Ring Identification.

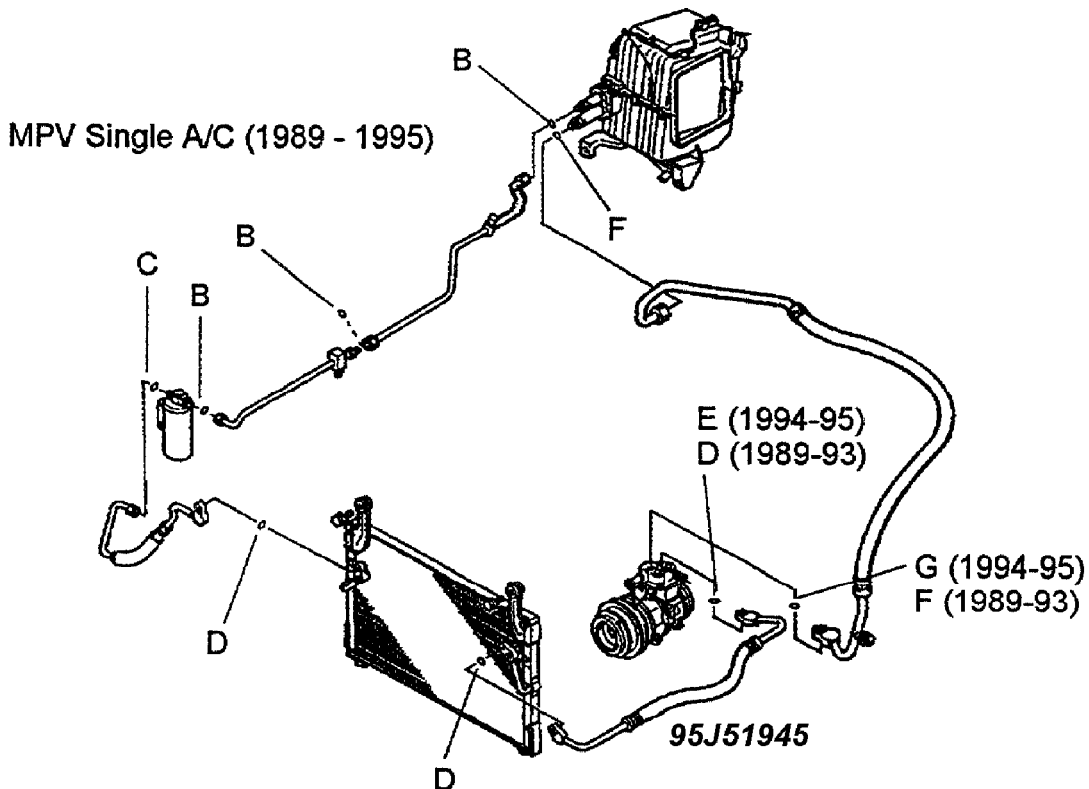


Fig. 16: 1989-95 MPV (Single Air) O-Ring Identification

1990-93 B-SERIES O-RING DESCRIPTION TABLE

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O	Pipe	O-Ring	Part Numbers	Quantity
Ring	Size	Size D X T	and	Per
Code			Kit Numbers	Vehicle
C	3/8in	7.65 x 1.78	L853 61 J1X	4
D	12mm	10.8 x 1.78	LB54 61 J1X	2
F	16mm	14.0x 1.78	LB56 61 J1X	4

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 17 for O-Ring Identification.

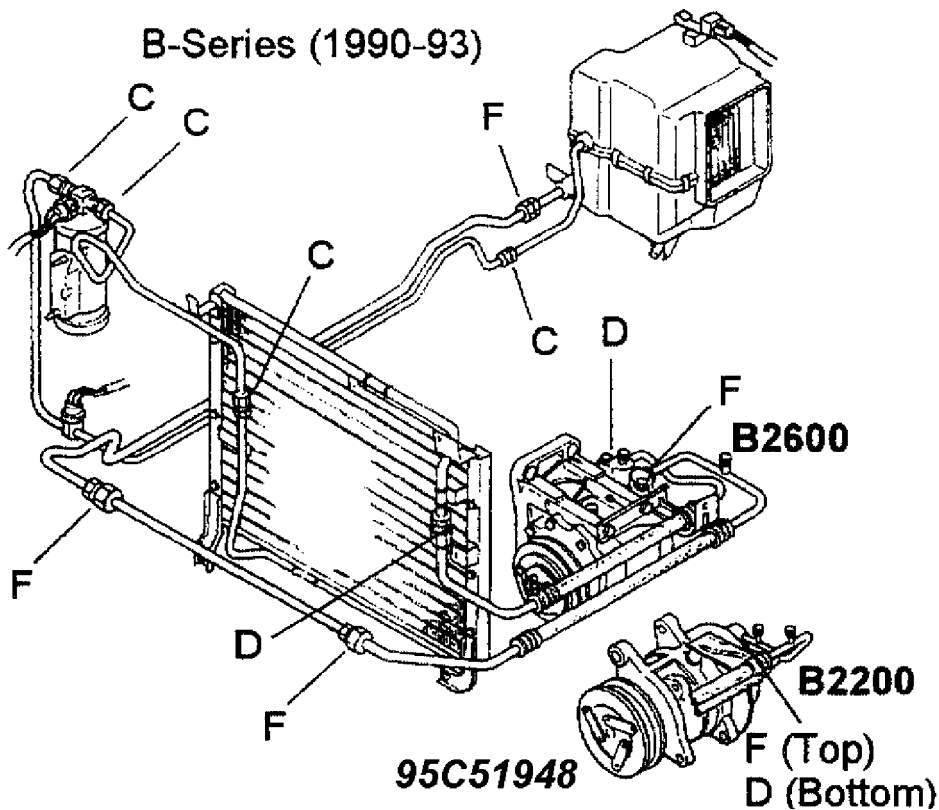


Fig. 17: 1990-93 B-Series O-Ring Identification

**1994-96 B-SERIES O-RING DESCRIPTION TABLE**

O	Pipe	O-Ring	Part Numbers	Quantity
Ring	Size	Size D X T	and	Per
Code			Kit Numbers	Vehicle
H	3/8in	7.36 x 1.80	ZZL0 61 J19(KIT)	3
J	1/2in	10.16 x 1.85	ZZL0 61 J19(KIT)	4

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3 K 3 5/8in 3 12.95 x 1.85 3 ZZL0 61 J19(KIT) 3 3 3  
AAA

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 18 for O-Ring Identification.

NOTE: Ford A/C System See Fig. 18 for O-Ring Identification.

**B-Series (1994-96)**

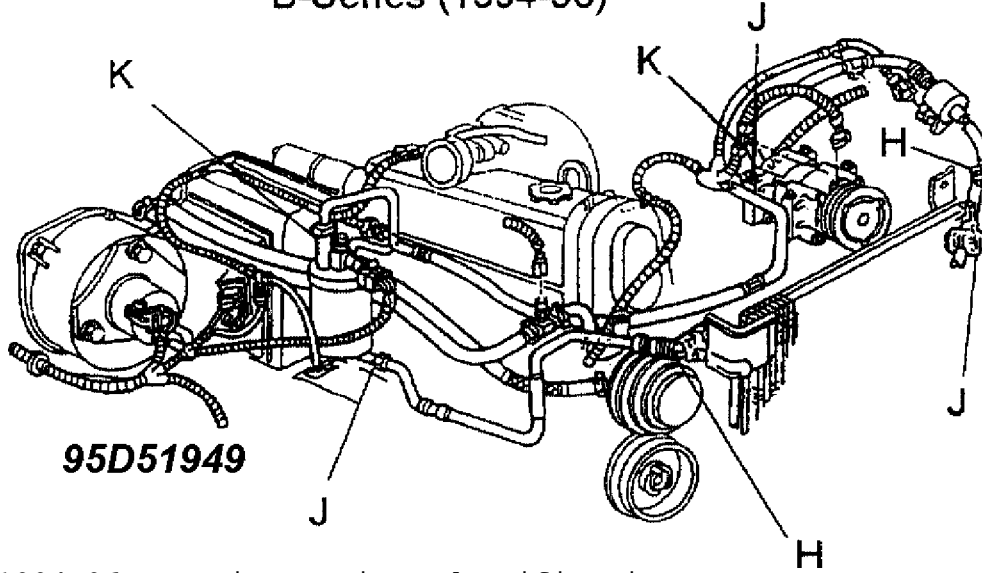


Fig. 18: 1994-96 B-Series O-Ring Identification

**1991-94 NAVAJO O-RING DESCRIPTION TABLE**

UAA;

3 O 3	3 Pipe 3	3 O-Ring 3	3 Part Numbers 3	3 Quantity 3
3 Ring 3	3 Size 3	3 Size D X T 3	3 and 3	3 Per 3
3 Code 3	3 3	3 3	3 Kit Numbers 3	3 Vehicle 3
3 H	3 3/8in	3 7.36 x 1.80	3 ZZL0 61 J19(KIT)	3 3 3
3 J	3 1/2in	3 10.16 x 1.85	3 ZZL0 61 J19(KIT)	3 4 3
3 K	3 5/8in	3 12.95 x 1.85	3 ZZL0 61 J19(KIT)	3 3 3

AAA

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.  
See Fig. 19 for O-Ring Identification.

NOTE: Ford A/C System See Fig. 19 for O-Ring Identification.

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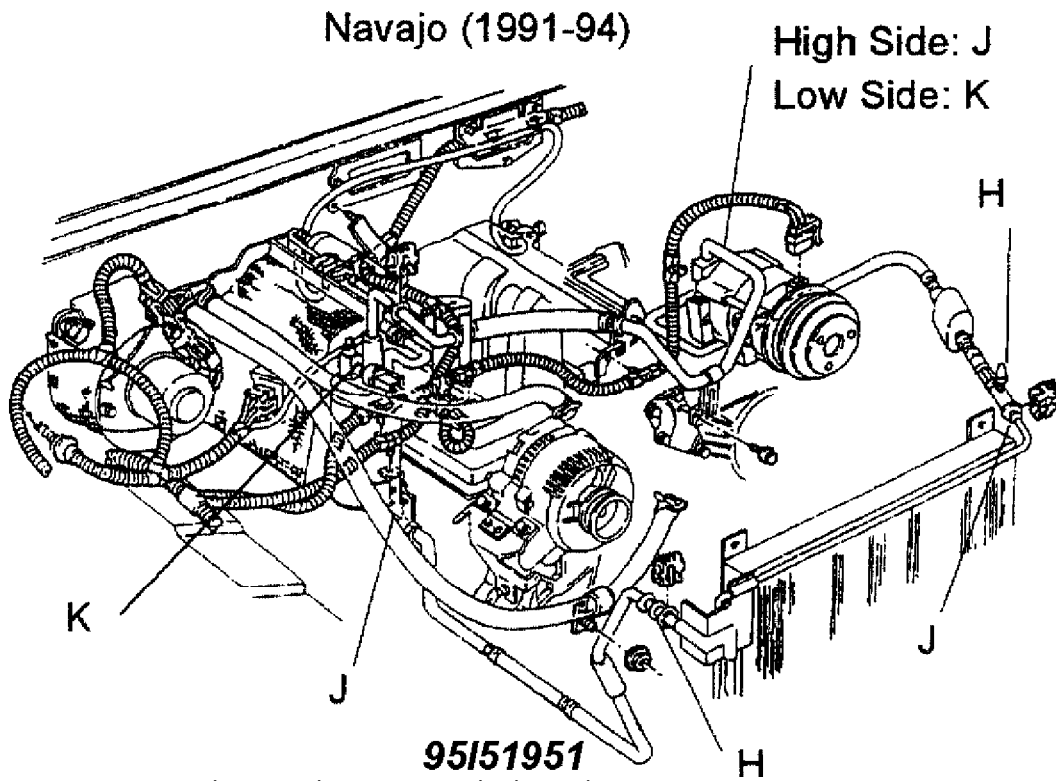


Fig. 19: 1991-94 Navajo O-Ring Identification

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**A/C O-RING REPLACEMENT**

Model(s): All Mazda Vehicles  
 Category: U  
 Bulletin No.: 001/94  
 Date: 2/28/94  
 Revised: 4/28/94

DESCRIPTION

Refer to the following illustrations and O-RING INFORMATION TABLE when replacing air conditioning system o-rings. These o-rings are designed for use in both R12 and R134 air conditioning systems.

O-RING INFORMATION TABLE

O-Ring Description											
O-Ring Code	A	B	C	D	E	F	G	H	J	K	
Pipe Size	6mm	5/16 in.	3/8 in.	12mm axial	12mm axial	16mm axial	16mm axial				
O-Ring Size	6.9x1.78	6.8x1.5	7.65x1.78	10.8x1.78	10.8x2.4	14.0x1.78	13.4x2.4	3/8	1/2	5/8	
D x T											
Part # /Kit #	LB51 / 61J1X	LB52 / 61J1X	LB53 / 61J1X	LB54 / 61J1X	LB55 / 61J1X	LB56 / 61J1X	LB57 / 61J1X		ZZLO	61 J19	(KIT)
O-ring Quantity Per Vehicle											
1989-94 323/Protege	5			3		2					
1992-94 MX-3	5			3		3					
1990-93 MX-5	4			3		3					
1994 MX-5	4			1	1	2	1				
1989-94 RX-7	6			2		3					



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1995	6			1	1	2	1				
RX-7											
1989-93		3	1	3		2					
MPV(S)											
1994		3	1	2	1	1	1				
MPV(S)											
1988-92	5			2	1	3					
626/MX-6											
1993-94	5			2		3					
626/MX-6											
1990-93			4	2		4					
B-Series											
* 1994								3	4	3	
B-Series											
*1991-94								3	4	3	
Navajo											

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.

\* These vehicles are equipped with Ford air conditioning systems. O-Rings for these systems are supplied as a kit (P/N ZZL0 61 J19). The kit contains 96 o-rings (24 o-rings each of the sizes listed above and 24, 3/4inch o-rings).

Fig. 1. Indicates where the o-ring is measured to determine diameter and thickness. Use this information and the chart above to identify the proper part if o-rings are accidentally mixed.

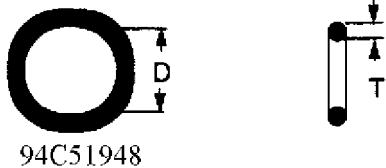


Fig. 1: O-Ring Illustration For Diameter & Thickness Measurement

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**323/PROTEGE**

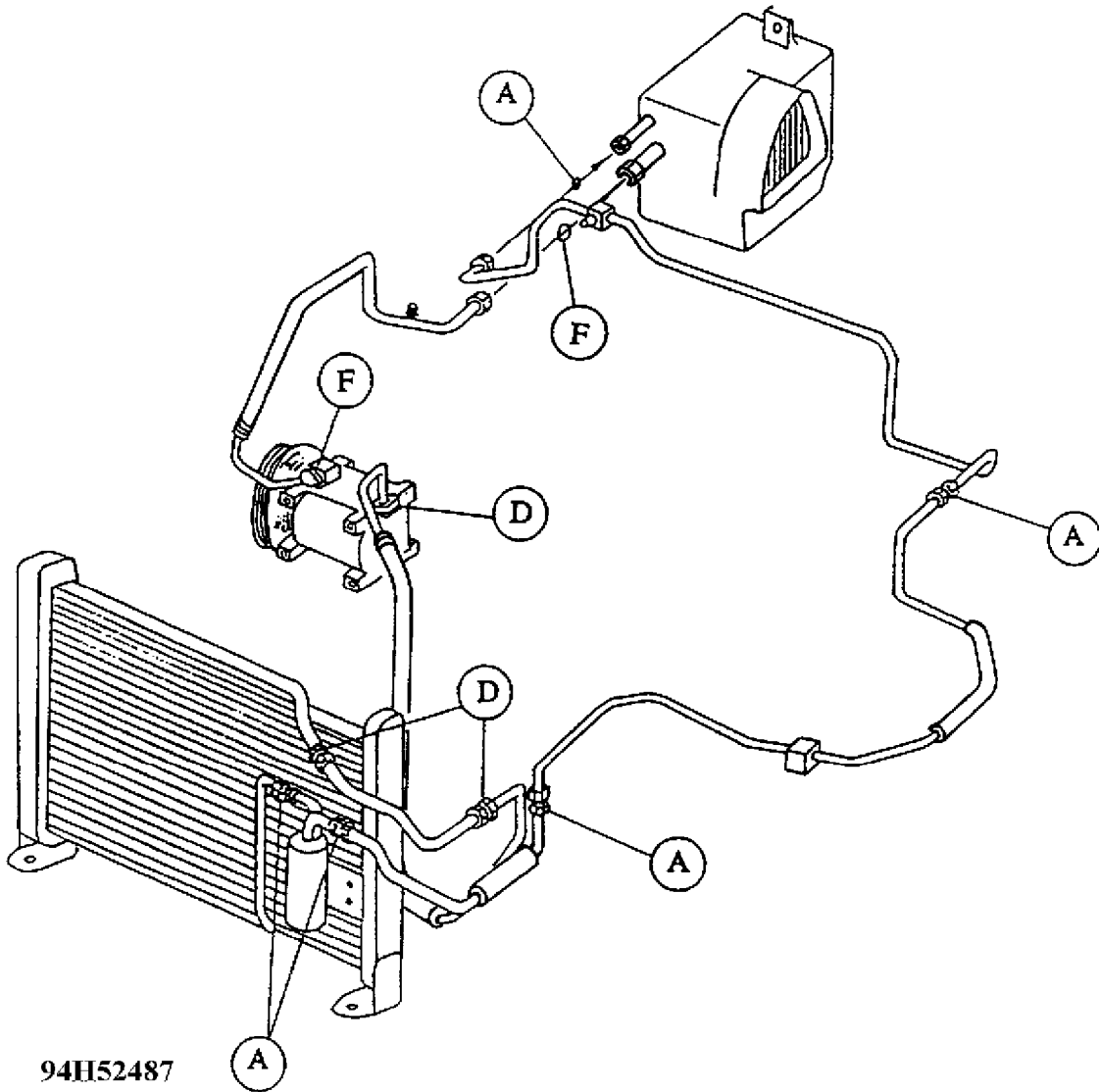


Fig. 2: 323/Protege Air Conditioning System Diagram

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**MX-3**

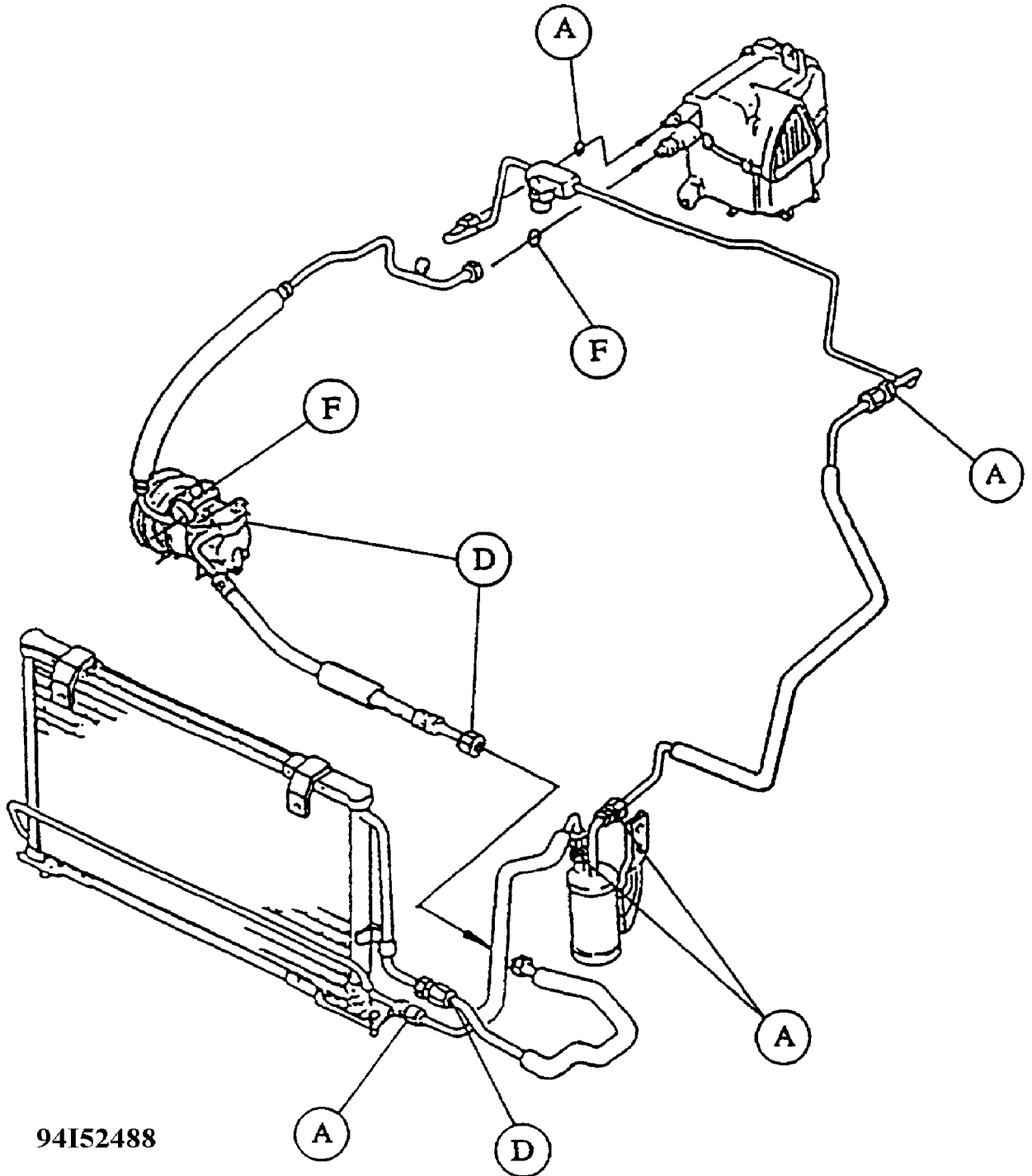


Fig. 3: MX-3 Air Conditioning System Diagram

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**RX-7**

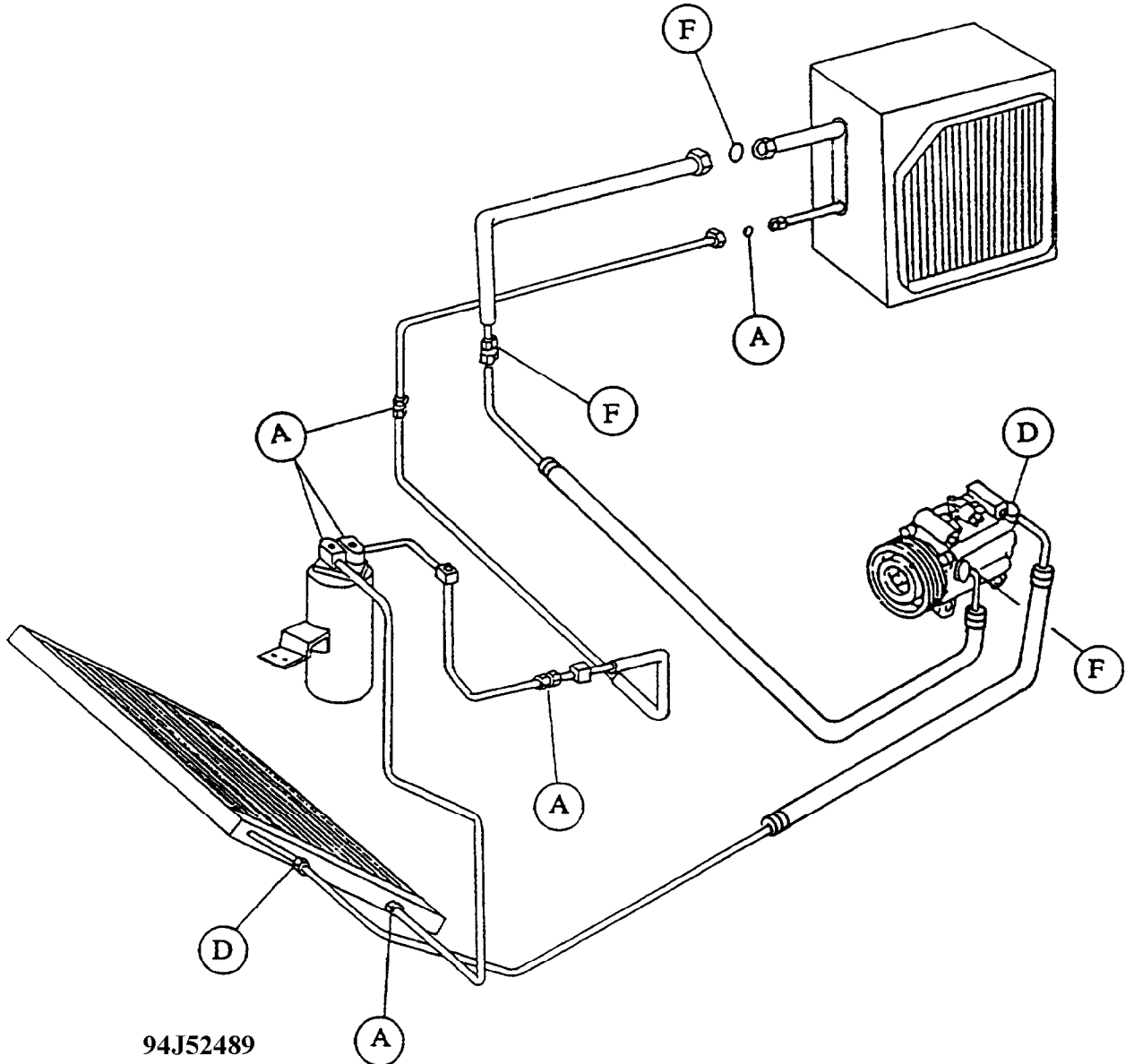


Fig. 4: RX-7 Air Conditioning System Diagram

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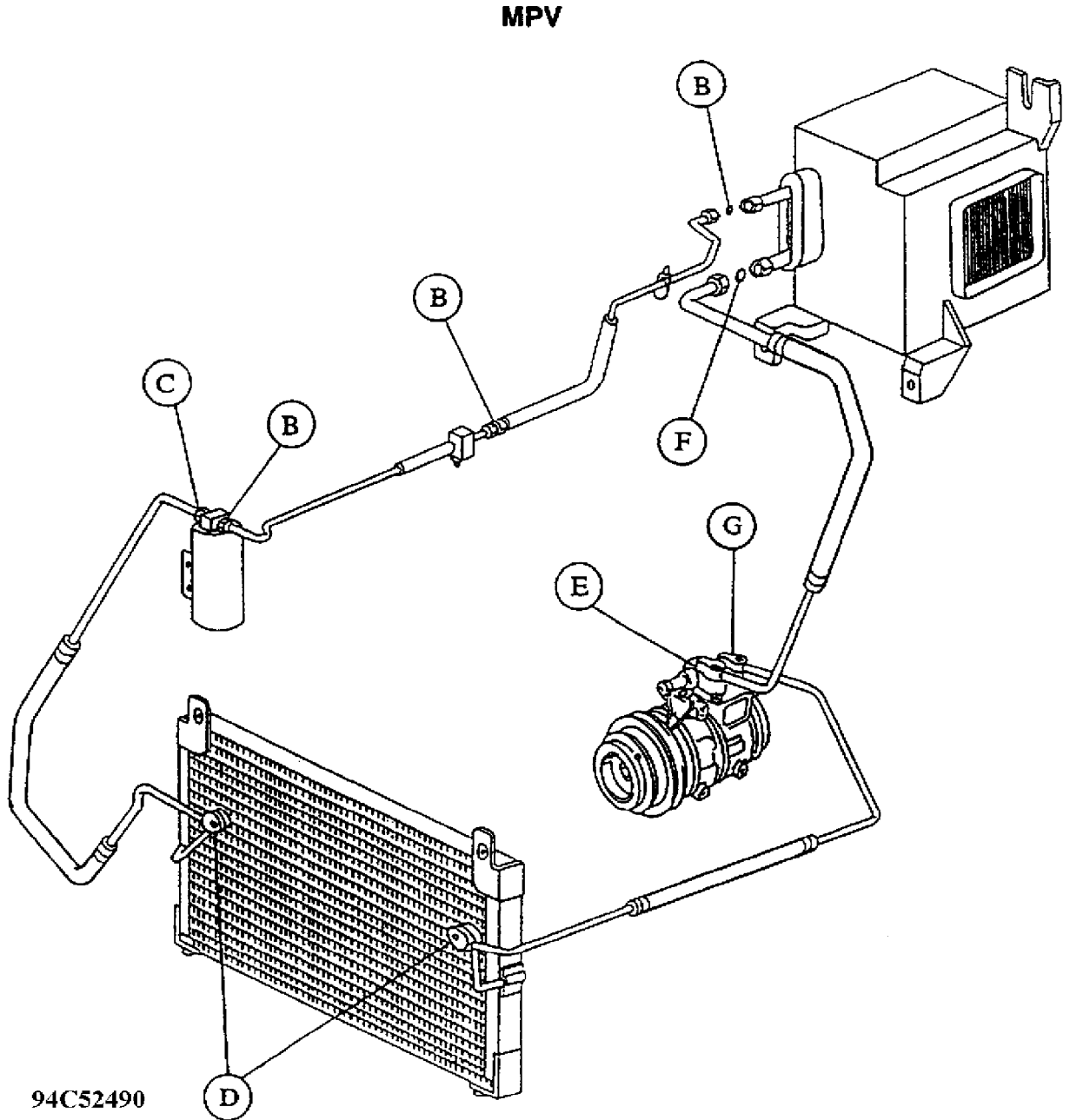


Fig. 5: MPV Air Conditioning System Diagram

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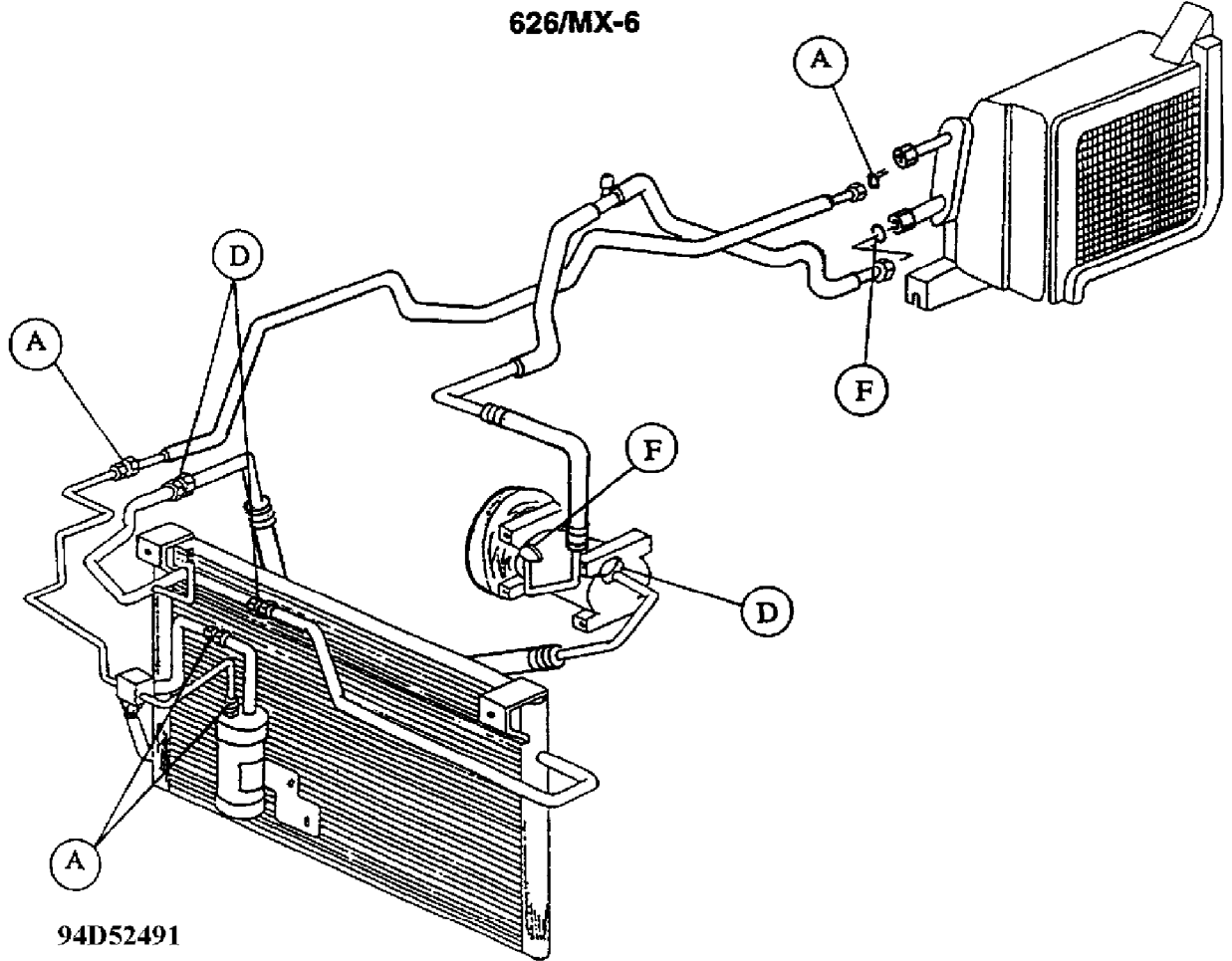


Fig. 6: 626/MX-6 Air Conditioning System Diagram



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**NAVAJO/94' B-TRUCK**

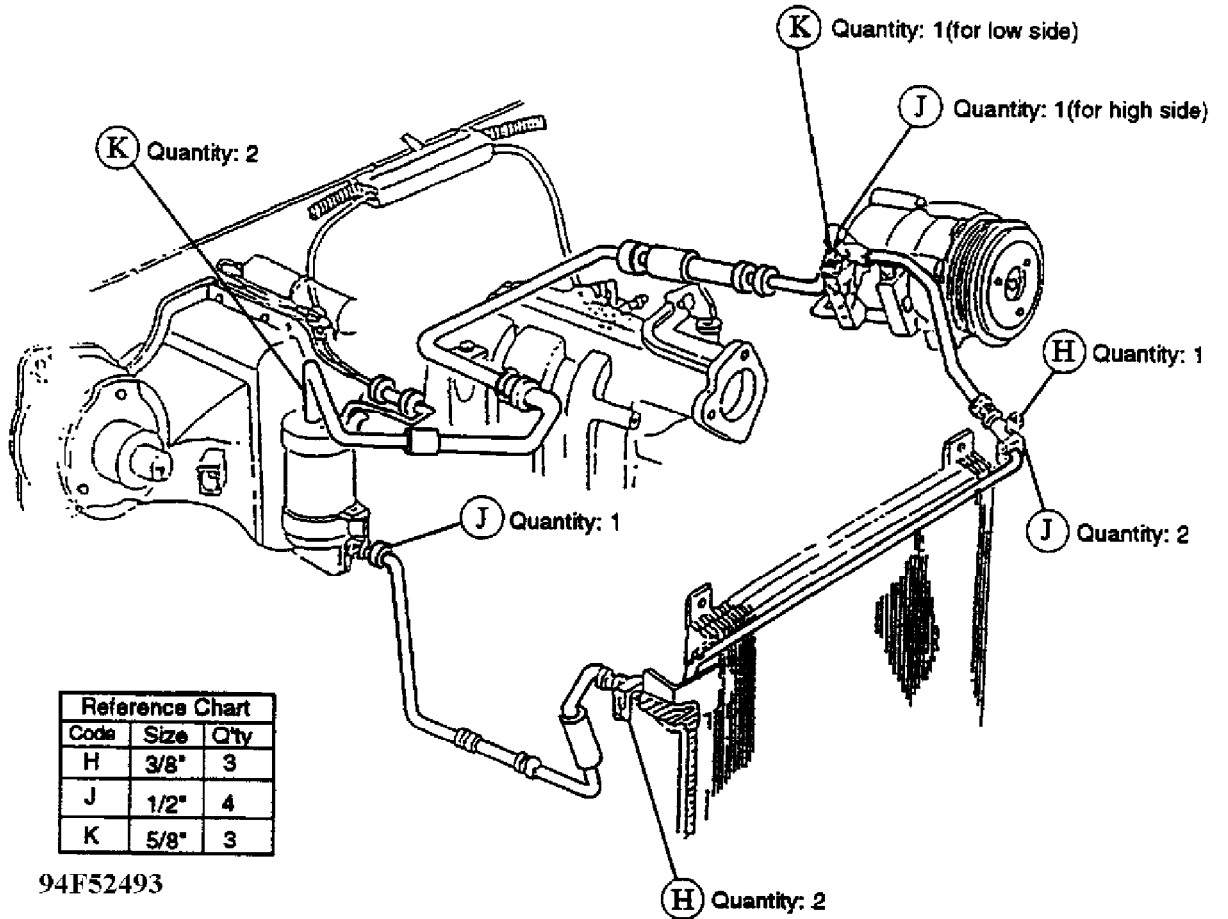


Fig. 8: Navajo/94' B-Truck Air Conditioning System Diagram

**END OF ARTICLE**



# AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### AIR CONDITIONING MALFUNCTION

Model(s): 1993-95 Mazda RX-7 (Canadian)  
Category: U - Heater & Air Conditioning  
Bulletin No.: 95-09  
Date: August 1995

### APPLICABLE MODELS/VINS

All 1993-95 RX-7 vehicles with a VIN of JM1FD333\*S0400026 and lower.

### DESCRIPTION

Either of the following conditions may occur when the air conditioning system is operated:

- \* No compressor engagement when A/C is switched on.
- \* Air flow mode switch fixed in defrost position.

These conditions may be caused by insufficient contact at the hazard switch connector (1994-95 - G-06, 1993 - G-01). See Fig. 1

NOTE: The hazard switch harness also contains the A/C control connector.

This improper connection does not affect the hazard switch operation.

Changes in the production process have eliminated this problem. Customers complaining of the above symptoms should have the problem verified and if necessary, corrected.

### REPAIR PROCEDURE

1. Verify the complaint.
2. Remove the control panel and the heater control unit. See Fig. 1. Refer to section G of the BETM for removal instructions.

## AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09

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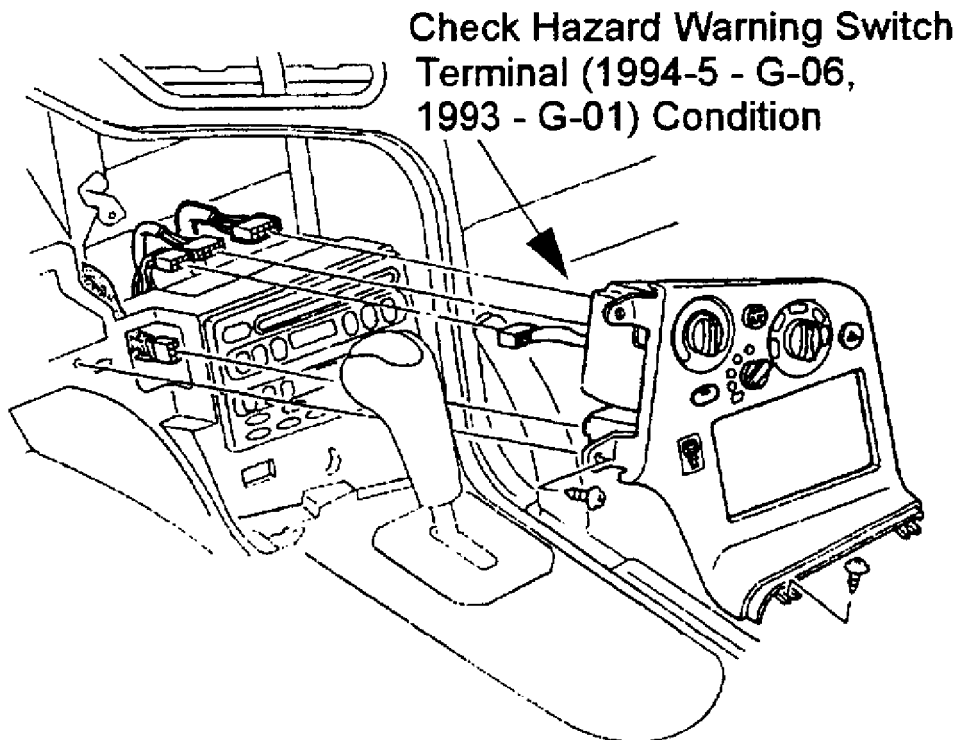


Fig. 1: Removing Control Panel/Heater Control Unit

3. Check the hazard warning switch terminals. Refer to information in the TERMINAL CONNECTION EXAMPLES for problem examples.

- \* If the female terminals are damaged (expanded), remove the switch from the A/C control unit and replace it with a new part.
- \* If the terminals are normal, re-assemble and test. If problems still exist, refer to the BETM or workshop manual for troubleshooting information.

CAUTION: Avoid damage to pins by inserting the connectors straight. Refer to TERMINAL CONNECTION EXAMPLES.

### TERMINAL CONNECTION EXAMPLES

#### MALE CONNECTORS

1. Hold the housing when connecting and disconnecting.
2. To avoid connector pin damage:
  - \* align the connector and housing at the appropriate angle.
  - \* Slightly wiggle the connector right and left then slowly insert straight into the assembly. Refer to Fig. 2 and Fig. 3.
  - \* Avoid forcing the connection or mis-alignment.

**AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09**

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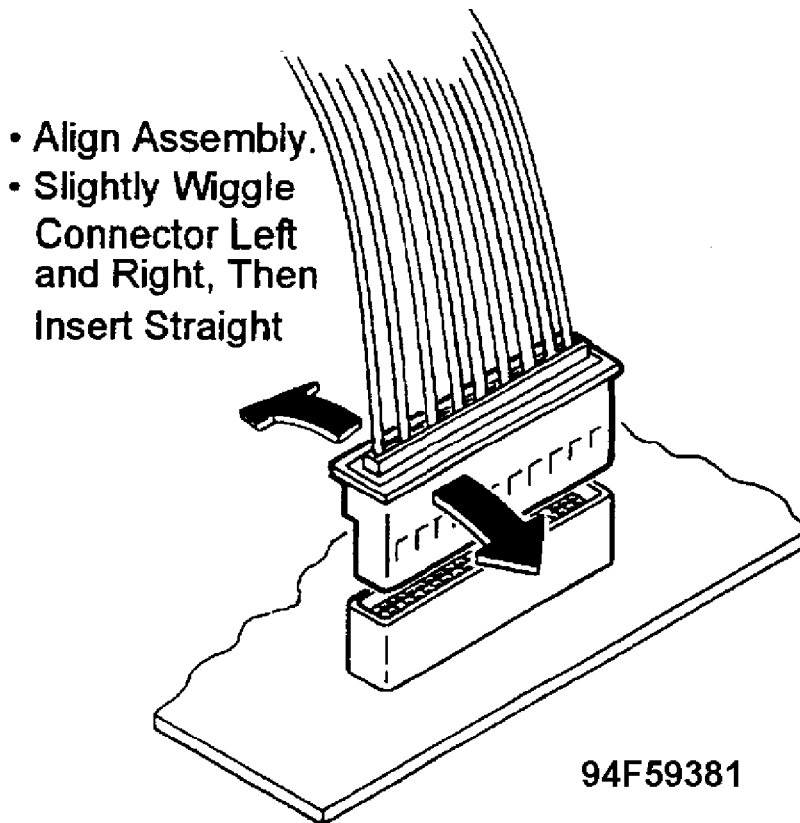


Fig. 2: Correct Installation of Male Connectors

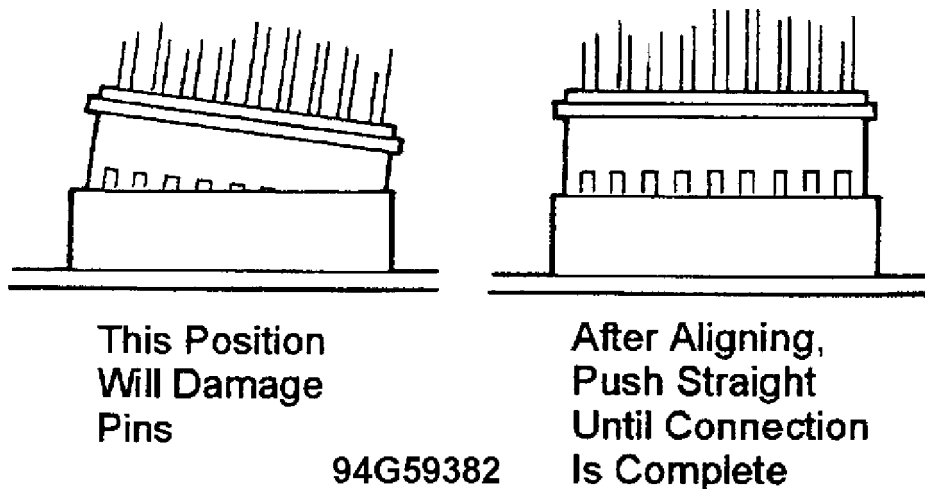


Fig. 3: Installation of Male Connectors

**HARNESSES**

1. DO NOT STRETCH harnesses to connect connectors.
2. Route harnesses to provide slack in harness and no stress on connector. Refer to Fig. 4.

**AIR CONDITION MALFUNCTION - HAZARD SWITCH CONTACTS CAT. U, NO. 95-09**

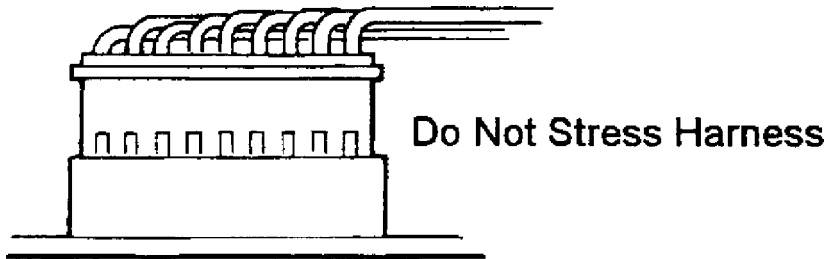
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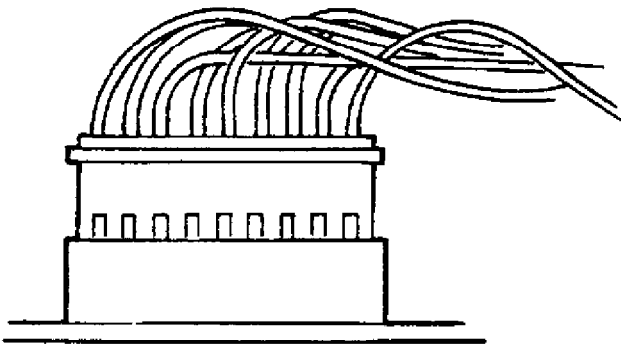
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**Allow Slack When Routing**



**94H59383**

Fig. 4: Correct Installation of Harness

**WARRANTY INFORMATION**

(Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT Microfiche for warranty term information).

Warranty Type:	A
Symptom Code:	60
Damage Code:	9G
Part Number Main Cause:	FD01 66 4H0
Quantity:	1
Operation Number:	T0204XRX
Labor Hours:	0.3Hrs.

**END OF ARTICLE**

## DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-07  
Date: May, 1997

### DESCRIPTION

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- \* Incomplete connection
- \* Loose female terminals
- \* Terminals that are pushed out of their connectors
- \* Water inside the connector
- \* Terminal corrosion

Also check each related harness for damage.

**END OF ARTICLE**

## HEATER HOSE/CORE CONNECTOR DEALER HINT MT 0597-09

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

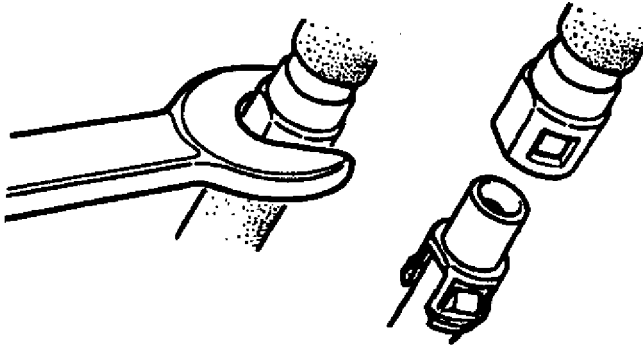
DEALER HINT: HEATER HOSE/CORE CONNECTOR

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-09  
Date: May, 1997

### DESCRIPTION

The following hint was submitted by George Beck of New London Mazda in New London, Connecticut.

An easy way to disconnect the heater hoses from the heater core is to insert a 20 mm or 13/16 in. open end wrench into the slots of the quick coupler, then pull the hose out. See Fig. 1.



98B51715

Fig. 1: Heater Hoses

END OF ARTICLE

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### HEATING SYSTEM TROUBLESHOOTING MANUAL

Model All Mazda Models  
Category U  
Bulletin No. 93-04  
Date September, 1993

#### DESCRIPTION

This Service Bulletin contains a new Heating System Troubleshooting Manual that was developed by the Mazda Canada Quality Assurance Section. The diagnostic procedures were developed and tested in Canada during a Cold Weather Test that took place in February 1993. The diagnostic procedures were tested on vehicles in which customers had complained about a lack of heat for several winters. The effectiveness of these procedures was confirmed.

#### SPECIAL NOTE

This same manual will also be used as a hand out for all forth coming Training Courses on Climate Control Systems.

### HEATER AND DEFROSTER TROUBLESHOOTING MANUAL

#### INTRODUCTION

An investigation was conducted using customer vehicles at dealer-ships across North America over a two year period. The investigation was conducted to determine if there were any concerns that were difficult to repair using existing Mazda repair manuals. The following list represents items most commonly left unrepaired or undiagnosed by the dealer.

1. Air leakage between the blower unit and the cooler unit.
2. Missing or mis-installed sealing grommets in the firewall.
3. Incorrect operation of the thermostat.
4. Improper usage of the recirculation and fresh air mode of the ventilation system.

In order to assist in the correct diagnosis and repair of Heating System concerns the following troubleshooting manual was developed. See Fig. 1. for a visual description of the Climate Control System.

HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

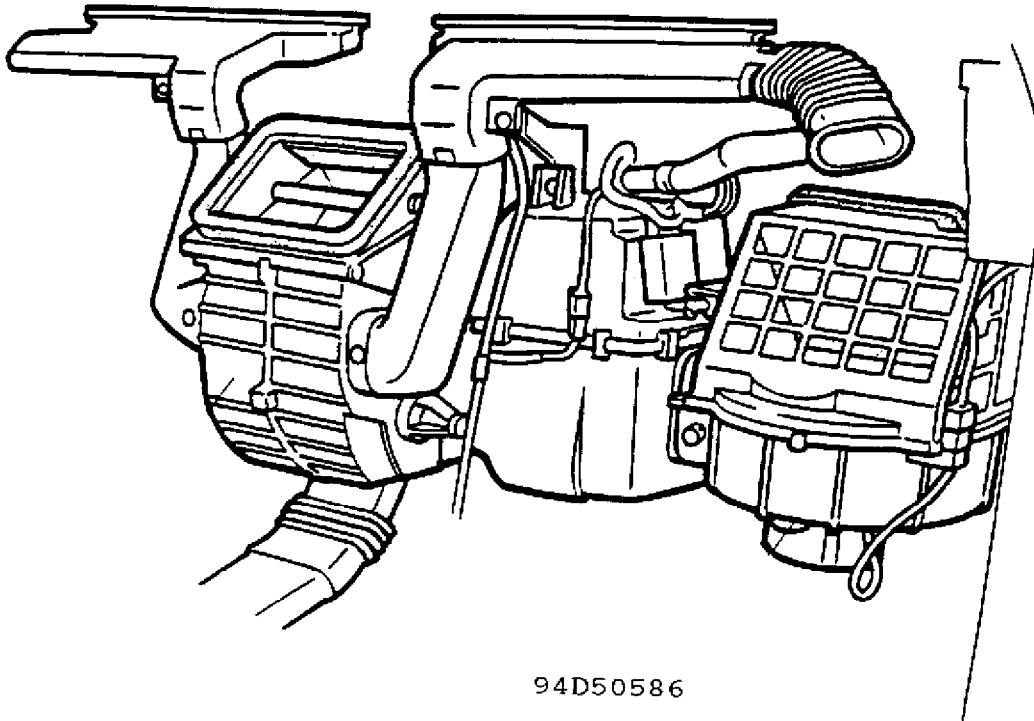
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94D50586

Fig. 1: Climate Control System

USING THIS MANUAL

Follow the flow charts and diagnostic procedures below to repair the complaints which were determined on the Customer Comment Sheet.

UAAAAAAAAAAAAAAAAAAAAAAAAAA¿

3 1. Complete customer 3  
3 comment sheet. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAA¿

3 2. Determine Nature of complaint 3  
3 a) problem or b) improper usage 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAA¿

UAAAAAAAAAAAAAAAAAAAAAAAAAA¿

3 3a. Use diagnostic flow 3  
3 chart to determine 3  
3 repair procedure. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAA¿

3 4. Use check sheet to 3  
3 perform repairs. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAA¿

3 3b. Instruct on proper 3  
3 system usage. 3

AAAAAAAAAAAAAAAAAAAAAAAAAU



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- 1. Collect detailed complaint information from the customer using the Customer Comment Sheet.
2. Use the information collected on the Customer Comment Sheet to determine the nature of the complaint.
3a. Refer to the diagnostic flow chart and determine the necessary checks.
3b. After determining the complaint is of a usage nature instruct the customer on the proper operation of the system.
4. Use the Check Sheet to perform the necessary repairs.

Separator line of asterisks

CUSTOMER COMMENT SHEET

Please complete the following with the aid of the customer.

1. Heater Concern

Separator line of asterisks

No. Customer Comment Checked Result

Separator line of asterisks

1 Water temp indicator reads low at high speed

Separator line of asterisks

2 While driving the interior temp. is cooler than when parked

Separator line of asterisks

3 Heater outlet air temperature is always cold

Separator line of asterisks

4 Passenger side is cooler than driver's side

Separator line of asterisks

5 Passenger feels cold air at feet

Separator line of asterisks

6 After vehicle interior has reached normal temperature cool air is felt at body

Separator line of asterisks

7 Upper body is cooler than foot

Separator line of asterisks

8 Temperature is unbalanced between driver's and passenger's side

Separator line of asterisks

2. Defroster Concern

Separator line of asterisks

1 At cold temperatures or high

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3 humidity the windows never clear 3 3
3 (all) 3 3

AA

2 3 Even after reaching normal 3 3
3 operating temp. the front wind- 3 3
3 shield is only cleared 30-50 % 3 3

AA

3 3 Rear window does not clear 3 3

AA

4 3 Rear window clears only in the 3 3
3 middle 3 3

AA

3. Temperature Control Concern

AA

1 3 Difficult to set temperature 3 3

AA

2 3 Temperature unbalance between 3 3
3 head and foot 3 3

AA

3 3 Temperature unbalance between 3 3
3 driver and passenger seat 3 3

AA

4. Other Concerns

AA

1 3 3 3

AA

2 3 3 3

AA

3 3 3 3

AA

Record in the appropriate column if the item was checked and the result.

AA

1. Heater Concern - Use the Diagnostic Flow Chart (see Fig. 2) to determine the necessary diagnostic checks. Refer to the Check Sheet.

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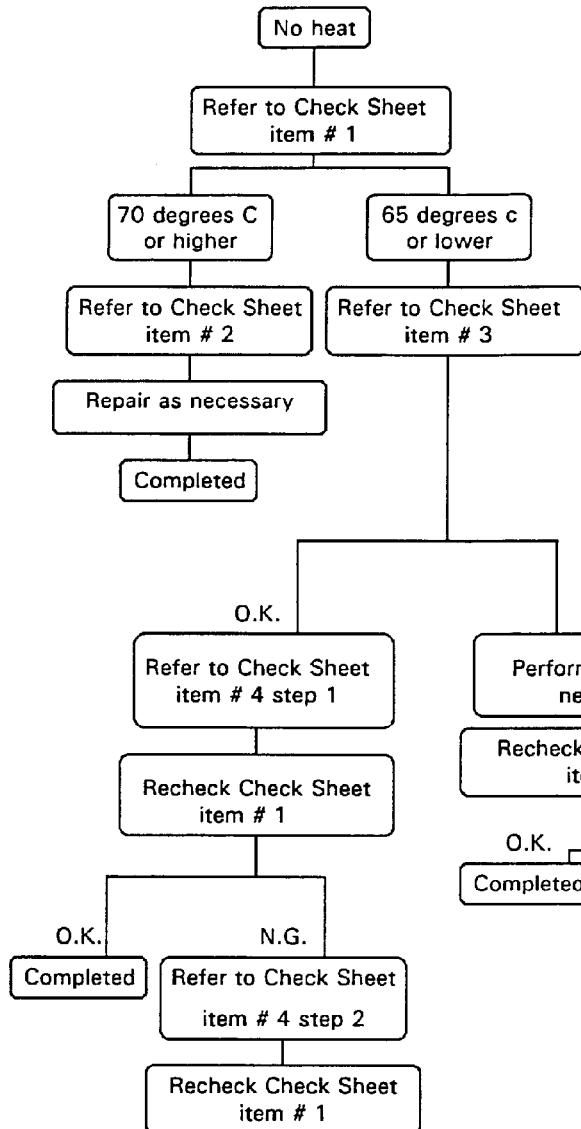
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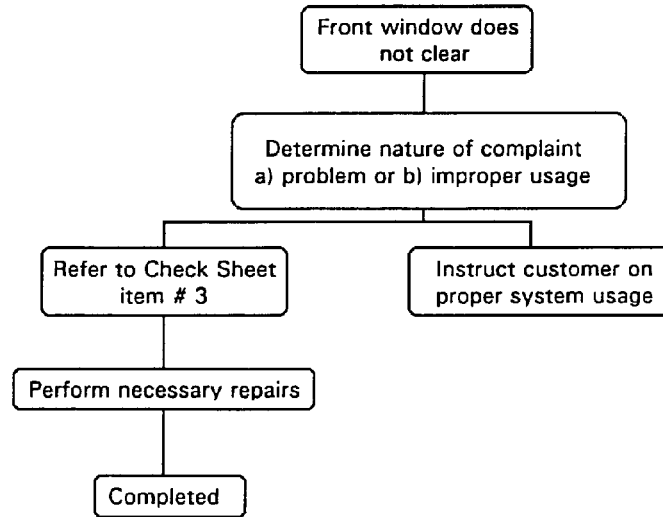
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### Diagnostic Flow Chart

#### 1. Heater Concern



#### 2. Defroster Concern



94F50588

Fig. 2: Diagnostic Flow Chart

#### CHECK SHEET

##### Heater concern

Item 1: Measuring Vent Outlet Air Temperature

1. Place transmission in park or place manual transmission in neutral and set the parking brake.
2. Start the engine and let idle until the engine reaches normal operating temperatures.

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3. Adjust the climate controls to the following settings:

Function .....	Bi-level
Temperature .....	Max. hot
Fan speed .....	2
Recirculate/fresh ....	Fresh

4. Raise the engine speed to 2000 rpm and hold for ten minutes.

5. Measure the vent outlet air temperature.

NOTE: The thermostat will cycle after the engine has reached operating temperatures. Measure outlet air temperature several times over a ten minute period to attain the high temperature reading (thermostat closed).

### Item 2 - Air Leakage

#### A. Interior Components

1. Remove the lower kick panel on passenger side.

2. Remove the glove box.

3. Adjust the climate controls to the following settings:

Function .....	Defrost
Temperature .....	Max. hot
Fan speed .....	4
Recirculation-fresh .....	Fresh

4. Check for leakage between blower unit and cooler unit (air duct).

5. Check for leakage between cooler unit (air duct) and heater unit.

NOTE: Air duct is present only on vehicles not equipped with air conditioning.

#### B. Engine compartment

1. Turn off the engine.

2. Raise the hood and visually inspect the following for proper sealing:

- \* A/C drain grommet
- \* A/C pipes where they enter the cooling unit at the firewall.
- \* Heater pipes where they enter the firewall.
- \* All body harnesses that pass through the firewall.
- \* Speedometer cable.

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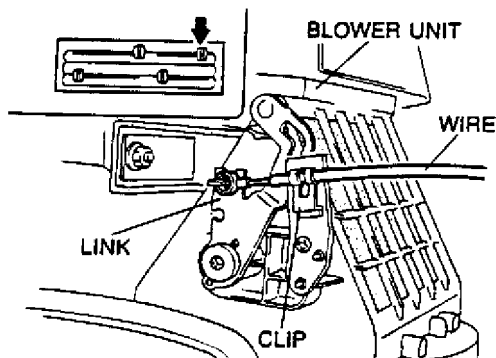
NOTE: Do not perform the above checks with the engine running.

### Item 3 - Link and Wire Adjustment

1. Remove the kick panel on the passenger side of the vehicle.
2. Remove the glove box.
3. Place the transmission in park or set manual transmission in neutral and set the parking brake.
4. Start the engine and allow to idle.
5. Set the climate controls to the following settings:

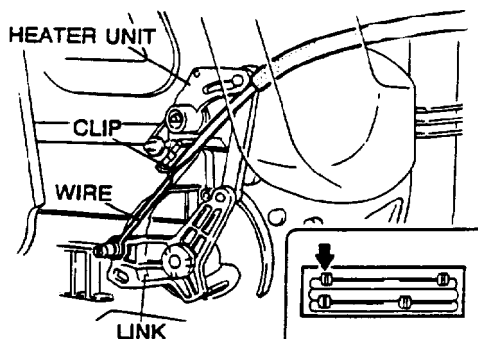
Temperature ..... Max. hot  
Recirculation-fresh ... fresh

6. Using Figs. 3 and 4 for reference, ensure the linkages are adjusted properly.



94G50589

Fig. 3: Blower Unit Linkage Adjustment



94J50590

Fig. 4: Heater Unit Linkage Adjustment

### Item 4 - Coolant By-passing the Thermostat/Thermostat Stuck

## HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

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1. Drain the engine coolant from the radiator.
2. Remove the thermostat from the thermostat housing.
3. Visually inspect the coolant passages and thermostat housing for any casting debris.
4. Feel around inside the thermostat housing for any foreign materials, especially in the area around the heater pipe outlet. If present, remove any casting sand or debris which may be blocking the coolant passages or causing the thermostat to stick open.
5. Verify the operation of the thermostat using the appropriate workshop manual.

NOTE: In addition to the procedure to check for proper thermostat opening the following check must be performed to ensure the thermostat is closing properly. When the thermostat has opened fully continue to bring the water to a boil. When the water has reached a boil remove the thermostat from the water and set it on the work bench. Closely watch as the thermostat begins to close and that it closes smoothly and does not hang up.

6. If the thermostat fails either of the above tests, Replace it.
7. Using a filter, refill the radiator with engine coolant.

#### Recommended Climate Control System Operation

If all systems check out O.K., or through reviewing the Customer Comment Sheet it is determined the system is being operated incorrectly, instruct the customer on the proper system operation using the operating guidelines listed below.

#### Item 1 - Air Intake Selector (Fresh/Recirculation)

This selector controls the source of air that enters the vehicle. Usually, for heating or defrosting the air intake selector should be in the "Fresh" or outside air mode. However, if there is a heavy presence of exhaust fumes in the surrounding area it may be necessary to switch to the "Recirculation" mode. It is important to remember to return to the "Fresh" mode because humidity may build up in the "Recirculation" mode causing the windows to fog up. See Fig. 5. Another method to help reduce humidity within the vehicle is to use the Air Conditioning system. Its dehumidifying characteristics can be taken advantage of in any situation.

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

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**Type A**



**Type B**



94A50591

Fig. 5: Air Intake Selector (Type A and B)

### Item 2 - Function Selector

This selector controls the direction of the airflow from the vents. On initial start during cold or high humidity temperatures the selector should be placed in the defrost position and the fan speed set to 3 or 4. After the front and side windows become clear the selector can be switched to defrost/heat and then to heat only as necessary and the fan speed reduced. If the front or side windows begin to fog again while driving the selector should be reset to the defrost/heat or full defrost and the fan speed adjusted as necessary. In addition to the above, air-conditioning can be used in conjunction with the heating system to control the humidity level in the vehicle while providing heat.

**Type A**



**Type B**



94B50592

Fig. 6: Function Selector (Type A and B)

### Item 3 - Temperature Selector Lever

This lever controls air temperature by sliding the lever either to the right for hot or to the left for cold. On start up during cold temperatures the selector should be set to the full heat position at far right of the selectors travel. See Fig. 7.

As the interior of the vehicle reaches the desired temperature the selector should be adjusted to the left towards the cold setting by increments until the desired temperature is reached.

# HEATING SYSTEM TROUBLESHOOTING CAT. U, NO. 93-04

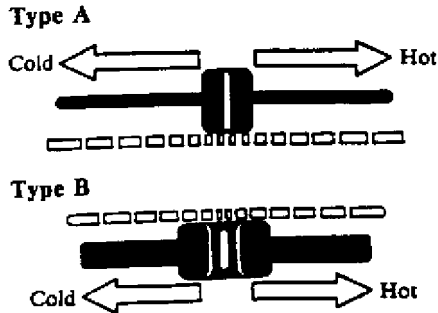
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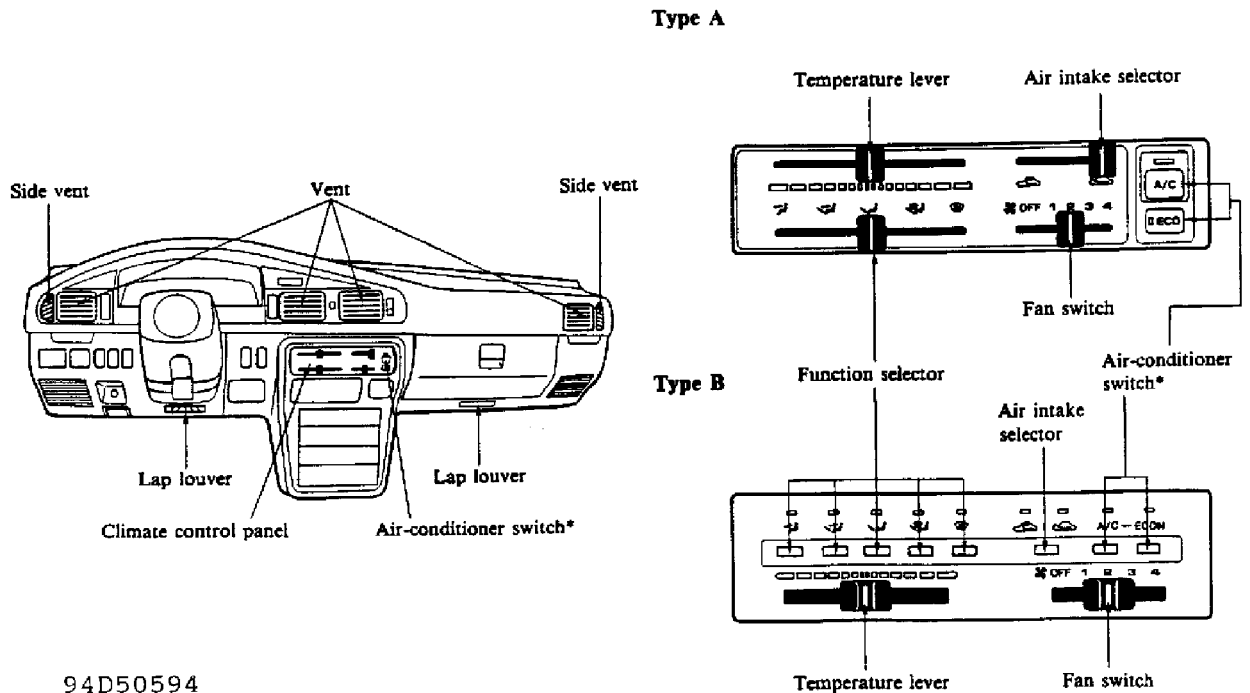


94C50593

Fig. 7: Temperature Selector (Type A and B)

## Climate Control System

Shown in Fig. 8 is a typical climate control system. Detailed descriptions of each function are found under the heading "Driving Your Mazda" in the appropriate Owners Manual.



94D50594

Fig. 8: Climate Control System Layout

END OF ARTICLE



**HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**REQUIREMENTS OF HFC-134A A/C RECOVERY AND RECYCLING TRAINING & EQUIPMENT**

Model(s): All Mazda Models  
Category: ST - Special Tools  
Bulletin No.: 008/95  
Date: November 24, 1995

**DESCRIPTION**

A new law by the United States Environmental Protection Agency (EPA) requires all who work with and make A/C repairs to have:

- \* Technicians trained and certified by an EPA approved organization
- \* EPA approved HFC-134a recovery/ recycling or recover-only equipment.

These requirements became effective November 15, 1995.

To become more familiar with this new law, review the EPA fact sheet RECYCLING REFRIGERANT FROM MOTOR VEHICLE AIR CONDITIONERS. It further explains this law and addresses some general concerns. For your convenience, the LIST OF APPROVED SECTION 609 CERTIFYING ORGANIZATIONS and APPROVED REFRIGERANT RECOVERY/RECYCLE EQUIPMENT referenced in the fact sheet are also included.

**RECYCLING REFRIGERANT FROM MOTOR VEHICLE AIR CONDITIONERS**

AA

A regulation signed in July, 1992 by the administrator of the United States Environmental Protection Agency (EPA), requires that motor vehicle air conditioning refrigerant be recycled. This fact sheet will help you become familiar with this law and address some of your concerns.

**OUR THREATENED OZONE LAYER**

The stratospheric ozone layer shields the earth from harmful ultraviolet (UV) radiation. Scientists worldwide believe that synthetic chemicals such as chlorofluorocarbons (CFC's also know by the trade name Freon) are rapidly destroying this layer of gas 10 to 30 miles above the earth's surface. Ozone loss of 3.5% globally has already been recorded and is greatest over Antarctica, where a seasonal ozone "hole" occurs. Recent data strongly suggests that substantial losses may also develop over the North Pole, exposing

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parts of the U.S. to increasing levels of UV radiation.

Ozone loss in the atmosphere is likely to lead to an increase in skin cancer and cataracts and could weaken the human immune system. Agriculture, as well as plant and animal life, may also be dramatically affected.

### IMPACT OF MOTOR VEHICLE AIR CONDITIONERS

One of the single largest uses of CFC's in the U.S. is as a refrigerant in automobile air conditioners. CFC 12 in motor vehicles accounts for over 20% of all CFC use in this country.

Commonly released into the air when car or truck air conditioners are serviced, CFC's rise to the stratosphere where they can remain active for up to 120 years. Solar rays break these molecules apart releasing chlorine. A single chlorine atom can destroy over one hundred thousand ozone molecules

### WORLDWIDE ACTION TO PROTECT THE OZONE LAYER

The United States has joined over 135 other countries in a global effort to protect the ozone layer as a Party to the international treaty known as the Montreal Protocol. In 1990, these countries agreed to phase out production of ozone depleting substances, including CFC-12, by the year 2000. The 1990 Clean Air Act Amendments (the Act) incorporated this production phase out data and also addressed the use and emission of these chemicals. President Bush later pledged to halt almost all U.S. production of CFC's by the end of 1995.

Section 609 of the Act gives the EPA the authority to establish requirements to prevent the release of refrigerants during the servicing of motor vehicle air conditioners. Recycling of CFC's can occur at minimal cost and without damaging motor vehicle A/C systems.

The following sections describe the requirements of the law and its potential impact on the service industry.

### CLEAN AIR ACT REQUIREMENTS

#### APPROVED EQUIPMENT

Technicians repairing or servicing motor vehicle air conditioners must use either refrigerant recover/recycle or recover-only equipment approved by the EPA. Recover/recycle equipment both recovers the refrigerant from the motor vehicle and processes it through an oil separator, a filter, and a dryer. Approved recover/recycle machines meet the technical specifications of SAE Standard J-1990 and must have the capacity to purify used refrigerant to SAE Standard J-1991 for safe and direct return to the air conditioner following repair.

Recover-only equipment removes the refrigerant from the A/C unit as specified by SAE Standard J-2209 and transfers it into a holding tank.

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Technicians are then required by law either to recycle the used refrigerant on site or send it to an off-site reclamation facility to be purified to ARI Standard 700 before it can be used to recharge A/C equipment.

A list of approved equipment is available from EPA at the address on the back of this fact sheet. Most certified equipment will be labeled AC "design certified to SAE standards."

### TECHNICIAN TRAINING AND CERTIFICATION

Technicians who repair or service motor vehicle air conditioners must be trained and certified by an EPA Approved organization. Training programs must cover use of recycling equipment in compliance with SAE Standard J-1989, the regulatory requirement, the importance of refrigerant containment, and the effects of ozone depletion. To be certified, technicians must pass a test demonstrating their knowledge in these areas. A list of approved testing programs is available from EPA at the address on the back of this fact sheet.

### SALES RESTRICTIONS

The sale of any size containers of CFCs to anyone other than certified technicians is prohibited after November 14, 1994. This provision is intended to discourage "do-it-yourselfers" who recharge their own air conditioners. Such individuals often release refrigerant because they typically do not have access to recycling equipment. The Agency encourages "do-it-yourselfers" to bring their cars to certified technicians who can properly fix air conditioners using approved equipment. This avoids damage to A/C equipment by improper charging and helps to protect the environment.

### RECORD KEEPING REQUIREMENTS

Service shops must certify to EPA that they own approved equipment. If refrigerant is recovered and sent to a reclamation facility the name of that facility must be retained.

### IMPACTS ON A/C SERVICE

Because of the planned CFC phase-out and the tax on CFC's shops that service air conditioners can expect the price of CFC-12 to increase and its availability to decrease. Widespread refrigerant recycling, however, reduces the need for virgin CFC-12 and thus helps keep costs down. Refrigerant recycling is an important step towards the goal of eliminating CFC use. It means that car owners can have their air conditioners fixed until alternatives to CFC-12 are developed.

### REFRIGERANT IN NEW CARS

Automobile manufacturers are responding to the CFC phase out by producing new vehicles with an alternative refrigerant called HFC-

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134a. This refrigerant does not deplete the ozone layer because it does not contain chlorine. About half of the 1993 model year cars and almost all 1994 model year cars are equipped with HFC-134a air conditioning systems.

### CHOICES FOR OLDER CAR OWNERS

As for existing cars, when the supply of CFC-12 is no longer available, owners may modify their A/C systems to accept the HFC-143a.

Since the HFC-134a works at a higher pressure than the CFC-12 retrofitting will require that some components be replaced. EPA estimates that retrofits will cost between \$100 - \$800.00. The specific requirements will vary depending on the make, model and age of the car, and on the car's history of air-conditioning servicing. If you are having major service performed on your CFC-12 air conditioning system, modifying the system may be appropriate. Auto manufacturers are currently working to identify retrofit procedures. Most have toll-free consumer hot lines which you can call to determine if retrofit procedures have been developed for your automobile.

### ALTERNATIVE REFRIGERANTS

EPA'S Significant New Alternatives Policy (SNAP) program reviews alternatives to CFC-12 to determine the risks posed to human health and the environment by that alternative. HFC-134a has been approved under the SNAP program. Some refrigerant manufacturers and distributors are conducting research to determine if other substitutes exist which will cool adequately, work compatibly with the components in A/C systems with minimal retrofit procedures. These substitutes must be reviewed under the SNAP program. It is important to keep in mind that the SNAP program does not evaluate the effect of a substitute refrigerant on the life or performance of the components in your car's A/C system, or the effect of a substitute on the system's cooling capacity.

By November 15, 1995, all substitute refrigerants will have to be recovered and recycled, technicians handling those substitutes will have to be certified, and equipment used to service those substitutes will have to be approved.

By complying with these regulations, you will help preserve the ozone layer for future generations.

For further information please contact the Stratospheric Ozone Information Hotline at 1-800-296-1996 (10a.m. - 4p.m. EST, Monday - Friday, except federal holidays), or you may write:

MVAC's Recycling Program Manager  
Stratospheric Protection Division  
6205J  
U.S. Environmental Protection Agency  
401 M Street, S. W.

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Washington, D.C. 20406

AA

APPROVED REFRIGERANT RECOVERY/RECYCLE EQUIPMENT

AA

The following lists contain the section 609 approved refrigerant recover/recycle and recover-only equipment.

TABLE 1 - Contains recover/recycle equipment approved by Underwriters Laboratory (UL) and ETL Testing Laboratories, Inc.

TABLE 2 - Contains recover/recycle equipment determined to be substantially identical to approved equipment.

TABLE 3 - Contains recover-only equipment approved by Underwriters Laboratory (UL) and ETL Testing Laboratories, Inc.

TABLE 4 - Contains recover-only equipment determined to be substantially identical to approved equipment.

All lists will be updated as equipment is approved. Models listed for the first time in this update are in bold type.

TABLE 1 - APPROVED (UL) RECOVER/RECYCLE EQUIPMENT

TABLE 1 - APPROVED (UL) RECOVER/RECYCLE EQUIPMENT

TABLE 1			
Manufacturer		Model	
A. Gramkow		RRC	
AES NTRON		Retriever 2.2AC and 2.2A	
Airosol Company, Inc		Chargette RC2000, RC2200	
American Thermaflo		18000 *	
Applied Ecological Systems		2.2c	
Assemblies Systems Corp.		NS-2000	
Atlas Supply Company		EAC-205, -250, -750, -1400, -1500 **	
Atlas/SPX-		EAC-125, EAC-370, 679125, 679137	

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3	Robinair	3		3
AA				
3	Automotive Diagnostics,	3	40-375 **	3
3	Division of	3		3
3	SPX Corporation	3		3
AA				
3	Bear/SPX - Robinair	3	40-310, 17352C/17352,	3
3		3	17355C, 40-327, 40-370	3
AA				
3	Belco Controls Inc.	3	08	3
AA				
3	Carquest Corporation	3	209990 **	3
AA				
3	Carrier	3	12RA001100	3
AA				
3	Caterpillar Inc/	3	4C8754, 4C8755, 905786,	3
3	SPX -Robinair	3	905787, 905788, 905789, 905790	3
AA				
3	Century Mfg. Co.	3	MR-1991-A, -R, ME-1991-A, 160-002,	3
3		3	-003,-004, -005, -013, -014, -015,	3
3		3	-016. Solar 5090, -5100, -5110,	3
3		3	7100, 8100, 85100, 86100	3
AA				
3	Chrysler/SPX-	3	OT-17350, OT-17400, OT-17700	3
3	Robinair	3		3
AA				
3	Classic Tool	3	FBR-11 ***	3
3	Design, Inc.	3		3
AA				
3	Cornwell/	3	RA-17350C, RA-17400, RA-17500B,	3
3	SPX-Robinair	3	RA-17700	3
AA				
3	Diavia/SPX-Robinair	3	17705	3
AA				
3	D.W. Myers Enterprises	3	AM 6000, MR-1991-A, MR-1991-R,	3
3	Inc.	3	ME-1991-A	3
AA				
3	Dowmar Solvent	3	DR12R **	3
3	Recovery Systems, Inc.	3		3
AA				
3	Draf Industries	3	1400	3
AA				
3	Enspecto, Inc.	3	RMS-3112	3
AA				
3	Environmental	3	SKYE.EP3, SKYE.EP-4/5	3
3	Products	3		3
3	Amalgamated	3		3
3	Pty. Ltd.	3		3
AA				
3	Environmental	3	FICS 9000 **	3
3	Systems Products,	3		3
3	Inc.	3		3

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Environmental Technologies Corporation	SYSTEM I 102-12
Everco/SPX-Robinair	A9990
Everco Industries, Inc	A9950
Firestone/SPX-Robinair	TE 48-30-960-7
Fluoro Tech, Inc.	Fluoromizer 3000R (FM3000R), FM3000 With RM3 module (Flouromizer, 3000) FM4000-12 ** & ***
Ford Motor Company	158-00001,-00002, 01400900, 02300100 **
Ford-New Holland /SPX-Robinair	FNH00140, FNH00141, FNH00335
Four Seasons	59870 **
Four Seasons	59900, 59901
General Motors/SPX-Robinair	17250B
Honda/SPX-Robinair	J-3810-CH
IG-LO, Inc.; Subsidiary of Valvoline, Inc	1400, 1500
IG-LO, Inc.; Subsidiary of Valvoline, Inc.	1000 **
Infiniti/SPX4-Robinair	J-38100-INF
International Carbonics Inc. (now The Youngstown Research and Development Company YRD)	RRR-SS, BH-RRR
James Kamm Technologies' Inc.	K-3333, K3333-TB, AC-3333
John Deere/SPX-Robinair	JTO 2020, JTO 2021, JTO 2052
Kent Moore/SPX-Robinair	J-38100-C, J-38100-B, J-38750, J-38550-B, J-39770, 42-17400,

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3	3	43-40015-HDE, 43-40018-HDE,	3
3	3	42-175250-C, 43-40017-HDE,	3
3	3	42-17350-C, 43-40014-HDE,	3
3	3	J-38100-D	3
AA			
3	3	Kolpak Mfg. Co. ZRM2000	3
AA			
3	3	Lexus/SPX-Robinair 00002-01396-02	3
AA			
3	3	MAC Tools Inc ACRRC-750, AC650, AC751, AC760	3
3	3	AC600 ***, AC700 ***, AC800 ***	3
AA			
3	3	MAC Tools, AC17350C, AC17400, AC17500B,	3
3	3	Inc/SPX-Robinair AC17700, AM 6000	3
AA			
3	3	Matco Tools Corp. ACRM120 ACRM3412 **	3
AA			
3	3	MATCO Tools/SPX-Robinair AG17350, AC17400, AC17500B, AC17700	3
AA			
3	3	Mastercool, U.S.A. Inc Supervamp 62000, 65000, 65500	3
AA			
3	3	Mazda/SPX-Robinair 17401MAZ	3
AA			
3	3	MDI 1/2 HPCA	3
AA			
3	3	Mitsubishi/SPX-Robinair 17400MIT, 17401MIT	3
AA			
3	3	Moog Automotive, Inc 209990	3
AA			
3	3	Murray Corporation ATC-1000, -1100, -5000	3
AA			
3	3	Myers Enterprises MR-1991-A, MR-1991-R, ME-1991-A	3
AA			
3	3	NAPA 209990 **	3
AA			
3	3	NAPA Temp. Products ATC 1100, -5000 **	3
AA			
3	3	Nissan/SPX-Robinair J-38100-NI, 17400NIS, 42-17250-NI,	3
3	3	17401NIS, 17403NIS	3
AA			
3	3	OTC/SPX-Robinair OEM- 1380, - 1396, - 1412,	3
3	3	-48463- 1420, -48158,	3
AA			
3	3	Ozone Environmental R-6A, OS-1000, OS-4000, OS-2000	3
3	3	Industries Inc.	3
AA			
3	3	P&F Technologies PF-8	3
AA			
3	3	Power Manufacturing R-12a	3
AA			
3	3	Promax Industries, Inc Roger-1 (front & back), Roger 1B	3
3	3	(consists of front & back systems)	3



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AA		
3	R&D Fountain Industries	3 AM6000 3
AA		
3	Refrigerant Recovery	3 ST100A 3
3	Systems, Inc	3 3
AA		
3	Refrigerant Recovery	3 Fluoromizer 3000R (FM3000R), FM3000 3
3	Technologies, Inc	3 with RM3 module (Fluoromizer 3000), 3
3		3 FM4000-12 *** 3
AA		
3	Refrigerant	3 RRC-1000, RRC-750, RRC-750X, 3
3	Technologies, Inc	3 RRC-751, TC-700 ***, TX-600 ***, 3
3		3 AC-800 ***, TX-200 *** 3
AA		
3	Refrigeration Transfer	3 RFT-2212, RFT-2234 3
3	Systems/Justice	3 3
3	Supply and Glass	3 3
AA		
3	Rolo Inc.	3 91R12 3
AA		
3	Rotunda/Ford	3 158-00001, 158-00002, 014-00900, 3
3	(Sun & SPX)	3 023-00100, 078-00802, 078-00800, 3
3		3 078-00801 3
AA		
3	R.S.I.	3 Port-O-Zone, Automotive 3
AA		
3	Saturn/SPX-Robinair	3 42-A7250, 17400ASAT 3
AA		
3	Snap-On Tools	3 ACT2500, ACT3000, ACT3300, 3
3	Company	3 ACTR3000, ACTH3400 ** 3
AA		
3	SPX Corporation;	3 12134A, 12135A, 17251C, 014-00900 3
3	Robinair Division,	3 AC17145, GM17250B, J38100B, 3
3		3 -C, 17400A, 17401A, 17500B, 17501B, 3
3		3 17503B, 17300,-01, -03, -50, 3
3		3 -50C, -51, -51C, -52, -52C, -53, 3
3		3 -53C, -54, -54C, -55C. 3
3		3 17400, -01, -03, -25. 3
3		3 17666, 17700, -01, -03, -15, -25, 3
3		3 17800, 17150, 17151A (for use 3
3		3 with models 17350C, 17351C, 17500, 3
3		3 -17500B, 17501B, and 17625A only) 3
AA		
3	Sun Electric	3 MRC-150, -300, -312, -400, -500, 3
3	Corporation	3 MTC-4000, NAPA-1100, -5000, -A9950, 3
3		3 -ATC-1000, -1100, -5000, -078 3
3		3 -00800, -00801, -00802, -00805. 3
3		3 ACT-3120, -3540, 4100. 3
AA		
3	Technical Chemical	3 SERCON -8000 (-M, -A, -MA, -MAH, 3
3	Company	3 -MV, -MAV, -H), -9000, (-M, -A, -MA, 3
3		3 -MV, -MAH, -MAV, -H), -9220, 3



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REJUVENATOR ST-100 and ST-1000 Refrigerant Recovery Sys. Inc. P.O. Box 360298 Tampa, Florida 33673 (800) 327-9142	White Industries Model 01050 K-Whit Tools, Inc. 100 Visionary Way Fishers, IN 46038 (800) 849-6830
R-12 Recover-Recycle Machine Justice Glass & Supply Co. 2445 Third Avenue Huntington, West Va. 25703 (800) 624-3420	NAPA TEMP ATC-1000 Murray/ Div. of Moog Automotive, Inc P.O. Box 7224 St. Louis, MO 63177 (314) 385-3400
CFC-SAV-R (with Robinair retrofit kit 17217) LSK, Inc McPherson, KS 67460	Everco A9989 (with Robinair retrofit kits 17217 and 17216) Everco Industries P.O. Box 7224 St. Louis, MO 63177 (314) 385-3400
Robinair 17200 (With retrofit Kits 17216 and 17217), 17500, RTB17200, RTB17500. Robinair Division, SPX Corp. Robinair Way Montpelier, OH 43543-0193 (419) 485-8300	MODEL K-3330 James Kamm Technologies, Inc. P.O. Box 8961 4730 W Bancroft A-3 Toledo, Ohio 43615 (419) 531-33X3
Space Age Air Products, Inc. Model 010 (with retrofit kit Robinair 17217)	AES-Ntron Models 2.2 and 2.4 456 Creamery Way Exton, PA 19341 (215) 594-9309

TABLE 3 - APPROVED RECOVERY ONLY EQUIPMENT

TABLE 3 - APPROVED RECOVERY ONLY EQUIPMENT

Manufacturer	Model
AES NTRON	R1.1AC
Assemblies Systems Corp.	NS750A---no longer manufactured
Clardy Manufacturing Co.	CP4MA
C Mar Industries Inc.	CM20-12A
DAVECO Recovery Division of DAVECO Industries Inc.	41250, 41250-2

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Econozone, Inc.	Econozone 29A
(RSB Engineering)	
Environmental Products	EP10A
Amalgamated PTY Ltd.	
Environmental Technologies Corp.	The-Pro-A
Fluoro Tech, Inc.	FM3000--Certified by ETL, Inc.
MDI	5150D
National Refrigeration Products, Inc.	ULV63
Power Manufacturing, Inc.	012B-FRSPORT-01 (Power R1)
Refrigerant Recovery Systems, Inc.	RC-1-A
Refrigerant Recovery Technologies, Inc.	PM3000--Certified by ETL, Inc.
Refrigerant Technologies, Inc.	TX 200--Certified by ETL, Inc.
R.S.I.	Mini-Sucker1 Automotive Recovery System, RSI Part Number 600075
SPX Corporation, Robinair Division	17625A
Technical Chemical	SR5000MBJ, SR 1000MBJ
Watsco Components Inc.	WC1S-A
White Industries Div. of K-Whit Tools Inc.	01055

NOTE: A UL Multiple Listing (referred to as private labeling by the industry) is the formal publication of the name of company that appears on equipment that is basically UL Listed for another company. It would be similar to a private brand except that the basic company name need not appear anywhere on the product. This equipment has been evaluated to determine the minimum purity specifications for recycled CFC-12 for use in mobile automotive air conditions systems. Such equipment is provided with the following auxiliary marking "Design Certified by Underwriters Laboratories for Compliance with -----(date) to

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indicate that the equipment has been investigated for compliance with the applicable SAE requirements.

TABLE 4 - SUBSTANTIALLY IDENTICAL RECOVER ONLY EQUIPMENT

TABLE 4 - SUBSTANTIALLY IDENTICAL RECOVER ONLY EQUIPMENT

UAA;

3 NONE APPROVED AT THIS TIME 3

AAU

LIST OF APPROVED SECTION 609 CERTIFYING ORGANIZATIONS

AA

OZONE PROTECTION HOTLINE TOLL-FREE (800) 296-1996

EPA'S OZONE DEPLETION WORLD WIDE WEB SITE: http://www.epa.gov/docs/ozone/index.html

September 22, 1995

(This list will be updated when other technician certification programs are approved. Section 609 covers technician certification in the motor vehicle sector only.)

An asterisk (\*) indicates that the program offers home study.

NOTE: Ryder Trucks formerly offered a certification program.

Retailers should continue to accept Ryder cards.

AA

C.F.C. Reclamation and Recycling Service, Inc.  
P.O. Box 560 Abilene, Texas 79604  
(915) 675-5311

Approval Date: 3/31/93

AA

\* The Greater Cleveland Automobile Dealers' Association  
6100 Rockside Woods Boulevard, Suite 235  
Independence, Ohio 44131  
(216) 328-1500

Approval Date: 8/12/92

AA

\* International Mobile Air Conditioning Association  
P.O. Box 9000  
Fort Worth, TX 76147-2000  
(817) 338-1100

Approval Date: 6/29/92

AA

Mechanic's Education Association  
10 Main Street  
Netcong, New Jersey 07857-1111  
(201) 426-9001

Approval Date: 3/30/93

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\* Mobile Air Conditioning Society

P.O. Box 97

East Greenville, PA 18041

(215) 679-2220

Approval Date: 6/12/92

AA

\* National Institute of Automotive Service Excellence

13505 Dulles Technology Drive

Herndon, Virginia 22071-3415

(703) 713-3800

Approval Date: 6/29/92

AA

New York State Association of Service Stations and Repair Shops, Inc.

Automotive Technician Training Program

8 Elk Street

Albany, New York 12207

(518) 434-6102

Approval Date: 8/12/92

AA

Rancho Santiago College

1530 West 17th

Santa Ana, California 92706

(714) 564-6661

Approval Date: 8/12/92

AA

\* Refrigerant Certification Services

8203 Willow Place South

Houston, Texas 77070-9998

(800) 597-9291

Approval Date: 4/19/93

AA

NOTE: Only RCS technicians with credentials dated after April 19th  
1993 will be considered trained by an EPA-approved certifying  
program.

AA

Snap-On Tools Corporation

2801 80th Street

Kenosha, Wisconsin 53141-1410

(414) 656-5200

Approval Date: 3/30/93

AA

Texas Engineering Extension Service

San Antonio Training Division

The Texas A & M University System

9350 South Presa

San Antonio, Texas 78223-4799

(512) 633-1000

Approval Date: 3/30/93

AA

\* Waco Chemicals, Inc.

12306 Montague Street

HFC-134A A/C RECOVERY & RECYCLING TRAINING/EQUIPMENT CAT. ST, NO. 008/95

Article Text (p. 15)

1993 Mazda RX7

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Pacoima, California 91331

(818) 897-3018

Approval Date: 7/13/93

AA

\* ESCO Institute

1350 West Northwest Highway Suite 205

Mount Prospect, IL 60056

(800) 726-9696

Approval Date: 12/27/94

AA

New York State Department of Motor Vehicles,

Division of Vehicle Safety

Technical Training Unit

Empire State Plaza

Swan Street Building, Room 111

Albany, New York 12228

(518) 474-4049

Approval Date: 5/10/95

AA

\* Air Conditioning Contractors of America

Ferris State University

1712 New Hampshire Avenue, NW

Washington, D.C. 20009

(202) 483-9370

Approval Date: 9/22/95

AA

The programs listed below are intended specifically for the employees of these companies

AA

Geneva Steel

P. O. Box 2500

Provo, Utah 84603

(801) 227-9000

Approval Date: 2/4/93

AA

Jiffy Lube International

P.O. Box 2967

Houston, Texas 77252-2967

(713) 546-4100

Approval Date: 9/14/93

AA

Kmart Corporation

East/Central Regional Office

Auto Training Center

551 North Hicks Road.

Palatine Illinois 60067

(708)358-3205

Approval Date: 8/12/92

AA

Los Angeles County Metropolitan Transportation Authority (MTA)

900 Lyon Street Los Angeles, California 90012

(213) 972-5159

Article Text (p. 16)

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Approval Date: 2/1/94

AA

Minnesota Department of Transportation  
Central Services Building  
Central Shop Unit  
6000 Minnehaha Avenue South  
St. Paul Minnesota (612) 725-2345

Approval Date: 2/1/94

AA

Potomac Electric Power Company  
8400-B Old Marlboro Pike  
Upper Marlboro, Maryland 20772  
(301) 967-5294

Approval Date: 8/12/92

AA

Whayne Supply Company  
P.O. Box 35900  
Louisville, KY 40323-5900  
(502) 774-4441

Approval Date: 7/19/93

AA

U.S. Army Ordinance Center and School  
Attn: TP-SB-TSED-C10 (SFC Powell)  
Aberdeen Proving Ground  
Aberdeen, Maryland 21005-5201  
(410) 278-4099

Approval Date: 8/12/92

AA

Yellow Freight System, Inc.  
10990 Roe Avenue  
P.O. Box 7270  
Overland Park, Kansas 66207  
(913) 345-3000

Approval Date: 8/12/92

AA

END OF ARTICLE



# INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER CAT. ST, NO. 006/98

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

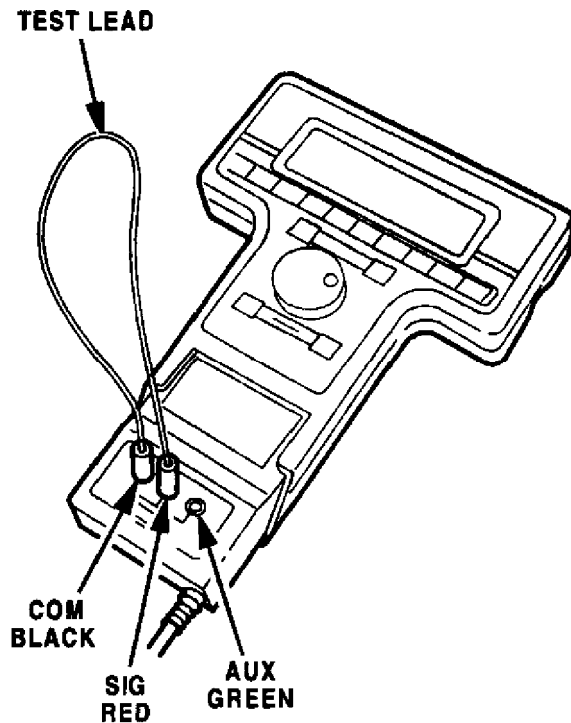
### INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER

Model(s): All Mazda Models  
Category: ST - Service Tool  
Bulletin No.: 006/98  
Date: September 30, 1998

### DESCRIPTION

The NGS test lead connectors may become loose or corroded causing incorrect readings. Before using the ohm meter function of the NGS tester for diagnosing electrical circuits, check for excessive resistance in the test leads and connectors and repair them if necessary.

NOTE: Two types of connectors (screw and solder) are used on the NGS test leads.



98E54134  
Fig. 1: NGS Tester

### INSPECTION PROCEDURE

1) Verify concern.

# INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER CAT. ST, NO. 006/98

## Article Text (p. 2)

1993 Mazda RX7

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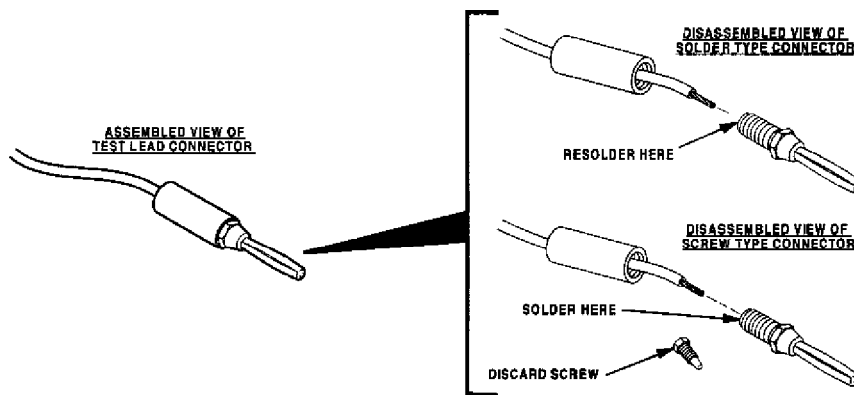
2) Select "Ohm Meter" on the tester and connect a test lead between the COM (black) and SIG (red) terminal on the NGS tester and note the reading.

\* A reading of 0 ohms indicates that the test lead and connections do not have excess resistance.

\* A reading other than 0 ohms may indicate a poor connection (go to STEP 3).

3) Disassemble the connectors and check for corrosion, solder breakage, or looseness. Resolder connections to repair as necessary. See Fig. 2.

4) Verify repair.



98F54135

Fig. 2: Assembled\Disassembled Connectors

**END OF ARTICLE**

## R-12 (CFC) WARNING LABEL: INFORMATION CAT. U, NO. 002/93

### Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### R-12 (CFC) WARNING LABEL

Model(s): All models produced after May 15, 1993 that do not  
have R-134A air conditioning units.  
Category: "U" Air Conditioning  
Bulletin No.: 002/93  
Date: 7/30/93

### DESCRIPTION

Since May 15, 1993, government regulations mandate warning labels for vehicles fitted with R-12 (CFC) based air conditioning units.

Air conditioning units supplied from MANA as of MAY 17, 1993 contain these labels. The label must be attached to the vehicle window glass at the time of air conditioning kit installation and can only be removed by the retail buyer of the vehicle. Refer to Fig. 1 to determine label installation location.

NOTE: Depending on model, the label can be installed in 3 different locations.

Additional labels can be ordered through the Mazda parts department using the PARTS INFORMATION TABLE.

**R-12 (CFC) WARNING LABEL: INFORMATION CAT. U, NO. 002/93**

**Article Text (p. 2)**

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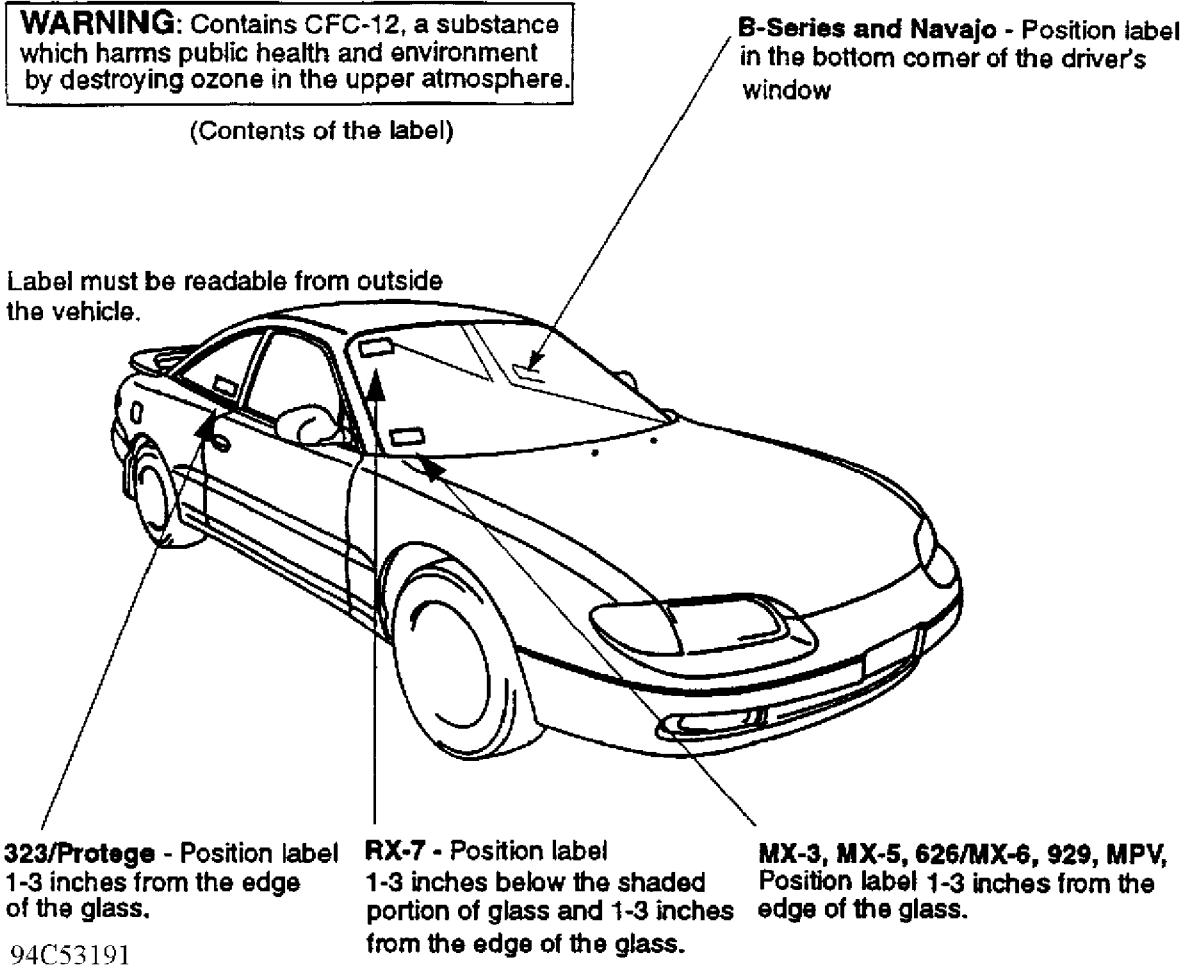


Fig. 1: Location of R-12 Label

**INSTALLATION PROCEDURES**

Labels are not self adhering and must be attached using tape. Apply the tape to the back side of the label and attach so that the front of the label faces the window.

**PARTS INFORMATION TABLE**

Part Number	Description
BR70 61 438	Label

**END OF ARTICLE**

# RECEIVER DRIER REPLACEMENT CRITERIA (CANADIAN) CAT. U, NO. 95-02

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RECEIVER DRIVER REPLACEMENT CRITERIA WHEN REPLACING OTHER A/C COMPONENTS

Model(s): All Mazda Models with A/C (Canadian)  
Category: U - Heater and Air Conditioner  
Bulletin No.: 95-02  
Date: March, 1995

### APPLICABLE MODELS/VINS

All models equipped with R12 and R134a (Except 1994 and later B-Series vehicles).

### DESCRIPTION

The following information is designed to assist dealers in determining the necessity to replace the receiver-drier when replacing other A/C components. Do not replace the receiver-drier unless the following criteria have been met.

### RECEIVER-DRIER REPLACEMENT CRITERIA

Replace the receiver-drier when the A/C system has been ruptured and all system pressure is lost.

Receiver-drier will require replacement if the compressor oil becomes discolored or foreign substances become visible (Refer to the flow chart in this article).

NOTE: Refer to section U of the workshop manual for additional receiver-drier diagnostic procedures.

If an A/C component has failed, extract the compressor oil from the failed part and inspect the oil according to the procedure described in the following flow chart. Follow the procedure to determine if the receiver-drier requires replacement as a precaution.

UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 1) Inspect Oil for 3  
3 Discoloration 3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAU

3  
AAAAAAAA>AAAAAAAA`  
3  
3  
3

UAAAAAAAAAAAAAAAAAAA;  
Dark Gray or AAA>AA`  
3 Black 3  
AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAA;  
Replace 3  
3 Receiver-Drier 3  
AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

RECEIVER DRIER REPLACEMENT CRITERIA (CANADIAN) CAT. U, NO. 95-02

Article Text (p. 2)

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3 Golden Brown, Light 3
3 Brown, Transparent, or 3
3 Yellowish Gray 3
AAAAAAAAAAAAAAAAAAAAAAAAUU
3

UAAAAAAAAAAAAAAAAAAAAAAAA;
3 2) Inspect Oil for 3
3 Contamination 3
AAAAAAAAAAAAAAAAAAAAAAAAUU
3

UAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAA;
3 Contamination 3 3 Replace 3
AAAAAAAAAA>AAAAAAAAA' Present (Part- AA>A' Receiver-Drier 3
3 icles of Metal 3 AAAAAAAAAAAAAAAAAUU
3 or O-Ring) 3
AAAAAAAAAAAAAAAAAAAAAAAAUU

UAAAAAAAAAAAAAAAAAAAAAAAA;
3 No Obvious Contamination 3
AAAAAAAAAAAAAAAAAAAAAAAAUU
3

UAAAAAAAAAAAAAAAAAAAAAAAA;
3 Do Not Replace the 3
3 Receiver-Drier, Continue 3
3 To Use Original 3
AAAAAAAAAAAAAAAAAAAAAAAAUU

CAUTION: Before charging, always evacuate the A/C system thoroughly
to remove air and moisture. Use a vacuum pump to evacuate
the system. Hold vacuum at 29 inches (740mm Hg) for 5-10
minutes.

END OF ARTICLE

**RECEIVER DRIER REPLACEMENT CRITERIA - INFORMATION CAT. U, NO. 001/95**

**Article Text**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**RECEIVER DRIVER REPLACEMENT CRITERIA WHEN REPLACING OTHER A/C COMPONENTS**

Model(s): All Mazda Models with A/C  
Category: U - Heater and Air Conditioner Systems  
Bulletin No.: 001/95  
Date: February 15, 1995

**APPLICABLE MODELS/VINS**

All models equipped with R12 and R134a (Except Navajo and 1994 and later B-Series vehicles).

**DESCRIPTION**

The following information is designed to assist dealers in determining when to replace the receiver-drier when replacing other A/C components. Do not replace the receiver-drier unless the following criteria have been met.

**RECEIVER-DRIER REPLACEMENT CRITERIA**

- \* Replace the receiver-drier when the A/C system has been ruptured and ALL system pressure is lost.
- \* Receiver-drier will require replacement if the compressor oil becomes discolored or foreign substances become visible (Refer to the flow chart in this article).

NOTE: Refer to section U of the workshop manual for additional receiver-drier diagnostic procedures.

If an A/C component has failed, extract the compressor oil from the failed part and inspect the oil according to the procedure described in the following flow chart. Follow the procedure to determine if the receiver-drier requires replacement as a precaution.

UAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 1) Inspect Oil for 3  
3 Discoloration 3

AAAAAAAAAAAAAAAAAAAAAAAAAU

3  
AAAAAAAAAAAAAAAAAAAAA

3  
3

UAAAAAAAAAAAAAAAAAA;

3 Dark Gray or 3  
3 Black 3

AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAA;

3 Replace 3  
3 Receiver-Drier 3

AAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAAAA;

RECEIVER DRIER REPLACEMENT CRITERIA - INFORMATION CAT. U, NO. 001/95

Article Text (p. 2)

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3 Golden Brown, Light 3
3 Brown, Transparent, or 3
3 Yellowish Gray 3
AAAAAAAAAAAAAAAAAAAAAAAAUU
3

UAAAAAAAAAAAAAAAAAAAAAAAA;
3 2) Inspect Oil for 3
3 Contamination 3
AAAAAAAAAAAAAAAAAAAAAAAAUU
3

UAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAA;
3 Contamination 3 3 Replace 3
AAAAAAAAAAAAAAAAAAAA Present (Part- AAAA Receiver-Drier 3
3 icles of Metal 3 AAAAAAAAAAAAAAAAAUU
3 or O-Ring) 3
AAAAAAAAAAAAAAAAAAAAU

UAAAAAAAAAAAAAAAAAAAAAAAA;
3 No Obvious Contamination 3
AAAAAAAAAAAAAAAAAAAAAAAAUU
3

UAAAAAAAAAAAAAAAAAAAAAAAA;
3 Do Not Replace the 3
3 Receiver-Drier, Continue 3
3 To Use Original 3
AAAAAAAAAAAAAAAAAAAAAAAAUU

CAUTION: Before charging, always evacuate the A/C system thoroughly to remove air and moisture. Use a vacuum pump to evacuate the system. Hold vacuum at 29 inches (740mm Hg) for 5-10 minutes.

END OF ARTICLE



# USE OF A/C TRACER DYE SERVICE INFO CAT. U, NO. 008/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### USE OF A/C TRACER DYE

Model: All Mazda models  
Category: U - Heater & Air Conditioner Systems  
Bulletin No.: 008/97  
Date: May 19, 1997

### DESCRIPTION

Use a fluorescent A/C leak detecting tracer dye and light for finding minute, intermittent leaks.

NOTE: Most electronic leak detectors can detect small steady leaks, but are ineffective on minute, intermittent leaks.

### WHEN USING A/C TRACER DYE METHOD

1. Follow the A/C tracer dye manufacturers instructions.

NOTE: Different manufacturers have different methods for installing, measuring and diagnosing with their particular product.

#### CAUTION:

\* Use only a tracer dye that is compatible with the type of refrigerant and oil in the vehicle's A/C system.

\* Tracer dye can lead to misdiagnosis and unnecessary parts replacement if used improperly.

2. After repairing the leak, clean the area that is covered with A/C tracer dye.

NOTE: This will prevent a future technician from mistaking this residue as a current leak.

3. When diagnosing an A/C leak on a vehicle that previously had tracer dye installed, thoroughly clean the suspected area and re-verify the leak prior to repairing.

4. After repairing the leak, evacuate and recharge the system as outlined in the workshop manual.

NOTE: DO NOT add additional A/C tracer dye when recharging the system.

a. Flushing or changing the A/C oil is not necessary.

USE OF A/C TRACER DYE SERVICE INFO CAT. U, NO. 008/97

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b. Small amounts of the tracer dye will be found in the Recovery / Recycling tank, if recovery is necessary.

TRACER DYE SUPPLIERS

TRACER DYE SUPPLIERS INFORMATION TABLE

Supplier	Available At	Part Number	Note
Spectronics Corporation	(800) 641-1133	- - -	Or Equivalent
Ford	See Dealer	112-R0027	Or Equivalent
Rotunda			

REFRIGERANT/COMPRESSOR OIL

REFRIGERANT/COMPRESSOR OIL INFORMATION TABLE

Model	Model Year	Refrigerant	Oil Type	Compressor
MX-6/626	1993 and prior	R12	ATMOS S150	
	1994 and after	R134a	ATMOS GU10	
Protege	1994 and prior	R12	ATMOS S150	
	1995 and after	R134a	SP10	
Miata	1993 and prior	R12	ND7	
	1994 and after	R134a	ND9	
RX-7	1994 and prior	R12	ND7	
	1995 and after	R134a	ND9	
MX-3	1993 and prior	R12	ATMOS S150	
	1994 and after	R134a	ATMOS GU10	
MPV	1993 and prior	R12	ND6	
	1994 and after	R134a	ND8	
Millenia	1995 and after	R134a	ATMOS GU10	
929	1993 and prior	R12	ATMOS S150	

USE OF A/C TRACER DYE SERVICE INFO CAT. U, NO. 008/97

Article Text (p. 3)

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```
3      ~~~~~  
3      3      1994 and after      3      R134a      3      ATMOS GU10      3  
~~~~~  
3      Navajo      3      1993 and prior      3      R12      3      ESHM2C31A2      3  
3      ~~~~~  
3      3      1994 and after      3      R134a      3      WSHM1C231B      3  
~~~~~  
3      B-Series      3      Built before Sep 20, 1993      3      R12      3      ESHM2C31A2      3  
3      ~~~~~  
3      3      Built after Sep 20, 1993      3      R134a      3      WSHM1C231B      3  
~~~~~  
~~~~~U
```

END OF ARTICLE

# USE OF R-12 REFRIGERANT SUBSTITUTES CAT. U, NO. 009/96

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### USE OF R-12 REFRIGERANT SUBSTITUTES

Model(s): All Mazda Models  
Category: U - Heater and Air Conditioning Systems  
Bulletin No.: 009/96  
Date: October 21, 1996

### DESCRIPTION

Mazda Corporation does not approve of using substitute R-12 refrigerants when an A/C system requires charging. Use of these products may result in component damage and loss of warranty. If service is required on a vehicle with an R-12 system, use only new or known good recycled refrigerant.

NOTE: A/C systems designed to operate on R-134a can be recharged using only HFC-134a. Using R-12 substitutes may result in a hazardous condition and/or A/C component damage.

### END OF ARTICLE

**YEAR 2000 COMPLIANCE CAT. 01, NO. 018/99**

**Article Text**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**YEAR 2000 COMPLIANCE**

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 018/99  
Date: May 28, 1999

**DESCRIPTION**

Because all Control Units, including the Powertrain Control Modules used in Mazda vehicles do not use the day, month, or year to operate, Mazda vehicles are completely immune to the effects of the year 2000 concern.

**END OF ARTICLE**

# "HOLD" INDICATOR LIGHT FLASHES -REPLACE CONTROL UNIT CAT. K, NO. 012/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### "HOLD" INDICATOR LIGHT FLASHES

Model(s): 1993 Mazda RX-7  
Category: K  
Bulletin No.: 012/92  
Date: 7/15/92

### DESCRIPTION

On some 1993 RX-7 vehicles, the torque reduction control fail diagnostic system may start working without any failure and cause the "hold" light to flash while the vehicle is running.

Beginning May 11, 1992, the circuit logic of the torque reduction control has been changed to eliminate this possibility.

VIN OF PRODUCTION CHANGE

JM1FD\*\*\*P0205980 May 11, 1992

### INSPECTION & REPLACEMENT PROCEDURE

If you encounter a complaint that the "hold" light starts flashing while the vehicle is running, and torque reduction control fail code is 57, follow this procedure

1. Are any short circuits, damaged wiring, or bad coupler contacts present?

\* If yes, repair circuit.

\* If no, proceed to Step 2.

2. Replace EC-AT control unit with a modified unit.

### PARTS INFORMATION TABLE

Part Number	Description	Interchangeability
N3A2 18 9E1B	N3A2 18 9E1 EC-AT Control Unit	New - Old

### WARRANTY INFORMATION

**"HOLD" INDICATOR LIGHT FLASHES -REPLACE CONTROL UNIT CAT. K, NO. 012/92**

**Article Text (p. 2)**

1993 Mazda RX7

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(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code:	A
Customer Comment Code:	62
Damage Code:	9W
Part No. of Main Cause:	N3A2 18 9E1B
Quantity:	1
Operation No.:	K0404XRX
Labor Hours:	0.3 Hr.

**END OF ARTICLE**

# A/T OIL COOLER FLUSHING EQUIPMENT GUIDELINE CAT. J, NO. 96-01

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### A/T OIL COOLER FLUSHING

Model(s): All Mazda Models with Automatic Transmission(Canadian)  
Section: J - Automatic Transmission  
Bulletin No.: 96-01  
Date: January 1996

### DESCRIPTION

The automatic transmission oil cooler must be flushed when a major transmission repair or replacement is performed. If the cooler is not flushed properly, residual friction material and metal may become dislodged and affect the new transmission's operation.

A labor operation is established to cover the use of flushing equipment. If the transmission oil cooler is not flushed with the proper flushing equipment prior to repair completion, and a comeback repair occurs due to clogged oil cooler circuits, the repair cost is not warrantable.

Recommended Power Flushing Manufacturer and Equipment;

Kent Moore/(800)345-2233, J 35944-A Flushing Kit

NOTE: Flushing Kit includes:

- \* Chrome Plated Brass Tank
- \* One Gallon of J35944-22 Flushing Fluid (enough for six flushing operations additional fluid can be purchased directly from Kent Moore).
- \* Complete Operating Instructions
- \* J41763 Adapter Kit - A/T Oil Cooler and Line Flusher (for Mazda vehicles).

### FLUSHING PROCEDURE

1. Backflush Cooler Starting At The Cooler OUT FWD Line Fitting.
2. Reverse Lines And Flush Again Starting At The Cooler IN Line Fiting. See Fig. 1



# A/T OIL COOLER FLUSHING EQUIPMENT GUIDELINE CAT. J, NO. 96-01

## Article Text (p. 2)

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### Flushing Procedure

1) Backflush Cooler Starting At The Cooler OUT Line Fitting.

2) Reverse Lines And Flush Again Starting At The Cooler IN Line Fitting.

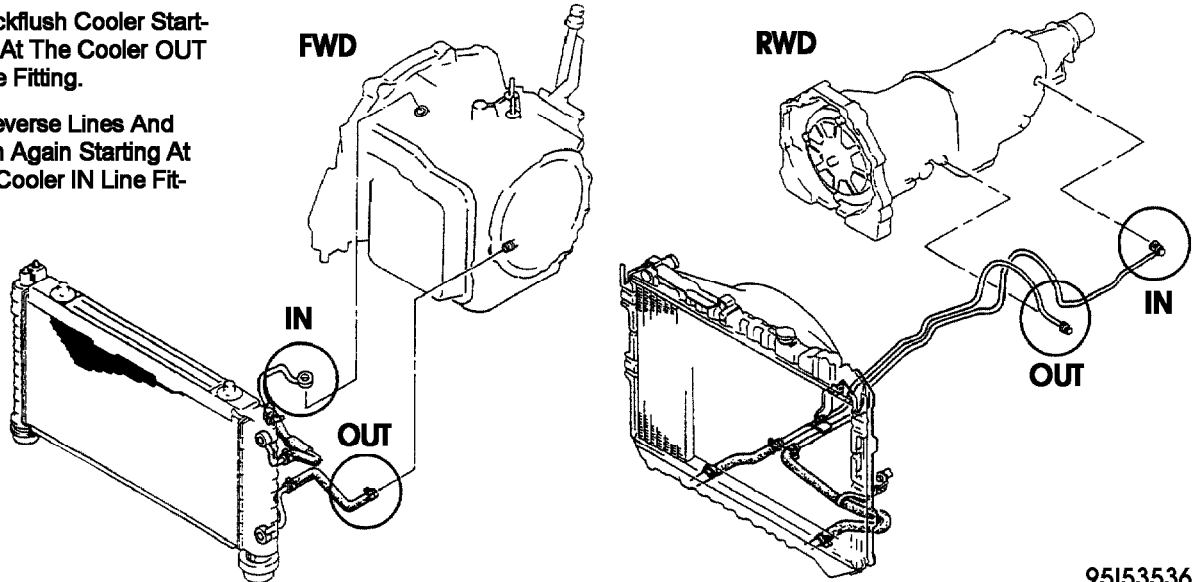


Fig. 1: Transmission and Cooler View

95I53536

NOTE: Refer to the workshop manual for cooler location fittings on A4LD, 4R44E and LA4A-EL transmissions

### WARRANTY INFORMATION

Applicable warranty information will be included in the 1996 SRT microfiche.

END OF ARTICLE

# **AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

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### **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **AUTOMATIC TRANSMISSION COOLER/LINE FLUSHING PROCEDURE**

Model(s): All Mazda models with Automatic Transmission  
Category: K (05) - Automatic Transaxle  
Bulletin No.: 005/98  
Date: April 22, 1998

### **DESCRIPTION**

Automatic transmission (A/T) oil cooler/lines must be power flushed completely before an overhauled or replacement A/T is installed. One of the causes of repeat A/T failures is an internal automatic transmission fluid (ATF) restriction at the inlet side of the oil cooler. This restriction is usually caused by an accumulation of metal particles and debris (from a previous A/T failure) on the internal mesh type baffle of the oil cooler. Power flushing will remove the restriction by back flushing the cooler/lines followed by forward flushing to ensure full ATF flow. See Fig. 1 of a typical ATF cooler.

**CAUTION:** Repeat repairs caused by improper or lack of cooler line flushing WILL NOT be covered under warranty.

### **REPAIR PROCEDURE**

Before power flushing, inspect the hoses/lines and clamps. Power flushing MUST begin with back flushing followed by forward flushing to quickly dislodge the restriction. If back flushing is not performed before forward flushing, the restriction could further reduce the ATF flow through the internal mesh type baffle of the cooler and flushing will not be effective or possible.

### **INSPECTING OIL LINES & CLAMPS**

Be sure to inspect the lines (hoses/pipes) for cuts, crimps (pinched), cracks or any other damage before reusing them. If any problem exists or the hose comes off when applying oil pressure, replace it.

**CAUTION:** Always use new clamps when replacing hoses.

### **BACK FLUSHING**

1. Using the Power Flushing Equipment manufacturer's instructions, connect equipment so the flushing fluid flows in the OPPOSITE DIRECTION of normal fluid flow. See typical example of back flushing flow in Fig. 2.

**AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

**Article Text (p. 2)**

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2. Flush oil cooler/lines until discharge fluid is clean.

CAUTION: If the cooler can not be properly flushed using recommended equipment, send the radiator out for sublet cleaning or replace.

NOTE: Refer to the WSM or Automatic Transmission Quick Reference Guide (P/N 9999-954501-96) for exact location of cooler line inlet/outlet fittings.

**FORWARD FLUSHING**

3. Connect power flushing equipment so the flushing fluid flows in the direction of normal fluid flow. See typical example of forward flushing flow in Fig. 3.

4. Flush oil cooler/lines until DISCHARGE FLUID IS CLEAN.

**PARTS INFORMATION**

Recommended Power Flushing Equipment, see Service Bulletin ST 000/98 for details.

PARTS INFORMATION TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
@ Part Number @ Description @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ J35944-AMAZ @ Kent-Moore Flusher w/Mazda Adaptors @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 60081-M @ OTC Flusher w/Mazda Adaptors @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ @ Flushing Fluid @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

**FLUID FLOW & COOLER LINE FITTING**

Typical automatic transmission/transaxle normal fluid flow & cooler line fitting locations are located at Fig. 4.

Refer to applicable WSM for specific details.

**AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

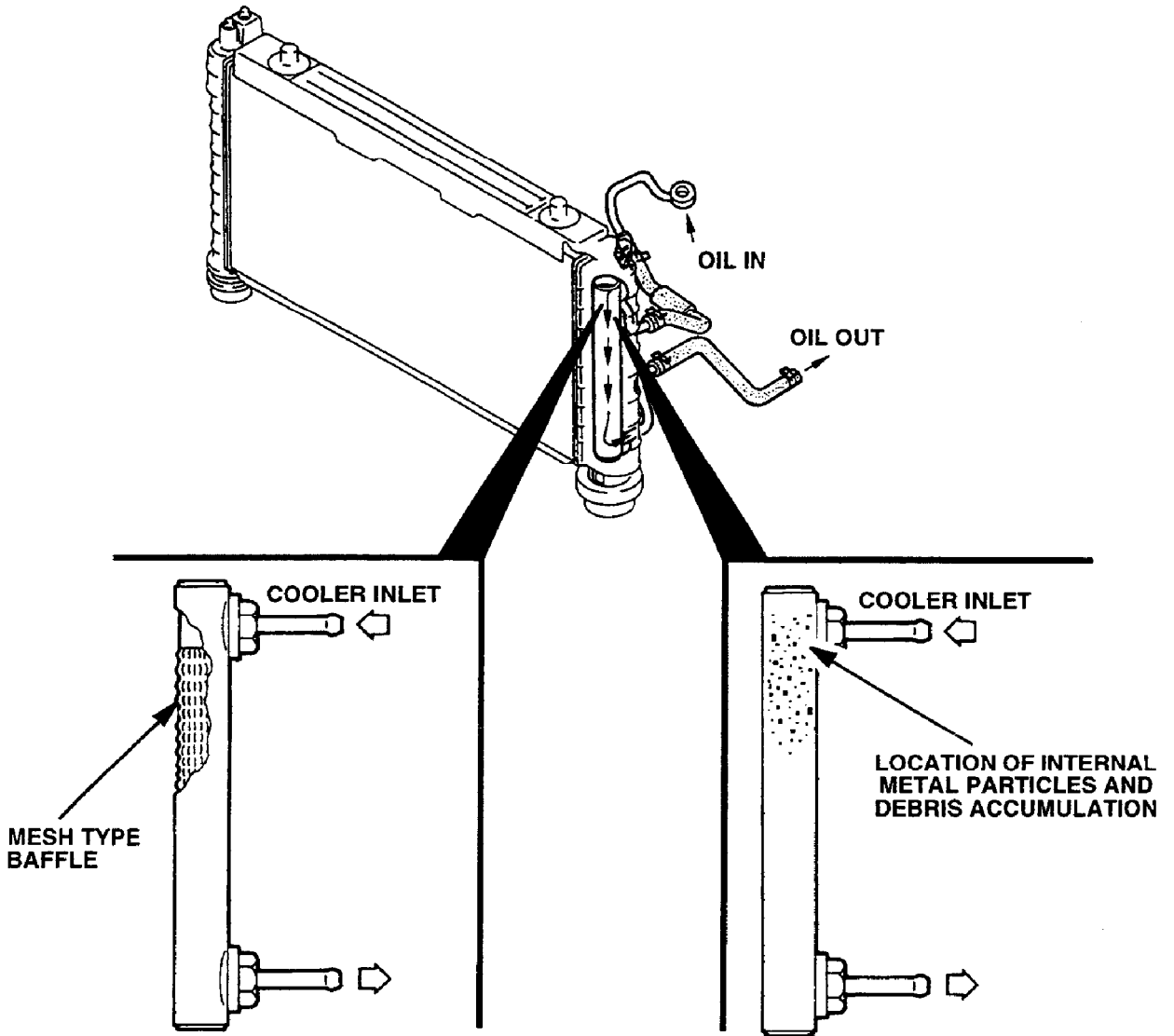
**Article Text (p. 3)**

1993 Mazda RX7

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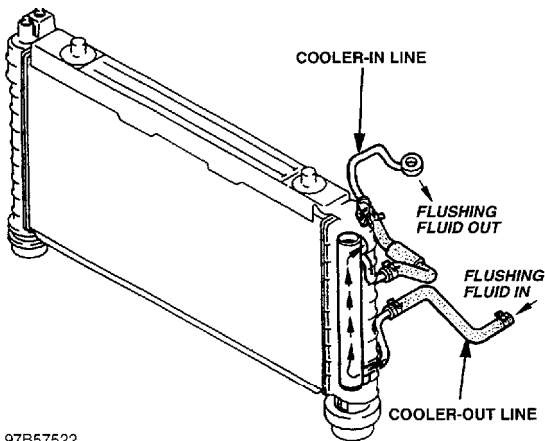
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97A57521

Fig. 1: Automatic Transmission Flushing Cooler



97B57522

Fig. 2: Back Flushing Flow

**AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

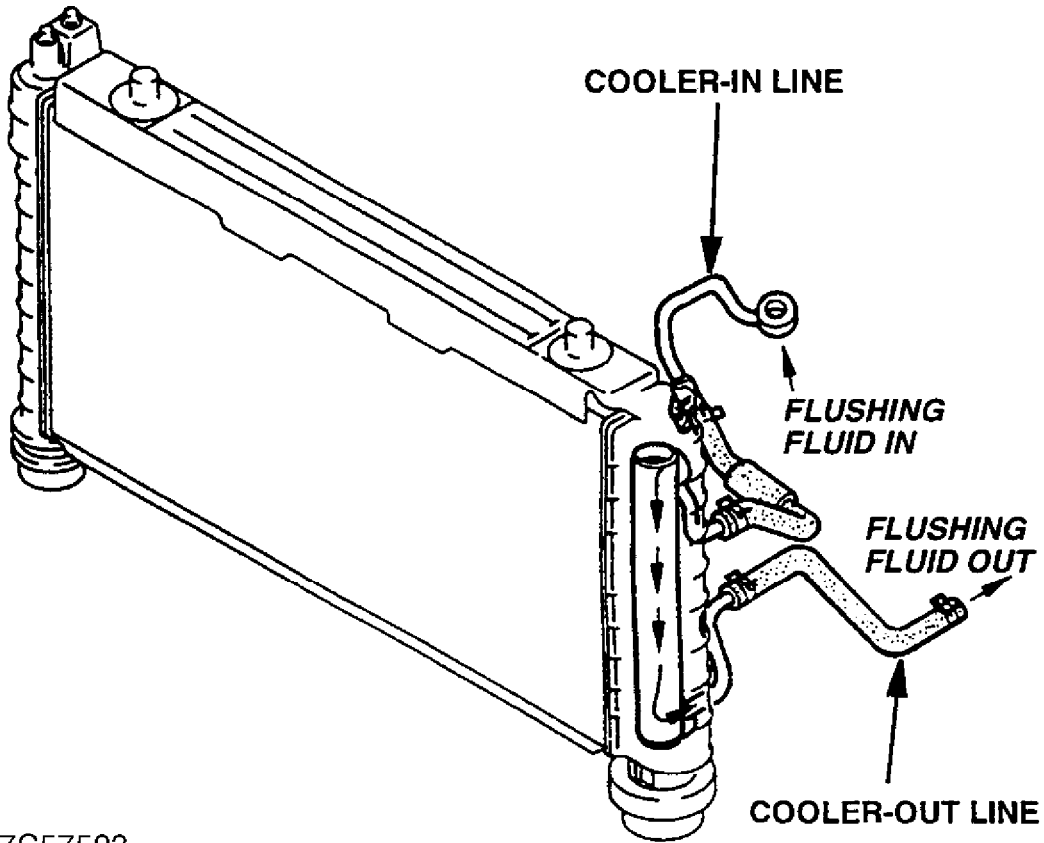
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97C57523

Fig. 3: Forward Flushing Flow

**AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

**Article Text (p. 5)**

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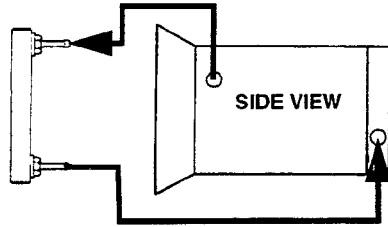
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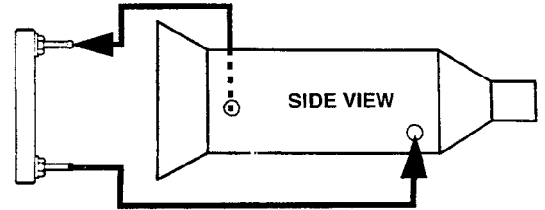
Saturday, August 25, 2001 07:23AM

**FRONT WHEEL DRIVE (TRANSAXLE)**

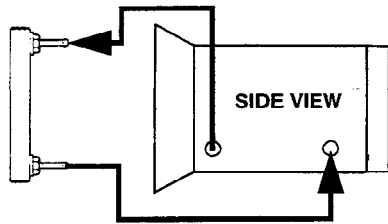
**REAR WHEEL DRIVE**



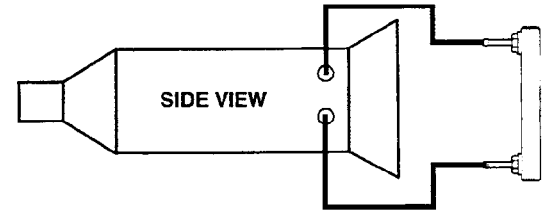
PROTEGE, MILLENIA (KL), 626 (FS)



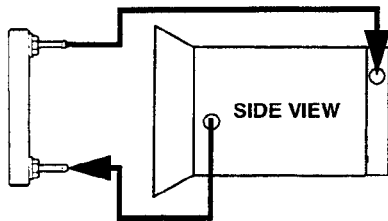
MPV, RX-7, 929, MIATA (NA)



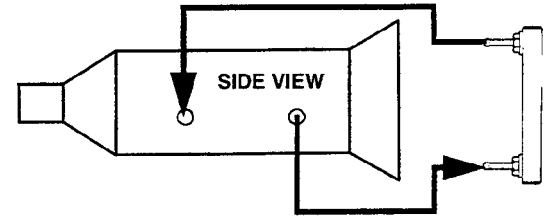
MILLENIA (KJ)



B-TRUCKS



626 (KL)



MIATA (NB)

97D57524

Fig. 4: A/T Transaxle Fluid Flow & Cooler Line Fitting Locations

**WARRANTY INFORMATION**

NOTE: This information applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.

When you submit a warranty claim on automatic transmission complete replacement, add any of the following operation numbers and labor hours to the operation number and labor hours for automatic transmission complete R&R.

Operation Number/Labor Hours:	MPV L4	= K0101XRU/0.4
	MPV V6 2WD	= K0101XRU/0.4
	MPV V6 4WD	= K0101XRU/0.4

**AUTOMATIC TRANS COOLER/LINE FLUSHING PROCEDURE CAT. K, NO. 005/98**

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Millenia 2.3L	=	K0101XRU/0.4
Millenia 2.5L	=	K0101XRU/0.4
RX-7	=	K0101XRU/0.4
MX-5	=	K0101XRU/0.4
MX-3 L4	=	K0101ARU/0.4
MX-3 V6	=	K0101BRU/0.4
929	=	K0101XRU/0.4
626/MX-6 L4	=	K0101XRU/0.4
626/MX-6 V6	=	K0101XRU/0.4
Protege/323 2WD, 1.6L		
& 1.8L	=	K0101XRU/0.4
Protege/323 2WD, 1.5L	=	K0101XRU/0.4
Protege/323 4WD	=	K0101XRU/0.4

**END OF ARTICLE**

# AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES CAT. K, NO. 002/94

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES

Model(s): All Mazda Models with A/T  
Category: K  
Bulletin No.: 002/94  
Date: 10/4/94

### APPLICABLE MODELS

All vehicles with automatic transmissions or automatic transaxles

### DESCRIPTION

Follow the information listed in this bulletin when diagnosing automatic transmission/transaxle problems or after installing a new or rebuilt transmission/transaxle

A Service Adviser / Technician Check Sheet & Diagnostic Flow Chart is provided with this bulletin. See Figs. 1 & 2. These are useful tools in preventing unnecessary replacement of transmissions, illustrating step by step diagnostics and are required for replacement authorization. Additional pads of fifty (50) are available free of charge from Helm, Inc. For additional information regarding transmission/transaxle diagnostics, refer to the applicable workshop manual and/or contact your regional/distributor hot line.

NOTE: If the transmission oil cooler is not cleaned with the proper power flushing equipment prior to repair completion, and comeback problems occur due to clogged oil cooler circuits, the repair cost will not be warrantable.

### RECOMMENDED POWER FLUSHING MANUFACTURERS / EQUIPMENT TABLE

Manufacturer / Telephone Number	Part Number / Description
OTC / (800) 533-0492	60081 / Portable Torque Converter Oil Cooler Cleaner

NOTE: 1) Power flushers require installation of a 5 micron filter.  
2) All of the above flushers require adapters / attachments for Mazda vehicle applications.  
3) Questions regarding usage and applications should be directed to the flusher manufacturer.



# AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES CAT. K, NO. 002/94

## Article Text (p. 2)

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<b>AUTOMATIC TRANSMISSION CHECK SHEET</b>		Dealer: _____	R.O.# _____																		
SERVICE ADVISOR	Service Writer: _____ Dealer No. _____ Date: __/__/__																				
	Customer's Name: _____ Dealer Telephone No. (____) ____-_____																				
	Model _____	Year _____	Engine _____ Mileage _____																		
	VIN _____																				
	Aftermarket Parts Installed? Yes ___ No ___ (list, if yes) _____																				
Customer Description Of Problem: _____																					
<b>WHEN DOES PROBLEM OCCUR?</b>																					
<table style="width: 100%; border: none;"> <tr> <td style="border: none;">Test Drive Vehicle? Yes ___ No ___</td> <td style="border: none;">No Movement: 1__ 2__ 3__ 4__ R__</td> </tr> <tr> <td style="border: none;">Engine Temperature? Cold ___ Hot ___ All ___</td> <td style="border: none;">Noise: 1__ 2__ 3__ 4__ R__</td> </tr> <tr> <td style="border: none;">Road Condition? Flat ___ Hilly ___</td> <td style="border: none;">Slip: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__</td> </tr> <tr> <td style="border: none;">Vehicle Speed? High ___ Cruise ___ Low ___ All ___</td> <td style="border: none;">Shock: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__</td> </tr> <tr> <td style="border: none;">Is The Problem Intermittent? Yes ___ No ___</td> <td style="border: none;">Flare: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__</td> </tr> <tr> <td style="border: none;">Is The Problem Occurring Now? Yes ___ No ___</td> <td style="border: none;"></td> </tr> </table>			Test Drive Vehicle? Yes ___ No ___	No Movement: 1__ 2__ 3__ 4__ R__	Engine Temperature? Cold ___ Hot ___ All ___	Noise: 1__ 2__ 3__ 4__ R__	Road Condition? Flat ___ Hilly ___	Slip: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__	Vehicle Speed? High ___ Cruise ___ Low ___ All ___	Shock: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__	Is The Problem Intermittent? Yes ___ No ___	Flare: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__	Is The Problem Occurring Now? Yes ___ No ___								
Test Drive Vehicle? Yes ___ No ___	No Movement: 1__ 2__ 3__ 4__ R__																				
Engine Temperature? Cold ___ Hot ___ All ___	Noise: 1__ 2__ 3__ 4__ R__																				
Road Condition? Flat ___ Hilly ___	Slip: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__																				
Vehicle Speed? High ___ Cruise ___ Low ___ All ___	Shock: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__																				
Is The Problem Intermittent? Yes ___ No ___	Flare: 1-2__ 2-3__ 3-4__ 4-3__ 3-2__ 2-1__																				
Is The Problem Occurring Now? Yes ___ No ___																					
<b>PROBLEM DESCRIPTION / DIAGNOSIS</b>																					
Description: _____																					
Problem Duplicated? Yes ___ No ___ Test Drive? Yes ___ No ___ Serv. Bulletin Relating To Problem? _____ / _____ <span style="float: right; font-size: small;">(list, if yes)</span>																					
Trans. Fluid Cond.: Milky ___ Burnt ___ Particles/Sludge ___ Normal ___ Trans Fluid Level: High ___ Low ___ Normal ___																					
Trans. Leaks? Yes ___ No ___ _____ <span style="float: right; font-size: small;">(list area(s), if yes)</span>																					
Engine Electrical System: Battery Voltage (engine running) _____ Volts		KOEO: _____ KOER: _____ <small>(Key On Engine Off) (Key On Engine Running)</small> <b>LA4A-EL Transmission Only</b>																			
<b>TEST RESULTS</b>																					
Problem Category: Codes _____ Leaks ___ Fluid Cond. ___ Driveability ___ Unusual Noise ___ <span style="float: right; font-size: small;">(list codes, if yes)</span>																					
Line Pressure/Stall Test Results:																					
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="padding: 5px;">Range</th> <th colspan="3" style="padding: 5px;">Line Pressure Kg/f _____ psi _____</th> </tr> <tr> <th style="padding: 5px;">Idle</th> <th style="padding: 5px;">Stall</th> <th style="padding: 5px;">RPM</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Park / Neutral</td> <td style="width: 50px; height: 20px;"></td> <td style="width: 50px; height: 20px;"></td> <td style="width: 50px; height: 20px;"></td> </tr> <tr> <td style="padding: 5px;">D, S, L</td> <td style="width: 50px; height: 20px;"></td> <td style="width: 50px; height: 20px;"></td> <td style="width: 50px; height: 20px;"></td> </tr> <tr> <td style="padding: 5px;">Reverse</td> <td style="width: 50px; height: 20px;"></td> <td style="width: 50px; height: 20px;"></td> <td style="width: 50px; height: 20px;"></td> </tr> </tbody> </table>			Range	Line Pressure Kg/f _____ psi _____			Idle	Stall	RPM	Park / Neutral				D, S, L				Reverse			
Range	Line Pressure Kg/f _____ psi _____																				
	Idle	Stall	RPM																		
Park / Neutral																					
D, S, L																					
Reverse																					
<b>RECOMMENDATIONS</b>																					
Did You Use The "Quick Diagnostic Chart II" In The WSM? Yes ___ No ___ Was It Useful? Yes ___ No ___																					
Contact Regional Hotline For Assistance? Yes ___ No ___ _____ <span style="float: right; font-size: small;">(list person contacted, if yes) (date)</span>																					
Recommendation: Normal Condition ___ Repair Trans. ___ Exchange _____ <span style="float: right; font-size: small;">(MASH Authorization Number) (date)</span>																					

94A54106

Fig. 1: Automatic Transmission Check Sheet

# AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES CAT. K, NO. 002/94

## Article Text (p. 3)

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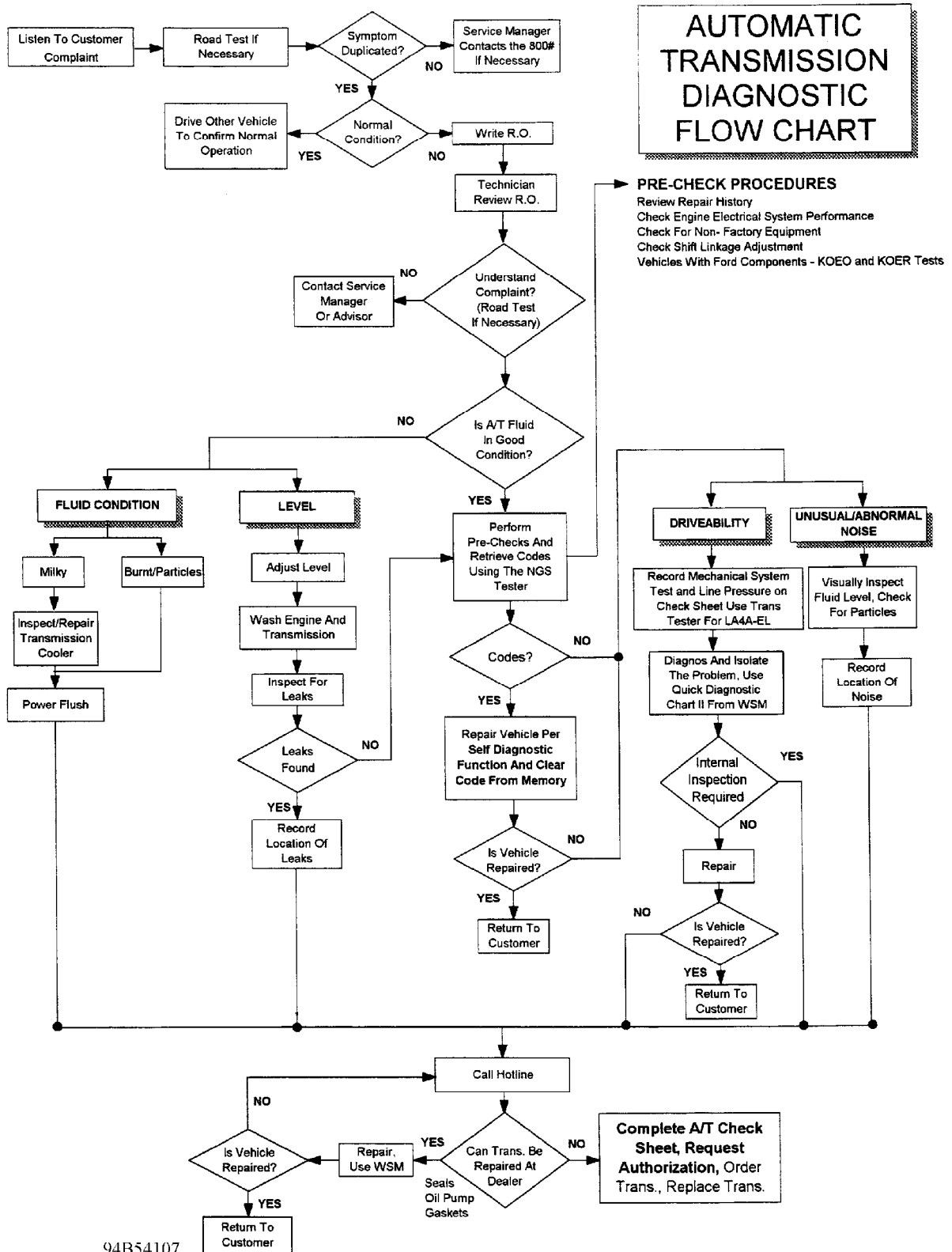


Fig. 2: Automatic Transmission Diagnostic Flow Chart

END OF ARTICLE

# **AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

## **Article Text**

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### **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **AUTOMATIC TRANSMISSION REPAIR POLICY**

Model(s): All Mazda Models  
Category: K - Automatic Transmission  
Bulletin No.: 002/95  
Issued Date: August 10, 1995  
Revised Date: October 31, 1995

### **APPLICABLE MODELS/VINS**

All Models Currently Under Warranty.

### **DESCRIPTION**

Policies of the Remanufactured Automatic Transmission Program have changed. The contents in this bulletin describe the new and carryover features of this program as well as diagnostic applications.

Service Managers are requested to inform the necessary dealer personnel of these changes.

### **POLICY**

- \* Adjustments, repairs or component replacement for each transmission are limited to those items listed on the "APPLICABLE WARRANTY REPAIR/PART GUIDE."
- \* Any vehicle (within warranty) that requires internal transmission repairs or rebuilding will be replaced with a MANA Remanufactured assembly.

NOTE: MASH authorization is required prior to replacing an automatic transmission assembly. Transmissions replaced without prior authorization will not be considered for warranty reimbursement.

### **REPAIR PROCESS OVERVIEW**

1. Record the customer concern and the conditions when the concern exists. Validate by duplicating the customers concern.
  - \* If the concern cannot be duplicated, check M-Tips On Line (MTO) for service information. If no MTO information exists, return the vehicle to the customer with an explanation of your attempts to duplicate the concern. Request the customer demonstrate the condition to service management.

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

**Article Text (p. 2)**

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\* If a concern exists:

\* Determine the transmission type using the AUTOMATIC TRANSMISSION APPLICATION CHART.

\* Perform the diagnosis as described in the AUTOMATIC TRANSMISSION DIAGNOSTIC FLOW CHART and record the data.

NOTE: A. The Automatic Transmission Diagnostic Sheets (ATDS) are available from Helm, Inc. in pad form. Each pad contains 100 sheets. The part number for the pad is 9999 95 TRANS 95.

B. Warranty claims submitted for A/T Performance Tests must have a copy of the AUTOMATIC TRANSMISSION DIAGNOSTIC SHEET (ATDS) retained with the R.O.

2. Using the WARRANTY REPAIR GUIDE, determine if the concern can be corrected by performing allowable adjustments, repairs or component part replacement listed on the guide. Perform the adjustments, repairs or component replacements.

IMPORTANT NOTE: \* If the transmission or components are replaced, flush the transmission cooler prior to installation.

\* If an internal part is suspected, call the MASH hotline for assembly authorization.

3. Prepare the core for return shipment to MANA in the "original" shipping container. This includes:

- \* draining the fluid
- \* replacing the hole plugs and torque convertor retaining strap
- \* completing and attaching the core tag and a copy of the ATDS

4. Perform a quality check (thorough road test and visual inspection) after repairs are made to ensure complete customer satisfaction. Including the customer in the road test is recommended.

**AUTOMATIC TRANSMISSION DIAGNOSTIC FLOW CHART**

UAAA;

3 Listen To Customer Complaint 3

AAU

UAA;

3 Road Test Customer Complaint 3

AAU

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; NO UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 Symptom Duplicated? AAAAAA' Check M-Tips On-Line Service 3

AAAAAAAAAAAAAAAAAAAAAAAAAAU 3 Manager Contacts the 800# 3

3 YES 3 If Necessary 3

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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3 **AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA**  
UAAAAAAAAAAAAAAAAAAAA; NO UAAAAAAAAAAAA;  
3 Normal Condition? AAAAAAAAAAAAA' Write R.O. 3  
AAAAAAAAAAAAAAAAAAAAA  
3 YES 3  
UAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAA;  
3 Drive Other Vehicle To 3 3 Technician Review R.O. 3  
3 Confirm Operation 3 AAAAAAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAAAAAA  
3  
UAAAAAAAAAAAAAAAAAAAA; NO UAAAAAAAAAAAAAAAAAAAA;  
3 Contact Service ManagerAAAAA' Understand Complaint? 3  
3 Or Adviser 3 3 (Road Test If Necessary) 3  
AAAAAAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAAAAAA  
3  
UAAAAAAAAAAAAAAAAAAAA;  
NO 3 Is A/T Fluid In 3  
UAAAAAAAAAAAAAAAAAAAA' Good Condition? 3  
3 AAAAAAAAAAAAAAAAAAAAA  
3 YES  
3  
UAAAAAAAAAAAAAAAAAAAA;  
UAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAA;  
3 FLUID 3 3 LEVEL 3  
3 CONDITION 3 AAAAAAAAAAAAA  
AAAAAAAAAAAAA  
3  
3  
UAAAAAAAAAAAAAAAAAAAA;  
UAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAA;  
3 Milky 3 3 Burnt Particles 3  
AAAAAAAAA AAAAAAAAAAAAA  
UAAAAAAAAAAAAAAAAAAAA; 3  
3 Inspect/Repair 3 3  
3 Transmission 3 3  
3 Cooler 3 3  
AAAAAAAAAAAAA  
3  
AAAAAAAAAAAAA  
3  
UAAAAAAAAAAAAAAAAAAAA;  
3 Power Flush 3 UAAAAAAAAAAAAAAAAAAAA; NO UAAAAAAAAAAAA;  
AAAAAAAAAAAAA 3 Refer to Part AAAA' Leaks Found 3  
3 "2" below 3 AAAAAAAAAAAAA  
3  
3  
3  
3  
3  
UAAAAAAAAAAAAAAAAAAAA;  
3 Record Location 3  
3 Of Leaks 3  
AAAAAAAAAAAAA  
3  
UAAAAAAAAAAAAAAAAAAAA;  
3 Check M-Tips On-Line or Call Hotline 3  
AAAAAAAAAAAAA



**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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```

3 Record Mechanical System 3
3 Test & Line Pressure On 3
3 Check Sheet Use Trans. 3
3 Tester For LA4A-EL 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Diagnose & Isolate The 3
3 Problem, Use Quick 3
3 Diagnostic Chart II From 3
3 WSM 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA; YES
3 Internal Inspection Required AAAAAAAAAA'
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 NO 3
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Repair, (Refer to the 3
3 Warranty Repair Guide 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA; NO
3 Is Vehicle Repaired? AAAAAAAAAA'
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 YES 3
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Return To Customer 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Check M-Tips On-Line or Call Hotline 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA; NO UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Can Trans. Be Repaired AAAAAAAAAA' Complete A/T Check 3
3 At Dealer? 3 Sheet, Request Auth- 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 3 orization, Order Trans., 3
3 YES 3 Replace Trans. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Repair, Use WSM (Refer to the 3
3 Warranty Repair Guide 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA; NO UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Is Vehicle Repaired? AAAAAAA' Check M-Tips On-Line or Call Hotline 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 YES
UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Return To Customer 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Model/Year 3 Trans. 3 Engine 3 MFG 3 Applications 3

```

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-91 929 3 NA4A-EL 3 3.0L JE/D 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1992-96 929 3 RA4A-EL 3 3.0L JED 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1995-96 Millenia S 3 LJ4A-EL 3 2.3L KJ 3 Jatco 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1995-96 Millenia 3 GF4A-EL 3 2.5L KJ 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-96 MPV 3 RA4A-EL 3 3.0L JE 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-96 MPV 3 RA4AX-EL 3 3.0L JE 3 Jatco 3 RWD/4WD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-94 MPV 3 NA4A-HL 3 2.6L G6 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-92 RX7 3 NA4A-EL 3 RE 13B 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1993-95 RX7 3 RB4A-EL 3 RE 13B 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-92 626/MX6 3 G4A-EL 3 2.2 F2 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-92 626/MX6 3 G4A-EL 3 2.2 Turbo 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1993 626/MX6 3 GF4A-EL 3 2.0 FS 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1993-96 626/MX6 3 GF4A-EL 3 2.5 KL 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1994-96 626/MX6 3 LA4A-EL 3 2.0 FS 3 Ford 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-94 Protege 3 FA4A-EL 3 1.8 BP 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-96 Protege 3 FA4A-EL 3 1.8 BPD 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1995-96 Protege 3 FA4A-EL 3 1.5 Z5D 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-91 Protege 3 G4AX-EL 3 1.8 BP 3 Mazda 3 FWD/4WD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 Miata 3 NA4A-HL 3 1.6 B6 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1994-96 Miata 3 NC4A-EL 3 1.8 BPD 3 Jatco 3 RWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1992-96 MX3 3 FA4A-EL 3 ALL 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-94 323 3 FA4A-EL 3 ALL 3 Mazda 3 FWD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 B2200 3 NA4A-HL 3 2.2 F2 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 B2600 3 NA4A-HL 3 2.6 G6 3 Jatco 3 RWD/HAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1990-93 B2600 3 RA4AX-EL 3 2.6 G6 3 Jatco 3 RWD/4WD/ECAT 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 1991-94 Navajo 3 A4LD 3 4.0 3 Ford 3 RWD/4WD/HAT 3
```



**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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1994 B-Series A4LD ALL Ford RWD/4WD/HAT  
ECAT = Electronically Controlled Automatic Transmission  
HAT = Hydraulically Controlled Automatic Transmission  
NOTE: MASH Hotline will provide information regarding transmission availability for 1995-96 B-Series vehicles.

MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 1 OF 6

External Adjustments	NA4A-EL	RA4A-EL	LJ4A-EL	GF4A-EL	FA4A-EL	NC4A-EL	RB4A-EL	G4A-EL	RA4AX-EL	G4AX-EL
2-4 band	ADJ	ADJ	ADJ	ADJ	ADJ					
OD band	ADJ									
INT band										
Low/Rev band										
T/R sensor	ADJ	ADJ	ADJ	ADJ	ADJ					
Throttle cable/pressure				ADJ(1)	ADJ					
Modulator pin	ADJ									
External linkage	ADJ	ADJ	ADJ	ADJ	ADJ					

ADJ - Adjust as needed per W/M (authorization not required).  
RPL - Repair or replace as needed per W/M (authorization not required).  
CMH - Call MASH Hotline for REMAN ASSEMBLY authorization (do not repair or replace component).  
(1) - Throttle cable not used on GF4A-EL.  
(2) - Do not replace converter if oil pan is full of debris, CALL MASH HOTLINE.  
(3) - 2-3 accumulator is internal and not serviceable, CALL MASH HOTLINE.  
(4) - If cracked, porous (leakage), damaged, other, CALL MASH HOTLINE.

MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 2 OF 6

External Adjustments	NA4A-HL	LA4A-EL	A4LD	4R44E	4R55E
----------------------	---------	---------	------	-------	-------



**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

**Article Text (p. 9)**

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Ext. hsg seal	RPL	RPL	---	---	---
Pan gasket	RPL	RPL	RPL	RPL	RPL
Axle seals	---	---	RPL	RPL	RPL
Oil filter/strainer	RPL	RPL	RPL	RPL	RPL
Electrical solenoids	RPL	RPL	RPL	RPL	RPL
Electrical switches	RPL	RPL	RPL	RPL	RPL
Vehicle speed sensor	RPL	RPL	RPL	RPL	RPL
Turbine speed sensor	RPL	RPL	RPL	---	---
Pulse generator	---	RPL	---	RPL	RPL
ATF thermo sensor	RPL	RPL	RPL	RPL	RPL
Accumulators	---	RPL	RPL	RPL(3)	CMH

ADJ - Adjust as needed per W/M (authorization not required).  
RPL - Repair or replace as needed per W/M (authorization not required).  
CMH - Call MASH Hotline for REMAN ASSEMBLY authorization (do not repair or replace component)

(1) - Throttle cable not used on GF4A-EL.  
(2) - Do not replace converter if oil pan is full of debris, CALL MASH HOTLINE.  
(3) - 2-3 accumulator is internal and not serviceable, CALL MASH HOTLINE.  
(4) - If cracked, porous (leakage), damaged, other, CALL MASH HOTLINE.

MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 4 OF 6

External Components	NA4A-HL	LA4A-EL	A4LD	4R44E	4R55E
Control valve body	RPL	RPL	RPL	RPL	
Torque converter (2)	RPL	RPL	RPL	RPL	
Spool valve	---	---	---	---	
Oil pump gasket	CMH	RPL	CMH	CMH	
Hydraulic governor	CMH	---	CMH	---	
Vacuum modulator	RPL	---	RPL	---	



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Gears	CMH	CMH	CMH	CMH	CMH	CMH
Shafts	CMH	CMH	CMH	CMH	CMH	CMH
Bearings	CMH	CMH	CMH	CMH	CMH	CMH
Seal Rings	CMH	CMH	CMH	CMH	CMH	CMH
O-rings	CMH	CMH	CMH	CMH	CMH	CMH
Bands	CMH	CMH	CMH	CMH	CMH	CMH
Drums	CMH	CMH	CMH	CMH	CMH	CMH
Brakes	CMH	CMH	CMH	CMH	CMH	CMH
Park pawl	CMH	CMH	CMH	CMH	CMH	CMH
Int. linkage	CMH	CMH	CMH	CMH	CMH	CMH
Hydraulic governor	---	---	---	---	---	---
Servo pistons	CMH	CMH	CMH	CMH	CMH	CMH
Differential	---	---	CMH	CMH	CMH	CMH
2-3 Accumulator	---	---	---	CMH	---	---
T/C Housing (4)	CMH	CMH	CMH	CMH	CMH	CMH
Main case (4)	CMH	CMH	CMH	CMH	CMH	CMH
ADJ - Adjust as needed per W/M (authorization not required).						
RPL - Repair or replace as needed per W/M (authorization not required).						
CMH - Call MASH Hotline for REMAN ASSEMBLY authorization (do not repair or replace component)						
(1) - Throttle cable not used on GF4A-EL.						
(2) - Do not replace converter if oil pan is full of debris, CALL MASH HOTLINE.						
(3) - 2-3 accumulator is internal and not serviceable, CALL MASH HOTLINE.						
(4) - If cracked, porous (leakage), damaged, other, CALL MASH HOTLINE.						

MAZDA AUTOMATIC TRANSMISSION APPLICATION TABLE - 6 OF 6

Internal Components	NA4A-HL	LA4A-EL	A4LD	4R44E	4R55E
Oil Pump	CMH	CMH	CMH	CMH	CMH



# AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

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### MASH AUTHORIZATION

Before replacing a transmission assembly, authorization must be obtained from the Major Assembly Service Hotline (MASH). This authorization is required for warranty reimbursement.

When it is necessary to contact MASH, the information from the Automatic Transmission Diagnostic Sheet (ATDS) will be required by the hotline specialist before the situation can be reviewed.

The ATDS is used for documenting diagnostic finding for all transmission concerns.

### AUTHORIZATION PROCESS

1. Dealer technician diagnoses the problem to determine if a complete assembly is required.
2. Technician completes the ATDS.
3. Dealer Service Manager calls the MASH Hotline (800) 832-4940
  - \* Service Manager selects "2" for the Major Assembly Service Hotline (as prompted by phone voice mail).
  - \* Service Manager provides all information from the ADTS
  - \* Service Manager provides an estimated cost for assembly replacement. Cost includes:
    - A) Replacement Part
    - B) SRT or Dealership Labor Rate (if applicable)
    - C) Sublet description and cost (if applicable)

NOTE: Dealerships can fax the ATDS to MASH at (714) 442-6598. The MASH specialist will contact the dealer regarding the fax request.

4. The Hotline specialist will review the request and determine if:
  - \* Additional repair information will eliminate the need for complete assembly replacement. If this is determined, the dealer will be requested to perform additional steps to repair the vehicle. In this circumstance no authorization number is issued.
  - \* Complete assembly replacement is the best alternative. In this circumstance, an authorization number is issued for warranty reimbursement.

### HOTLINE HOURS

# **AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

## **Article Text (p. 14)**

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Operation hours are 9 a.m. to 4 p.m. (for each continental time zone), Monday through Friday. (9 a.m. to 3 p.m. in Hawaii). Fax transmission is available 24 hours a day, seven days a week. Responses to fax will occur during regular business hours.

### **TRANSMISSION ORDERING INFORMATION**

If the vehicle is within warranty, MASH authorization must be obtained before ordering a transmission for replacement under normal warranty conditions.

After obtaining authorization, the transmission must be ordered from the MANA Remanufacturing Operation office servicing your dealer. MANA will require the following information before releasing a transmission:

- \* MASH Authorization Number
- \* Vehicle retail date if under original warranty
- \* Repair date and mileage at the time of replacement if under parts warranty

### **DEALER INVENTORY**

Transmission assemblies will be available for dealer stocking on November 1, 1995.

### **ORDERING LOCATIONS**

MANA Irvine Branch  
1424 McGaw Ave.  
Irvine, CA. 92714  
(714) 261-9429  
or (714) 852-7225  
FAX: (714) 261-6573

MANA Jacksonville Branch  
8601 Youngerman Court, Unit 9  
Jacksonville, FL 32244  
(904) 779-5996  
FAX: (904) 77X5X X89

NOTE: Dealers in TEXAS should order transmission assemblies from the MANA Jacksonville Branch.

### **TRANSMISSION DELIVERY**

Normal delivery for transmissions ordered before 12 p.m. is two (2) full working days. Example: Order received before 12 p.m. Monday will be delivered Wednesday.

### **PART NUMBER INFORMATION**

See Parts Flash (95-20) for detailed applications and part numbers.

### **CORE RETURN PREPARATION**



## AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95

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To ensure your dealer receives the \$600.00 core credit the unit must be returned properly. Failure to return a complete core and the required information will result in no core charge refund. To receive core credit you must:

- \* Return the transmission within 30 days of the vehicle repair date.
- \* Return it in the special shipping container.
- \* Completely drain the transmission fluid.
- \* Assemble all components and install hole plugs, differential side gear and torque convertor holding devices.
- \* Complete and attach the core return tag.
- \* Complete and attach a copy of the Automatic Transmission Diagnostic Sheet.

**IMPORTANT NOTE:** The \$600 core charge will not be refunded if the dealer fails to perform these tasks or if the transmission is damaged during shipping (due to improper preparation).

### CORE COMPONENT DETAILS

Install the torque convertor by rotating it to align the splines of the bearing cover, turbine shaft and oil pump. Ensure the torque convertor is fully installed to prevent bushing damage during shipping. See Fig. 1.

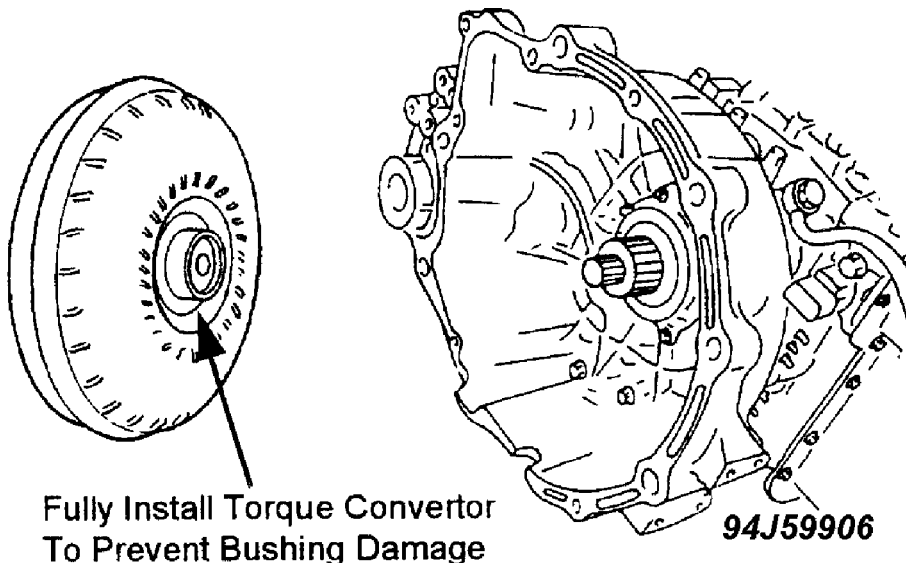


Fig. 1: Installing Torque Converter

Install torque convertor retaining bracket. See Fig. 2.

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

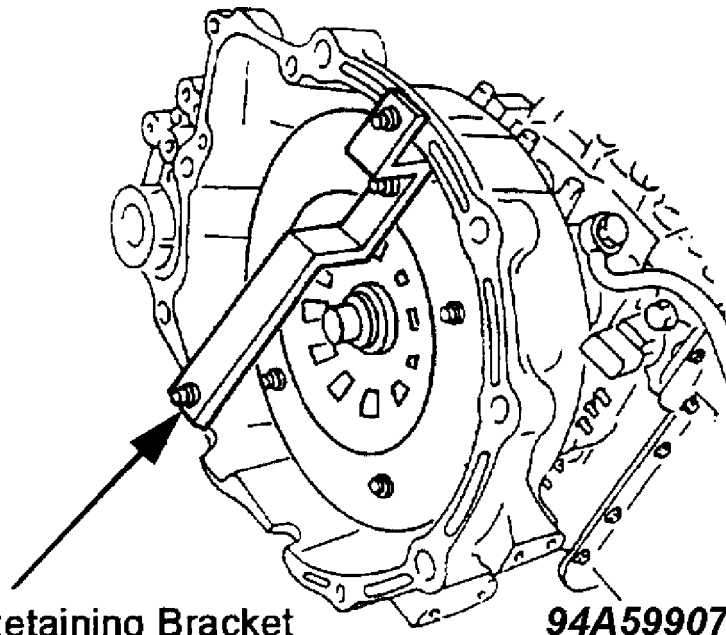
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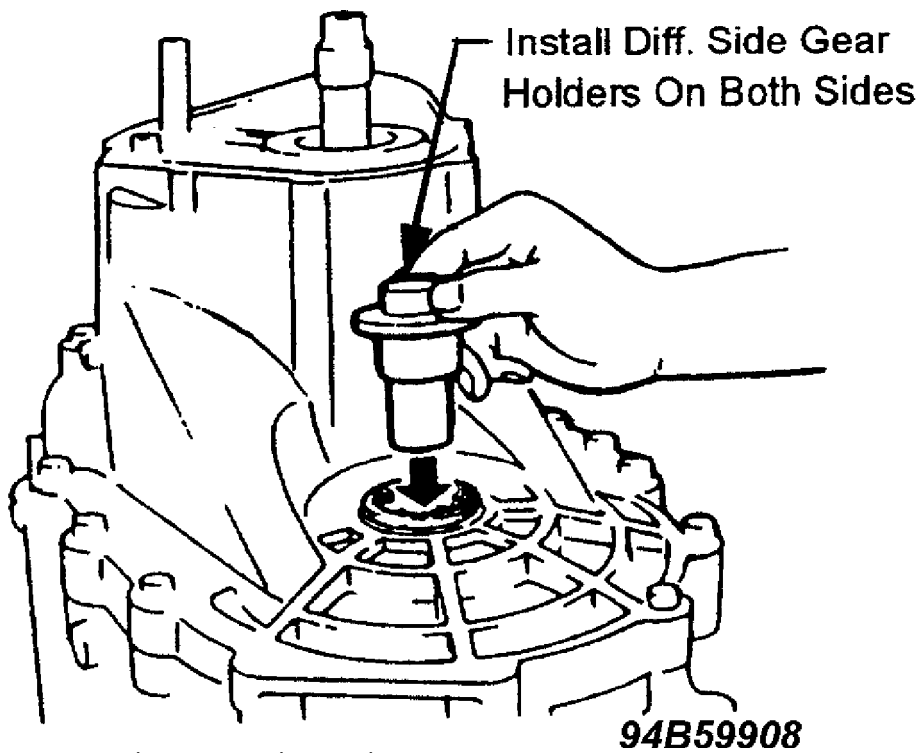


**Install Retaining Bracket**

**94A59907**

Fig. 2: Installing Retaining Bracket

Install differential side gear holders.



**Install Diff. Side Gear Holders On Both Sides**

**94B59908**

Fig. 3: Install Differential Side Gear Holders

**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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The automatic transmission oil cooler must be flushed whenever performing a major transmission repair or replacement. If the cooler is not flushed properly, residual friction material and metal may become dislodged and affect the new transmission's operation.

A labor operation is established to cover the use of flushing equipment. If the transmission oil cooler is not flushed with the proper flushing equipment prior to repair completion, and a comeback repair occurs due to clogged oil cooler circuits, the repair cost is not warrantable.

RECOMMENDED POWER FLUSHING MANUFACTURERS AND EQUIPMENT TABLE

Manufacturer/Telephone Number	Part Number	Description
Kent Moore/(800) 345-2233	J 3594-AMAZ	Flushing Kit
OTC/(800) 533-0492	60081	Portable Torque Converter Oil Cooler Cleaner

The Kent Moore flushing equipment will be available soon. A Special Tools Bulletin will be released which will contain further details.

- NOTE:
1. Power flushers require a 5 Micron filter installed.
  2. The above flushers require adapters/attachments for Mazda vehicle applications.
  3. Direct all questions regarding usage and application to the flusher manufacturer.
  4. Flush in reverse direction of normal operation. Refer to the workshop manual for normal flow. Refer to Fig. 4.



**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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2. CUSTOMER CONCERN

\* Test drive vehicle?  No  Yes \* Problem duplicated?  No  Yes

\* Symptom(s) (Choose all that apply):

- No movement  Shift shock
- Clutch slippage  Noise:  Whine  Clunk  Other:
- Flare  Shudder Vibration
- Doesn't shift  Oil leakage Location: \_\_\_\_\_
- Delayed engagement  Hold/OD off light flashing
- Erratic Shift/Hunting  Other: \_\_\_\_\_

\* Shifter range?

P  R  N  D  2(S)  1(L)

When shifting from  to

\* In what gear does it occur?  1st  2nd  3rd  4th  N

From gear  to

\* Vehicle speed?  MPH to  MPH

\* Throttle position:

- Acceleration  Kick down
- Decelerating  Any Position
- Steady Position: \_\_\_\_\_ %

\* Engine temp:  Cold  Hot  Any Temp.

\* Road condition:  Flat  Uphill  Downhill

\* A/C Switch position:  On  Off

\* Frequency:  Intermittent  Always

\* Description of other symptom:

\_\_\_\_\_  
\_\_\_\_\_

3. TECHNICIAN DIAGNOSIS

\* Trans fluid condition:

Normal  Milky  Burnt  Particles/Sludge

\* Trans fluid level:  Normal  High  Low

\* Throttle cable adjustment (If applicable):

Normal  Tight  mm out of spec.  Loose  mm out of spec.

\* Shift linkage setting:  Normal  Out of spec.

Describe: \_\_\_\_\_

\* Trans range sensor  Normal  Out of spec.

Describe: \_\_\_\_\_

\* Diagnostic Trouble Code (DTC):  None  Code: \_\_\_\_\_

\* Throttle position sensor voltage:

Steady?  Yes  No Open: \_\_\_\_\_ V Closed: \_\_\_\_\_ V



**AUTOMATIC TRANSMISSION REPAIR POLICY CAT. K, NO. 002/95**

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Visual Inspection: (Note Leaks) \_\_\_\_\_

Fluid Condition: \_\_\_ Burnt \_\_\_ Normal

Fluid Level: \_\_\_ Correct \_\_\_ High \_\_\_ Low

A. Self Test Codes Before Repair

KOEO: \_\_\_\_\_

CONT: \_\_\_\_\_

KOER: \_\_\_\_\_

B. TP (FIPL) Gage Block Setting

Solid Tone (OK) \_\_\_\_\_

Slow Beep (Low Adjustment) \_\_\_\_\_

Fast Beep (High Adjustment) \_\_\_\_\_

C. Line Pressure (Record Applicable Data)

	IDLE	WOT
P	_____	N/A
R	_____	_____
N	_____	N/A
OD	_____	_____
D	_____	_____
2	_____	_____
1	_____	_____

Was Transmission Tester used for Diagnostic \_\_\_ Yes \_\_\_ No

Shift Linkage TR/MLPS Setting \_\_\_ Correct \_\_\_ Incorrect

Metal In Pan \_\_\_ Yes \_\_\_ No

4. OTHER POWERTRAIN/ELECTRICAL EEC SERVICE PERFORMED:

\_\_\_\_\_

5. TRANSMISSION IDENTIFICATION (Removed From Vehicle)

Original Unit \_\_\_ Remain Unit \_\_\_

Part No. \_\_\_\_\_ Serial No. \_\_\_\_\_ Model No. \_\_\_\_\_

6. REPLACEMENT TRANSMISSION IDENTIFICATION (Installed Into Vehicle)

Installation Date: \_\_\_\_\_

Service Part No. \_\_\_\_\_ Serial No. \_\_\_\_\_

BEFORE REQUIRED ROAD TEST OF VEHICLE WITH REPLACEMENT TRANSMISSION.  
ALL SELF TEST ERROR CODES MUST BE REPAIRED/CLEARED.

Test Drive Results After Service: \_\_\_ Acceptable \_\_\_ Unacceptable

Service Test Error Codes After Required Road Test Evaluation:

KOEO: \_\_\_\_\_ CONT: \_\_\_\_\_ KOER: \_\_\_\_\_





## DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-07  
Date: May, 1997

### DESCRIPTION

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- \* Incomplete connection
- \* Loose female terminals
- \* Terminals that are pushed out of their connectors
- \* Water inside the connector
- \* Terminal corrosion

Also check each related harness for damage.

**END OF ARTICLE**

RECOMMENDED A/T COOLER LINE FLUSHING EQUIPMENT CAT. ST, NO. 009/95

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

RECOMMENDED A/T COOLER-LINE FLUSHING EQUIPMENT/NEW NATIONAL ACCOUNT

Model(s): All Mazda Models with A/T and ATX
Category: ST - Special Tools
Bulletin No.: 009/95
Date: November 14, 1995

RECOMMENDATION

Service Bulletin Category K, No. 002/95, issue date 8/10/95, states that the automatic transmission oil cooler and lines must be flushed whenever performing a major transmission repair or replacement.

MMA has evaluated flushing equipment and is recommending Kent-Moore's and OTC's products. Both pieces of equipment provide effective cleaning results and adapt to other manufacturer's vehicles.

There is a difference in procedures and costs between these two pieces of equipment. MMA is offering you the choice of two recommended pieces of equipment so that you can best decide which piece of equipment fits your needs. To assist in your decision, the chart below lists the advantages and disadvantages between the Kent-Moore and OTC flushers:

A/T OIL COOLER & LINE FLUSHER TABLE

A/T OIL COOLER & LINE FLUSHER TABLE (KENT-MOORE J-35944-MAZ)

Table with 3 columns: Advantages, Disadvantages, and a third column with symbols. Rows compare 'Inexpensive' vs 'Not as easy to use', 'Requires little storage space' vs 'Requires shop water and air hoses for flushing procedure', 'Does not require periodic filter replacement' vs 'Does not recycle its flushing fluid. Each flushing procedure requires the disposal of 18-20 gal. of waste (water/ATF/flushing fluid) that cannot be dumped in shop drain.', and 'Dealer must consult state and local authorities for proper disposal of waste'.

RECOMMENDED A/T COOLER LINE FLUSHING EQUIPMENT CAT. ST, NO. 009/95

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OTC 60081-M PORTABLE OIL COOLER/TORQUE CONVERTER CLEANER

OTC 60081-M PORTABLE OIL COOLER/TORQUE CONVERTER CLEANER

Advantages	Disadvantages
Cleaner recycles its solvent.	More expensive
Does not require the disposal of flushing solvent after each procedure	Requires more storage space
Requires only 5 gal. of flushing solvent which can be used for several flushing procedures.	Requires periodic filter and solvent replacement. Solvent cannot be dumped in shop drain.
Easier to use	Dealer must consult state and local authorities for proper disposal of waste
Does not require shop air and air hoses for flushing procedure.	
Also cleans torque converters	

PRICING INFORMATION

PRICING INFORMATION TABLE

Manufacturer/Model	Price
Kent-Moore J35944 MAZ A/T Oil Cooler and Line Flusher	\$272.55
OTC 60081-M Portable Oil Cooler/Torque Converter Cleaner	\$2,541.00

ORDER INFORMATION

Use the following ordering procedures.

KENT-MOORE J 35944-AMAZ AT Oil Cooler and Line Flusher
J 41763 Adapter Kit (optional)

- \* J 35944-A A/T Flusher which includes:
\* chrome plated brass tank
\* one gallon of J 35944-22 flushing fluid (enough for six flushing operations additional fluid can be purchased directly from

**RECOMMENDED A/T COOLER LINE FLUSHING EQUIPMENT CAT. ST, NO. 009/95**

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Kent-Moore).

\* complete operating instructions.

Phone Number 1-800-345-2233

Fax 1-800-578-7375

You will be billed directly by Kent-Moore

-----  
OTC

No. 60081-M Portable Oil Cooler/Torque Converter Cleaner  
J41763 Adapter Klt--A/T Oil Cooler and Line Flusher

Phone Number 1-800-533-0492

Fax 1-800-455-7240

You will be billed directly by OTC.  
-----

**SHIPPING INFORMATION**

Your order will be shipped directly from the manufacturer.

**END OF ARTICLE**

# WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC PROCEDURES

Model(s): 1993 Mazda RX-7  
Category: W - Workshop Manual Corrections  
Bulletin No.: 034/92  
Date: 10/26/92

### DESCRIPTION

Attached are pages for the 1993 RX-7 Workshop Manuals which require corrections for the reasons listed below:

1993 RX-7  
K-219 - K-233: correction to Step 1 Action items

These pages have been corrected and their entire repair procedures are listed below.

### CORRECTIONS

PAGES K-219 - K-231: CORRECTION TO STEP 1 ACTION ITEMS

Troubleshooting

If a service code number is shown on the SST, check for the cause by using the chart (Fig. 1) related to the code number shown.

WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

Article Text (p. 2)

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Code No.	Indicator flashing pattern	Diagnosed circuit	Condition	Point	Memorized
01		Engine rpm signal	No input signal from ECU	<ul style="list-style-type: none"> <li>Wiring from engine control unit to EC-AT control unit</li> <li>Engine control unit</li> </ul>	Yes
06		Speed sensor 1 (Revolution sensor)	No input signal from speed sensor 1 (Revolution sensor)	<ul style="list-style-type: none"> <li>Speed sensor 1 connector</li> <li>Wiring from speed sensor 1 to EC-AT control unit</li> <li>Speed sensor 2 resistance</li> </ul>	Yes
07		Speed sensor 2 (Speedometer sensor)	No input signal from speed sensor 2 (Speedometer sensor)	<ul style="list-style-type: none"> <li>Speed sensor 2 connector</li> <li>Wiring from speed sensor 2 to combination meter</li> <li>Wiring from combination meter to EC-AT control unit</li> <li>Speedometer resistance</li> </ul>	Yes
12		Throttle sensor	Open or short circuit of throttle sensor or wiring	<ul style="list-style-type: none"> <li>Throttle sensor connector</li> <li>Wiring from throttle sensor to EC-AT control unit</li> <li>Throttle sensor resistance</li> </ul>	Yes
55		Pulse generator	No input signal from pulse generator	<ul style="list-style-type: none"> <li>Pulse generator connector</li> <li>Wiring from pulse generator to EC-AT control unit</li> <li>Pulse generator resistance</li> </ul>	Yes
56		ATF thermosensor	Open or short circuit of ATF thermosensor or wiring	<ul style="list-style-type: none"> <li>ATF thermosensor connector</li> <li>Wiring from ATF thermosensor to EC-AT control unit</li> <li>ATF thermosensor resistance</li> </ul>	Yes
57		Reduce torque signal/Slip lockup signal, torque reduced signal	Open or short circuit of reduce torque signal/slip lockup signal wiring, and/or torque reduced signal wiring	<ul style="list-style-type: none"> <li>Wiring from engine control unit to EC-AT control unit</li> <li>EC-AT control unit</li> <li>Engine control unit</li> </ul>	Yes
58		Atmospheric pressure sensor	Open or short circuit of atmospheric pressure sensor wiring	<ul style="list-style-type: none"> <li>Wiring from engine control unit to EC-AT control unit</li> <li>Engine control unit</li> </ul>	Yes
60		Solenoid valve (shift A)	Open or short circuit of solenoid valve wiring	<ul style="list-style-type: none"> <li>Solenoid valve connector</li> <li>Wiring from solenoid valve to EC-AT control unit</li> <li>Solenoid valve resistance</li> <li>Wiring from dropping resistor to EC-AT control unit (Only No.64)</li> <li>Dropping resistor resistance (Only No.64)</li> </ul>	Yes
61		Solenoid valve (shift B)			Yes
62		Solenoid valve (overrunning clutch)			Yes
63		Solenoid valve (lockup)			Yes
64		Solenoid valve (line pressure)			Yes
65		Solenoid valve (lockup control)			Yes

94H55506

Fig. 1: Service Code Number Reference Chart

SERVICE CODE 01 DIAGNOSTIC TABLE



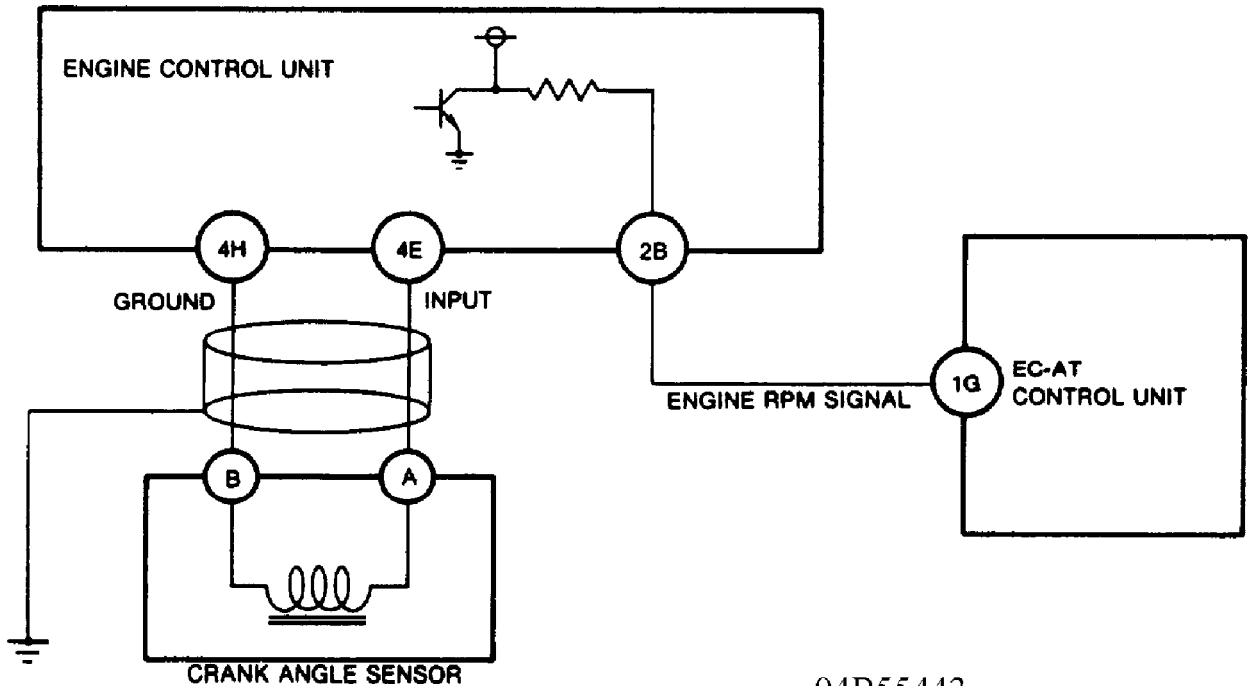
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94B55443

Fig. 2: Service Code 01 Circuit Diagram

SERVICE CODE 06 DIAGNOSTIC TABLE

Step	Inspection	Action
1.	Are there any poor connections at speed sensor 1 and EC-AT control unit connectors?	Yes: Repair or Replace connector No: Go to next step
2.	Connect a circuit tester to terminals 2J and 2L as shown in Fig. 3. Is input voltage of speed sensor 1 at EC-AT control unit OK? Acceptable Voltages Approx. above 1 - while driving above 16 mph Approx. 0 - Vehicle stopped	Yes: Go to Step 5 No: Go to next step
3.	Disconnect 20-pin EC-AT control unit connector. Is resistance between 2J terminal and 2L terminal OK? Resistance: 500-1,000 ohms	Yes: Go to Step 5 No: Go to next step





**WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92**

**Article Text (p. 6)**

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- 3 1. 3 Are there any poor 3Yes3 Repair or replace connector 3  
 3 3 connections at speed 3 3 3  
 3 3 sensor 2 and EC-AT control ~~AA~~ ✓  
 3 3 unit connectors? 3No 3 Go to next step 3  
~~AA~~  
 3 2. 3 Connect a circuit tester 3Yes3 Go to Step 8 3  
 3 3 to terminals 1I and 3 3 3  
 3 3 ground as shown in Fig. 4. 3 3 3  
 3 3 Is input voltage of speed 3 3 3  
 3 3 sensor 2 at EC-AT control 3 3 3  
 3 3 unit OK? ~~AA~~ ✓  
 3 3 Acceptable Voltages 3No 3 Go to next step 3  
 3 3 2-3 volts while driving 3 3 3  
 3 3 0 or 4.5-5.5 volts with 3 3 3  
 3 3 vehicle stopped 3 3 3  
~~AA~~  
 3 3. 3 Remove combination meter 3Yes3 Go to next step 3  
 3 3 Is there continuity 3 3 3  
 3 3 between 3E terminal of 3 3 3  
 3 3 meter connector and 1I ~~AA~~ ✓  
 3 3 terminal of EC-AT control 3No 3 Repair or replace wiring 3  
 3 3 unit? 3 3 and/or connector 3  
~~AA~~  
 3 4. 3 Connect circuit tester to 3Yes3 Replace speedometer 3  
 3 3 3C and 3A terminals of 3 3 3  
 3 3 meter connector 3 3 3  
 3 3 Does pointer of circuit ~~AA~~ ✓  
 3 3 tester move slightly when 3No 3 Go to next step 3  
 3 3 rear wheels are slowly 3 3 3  
 3 3 turned? 3 3 3  
~~AA~~  
 3 5. 3 Remove speed sensor 2 3Yes3 Go to next step 3  
 3 3 Is resistance felt when 3 3 3  
 3 3 turning speedometer driven ~~AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~~ ✓  
 3 3 gear by hand? 3No 3 Replace speed sensor 2 3  
~~AA~~  
 3 6. 3 Disconnect speed sensor 2 3Yes3 Go to next step 3  
 3 3 connector and connect 3 3 3  
 3 3 circuit tester 3 3 3  
 3 3 Does pointer of circuit ~~AA~~ ✓  
 3 3 tester move slightly when 3No 3 Replace speed sensor 2 3  
 3 3 driven gear is slowly 3 3 3  
 3 3 turned? 3 3 3  
~~AA~~  
 3 7. 3 Disconnect speed sensor 2 3Yes3 Check wiring and connectors 3  
 3 3 connector 3 3 from speed sensor 2 to 3  
 3 3 Is continuity of sensor OK? 3 3 speedometer 3  
 3 3 Resistance: 3 3 \* If OK, go to next step 3  
 3 3 approx. 290 Ohms at 3 3 \* If not OK, repair wiring 3  
 3 3 20°C (68°F) 3 3 and/or connector 3  
 3 3 ~~AA~~ ✓  
 3 3 3No 3 Replace sensor 2 3

Article Text (p. 7)

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```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 8. 3 Disconnect negative 3Yes3 Replace EC-AT control unit 3
3 3 battery cable for at least 3 3
3 3 20 seconds 3AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Connect battery cable and 3No 3 Intermittent poor connection 3
3 3 recheck for service code 3 3 Check for cause 3
3 3 Is service code displayed? 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    
```

**CIRCUIT DIAGRAM**

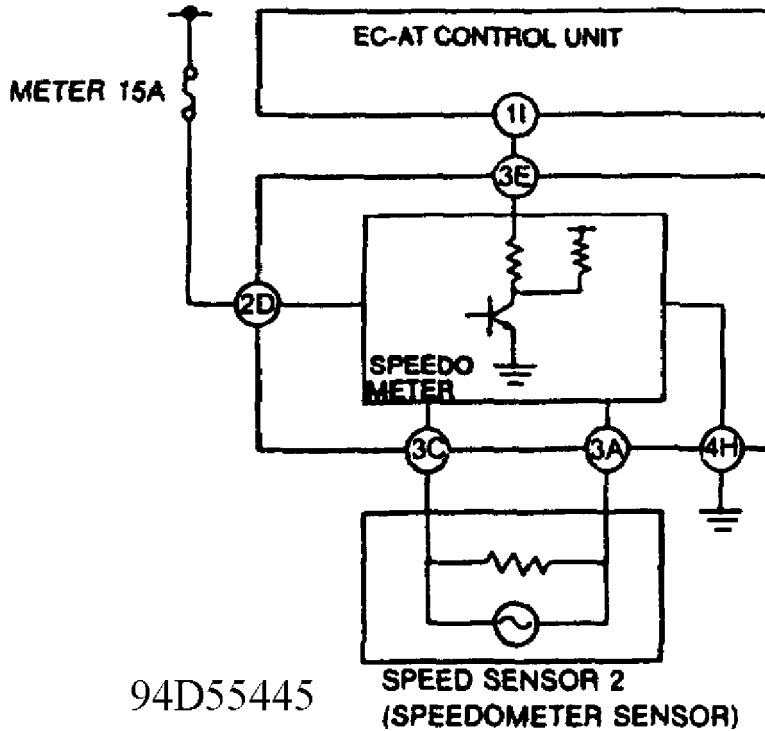


Fig. 4: Service Code 07 Circuit Diagram

SERVICE CODE 12 DIAGNOSTIC TABLE

Step	Inspection	Action
1.	Are there any poor connections at throttle sensor and EC-AT control unit connector or terminal?	Yes: Repair or replace connector No: Go to next step
2.	Connect a circuit tester to terminals 2T and ground as shown in Fig. 5. Is input voltage of throttle sensor (TV0) at EC-AT control unit OK?	Yes: Go to Step 5

**WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92**

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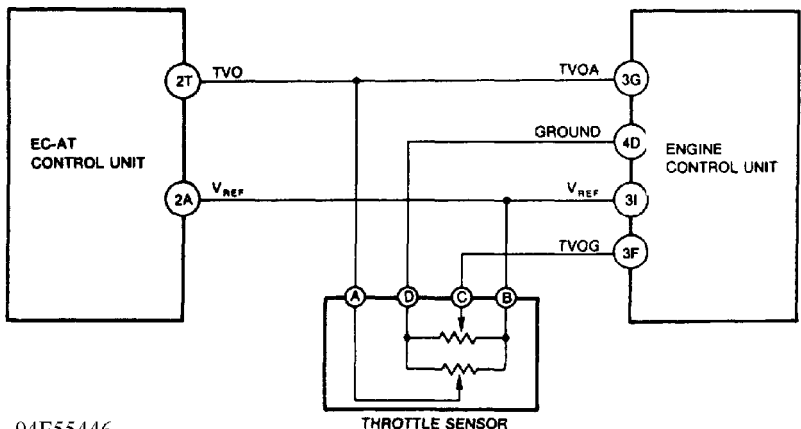
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```

3 3 Applicable Voltages 3No 3 Go to next step 3
3 3 .1-1.1 - throttle valve 3 3 3
3 3 fully closed 3 3 3
3 3 4.0-4.5 - throttle valve 3 3 3
3 3 fully opened 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3. 3 Connect a circuit tester to 3Yes 3 Go to next step 3
3 3 terminals 2A and ground as 3 3 3
3 3 shown in Fig. 5. 3 3 3
3 3 Is input voltage of 3No 3 Check voltage at 3I terminal 3
3 3 throttle sensor (VREF) at 3 3 of engine control unit 3
3 3 EC-AT control unit OK? 3 3 Voltage: 4.5-5.5 volts with 3
3 3 Acceptable Voltages 3 3 ignition switch on 3
3 3 4.5-5.5 volts with ignition 3 3 * If OK, go to next step 3
3 3 switch on 3 3 * If not OK, repair wiring 3
3 3 0 volts with ignition 3 3 and/or connector 3
3 3 switch off 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 4. 3 Is throttle sensor OK? 3Yes 3 Check wiring and connectors 3
3 3 3 3 from EC-AT control unit to 3
3 3 3 3 throttle sensor 3
3 3 3 3 * If OK, go to next step 3
3 3 3 3 * If not OK, repair wiring 3
3 3 3 3 and/or connector 3
3 3 3 3 3
3 3 3 3 Adjust or replace throttle 3
3 3 3 3 sensor 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 5. 3 Disconnect negative 3Yes 3 Replace EC-AT control unit 3
3 3 battery cable for at least 3 3 3
3 3 20 seconds 3 3 3
3 3 Connect battery cable and 3No 3 Intermittent poor connection 3
3 3 recheck for service code 3 3 Check for cause 3
3 3 Is service code displayed? 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    
```



94F55446

Fig. 5: Service Code 12 Circuit Diagram



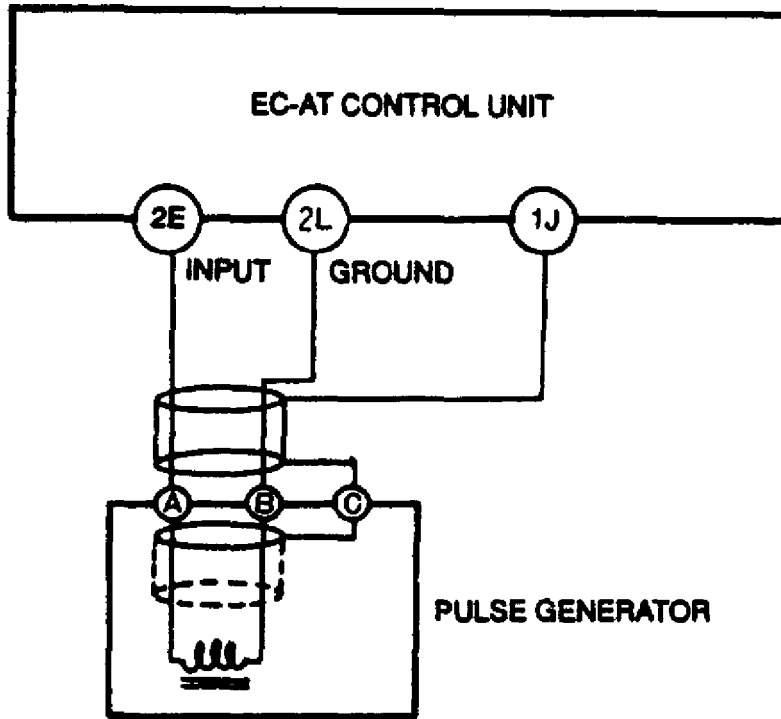
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94B55427

Fig. 6: Service Code 55 Circuit Diagram

SERVICE CODE 56 DIAGNOSTIC TABLE

SERVICE CODE No. 56		ATF Thermosensor	
Step	Inspection	Yes	Action
1.	Are there any poor connections at ATF thermosensor and EC-AT control unit connector or terminal?	Yes	Repair or Replace connector
2.	Connect a circuit tester to terminals 2R - 2L as shown in Fig. 7.	Yes	Go to Step 5
	Is input voltage of ATF thermosensor at EC-AT control unit OK?	No	Go to next step
	Acceptable Voltages		
	Approx. 1.8 volts		
	ATF temp. 10°C (50°F)		
	Approx. 1.1 volts		
	ATF temp. 40°C (104°F)		
	Approx. 0.4 volts		
	ATF temp. 80°C (176°F)		

WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

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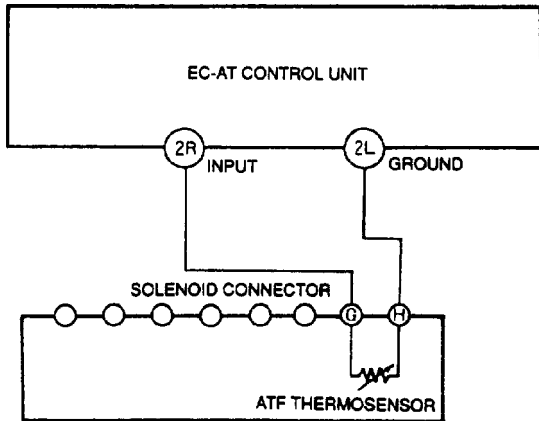
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```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3. 3 Disconnect 20-pin EC-AT          3Yes3 Go to Step 5          3
3 3 control unit connector          3 3                      3
3 3 Is resistance between 2R        3 3                      3
3 3 terminal and 2L terminal        AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 OK?                             3No 3 Go to next step    3
3 3 Acceptable Resistance          3 3                      3
3 3 Approx. 3.8 Kohms              3 3                      3
3 3 ATF temp. 100C (500F)         3 3                      3
3 3 Approx. 1.2 Kohms              3 3                      3
3 3 ATF temp. 400C (1040F)        3 3                      3
3 3 Approx. 0.3 Kohms              3 3                      3
3 3 ATF temp. 800C (1760F)        3 3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 4. 3 Disconnect solenoid          3Yes3 Check wiring and connectors 3
3 3 connector                      3 3 from EC-AT control unit to 3
3 3 Is resistance between G        3 3 ATF thermosensor        3
3 3 terminal and H terminal of     3 3 * If OK, go to next step 3
3 3 ATF thermosensor OK?         3 3 * If not OK, repair wiring 3
3 3 Acceptable Resistance          3 3 and/or connector        3
3 3 Approx. 3.8 Kohms              3 3                      3
3 3 ATF temp. 100C (500F)        AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Approx. 1.2 Kohms              3No 3 Replace ATF thermosensor 3
3 3 ATF temp. 400C (1040F)        3 3                      3
3 3 Approx. 0.3 Kohms              3 3                      3
3 3 ATF temp. 800C (1760F)        3 3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 5. 3 Disconnect negative          3Yes3 Replace EC-AT control unit 3
3 3 battery cable for at least    3 3                      3
3 3 20 seconds                    AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 3 Connect battery cable and     3No 3 Intermittent poor connection 3
3 3 recheck for service code      3 3 Check for cause          3
3 3 Is service code displayed?    3 3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```



94C55428

Fig. 7: Service Code 56 Circuit Diagram

SERVICE CODE 57 DIAGNOSTIC TABLE

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UAAA;  
3 Service Code No. 57 3 Reduce Torque Signal, Torque Reduced Signal 3  
AAA-  
3Step3 Inspection 3 Action 3  
AAA-  
3 1. 3 Are there any poor 3Yes3 Repair or Replace connector 3  
3 3 connections at engine 3 3  
3 3 control unit and EC-AT AA-  
3 3 control unit connectors 3No 3 Go to next step 3  
AAA-  
3 2. 3 Connect a circuit tester 3Yes3 Go to Step 4 3  
3 3 to terminals 2H and ground 3 3  
3 3 as shown in Fig. 8. 3 3  
3 3 Is input voltage of torque 3 3  
3 3 reduced signal at EC-AT AA-  
3 3 control unit OK? 3No 3 Go to next step 3  
3 3 Acceptable Voltages 3 3  
3 3 Battery voltage - Engine 3 3  
3 3 idling 3 3  
3 3 Below 1 volt - Engine cool 3 3  
AAA-  
3 3. 3 Disconnect 20-pin EC-AT 3Yes3 Go to next step 3  
3 3 control unit connector 3 3  
3 3 Is there continuity 3 3  
3 3 between 2H terminal of AA-  
3 3 EC-AT control unit and 2G 3No 3 Repair Wiring 3  
3 3 terminal of engine control 3 3  
3 3 unit? 3 3  
AAA-  
3 4. 3 Connect a circuit tester 3Yes3 Go to step 6 3  
3 3 to terminals 2P and ground 3 3  
3 3 as shown in Fig. 8. 3 3  
3 3 Is output voltage of reduce 3 3  
3 3 torque signal at EC-AT 3 3  
3 3 control unit OK? AA-  
3 3 Acceptable Voltages 3No 3 Go to next step 3  
3 3 Below 1 volt - Shifting 3 3  
3 3 Battery voltage - engine 3 3  
3 3 idling 3 3  
AAA-  
3 5. 3 Disconnect 20-pin EC-AT 3Yes3 Go to next step 3  
3 3 control unit connector 3 3  
3 3 Is there continuity 3 3  
3 3 between 2P terminal of AA-  
3 3 EC-AT control unit and 1Q 3No 3 Repair Wiring 3  
3 3 terminal of engine control 3 3  
3 3 unit? 3 3  
AAA-  
3 6. 3 Disconnect negative 3Yes3 Replace EC-AT control unit 3  
3 3 battery cable for at least 3 3 or engine control unit 3  
3 3 20 seconds AA-  
3 3 Connect battery cable and 3No 3 Intermittent poor connection 3



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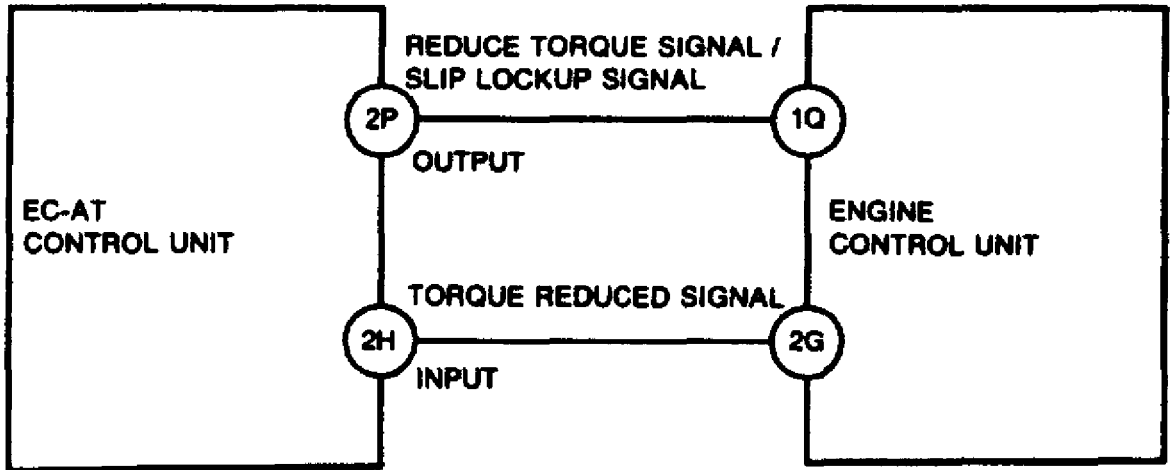
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```

3      3 recheck for service code      3      3 Check for cause      3
3      3 Is service code displayed?    3      3                      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU
    
```



94G55448

Fig. 8: Service Code 57 Circuit Diagram

SERVICE CODE 58 DIAGNOSTIC TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Service Code No. 58 3 Atmospheric Pressure Sensor 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3Step3 Inspection 3 Action 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3 1. 3 Are there any poor 3Yes3 Repair or Replace connector 3
3 3 connections at engine 3 3
3 3 control unit and EC-AT AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3 3 control unit connectors 3No 3 Go to next step 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3 2. 3 Connect a circuit tester 3Yes3 Go to Step 5 3
3 3 to terminals 2C and ground 3 3
3 3 as shown in Fig. 9. 3 3
3 3 Is input voltage of 3 3
3 3 atmospheric pressure sensor AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3 3 at EC-AT control unit OK? 3No 3 Go to next step 3
3 3 Acceptable Voltages 3 3
3 3 2.0-4.5 volts - ignition 3 3
3 3 switch ON 3 3
3 3 0 volts - ignition switch 3 3
3 3 OFF 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3 3. 3 Disconnect 20-pin EC-AT 3Yes3 Go to next step 3
3 3 control unit connector 3 3
3 3 Is there continuity 3 3
3 3 between 2C terminal of AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~
3 3 EC-AT control unit and 2D 3No 3 Repair Wiring 3
    
```



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Step	Inspection		Action
1.	Are there any poor connections at solenoid valve and EC-AT control unit connectors?	Yes	Repair or Replace connector
		No	Go to next step
2.	Connect a circuit tester to terminals 1D and ground as shown in Fig. 10. Is output voltage of solenoid valve (shift A) at EC-AT control unit OK? Acceptable Voltages Battery voltage - 1st or O/D gear Below 1 volt - 2nd,3rd gear	Yes	Check wiring and go to Step 5
		No	Go to next step
3.	Disconnect 16-pin EC-AT control unit connector Is resistance between 1D terminal and ground OK? Resistance: 20-40 ohms	Yes	Go to Step 5
		No	Go to next step
4.	Disconnect solenoid connector Is resistance between ground and terminal B of solenoid valve (shift A) OK? Resistance: 20-40 ohms	Yes	Check wiring and connectors from EC-AT control unit to solenoid valve (shift A) * If OK, go to next step * If not OK, repair wiring and/or connector
		No	Replace solenoid valve (shift A)
5.	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	Yes	Replace EC-AT control unit
		No	Intermittent poor connection Check for cause

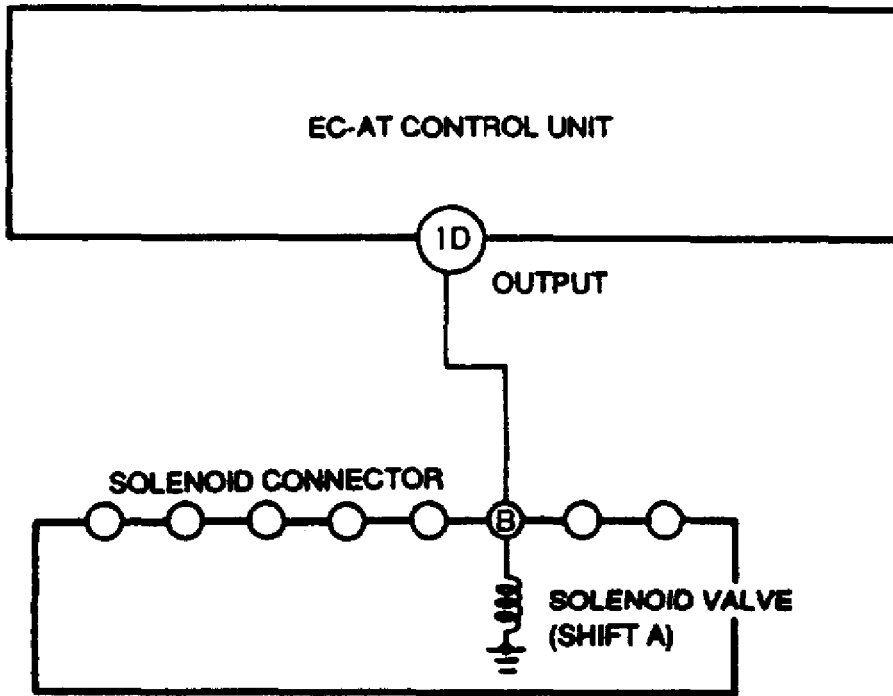
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94G55430

Fig. 10: Service Code 60 Circuit Diagram

SERVICE CODE 61 DIAGNOSTIC TABLE

Step	Inspection	Action
1.	Are there any poor connections at solenoid valve and EC-AT control unit connectors?	Yes: Repair or Replace connector No: Go to next step
2.	Connect a circuit tester to terminals 1B and ground as shown in Fig. 11. Is output voltage of solenoid valve (shift B) at EC-AT control unit OK? Acceptable Voltages Battery voltage - 1st, 2nd gear Below 1 volt - 3rd, O/D gear	Yes: Check wiring and go to Step 5 No: Go to next step
3.	Disconnect 16-pin EC-AT control unit connector. Is resistance between 1B	Yes: Go to Step 5



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Step	Inspection		Action
1.	Are there any poor connections at solenoid valve and EC-AT control unit connectors?	Yes	Repair or Replace connector
		No	Go to next step
2.	Connect a circuit tester to terminals 10 and ground as shown in Fig. 12. Is output voltage of solenoid valve (overrunning clutch) at EC-AT control unit OK? Acceptable Voltages Battery voltage - D range (throttle valve closed) Below 1 volt - Except D range (throttle valve open)	Yes	Check wiring and go to Step 5
		No	Go to next step
3.	Disconnect 16-pin EC-AT control unit connector Is resistance between 1D terminal and ground OK? Resistance: 20-40 ohms	Yes	Go to Step 5
		No	Go to next step
4.	Disconnect solenoid connector Is resistance between ground and terminal D of solenoid valve (overrunning clutch) OK? Resistance: 20-40 ohms	Yes	Check wiring and connectors from EC-AT control unit to solenoid valve (overrunning clutch) * If OK, go to next step * If not OK, repair wiring and/or connector
		No	Replace solenoid valve (overrunning clutch)
5.	Disconnect negative battery cable for at least 20 seconds Connect battery cable and recheck for service code Is service code displayed?	Yes	Replace EC-AT control unit
		No	Intermittent poor connection Check for cause

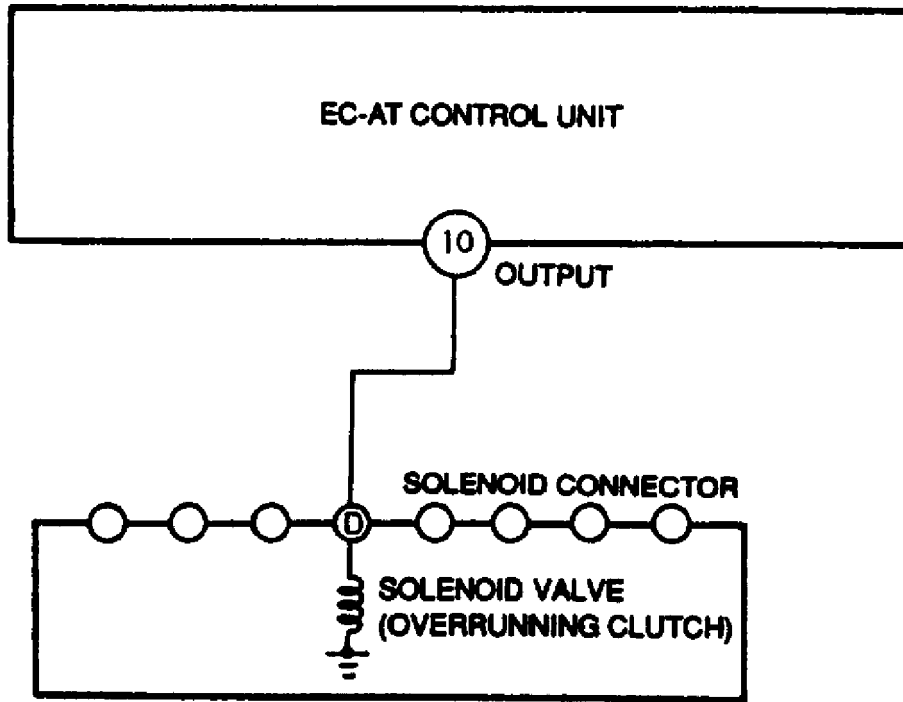
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94I55432

Fig. 12: Service Code 62 Circuit Diagram

SERVICE CODE 63 DIAGNOSTIC TABLE

Step	Inspection	Yes	Action	No	
1.	Are there any poor connections at solenoid valve and EC-AT control unit connectors?	Yes	Repair or Replace connector	No	Go to next step
2.	Disconnect 16-pin EC-AT control unit connector	Yes	Go to Step 4	No	Go to next step
	Is resistance between 1M terminal and ground OK?	Yes	Go to next step	No	Go to next step
	Resistance: 10-20 ohms				
3.	Disconnect solenoid connector	Yes	Check wiring and connectors from EC-AT control unit to solenoid valve (lockup)	No	Replace solenoid valve (lockup)
	Is resistance between ground and terminal F of solenoid valve (lockup) OK?	Yes	* If OK, go to next step	No	* If not OK, repair wiring and/or connector
	Resistance: 10-20 ohms				









WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92

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Step	Inspection		Action
1.	Are there any poor connections at solenoid valve and EC-AT control unit connectors?	Yes	Repair or Replace connector
		No	Go to next step
2.	Connect a circuit tester to terminals 2F and ground as shown in Fig. 15. Is output voltage of solenoid valve (lockup control) at EC-AT control unit OK?	Yes	Check wiring and go to Step 5
		No	go to next step
	Acceptable voltage		
	Battery voltage - lockup		
	Below 1 volt - no lockup		
3.	Disconnect 20-pin EC-AT control unit connector. Is resistance between 2F terminal and ground OK?	Yes	Go to Step 5
		No	Go to next step
	Resistance: 20-40 ohms		
4.	Disconnect solenoid connector. Is resistance between ground and terminal A of solenoid valve (lockup control) OK?	Yes	Check wiring and connectors from EC-AT control unit to lockup control solenoid
			* If OK, go to next step
			* If not OK, repair wiring and/or connector
	Resistance: 20-40 ohms	No	Replace solenoid valve (lockup control)
5.	Disconnect negative battery cable for at least 20 seconds. Connect battery cable and recheck for service code. Is service code displayed?	Yes	Replace EC-AT control unit
		No	Intermittent poor connection. Check for cause

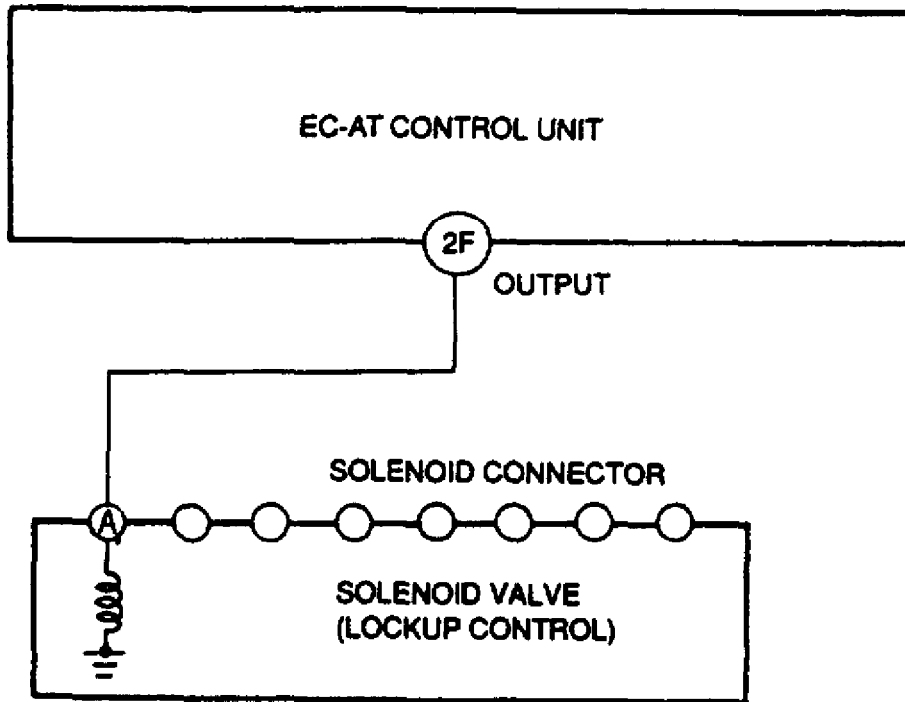
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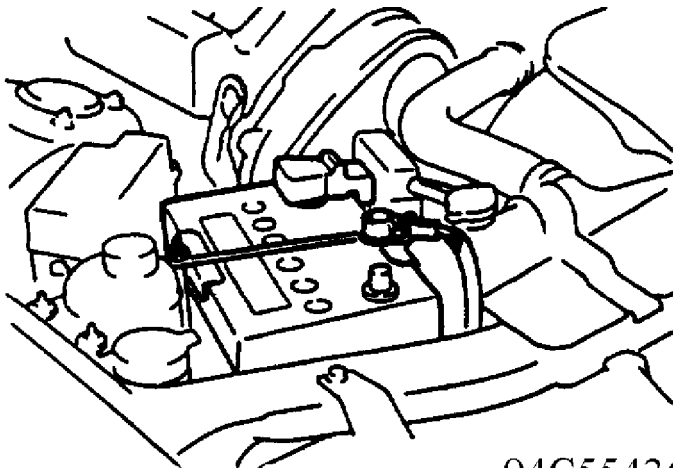


94B55435

Fig. 15: Service Code 65 Circuit Diagram

AFTER-REPAIR PROCEDURE

1. Cancel the memory of service codes by disconnecting the negative battery cable for at least 20 seconds. Reconnect the battery cable. Fig. 16.



94C55436

Fig. 16: Disconnecting Battery Cable

2. Remove the SST (SELF-DIAGNOSIS CHECKER or DTS1000) if connected.

**WORKSHOP MANUAL CORRECTION - EC-AT DIAGNOSTIC CODES CAT. W, NO. 034/92**

**Article Text (p. 25)**

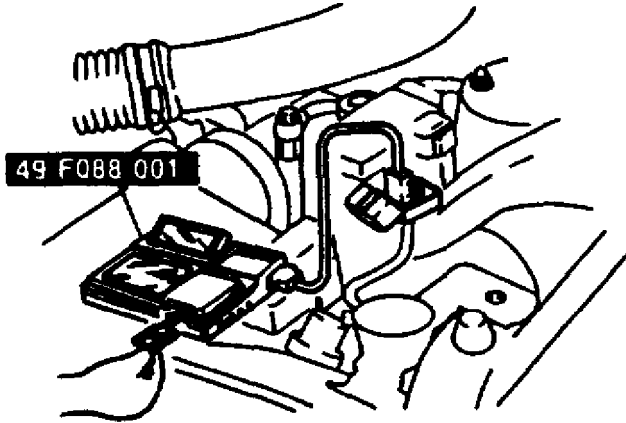
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3. Drive the vehicle at 50 km/h (31 mph), and depress the accelerator pedal fully to activate kickdown. Stop the vehicle gradually.
4. Connect the SST to the diagnosis connector. Fig. 17.



94A55509

Fig. 17: Connecting SST to Vehicle

5. Turn the ignition switch ON.
6. Verify that no code numbers are displayed.

**END OF ARTICLE**

**YEAR 2000 COMPLIANCE CAT. 01, NO. 018/99**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**YEAR 2000 COMPLIANCE**

Model(s): All Mazda Models  
Category: 01 - Engine  
Bulletin No.: 018/99  
Date: May 28, 1999

**DESCRIPTION**

Because all Control Units, including the Powertrain Control Modules used in Mazda vehicles do not use the day, month, or year to operate, Mazda vehicles are completely immune to the effects of the year 2000 concern.

**END OF ARTICLE**

# BLACK FINISH PEELING FROM INERIOR TRIM: REPLACE PART CAT. S, NO. 056/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### BLACK FINISH PEELING FROM INTERIOR TRIM

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD331\*P0207441  
or lower produced through August 4, 1992  
Category: "S" Body  
Bulletin No.: 056/93  
Date: 12/15/93

### DESCRIPTION

Some vehicles may experience the black finish peeling from certain interior trim parts. Fig. 1 illustrates the affected parts.

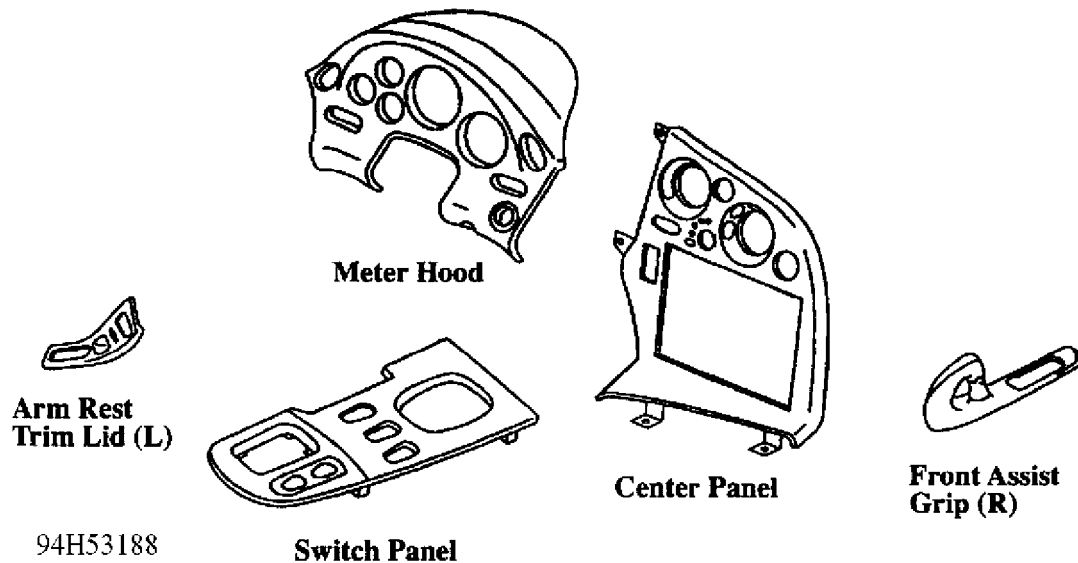


Fig. 1: Affected Parts

This condition is caused by poor adhesion of the black finish to the trim parts.

### REPAIR PROCEDURE

The adhesive element has been strengthened to prevent the interior trim black finish from peeling. If peeling occurs, replace the affected parts. See PARTS INFORMATION TABLE for list of modified parts.

Refer to the appropriate service information for removal and installation procedures.

**BLACK FINISH PEELING FROM INERIOR TRIM: REPLACE PART CAT. S, NO. 056/92**

**Article Text (p. 2)**

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PARTS INFORMATION TABLE

Part Number	Description	Quantity
FDO1 55 210B 00	Central Panel	1
FDO1 55 420E 00	Meter Hood	1
FDO1 64 471D 00	Switch Panel	1
FDO1 68 4LY 00	Switch Panel (L)	1
FDO1 68 4MOA 00	Arm Rest Trim Lid (L)	1
FDO1 69 44XA 00	Front Assist Grip (R)	1

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 45  
Damage Code: 9X

Part No. of Main Cause:	Operation No:	Labor Hours
FDO1 S5 210B 00	S0702XRX	0.9 hrs.
FDO1 55 420E 00	T0602XRX	0.6 hrs.
FDO1 64 471D 00	S0805XRX	0.2 hrs.
FDO1 68 4LY 00	XX051OR1	0.5 hrs.
FDO1 68 4MOA 00	XX051OR2	0.5 hrs.
FDO1 69 44XA 00	XX051OR3	0.4 hrs.

**END OF ARTICLE**



**BROKEN PASSENGER SIDE DOOR GRIP: REPLACE GRIP CAT. S, NO. 033/93**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**BROKEN PASSENGER SIDE DOOR GRIP**

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD331\*P0200001 through JM1FD331\*P0210623  
 Category: "S" Body  
 Bulletin No.: 033/93  
 Date: 7/2/93

**DESCRIPTION**

On some vehicles, the passenger door grip may break or become loose. This is due to the constant pulling force when closing the door. The material used to manufacture the door grip has been improved to reduce the possibility of breakage

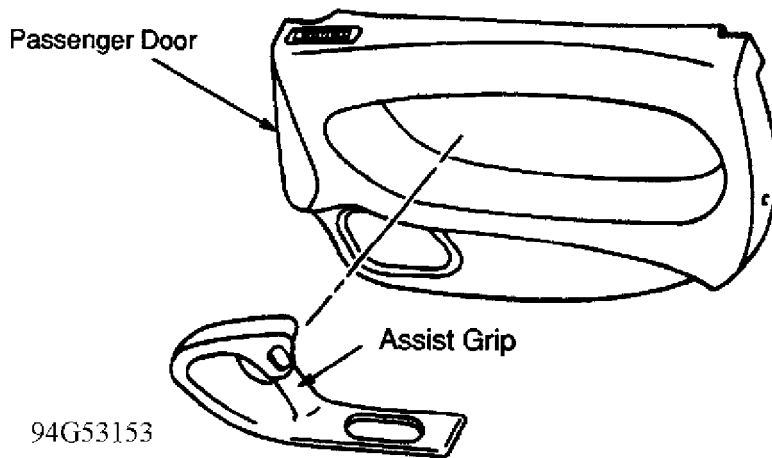


Fig. 1: Door Grip

**REPAIR PROCEDURE**

If the above condition occurs, replace the door grip with a modified part. Refer to the appropriate service information for removal and installation procedures.

**PARTS INFORMATION TABLE**

Part Number	Description	Qty	Int	Code
FD01 69 44XB 00	FD01 69 44XA 00	1	A	
	Assist Grip			

**BROKEN PASSENGER SIDE DOOR GRIP: REPLACE GRIP CAT. S, NO. 033/93**

**Article Text (p. 2)**

1993 Mazda RX7

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WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code:	A
Customer Comment Code:	92
Damage Code:	99
Part No. of Main Cause:	FD01 69 44XB 00
Operation No.:	XX0552RX
Labor Hours:	0.4 Hrs.

**END OF ARTICLE**

# DIRT ON SEAT BELT AND ANCHOR CAT. S, NO. 028/96

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### DIRT ON SEAT BELT AND ANCHOR

Model(s): All Mazda Models except Navajo and B-Series  
Category: S - Body  
Bulletin No.: 028/96  
Date: June 27, 1996

### DESCRIPTION

Dirt accumulating on the seat belt anchor or webbing may restrict seat belt travel over the anchor. This may cause some customers to complain that the seat belt will not retract or requires effort to pull out. Customers with this concern should have the belt inspected and serviced according to this bulletin.

### SERVICE PROCEDURE

1. Clean the seat belt contact area and sash guide.

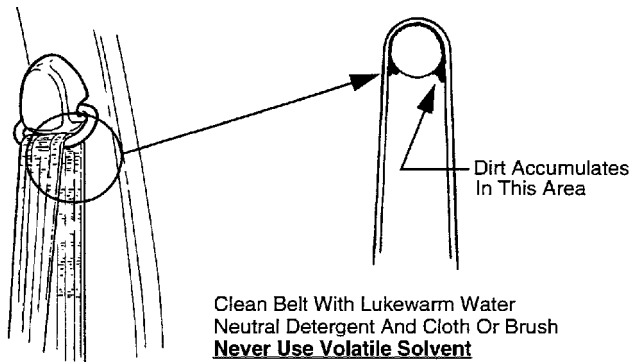
NOTE: Use a brush or cloth, lukewarm water and neutral detergent.

CAUTION: Do not use volatile solvent for cleaning, this substance may affect the seat belt strength.

2. Verify seat belt operation.

\* If the seat belt is not operating smoothly, refer to the workshop manual for troubleshooting procedures.

NOTE: The seat belt will not retract smoothly while wet. Allow seat belt to dry before verifying operation.



95G54912

Fig. 1: Dirt Accumulates In This Area

END OF ARTICLE

# DOOR MIRROR VIBRATION - APPLY TREAD-LOCK TO SCREWS CAT. S, NO. 020/95

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### DOOR MIRROR VIBRATION

Model(s): 1993-94 Mazda RX-7  
Category: S - Body  
Bulletin No.: 020/95  
Date: 6/16/95

### APPLICABLE MODELS/VINS

RX-7 model vehicles with a VIN of JM1FD333\*R0301491 and lower

### DESCRIPTION

The door mirror may vibrate while driving on bumpy roads. This vibration may be caused by loose mirror mounting screws. To prevent the screws from loosening, a thread locking agent has been added during mass production. Customers complaining of this concern should have the vehicle repaired according to this bulletin.

NOTE: Place a copy of this bulletin in your edition of the NVH manual for future reference.

### REPAIR PROCEDURE

1. Verify the complaint.
2. Remove the mirror from the door. Refer to section S of the workshop manual for removal instructions.

NOTE: Mirror wiring harness removal is not necessary.

3. Apply a non-permanent thread locking compound (Loctite 242 or equivalent) to the three (3) mounting screws and install the mirror. See Fig. 1.
4. Verify the repair.

**DOOR MIRROR VIBRATION - APPLY TREAD-LOCK TO SCREWS CAT. S, NO. 020/95**

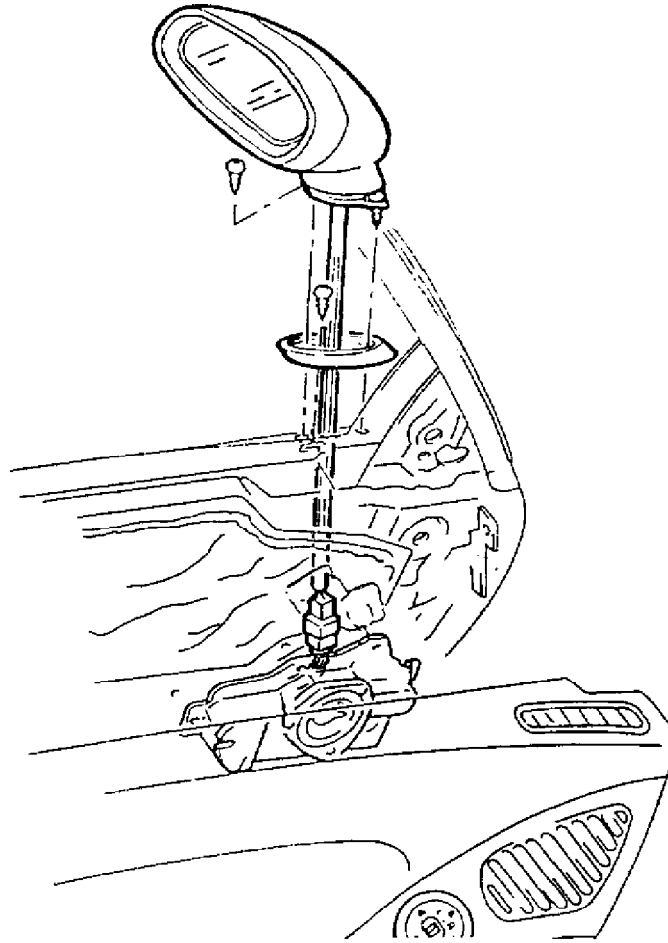
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**Apply Non-Permanent Thread-Locking  
Agent To the Mounting Screws**

**94F58789**

Fig. 1: Mounting Door Mirror

**WARRANTY INFORMATION**

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information).

Warranty Type:	A
Symptom Code:	83
Damage Code:	9G
Part Number Main Cause:	FD01 76 120 ** (Right Door)
	FD01 76 180 ** (Left Door)
Quantity:	0
Operation Number:	XX0739RX
Labor Hours:	0.3 (both sides)

NOTE: \*\* in the PNMC designates the applicable color code

**END OF ARTICLE**

## DOOR MIRROR VIBRATION - REPAIR MT 0495-08

### Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### DOOR MIRROR VIBRATION

Model(s): 1993-95 Mazda RX-7

Category: Mazda Tips

Bulletin No.: MT 0495-08

Date: April, 1995

### SERVICE INFORMATION

If the left or right door mirrors shake or vibrate under normal driving conditions, or on rough roads, do not replace the door mirror.

Twist the mirror downward to expose the two (2) mounting screws that attach the mirror to the body. See Fig. 1. Remove the mounting screws and apply loctite (blue type) to the threads and reinstall the screws very firmly to ensure the vibration has been eliminated.

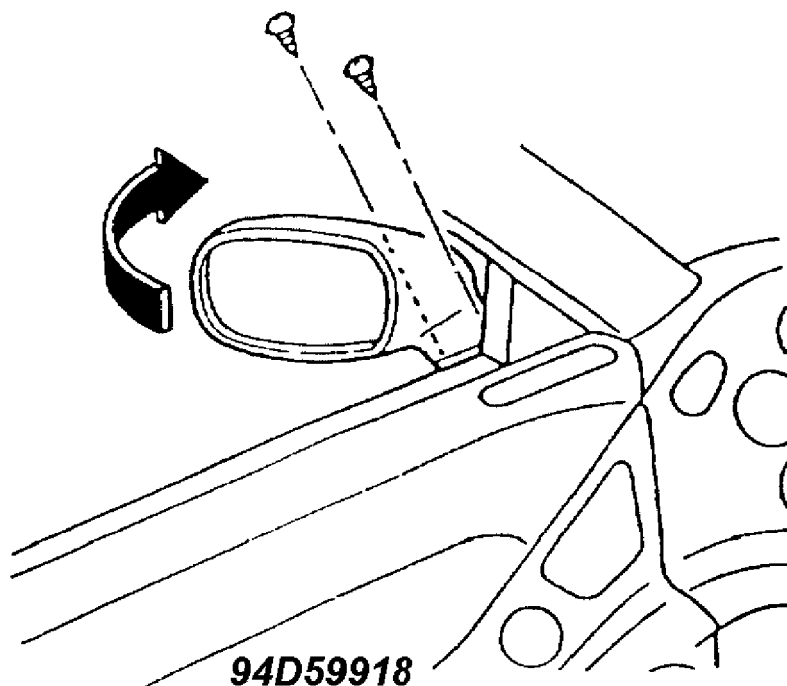


Fig. 1: Location of Mounting Screws

END OF ARTICLE

# DOOR TRIM RECESS BROKEN -RECESS AVAILABLE SEPARATELY MT 0395-03

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### DOOR TRIM RECESS BREAKAGE

Model(s): All Mazda Models (equipped)  
Category: Mazda Tips  
Bulletin No.: MT 0395-03  
Date: March 1995

### DESCRIPTION

If the door trim recess is broken, do not replace the entire door trim. The recess is available separately as a service part for all models. The complete door trim is not warrantable if it was replaced to repair a broken recess. See Fig. 1.

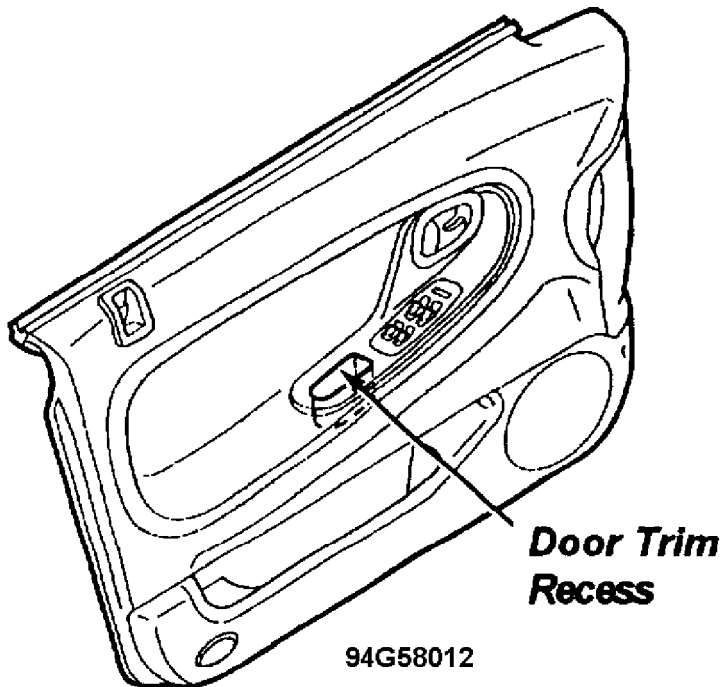


Fig. 1: Door Trim Recess

END OF ARTICLE

# ENVIRONMENTAL FALLOUT REPAIR PROCEDURE MT 0797-07

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

ENVIRONMENTAL FALLOUT REPAIR PROCEDURE

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0797-07  
Date: July, 1997

### DESCRIPTION

With the warm summer days ahead, customers will be washing their vehicles more often, and paint concerns such as those caused by environmental fallout (acid rain, rail dust, water spotting, etc.) can be more easily seen.

As a reminder, when addressing these concerns, please refer to the Mazda Paint Damage Repair Manual (P/N: 9999-95-044N-94.) This manual lists the recommended repair procedure and products supplied by Finish Kare, Inc. for proper removal of environmental fallout damage. For questions or product information, please contact Finish Kare, Inc. at 1-888-FINKARE, 7:00 A.M.- 3:30 P.M. (PST).

Two copies of the Paint Damage Repair Manual will be mailed to your service department in the next publications mailing.

### END OF ARTICLE



**GLOVE BOX LAMP STAYS ON: NEW LAMP COVER CAT. S, NO. 042/93**

**Article Text**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**GLOVE BOX LAMP STAYS ON**

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD332\*P0200001  
through JM1FD332\*P0210624  
NOTE: The asterisk (\*) in the VIN range can be any number (0 through 9) or "X".  
Category: "S" Body  
Bulletin No.: 042/93  
Date: 10/21/93

DESCRIPTION

The glove box lamp may stay on when the glove box door is closed. The lamp cover has been modified to prevent this condition. If this condition exists, replace the glove box lamp cover with the modified lamp cover according to the instructions listed below.

REPAIR PROCEDURE

- 1. Remove the glove box.
- 2. Remove the two installation screws for the lamp assembly and remove the lamp cover.
- 3. Install the modified lamp cover and glove box.

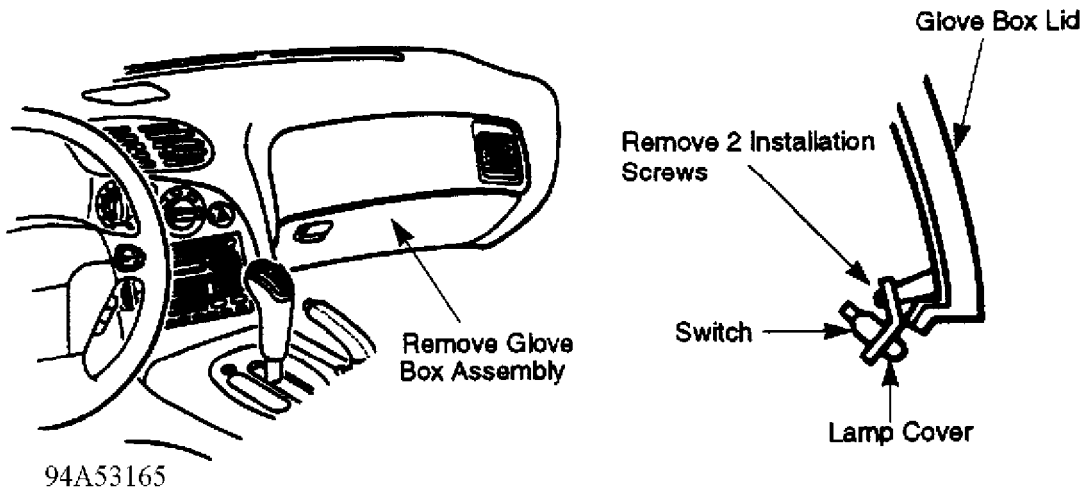


Fig. 1: Glove Box Assembly

PARTS INFORMATION TABLE

UAA&

3	Part Number	3	Description	3	Quantity	3
---	-------------	---	-------------	---	----------	---

**GLOVE BOX LAMP STAYS ON: NEW LAMP COVER CAT. S, NO. 042/93**

**Article Text (p. 2)**

1993 Mazda RX7

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```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 3 3
3 New 3 Old 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 3 3
3 FD01 64 170A 3 FD01 64 170 3 Lamp Cover 3 1 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A  
Customer Comment Code: 62  
Damage Code: 97  
Part Number Main Cause: FD01 64 170A  
Quantity: 1  
Operation Number: T0416XRX  
Labor Hours: 0.3 Hrs.

**END OF ARTICLE**

# HOOD RELEASE INOPERATIVE/DIFFICULT TO OPEN - REPAIR MT 0295-05

## Article Text

1993 Mazda RX7

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## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## HOOD RELEASE

Model(s): 1993-95 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0295-05  
Date: February 1995

## DESCRIPTION

If the hood release is inoperative or very difficult to pull, even though the release knob moves all the way out, you do not need to replace the cable or the lock. The problem is caused by poor adjustment of the hood lock.

Follow the procedure listed below to remedy the situation.

NOTE: If the hood will not open, remove the release knob bracket from the dashboard, separate the cable end and the knob, then firmly pull the inner cable.

1. Adjust the location of the hood lock. Latch the striker into the center of the lock. Check the clearance of the striker latch to the lock. (You can see the lock between the hood and bumper fascia), then adjust the location of the lock to the right or left until the clearance is even. See Fig. 1.

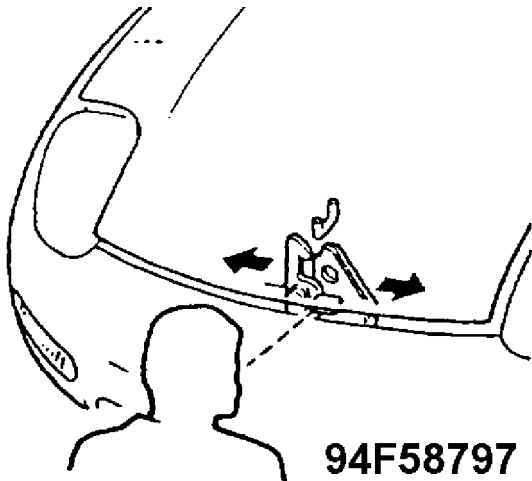


Fig. 1: Hood Lock Adjustment

2. Correct the angle of the hood release knob bracket. Adjust the bracket angle to 90 degrees. If this angle is not at 90 degrees, the release cable may not pull out fully and therefore may not release the lock. See Fig. 2.

**HOOD RELEASE INOPERATIVE/DIFFICULT TO OPEN - REPAIR MT 0295-05**

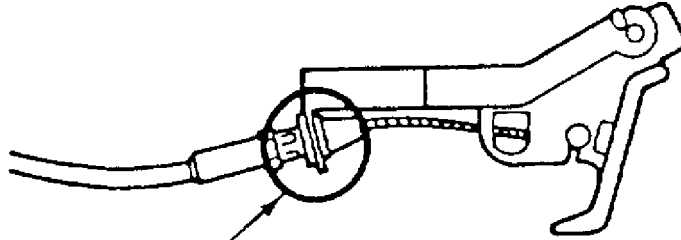
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**Check angle here  
(Incorrect angle shown)**

**94G58798**

Fig. 2: Hood Release Knob Bracket

**END OF ARTICLE**

# INSTALLATION OF TIE-DOWN HOLE PLUGS AT PDI CAT. S, NO. 050/92

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### INSTALLATION OF TIE-DOWN HOLE PLUGS AT PDI

Model(s): 1993 Mazda RX-7  
Category: S  
Bulletin No.: 050/92  
Date: 10/19/92

### DESCRIPTION

Tie-down hole plugs need to be installed at PDI on vehicles produced after May 20, 1992. These tie-down holes are used during vehicle transportation. The plugs will reinforce anti-perforation; preventing water and mud from penetrating the body which may result in rust.

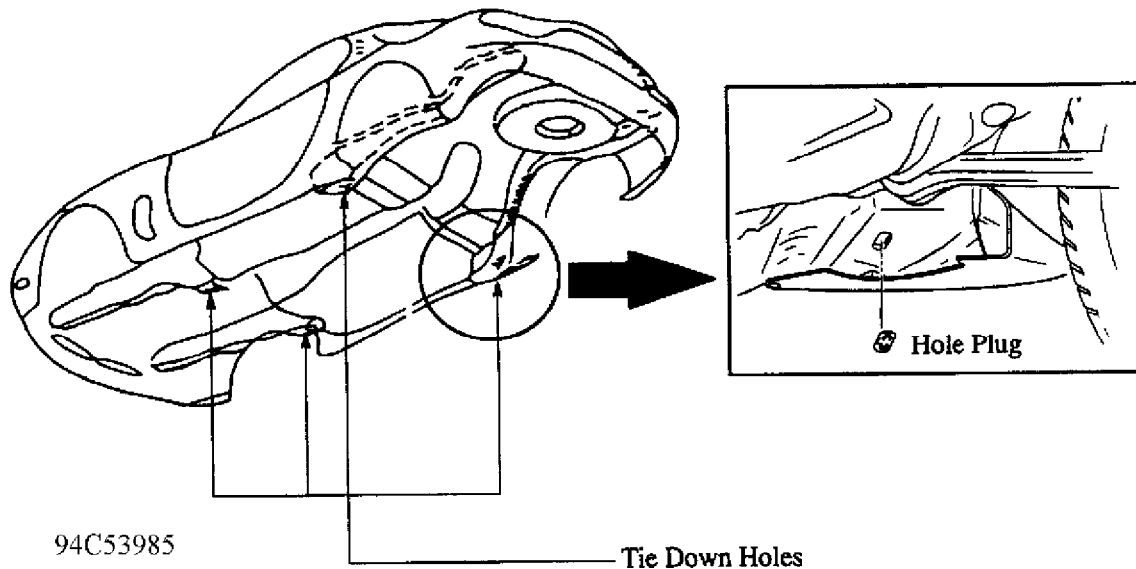


Fig. 1: Tie-Down Holes

The package of plugs and installation diagram can be found in the vehicle's cargo area

The above information is also outlined in the 1993 RX-7's Service Pre-Delivery Inspection (PDI) Sheet; under the "Mechanical Preparation/Exterior-On Hoist" procedures.

**END OF ARTICLE**

# KEY CYLINDER REPLACEMENT - REKEY CYLINDERS TO MATCH MT 0995-10

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### KEY CYLINDER

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0995-10  
Date: 1995

### DESCRIPTION

If you have to replace a key cylinder (door, trunk, glove box, etc.) don't replace the entire key cylinder set. Most locksmiths can reset the lock tumblers in the new replacement cylinder to match the existing ones. Although the factory chrome bezel must be removed and replaced, most locksmiths can fit a replacement after market bezel. Please contact locksmiths in your area to find one who can provide this service.

### END OF ARTICLE

# NOISE FROM THE REAR HATCH HINGE: REPLACEMENT PARTS CAT. S, NO. 010/93

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### NOISE FROM THE REAR HATCH HINGE

Model(s): 1993 Mazda RX-7

Category: S

Number: 010/93

Date: 2/26/93

### AFFECTED VINS

This bulletin applies to vehicles with a VIN of JM1FD\*\*\*\*P0210513 or lower produced through November 30, 1992.

This bulletin does not apply to vehicles with a VIN equal to or greater than JM1FD\*\*\*\*P0210514 and produced after November 30, 1992.

### DESCRIPTION

On some vehicles, noise may be heard from the rear hatch hinges. This noise is most evident when driving on rough roads or going over bumps.

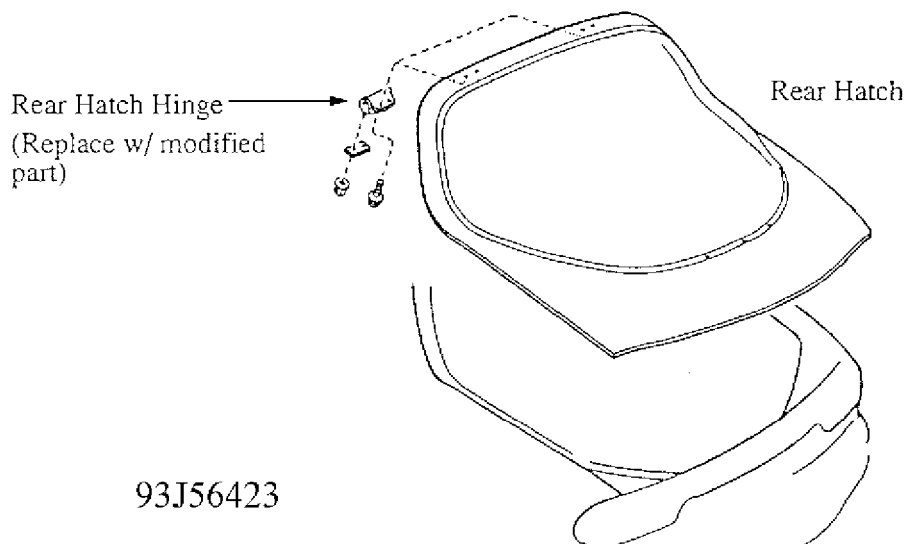


Fig. 1: Modified Rear Hatch Hinge

### REPAIR PROCEDURE

If the above condition exist replace the rear hatch hinges with a modified part. The modified part has been improved to eliminate the noise.

### PARTS INFORMATION TABLE

**NOISE FROM THE REAR HATCH HINGE: REPLACEMENT PARTS CAT. S, NO. 010/93**

**Article Text (p. 2)**

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AA

Part Number

New	Old	Description	Qty	Int. Code
FD01 62 210C	FD01 6210A	Rear Hatch Hinge	2	AN

AA

**END OF ARTICLE**



# NOISE WHEN OPERATING POWER WINDOWS: NEW STOPPER CAT. S, NO. 031/93

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### POWER WINDOW OPERATION NOISE

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD33\*\*P0200001 through JM1FD33\*\*P0210508

Category: "S" Body

Bulletin No.: 031/93

Date: 6/16/93

### DESCRIPTION

A bumping noise may be heard inside the door panel when the power window is fully opened.

A rubber stopper at the bottom of the window regulator has been modified to prevent this noise.

### REPAIR PROCEDURE

If this bumping noise is heard, replace the rubber stopper with a modified stopper.

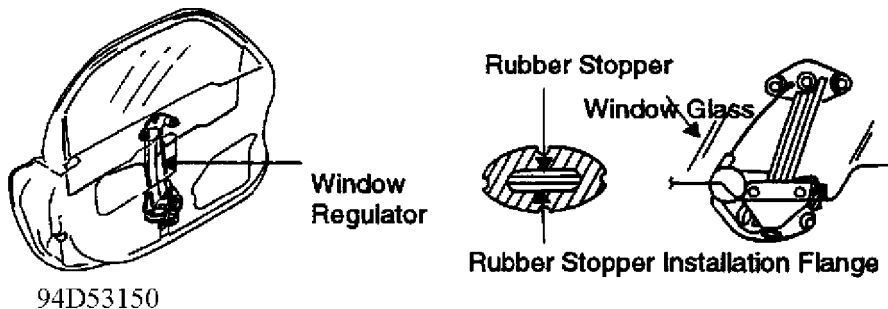


Fig. 1: Window Rubber Stopper

### PARTS INFORMATION TABLE

Part Number	Description	Qty.
FD01 58 565	Stopper Rubber	1

### WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 82  
Damage Code: 9A

**NOISE WHEN OPERATING POWER WINDOWS: NEW STOPPER CAT. S, NO. 031/93**

**Article Text (p. 2)**

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Part No. of Main Cause:	FD01 58 565
Quantity:	1
Operation No.:	S1015XRX
Labor Hours:	0.7Hr.

**END OF ARTICLE**

**OUTER DOOR HANDLE RATTLES: REPLACE NUTS CAT. S, NO. 026/93**

**Article Text**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**OUTER DOOR HANDLE RATTLES**

Model(s): 1993 MAZDA RX-7 with a VIN of JM1FD332\*P0200001  
 through JM1FD332\*P0210577  
 Category: "S" Body  
 Bulletin No.: 026/93  
 Date: 5/26/93

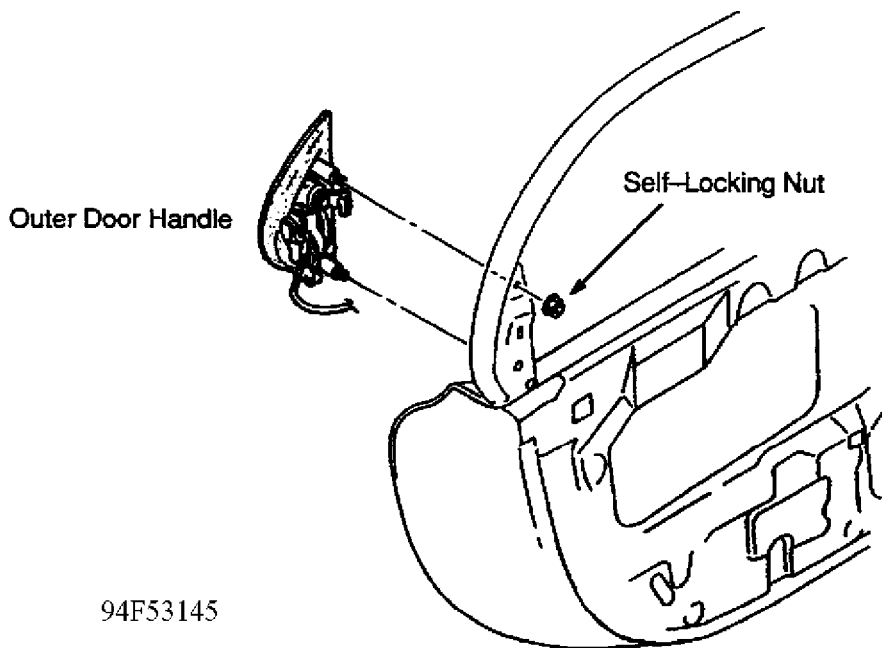
**DESCRIPTION**

A rattling noise may be heard around the outer door handle area while the vehicle is being driven. This is caused by loose door handle nuts.

**REPAIR PROCEDURE**

If a rattling noise is heard, replace the original door handle nuts with the replacement parts (self-locking type nuts).

Removal and Installation procedures can be found in the appropriate service information.



94F53145

Fig. 1: Outer Door Handle

**PARTS INFORMATION TABLE**

Part Number	Description	Qty	Remarks

**OUTER DOOR HANDLE RATTLES: REPLACE NUTS CAT. S, NO. 026/93**

**Article Text (p. 2)**

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3 9YB0 40 603 3 Self Locking Nut 3 2 3 One Door 3  
AAUU

WARRANTY INFORMATION

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code:	A
Customer Comment Code:	82
Damage Code:	99
Part No. of Main Cause:	9YB0 40 603
Operation No.:	XX0566R1 (One Door) XX0566R2 (Two Doors)
Labor Hours:	0.3 Hrs. (One Door) 0.4 Hrs. (Two Doors)

**END OF ARTICLE**

# PRE-PAINTING PREPARATION FOR FRONT & REAR BUMPERS CAT. S, NO. 020/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### PAINTING PREPARATION FOR FRONT & REAR BUMPERS

Model(s): 1989-98 Mazda Models  
Category: S - Body  
Bulletin No.: 020/97  
Date: October 23, 1997

NOTE: This bulletin supersedes Technical Service Bulletin number (Cat. S 031/95).

### DESCRIPTION

Prepare replacement bumpers for painting according to the instructions in this bulletin.

NOTE: Service Managers are requested to distribute these instructions to body shop personnel.

### PREPARATION PROCEDURE

1. Soak a terry cloth towel in isopropyl alcohol.

CAUTION: Grease/Wax remover that contains "Naphtha" based solvent (ex. PPG DX-330) may remove the bumper's factory primer. If this occurs, the bumper will require primer application prior to painting.

2. Clean the entire surface with the alcohol soaked towel.

3. Allow bumper to air dry.

NOTE: The bumper must be completely dry before painting.

4. Remove any lint threads remaining on the bumper with compressed air.

5. Paint the bumper according to the paint manufacturer's instructions.

NOTE: See PAINTING PROCEDURE SAMPLE. Body shops using other paint manufacturers should follow their bumper painting procedures.

### SUPPLIES REQUIRED

Terry Cloth Towel - Available Locally.

**PRE-PAINTING PREPARATION FOR FRONT & REAR BUMPERS CAT. S, NO. 020/97**

**Article Text (p. 2)**

1993 Mazda RX7

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Isopropyl Alcohol - Available Locally.

PPG Multi-Prep (DX103) - Optional - Available through authorized PPG distribution locations.

**PAINTING PROCEDURE SAMPLE**

AA

MAZDA Plastic Bumper Cover Refinish System

NOTE: Products used to refinish flexible bumper covers fall under the category of SPECIALTY COATINGS, therefore products specified in the system below may be used in any VOC regulated area.

ÜAA;

³Clean with DX 393 0.6 Low VOC Cleaner or DX 394 1.4 Low VOC Cleaner³

AAÜ

3

ÜAA;

³ Wipe Down with DX 103 DX 103 MULTI-PREP³

AAÜ

3

ÜAA;

³Abrade Panel with a Gray Abrasive Pad³

AAÜ

3

ÜAA;

³Wipe Down with DX 103 MULTI-PREP³

AAÜ

3

ÜAA;

3

3

3

ÜAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 A 3

³New Replacement³

3 Panel 3

AAAAAAAAAAAAAAAAAAAAAAAAAAÜ

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3

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3

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3

ÜAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 B 3

³Existing Panel³

³Minor Repair 3

AAAAAAAAAAAAAAAAAAAAAAAAAAÜ

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3

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ÜAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 C 3

³ Heavily Damaged 3

³ Repair (Tears, 3

³ Punctures, etc.)³

AAAAAAAAAAAAAAAAAAAAAAAAAAÜ

3

ÜAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 DPX 801 3

³Universal Plastics³

3 Primer 3

AAAAAAAAAAAAAAAAAAAAAAAAAAÜ

3

ÜAAAAAAAAAAAAAAAAAAAAAAAAAA;

3 Flexible 1 3

³Repair Material or³

³ Plastic Weld 3

AAAAAAAAAAAAAAAAAAAAAAAAAAÜ

3



# RATTLING FROM DASHBOARD AT IDLE W/BRAKES APPLIED CAT. S, NO. 011/97

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RATTLING NOISE FROM DASHBOARD AT IDLE WITH BRAKES APPLIED

Model: 1993-95 Mazda RX-7  
Category: S - Body  
Bulletin No.: 011/97  
Date: May 19, 1997

### DESCRIPTION

A rattling noise may be heard from the dashboard when pressing the brake pedal at idle. This noise is transmitted through the body by the check valve operating in the brake vacuum line. Customers complaining of this noise should have the vehicle inspected and if necessary, repaired according to this bulletin.

NOTE: This noise may occur after performing "Brake Vacuum Hose" recall campaign #65609.

### REPAIR PROCEDURE

See Fig. 1 for components and location pertaining to Vacuum Line.

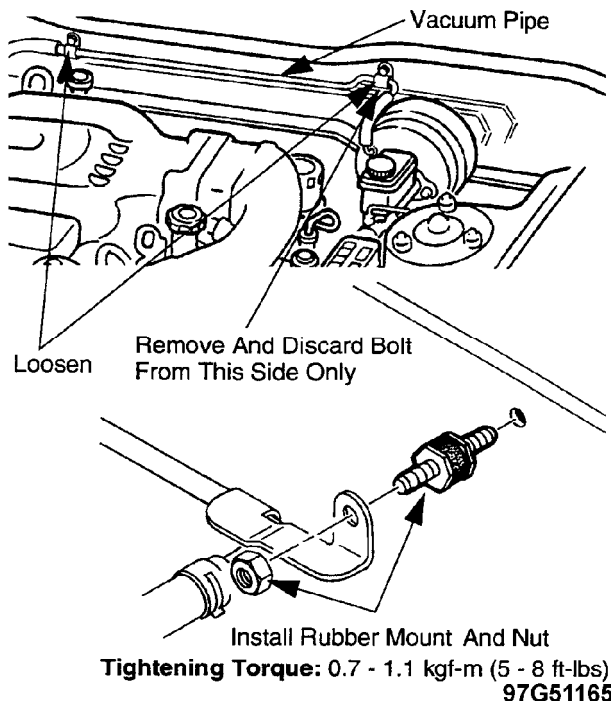


Fig. 1: Brake Booster Vacuum Line Location

1. Verify the concern.





# REPLACEMENT BUMPERS - GREASE REMOVAL PRECAUTIONS MT 08-03

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1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### REPLACEMENT FRONT AND REAR BUMPERS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 08-03  
Date: 1995

### DESCRIPTION

On current parts in PDC stock, if a grease remover is used on a replacement front or rear bumper, the primer may rub off. As you may know, grease remover is normally used prior to painting the bumper. If the primer rubs off, the bumper must be re-primed prior to painting.

We recommend that all grease remover products that contain Naptha (solvents) such as PPG DX33C should not be used. Instead, a mixture of 50% Isopropyl Alcohol and 50% water (PPG DX103 or equivalent) should be used as a grease remover. Please convey this information to your Body Shop Personnel.

### END OF ARTICLE



**SEAT BELT CAUTION LABEL EXPOSED: INSPECT/REPLACE CAT. S, NO. 001/94**

**Article Text (p. 2)**

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stitching is not damaged, the seat belt caution label cover should be stitched in place.

NOTE: If the seat belt was damaged as result of an accident, the replacement is not a warrantable item.

**SLEEVE SEWING PROCEDURE:**

1. Fold the seat belt fuse over the caution label as shown in Fig. 2.
2. Slide the sleeve over the seat belt fuse.

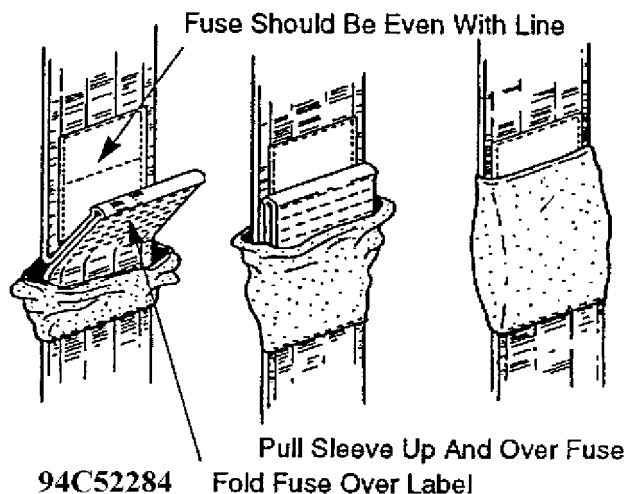


Fig. 2: Folding Seat Belt Fuse Over Caution Label

3. Sew the sleeve in place as shown in Fig. 3.

**SEAT BELT CAUTION LABEL EXPOSED: INSPECT/REPLACE CAT. S, NO. 001/94**

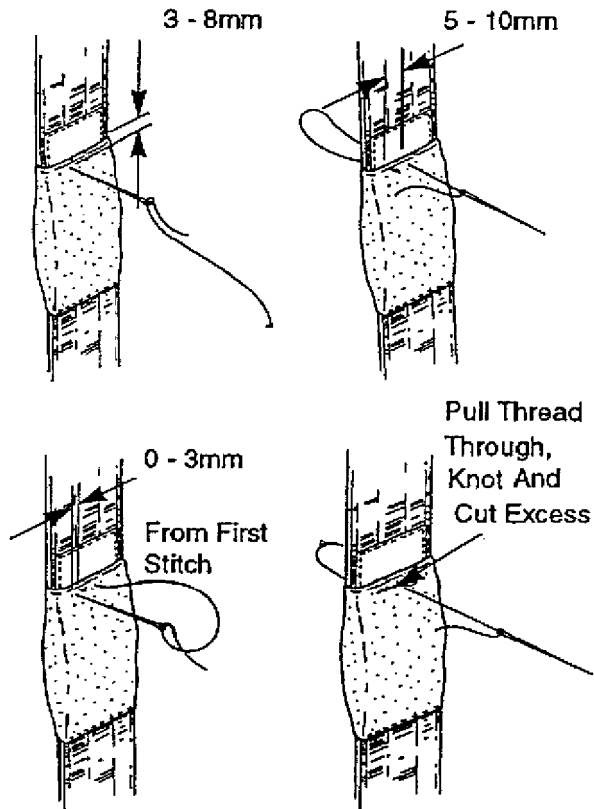
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**94D52285**

Fig. 3: Sewing Sleeve in Place

NOTE: The sleeve should be sewn above the seat.

**WARRANTY INFORMATION:**

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A  
Customer Comment Code: 87  
Damage Code: 99  
Part Number Main Cause: RX-7 FD01 57 630E 00, FD01 57 630E 17,  
FD01 57 630E 33  
MX-5 NA01 57 630D 00, NA01 57 630D 17,  
NA01 57 630D 88  
Operation Number: XX0619RX  
Labor Hours: 0.3Hrs.

**END OF ARTICLE**

# SEAT BELT EXTENDER DESCRIPTION/ORDERING INFO CAT. S, NO. 032/96

## Article Text

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## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## SEAT BELT EXTENDERS

Model(s): 1991-94 Mazda Navajo  
1994-97 Mazda B-Series  
1995-97 Mazda Protege  
1994-95 Mazda MX-3  
1990-97 Mazda MX-5 Miata  
1993-95 Mazda RX-7  
1988-89 Mazda 929  
1992-95 Mazda 929  
1993-97 Mazda 626/MX-6  
1995-97 Mazda Millenia  
1989-97 Mazda MPV

Category: S - Body

Bulletin No.: 032/96

Date: December 26, 1996

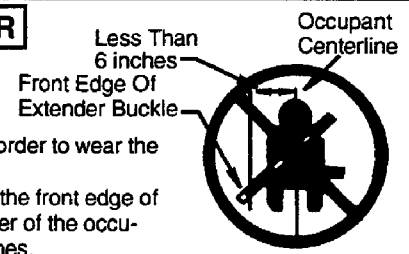
NOTE: This bulletin supersedes Technical Service Bulletin number 032/96, dated September 23, 1996.

## DESCRIPTION

A fully extended seat belt that will not reach across the lap of the vehicle occupant, can be lengthened by 8, 9 or 12 inches using a seat belt extender. Seat belt extenders are now available through your facing PDC. The following "Warning Label" is affixed to the seat belt extender. See Fig. 1. The proper usage and safety related warning listed on the extender must be explained to the customer when the extender is delivered. See Fig. 1.

LAP BELT EXTENDER
<b>NEVER USE:</b>
<ul style="list-style-type: none"><li>• When lap strap will not adjust snugly to hips.</li><li>• When intersection of lap and upper torso straps (measured along the lap strap) is less than 6 inches from an imaginary center line of occupant's body.</li></ul>

NAVAJO and B-SERIES

SEAT BELT EXTENDER
<b>WARNING</b>
<p>Do Not Use Extender:</p> <ul style="list-style-type: none"><li>• Unless it is physically required in order to wear the vehicle's safety belt.</li><li>• If it causes the distance between the front edge of the extender buckle and the center of the occupant's body to be less than 6 inches.</li></ul>

<p>Incorrect use of the extender may cause a serious injury. Use extender only in the vehicle and seating position it was provided for. Remove and stow when not in use by person it was provided for.</p>

ALL OTHER MODELS

95A57067

Fig. 1: Seat Belt Extender & Seat Belt Extender Warning - Labels

## PARTS INFORMATION







# SQUEAKING NOISE WHEN OPENING/CLOSING DOOR: CHECKER CAT. S, NO. 010/94

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SQUEAKING NOISE WHEN OPENING OR CLOSING DOOR

Model(s): 1993 Mazda RX-7 - VIN of JM1FD33\*\*P0200001  
through JM1FD33\*\*P0210664

Category: S  
Bulletin No.: 010/94  
Date: 2/11/94

#### SERVICE INFORMATION:

NOTE: The asterisk (\*) in the VIN range can be any number (0 through 9) or "X".

#### DESCRIPTION:

When opening or closing the door a squeaking sound may be heard. This is caused by the door checker. To correct this problem, the checker has been modified.

Follow the procedures listed in section S of the workshop manual to replace the door checker for customers complaining of this noise.

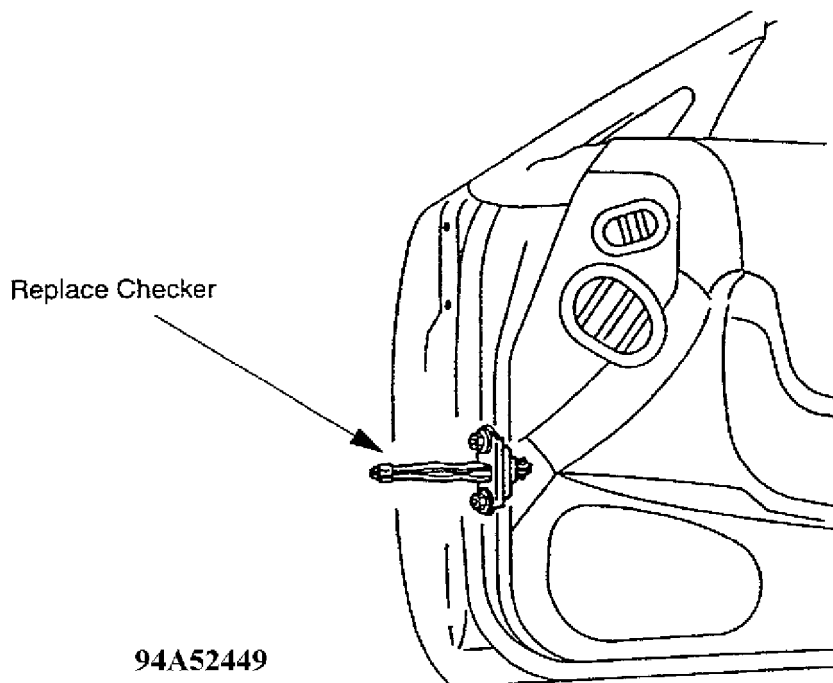


Fig. 1: View of Door Checker

PARTS INFORMATION TABLE

**SQUEAKING NOISE WHEN OPENING/CLOSING DOOR: CHECKER CAT. S, NO. 010/94**

**Article Text (p. 2)**

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Description	Part Number	Applicable
	New	Old
Door Checker	FD01 58 270	FD01 58 270A RX-7

**WARRANTY INFORMATION:**

(Applies to vehicles covered under normal vehicle warranty)

Warranty Type: A  
Customer Comment Code: 77  
Damage Code: 92  
Part Number Main Cause: FD01 58 270  
Quantity: 2  
Operation Number: S1006XRX (one side)  
Labor Hours: 0.5 Hrs.  
Location Code: RHD (right side)  
LHD (left side)

NOTE: If both door checkers are replaced. 2 claims will be required.  
Use the above Operation Number and Location Code when submitting the claims.

**END OF ARTICLE**

# SQUEALING SOUND FROM THE HOOD -MODIFY RUBBER CUSHION CAT. S, NO. 057/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SQUEAKING SOUND FROM THE HOOD

Model(s): 1993 Mazda RX-7  
Category: S  
Bulletin No.: 057/92  
Date: 12/15/92

### AFFECTED VINS

This bulletin applies to 1993 RX-7 models produced through July 2, 1992 and with a VIN of JM1FD33\*\*P0208750 and lower.

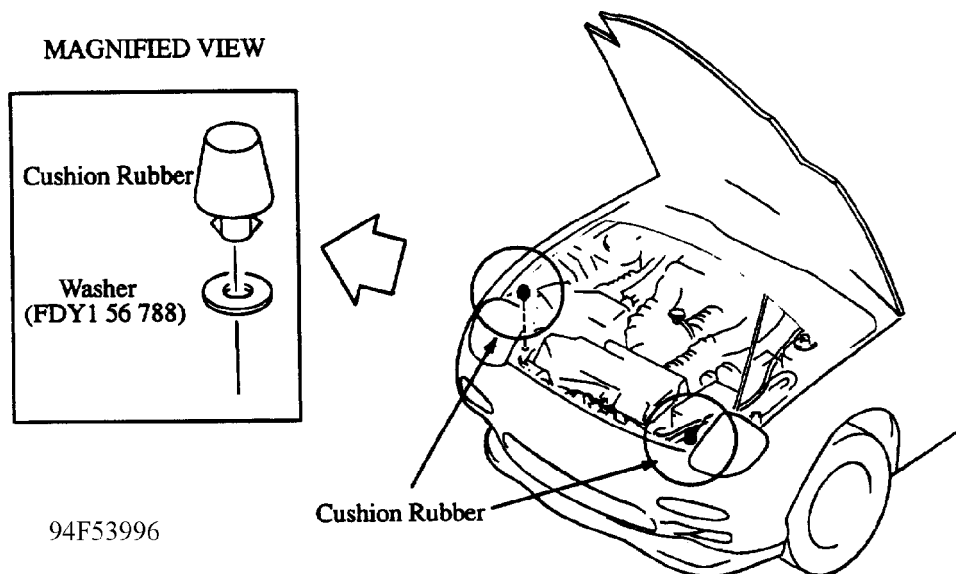
This bulletin does not apply to 1993 RX-7 models with a VIN equal to or greater than JM1FD33\*\*P0208751 and produced after July 2, 1992.

### DESCRIPTION

Some vehicles may experience a squealing sound from the hood when driving on normal road surfaces. After July 2, 1992, the hood was modified to eliminate this condition.

### REPAIR PROCEDURE

If the above condition occurs, install a washer between the two cushion rubbers under the hood. See Fig. 1.



94F53996

Fig. 1: Rubber Hood Cushion

PARTS INFORMATION TABLE

**SQUEALING SOUND FROM THE HOOD -MODIFY RUBBER CUSHION CAT. S, NO. 057/92**

**Article Text (p. 2)**

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```
UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
 3 Part Number 3 Description 3 Qty 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
 3 FDY1 56 788 3 Washer 3 2 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

NOTE: If the hood is replaced with a modified part, the washers do not need to be installed.

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 82  
Damage Code: 99  
Part No. of Main Cause: FDY1 56 788  
Operation No: XX0523RX  
Labor Hours: 0.2 Hrs.

**END OF ARTICLE**

# STATIC ELECTRICITY BUILDUP - SOLUTIONS MT 1095-11

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

STATIC ELECTRICITY

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 1095-11  
Date: 1995

### DESCRIPTION

Sometimes customers may feel a static shock when getting out of the vehicle. This shock is the result of static electricity build-up. (This phenomenon occurs more frequently in the winter season or in dry weather.) The following two procedures are effective in preventing static shock. Please suggest these methods to your customers.

- 1) Touching a metal panel while exiting the vehicle is a very effective way to eliminate static shock. After opening the door touch or hold on to a metal panel (example: a door sash).
- 2) Touch the static electricity ground pad (equipped on the following vehicles).

### MODELS EQUIPPED WITH STATIC GROUND PADS

STATIC GROUNDING PAD TABLE

Model	Year(s)
929	1992-94
626/MX-6	1992-94
PROTEGE	1991-94
MX-3	1992-94

NOTE: This feature has been eliminated from the 1995 model year.

END OF ARTICLE

# WHISTLING NOISE FROM THE WINDSHIELD MOLDING CAT. S, NO. 049/92

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WHISTLING NOISE FROM THE WINDSHIELD MOLDING

Model(s): 1993 Mazda RX-7  
Category: S  
Bulletin No.: 049/92  
Date: 10/5/92

### AFFECTED VINS

JM1FD331\*P0207061 May 31, 1992

### DESCRIPTION

Some 1993 RX-7s may emit a whistling noise around the windshield area when being driven at high speeds. This whistling noise is caused by air being pulled through the space between the molding and the windshield.

### REPAIR PROCEDURE

A repair seal foam kit has been established as a countermeasure. If a whistling noise is encountered on a vehicle(s) produced on or before May 31, 1992, install a repair seal foam kit into the vehicle's front windshield molding. Lift the windshield molding and slide the sealing foam into the space between the molding and the windshield. See Fig. 1.

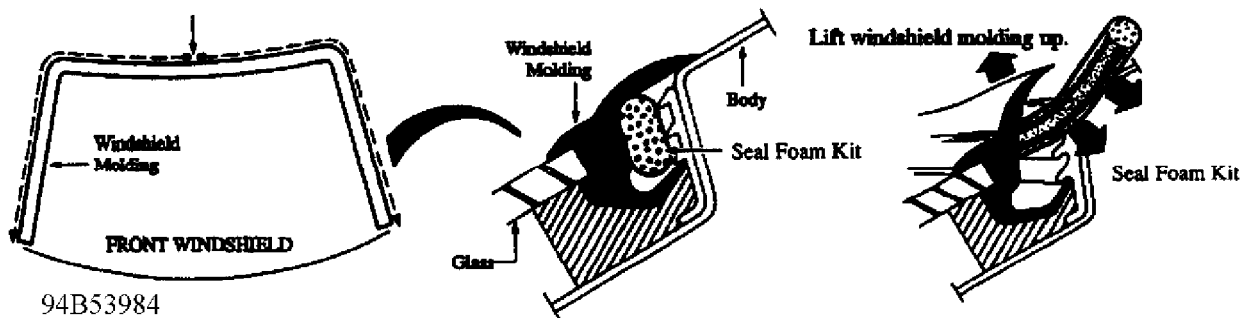


Fig. 1: Seal Foam Kit Installation

Vehicles produced after May 31, 1992 are equipped with a modified front windshield molding. The sealing foam is attached to the molding.

### PARTS INFORMATION TABLE

Part Number	Description
B001 77 739	Repair Seal Foam Kit

**WHISTLING NOISE FROM THE WINDSHIELD MOLDING CAT. S, NO. 049/92**

**Article Text (p. 2)**

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AAUU

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 81  
Damage Code: 99  
Part No. of Main Cause: B001 77 739  
Operation No.: S0422XRX  
Labor Hour: 0.2 Hrs.

**END OF ARTICLE**

# WIND NOISE AROUND DOORS CAT. S, NO. 018/98

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WIND NOISE AROUND DOORS

Model(s): All Mazda models except MX-5 Miata and MX-6  
Category: S (09) - Body  
Bulletin No.: 018/98  
Date: July 29, 1998

### DESCRIPTION

Wind noise around doors may occur with some vehicles. This may be caused by the door weather-strip seal.

Customers complaining of this should have their vehicle inspected and repaired according to this service bulletin.

### REPAIR PROCEDURE

1. Verify customer complaint.
2. Examine weather-strip for the following conditions:
  - a. Rips, tears, cuts
  - b. Loose or falling off
  - c. Excessive deterioration
  - If the weather-strip has any of the above conditions, replace it. Go to step 3.
  - If weather-strip does not have any of the above conditions, but wind noise still exists, proceed to the CARD TEST.

### CARD TEST

1. Open the door and insert a business card (0.2 mm thickness) between the door and the weather-strip at the base of the A-pillar. Close the door. See Fig. 1.
2. Slide the business card up along the A-pillar. See Fig. 1.
  - a. If the card slides easily at any location along the A-pillar, the sealing contact between the door is insufficient and requires adjustment. Proceed to DOOR ADJUSTMENT.
  - b. If there is consistent resistance, proceed to the WHITE GREASE TEST.



## WIND NOISE AROUND DOORS CAT. S, NO. 018/98

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NOTE: The card test can only be used to evaluate the A-pillar sealing contact. Use the following WHITE GREASE TEST to evaluate the rest of the weather-strip.

#### WHITE GREASE TEST

1. Roll down windows and adequately cover all interior surfaces to prevent contact with grease.
2. Thoroughly and evenly spray the sheet metal surface of the body that seals against the weather-strip on the door.

NOTE:

- \* It is recommended that you use KAR Products #78620 "Multi-purpose white grease (aerosol spray)" or equivalent.
  - \* DO NOT spray the weather-strip.
3. Using only the door handle, very gently close the door. This will prevent over-slam which could result in an inaccurate reading.
  4. Open the door and measure the width of the grease pattern that is left along the length of the weather-strip (check for any unevenness in width). See Fig. 2.
    - a. If 4 mm or more, sealing contact is adequate if door closing effort is acceptable. Clean grease from vehicle.
    - b. If 3 mm or less, sealing contact is insufficient. Clean grease from vehicle and proceed to DOOR ADJUSTMENT.

#### DOOR ADJUSTMENT

The door should be adjusted to obtain the proper seal compression while maintaining proper door alignment. The hinges control the in/out location of the door at the front as well as overall tip or tilt of the door when viewed from the front or rear. The door striker controls the in/out location of the door at the rear latch.

CAUTION: DO NOT pry or force the door into alignment.

In addition to Workshop Manual procedures for door alignment, the following information tips are provided

- \* As a guideline, if the weather-strip contact is insufficient, the door hinge(s) should be adjusted 2-4 mm inward. Determine the amount of movement by outlining the hinge mount area before door adjustment and after. See Fig. 3.
- \* Adjusting one hinge at a time will prevent any extreme door

## WIND NOISE AROUND DOORS CAT. S, NO. 018/98

### Article Text (p. 3)

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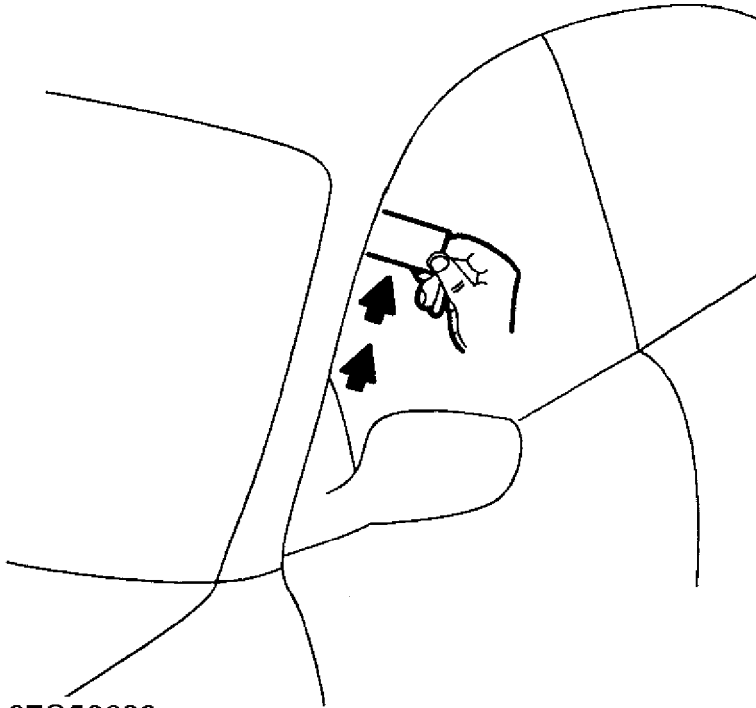
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movement. This is done by loosening the hinge bolts and moving the door with a padded pry bar just enough to permit movement of the door.

- \* Hinges should be adjusted first, followed by the striker.
- \* Adjustment to the rear door(s), if applicable, may require adjustments to the front door and possibly to the front fender to maintain alignment.
- \* Door closing effort should be checked to ensure that it remains acceptable after adjustments are completed. If any doors are too difficult to close, the seal compression may be excessive and adjustment will need to be repeated.
- \* After completing adjustments, verify seal compression by using the card test and white grease test.

### 3. Verify repair.



97G58632

Fig. 1: Card Test

**WIND NOISE AROUND DOORS CAT. S, NO. 018/98**

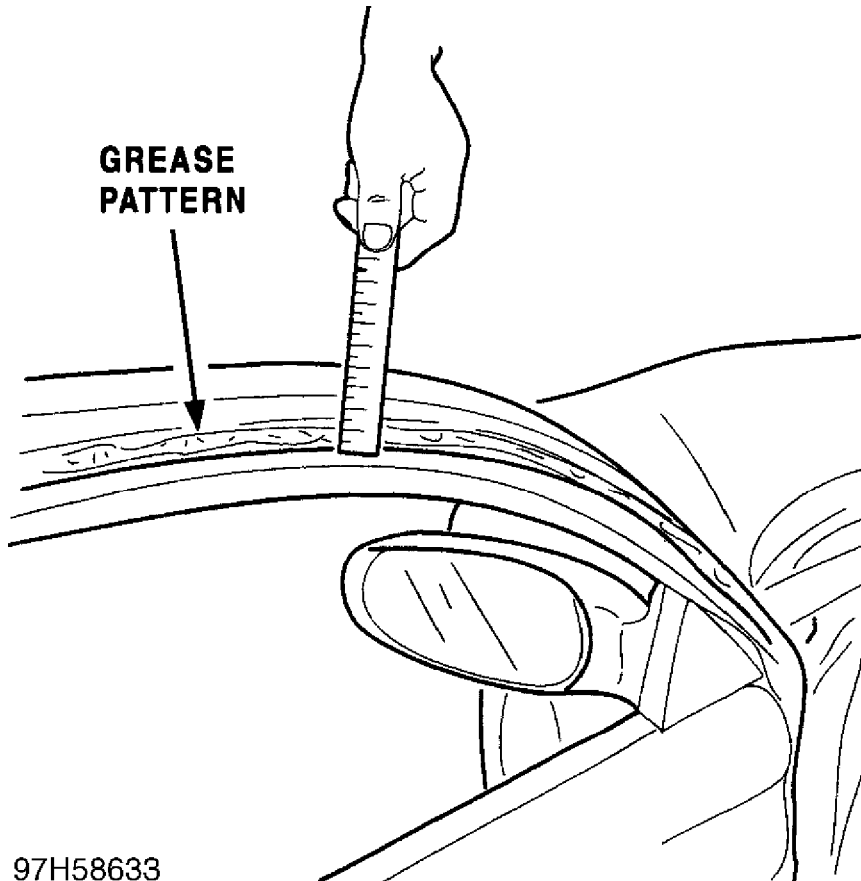
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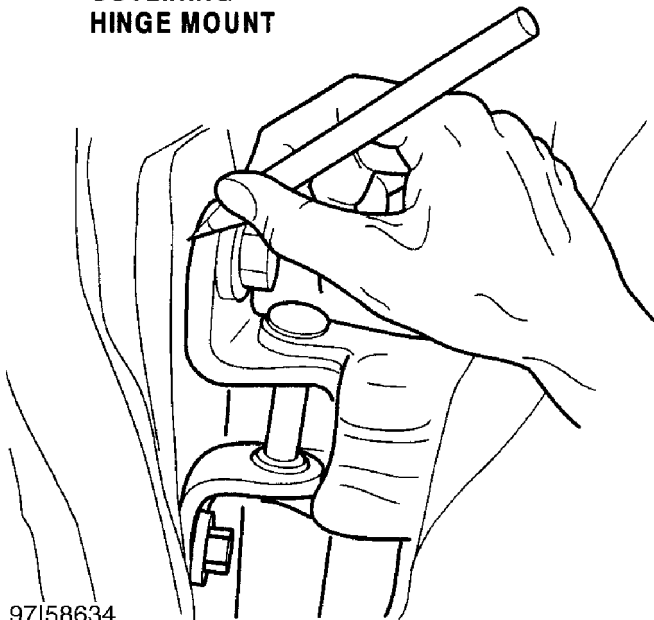
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97H58633

Fig. 2: Grease Pattern - Measure

**OUTLINING  
HINGE MOUNT**



97I58634

Fig. 3: Hinge Mount - Outline

**END OF ARTICLE**

# WIND NOISE FROM THE DOOR WINDOW: NEW GLASS GLIDES CAT. S, NO. 002/93

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WIND NOISE FROM THE DOOR WINDOWS

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD3\*\*\*P02057080  
or lower, produced through April 30, 1992.  
Category: "S" Body  
Bulletin No.: 002/93  
Date: 2/5/93

### DESCRIPTION

Some vehicles may experience a wind noise from the right and left door windows (near the outside door handles). This noise is due to air entering the cabin area. When completely rolled up, the windows do not fit flush against the glass channel.

### REPAIR INFORMATION

Inspect the vehicle for excessive clearance (see Fig. 1). If the above condition exists, replace the affected glass guide(s) with a modified part (see Fig. 2). The glass guide has been modified to reduce the sliding resistance between the glass and glass channel. This modification makes the glass fit flush against the glass channel.

Removal and installation procedures can be found in the appropriate service information.

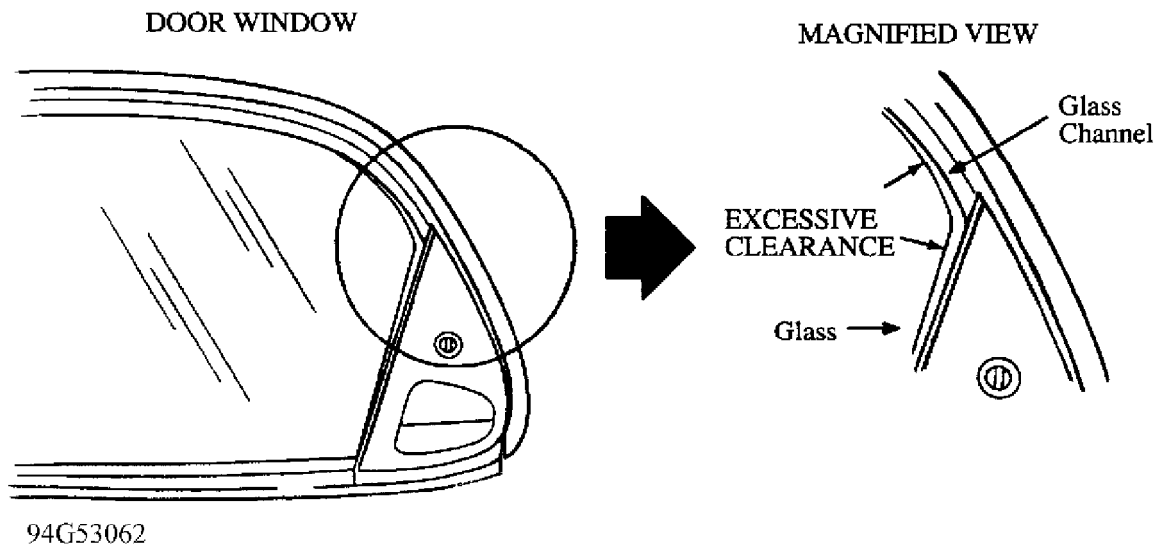


Fig. 1: Door Window Illustration



## **WINDSHIELD FOG OR FILM MT 0397-04**

### **Article Text**

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### **ARTICLE BEGINNING**

TECHNICAL INFORMATION TIP - MANUFACTURER

WINDSHIELD FOG OR FILM

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0397-04  
Date: March, 1997

### **DESCRIPTION**

Some customers may complain of a fog or a film on the interior of the windshield. This is a harmless by-product of chemicals used to produce many interior trim components and can be easily removed from windows with glass cleaner.

### **END OF ARTICLE**

# WINDSHIELD STONE CHIPPING INSPECTION CAT. S, NO. 037/96

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WINDSHIELD STONE CHIPPING INSPECTION

Model(S): All Mazda Models  
Category: S - Body  
Bulletin No.: 037/96  
Date: August 10, 1996

### DESCRIPTION

Windshield cracks caused by stone chips are not covered under the new vehicle warranty. Service Advisers and Service Managers should review the criteria below for addressing customer complaints regarding cracked windshields. If possible, customers should be present when the inspection is performed.

### INSPECTION PROCEDURE

1. Visually inspect the length of the crack and the windshield molding for signs of stone contact.
2. Trace the length of the crack with a needle or small nail to determine chipping location.

### IMPORTANT

Windshield replacement is not warrantable if a chip larger than 1 mm in diameter exists along the length of the crack.

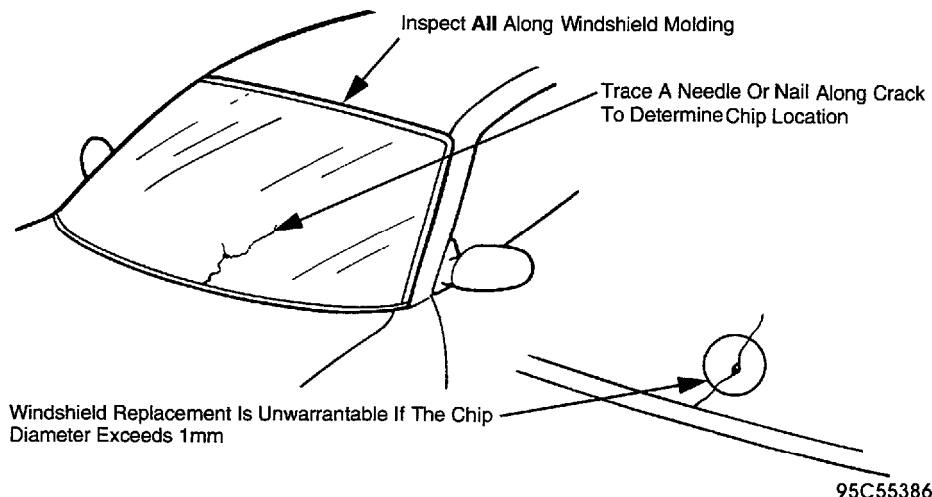


Fig. 1: Windshield Inspection

**WINDSHIELD STONE CHIPPING INSPECTION CAT. S, NO. 037/96**

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**END OF ARTICLE**



## ABS LIGHT ON/MODELS WITH 4 WHEEL ABS MT 0997-04

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DEALER HINT: ABS LIGHT ON

Model(s): 1991-97 Mazda 626/MX6, Miata,  
1991-95 Mazda 929, RX7  
1992-95 Mazda MX3  
1994 Mazda Navajo  
1995-97 Mazda B2300, B4000, Millenia, Protege  
1997 Mazda MPV  
Category: Mazda Tips  
Bulletin No.: MT 0997-04  
Date: September, 1997

### DESCRIPTION

Alan Carothers of Almaden Mazda in San Jose, CA reported on a vehicle where an ABS sensor rotor was not seated properly on the axle shaft. This caused the ABS light to come on intermittently, and no problems were found using the ABS tester.

If you encounter this type of complaint, first check the ABS sensor rotors for missing or damaged teeth, then inspect the ABS sensor rotors for improper seating. A rotor may have become loose and slipped out of alignment on the axle shaft. You may be able to see marks on the axle from when the rotor was fully seated, indicating it has moved.

If it appears that the rotor has slipped out of position, replace the affected axle shaft and ABS sensor rotor.

**END OF ARTICLE**

# **BRAKE CALIPER BOLT CORROSION - CLEAN & SEAL MT 0995-11**

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### **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

### **BRAKE CALIPER BOLTS**

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0995-11  
Date: 1995

### **DESCRIPTION**

When reinstalling disk brake calipers, use the following procedure to secure the caliper bolts and seal against road corrosion. When installing caliper mounting bolts, first clean the bolt threads of any old residue. Be sure to clean out the female portion as well, using a wire brush, brake cleaner and an air hose. When parts are dry apply 3-4 drops of Loctite Threadlocking Adhesive/Sealant 272 (Loctite part number 27200) on the male threads, one full thread back from the lead thread. Assemble and torque to specification in less than 5-8 minutes.

### **END OF ARTICLE**

# BRAKE DRUM/ROTOR RESURFACING MACHINERY SELECTION MT 0897-06

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

BRAKE DRUM/ROTOR RESURFACING

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0897-06  
Date: August, 1997

### DESCRIPTION

Although some workshop manuals may recommend sanding rotors and drums for conditions such as minor scoring, glazing or surface irregularities, it is not an acceptable repair method.

To repair these conditions, an on-the-vehicle brake lathe should be used to machine rotors, and a standard lathe used for drums.

Note: If a customer complains of occasional brake noise, sanding or machining alone will not be a permanent repair, and will likely result in a customer comeback.

END OF ARTICLE

# **BRAKE JUDDER REPAIR (CANADIAN) CAT. P, NO. 94-06**

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## **ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

## **BRAKE JUDDER REPAIR**

Model(s): 1983-95 Mazda Vehicles (Canadian)

Category: P - Brakes

Bulletin No.: 95-02

Date: May, 1995

NOTE: This bulletin supersedes Service Bulletin Cat. P, No. 94-06.

## **DESCRIPTION**

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- \* Disk Thickness Variation (DTV)
- \* rotor run-out and/or
- \* rotor surface rust (which leads to DTV)

This bulletin describes the causes and corrections for each condition.

## **CAUSES OF JUDDER**

1. Disc Thickness Variation (DTV) - DTV creates a vibration/pulsation during application of the brakes. DTV will increase with distance travelled if the run-out of the disc is excessive.
2. Disc Rotor Run-Out - Run-out, or rotor "wobble", leads to DTV. It is corrected by precision machining to bring the run-out within specification.
3. Rotor Surface Rust - Under certain conditions (storage or use in extreme environments), the surface of the brake rotors may become rusted in the pad non-contact area. If this corrosion penetrates the rotor surface deeply enough, it will not wear or rub off during normal use. This will cause DTV.

## **CORRECTION**

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda Canada Inc., has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduces comeback repairs.

The steps necessary for correction of brake judder are as follows:

## BRAKE JUDDER REPAIR (CANADIAN) CAT. P, NO. 94-06

### Article Text (p. 2)

1993 Mazda RX7

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Saturday, August 25, 2001 09:24AM

1. If the vehicle is in dealer inventory and the condition is rotor rust:

- A. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
- B. If vibration/pulsation is still felt, processed to step "C".
- C. Machine the rotor surface enough to remove all rust or surface staining (generally 0.1 mm per side).

NOTE: If machining is performed, the Service Manager's signature must appear on the repair order.

2. If the vehicle has been in service:

- A. Verify customer's complaint with a test drive.
- B. If brake judder is felt, proceed to step "C". If brake judder is not felt, refer to the work shop manual or the NVH manual for additional troubleshooting information.
- C. Mark the front wheel(s) and the lug nut stud with chalk. This will determine the original position of the wheel to the rotor. Remove the front wheel(s).

NOTE: A high majority of brake judder is due to DTV of the front rotors. Customer complaints of brake judder are most often corrected by machining the front rotors only.

- D. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining.  
Limit: Stated minimum thickness for the model plus 0.8 mm.
- E. If machining can be achieved, an on-car brake lathe is recommended to ensure a precise rotor surface.

NOTE: After machining rotor(s) with an on-car brake lathe, you must remove all metal cuttings (particles) from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- F. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV must be removed by on-car machining, even on new rotor(s).
- G. Install the wheel in the same location relative to the hub as it was originally positioned.

## BRAKE JUDDER REPAIR (CANADIAN) CAT. P, NO. 94-06

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1993 Mazda RX7

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- H. Torque wheel lug nuts to the specifications in the service manual.
- I. Test drive the vehicle to confirm repair.
- J. If the brake judder is still felt, correct the rear rotor(s) using steps "C" through "I".

### SERVICE TOOLS

The Accu-Turn (model 8750) On-Car Brake Lathe is recommended by Mazda. The brake lathe is available through Mazda Canada's Equipment Program at 1-800-33-6687.

### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty.)

Warranty Type: O  
Symptom Code: 83  
Damage Code: 9B  
Part Number Main Cause: \*\*\*\* 33 25 \*  
\*\*\*\* 26 25 \* (Rear of Vehicle - Rear Wheel  
Drive Only)

Operation Number: P0113AMX/0.7 hrs. (Front/One Side)  
P0113BMX/1.2 hrs. (Front/Both Sides)  
P0214AMX/0.7 hrs. (Rear/One Side)  
P0214BMX/1.2 hrs. (Rear/Both Sides)

- NOTE:
1. Unnecessary replacement of rotors will result in warranty claim denial.
  2. Brake pad replacement costs will not be warrantable for brake judder repair.
  3. The 1995 SRT Microfiche (for the MX-3, RX-7, 929, MPV, Miata, etc.) shows labor times for on-car rotor machining are 0.7 hrs. Max for one side, and 1.2 hrs. Max for both sides.
  4. If an Accu-Turn on-car lathe is used, apply the labor time from the table above. If an off-car lathe is used, refer to the labor times from the 1994 SRT. The next issue of the SRT microfiche will be revised to show the new labor times.
  5. Please refer to the attached sheet for all valid off-car brake and on-car brake machining operation codes for all models and model years.

END OF ARTICLE

# RATTLING FROM DASHBOARD AT IDLE W/BRAKES APPLIED CAT. S, NO. 011/97

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RATTLING NOISE FROM DASHBOARD AT IDLE WITH BRAKES APPLIED

Model: 1993-95 Mazda RX-7  
Category: S - Body  
Bulletin No.: 011/97  
Date: May 19, 1997

### DESCRIPTION

A rattling noise may be heard from the dashboard when pressing the brake pedal at idle. This noise is transmitted through the body by the check valve operating in the brake vacuum line. Customers complaining of this noise should have the vehicle inspected and if necessary, repaired according to this bulletin.

NOTE: This noise may occur after performing "Brake Vacuum Hose" recall campaign #65609.

### REPAIR PROCEDURE

See Fig. 1 for components and location pertaining to Vacuum Line.

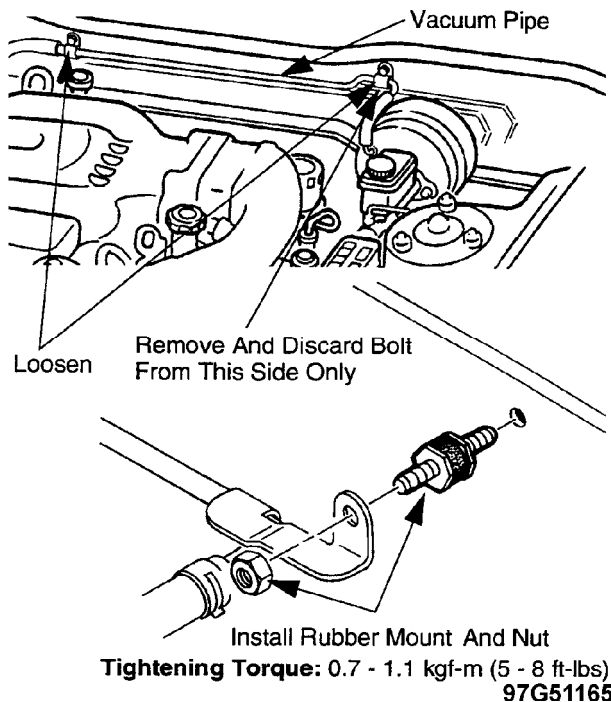


Fig. 1: Brake Booster Vacuum Line Location

1. Verify the concern.





# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### BRAKE JUDDER REPAIR

Model(s): All Mazda Models Through 1995  
Category: P  
Bulletin No.: 001/95  
Date: April, 27 1995

NOTE: This bulletin replaces Service Bulletin Cat. P, 006/94 dated Sept. 1994.

### DESCRIPTION

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- \* Disk Thickness Variation (DTV)
- \* rotor run-out and/or
- \* rotor surface rust (which leads to DTV)

This bulletin describes the causes and corrections for each condition.

### CAUSES OF JUDDER

1. Disc Thickness Variation (DTV) - DTV creates a vibration/pulsation during application of the brakes. DTV will increase with mileage accumulation if the run-out of the disc is excessive.
2. Disc Rotor Run-Out - Run-out, or rotor "wobble", leads to DTV. It is corrected by precision machining to bring the run-out within specification.
3. Rotor Surface Rust - Under certain conditions (storage or use in extreme environments), the surface of the brake rotors may become rusted in the pad non-contact area. If this corrosion penetrates the rotor surface deeply enough, it will not wear or rub off during normal use. This will cause DTV.

### CORRECTION

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduces comeback repairs.

The steps necessary for correction of brake judder are as follows:

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

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1. If the vehicle is in dealer inventory and the condition is rotor rust:
  - a. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
  - b. If vibration/pulsation is still felt, processed to step "c".
  - c. Machine the rotor surface enough to remove all rust or surface staining (generally 0.1 mm per side).

NOTE: If machining is performed, the Service Manager's signature must appear on the repair order.

2. If the vehicle has been in service:
  - a. Verify customer's complaint with a test drive.
  - b. If brake judder is felt, proceed to step c. If brake judder is not felt, refer to the work shop manual or the NVH manual for additional troubleshooting information.
  - c. Mark the front wheel(s) and the lug nut stud with chalk. This will determine the original position of the wheel to the rotor. Remove the front wheel(s).

NOTE: A high majority of brake judder is due to DTV of the front rotors. Customer complaints of brake judder are most often corrected by machining the front rotors only.

- d. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining. Limit: Stated minimum thickness for the model plus 0.8 mm.
- e. If machining can be achieved, an on-car brake lathe is recommended and will be required for all warranty repairs after January 1, 1995 to ensure a precise rotor surface.

NOTE: After machining rotor(s) with an on-car brake lathe, you must remove all metal cuttings (particles) from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- f. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV must be removed by on-car machining, even on new rotor(s).
- g. Install the wheel in the same location relative to the hub as it was originally positioned.
- h. Torque wheel lug nuts to the specifications in the service manual.
- i. Test drive the vehicle to confirm repair.
- j. If the brake judder is still felt, correct the rear rotor(s) using steps "c" through "i".

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 3)

1993 Mazda RX7

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### SERVICE TOOLS

The Accu-Tum (model 8750) On-Car Brake Lathe is recommended by Mazda. The brake lathe will be available soon from MMA's National Accounts Program at a substantial savings. When the national account is established, a Special Tools Service Bulletin will be released which will combine further details. However, if you wish to receive a brochure on this brake lathe, please call Accu-Turn at (800) 551-2228.

### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty.)

Warranty Type: A  
Symptom Code: 83  
Damage Code: 9B  
Part Number Main Cause: \*\*\*\* 33 25  
\*\*\*\* 26 25 (Rear of Vehicle - Rear Wheel  
Drive Only)

Operation Number: P0113AMX/0.7 hrs. (Front/One Side)  
P0113BMX/1.2 hrs. (Front/Both Sides)  
P0214AMX/0.7 hrs. (Rear/One Side)  
P0214BMX/1.2 hrs. (Rear/Both Sides)

- NOTE:
1. Unnecessary replacement of rotors will result in warranty claim denial.
  2. Brake pad replacement costs will not be warrantable for brake judder repair.
  3. If an on-car lathe is used, apply the labor time from the table above.

NOTE: Warranty policy does not permit using an off-car brake lathe after January 1, 1995. The next issue of the SRT microfiche will be revised to show new labor times.

### BRAKE DRUMS LABOR OPERATION/TIME CODES - 1993-1995 MODELS

626/MX-6

Rear Brakes/Brake Drums(s), R&R (one side)  
Labor Operation: P0201ARX/0.3 hrs.  
Rear Brakes/Brake Drums(s), R&R (both sides)  
Labor Operation: P0201BRX/0.4 hrs.  
Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.5 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/0.7 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204ARX/0.4 hrs.  
Brake Shoe(s), R&R (both sides)

**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

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Labor Operation: P0204BRX/0.6 hrs.

MPV (1993 Models only)

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.6 hrs.

Brake Drum(s), Machine (one side)

Labor Operation: P0201AMX/0.3 hrs.

Brake Drum(s), Machine (both sides)

Labor Operation: P0201AMX/0.6 hrs.

Brake Shoe(s), R&R (one side)

Labor Operation: P0204ARX/0.5 hrs.

Brake Shoe(s), R&R (both sides)

Labor Operation: P0204BRX/0.8 hrs.

323/PROTEGE

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.6 hrs. (1993-94)

Labor Operation: P0201BRX/0.3 hrs. (1995)

Brake Drum(s), Machine (one side)

Labor Operation: P0201AMX/0.3 hrs.

Brake Drum(s), Machine (both sides)

Labor Operation: P0201AMX/0.6 hrs.

Brake Shoe(s), R&R (one side)

Labor Operation: P0204ARX/0.5 hrs. (1993-94)

Labor Operation: P0204ARX/0.3 hrs. (1995)

Brake Shoe(s), R&R (both sides)

Labor Operation: P0204BRX/0.8 hrs. (1993-94)

Labor Operation: P0204BRX/0.5 hrs. (1995)

MX-3

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.4 hrs.

Brake Drum(s), Machine (one side)

Labor Operation: P0201AMX/0.3 hrs.

Brake Drum(s), Machine (both sides)

Labor Operation: P0201AMX/0.6 hrs.

Brake Shoe(s), R&R (one side)

Labor Operation: P0204ARX/0.4 hrs.

Brake Shoe(s), R&R (both sides)

Labor Operation: P0204BRX/0.6 hrs.

93 B-Series and earlier

Rear Brakes/Brake Drums(s), R&R (one side)

Labor Operation: P0201ARX/0.3 hrs.

Rear Brakes/Brake Drums(s), R&R (both sides)

Labor Operation: P0201BRX/0.6 hrs.

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

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1993 Mazda RX7

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Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.8 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/1.3 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204ARX/0.7 hrs.  
Brake Shoe(s), R&R (both sides)  
Labor Operation: P0204BRX/1.0 hrs.

### Navajo

Rear Brakes/Brake Drums(s), R&R (one side)  
Labor Operation: P0201ARX/0.5 hrs.  
Rear Brakes/Brake Drums(s), R&R (both sides)  
Labor Operation: P0201BRX/0.7 hrs.  
Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.2 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/0.4 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204XRX/1.0 hrs.  
Brake Shoe(s), R&R (both sides)  
Labor Operation: P0204XRX/1.0 hrs.

### 94 B-Series and later

Rear Brakes/Brake Drums(s), R&R (one side)  
Labor Operation: P0201ARX/0.4 hrs.  
Rear Brakes/Brake Drums(s), R&R (both sides)  
Labor Operation: P0201BRX/0.6 hrs.  
Brake Drum(s), Machine (one side)  
Labor Operation: P0201AMX/0.2 hrs.  
Brake Drum(s), Machine (both sides)  
Labor Operation: P0201AMX/0.4 hrs.  
Brake Shoe(s), R&R (one side)  
Labor Operation: P0204XRX/1.0 hrs.  
Brake Shoe(s), R&R (both sides)  
Labor Operation: P0204XRX/1.0 hrs.

## REAR DISC BRAKES LABOR OPERATION/TIME CODES - 1993-1995 MODELS

### Millenia

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.3 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.4 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.3 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

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626/MX-6

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.6 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.4 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

RX-7

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.3 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.4 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.3 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

MX-5

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.5 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.4 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

MPV (1994-95)

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.6 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.8 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.

**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

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1993 Mazda RX7

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Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.5 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.6 hrs.

**MX-3**

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.6 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.5 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.9 hrs.

**929**

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.4 hrs.  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208BRX/0.6 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.3 hrs.  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

**323/PROTEGE**

Rear Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0208ARX/0.5 hrs. (1993-94)  
Labor Operation: P0208ARX/0.4 hrs. (1995)  
Rear Brakes/Disc Plate(s), R&R (both sides)  
Labor Operation: P0208CRX/0.9 hrs. (1993-94)  
Labor Operation: P0208CRX/0.6 hrs. (1995)  
Rear Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0214AMX/0.7 hrs.  
Rear Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0214BMX/1.2 hrs.  
Rear Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0209ARX/0.4 hrs. (1993-94)  
Labor Operation: P0209ARX/0.3 hrs. (1995)  
Rear Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0214BRX/0.5 hrs.

**FRONT BRAKES LABOR OPERATION/TIME CODES - 1993-1995 MODELS**

**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

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1993 Mazda RX7

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Millenia

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.6 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.5 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

626/MX-6

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.3 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.5 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.5 hrs.

RX-7

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.3 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.5 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.3 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.4 hrs.

MX-5

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.6 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)



**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

**Article Text (p. 9)**

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Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

**MPV**

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.6 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.9 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.5 hrs.

**323/PROTEGE**

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 (1993-94)  
Labor Operation: P0102ARX/0.3 (1995)  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.9 hrs. (1993-94)  
Labor Operation: P0208CRX/0.4 hrs. (1995)  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs. (1993-94)  
Labor Operation: P0104ARX/0.3 hrs. (1995)  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.5 hrs. (1993-94)  
Labor Operation: P0104BRX/0.4 hrs. (1995)

**MX-3**

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.3 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.5 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.5 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

**929**

Front Brakes/Disc Plate(s), R&R (one side)

# VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95

## Article Text (p. 10)

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Labor Operation: P0102ARX/0.4 hrs.  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0208CRX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.7 hrs.  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.2 hrs.  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.6 hrs.

### Navajo

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.6 hrs. (2WD)  
Labor Operation: P0102CRX/0.8 hrs. (4WD)  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0102BRX/0.9 hrs. (2WD)  
Labor Operation: P0102DRX/1.2 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.8 hrs. (2WD)  
Labor Operation: P0113CMX/0.6 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.5 hrs. (2WD)  
Labor Operation: P0113DMX/1.1 hrs. (4WD)  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.7 hrs.

### 94 B-Series and later

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.5 hrs. (2WD)  
Labor Operation: P0102CRX/0.7 hrs. (4WD)  
Front Brakes/Disc Plate(s), R&R (both side)  
Labor Operation: P0102BRX/0.8 hrs. (2WD)  
Labor Operation: P0102DRX/1.1 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (one sides)  
Labor Operation: P0113AMX/0.8 hrs. (2WD)  
Labor Operation: P0113CMX/0.6 hrs. (4WD)  
Front Brakes/Disc Plate(s), Machine on vehicle (both sides)  
Labor Operation: P0113BMX/1.5 hrs. (2WD)  
Labor Operation: P0113DMX/1.1 hrs. (4WD)  
Front Brakes/Pad(s), R&R (one sides)  
Labor Operation: P0104ARX/0.4 hrs.  
Front Brakes/Pad(s), R&R (both sides)  
Labor Operation: P0104BRX/0.7 hrs.

### 93 B-Series and earlier

Front Brakes/Disc Plate(s), R&R (one side)  
Labor Operation: P0102ARX/0.6 hrs. (2WD)  
Labor Operation: P0102BRX/0.9 hrs. (4WD)

**VIBRATION/PULSATION WHILE BRAKING - PROCEDURE CAT. P, NO. 001/95**

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Front Brakes/Disc Plate(s), R&R (both side)

Labor Operation: P0102CRX/1.1 hrs. (2WD)

Labor Operation: P0102DRX/1.6 hrs. (4WD)

Front Brakes/Disc Plate(s), Machine on vehicle (one sides)

Labor Operation: P0113AMX/0.8 hrs. (2WD)

Labor Operation: P0113CMX/0.6 hrs. (4WD)

Front Brakes/Disc Plate(s), Machine on vehicle (both sides)

Labor Operation: P0113BMX/1.5 hrs. (2WD)

Labor Operation: P0113DMX/1.1 hrs. (4WD)

Front Brakes/Pad(s), R&R (one sides)

Labor Operation: P0104ARX/0.4 hrs.

Front Brakes/Pad(s), R&R (both sides)

Labor Operation: P0104BRX/0.6 hrs.

**END OF ARTICLE**

# AIR PUMP FAILURE DUE TO NON-GENUINE AIR FILTERS CAT. F, NO. 006/95

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

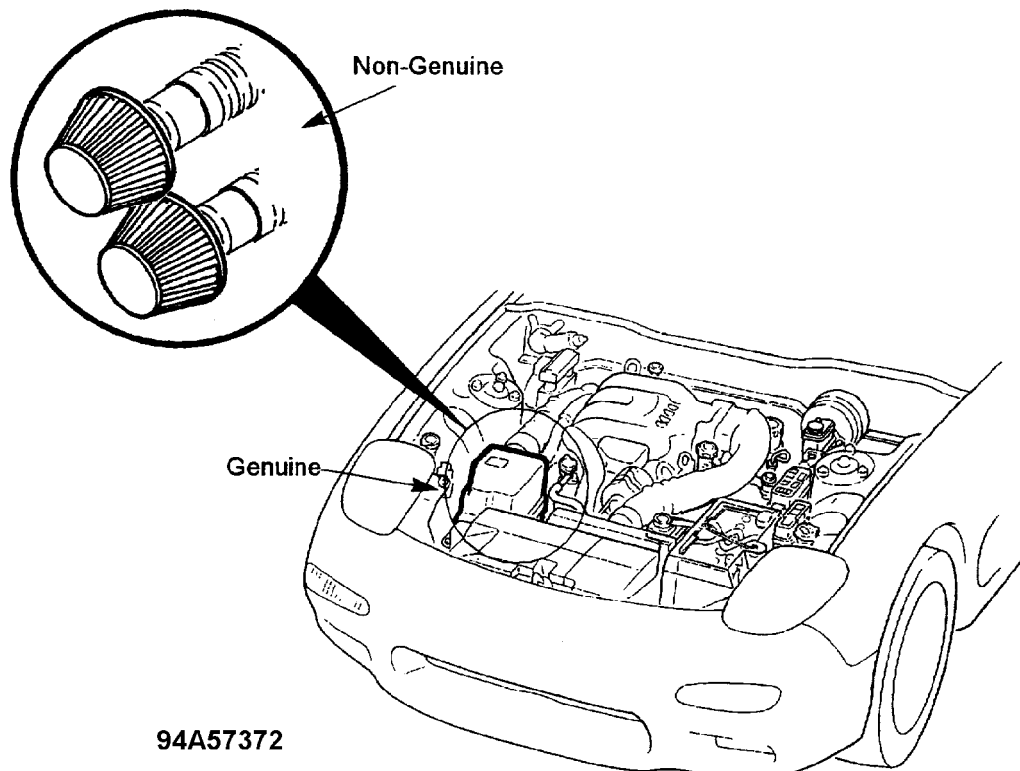
### AIR PUMP FAILURE DUE TO INSTALLATION OF NON-GENUINE AIR CLEANERS

Models: 1993-95 Mazda RX-7  
Category: F  
Bulletin No.: 006/95  
Date: 4/5/95

### DESCRIPTION

Installing non-genuine air cleaners may lead to air pump failure. Unlike the original design, non-genuine air cleaners, draw heated, engine compartment air into the air pump. See Fig. 1. This air increases pump temperature which may result in lubrication loss and bearing failure. Customers should be informed that the vehicle warranty prohibits alteration of the emission control system as well as other components.

Recommend that the customer have the original air cleaner installed to prevent non-warrantable component failure.



94A57372

Fig. 1: Exploded View of Installed Non-Genuine Air Cleaner

END OF ARTICLE

# CRACKS IN TURBOCHARGER MANIFOLD - INFORMATION MT 0495-07

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### TURBOCHARGER

Model(s): 1993-95 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0495-07  
Date: April, 1995

### SERVICE INFORMATION

During engine replacement or other engine disassembly, cracks on the turbocharger exhaust manifold may be present. Due to the high heat concentration existing in the turbocharger and manifold, some cracks (in the shaded areas) are considered normal, and the turbo does not need to be replaced.

NOTE: Cracks will not extend in length because the outer wall temperature is comparatively low.

The following are acceptable conditions and the turbo does not need to be replaced.

1) Cracks of 5mm or less in length that do not pierce the housing, EXCEPT:

2) At the top of the secondary turbo flange, next to the turbo pre-control valve, cracks of 13mm or less are acceptable. See Fig. 1.

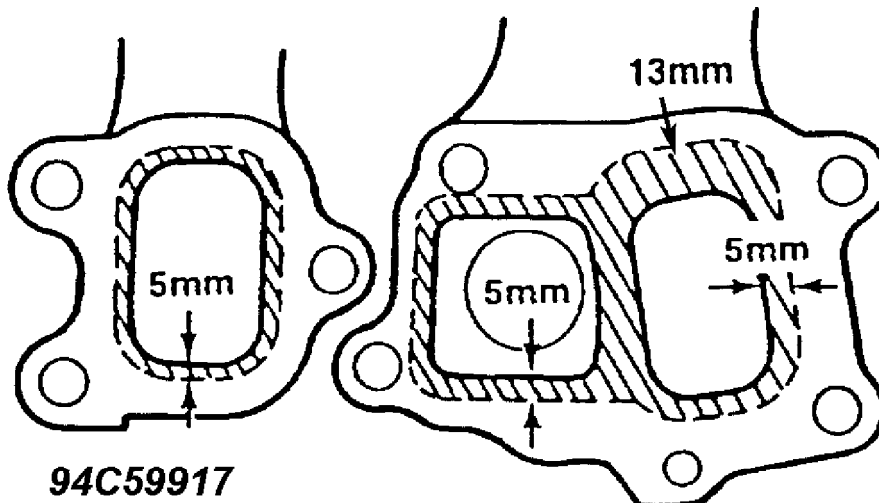


Fig. 1: Location Of Cracks On The Turbocharger

END OF ARTICLE

# INTAKE MANIFOLD GASKET PRECAUTIONS CAT. F, NO. 005/95

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### INTAKE MANIFOLD GASKET PRECAUTIONS

Model: 1986-94 Mazda RX-7  
Category: F  
Bulletin No.: 005/95  
Date: 3/15/95  
Date Revised: 6/16/95

### APPLICABLE MODEL/VIN

1986-94 RX-7 Model Vehicles

### DESCRIPTION

Rough idle that occurs after replacing an intake manifold gasket may be caused by damage to the gasket. If the proper torque sequence is not followed, cracks and/or breakage may occur.

### INSTALLATION PROCEDURE

Refer to the instructions and tightening sequences shown in Fig. 1, when installing the gasket. Make a note in the applicable workshop manuals to avoid problems during installation.

**INTAKE MANIFOLD GASKET PRECAUTIONS CAT. F, NO. 005/95**

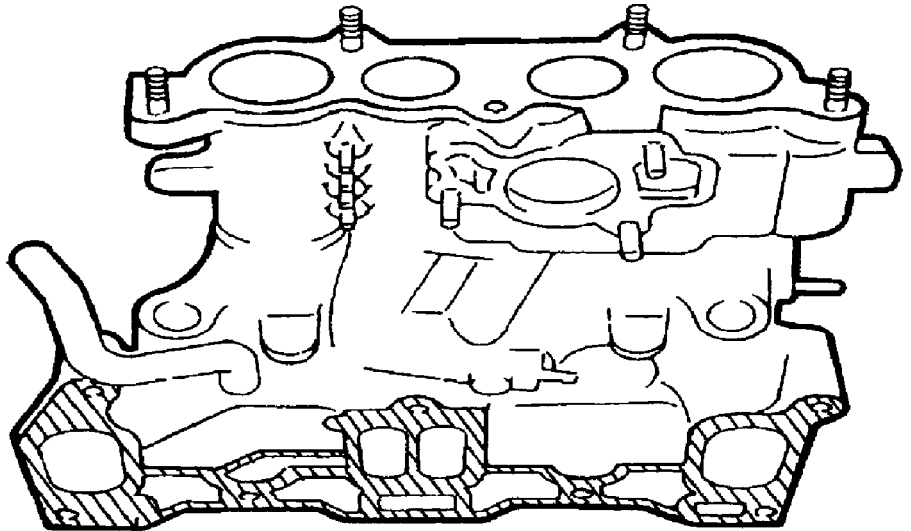
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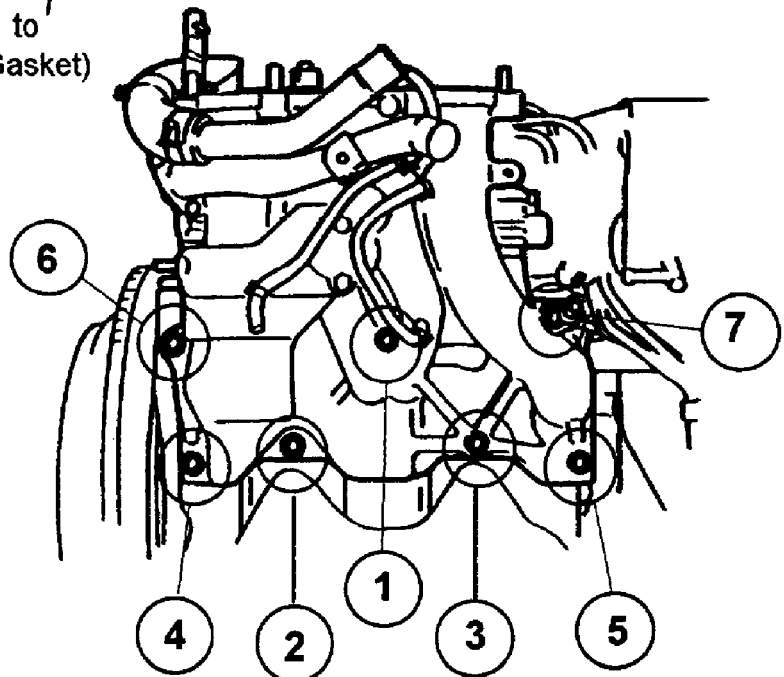


**Step 1**

Apply molybdenum grease to flange (Do Not Apply To Gasket)

**Step 2**

Tightening Torque:  
16-20 Nm  
(1.6-2.3 kgfm  
12-16ft-lbs)



**94G58863**

Fig. 1: Intake Manifold Gasket Tightening Sequences

**END OF ARTICLE**

# INTAKE MANIFOLD GASKET PRECAUTIONS (CANADIAN) CAT. F, NO. 95-03

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### INTAKE MANIFOLD GASKET PRECAUTIONS

Model(s): 1986-94 Mazda RX-7 (Canadian)  
Category: F Fuel & Emission Controls  
Bulletin No.: 95-03  
Date: April, 1995  
Date Revised: June, 1995

### APPLICABLE MODEL/VIN

1986-94 RX-7 Model Vehicles

### DESCRIPTION

Rough idle that occurs after replacing an intake manifold gasket may be caused by damage to the gasket. If the proper torque tightening sequences is not followed, cracks and/or breakage may occur.

### INSTALLATION PROCEDURE

Refer to the instructions and tightening sequences shown in Fig. 1, when installing the gasket. Make a note in the applicable workshop manuals to avoid problems during installation.



**INTAKE MANIFOLD GASKET PRECAUTIONS (CANADIAN) CAT. F, NO. 95-03**

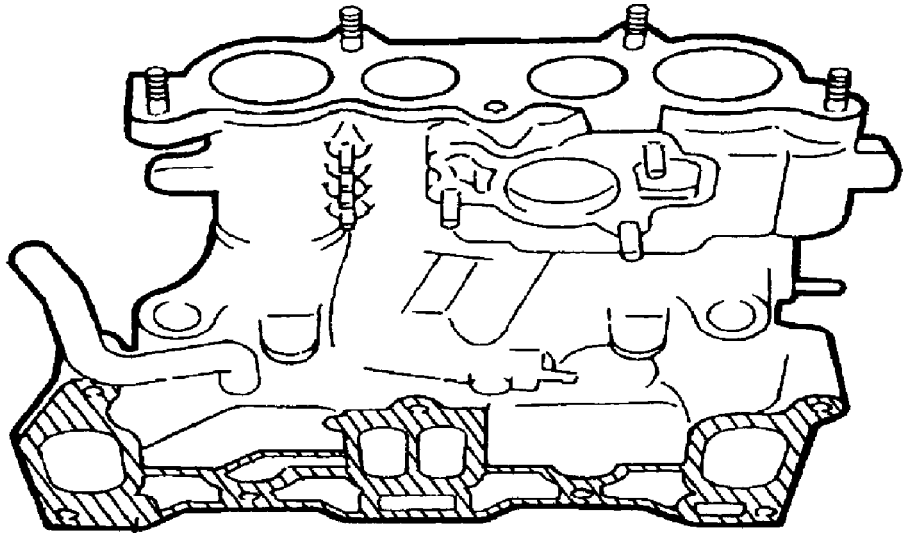
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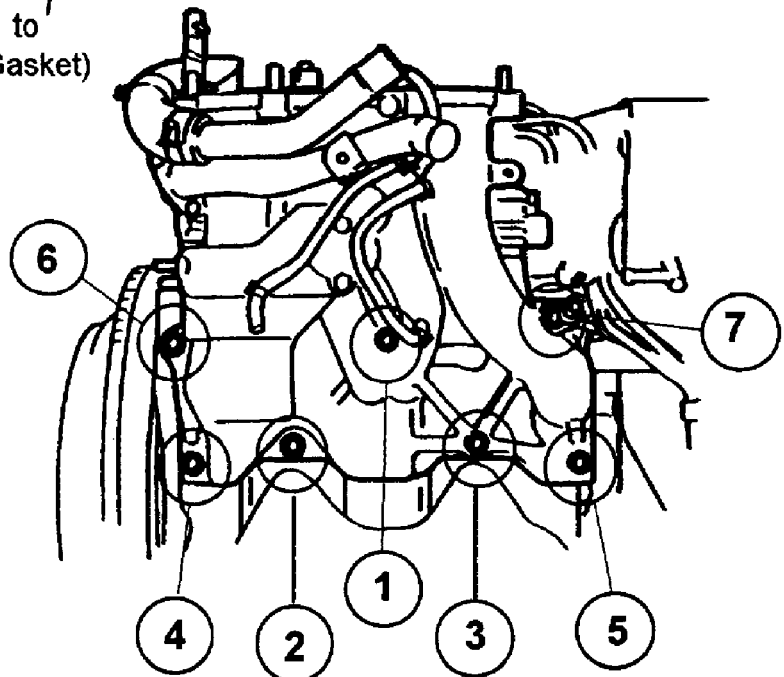


**Step 1**

Apply molybdenum grease to flange (Do Not Apply To Gasket)

**Step 2**

Tightening Torque:  
16-20 Nm  
(1.6-2.3 kgfm  
12-16ft-lbs)



**94G58863**

Fig. 1: Intake Manifold Gasket Tightening Sequences

**END OF ARTICLE**

# KINKED TURBO CHARGER RELIEF VACUUM HOSE - NEW HOSE MT 1195-09

## Article Text

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## ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

## T/C VACUUM HOSE

Model(s): 1993 Mazda RX-7  
Section: Mazda Tips  
Bulletin No.: MT 1195-09  
Date: 1996

## SERVICE PROCEDURE

A kink in the T/C relief valve vacuum hose may cause the engine to hesitate or lack power during acceleration. Check the hose and replace it with a modified one if it is kinked. The new part number is available through the Means system. Part number N3A3-2341A.

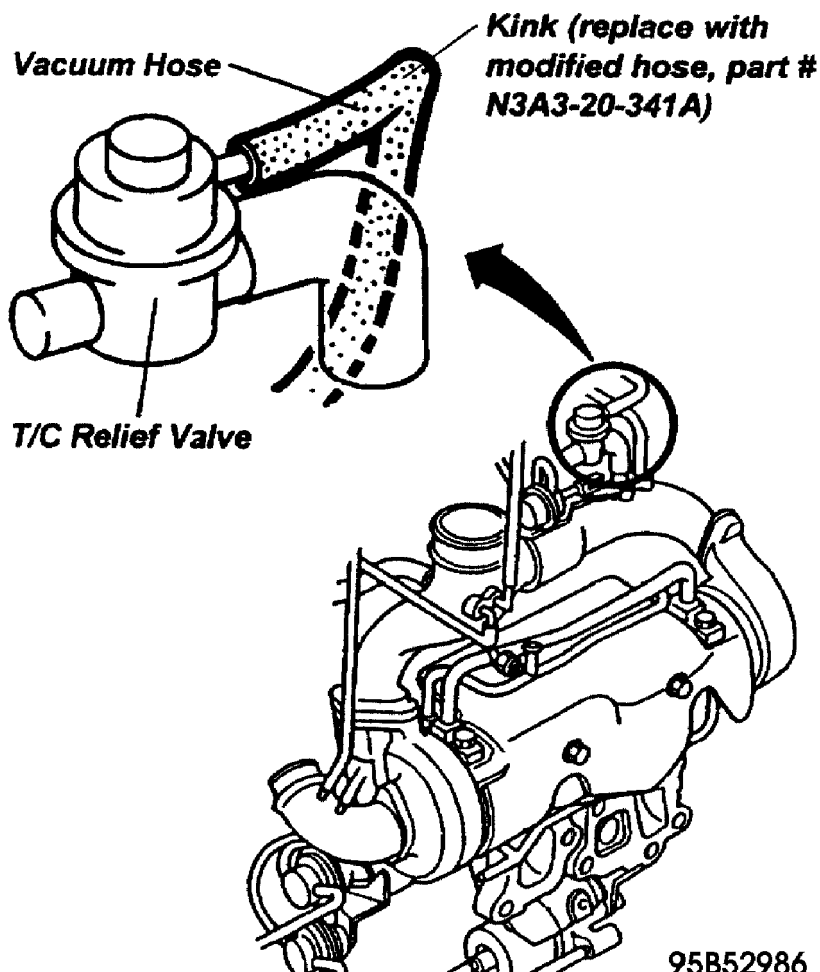


Fig. 1: T/C Relief Valve

95B52986

END OF ARTICLE

# LEFT ENGINE MOUNT INTERFERES WITH OIL PAN BOLT CAT. B, NO. 008/97

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### LEFT ENGINE MOUNT INTERFERES WITH OIL PAN BOLT - REMANUFACTURED ENGINE INSTALLATION

Model(s): 1993-95 Mazda RX-7  
Category: B - Engine  
Bulletin No.: 008/97  
Date: November 18, 1997

### VEHICLES AFFECTED

1993-95 RX-7 with a VIN of JM1FD333\*S0400027 and lower.

### DESCRIPTION

During remanufactured rotary engine installation, the left rubber engine mount may interfere with an oil pan installation bolt. To prevent this concern, follow the procedures below.

### INSTALLATION PROCEDURE

1. Verify concern.
2. Remove oil pan bolt and discard. See Fig. 1.
3. Apply silicone sealer to the bolt hole and pan area.

NOTE: Three Bond TB1207D, Loctite Ultra Gray 599 (or equivalent)

4. Install engine mounts according to section C of the workshop manual.

Tightening Torque: 75-93 N.m, 7.6 - 9.5 Kgfm (55-68 ft-lb).

5. Operate engine to normal temperature and inspect oil pan area for leaks.

\* If no leaks are present, return vehicle to customer.

\* If leaks occur, repair as necessary.

**LEFT ENGINE MOUNT INTERFERES WITH OIL PAN BOLT CAT. B, NO. 008/97**

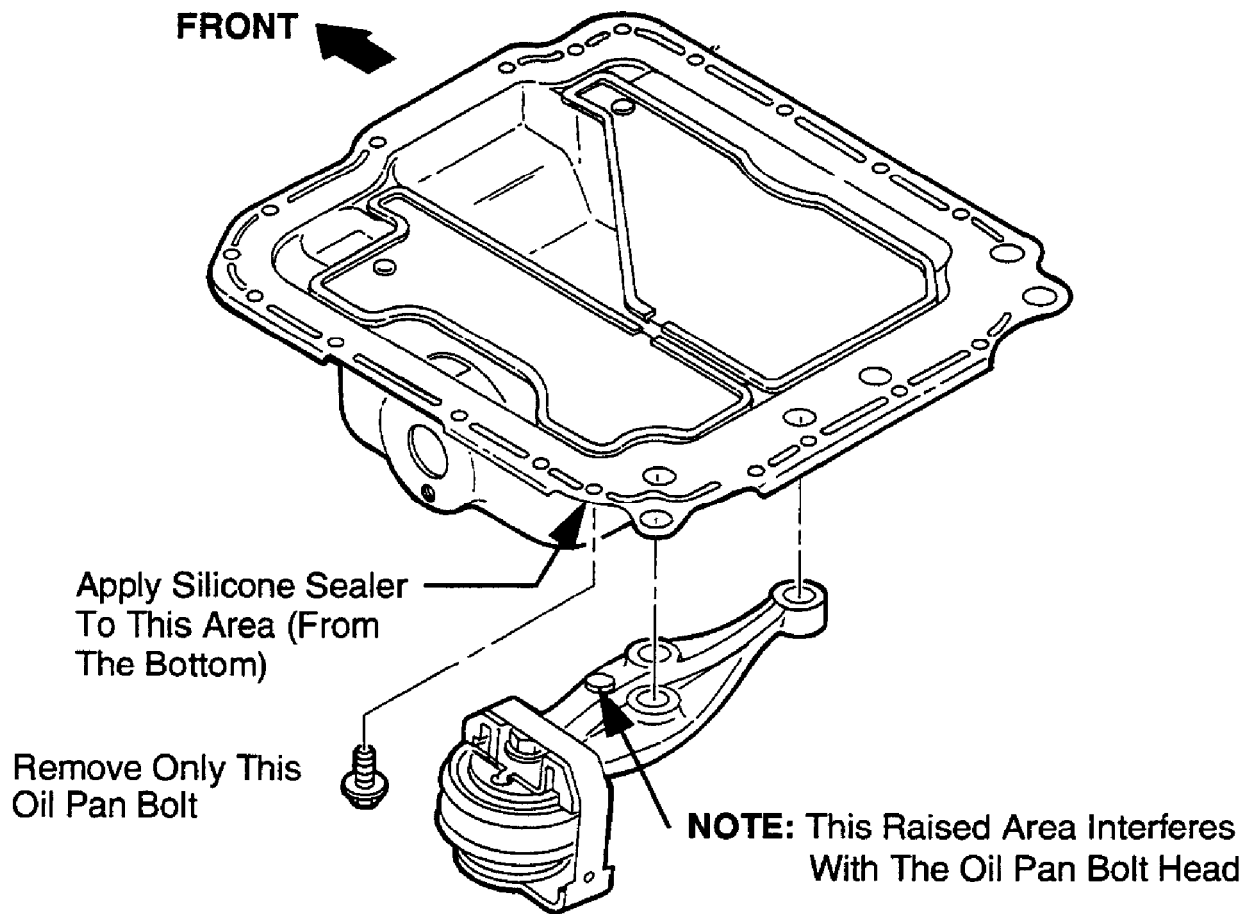
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97J54345  
Fig. 1: Oil Pan Bolt - Location

**END OF ARTICLE**

## MOTOR MOUNT HEAT SHIELDS - NOISE MT 0394-10

### Article Text

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

MOTOR MOUNT HEAT SHIELDS RUB - RUBBING OR GROANING NOISE

Model(s): 1993 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 0394-10  
Date: March, 1994

### DESCRIPTION

The heat shields for the engine motor mounts may rub the mount, producing a rubbing or groaning noise from the lower, front suspension area. You hear the noise as you drive slowly over bumps or as you turn.

DO NOT replace the mounts, control arm bushings or struts. Instead, inspect the heat shield(s) according to the Workshop Manual (page D-19, part 3). If there is contact, use a screw driver to carefully pry the heat shield(s) away from the point of contact.

If you still hear the noise, refer to Service Bulletin R-004/93 regarding a front upper bushing noise.

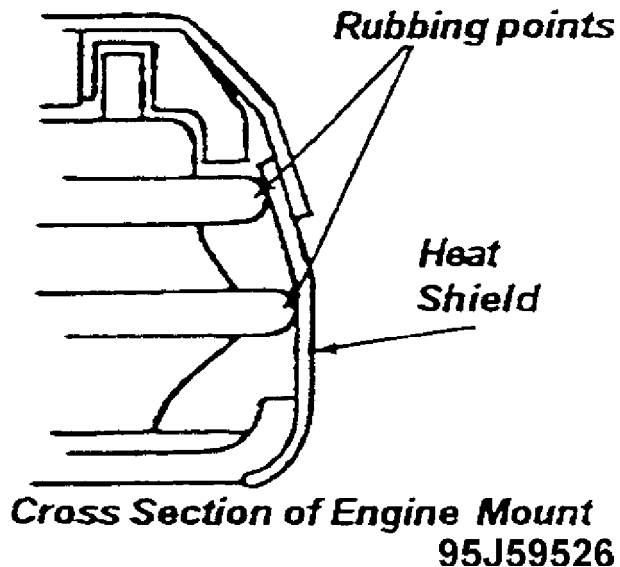


Fig. 1: Cross Section of Engine Mount

END OF ARTICLE

# OIL LEAK AT REAR STATIONARY GEAR O-RING - CAR FIX CAT. B, NO. 003/98

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### OIL LEAK AT REAR STATIONARY GEAR O-RING/ON-CAR REPLACEMENT PROCEDURE

Model(s): 1979-95 Mazda RX-7  
Category: B (01) - Engine  
Bulletin No.: 003/98  
Date: July 16, 1998

### DESCRIPTION

The following procedure is for on-car rear stationary (RS) gear O-ring replacement. This procedure is not included in the Workshop Manual. When the RS gear O-ring is leaking, use the following on-car procedure.

### REPAIR PROCEDURE

1. Verify customer complaint.
2. Remove the flywheel (M/T) or counterweight (A/T). Refer to the Workshop Manual section C and H.
3. Set the front rotor to TDC (top dead center) per the Workshop Manual section C.
4. Remove the six bolts from the RS gear.

NOTE: If the eccentric shaft and rotor are rotated with the RS gear removed, they cannot be re-used. The engine will require overhauling.

5. Insert two screwdrivers or pry bars and pry out the RS gear. See Fig. 1.

CAUTION: To prevent the (RS) gear from falling out, loosely reinstall one of the bolts back into the gear. This will hold the gear in place while prying.

6. After the (RS) gear is pried loose, remove the one bolt used to hold it in place, and remove the (RS) gear assembly.
7. Remove the O-ring and oil seal, and clean the (RS) gear. After (RS) gear is cleaned, use shop air to remove any remaining debris. See Fig. 2.
8. Apply a small amount of oil to the new O-ring and oil seal and install.

**OIL LEAK AT REAR STATIONARY GEAR O-RING - CAR FIX CAT. B, NO. 003/98**

**Article Text (p. 2)**

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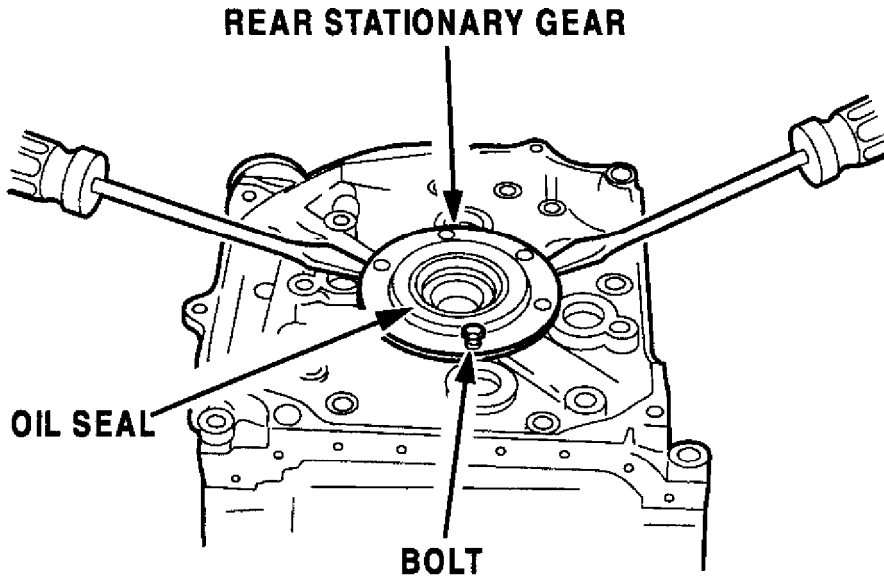
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9. Install the (RS) gear.

Tightening torque: 16-22 N.m

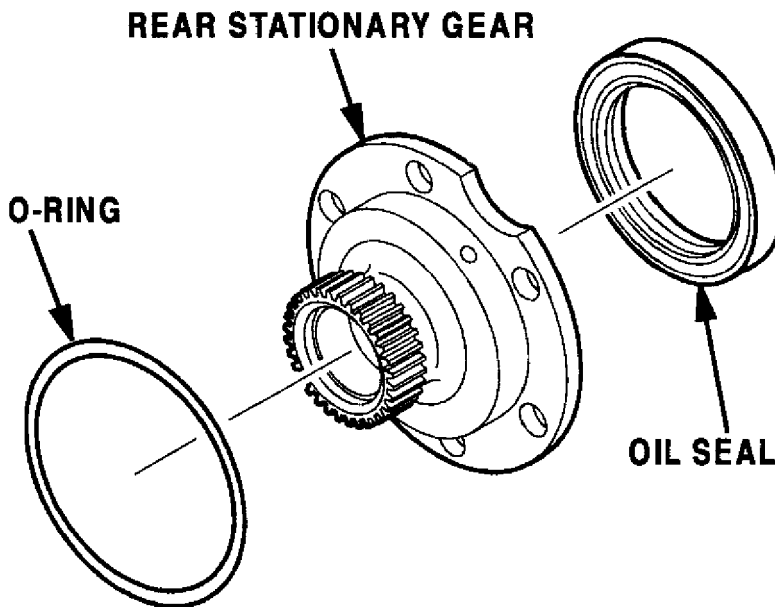
10. Install remaining parts in the reverse order of removal.

11. Verify repair.



97B58611

Fig. 1: Rear Stationary Gear, Oil Seal & Bolt - Insert Screwdrivers



97C58612

Fig. 2: Rear Stationary Gear, Oil Seal & Bolt - Remove & Clean

**PARTS INFORMATION**

**OIL LEAK AT REAR STATIONARY GEAR O-RING - CAR FIX CAT. B, NO. 003/98**

**Article Text (p. 3)**

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PARTS INFORMATION TABLE

Part Number	Description	Qty.	Applicable Models
0813-10-555A	O-Ring	1	Rotary Engine

**WARRANTY INFORMATION**

NOTE:

- \* This information applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.
- \* The Operation Numbers / Labor Hours below include complete transmission R&R, flywheel or counterweight R&R, and road test.

Warranty Type: A  
Symptom Code: 76  
Damage Code: Use Code Applicable to Problem  
Part Number Main Cause: 0813-10-555A  
Quantity: 1  
Operation Number / Labor Hours: XX012XR1 / 2.9 (FC - M/T)  
XX012XR2 / 3.6 (FC - A/T)  
XX012XR3 / 3.7 (FD - M/T)  
XX012XR4 / 4.7 (FD - A/T)

**END OF ARTICLE**



**PARTIAL ENGINE (LONG BLOCK) AVAILABILITY CAT. B, NO. 004/94**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**PARTIAL ENGINE (LONG BLOCK) AVAILABILITY**

Model(s): All Mazda Models  
Category: B  
Bulletin No.: 004/94  
Date: 3/9/94  
Revised: 6/21/94

DESCRIPTION

Partial engines are available as repair components and will replace the need to replace the entire engine. When installing a partial engine, the following components must be utilized from the original engine:

1. Engine Electrical Parts
2. Cooling System Parts
3. Intake And Exhaust System Parts
4. Fuel And Emission Control Parts
5. Clutch And/Or Flywheel

WARRANTY INFORMATION

Partial engines are warranted for the remainder or the original vehicle warranty or for the first 12 months after installation of the partial engine, whichever is longer. All warranty repairs of the partial engine replacement will require prior authorization from the DCSM.

NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM

B-TRUCKS NEW ENGINE AVAILABILITY PARTS TABLE

Year/Model	Engine P/N	Gasket P/N	Remarks
1979-84 B2000	HEA4-23-800	8AU1-23-900	
1986-87 B2000	FEY3-02-300	8AU1-02-310	Requires the replacement of the Heat Gauge Unit - (G607-18-510)
1987-89 B2200	F2Y3-02-300	8AU2-02-310	
1990-93 B2200 (CAL)	F2Y6-02-300	8AU5-02-310	
(FED)	F2Y7-02-300	8AU2-02-310	



PARTIAL ENGINE (LONG BLOCK) AVAILABILITY CAT. B, NO. 004/94

Article Text (p. 3)

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Year/Model	Engine P/N	Gasket P/N	Remarks
1990-94 PROTEGE (M/T) (1.8L DOHC)	BP05-02-300	8ABA-02-310	
(A/T)	BP06-02-300	8ABA-02-310	
1990-94 PROTEGE (M/T) (1.8L SOHC)	BP01-02-300	8ABB-02-310	
(A/T)	BP02-02-300	8ABB-02-310	

626/MX-6 NEW ENGINE AVAILABILITY PARTS TABLE

Year/Model	Engine P/N	Gasket P/N	Remarks
1981-82 626	HE41-02-300	8AU1-02-310	
1983-85 626	FE01-02-300	8AG1-02-310	
1986-87 626 (NON-TURBO)	FEY1-02-300	8AG2-02-310	Requires the replacement of the Heat Gauge Unit - (G607-18-510)
(TURBO)	FEY2-02-300	8AG3-02-310	
1988-89 626/MX-6 (NON-TURBO)	F2Y1-02-300	8AG4-02-310	
(TURBO)	F2Y2-02-300	8AG5-02-310	
1990-92 626/MX-6 (NON-TURBO)	F2Y4-02-300	8AG4-02-310	
(TURBO)	F2Y5-02-300	8AG5-02-310	
1993-94 626/MX-6 (2.0L) (M/T)	FS01-02-300A	8AGB-02-310	
(2.0L) (A/T)	FS01-02-300A	8AGB-02-310	
1994 626/MX-6 (2.0L) (A/T)	FS71-02-300A	8AGB-02-310	
1993-94 626/MX-6 (2.5L)	KLY1-02-300A	8AE3-02-310	

929 NEW ENGINE AVAILABILITY PARTS TABLE

Year/Model	Engine P/N	Gasket P/N	Remarks
------------	------------	------------	---------



# **PARTIAL ENGINE (LONG BLOCK) AVAILABILITY CAT. B, NO. 004/94**

## **Article Text (p. 5)**

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3 (2.5L, V-6) 3 KL47-02-300 3 8AK2-02-310 3  
AAU

**END OF ARTICLE**

# PROPYLENE GLYCOL BASED COOLANT: RECOMMENDATIONS CAT. E, NO. 001/94

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### PROPYLENE GLYCOL BASED COOLANT

Model(s): All Mazda Models  
Category: E  
Bulletin No.: 001/94  
Date: 10/21/94

### AFFECTED MODELS

All Mazda Vehicles

### DESCRIPTION

Mazda does not recommend propylene glycol coolants. Available information indicates the following characteristics regarding propylene glycol coolants:

- \* Provides less heat transfer
- \* May not provide adequate corrosion protection (to meet Mazda specifications)
- \* Freezing temperature is 10 - 20% higher than ethylene glycol based coolants

Mazda recommends ethylene glycol and water mixture. Customer's with questions regarding coolant should be directed to the information in Section 7 of their owner's manual.

### END OF ARTICLE

# RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RECALL CAMPAIGN 54407 COOLANT LEAK

Model(s): 1993-94 Mazda RX-7  
Category: Recall Campaign  
Bulletin No.: 54407  
Date: August 8, 1994

### DESCRIPTION

Dear Mazda Dealer:

Mazda Motor Corporation has decided to conduct Recall Campaign #54407 for replacement of selected engine cooling system components on certain 1993-94 Mazda RX-7 models, beginning August 8, 1994.

We have determined that if an RX-7 has been subjected to high speed operation and then parked before cooling down, the residual engine heat combined with the build-up of pressure in the cooling system can raise the temperature of the coolant to levels, where the integrity of the cooling system can be compromised. Repeated operation of the vehicle in this manner may produce cooling system leaks.

Under some circumstances, the leaking coolant mixture can collect on the top of the engine, where some of the water can evaporate, increasing the concentration of the coolant. If coolant then leaks onto the exhaust manifold, an engine compartment fire could be the result.

The RX-7 is equipped with a water level sensor that warns the driver of low coolant levels with both a warning light and accompanying buzzer. In most cases, the driver would be warned of a low water level prior to the point where enough coolant had been leaked to present any serious risk of fire.

Detailed information regarding this Recall Campaign is provided in CONDITION OF CONCERN section with additional information concerns in VEHICLES WITH A HISTORY OF A COOLANT LEAK, the letter sent to the owners of the subject vehicles is in OWNER NOTIFICATION LETTER section, and the repair procedure is given in SERVICE PROCEDURES section.

In an effort to demonstrate concern for customer satisfaction, we are requesting you to do the following two items:

- \* Upon completion of the repairs, as part of a dealer effort to demonstrate concern for customer satisfaction, wash the vehicle, vacuum the interior, and clean the windows before returning the





## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

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#### REPLACEMENT OF THE CAP KIT

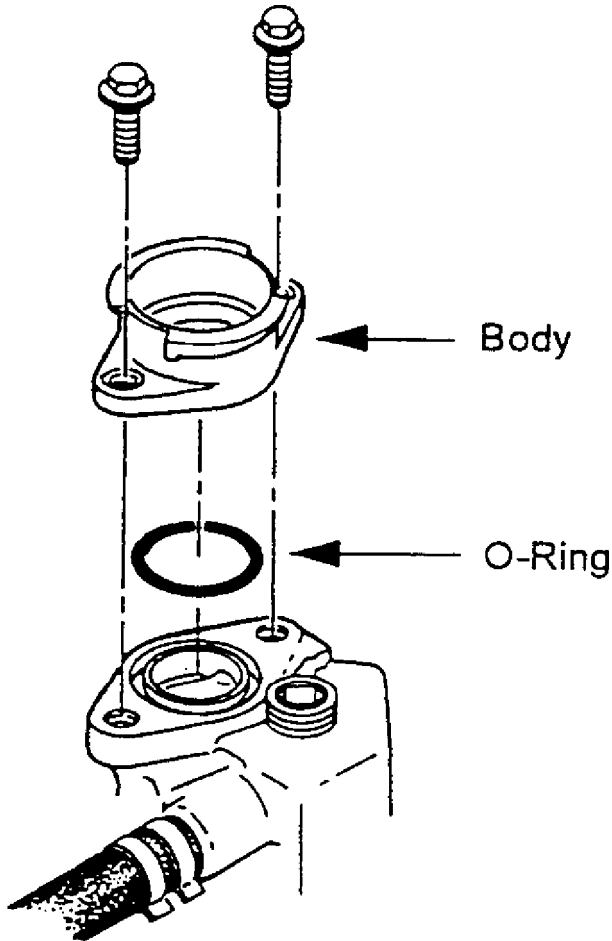
NOTE: If the vehicle has been sold, perform steps 52 - 55 before preceding with step 1.

To be performed on ALL vehicles.

1) Loosen the bolts of the filler cap body. Remove and discard the body and cap. Replace body, cap, and "O" ring with new ones from kit.

2) Remove and discard the radiator cap from the surge tank, and replace it with a new one.

NOTE: If vehicle is in inventory (not sold), proceed to step 56.



98G51645

Fig. 1: Body, Cap, and "O" Ring

#### REPLACEMENT OF THROTTLE HOSE

To be performed on ALL customer (sold) vehicles.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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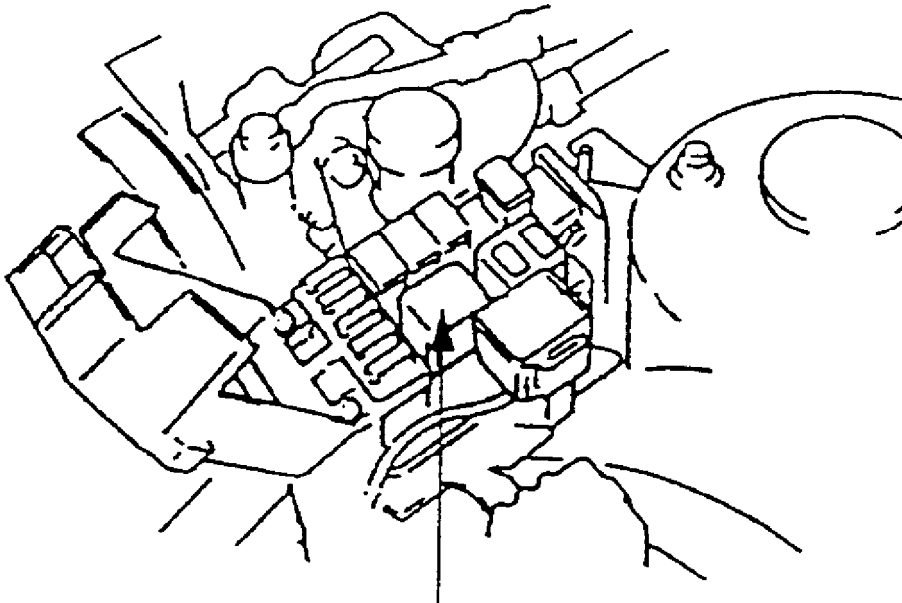
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- 3) Start the engine.
- 4) Remove the circuit opening relay.
- 5) After the engine stalls, crank the engine for 15-20 seconds to purge the injectors.
- 6) Turn the ignition switch off.
- 7) Install the circuit opening relay.



**Circuit Opening Relay**

98H51646  
Fig. 2: Circuit Opening Relay

- 8) Disconnect the negative terminal from the battery.

**NOTE:** Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

- 9) Drain coolant and retain in an appropriate container.
- 10) Remove the air intake pipe from the outlet of the turbo, and cover the outlet with a shop towel.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

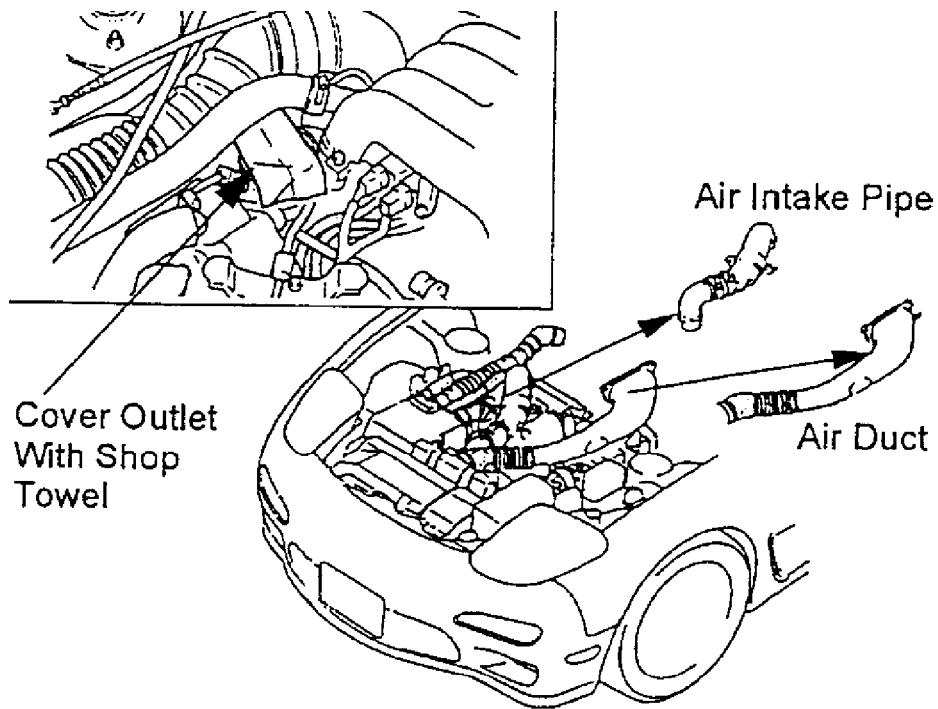
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98I51647

Fig. 3: Air Intake Pipe

- 11) Remove the air duct from the intercooler.
- 12) Remove hoses from the extension manifold. See Fig. 4.
- 13) Remove harnesses from the extension manifold. See Fig. 4.

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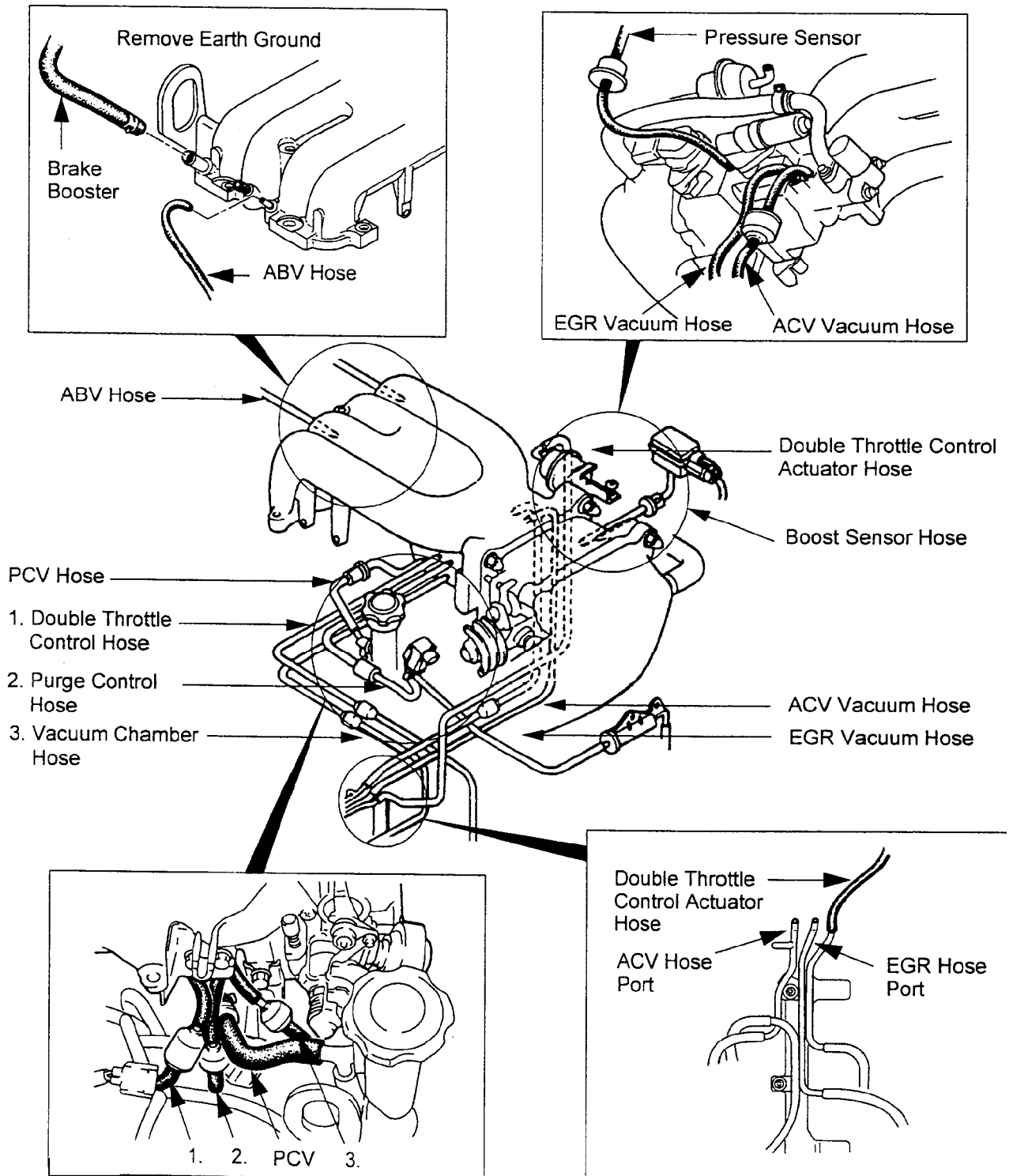
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98.151648

Fig. 4: Extension Manifold

NOTE: Use the above illustration to determine hose location

14) Remove the bolts from the pressure chamber to remove the tank.

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**Article Text (p. 7)**

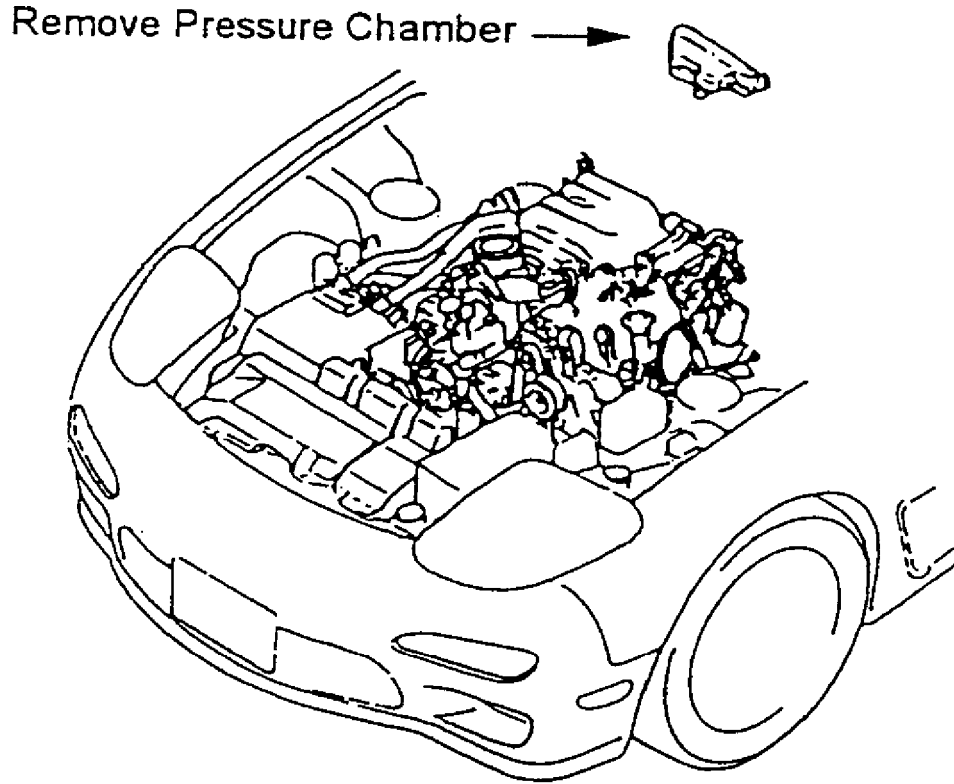
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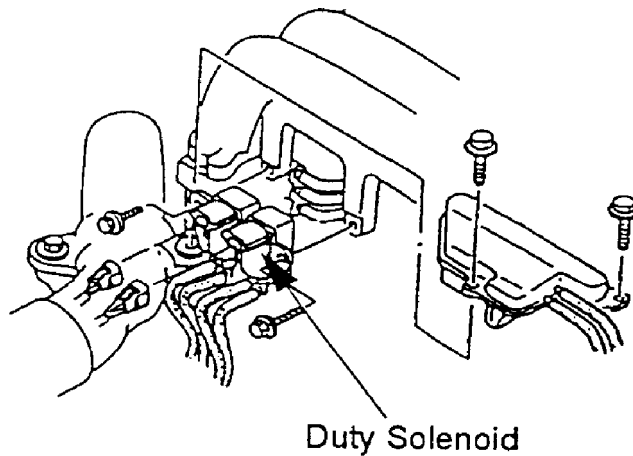
See Fig. 5.



98A51649

Fig. 5: Pressure Chamber Removal

15) Remove the bolts from the duty solenoid. See Fig. 6



Remove Bolts From Duty Solenoid

98E51650

Fig. 6: Duty Solenoid Bolt Removal

16) Remove the accelerator cable and cruise cable. See Fig. 7.

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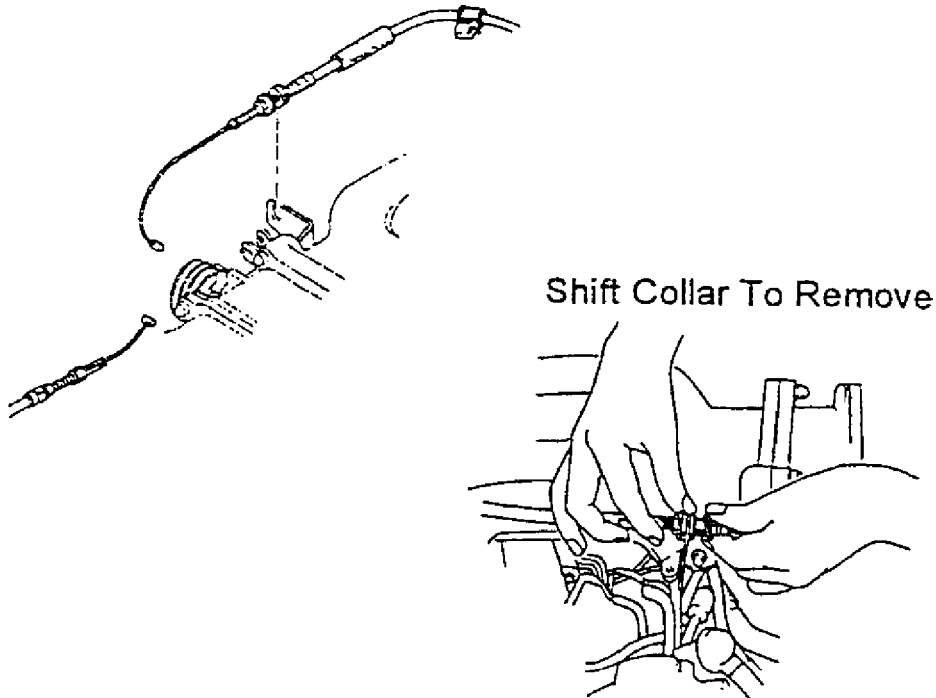
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98F51651

Fig. 7: Accelerator Cable Removal

17) Remove the bolts and nuts from the extension manifold and throttle body. Shift the throttle body.

18) Raise the extension manifold and remove the following harnesses and vacuum tubes:

Harnesses:

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

Vacuum Tubes:

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose.

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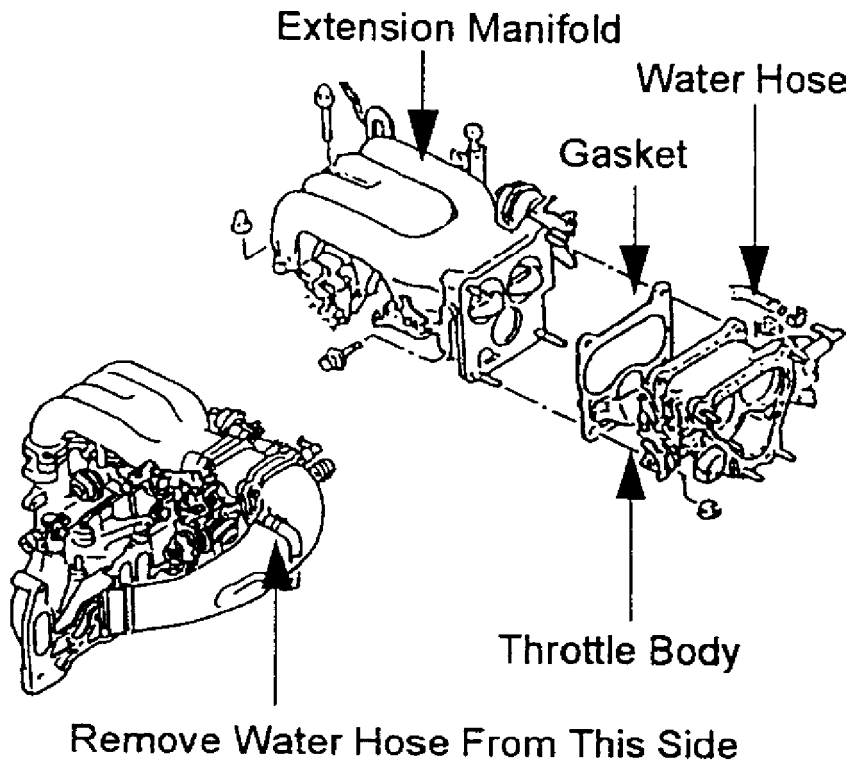
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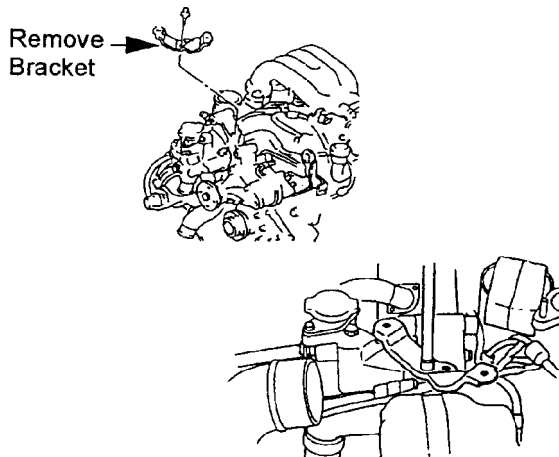
98G51652

Fig. 8: Harness and Vacuum Tube Removal

19) Remove the extension manifold and throttle body.

NOTE: Cover exposed intake holes with shop towel.

20) Remove the air intake pipe bracket. See Fig. 9.



98H51653

Fig. 9: Air Intake Pipe Bracket Removal

21) Replace the front throttle body water hose with a new one and

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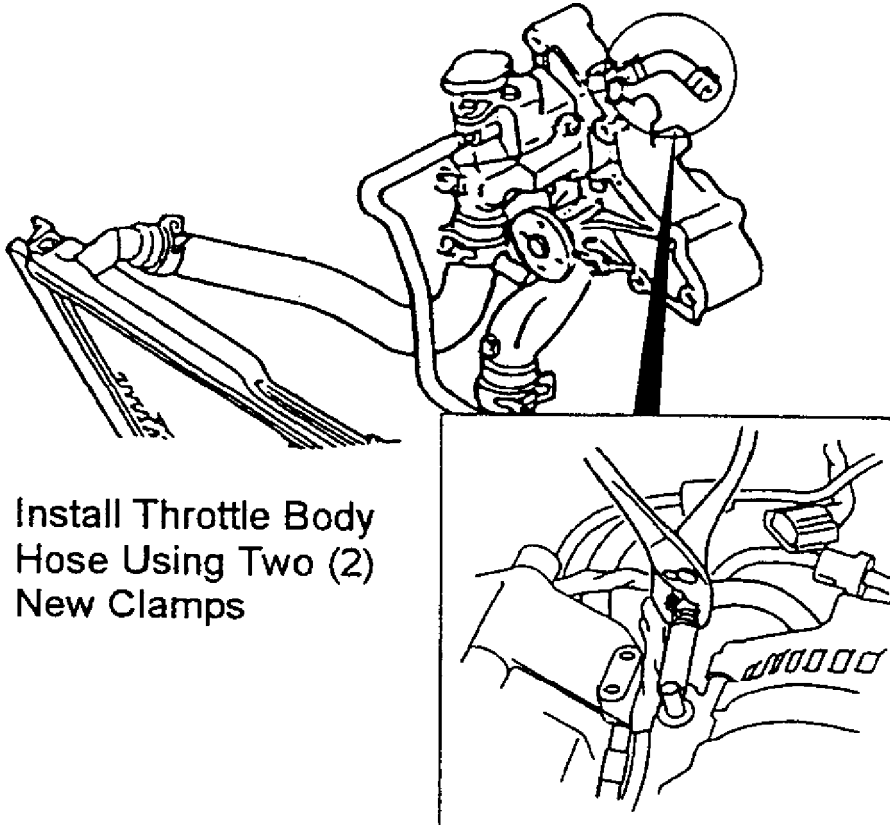
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attach it with two new hose clamps. See Fig. 10.

NOTE: Holder must be removed from clamps.



Install Throttle Body  
Hose Using Two (2)  
New Clamps

98151654

Fig. 10: Install Throttle Body Hose

22) Install air intake pipe bracket. See Fig. 9.

**REPLACEMENT OF THE REAR WATER HOSE**

23) Remove the following parts: O2 Sensor Coupler on the ACV, ACV Vacuum Tubes, Double Throttle Control Actuator Hose, Pressure Regulator Cut Valve Vacuum Hose, Rear Secondary Injector Coupler, Fuel Return Hose. See Figs. 11 thru 16.



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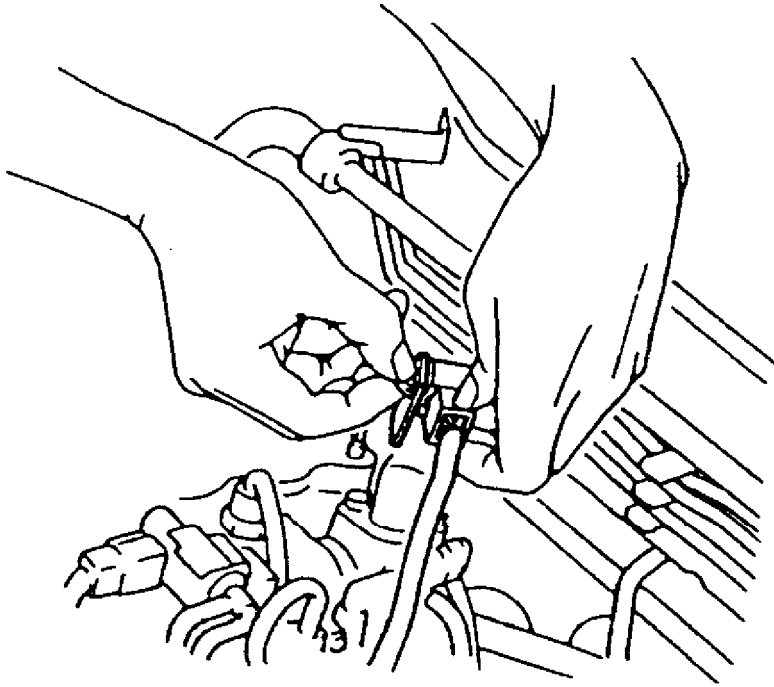
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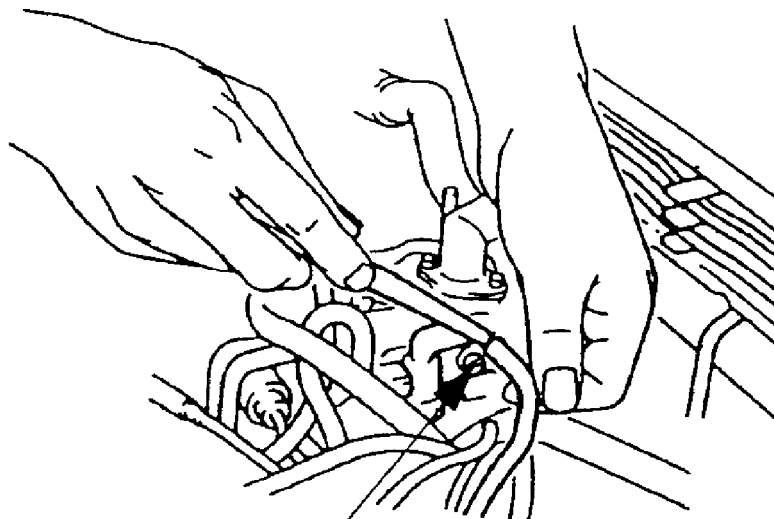
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• O<sub>2</sub> sensor coupler on the ACV

Fig. 11: <sup>98J51655</sup> O<sub>2</sub> Sensor Coupler on the ACV



**DO NOT DAMAGE**

• ACV vacuum tubes

Fig. 12: <sup>98A51656</sup> ACV Vacuum Tubes

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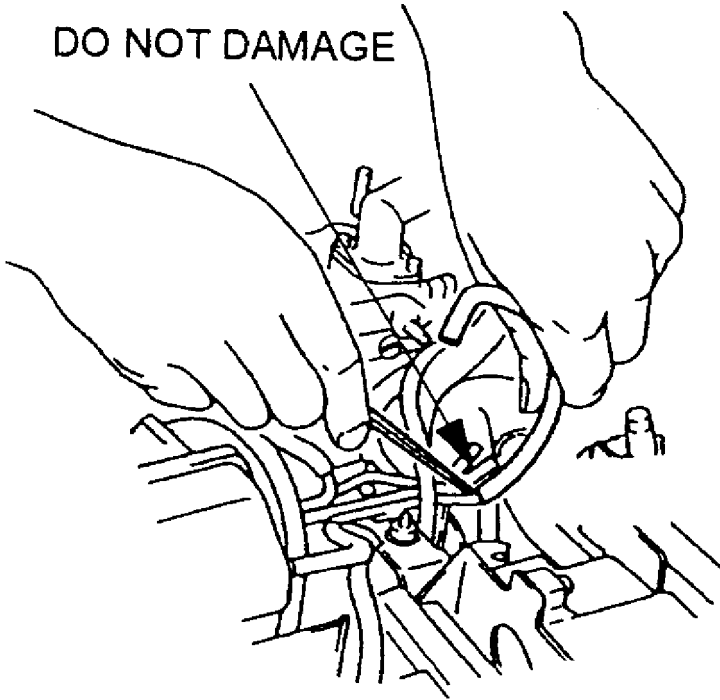
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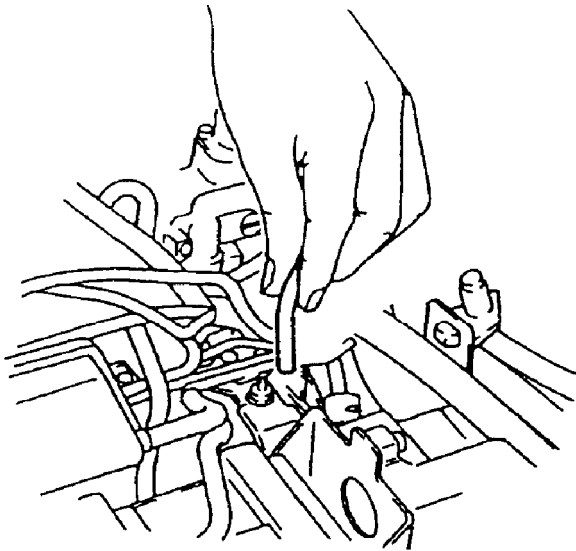
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**DO NOT DAMAGE**



- Double throttle control actuator hose

98B51657  
Fig. 13: Double Throttle Control Actuator Hose



- Pressure regulator cut valve vacuum hose.

98C51658  
Fig. 14: Pressure Regulator Cut Valve Vacuum Hose

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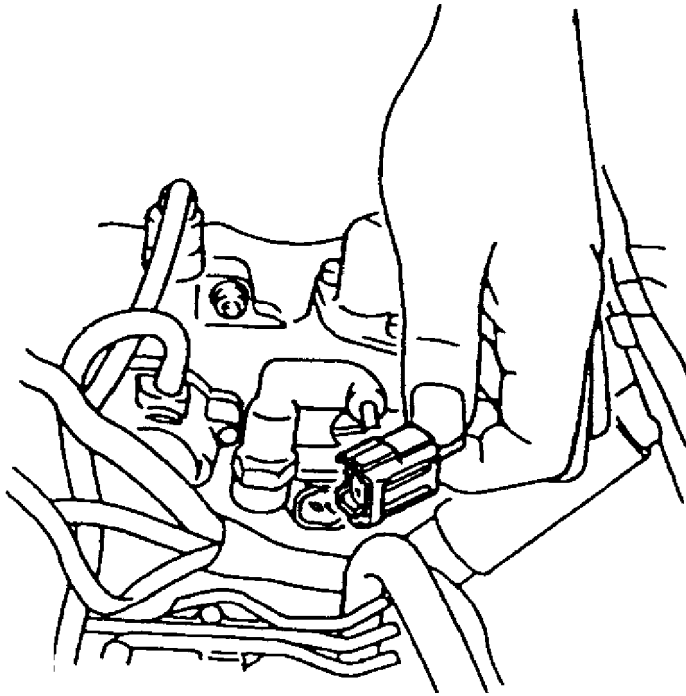
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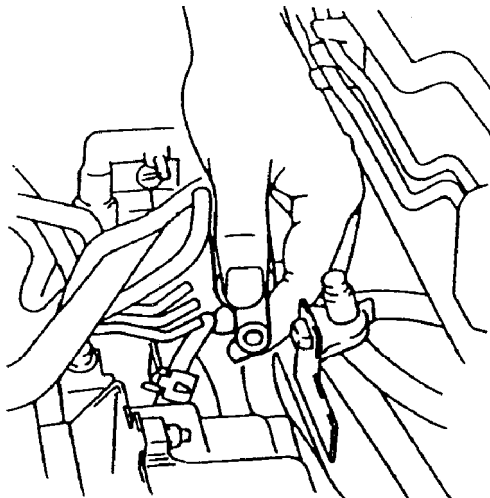
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- Rear secondary injector coupler

98D51659  
Fig. 15: Rear Secondary Injector Coupler



- Fuel return hose on the rear upper side of the throttle water hose.  
**NOTE: DO NOT DAMAGE** fuel return hose.

98G51660  
Fig. 16: Fuel Return Hose

24) Use long needle nose pliers to remove hose clamps, and replace the

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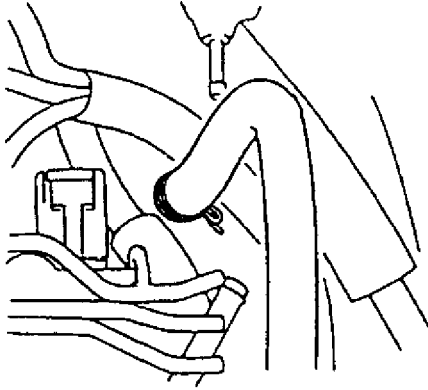
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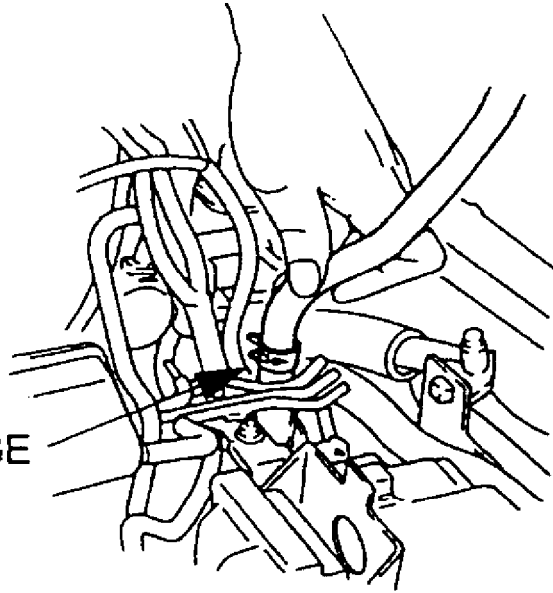
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rear throttle body water hose with a new one. See Fig. 17. Remove holders from clamps attach with two new clamps.



**Install New Rear  
Throttle Body Water  
Hose. Use New  
Clamps**



**DO NOT DAMAGE**

98H51661

Fig. 17: New Rear Throttle Body Water Hose

25) Install the fuel return hose.

26) Check for fuel leakage.

**NOTE:** If the vehicle has never overheated, perform D-G of this step. Due to the complexity of the above procedures, it is possible that fuel hoses may have been loosened. It is therefore critical that this test be completed.

\* A: Install fuel pressure gauge on the main fuel hose.  
See Fig. 18.

**WARNING:** DO NOT SMOKE, CARRY LIGHTED TOBACCO, OR AN OPEN FLAME OF ANY TYPE WHEN WORKING ON OR NEAR A FUEL RELATED COMPONENT. HIGHLY FLAMMABLE MIXTURES ARE PRESENT AND MAY BE IGNITED,

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

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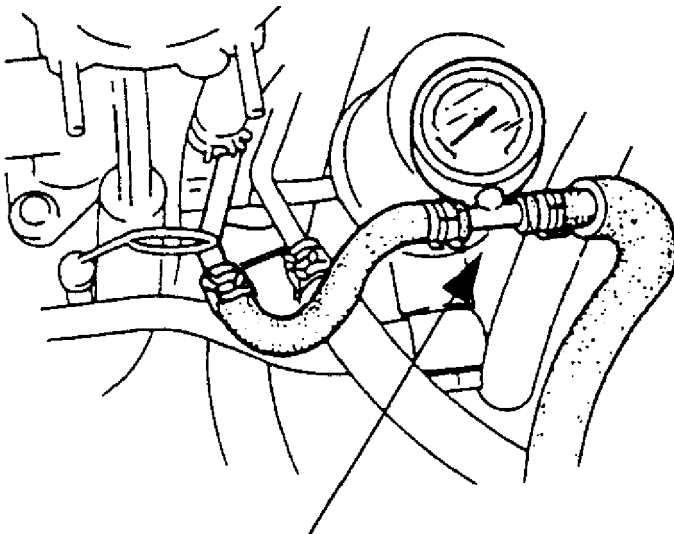
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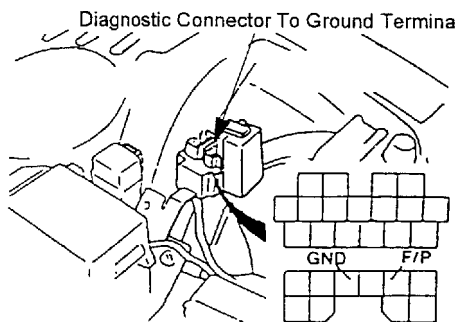
RESULTING IN POSSIBLE INJURY.

- \* B: Connect the negative terminal to the battery.
- \* C: Connect the fuel pump terminal of the diagnostic connector to the ground terminal. See Fig. 19.
- \* D: Turn ignition on for 30 seconds.
- \* E: Visually inspect for fuel leakage.
- \* F: Turn ignition off. Record fuel pressure.
- \* G: After 5 minutes, check fuel pressure. If fuel pressure has dropped more than 2.8 psi after 5 minutes, locate and repair fuel leaks. Re-test system following the above steps.



Install Fuel Pressure Gauge

98I51662  
Fig. 18: Install Fuel Pressure Gage



98I51663  
Fig. 19: Diagnostic Connector to Ground Terminal

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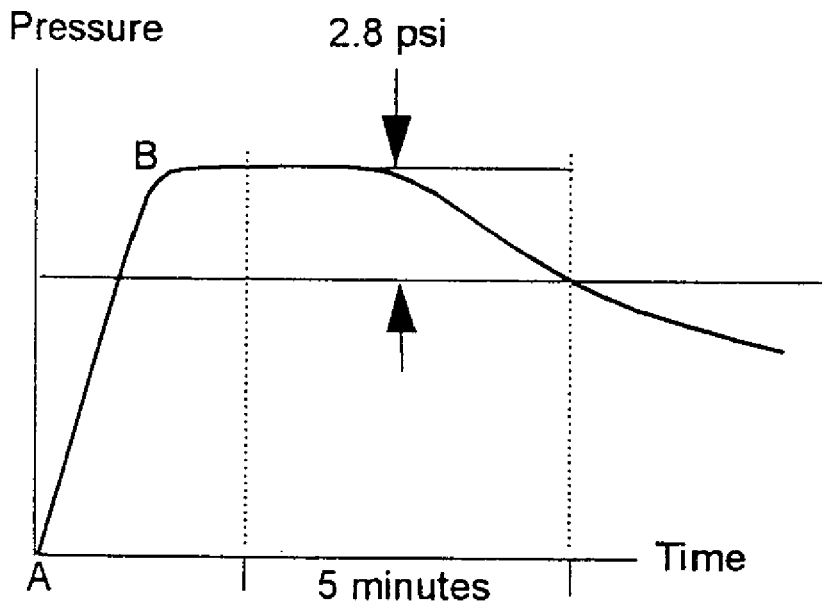
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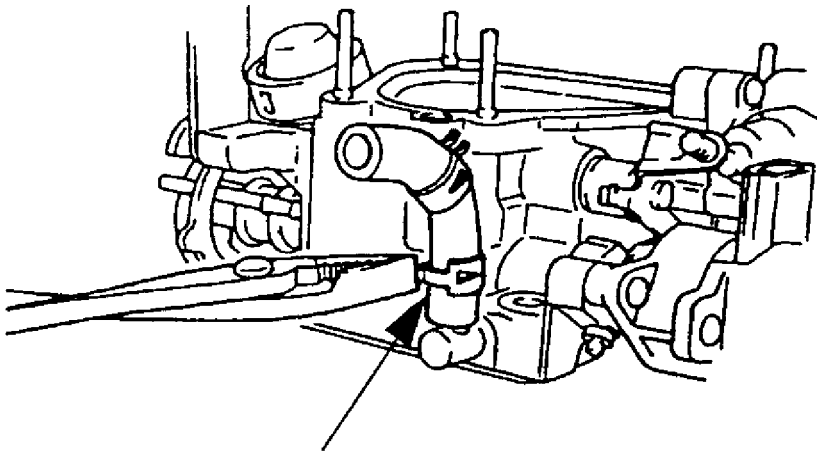
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98A51664

Fig. 20: Fuel Pressure Graph

27) Replace the throttle body water hose with a new one using two new clamps. See Fig. 21.



**Install New Throttle Body Water  
Hose Using Two (2) New Clamps**

98B51665

Fig. 21: Installing Throttle Body Water Hose

28) Install the following in reverse order of step 24:

- \* O2 sensor coupler on the ACV
- \* Pressure regulator cut valve vacuum hose

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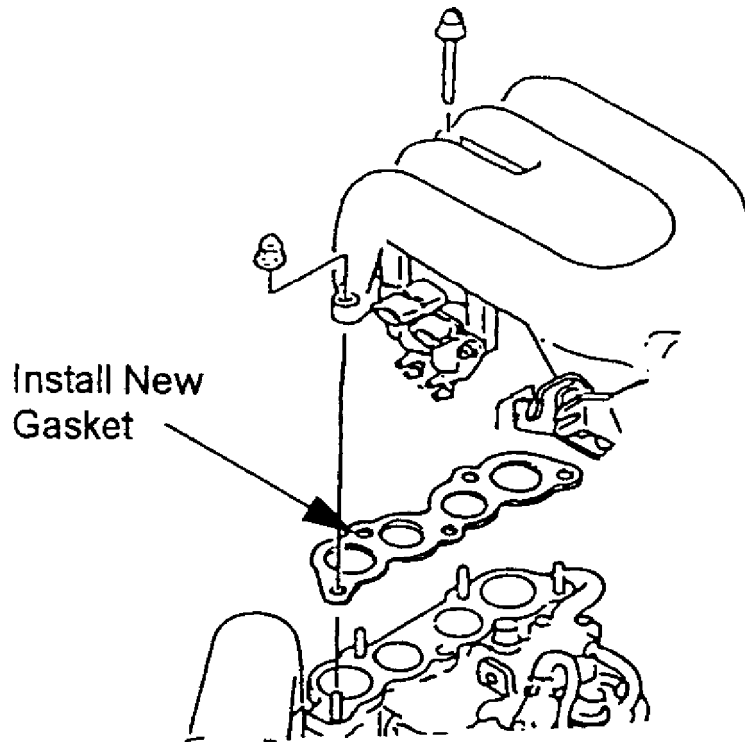
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\* Double throttle control actuator hose

\* Rear secondary injector coupler

29) Replace the gasket between the extension manifold and the intake manifold with a new one, install the extension manifold, and then install the harnesses and the vacuum tubes. See Fig. 22.



98C51666

Fig. 22: Extension Manifold Gasket

30) Install throttle body with new gasket.

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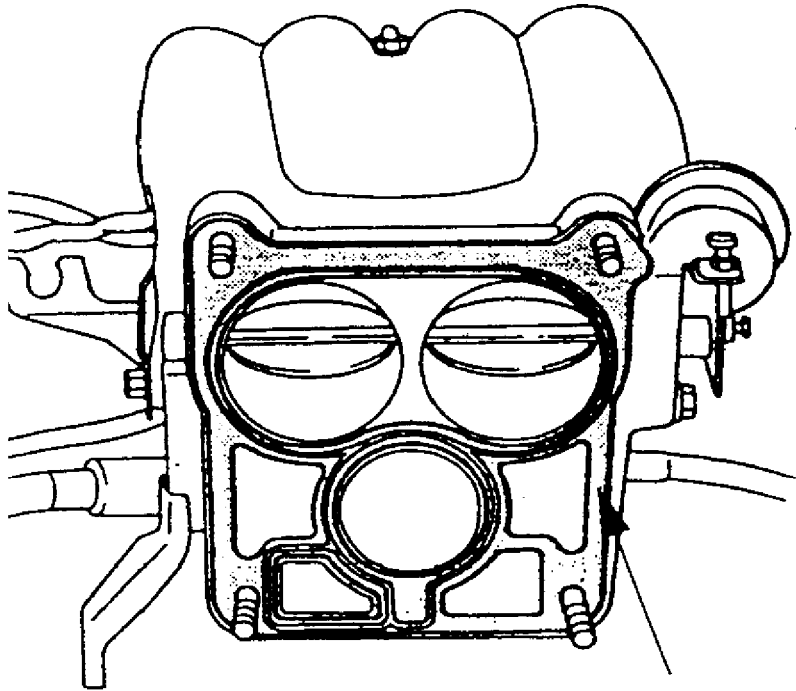
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**Install New Gasket**

98D51667

Fig. 23: Throttle Body Gasket

NOTE: Be sure the gasket is installed in the correct direction. A projection on the gasket faces the double throttle body side.

31) Attach the water hoses at the outlet and inlet of the throttle body.

32) If the vehicle has no history of coolant leaks and no leaks were detected during initial testing, proceed to step 51.

**REPLACEMENT OF THE WATER PUMP KIT AND THE THROTTLE HOSE KIT**

To be performed on vehicles that have experienced overheating or leaked during the pressure test.

33) Drain coolant and retain in appropriate container.

34) Remove the bolts from the fresh air duct, and remove the fresh air duct. See Fig. 24.

\* Remove the rubber hoses from the air cleaner.

\* Remove the air cleaner installation bolts.



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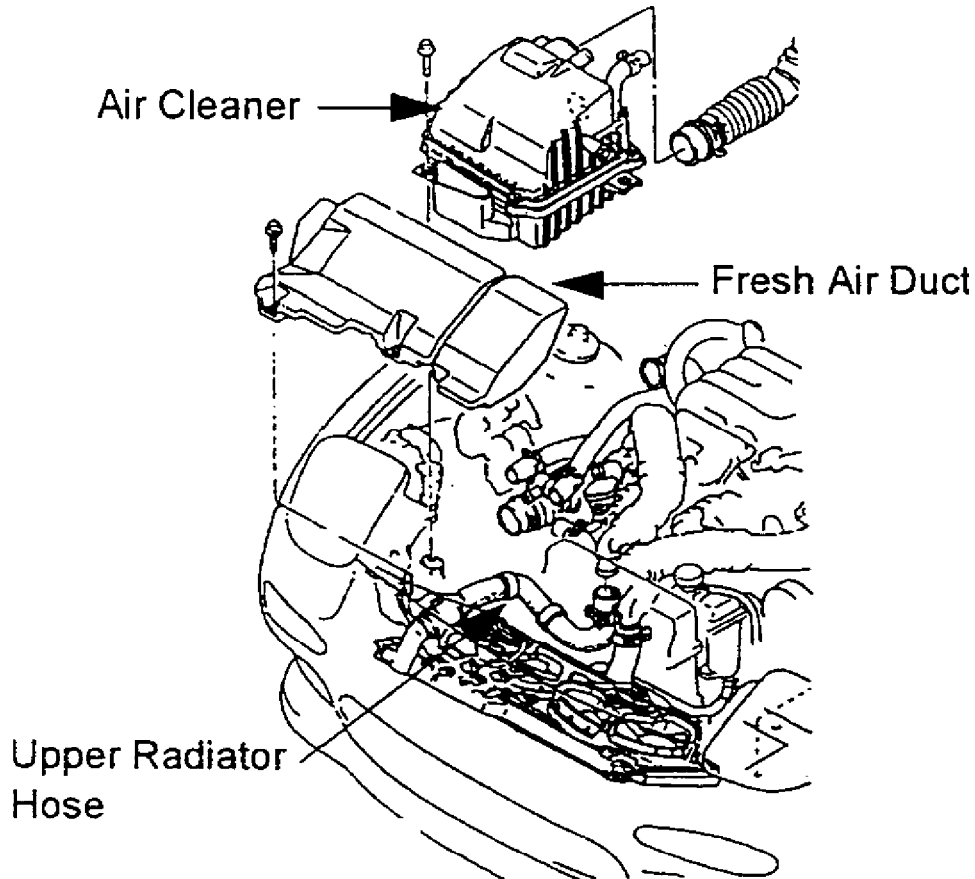
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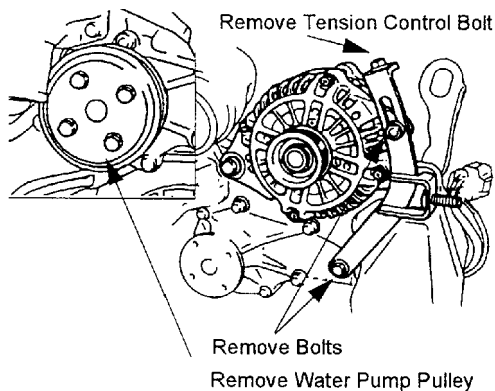


98E51668

Fig. 24: Fresh Air Duct And Radiator Hose

35) Remove the upper radiator hose. See Fig. 24.

36) Remove the alternator installation nuts from the alternator adjuster bracket to remove the tension control bolt. See Fig. 24.



98F51669

Fig. 25: Tension Control Bolt And Water Pump Pulley

37) Remove the water pump pulley and the alternator belt. See Fig. 24.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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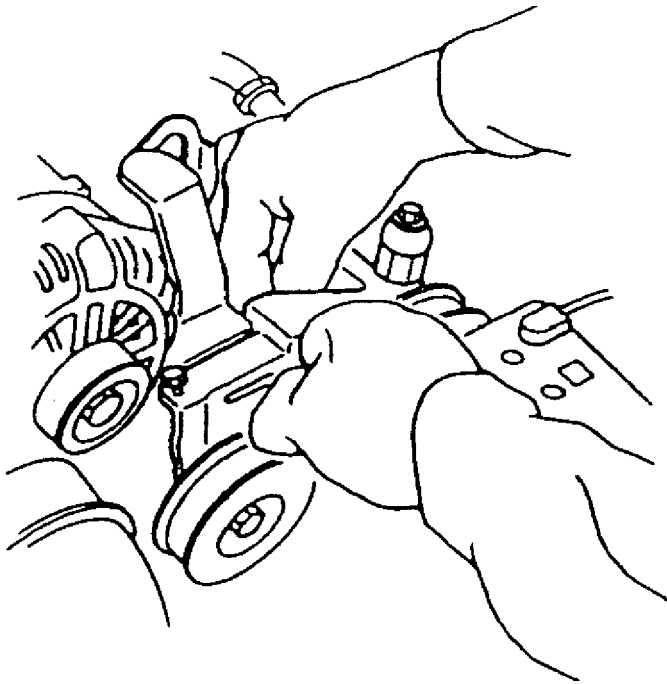
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- \* Loosen the four bolts from the water pump pulley.
- \* Loosen the alternator belt.
- \* Remove the bolts from the water pump pulley.
- \* Move the belt, and remove the water pump pulley.

38) Remove the alternator adjustor bracket.

- \* Remove the bolt attaching the alternator adjustor bracket to the water pump.

39) Remove the nut attaching the alternator adjusting bracket to the power steering bracket. See Fig. 26.



98I51670

Fig. 26: Alternator Attaching Nut

40) Remove the water pump and discard. Remove and discard gasket and clean gasket surface.

41) Install new water pump using the new gasket.

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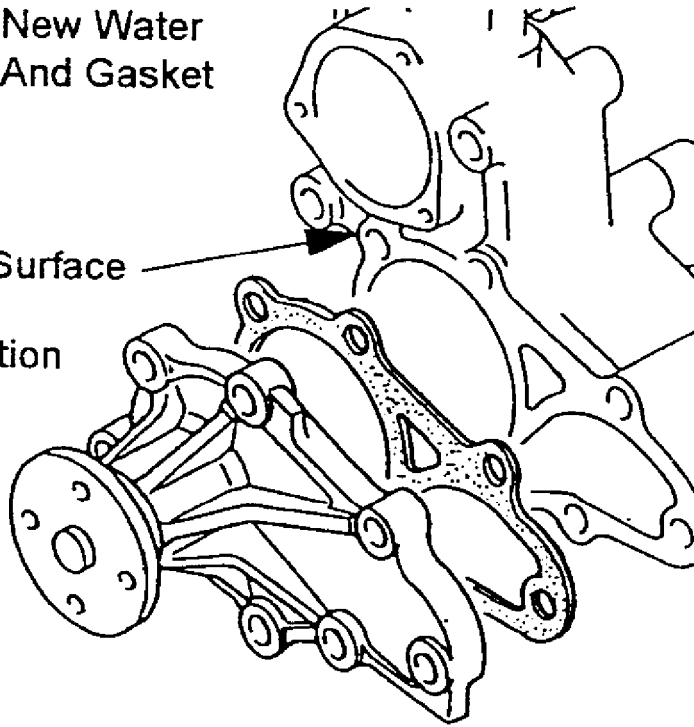
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**Install New Water  
Pump And Gasket**

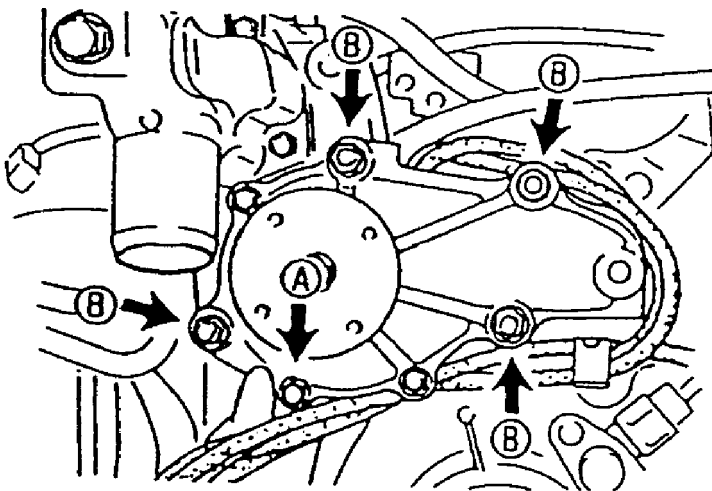
Clean Surface  
Prior to  
Installation



98J51671

Fig. 27: New Water Pump Installation

Note: Be sure that oil metering line retaining clip is installed correctly on the outside of the water pump at bolt "A". See Fig. 28.



**Route Oil Metering Line Properly**

98A51672

Fig. 28: Oil Metering Line Routing

42) Disconnect the low coolant switch connector. See Fig. 29.

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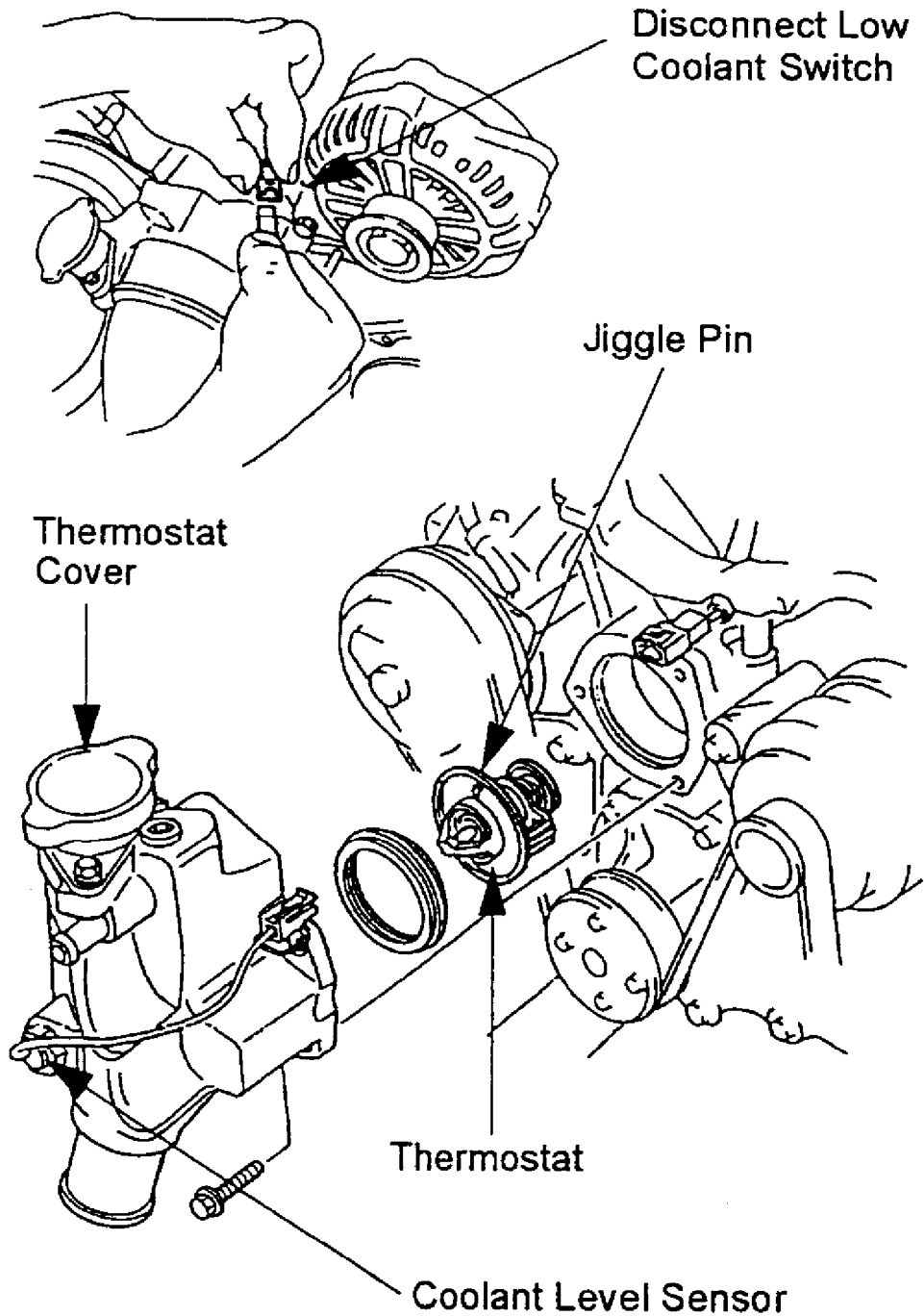
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98B51673

Fig. 29: Low Coolant Switch, Sensor, And Thermostat Cover

43) Remove the surge tank hose from the thermostat cover.

44) Remove the thermostat cover. See Fig. 29.

\* Remove the thermostat.

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\* Install thermostat with new gasket.

NOTE: Ensure that the jiggle pin is in the 12:00 o'clock position.  
See Fig. 29.

45) Install a new coolant level sensor and gasket. See Fig. 29.

46) Install the thermostat cover.

NOTE: Install water level sensor connector bracket.

47) Connect the coolant level sensor.

48) Install alternator bracket, pulley, and belt in reverse order of removal. See Fig. 25.

49) Install new upper radiator hose.

50) Install air cleaner and fresh air duct.

51) After assembling parts, follow the instructions below prior to replenishing coolant.

\* Measure the concentration of antifreeze in the removed coolant with a hydrometer.

\* If the concentration is more than 45%, use the removed coolant to fill the system, purge air from the system and fill the coolant reservoir to the "F" mark.

\* If the concentration is 45% or less, add 100% anti-freeze to the coolant system as specified in the table on the right.

\* Purge the system of air. Use the original coolant to fill the reservoir to the "F" mark.

NOTE: Coolant refers to the fluid drained from the vehicle.  
Antifreeze refers to 100% new coolant.

COOLANT TABLE

Concentration of Anti-Freeze	Amount of Anti-Freeze To Be Added
0 - 5 %	4.4L
5 - 10 %	4.1L
10 - 15 %	3.8L
15 - 20 %	3.5L

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

**Article Text (p. 24)**

1993 Mazda RX7

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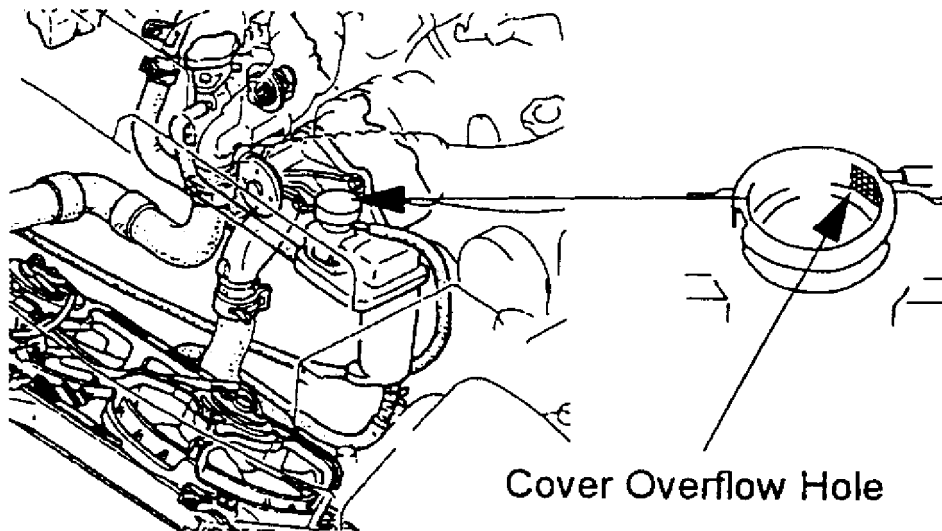
Saturday, August 25, 2001 09:37AM

20 - 25 %	3.1L
25 - 30 %	2.7L
30 - 35 %	2.2L
35 - 40 %	1.6L
40 - 45 %	1.0L

Use Hydrometer to Measure Concentration

**PRESSURE TEST COOLING SYSTEM**

52) Remove the cap from the surge tank, and close the overflow hole in the surge tank neck with tape. See Fig. 30.



98C51674  
Fig. 30: Cover Overflow Hole

53) Install the radiator tester on the surge tank. See Fig. 31.

## RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407

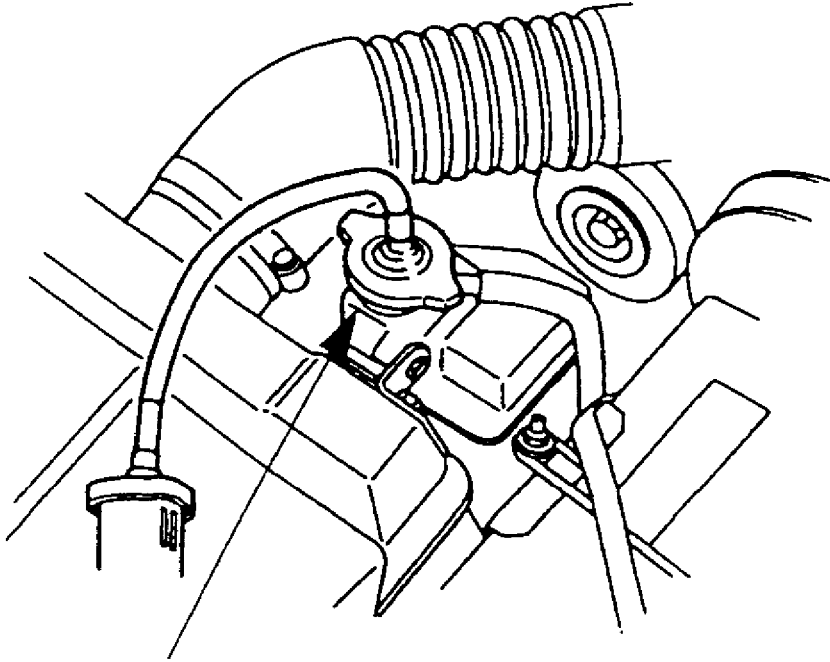
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### Install Radiator Tester And Apply 15psi Verify That Pressure Holds

98D51675

Fig. 31: Radiator Pressure Tester

54) Apply 15 psi.

55) Verify that pressure holds.

**NOTE:** If the radiator coolant pressure has dropped, locate the leak and repair as necessary. Retest after repair following the above procedures. After confirmation that no leaks are present, remove the tape from the overflow hole and install the pressure cap.

#### AFFIX THE CAMPAIGN LABELS

56) Affix the label onto the driver's side door for future confirmation that the campaign has been completed on this vehicle.

**IMPORTANT:** If the water pump was replaced during the campaign, affix an additional recall label on the underside of the hood as shown. See Fig. 32.

57) Affix coolant concentration label to air cleaner housing. See Fig. 32.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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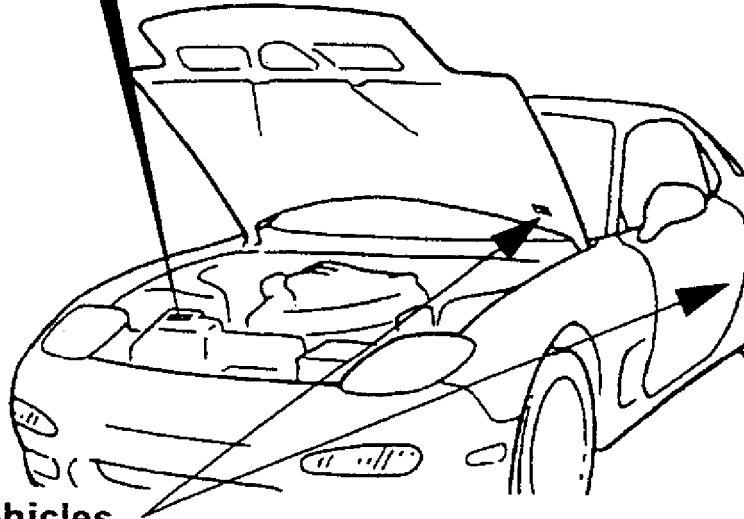
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**Install Coolant Concentration Label**

**ATTENTION**  
COOLANT CONCENTRATION MUST  
BE KEPT AT 45% OR HIGHER  
(example: 45% or higher coolant, 55% or lower water)



**All Vehicles**

Install Recall Label On Inside Of Driver's Door

**Vehicles With Replaced Water Pump**

Install An Additional Recall Label Under Hood On  
Driver's Side

98E51676

Fig. 32: Coolant Concentration Label

58) Place correction sticker over the existing "Mixture Percentage" table in the vehicle owner's manual (pg. 7-15).

**PARTS INFORMATION**

An initial allocation of parts will be drop shipped to dealers with their scheduled stock order (SSO), beginning Monday, August 1 through Friday, August 5.

The total number of filler cap kits and throttle water kits to be distributed, will be equal to 50% of the combined number of subject vehicles registered in the dealer's assigned market area and in inventory.

The total number of thermostat gaskets and water pump kits to be shipped will be equal to 50% of the anticipated failure rate (50%) of



**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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the number of subject vehicles registered in the dealer's assigned market area.

Parts ordering will be open to dealers beginning August 29, 1994.

NECESSARY PARTS TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3      Part Description              3      Part Number          3      Qty.          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Campaign Door Label           3      P/N 9999-95-065A-00  3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Owner's Manual Label          3      P/N 9999-95-073A-94  3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Under-hood Coolant Mix Label  3      P/N 9999-95-074A-94  3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Filler Cap Kit                 3      P/N N3Z1 -15-S1 OB   3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Throttle Water Hose Kit       3      P/N N3A1-13-S60     3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Thermostat Gasket*            3      P/N N3C1 -15-173    3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Water Pump Kit*                3      P/N N3Z1-15-S20     3      Qty. [1]      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      "*" Replacement of the part is only required if there is          3
3      currently a coolant leak or if there has been a coolant          3
3      leak repair claimed and approved in the vehicle's history        3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

One sheet of each of the labels listed above has been supplied with the dealer notification. Additional labels are available through HELM, Inc. at (800) 782-4356. Recall related labels are supplied at no charge.

**WARRANTY INFORMATION**

**VEHICLES WITH A HISTORY OF A COOLANT LEAK**

If the following conditions are met, then the vehicle has experienced a coolant leak:

- \* Any vehicle that has had a warranty claim paid for a Part Number Main Cause (PNMC) that matches the last five positions of the numbers listed below and one of the Symptom Codes listed.

**PART NUMBER MAIN CAUSE (PNMC) LAST FIVE POSITIONS**

02200 13530 1353X 1354X 13681, 13691, 13692, 13640, 15010, 15100, 15116, 15140, 15150, 15162, 15171, 15172, 15173, 15174, 15175, 1517Y, 15182, 15183, 15184, 15185, 15186, 15200, 15203, 15205, 15350, 15355, 15359, 535X, 15380, 15610, 15611, 99008,

**SYMPTOM CODE TABLE**

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Symptom Code # 3 Description 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 09 3 Engine Overheat 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 11 3 Engine Knocking 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 61 3 Does Not Switch On 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 62 3 Does Not Switch Off 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 64 3 Improper Operation 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 65 3 Improper Indication 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 77 3 Water Leak/Coolant Leak 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 78 3 Air/Exhaust Gas/Dust/Light Leak 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 92 3 Broken 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
    
```

WARRANTY INFORMATION TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Nature 3 New Vehicle 3 Retailed 3 Retailed 3
3 In Inventory 3 Vehicles 3 Vehicles 3
3 No Coolant Leaks 3 Coolant Leaks 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Warranty 3 R 3 R 3 R 3
3 Type 3 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Customer 3 99 3 99 3 99 3
3 Comment 3 3 3 3
3 Code 3 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Damage 3 99 3 99 3 99 3
3 Code 3 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Process 3 A4014A 3 A4014B 3 A4014C 3
3 Number 3 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Part 3 N3Z1-15-S10B 3 N3Z1-15-S10B 3 N3Z1-15-S10B 3
3 Number 3 3 3 3
3 Main 3 3 3 3
3 Cause 3 3 3 3
3 (PNMC) 3 3 3 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Quantity 3 1 3 1 3 1 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3 Related 3 None 3 N3A1-13-S60 3 N3A1-13-S60 3
3 Part 3 3 3 N3Z1-15-S20 3
3 Numbers 3 3 3 N3C1-15-173 3
    
```

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Quantity      3      None          3          1          3 1 for each P/N 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Labor        3      XX0667R1    3      XX0667R2    3      XX0667R3    3
3 Operation    3          3          3          3          3
3 Code         3          3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Labor        3      0.3 Hrs.    3      2.2 Hrs.    3      3.3 Hrs.    3
3 Hours        3          3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

**OWNER NOTIFICATION LETTER**

The owners of the subject vehicles will be notified by first class mail beginning August 8, 1994. Please see attached letter.

AA

1993-94 RX-7 Coolant Leak (Recall Campaign #54407)

Dear RX-7 Owner:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

Mazda has determined that a defect which relates to motor vehicle safety exists in certain 1993-94 RX-7 models. We have decided to conduct Recall Campaign #54407 for replacement of selected engine cooling system components in those vehicles, beginning August 8, 1994.

If your RX-7 has been subjected to high speed operation and then parked before cooling down, the residual engine heat combined with the build-up of pressure in the cooling system can raise the temperature of the coolant to levels, where the integrity of the cooling system can be compromised. Repeated operation of the vehicle in this manner may produce cooling system leaks.

Under some circumstances, the leaking coolant mixture can collect on the top of the engine, where some of the water can evaporate, increasing the concentration of the coolant. If coolant then leaks onto the exhaust manifold, an engine compartment fire could be the result.

Your RX-7 is equipped with a water level sensor that warns you of low coolant levels with both a warning light and accompanying buzzer. In most cases, you would be warned of a low water level prior to the point where enough coolant had been leaked to present any serious risk of fire.

Please make an appointment at your Mazda dealer to have the required repairs performed at no charge to you.

**RECALL CAMPAIGN - 54407 - COOLANT LEAK 54407**

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If you have moved or no longer own the vehicle, please complete the enclosed "Change of Address/Ownership" pre-paid postcard as soon as possible, so we may update our records and/or notify the current owner.

Should you have any questions regarding this program, please contact our Customer Relations toll free number (800) 222-5500.

If your dealer or distributor does not remedy the defect without charge within a reasonable amount of time, you may wish to notify the Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590, or you can call their toll-free Auto Safety Hotline at (800) 424-9393. (Residents of Washington, D.C. may call 366-0123).

Our goal at Mazda is to build and maintain only the highest quality products. Please accept our apologies for any inconvenience this may cause you.

Sincerely,

Mazda Motor of America, Inc.

AA

**END OF ARTICLE**

## RECONDITIONED ANTI-FREEZE CAT. E, NO. 002/96

### Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RECONDITIONED ANTI-FREEZE

Model(s): All Mazda Models  
Category: E - Cooling System  
Bulletin No.: 002/96  
Date: June 27, 1996

### DESCRIPTION

Mazda does not recommend the use of reconditioned anti-freeze. Mazda recommends ethylene glycol base coolants for all Mazda aluminum engines.

Although reconditioned anti-freeze is available, this product may contain silicon particles which may be abrasive to the water pump seal. Additionally, reconditioned anti-freeze may contain chemicals (alcohol or methanol) that erode metal parts.

Service Managers should inform customers that Mazda does not recommend reconditioned anti-freeze and that problems (mechanical and otherwise) related to the use of reconditioned anti-freeze are not warrantable.

CAUTION: Antifreeze is considered a hazardous and toxic substance. Handled and disposed must be done in accordance with local, state and federal laws.

### END OF ARTICLE

REVISED ROTARY ENGINE PRICING CAT. RF, NO. 95-24

Article Text

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

REVISED ROTARY ENGINE PRICING

Model(s): All Mazda RX-7 Models
Category: Parts Flash
Bulletin No.: RF 95-24
Date: October 20, 1995

DESCRIPTION

The price of the Rebuilt Rotary Engines has changed. A core charge of \$600.00 is now included in the dealer Price. Refer to the PARTS INFORMATION TABLE.

These new prices were effective 10-2-95 and are not reflected in List or the DMS tapes. The DMS tapes will be updated the first week of November. The next issue of the Dealer Price List will contain the new prices.

PARTS INFORMATION

PARTS INFORMATION TABLE

Table with 5 columns: Part Number, Year/Model, Current Pricing, Revised Pricing. Rows include various engine part numbers like A008-99-008R, B008-99-008R, C008-99-008R, D008-99-008R, E008-99-008R, F008-99-008R, G008-99-008R, H008-99-008R, J008-99X08R.



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text**

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**ARTICLE BEGINNING**

RECALL CAMPAIGN

RX-7 FUEL LEAKAGE RECALL CAMPAIGN NUMBER 60504

Model(s): 1993-94 Mazda RX-7 (Canadian)  
Category: RC - Recall  
Bulletin No.: 95-01  
Date: May, 1995

**DESCRIPTION**

If an RX-7 is driven under severe conditions such as high speed and uphill driving, and the engine is turned off, the temperature of the engine compartment rises because of the residual engine heat, to the extent that it may cause premature deterioration of the fuel hoses elasticity. Repetitive operation may lead to a reduction in the sealing performance of the fuel hoses, and in rare cases, engine compartment fires can result.

Therefore, these vehicles must be repaired by replacing the fuel hoses with modified fuel hoses.

**SUBJECT VEHICLES**

VEHICLE INFORMATION TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
@ Model Year & Model @ Vin Range @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
@ 1993 RX-7 @ JM1FD33**PO200001-210660 @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
@ 1994-95 RX-7 @ JM1FD33**RO300001-S0400026 @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
@ * - Can be replaced by any letter or number. @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

**OWNER NOTIFICATION**

The owners of the subject vehicles will be notified by first class mail around May 12, 1995.

**REPAIR PARTS**

An initial quantity of Recall Labels are enclosed with this Service Bulletin (Part Number 9999-94 5032E/F). Additional quantities can be ordered through normal parts ordering channels.

Following completion of the repair, fill out the Recall Label with the appropriate information and affix it to left front (driver's) door



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 2)**

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as shown in Fig. 31 & Fig. 74.

SPECIAL NOTE: Under separate cover, a container of special adhesive was shipped to every dealer. The adhesive was strapped with a note which clearly indicates that this adhesive is the only adhesive that can be used to carry out the repairs for this Recall. Do not attempt to carry out this Recall unless you have the adhesive. If your dealer has not received the adhesive, please contact the Technical Hot Line at 1-800-268-9400.

Initial quantities of the Fuel Hose Kit, part number N3A1-13-S70 have already been shipped. However please confirm parts stock with each new customer that books an appointment to have this Recall completed.

In addition to the above mentioned parts the following parts will have to be ordered, depending on which repair procedure(s) is required.

If Procedure A is performed:  
no additional parts order is necessary.

If Procedure B & C are performed:  
order Throttle Water Hose Kit, part number N3A1-13-S60  
and Filler Cap Kit, part number N3Z1-15-S10B

If Procedure B, C, & D are performed:  
order Throttle Water Hose Kit, part number N3A1-13-S60  
Filler Cap Kit, part number N3Z1-15-S10B  
Thermostat Gasket, part number N3C1-15-173  
Water Pump Kit, part number N3Z1-15-S20

NOTE: To Determine The Correct Repair Procedure:

The subject vehicles of Recall No. 60504 (Fuel Leakage) could also be subject to Recall No. 54407 (Coolant Leakage) which was launched in July, 1994. When the subject vehicles are brought in for repair, please check if recall campaign No. 54407 has been performed. If not, please perform recall No. 54407 in addition to No. 60504, based on the Repair Procedures found flow chart on the following page.

Please follow the flow chart to determine which procedure to perform before beginning repairs on each vehicle.

SUBJECT VIN RANGE TABLE

UAAA;		
3	Fuel Leakage	3 1993 JM1FD33**PO200001-210660 3
3		3 1994-95 JM1FD33**R0300001-S0400026 3
AAA'		
3	Coolant Leak	3 1993-94 JM1FD33**PO200001-R0302076 3

RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

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\*\*\*\*\*
\* - Can be replaced by any letter or number.
\*\*\*\*\*

VEHICLE SUBJECT TO RECALL - FLOW CHART

\*\*\*\*\*
Is The vehicle subject to Recall No. 60504?
No further action required.

YES

\*\*\*\*\*
Are there recall labels indicating both recalls No. 60504 & No. 54407 have been completed?
No further action required

NO

\*\*\*\*\*
Is vehicle subject to Recall No. 54407?
Follow Repair Procedure A (Replace Fuel Hoses)

YES

\*\*\*\*\*
Has recall repair No, 54407 been performed?
Follow Repair Procedure A

NO

\*\*\*\*\*
Does vehicle have any Coolant Leakage?
Follow Repair Procedure B, C & E (Replace Fuel and Coolant Hoses)
Follow Repair Procedure B, C, D & E (Replace Fuel and Coolant Hoses and Water Pump)

FUEL HOSES REPLACEMENT PROCEDURES

PRE-CAUTIONS:

- 1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

## Article Text (p. 4)

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If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

### PROCEDURE A - REPLACEMENT OF FUEL HOSE KIT

To be performed on ALL customer (sold) vehicles.

1. Start the engine.
2. Remove the circuit opening relay. See Fig. 1.

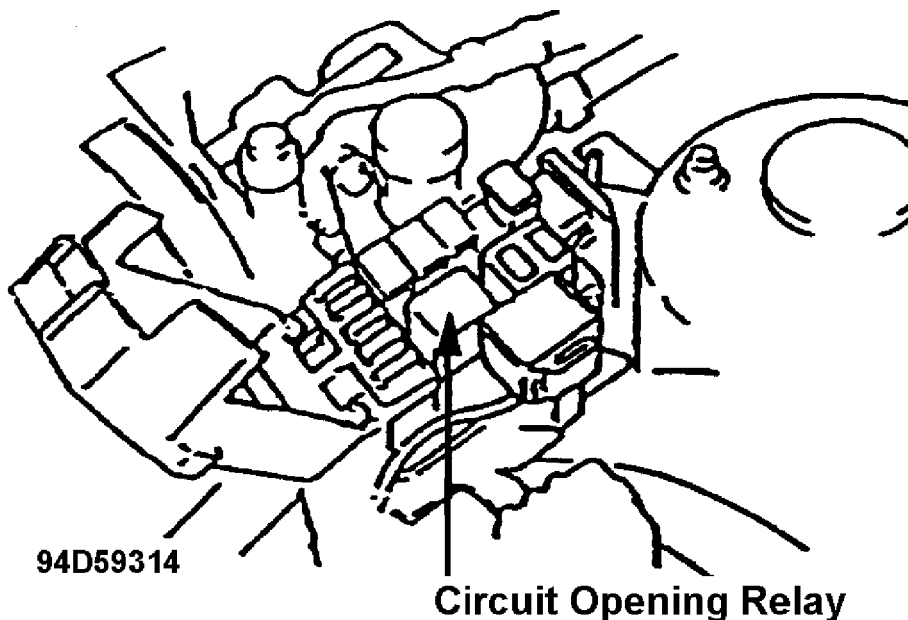


Fig. 1: Location of Circuit Opening Relay

3. After the engine stalls, crank the engine for 15 - 20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay.
6. Disconnect the negative terminal from the battery.

NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

**Article Text (p. 5)**

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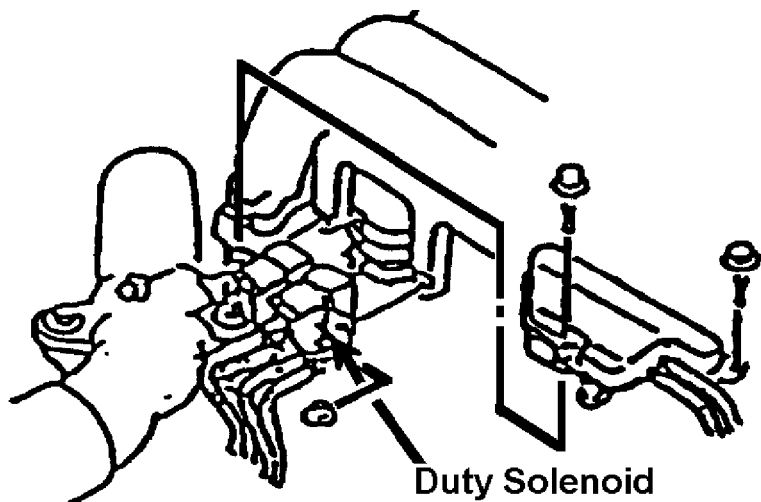
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8. Remove the bolts from the duty solenoid and the pressure chamber.  
See Fig. 2.

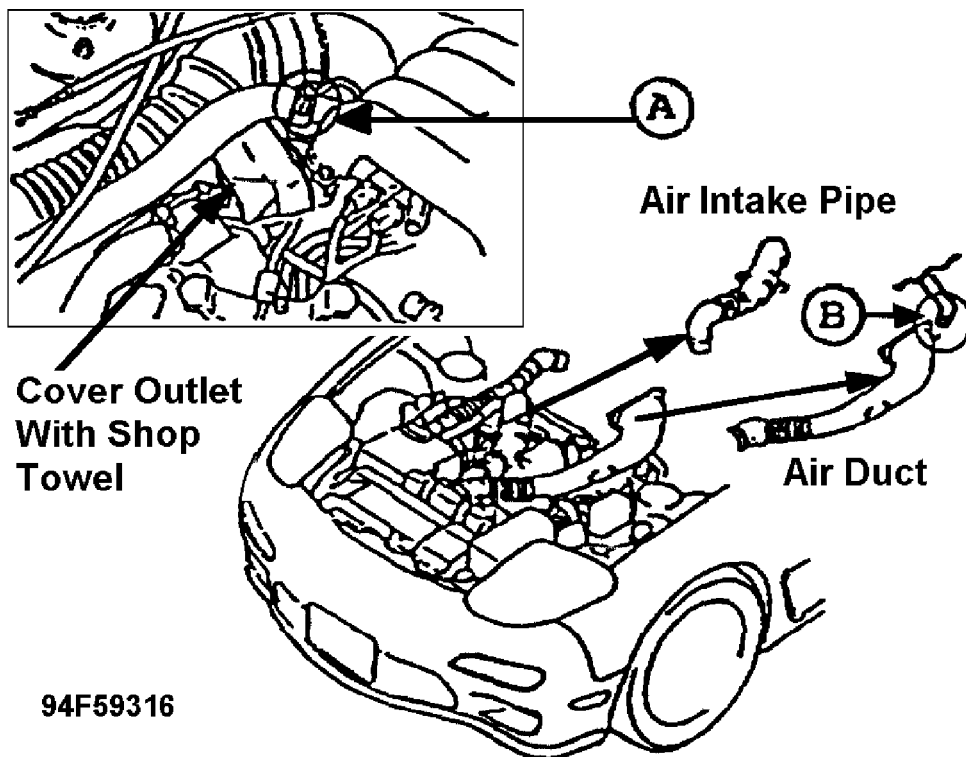
Tightening Torque: 70-100 kgf. cm. (61-86 in-lbf)



**Remove Bolts from Duty Solenoid 94E59315**

Fig. 2: Removing Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 3.



**94F59316**

Fig. 3: Disconnecting the Air Pipe

10. Disconnect the AWS hose and Air Duct B at the joint as shown

# RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01

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in Fig. 3.

11. Remove the air intake pipe from the outlet of the turbo, and cover the outlet with a shop towel.
12. Remove the air duct from the inter cooler.
13. Remove the hoses from the extension manifold. See Fig. 4.

NOTE: Disconnect the hoses at the locations indicated by arrows (-->) only!

Remove these four parts referring to Step 16.

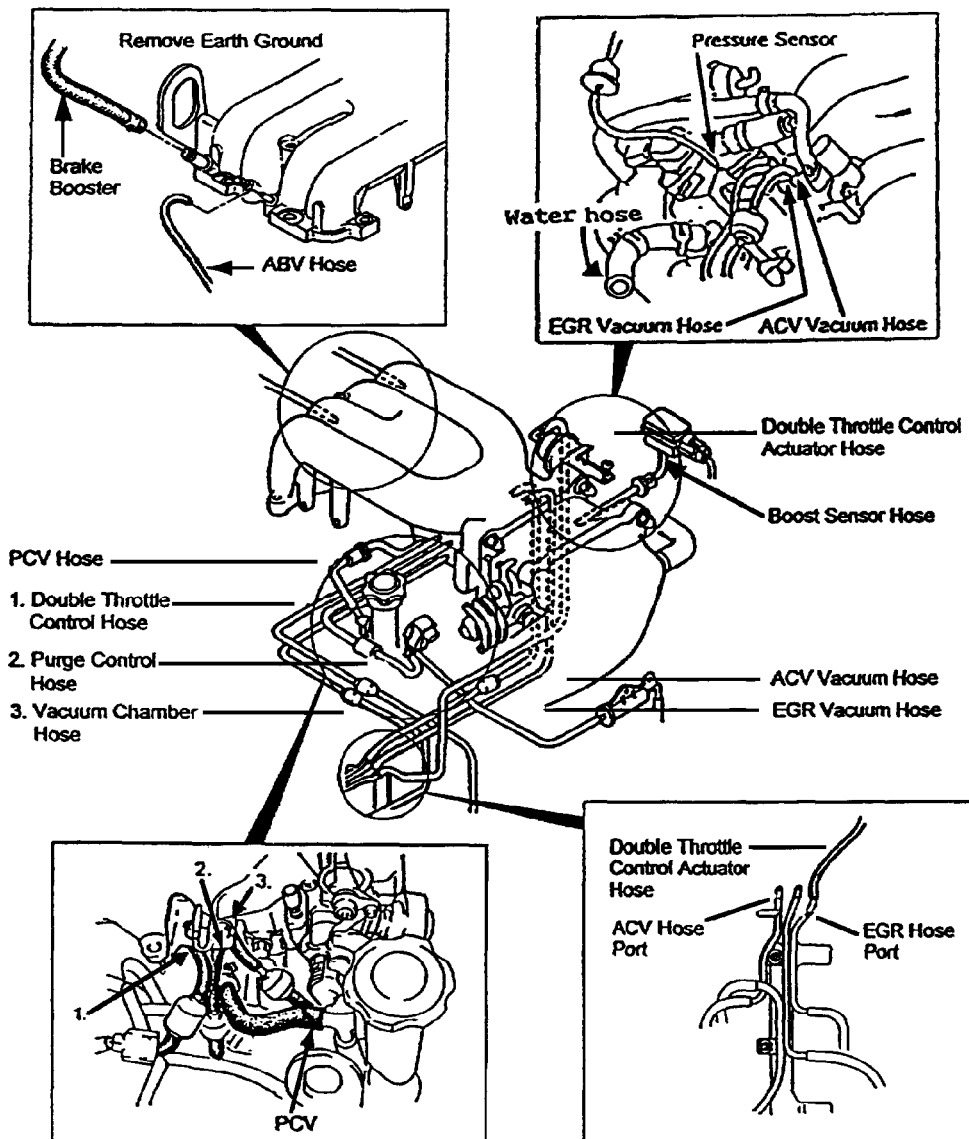


Fig. 4: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

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14. Remove the harnesses from the extension manifold. See Fig. 4.
15. Remove the accelerator cable and the cruise cable. See Fig. 5.

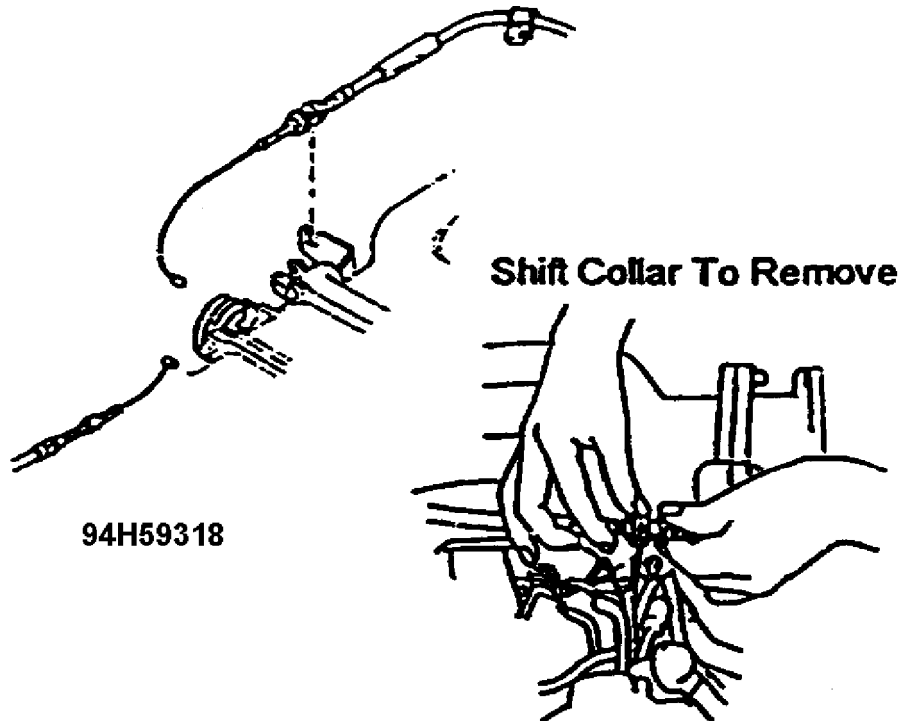


Fig. 5: Removing Accelerator Cable & the Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrow (-->) only. See Figs. 6, 7, & 8.

Harnesses:

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

Vacuum Tubes:

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose

Hoses:

- \* Water Hose

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

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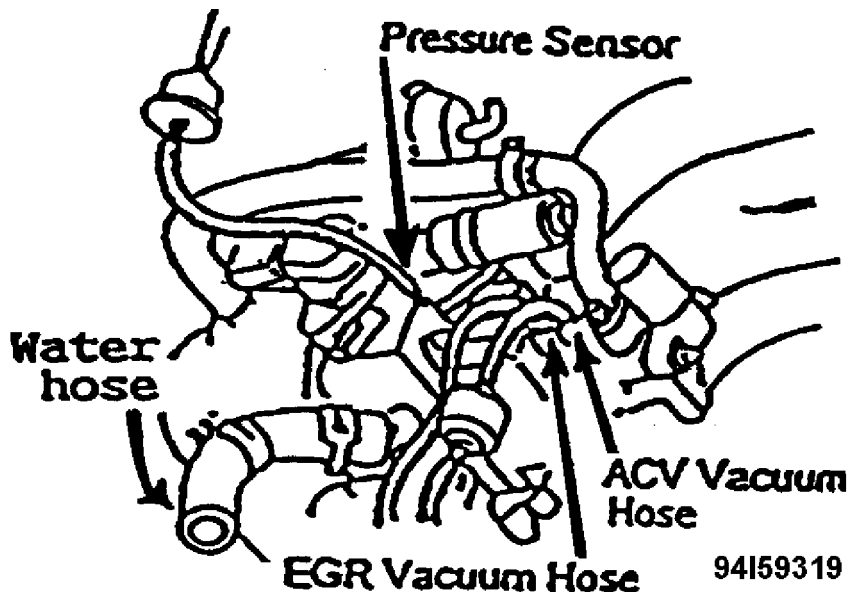


Fig. 6: EGR & ACV Vacuum Hose, Water Hose & Pressure Sensor

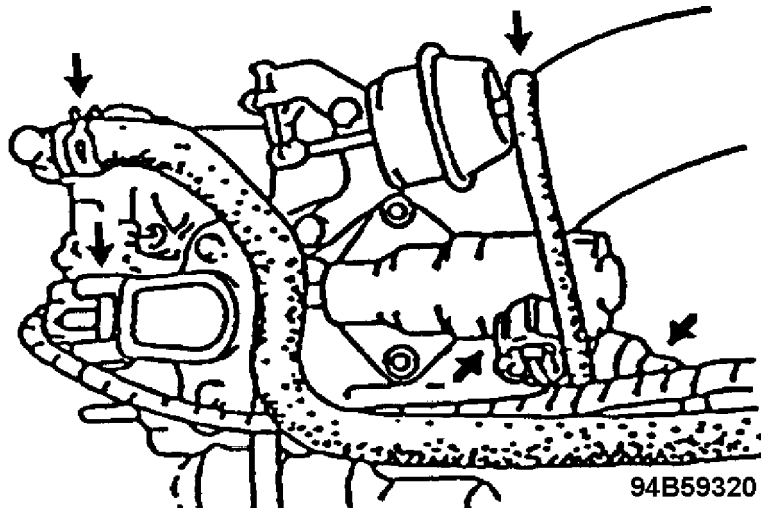


Fig. 7: Hose & Vacuum Tubes Identification

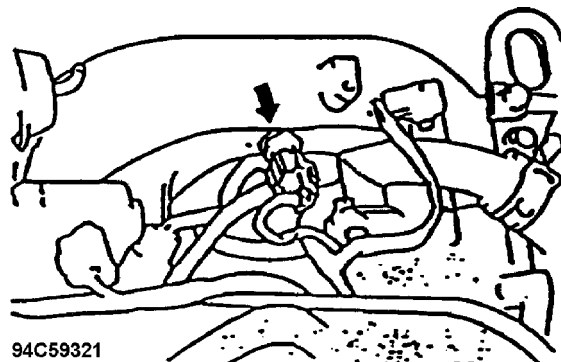


Fig. 8: Switch Identification

17. Remove the extension manifold and throttle body.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

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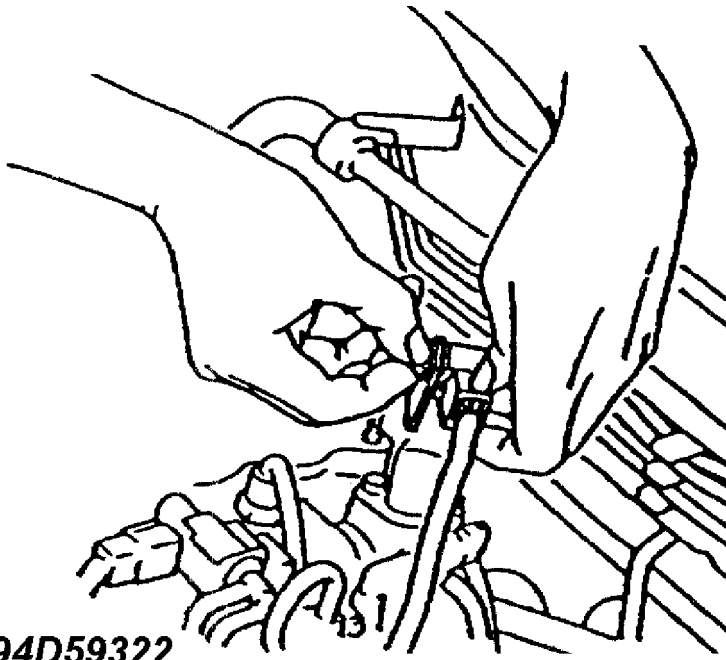
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NOTE: Cover exposed intake holes with shop towels.  
Torque for re-tightening the bolt:  
Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

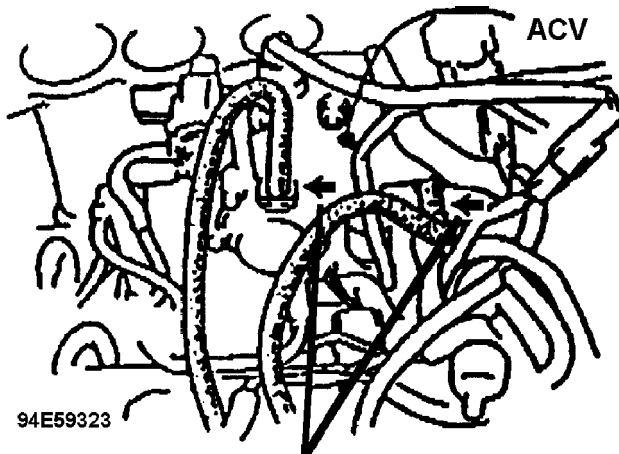
When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts shown in Figs. 9 & 10.



**94D59322**  
Fig. 9: O2 Sensor Coupler on the ACV



**DO NOT DAMAGE**  
Fig. 10: ACV Vacuum Tubes

19. Remove the nut shown in Fig. 11. Remove the three-way solenoid.



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NOTE: Do not remove the vacuum tube from the solenoid.

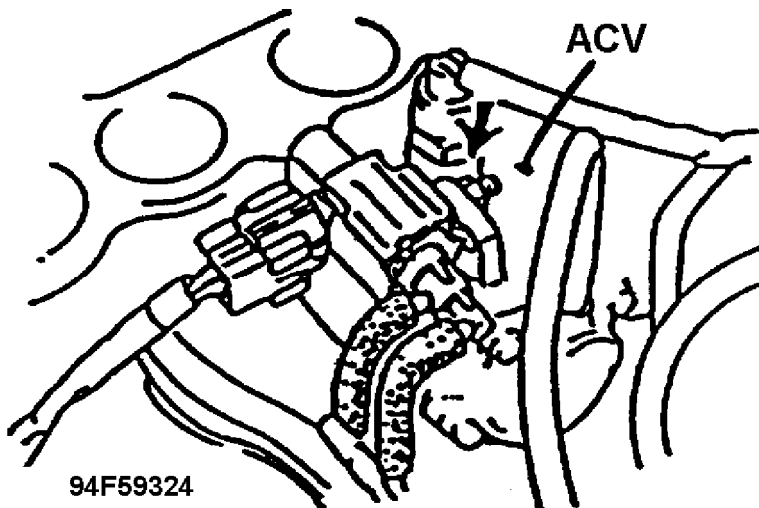


Fig. 11: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 12.

Tightening torque: 70-100 kgf.cm (61-86 in-lbf)

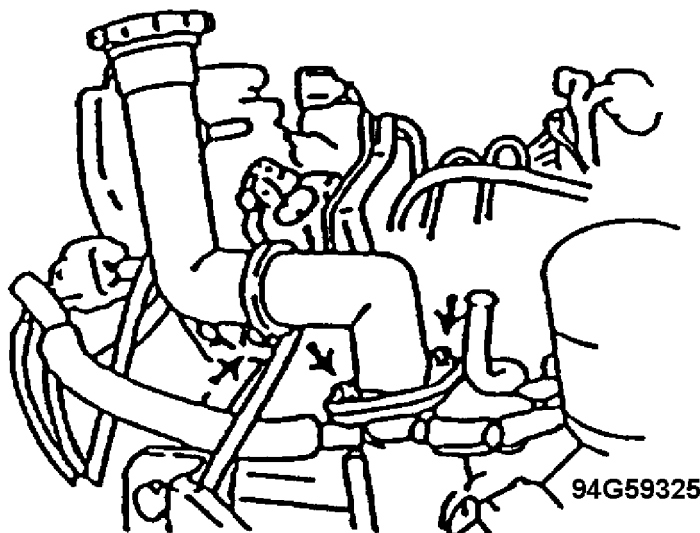


Fig. 12: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in

Fig. 13. Tightening torque of the nuts for reassembly:

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

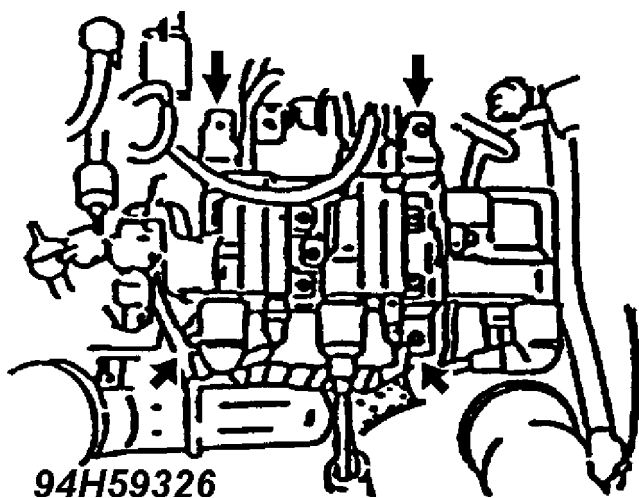


Fig. 13: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal:

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See E in Fig. 14.
3. Remove the ACV. Re-tightening torque of the nuts:  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold.  
See A in Fig. 14. Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

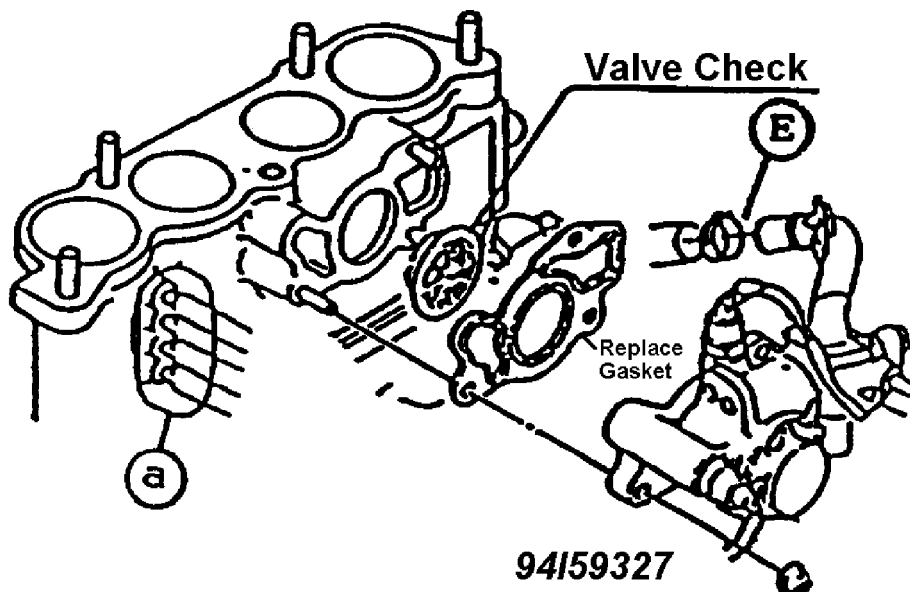


Fig. 14: Removal of Relief Air Hose & Vacuum Tubes

NOTE: \* When reassembling, replace the ACV gasket with a new one.

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Gasket: N3A3-13-996

- \* When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- \* Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

23. Move the vacuum pipe assembly toward the steering shaft side.  
See Fig. 15.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 15.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off where indicated by scissors in Fig. 15, makes the work easier).

NOTE: \* Do not remove hoses other than 1-14.

\* Remove the hoses on the sides indicated by arrows (-->) shown in Fig. 15.

\* Be careful not to damage any pipes.

\* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D as shown in Fig. 15.

5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10 and 11 with new ones.

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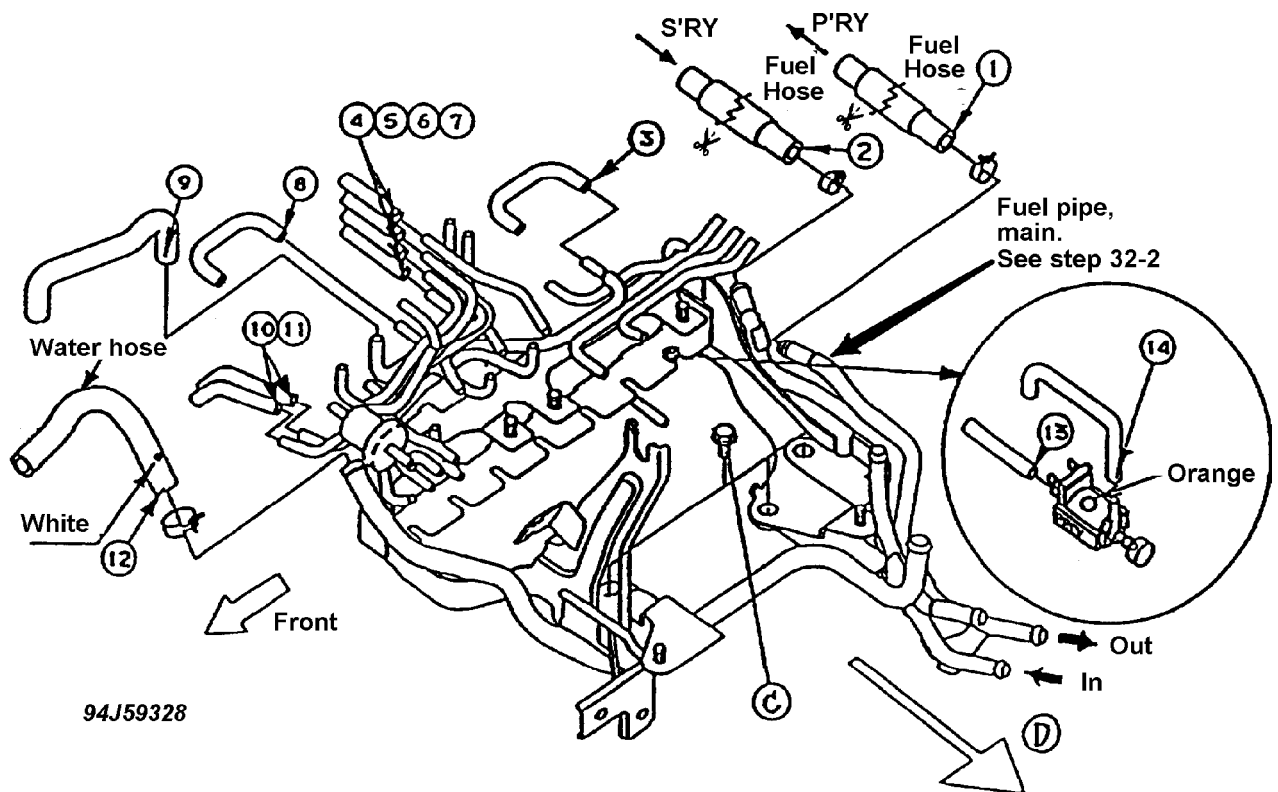


Fig. 15: Exploded View of Tubes & Hoses for Modification

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 16.

1. Loosen the four bolts.
2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

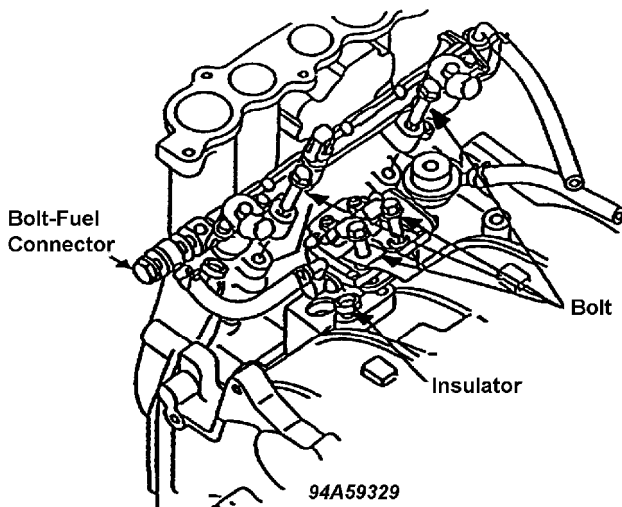


Fig. 16: Removal of Primary & Secondary Fuel Distributor & Insulator

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25. Remove the fuel hose from the primary fuel distributor.  
See Fig. 17.

NOTE: \* When turning the screw be careful not to break the heads  
( + ) of the screws F (two) because they are tight.

\* Be careful not to damage the pipe at the hose insertion  
location on the primary inlet side.

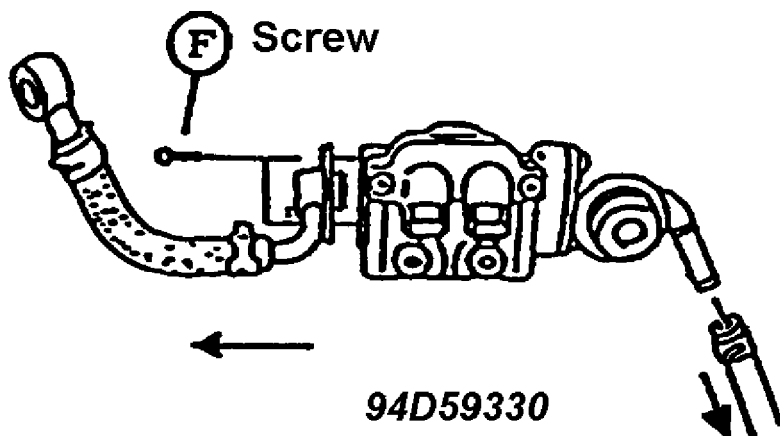


Fig. 17: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor  
outlet side. See Fig. 18.

NOTE: \* When installing, do not twist the "O" ring.

\* Replace the bolts with modified ones. See letter G in  
Fig. 18.

Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420

Bolt: 99796-0510 x 2 pcs.

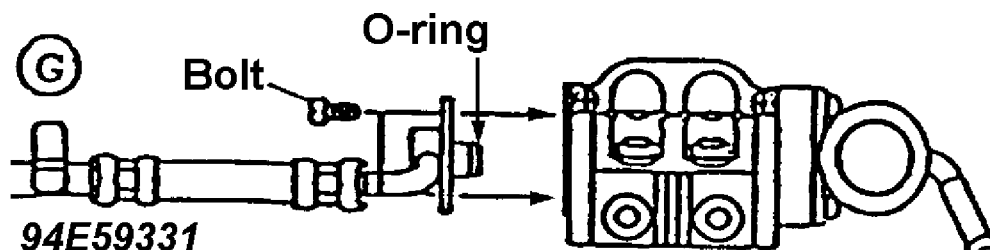


Fig. 18: Installing Primary Fuel Distributor Outlet Modified Hose

27-1. Install the hose on the inlet side of the primary fuel  
distributor. See Fig. 19.

Fuel hose: N3Z1-13-415.

\* Submerge the hose end with the white mark into adhesive.

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\* Use adhesive specially prepared for this work.

NOTE: Be careful not to use another adhesive.

\* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel hose: N3Z1-13-415.

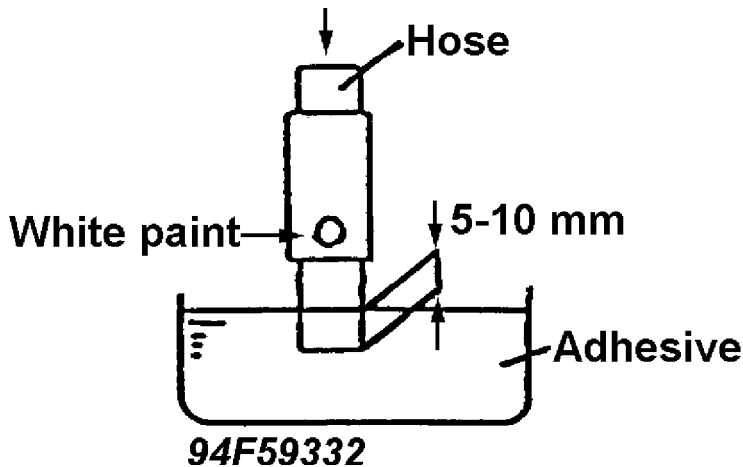


Fig. 19: Installing Hose on Inlet Side of Primary Fuel Distributor  
Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

NOTE:

- \* Use two clips on the fuel distributor side.
- \* Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 20 and 21. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
- \* Replace all hose clips with new ones.
- \* Do not use clips other than those included, part number below.
- \* Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs. (with Red colored holder)

Protector: N3B7-1 3428A

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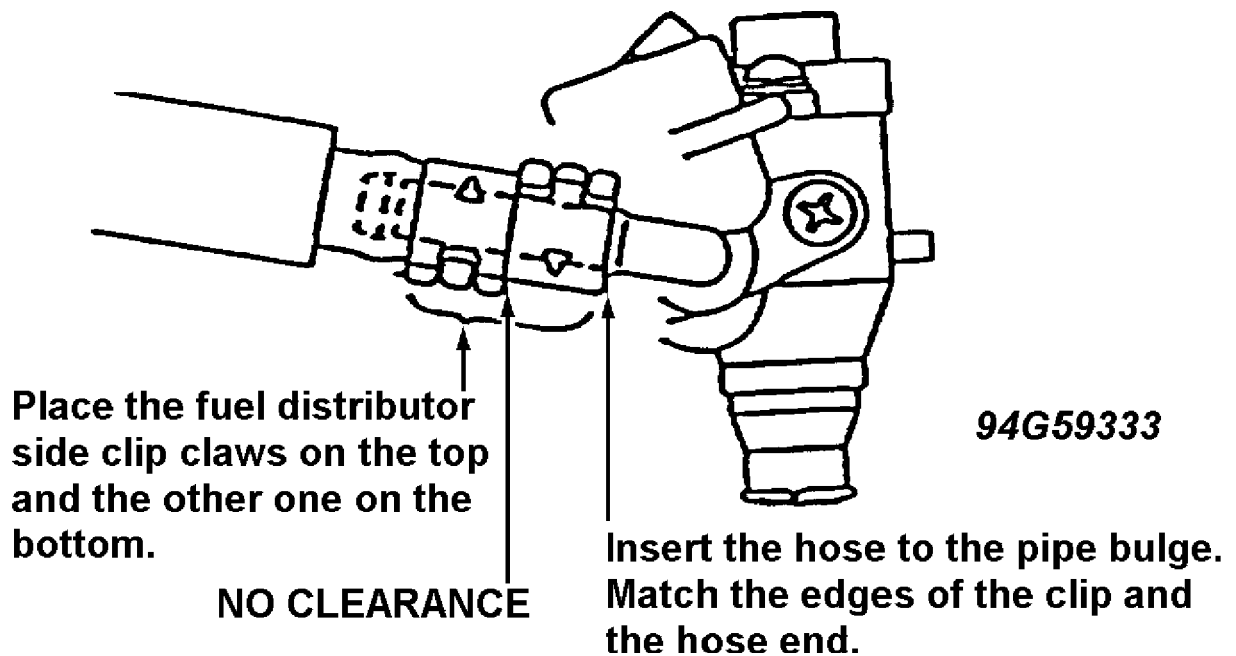


Fig. 20: Installation of Clips on Hose

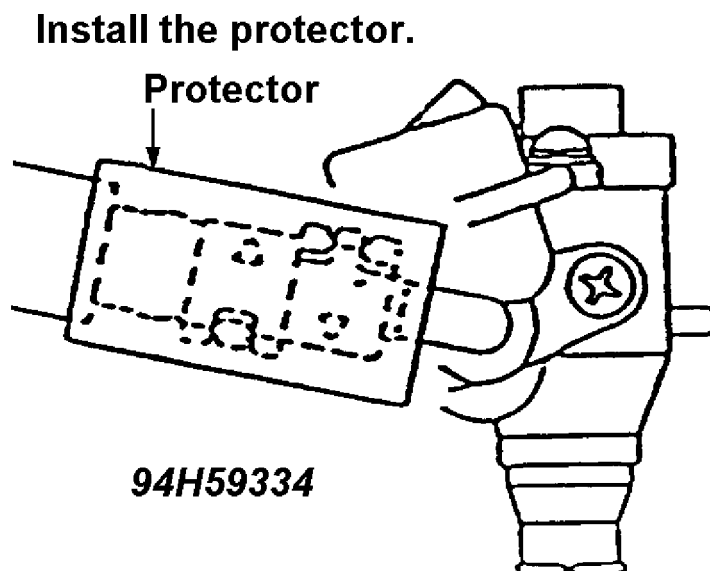


Fig. 21: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor. See Fig. 22.

NOTE: \* Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.  
Tightening Torques: 240-360 kgf.cm (208-312 in-lbf)

\* Use new gaskets.

Gasket: N236-13-483 x 2pcs.

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\* Reuse the connector bolts.

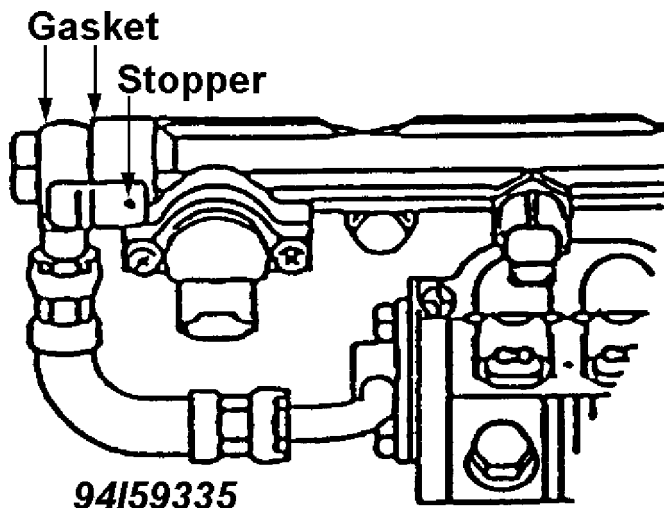


Fig. 22: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 23.

NOTE: \* Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415  
Clip: 8574-13-157  
(Clip - with Pink Colored holder)

\* For the direction of the clip claws, see Fig. 23.

\* Do not place the clip on the pipe bulge.

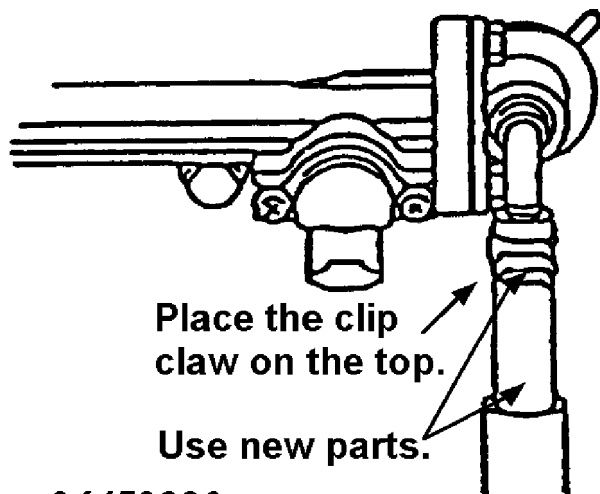


Fig. 23: Return Side of Secondary Fuel Distributor Hose Replacement  
Place the Clip Claw on the Top - Use New Parts



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30. Replace the two vacuum tubes with new ones. See Fig. 24.  
Vacuum tube: 99351-04150 x 2 pcs.

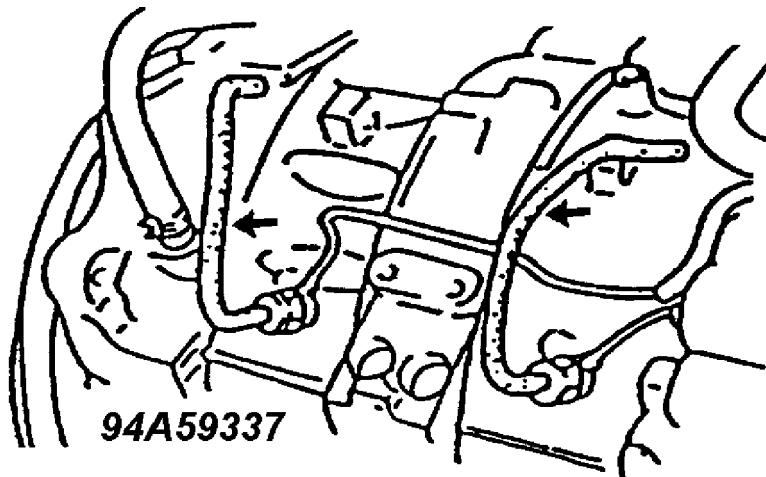


Fig. 24: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 25.

NOTE: Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

- 32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side (indicated by the arrow in Fig. 25). To apply adhesive see step 27-1.

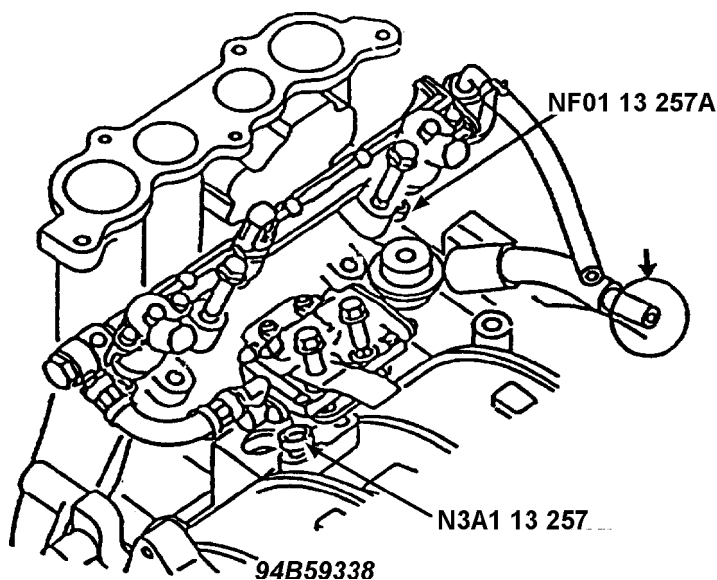


Fig. 25: Installing Fuel Distributors to the Engine

- 32-2. Connect the hose between the fuel distributor and the vacuum

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pipe-assembly. See Fig. 26.

- NOTE:
- \* Replace the clips (outlet side of the secondary fuel distributor) with new ones.  
Clip (Secondary): 8574-13-157  
(Clip with Pink colored holder)
  - \* For the direction of the clip claw, see Fig. 26.
  - \* Do not use clips other than those included, part number below.
  - \* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe, shown with an arrow in Fig. 15.

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.  
(Clip with Red colored holder)

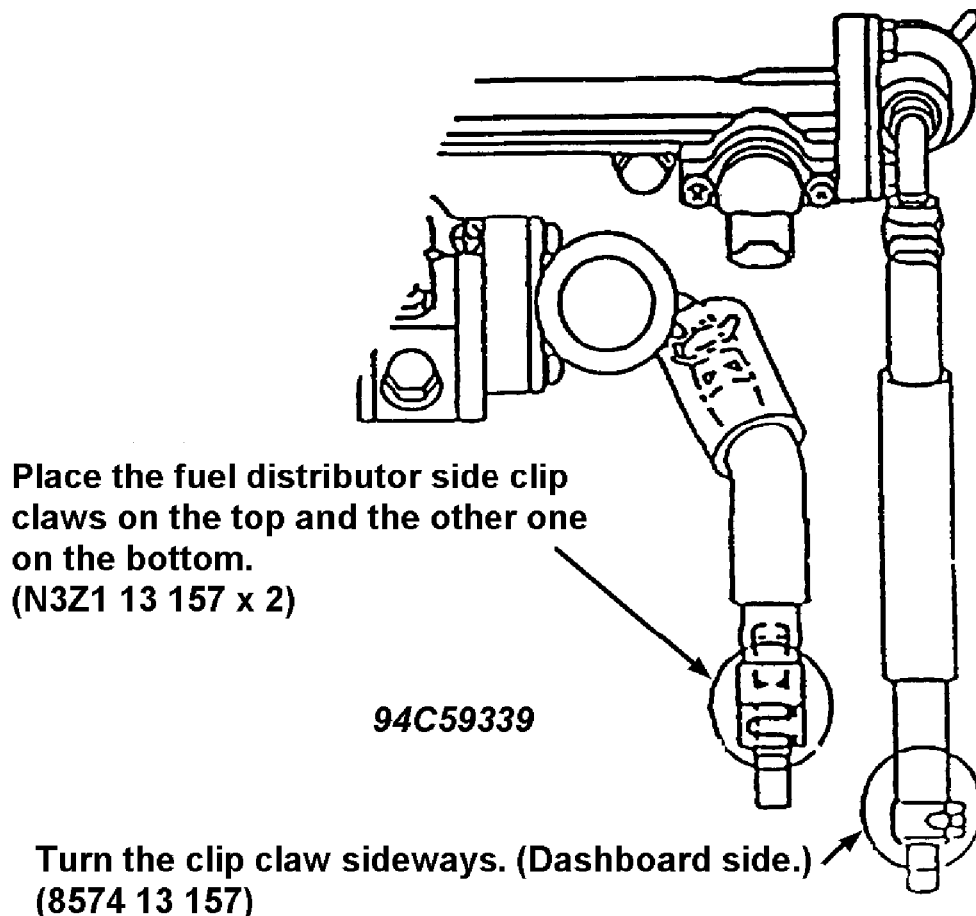


Fig. 26: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly  
Place the Clip Claws in Opposite Directions

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32-3. Replace the main fuel hose with a new one. See Fig. 27.

NOTE: \* The hose and the clips shown in Fig. 27 should be replaced with new ones.

\* Be careful not to use the hose and the clips other than those included, part numbers below.

\* Apply adhesive to the hose end [short end side only shown by the arrow in Fig. 27] then install it. (To apply adhesive, see step 27-1.)

\* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1-13-421

Clip: 8574-13-157 x 2 pcs. (Clip with Pink colored holder.)

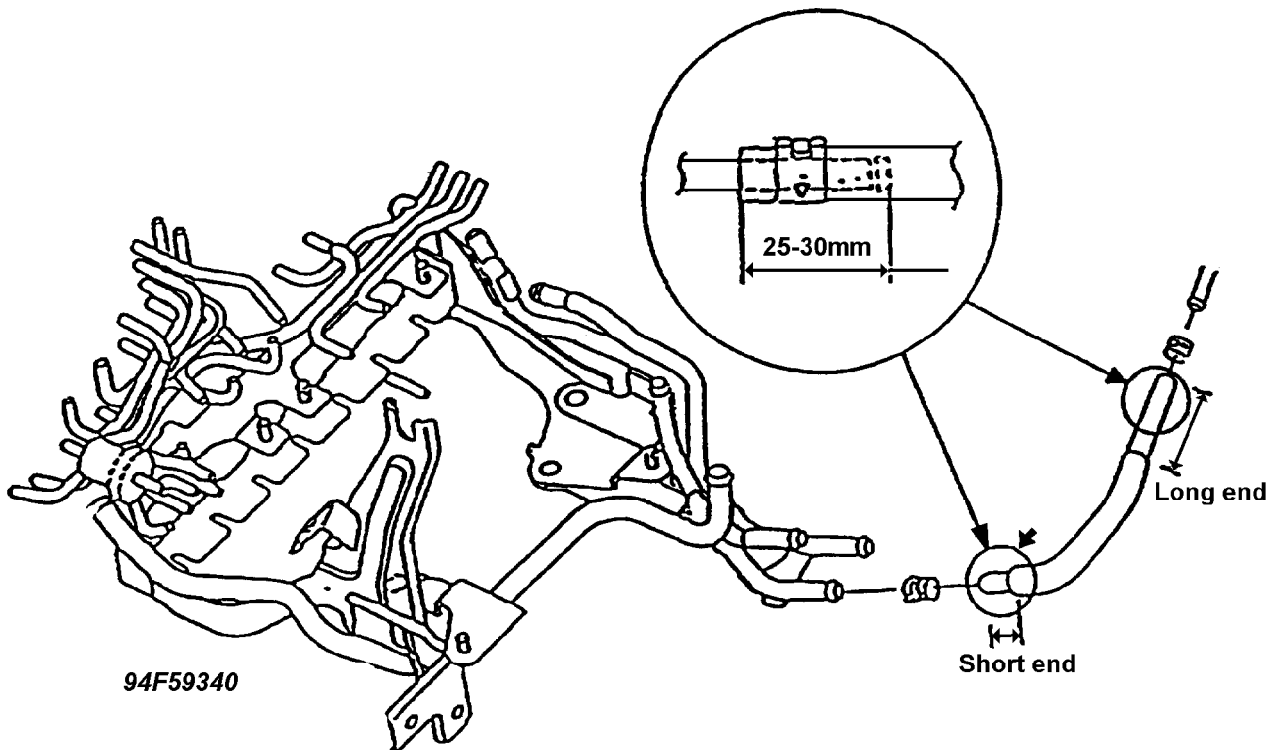


Fig. 27: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited, resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

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the ground terminal. See Fig. 28.

3. Pinch the fuel return hose with a suitable tool, to stop any fuel return to the tank. See Fig. 29.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.

\* Check for fuel leakage visually and by odor. Carefully check the positions(seven) indicated by the arrows shown in Fig. 29. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

**Diagnostic Connector To Ground Terminal**

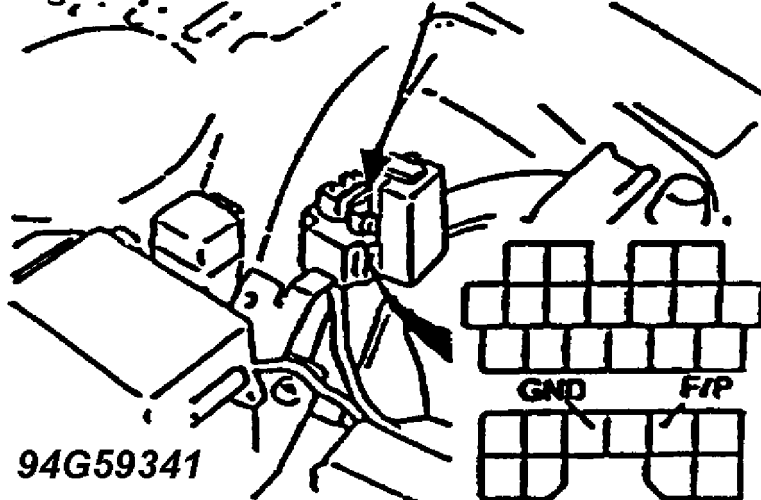


Fig. 28: Diagnostic Connector to Ground Terminal

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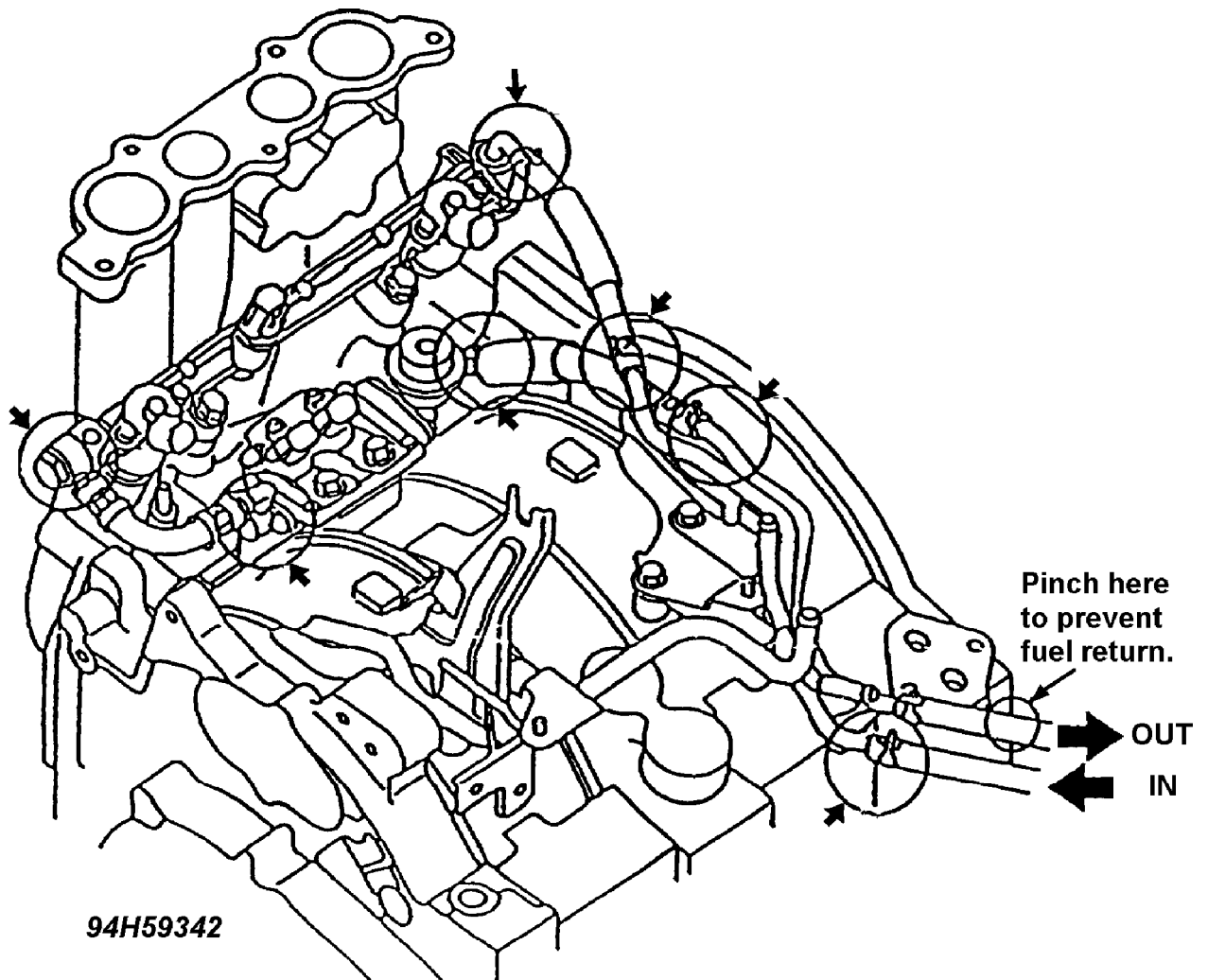


Fig. 29: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly. See Fig. 30.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).

Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

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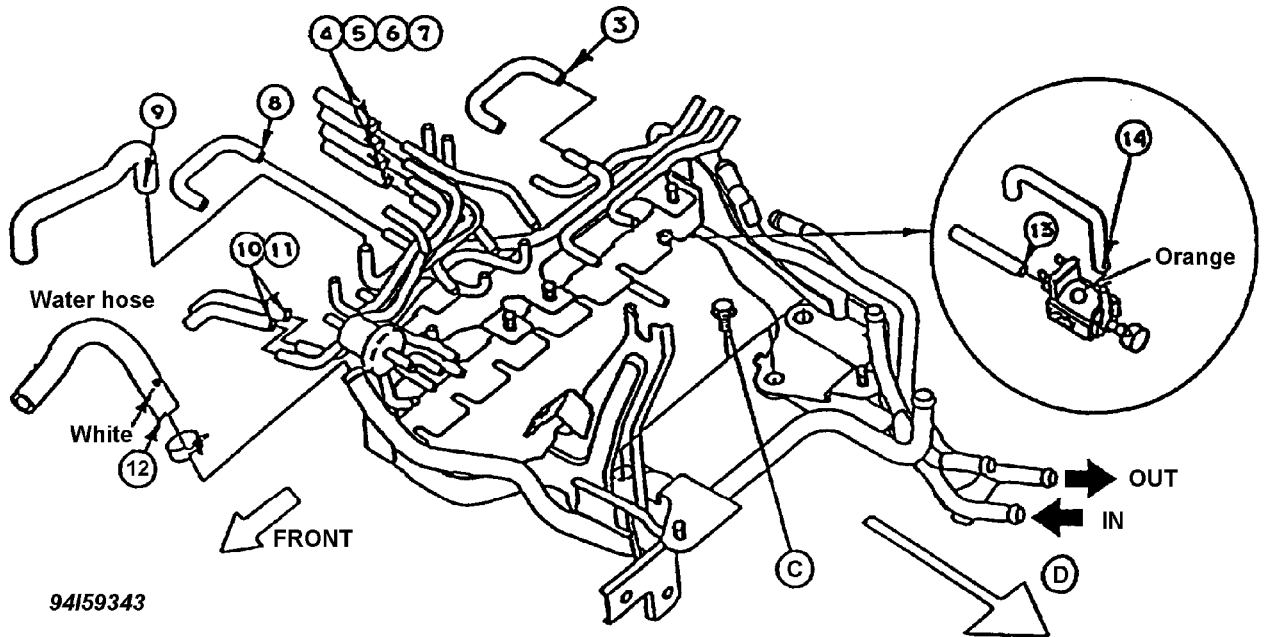
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Fig. 30: Installation of Vacuum Tubes

35. Assemble the pans in the reverse order of removal.
36. Affix the recall label (No. 60504) onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 31.

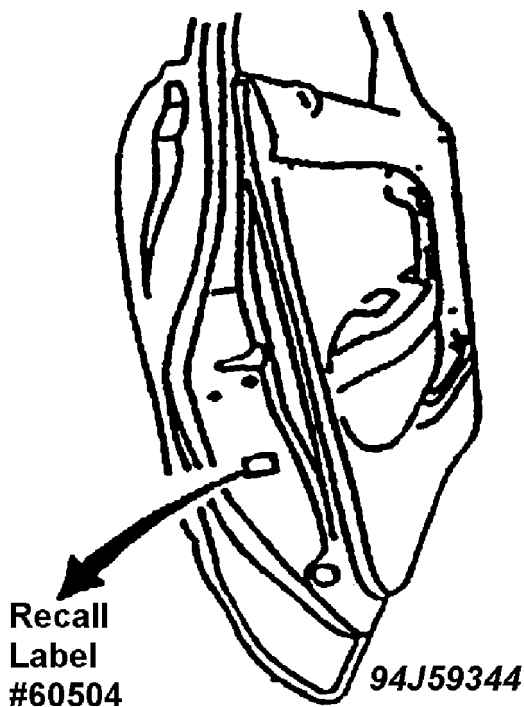


Fig. 31: Recall Label #60504 Identification

**FUEL HOSES AND COOLING (COOLANT) SYSTEM REPLACEMENT PROCEDURE**

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### PRE-CAUTIONS:

1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

### PROCEDURE B - REPLACEMENT OF FUEL HOSE KIT AND THROTTLE HOSE KIT

To be performed on ALL customer (sold) vehicles.

NOTE: Throttle Hose Kit, part number N3A1-13-S60 and Filler Cap Kit, part number N3Z1-15-S10B must be ordered separately and are not included in Fuel Hose Kit.

1. Start the engine.
2. Remove the circuit opening relay.
3. After the engine stalls, crank the engine for 15-20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay. See Fig. 32.

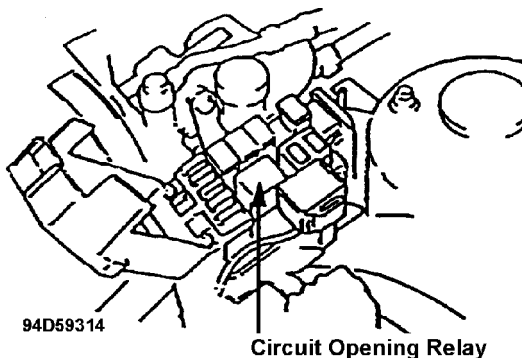


Fig. 32: Finding the Circuit Opening Relay

6. Disconnect the negative terminal from the battery.

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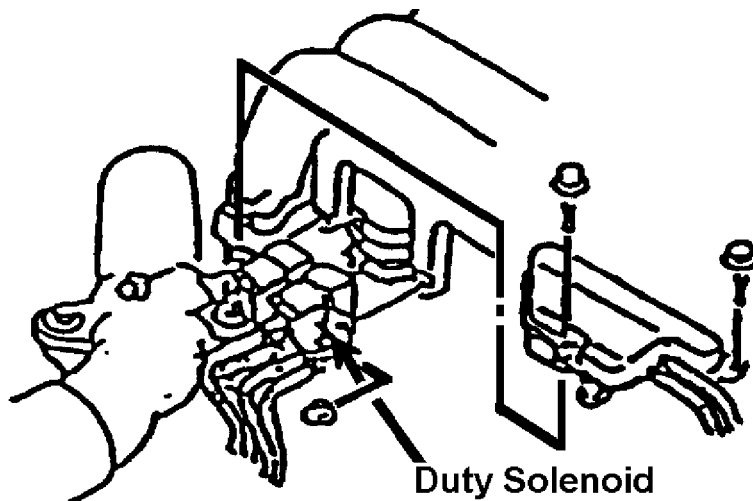
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NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.
8. Remove the bolts from the duty solenoid and the pressure chamber. Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)  
See Fig. 33.



**Remove Bolts from Duty Solenoid 94E59315**

Fig. 33: Removal of Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 33.
10. Disconnect the AWS hose and the air duct B at the joint as shown in Fig. 34.

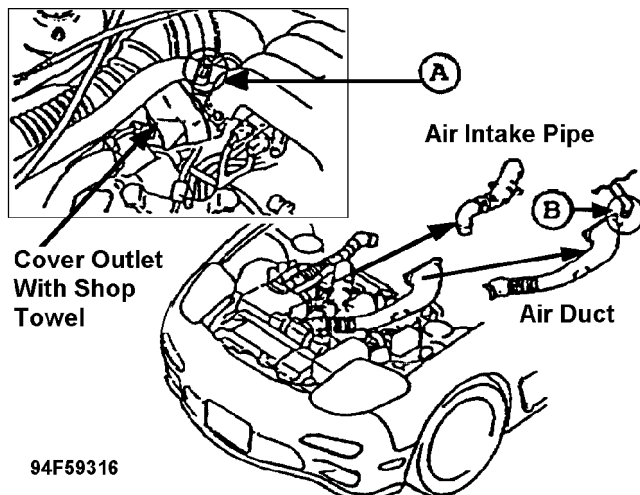


Fig. 34: Disconnecting the Air Pipe & Hose

11. Remove the air intake pipe from the outlet of the turbo. and cover



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the outlet with a shop towel.

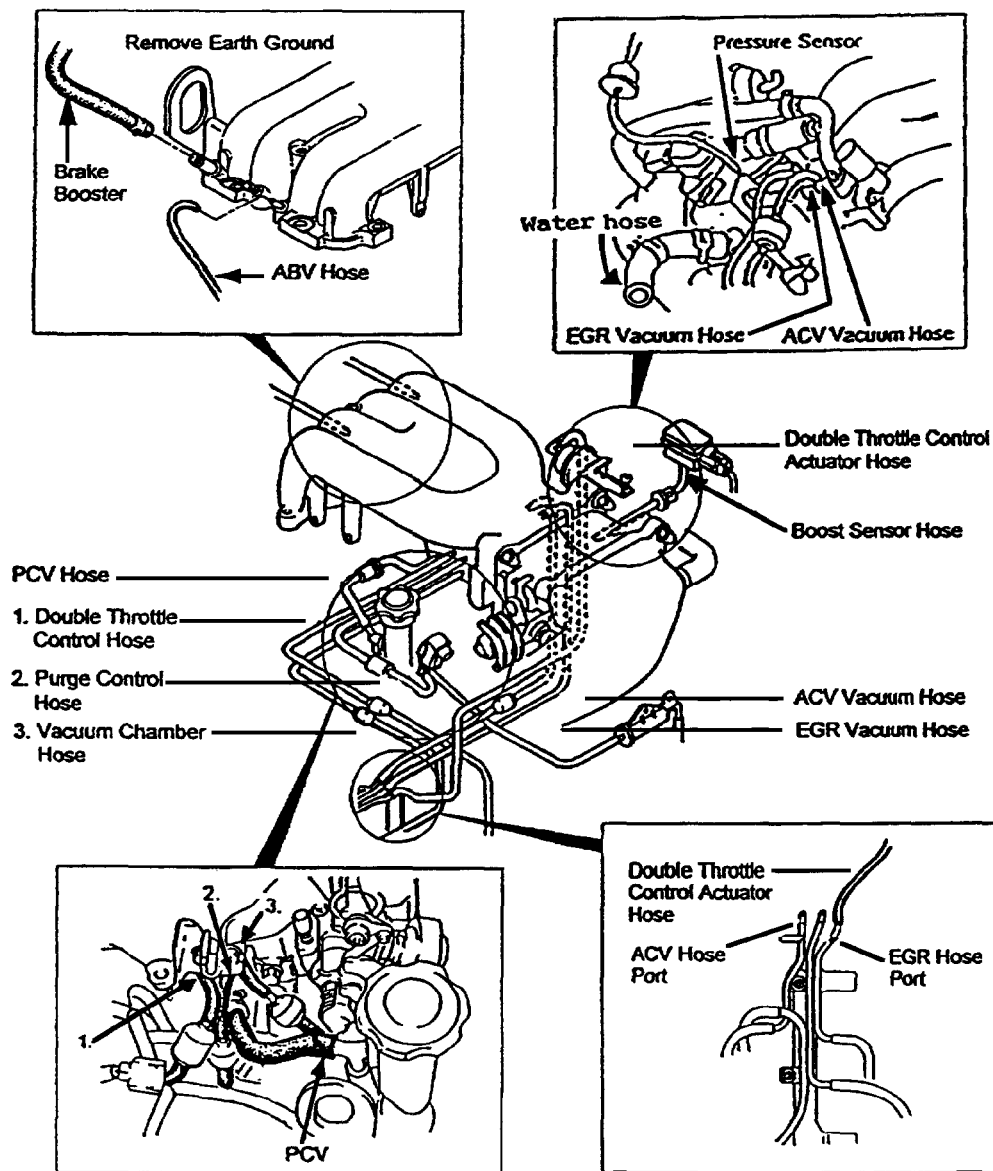
12. Remove the air duct from the inter cooler.

13. Remove the hoses from the extension manifold. See Fig. 35.

NOTE: Disconnect the hoses at the locations indicated by the arrows ( --> ) shown in Fig. 35 only!

14. Remove the harnesses from the extension manifold. See Fig. 35.

Remove these four parts referring to Step 16.



94G59317

Fig. 35: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

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15. Remove the accelerator cable and the cruise cable. See Fig. 35.

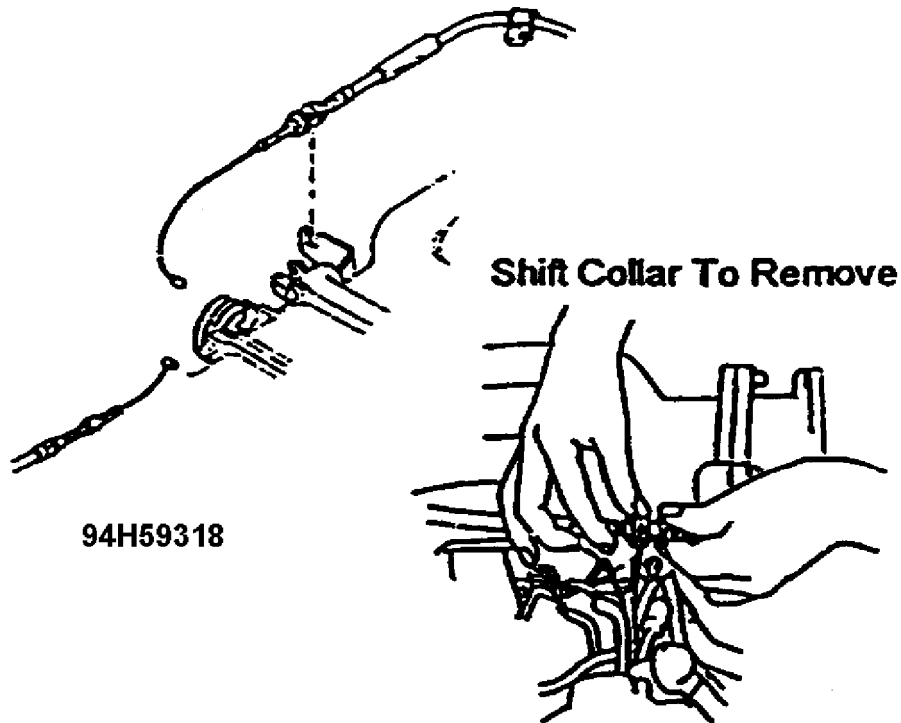


Fig. 36: Removing Accelerator Cable & Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrows (-->) only. See Figs. 37, 38, & 39.

**Harnesses:**

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

**Vacuum Tubes:**

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose

**Hoses:**

- \* Water Hose

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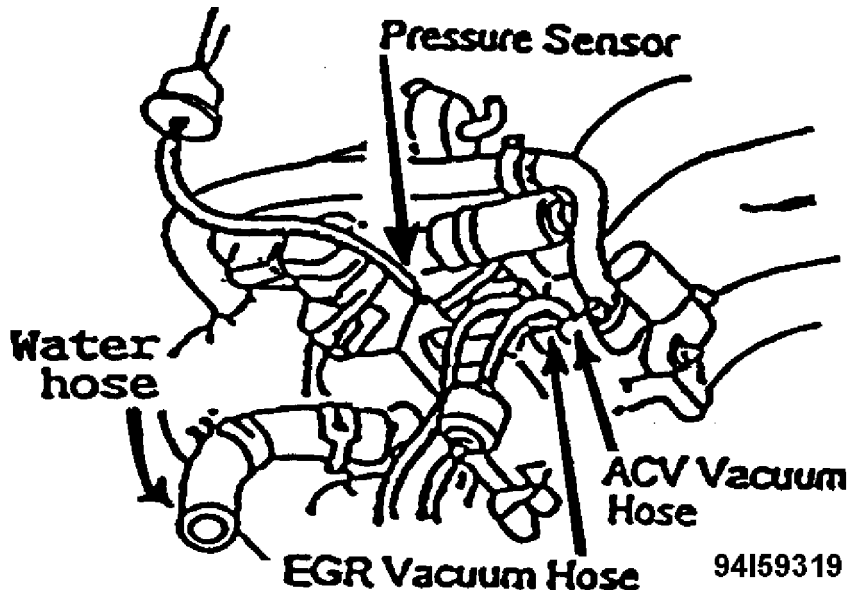


Fig. 37: EGR Vacuum Hose & ACV Vacuum Hose

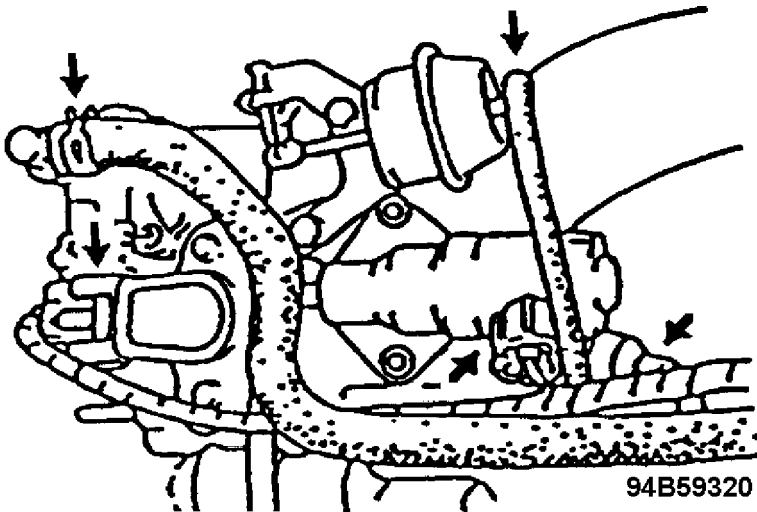


Fig. 38: Hoses to Disconnect

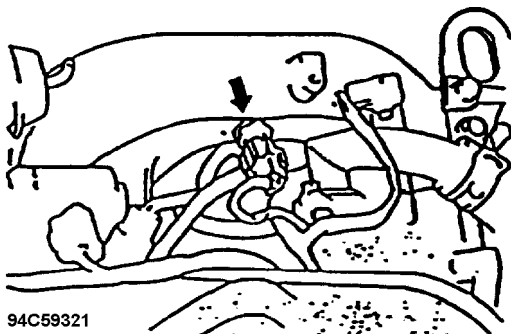


Fig. 39: Switch to Disconnect

17. Remove the extension manifold and throttle body.

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NOTE: Cover exposed intake holes with shop towel.

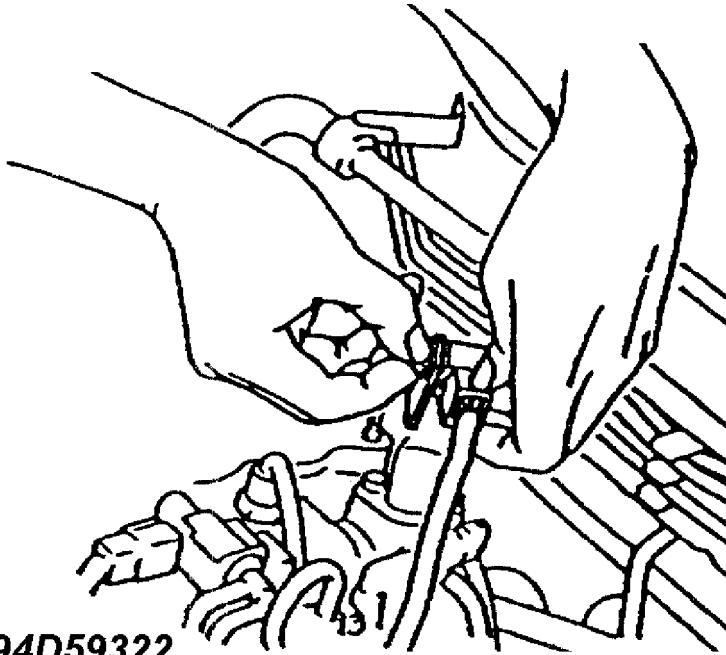
Torque for re-tightening the bolt:

Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

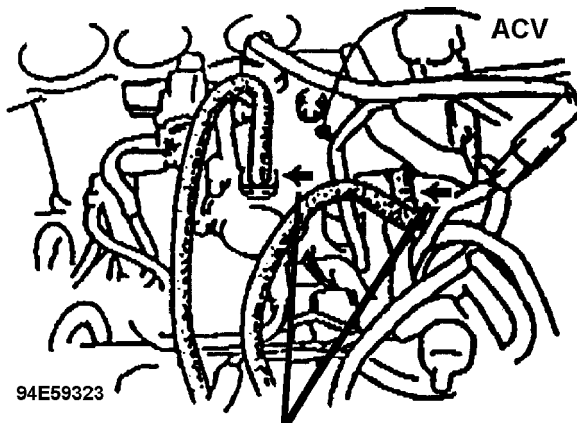
When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts. See Figs. 40 & 41.



**94D59322**  
Fig. 40: O2 Sensor Coupler on the ACV



**DO NOT DAMAGE**  
Fig. 41: ACV Vacuum Tubes

19. Remove the nut shown in Fig. 42. Remove the three-way solenoid.

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NOTE: Do not remove the vacuum tube from the solenoid.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

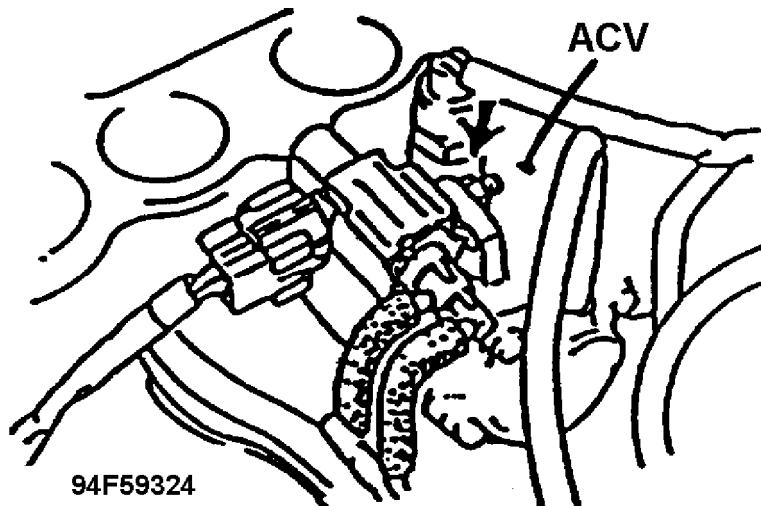


Fig. 42: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 43.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

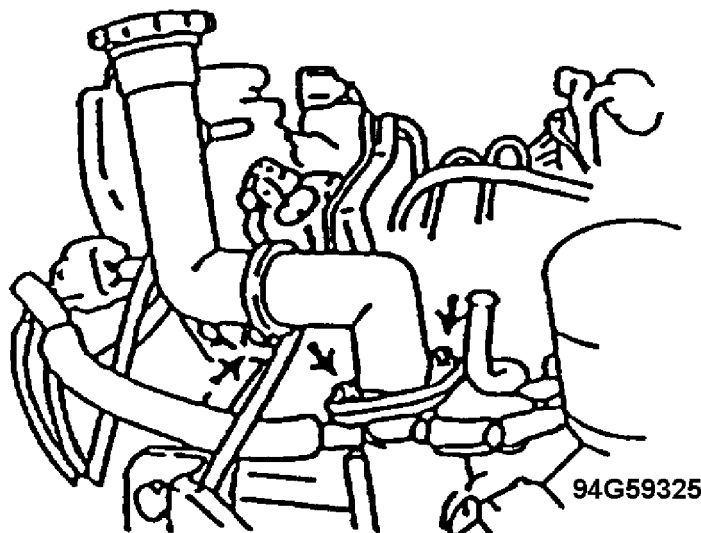


Fig. 43: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in Fig. 44. Tightening torque of the nuts for reassembly:

Tightening torque: 70-100 kgf.cm (61-86 in lbf)

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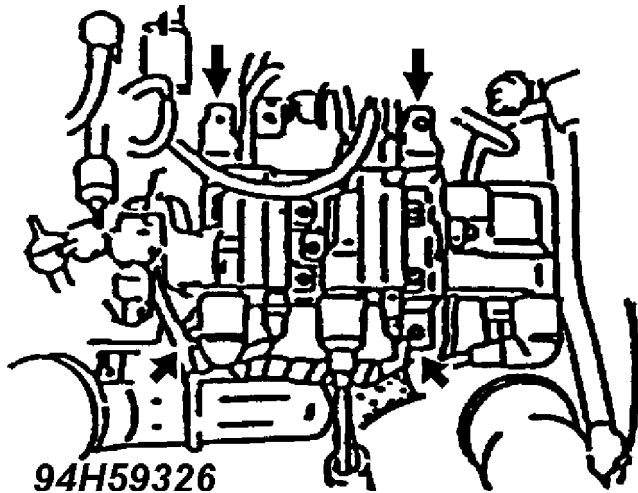


Fig. 44: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See letter E in Fig. 45.
3. Remove the ACV. Re-tightening torque of the nuts:  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold. See Fig. 45.  
Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

NOTE: \* When reassembling, replace the ACV gasket with a new one.

Gasket: N3A3-13-996

- \* When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- \* Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

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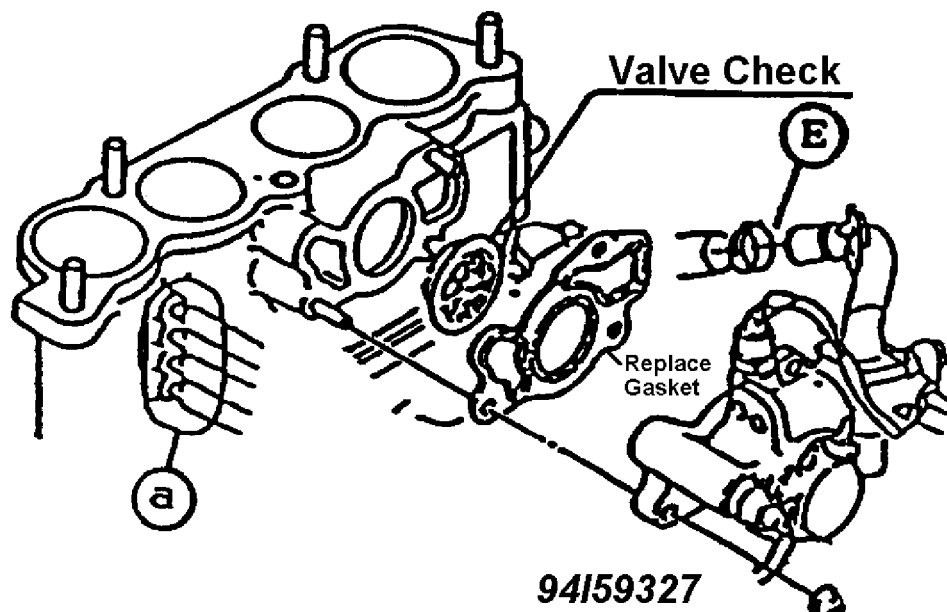


Fig. 45: Removal of Relief Air Hose & Vacuum Tubes

23. Move the vacuum pipe assembly toward the steering shaft side. See Fig. 46.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 46.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off at the position marked with scissors makes the work easier). See Fig. 46.

NOTE: \* Do not remove hoses other than 1-14.

\* Remove the hoses on the sides indicated by arrows (-->) in Fig. 46.

\* Be careful not to damage any pipes.

\* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D.

5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10, and 11 with new ones.

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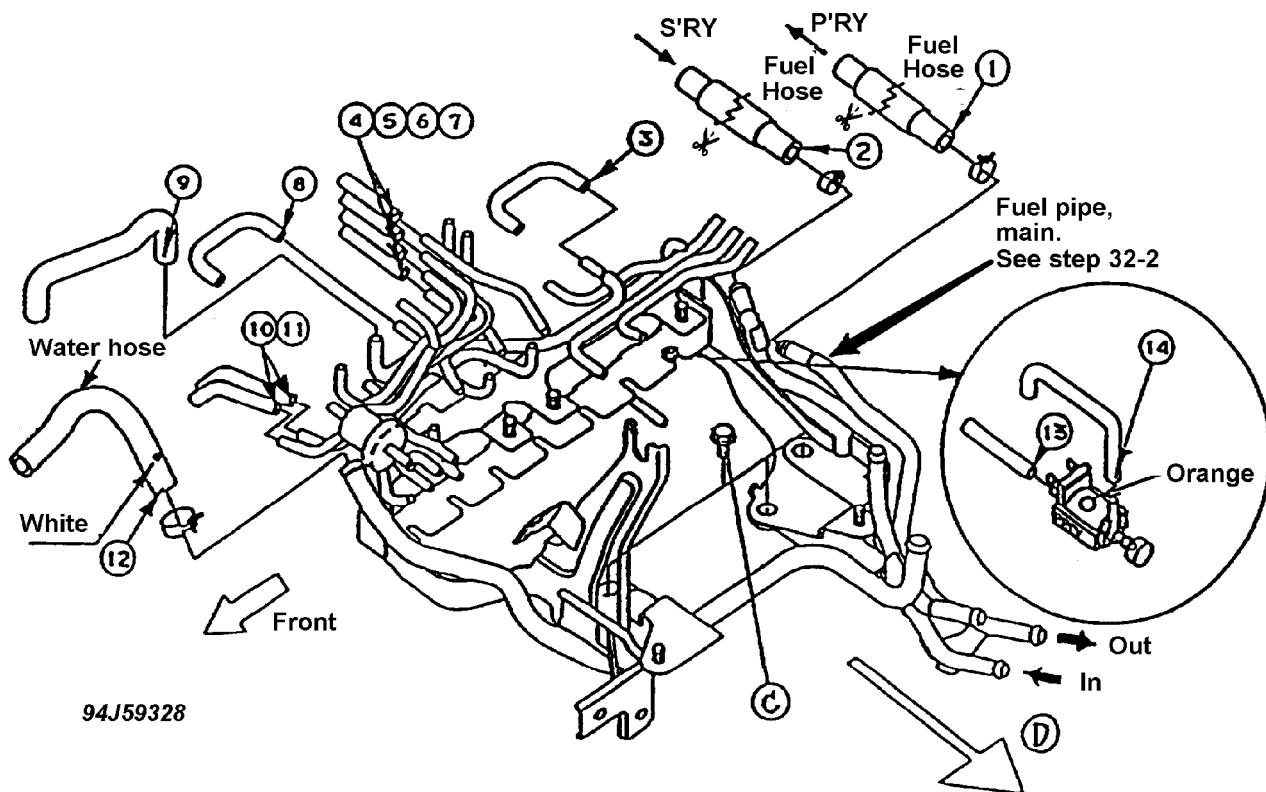


Fig. 46: Exploded View of Tubes & Hoses for Modification

- Replace the front throttle body water hose with a new one and attach it with two new hose clamps. See Fig. 47.

NOTE: Holder must be removed from clamps.

Water hose: N3A1-13-692A

Clamps: 99287-1400P x 2 pcs.

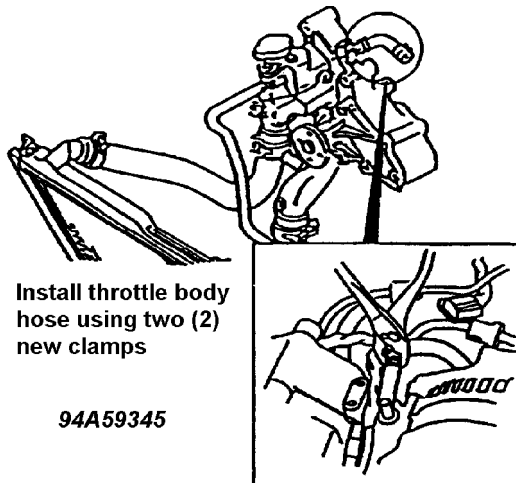


Fig. 47: Installing Throttle Body Hose (N3A1-13-692A)  
Use Two New Clamps



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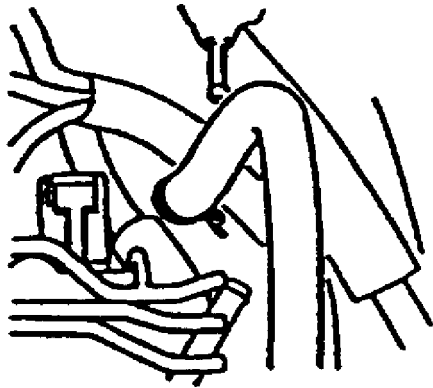
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7. Use long needle nose pliers to remove hose clamps, and replace the rear throttle body water hose with a new one. Remove holders from clamps. Attach with two new clamps. See Fig. 48.

Water hose: N3A1-13-681A

Clamps: 99287-1400P x 2 pcs.



**Install New Rear  
Throttle Body Water  
Hose. Use New  
Clamps**

**DO NOT DAMAGE**

**94B59346**

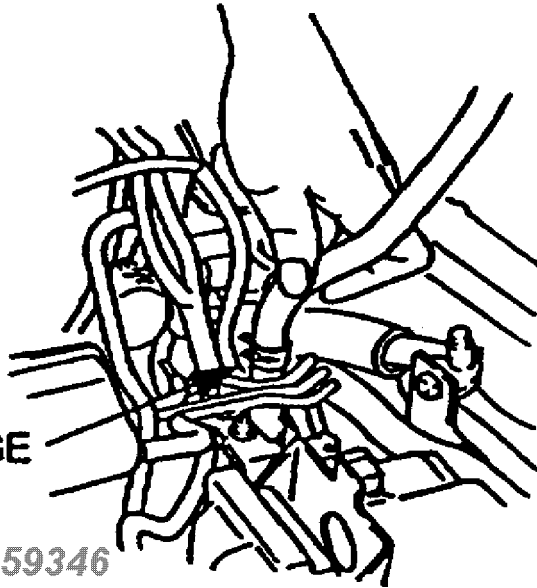
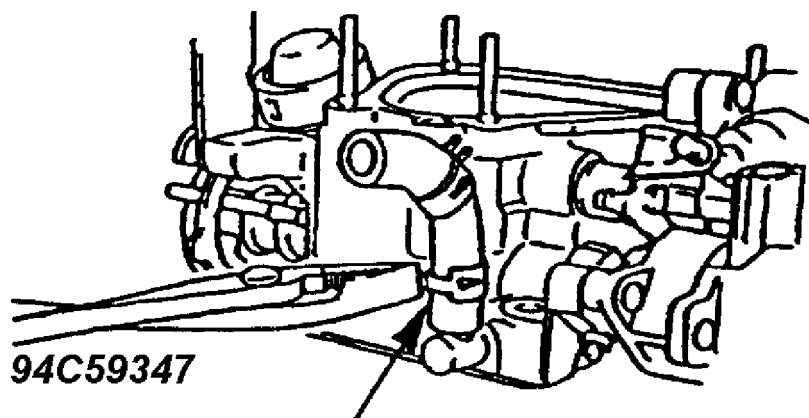


Fig. 48: Installing New Rear Throttle Body Water Hose (N3A1-13-681A)  
Use New Clamps

8. Replace the throttle body water hose with a new one using two new clamps. See Fig. 49.

Water hose: N3A1-13-691A

Clamps: 99287-1400P 2 pcs.



**Install New Throttle Body Water  
Hose Using Two (2) New Clamps**

Fig. 49: Installing New Throttle Body Water Hose (N3A1-13-691A)  
Use Two New Clamps

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 50.
1. Loosen the four bolts.
  2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

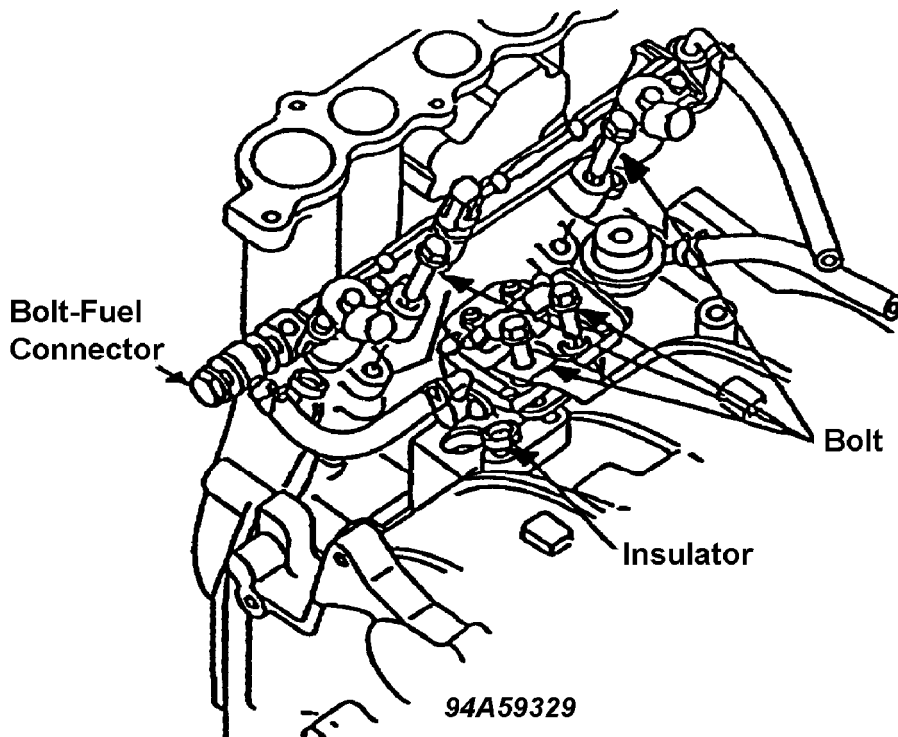


Fig. 50: Removal of Primary & Secondary Fuel Distributor & Insulator

25. Remove the fuel hose from the primary fuel distributor.

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See Fig. 51.

- NOTE: \* When turning the screw be careful not to break the heads (+) of the screws F (two) because they are tight.
- \* Be careful not to damage the pipe at the hose insertion location on the primary inlet side.

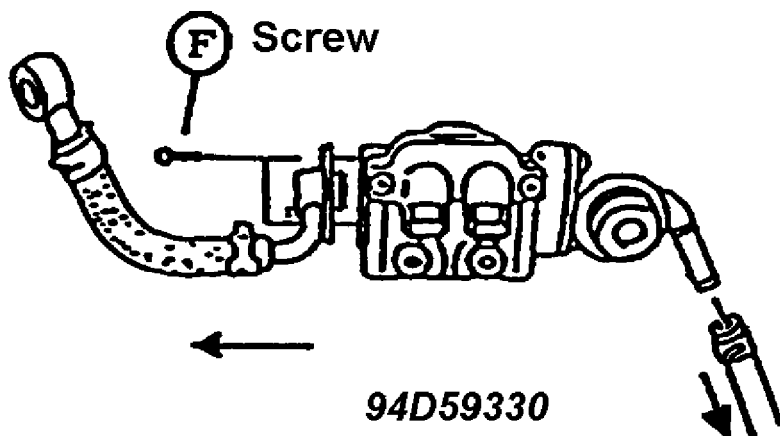


Fig. 51: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor outlet side. See Fig. 52.

- NOTE: \* When installing, do not twist the "O" ring.
- \* Replace the bolts with modified ones. See letter G in Fig. 52.

Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420

Bolt: 99796-0810 x 2 pcs.

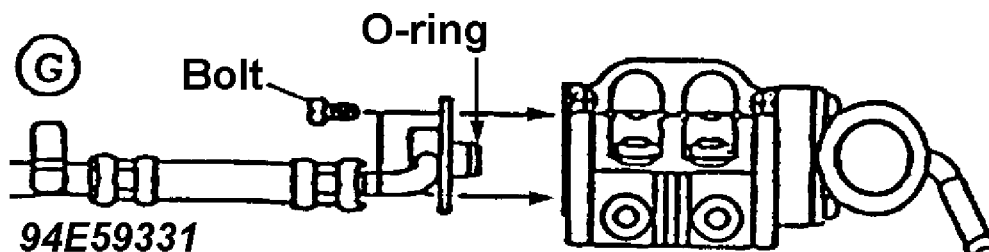


Fig. 52: Primary Fuel Distributor Outlet Modified Hose

- 27-1. Install the hose on the inlet side of the primary fuel distributor. See Fig. 53.

- \* Submerge the hose end with the white mark into adhesive.
- \* Use adhesive specially prepared for this work.

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NOTE: Be careful not to use another adhesive.

\* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel Hose: N3Z1-13-415

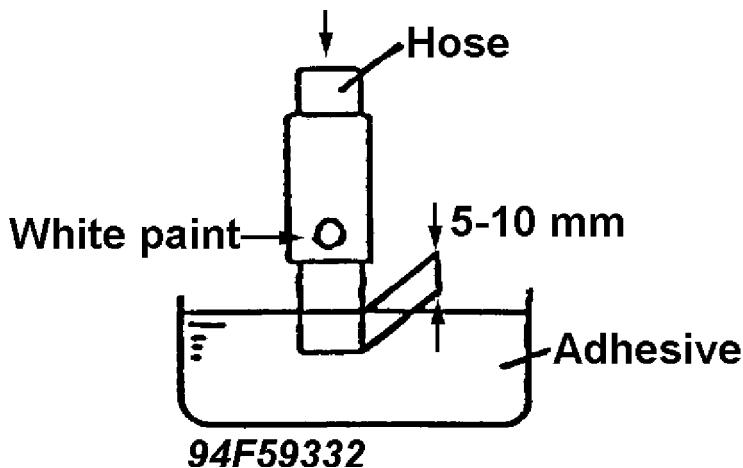


Fig. 53: Installing Hose on Inlet Side of Primary Fuel Distributor Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

- NOTE:
- \* Use two clips on the fuel distributor side.
  - \* Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 54 and 55. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
  - \* Replace all hose clips with new ones.
  - \* Do not use clips other than those included, part number below.
  - \* Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs.

Protector: N3B7-13-428A

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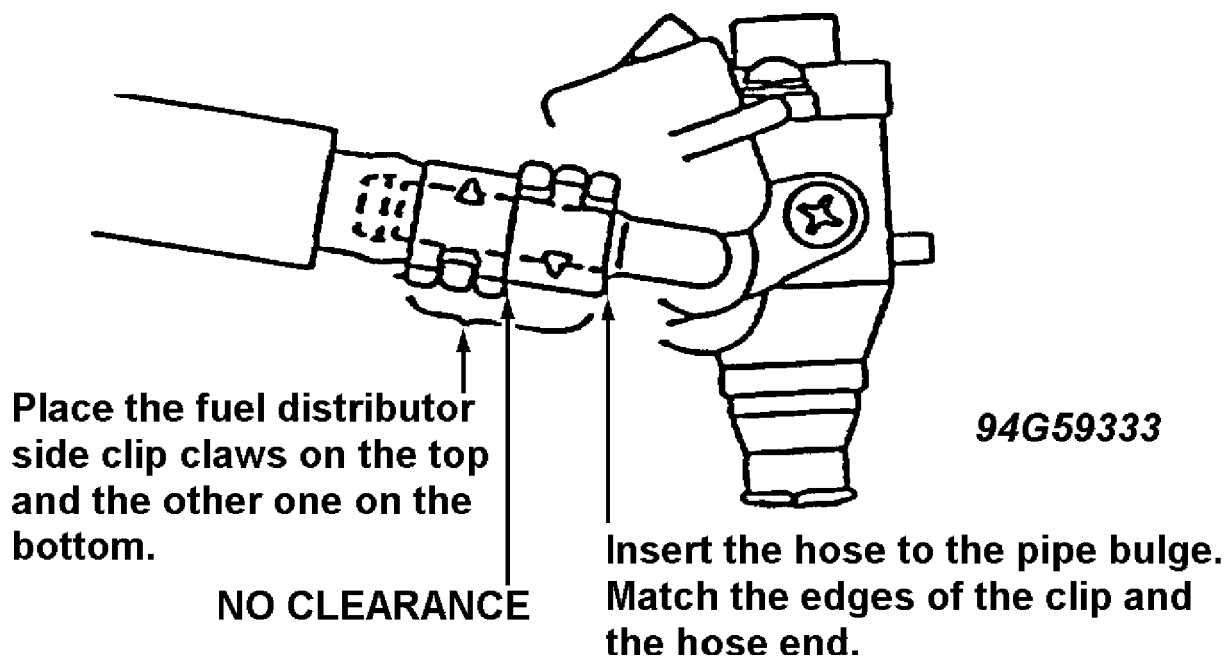


Fig. 54: Installation of Clips on Hose

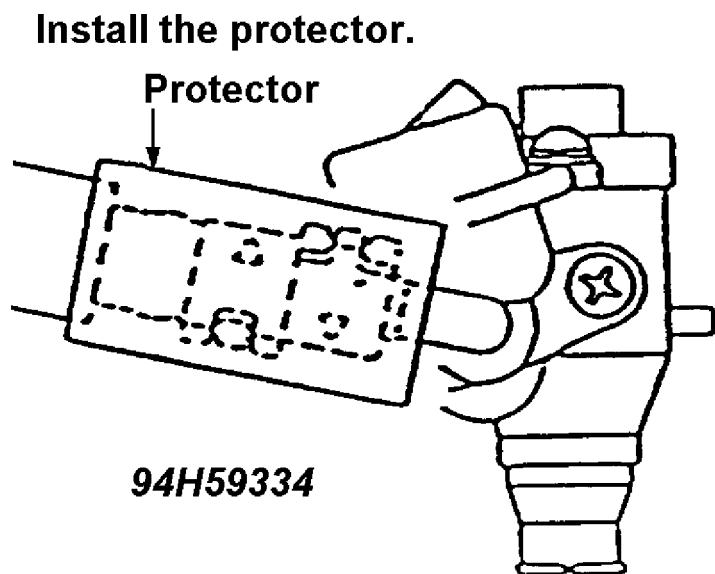


Fig. 55: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor.  
See Fig. 56.

NOTE: \* Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.

Tightening Torque: 240-360 kgf.cm (208-312 in-lbf)

\* Use new gaskets.

Gasket: N236-13-483 x 21pcs.

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\* Reuse the connector bolts.

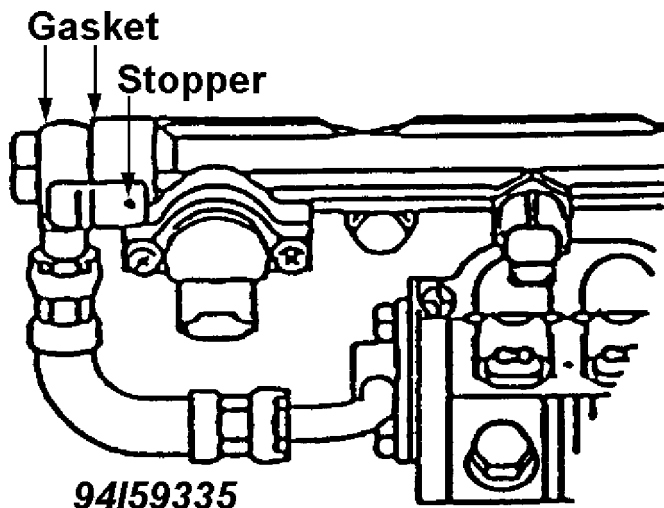


Fig. 56: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 57.

NOTE: \* Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415

Clip: 8574-13-157

\* For the direction of the clip claws, see Fig. 57.

\* Do not place the clip on the pipe on the bulge.

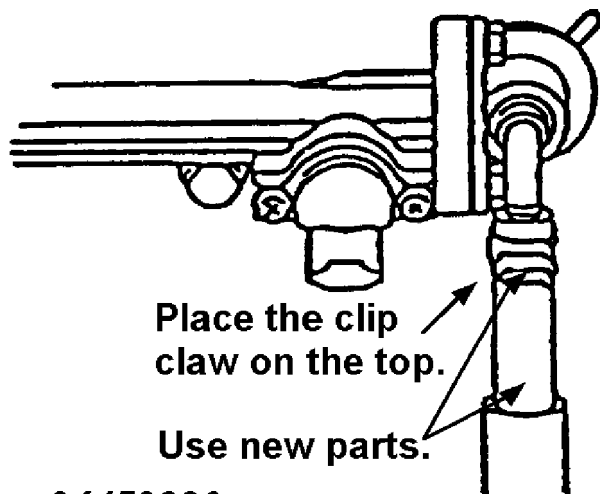


Fig. 57: Return Side of Secondary Fuel Distributor Hose Replacement  
Place the Clip Claw on the Top - Use New Parts

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30. Replace the two vacuum tubes with new ones. See Fig. 58.

Vacuum tube: 99351-04150 x 2 pcs.

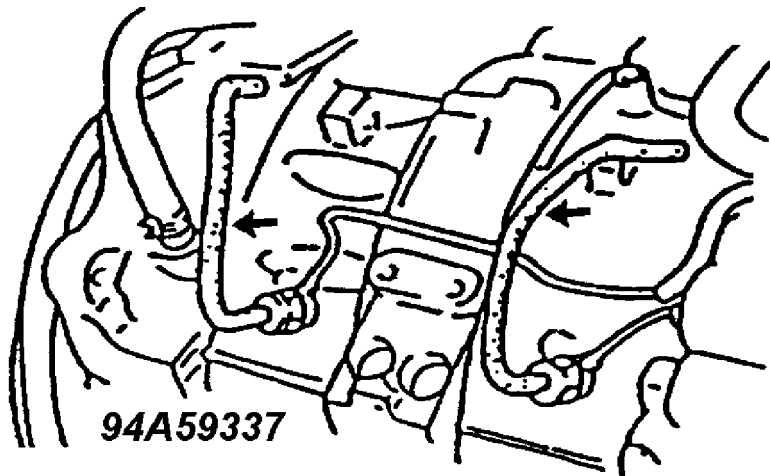


Fig. 58: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 59.

NOTE: \* Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side indicated by the arrow in Fig. 59. To apply adhesive see step 27-1.

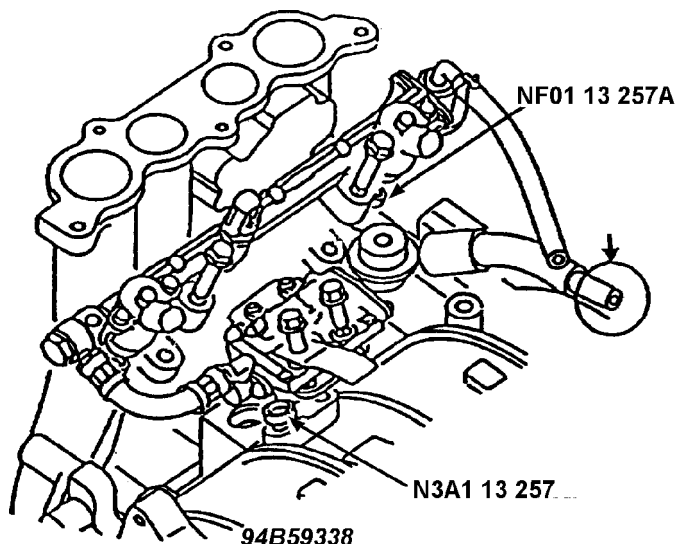


Fig. 59: Installing Primary & Secondary Fuel Distributors to Engine

32-2. Connect the hose between the fuel distributor and the vacuum

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pipe assembly. See Fig. 60.

NOTE: \* Replace the clips (outlet side of the secondary fuel distributor) with new ones.

Clip (Secondary): 8574-13-157

\* For the direction of the clip claw, see Fig. 60.

\* Do not use clips other than those included, part number below.

\* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe. (see arrow in Fig. 46.)

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.

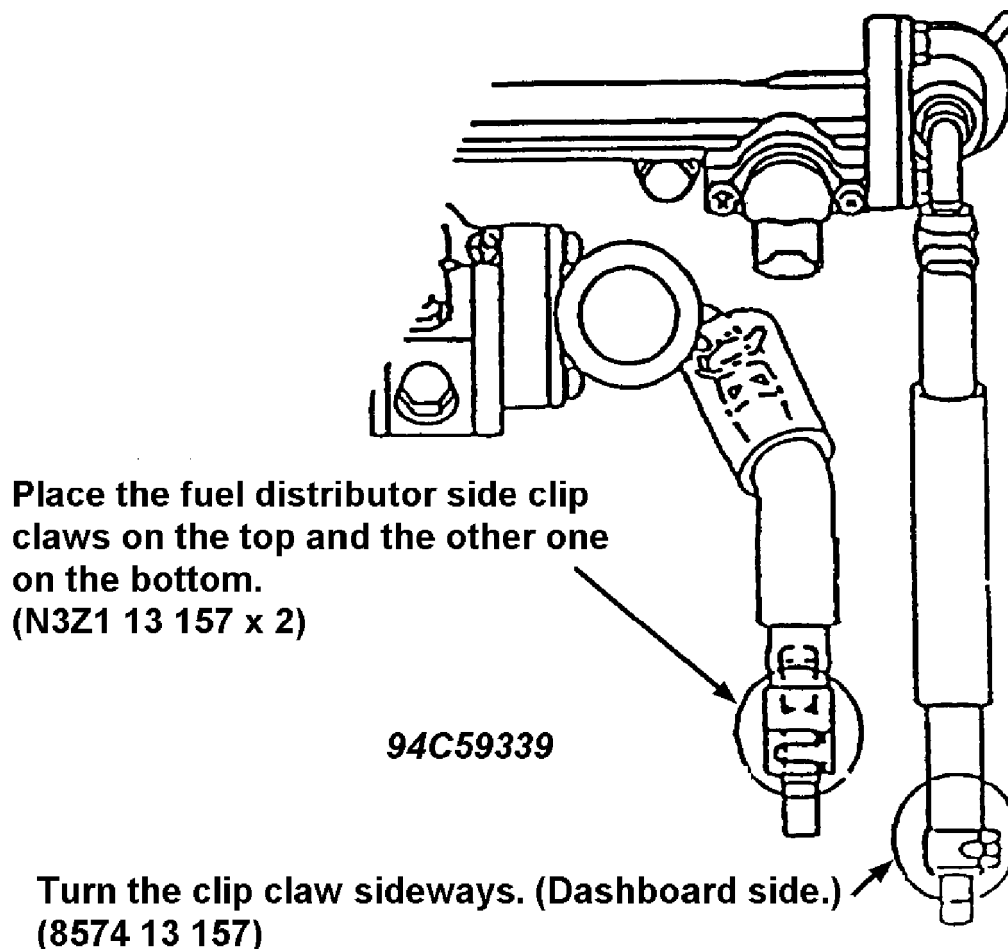


Fig. 60: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly  
Place the Clip Claws in Opposite Directions



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32-3. Replace the main fuel hose with a new one. See Fig. 61.

NOTE: \* The hose and the clips shown in Fig. 61 should be replaced with new ones.

\* Be careful not to use the hose and the clips other than those included, part number's below.

\* Apply adhesive to the hose end (short end side only, indicated by the arrow in Fig. 61), then install it. (To apply adhesive, see step 27-1.)

\* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1 -13-421.

Clip: 8574-13-157 x 2 pcs.

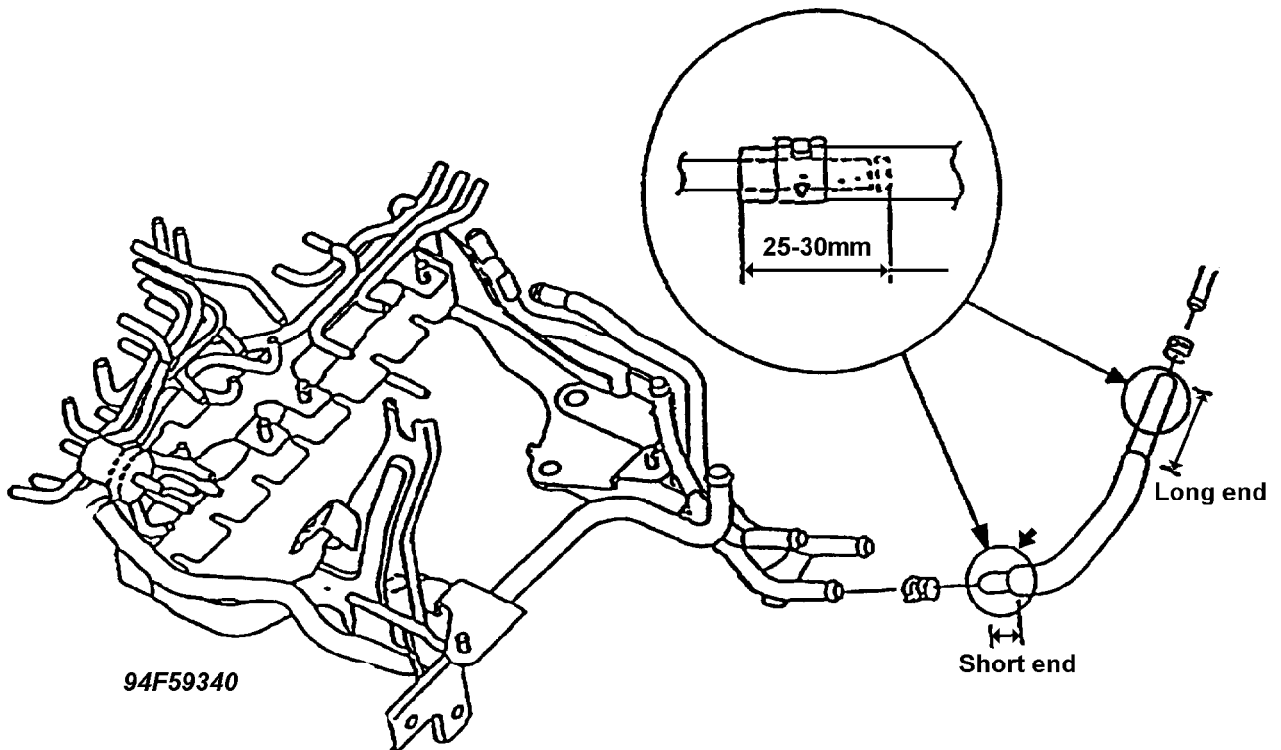


Fig. 61: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

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the ground terminal. See Fig. 62.

3. Pinch the fuel return hose with a suitable tool to stop any fuel return to the tank. See Fig. 63.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.
- \* Check for fuel leakage visually and by odor. Carefully check the positions (seven) indicated by the arrows in Fig. 63. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

**Diagnostic Connector To Ground Terminal**

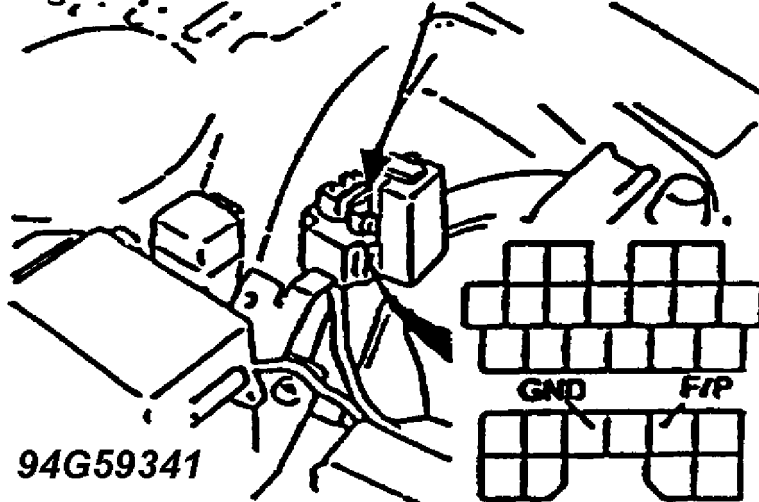


Fig. 62: Diagnostic Connector to Ground Terminal

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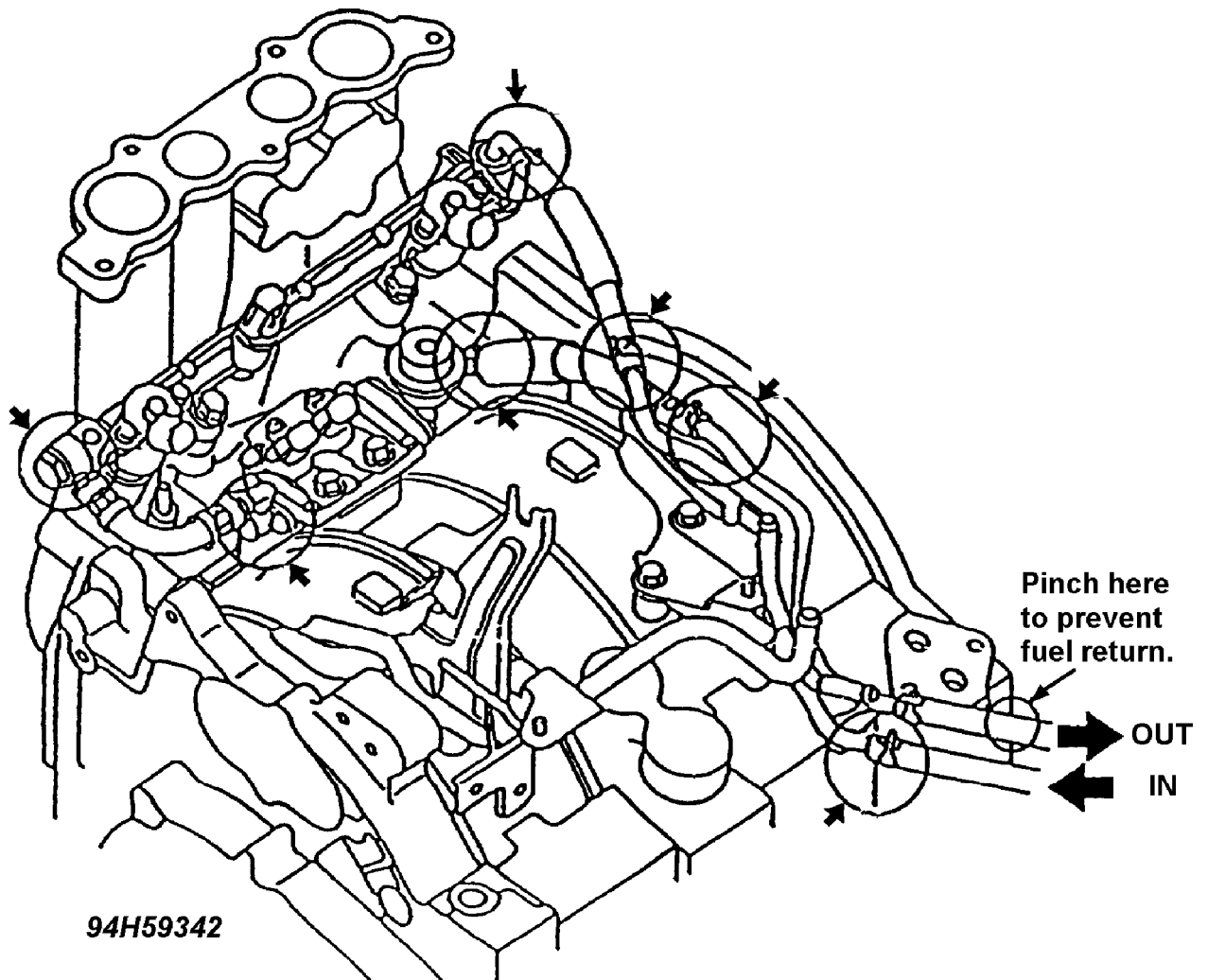


Fig. 63: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).

Tightening torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

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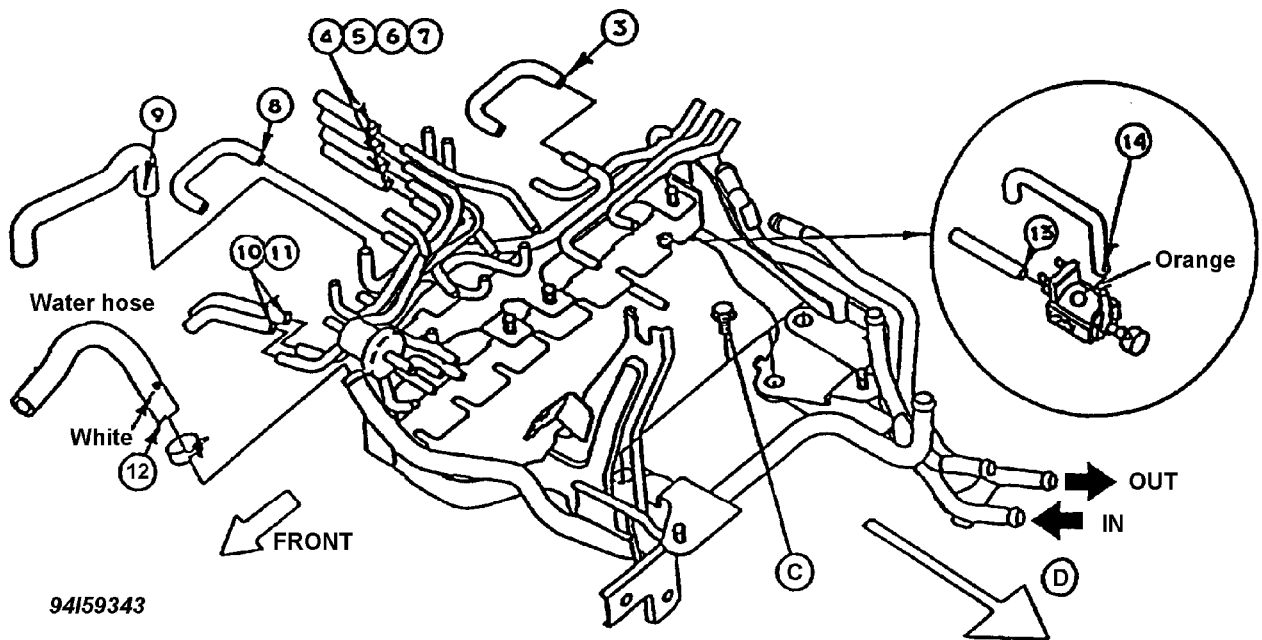


Fig. 64: Installation of Vacuum Tubes

35. Assemble the parts in the reverse order of removal.

**PROCEDURE C - REPLACEMENT OF THE FILLER CAP KIT**

NOTE: Procedure C is continued from procedure B.

The parts listed in this procedure must be ordered separately and are not included with the Fuel Recall Parts Kit.

36. Loosen the bolts of the filler cap body. Remove and discard the body and cap. Replace body, cap, and "O" ring with new ones from kit. See Fig. 65.

Kit Part Number - N3Z1-15-S10B

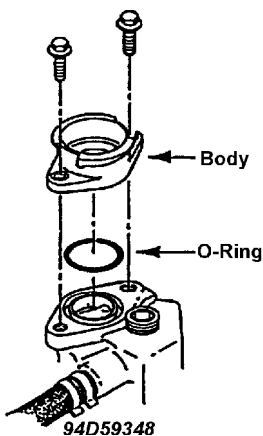


Fig. 65: Replacing Body Cap & "O" Rings

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37. Remove and discard the radiator cap from the sure tank and replace it with a new one.

Rad-cap: Included in Kit

NOTE: If the vehicle has no coolant leakage experienced and no coolant leakage at present, proceed to PROCEDURE E.

**PROCEDURE D - REPLACEMENT OF THE WATER PUMP KIT**

NOTE: Procedure D is continued from procedure E.

Water Pump Kit Part number N3Z1-15-S20

Thermostat Gasket must be ordered separately and is not included in the Fuel Hose Parts Kit.

38. Remove the bolts from the fresh air duct, and remove the fresh air duct. See Fig. 66.

\* Remove the rubber hoses from the air cleaner.

\* Remove the air cleaner installation bolts.

39. Remove the upper radiator hose. See Fig. 66.

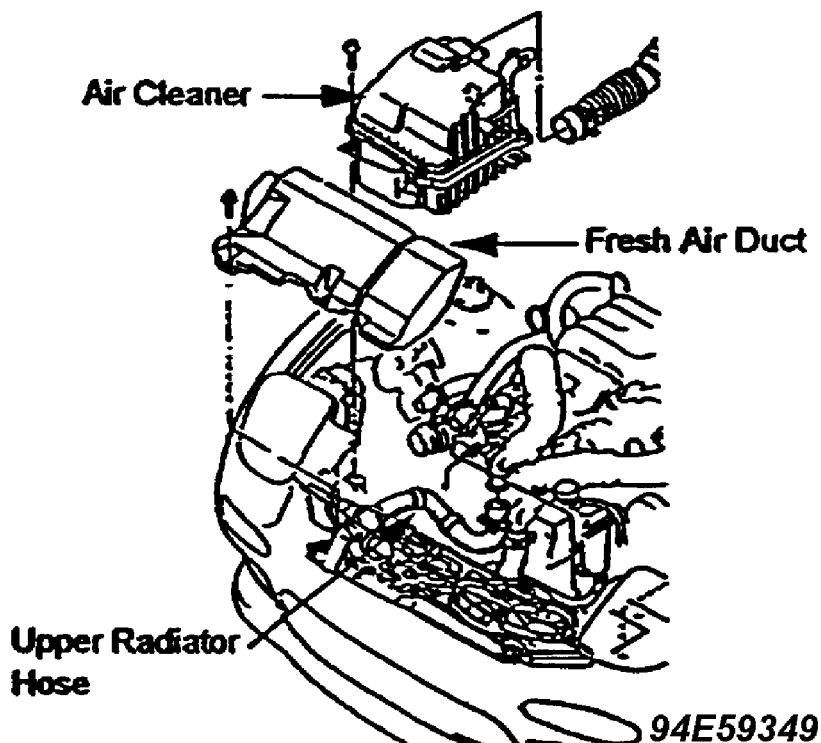


Fig. 66: Fresh Air Duct Bolts & Upper Radiator Hose

40. Remove the alternator installation nuts from the alternator

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adjuster bracket to remove the tension control bolt.

41. Remove the water pump pulley and alternator belt. See Fig. 67.

\* Loosen the four bolts from the water pump pulley.

\* Loosen the alternator belt.

\* Remove the bolts from the water pump pulley.

\* Move the belt, and remove the water pump pulley.

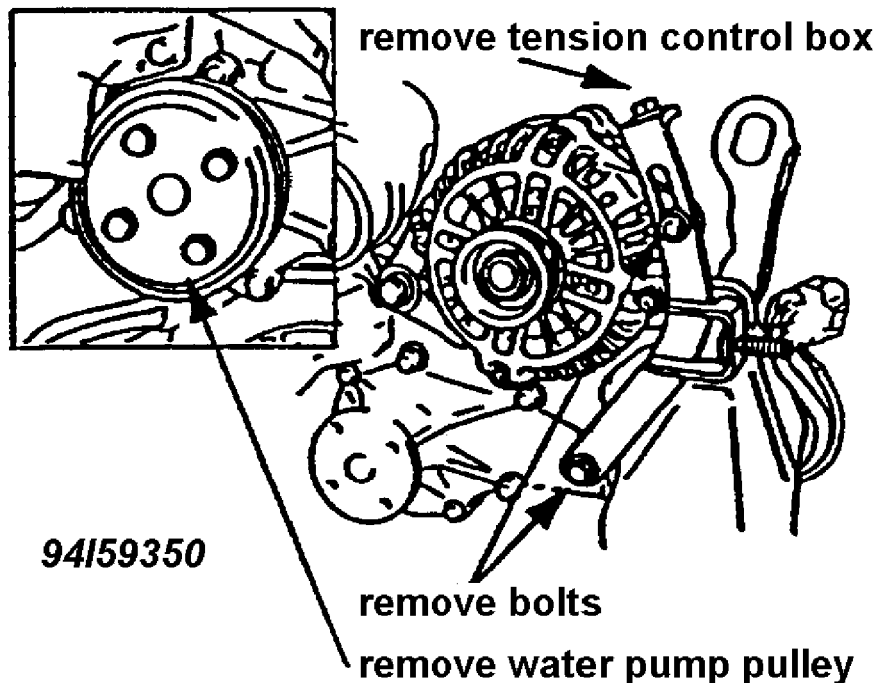


Fig. 67: Alternator Bracket & Water Pump Pulley

42. Remove the alternator adjuster bracket.

\* Remove the bolts attaching the alternator adjuster bracket to the water pump.

43. Remove the nut attaching the alternator adjusting bracket to the power steering bracket. See Fig. 68.

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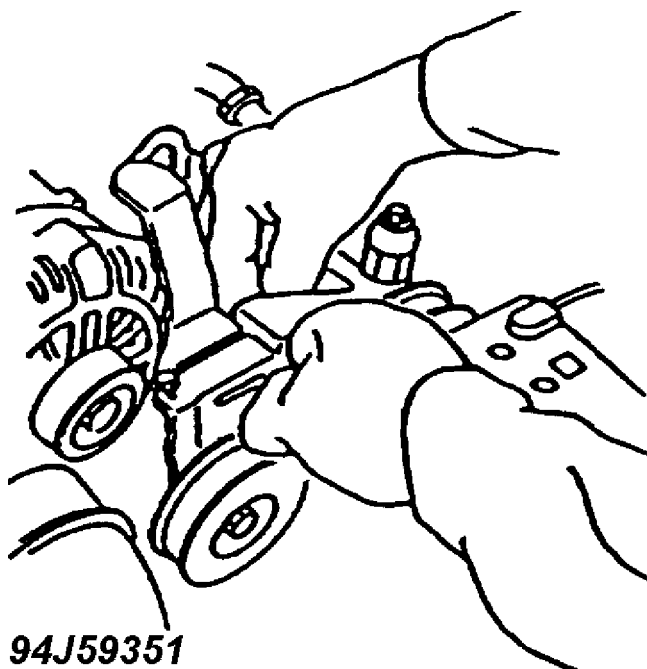
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**94J59351**

Fig. 68: Alternator Adjusting Bracket Nut to Power Steering Bracket

44. Remove the water pump and discard. Remove and discard gasket and clean gasket surface.

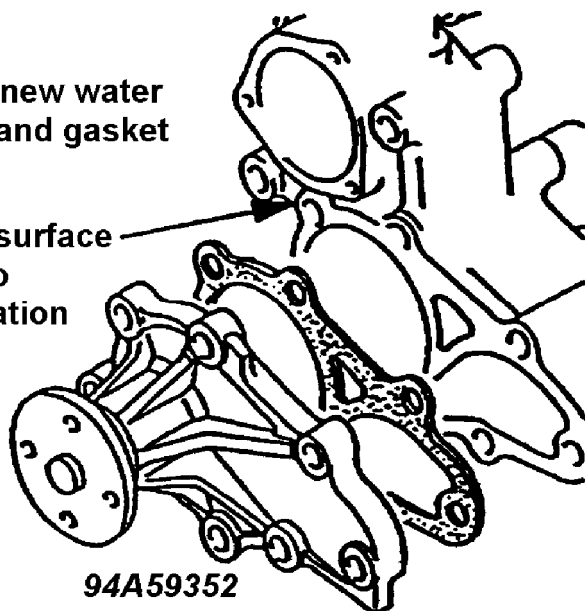
45. Install new water pump using the new gasket. See Fig. 69.

Water pump: Included in Kit

Gasket: Included in Kit

**Install new water  
pump and gasket**

**Clean surface  
prior to  
installation**



**94A59352**

Fig. 69: Installing New Water Pump Gasket

NOTE: Be sure that oil metering line retaining clip is installed

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correctly on the outside of the water pump at bolt "A".  
See Fig. 70.

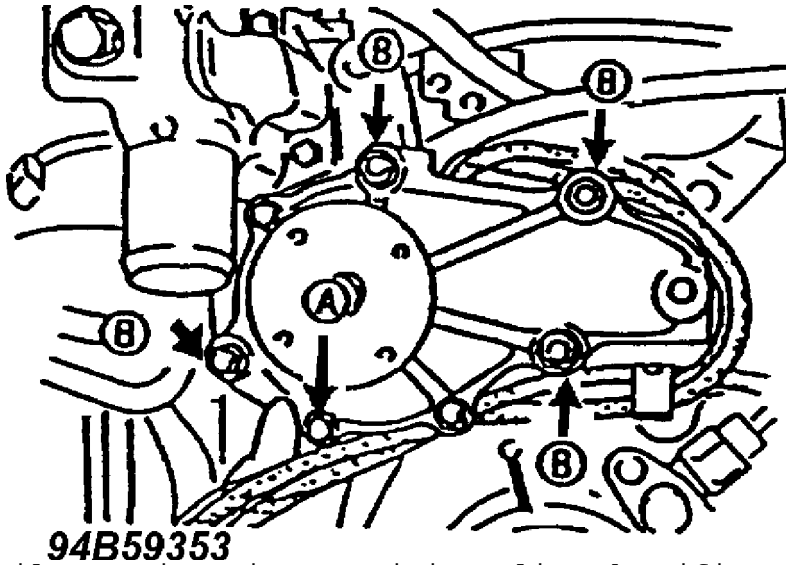


Fig. 70: Oil Metering Line Retaining Clip Identification

46. Disconnect the low coolant switch connector. See Fig. 71.

47. Remove the surge tank hose from the thermostat cover.

48. Remove the thermostat cover.

\* Remove the thermostat.

\* Install thermostat with new gasket.

Gasket: N3C1-15-173

NOTE: Ensure that the jiggle pin is in the 12:00 o'clock position.



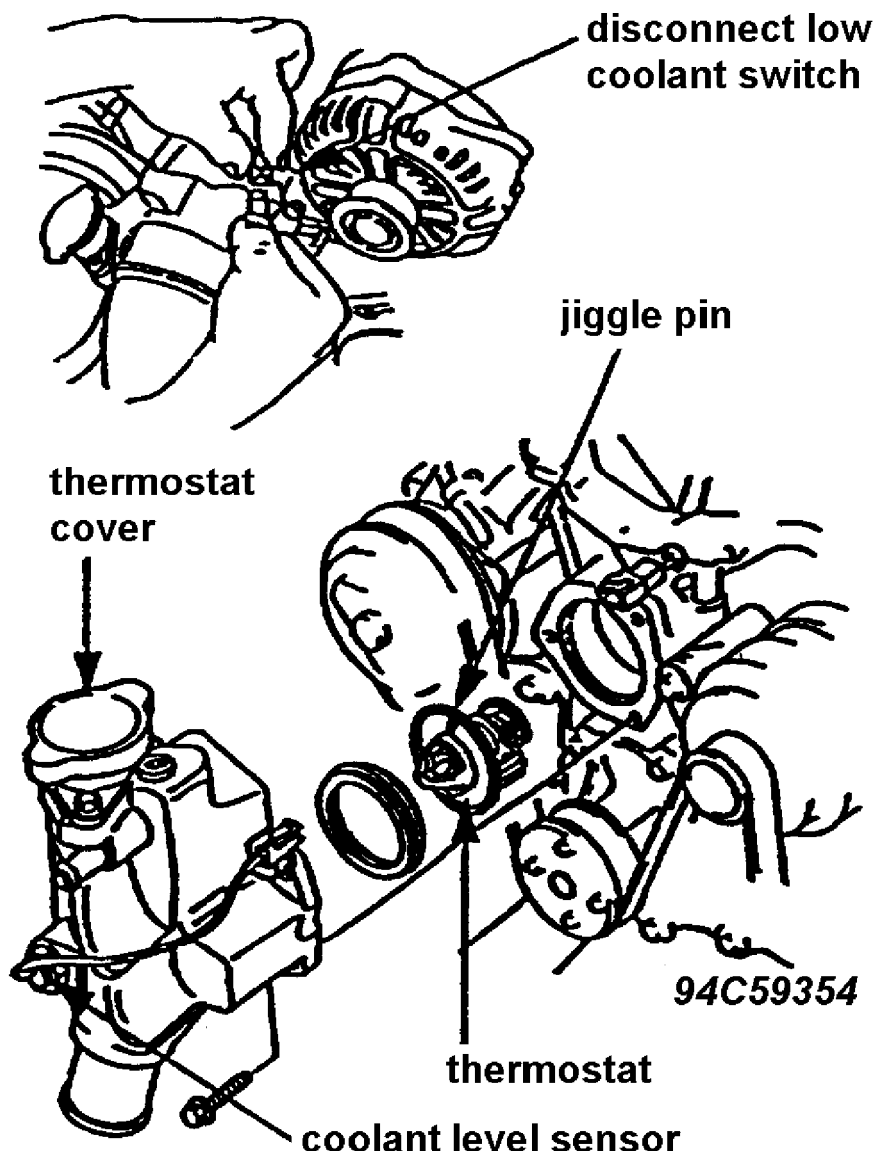


Fig. 71: Jiggle Pin Identification

49. Install a new coolant level sensor and gasket.

Level sensor: Included in Kit

Gasket: Included in Kit

50. Install the thermostat cover.

NOTE: Install water level sensor connector bracket.

51. Connect the coolant level sensor.

52. Install alternator bracket, pulley, and belt in reverse order of removal. See Fig. 67.

53. Install new upper radiator hose.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

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Radiator hose: Included in Kit

54. Install air cleaner and fresh air duct.

**PROCEDURE E - COOLING SYSTEM CHECK/AFFIXING CAMPAIGN LABELS**

NOTE: Procedure E is continued from procedure D.

55. After assembling parts, follow the instructions below prior to replenishing coolant.

- \* Measure the concentration of antifreeze in the removed coolant with a hydrometer.
- \* If the concentration is more than 45%, use the removed coolant to fill the system, purge air from the system and fill the coolant reservoir to the "F" mark.
- \* If the concentration is 45% or less, add 100% anti-freeze to the coolant system as specified in the ANTI-FREEZE CONCENTRATION TABLE.
- \* Purge the system of air. Use the original coolant to fill the reservoir to the "F" mark.

NOTE: Coolant refers to the fluid drained from the vehicle.  
Anti-Freeze refers to 100% new coolant.

ANTI-FREEZE CONCENTRATION TABLE

Concentration Of Anti-Freeze	Amount of Anti-Freeze To Be Added
0-5%	4.4L
5-10%	4.1L
10-15%	3.8L
15-20%	3.5L
20-25%	3.1L
25-30%	2.7L
30-35%	2.2L
35-40%	1.6L
40-45%	1.0L

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

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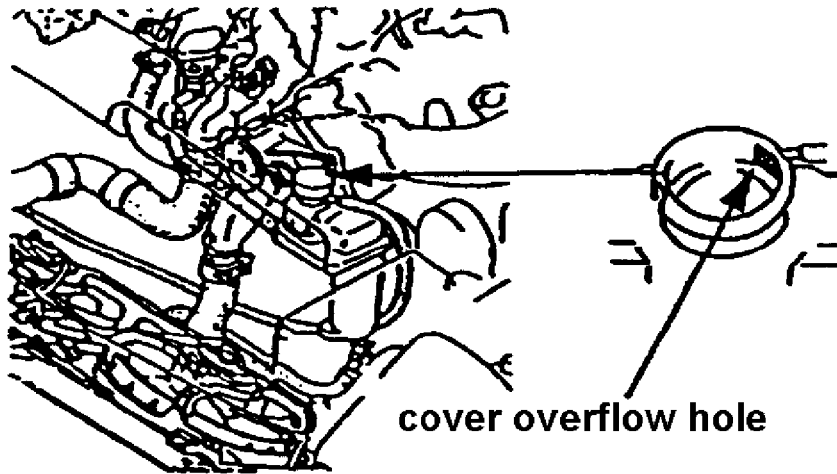
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<sup>3</sup> Use Hydrometer To Measure Concentration <sup>3</sup>

AAUU

56. Remove the cap from the surge tank and close the overflow hole in the surge tank neck with tape. See Fig. 72.

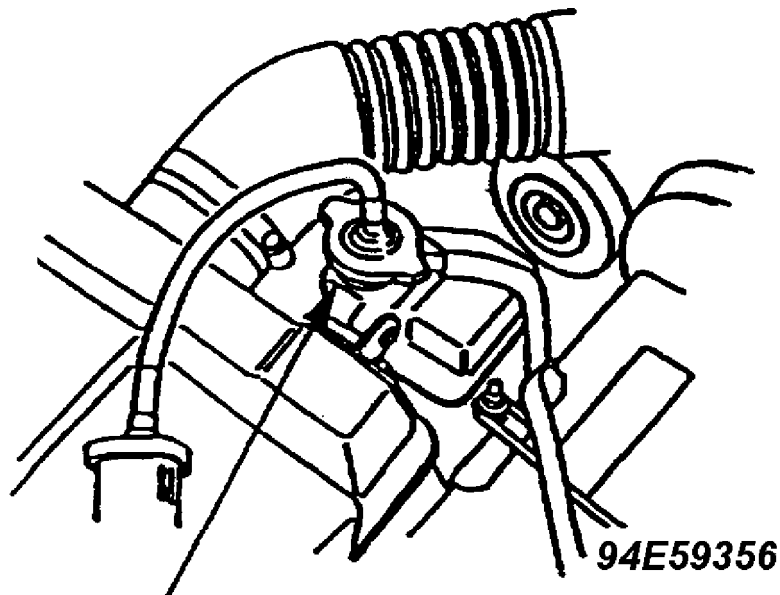


**94D59355**

Fig. 72: Cover Overflow Hole

57. Install the radiator pressure tester on surge tank.

58. Apply 15 psi. See Fig. 73.



**94E59356**

**Install radiator tester and apply 15psi.  
Verify that pressure holds.**

Fig. 73: Radiator Pressure Tester Application

59. Verify that pressure holds.

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN) CAT. RC, NO. 95-01**

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NOTE: If the radiator coolant pressure has dropped, locate the leak and repair as necessary. Retest after repair following the above procedures. After confirmation that no leaks are present, remove the tape from the overflow hole and install the pressure cap.

- 60. Affix the Campaign Label number 54407 and number 60504 onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 74.

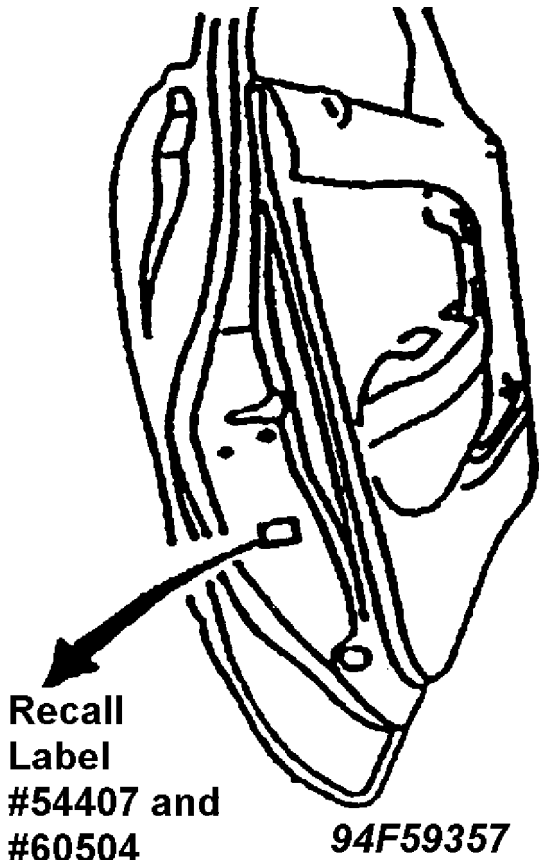


Fig. 74: Recall Label #54407 & #60504 Identification

**WARRANTY INFORMATION**

REPAIR CONTENT - FUEL HOSE AND COOLING SYSTEM WARRANTY TABLE

	With Coolant Leak	Without Coolant Leak	Fuel Hose
Warranty Type	5	5	5
Recall No.	60504	60504	60504
Process Code	D	E	F



# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL REPAIRS

Model(s): 1993-94 Mazda RX-7  
Category: AD  
Bulletin No.: 002/96  
Date: February, 1996

### PURPOSE OF THIS INFORMATION

- 1) Emphasize the importance of proper repair.
- 2) Provide diagnostic tips-if repairs are not performed correctly.

### CONTENTS

- \* January 1994 M-Tips contents related to this recall.
- \* General, Driveability and Component Troubleshooting Tips
- \* Service Bulletin AD, 002/96
- \* Up dated reference pages for the applicable Wiring Diagrams.

NOTE: Many driveability concerns occur from improperly performed repair procedures. This information is provided to emphasize this point and give direction to prevent these concerns.

### REPAIR PROCEDURE

IMPORTANT: Read this information thoroughly prior to performing recall repairs

#### MAZDA TIPS (Jan. 1994 ed.)

When performing the Fuel Line Recall on RX-7 (Recall #60504), the following precautions and tips could save you a lot of extra time, and eliminate unnecessary expenses.

- \* Use extreme caution when removing the Fuel Pressure Regulator vacuum line. The plastic solenoid pipe can be easily broken when removing the hose if caution is not exercised.
- \* Secondary Fuel Rail Hose Replacement: The fuel injector rails are very fragile and can be easily broken. Remove the fuel distributor assemblies before you remove the Fuel Connector bolt. Do not mount the fuel distributor in a vice. Hold the distributor in your hand

## SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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and remove the Fuel Connector bolt with an air impact wrench. When installing the new fuel hose, hold the fuel distributor by hand and torque. The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs)

- \* Fuel Hose Clips: The double clips used on the primary fuel distributor inlet hose are narrower than the other clips. They also have a red holder. The single clips for use on the secondary distributor outlet hose is wider and has a pink holder.
- \* Fuel System Pressure Test: It is essential that this test be properly completed. The fuel line clips may appear to be properly seated, when in fact they are slightly mispositioned. Only when this pressure test is performed for the full five minutes can you be certain that all joints are well sealed.
- \* When performing fuel system leak test, it is important to connect the battery negative cable and then install jumper wire from the ground to the fuel pump terminals in the diagnostic connector before tuning the ignition switch on. When the test is completed, turn the ignition switch off, remove the jumper wire, and then disconnect the battery negative cable. Failure to follow this order could result in damage to electrical components, such as the PCM.
- \* Be sure to use the proper 10mm nuts to install the coil assembly. The proper nuts have grooves on the underside to ensure a complete ground.
- \* Be sure that the 0-ring gasket is properly seated on the base of the oil filler. The gasket may come off during removal without being noticed.
- \* When installing the Catch Tank during reassembly, be sure to route the vacuum hose from the purge control and to the catch tank on the outside of the oil filler. Otherwise, the vacuum hose could interfere in proper operation of the throttle linkage.
- \* The Fan Control System fastener A is a gray plastic-phillips screw in fastener. Remove and discard the fastener. The bolt at the top of the ECU should be loosened to allow the ECU to be slid down and away from the kick panel. It is not necessary to remove the wiring connectors from the ECU to perform this procedure. Just move the ECU over toward the center of the passenger area floor.

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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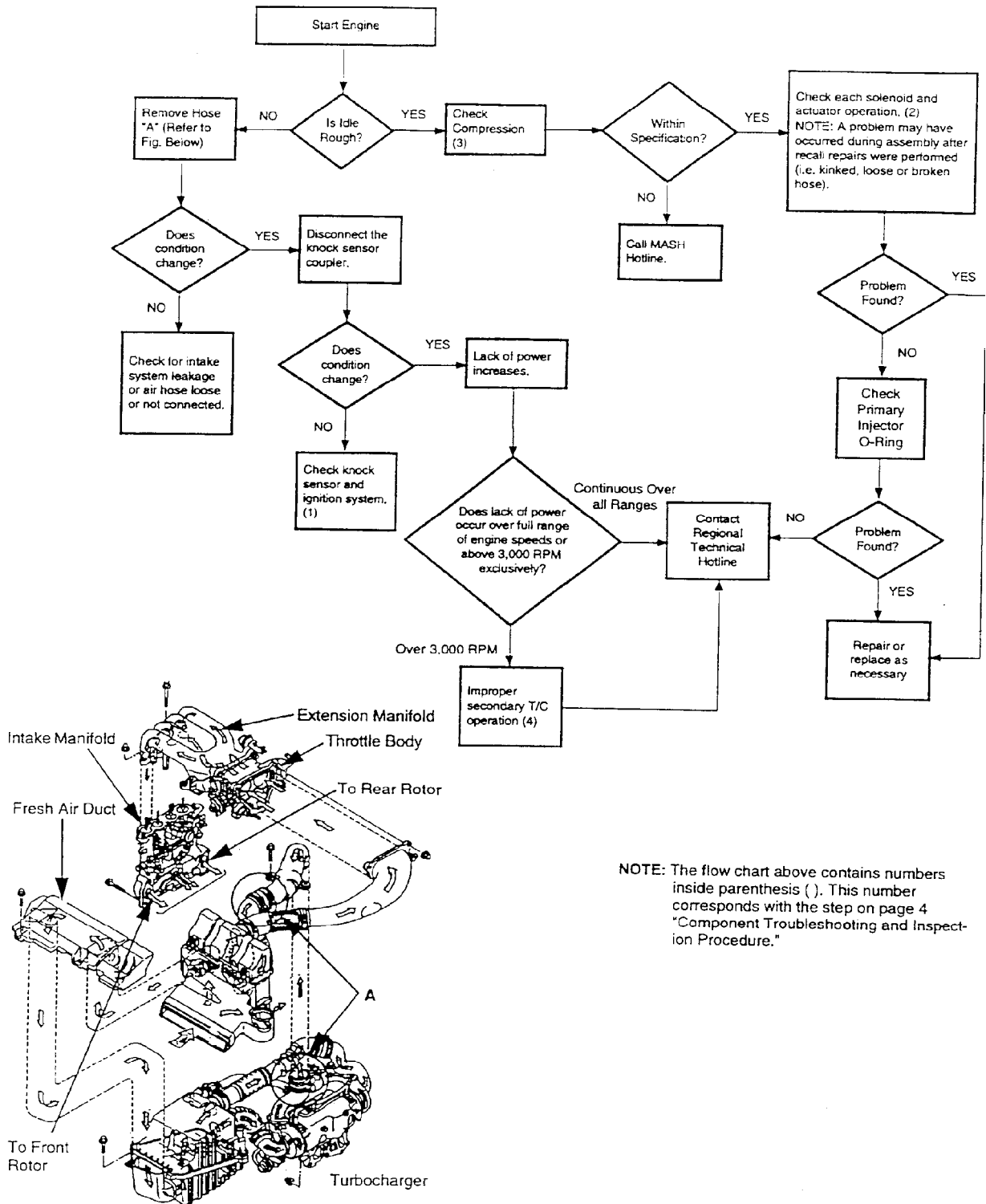
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### DRIVEABILITY TROUBLESHOOTING TIPS (Lack of Power, Rough Idle and Hesitation)



NOTE: The flow chart above contains numbers inside parenthesis (.). This number corresponds with the step on page 4 "Component Troubleshooting and Inspection Procedure."

98C51617  
 Fig. 1: Driveability Troubleshooting Tips, Poor Power/Idle, Hesitates

### GENERAL TROUBLESHOOTING TIPS



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TROUBLESHOOTING CHART

Trouble	Possible Cause
Engine will not start, spark plugs are wet or fouled.	On older vehicles, the injectors may leak under extremely high pressures developed during the fuel system pressure test. * Remove and clean plugs. * With plugs remove, hold the throttle completely open and crank the engine to dechoke. DO NOT REPLACE THE INJECTORS. Injectors will not leak under normal system pressure.
Engine does not get fuel. Cranks but will not start.	The PCM may have been damaged during the fuel leakage test if the proper procedure was not followed. To test the PCM: * Connect a jumper wire from the pump terminal in the diagnostic connector directly to a good ground (not in the connector). * Crank the engine. * If the engine starts and remains running only as long as the connector is connected, the PCM is damaged and must be replaced.
Engine cuts out on hard throttle, but accelerates normally under light throttle.	Check the secondary fuel injector connectors. * If the connectors are not fully locked during reassembly, they can be mis-positioned when the vacuum pipe assembly is installed. * Connectors may appear to be in place but not fully connected.
No fast idle.	* Check the idle speed control valve connector for good connection.
Excess fuel consumption after recall repair work.	Improper vacuum may result in faulty fuel regulator operation. * Check fuel regulator vacuum hose connection.
Unusual air noise from center of engine (just off idle).	If the Air Control Valve check valve is not properly seated, the ACV can not seat properly. * Check that the ACV check valve is

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```
3           3 properly installed.           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan will not 3 If the cooling fan will not operate 3
3 operate.           3 under any conditions during the fan 3
3           3 test.           3
3           3 * Check the wire harness ground 3
3           3 strap for proper connection. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan shuts off 3 Memory needs cleared.           3
3 when the key is turned 3 * Disconnect the battery and start 3
3 off during the fan 3 fan test over.           3
3 test.           3           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Cooling fan comes on 3 If the vehicle was produced before 3
3 immediately when the 3 April 1, 1993 (VIN of JM1FD331* 3
3 key is turned on and 3 P0210660 or less):           3
3 the check connector is 3 * The fan should come on immediately 3
3 grounded.           3 when the key is turned on. 3
3           3 * Leave the key on and the fan 3
3           3 operating for at least 150 seconds 3
3           3 * Turn the key off and proceed with 3
3           3 the test.           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA -
3 Fan operates only on 3 * Check that the harnesses with the 3
3 medium speed during fan 3 Black wires are connected. 3
3 test.           3 NOTE: The other two (2) harnesses 3
3           3 are interchangeable.           3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA U
```

**COMPONENT TROUBLESHOOTING AND INSPECTION PROCEDURE**

- 1) Perform Spark Plug and Ignition Coil Inspection.
- 2) Intake System Inspection, check the following:
  - \* If the air hose is coming off.
  - \* If oil is present inside the hose and there is no sign of breakage, remove the oil. It is not necessary to replace the hose.
  - \* If the hose is broken, replace the hose with a new part and tighten to the specified torque.
  - \* If the hose is loose (coming off) insert properly and tighten to specified torque.

NOTE: The fuel connector bolt torque should be adjusted to 240-360 kgs/cm (208-312 in-lbs).

CAUTION: Do not allow foreign material to enter related parts when replacing or reinstalling intake system parts.

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3) Compression Measurement.

4) Turbocharger Operation Controls Inspection:

TURBOCHARGER OPERATION CONTROLS INSPECTION TABLE

Part Name	Inspection Item	Procedure
Check Valve "A" and "B"	Reverse Flow	* After checking the check valve, confirm that air hoses C, D, E, F, are connected. See Fig. 2.
Turbo Control Valve Actuator, Charge Control Valve Actuator, Charge Relief Valve, Turbo Control Actuator, Turbo Pre-Control Actuator in Fig. 2	Improper Operation, Improper Piping Bent, Nicked and Removed Hoses	* Refer to Fig. 2 to identify components for damaged (bent, nicked) or removed condition. Carefully check the following: * Improperly connected piping around area "G." * Removed hoses around area "H." * "I" hose for bent condition.

Repair or replace defective parts as necessary.

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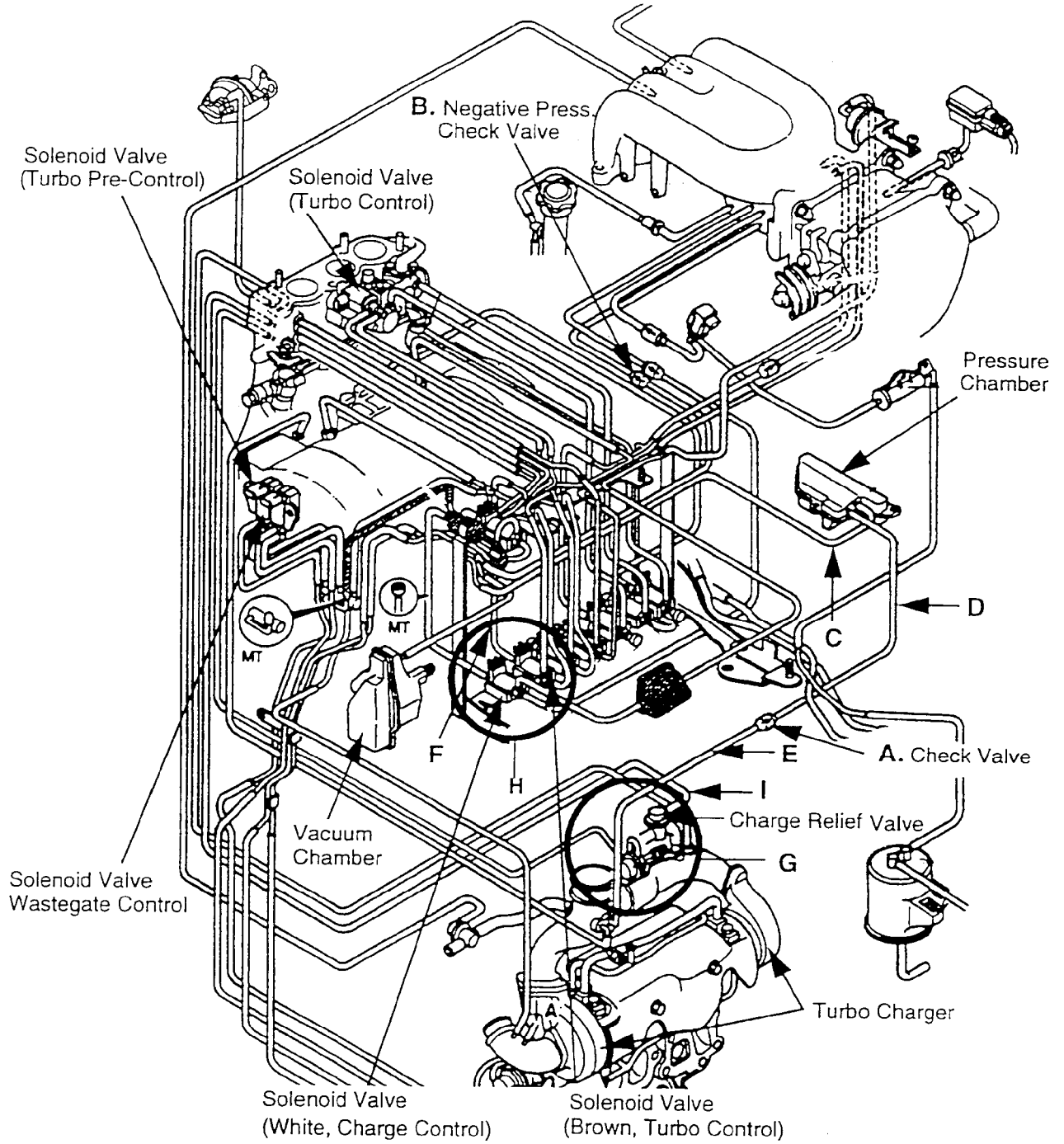
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**SYSTEM SCHEMATIC**



98D5161B

Fig. 2: Intake System Schematic

SYSTEM SCHEMATIC PARTS IDENTIFICATION TABLE

Item	Description	Part No. (1)

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- 3 A 3 Check Valve (Positive Pressure) 3 N390-13-995A 3  
 ~~~~~
  - 3 B 3 Check Valve (Positive Pressure) 3 N390-13-995A 3  
 ~~~~~
  - 3 C 3 Vacuum Hose (Pressure Chamber 3 N3A1-20-341 3  
 3 3 Exit) 3 3  
 ~~~~~
  - 3 D 3 Vacuum Hose (Pressure Chamber 3 N3A1-20-342 3  
 3 3 Entrance) 3 3  
 ~~~~~
  - 3 E 3 Vacuum Hose (Check Valve 3 N350-13-B96 3  
 3 3 Entrance) 3 3  
 ~~~~~
  - 3 F 3 Vacuum Hose (CCV No. 3 3 N3A2-20-362 3  
 3 3 Solenoid) 3 3  
 ~~~~~
- 3 (1) If part is removed, replacement is necessary 3  
 ~~~~~

**COOLING FAN CONTROL SYSTEM 1993 RX-7**

**DESCRIPTION**

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 3 and 4.

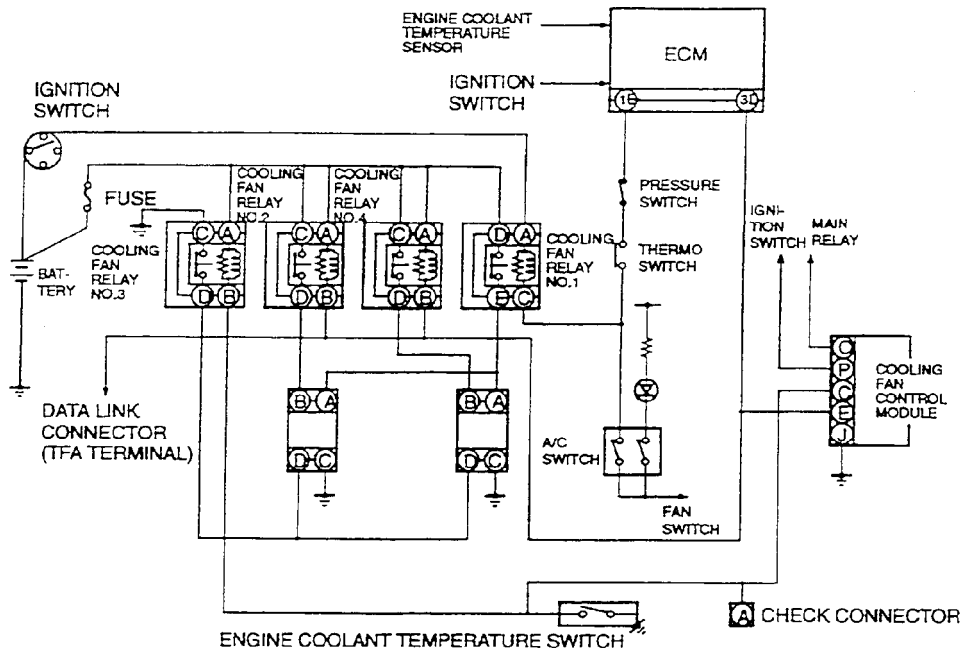


Fig. 3: Cooling Fan Control System Components

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| Engine condition<br>(No electrical load)                                                                                                                     |                                                                                                    | A/C operation | Cooling fan relay No.1 | Cooling fan relay No.2 | Cooling fan relay No.3 | Cooling fan relay No.4 | Cooling fan operation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Engine coolant temperature below 105 °C {221 °F }                                                                                                            |                                                                                                    | OFF           | OFF                    | OFF                    | OFF                    | OFF                    | OFF                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | OFF                    | OFF                    | OFF                    | LOW                   |
| Engine coolant temperature 105—108 °C {221—226 °F }                                                                                                          |                                                                                                    | OFF           | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | OFF                    | ON                     | MIDDLE                |
| Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)                                                                     |                                                                                                    | OFF           | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | ON                     | ON                     | HIGH                  |
| In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF. | Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF               | —             | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              | Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| Engine coolant temperature sensor malfunction                                                                                                                |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| TFA terminal ground                                                                                                                                          |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |

98E51742  
Fig. 4: Cooling Fan Control System Operation

### SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) (Up to VIN JM1 FD331' PO 210660) Turn the ignition switch to ON and verify that the cooling fan operates. Wait for approximately 150 seconds. (From VIN JM1 FD331' PO 210661) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

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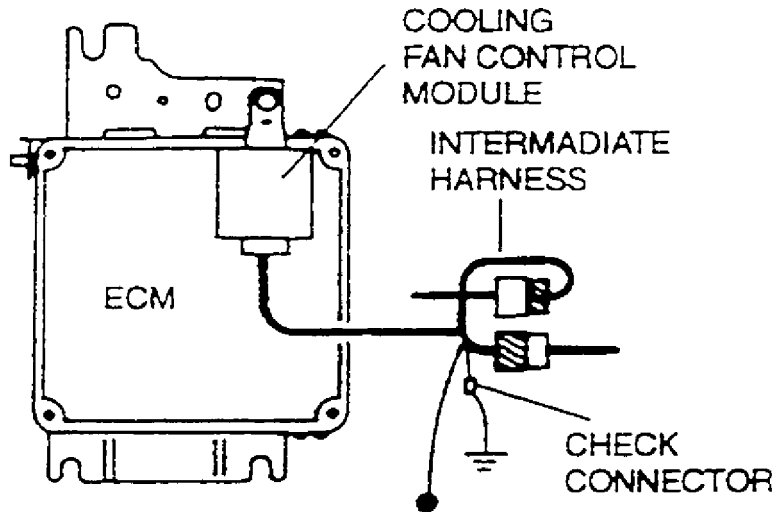
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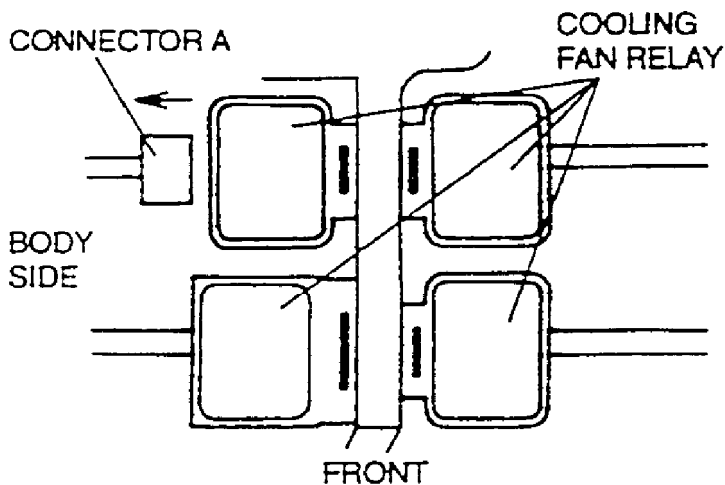
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- 7) Turn the ignition switch to OFF.
- 8) Verify that the cooling fan keeps operating after the ignition switch is turned to OFF.
- 9) If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.



98H51620  
Fig. 5: Cooling Fan Control Module



98I51621  
Fig. 6: Cooling Fan Relay Connector

- 12) If not, inspect the cooling fan relay.

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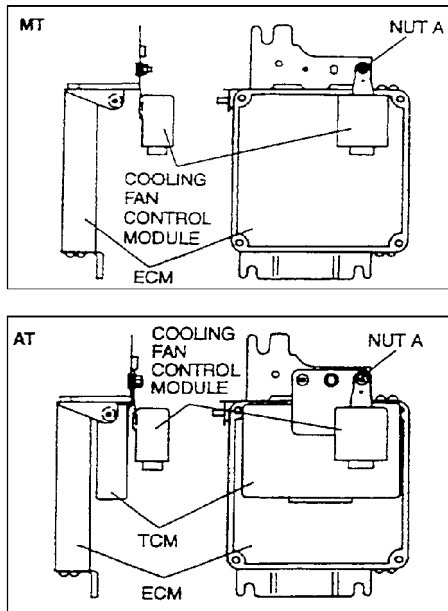
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- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module

### COOLING FAN CONTROL MODULE 1993 RX-7

#### REMOVAL/INSTALLATION

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).



98151622  
Fig. 7: Cooling Fan Control Module

INSPECTION 1993 RX-7



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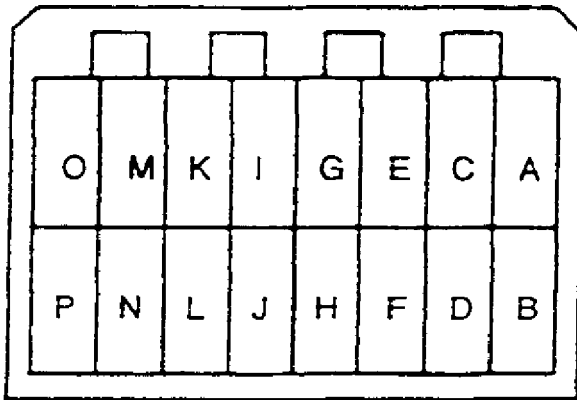
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1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.

2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module



98A51623

Fig. 8: Fan Control Module Connector Terminal Locations

| Terminal Voltage |                                              |                                   |                                                   | B+: Battery positive voltage |                                                                                                                                       |
|------------------|----------------------------------------------|-----------------------------------|---------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Terminal         | Signal                                       | Connected to                      | Test condition                                    | Voltage (V)                  | Possible malfunction                                                                                                                  |
| A                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| B                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| C                | Engine coolant temperature (for cooling fan) | Engine coolant temperature switch | Engine coolant temperature below 108 °C {226 °F } | B+                           | <ul style="list-style-type: none"> <li>• Engine coolant temperature switch</li> <li>• Cooling fan relay (Refer to F-146-1)</li> </ul> |
|                  |                                              |                                   | Engine coolant temperature above 108 °C {226 °F } | Below 1.0                    |                                                                                                                                       |
| D                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| E                | Cooling fan relay No.2, 4                    | Cooling fan relay No.2, 4         | Cooling fan not operating                         | B+                           | <ul style="list-style-type: none"> <li>• Cooling fan relay (Refer to F-146-1)</li> </ul>                                              |
|                  |                                              |                                   | During cooling fan operating                      | Below 1.0                    |                                                                                                                                       |
|                  |                                              |                                   | TFA terminal of data link connector is grounded   | Below 1.0                    |                                                                                                                                       |
| F                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| G                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| H                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| I                | —                                            | —                                 | —                                                 | —                            | —                                                                                                                                     |
| J                | Ground                                       | Ground                            | Constant                                          | Below 1.0                    | <ul style="list-style-type: none"> <li>• Cooling fan control module terminal J -Ground</li> </ul>                                     |

98F51743

Fig. 9: Terminal Voltage Chart A-J

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B + : Battery positive voltage

| Terminal | Signal                       | Connected to | Test condition      | Voltage (V) | Possible malfunction |
|----------|------------------------------|--------------|---------------------|-------------|----------------------|
| K        | —                            | —            | —                   | —           | —                    |
| L        | —                            | —            | —                   | —           | —                    |
| M        | —                            | —            | —                   | —           | —                    |
| N        | —                            | —            | —                   | —           | —                    |
| O        | Power supply                 | Main relay   | Ignition switch OFF | Below 1.0   | • Main relay         |
|          |                              |              | Ignition switch ON  | B +         |                      |
| P        | Power supply (Condenser fan) | Battery      | Constant            | B +         | • A/C fuse           |

Fig. 10: <sup>98G51744</sup> Terminal Voltage Chart K-P

**COOLING FAN RELAY (NO. 1, 2, 3, 4) 1993 RX-7**

INSPECTION

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

TERMINAL CONTINUITY TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
 3 Operation      3 A Type - Terminals D-E 3
 3               3 B Type - Terminals C-D 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
 3 B+ applied    3 Continuity      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
 3 B+ not applied 3 No continuity   3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
    
```

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 12 and 13

**SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

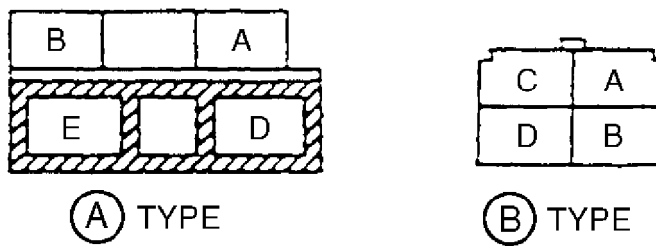
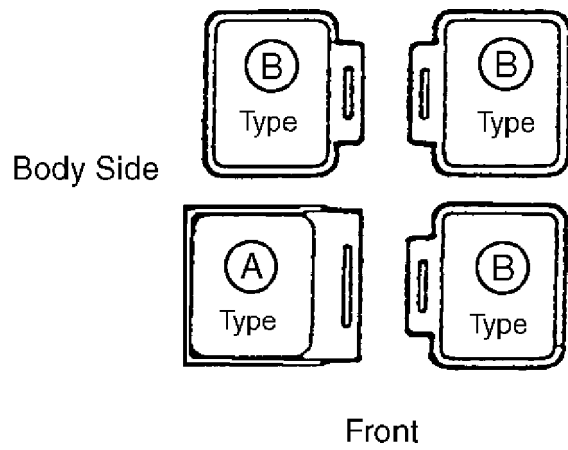
**Article Text (p. 14)**

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98B51624  
Fig. 11: Terminals A and B

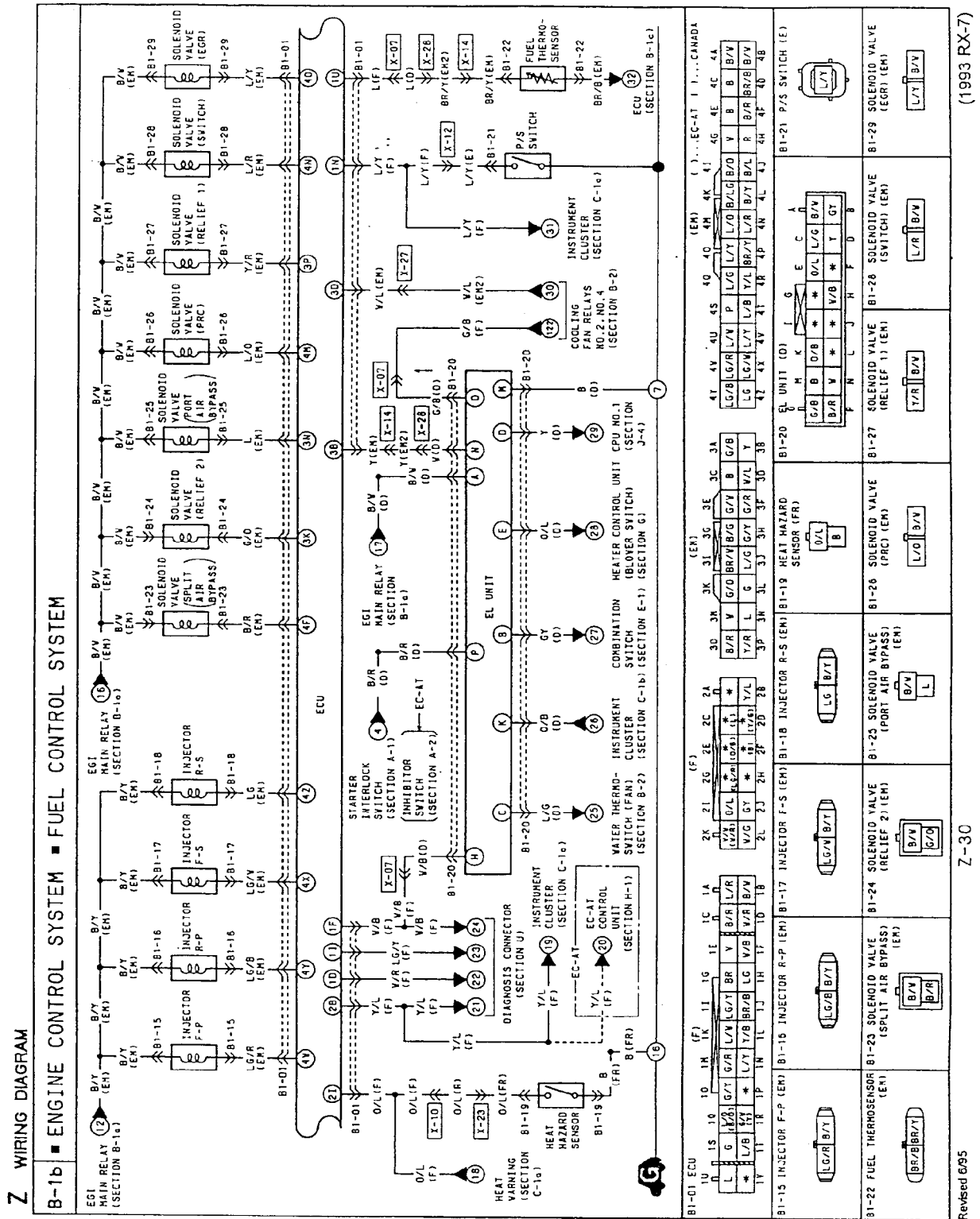


Fig. 12: Wiring Diagram Engine & Fuel Control System 1993 RX-7

98C51625

Revised 6/95

Z-30

(1993 RX-7)

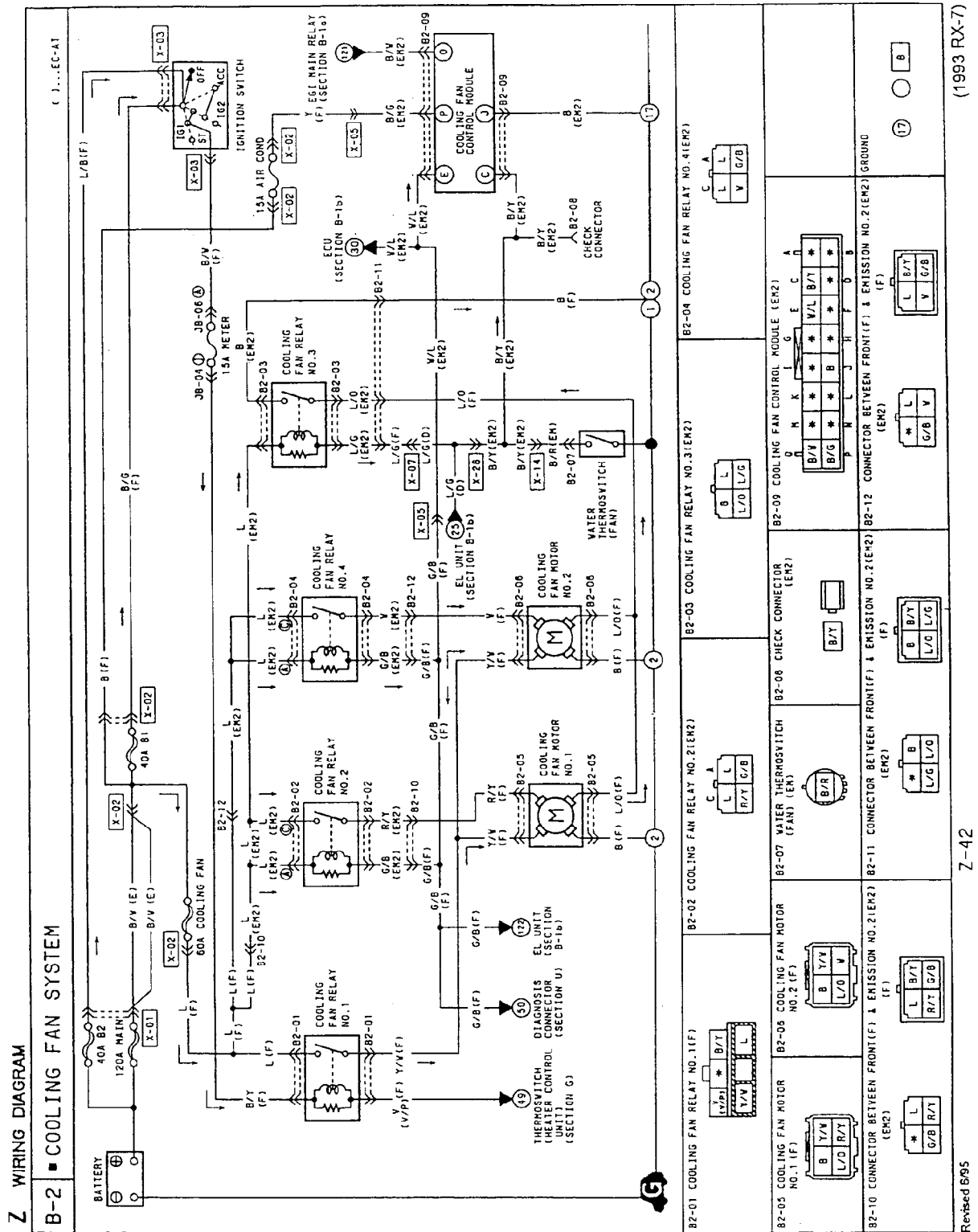


Fig. 13: Wiring Diagram Coolant Fan System 1993 RX-7

COOLING FAN CONTROL-SYSTEM 1994 RX-7

(1993 RX-7)

Z-42

Revised 6/95

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 17)

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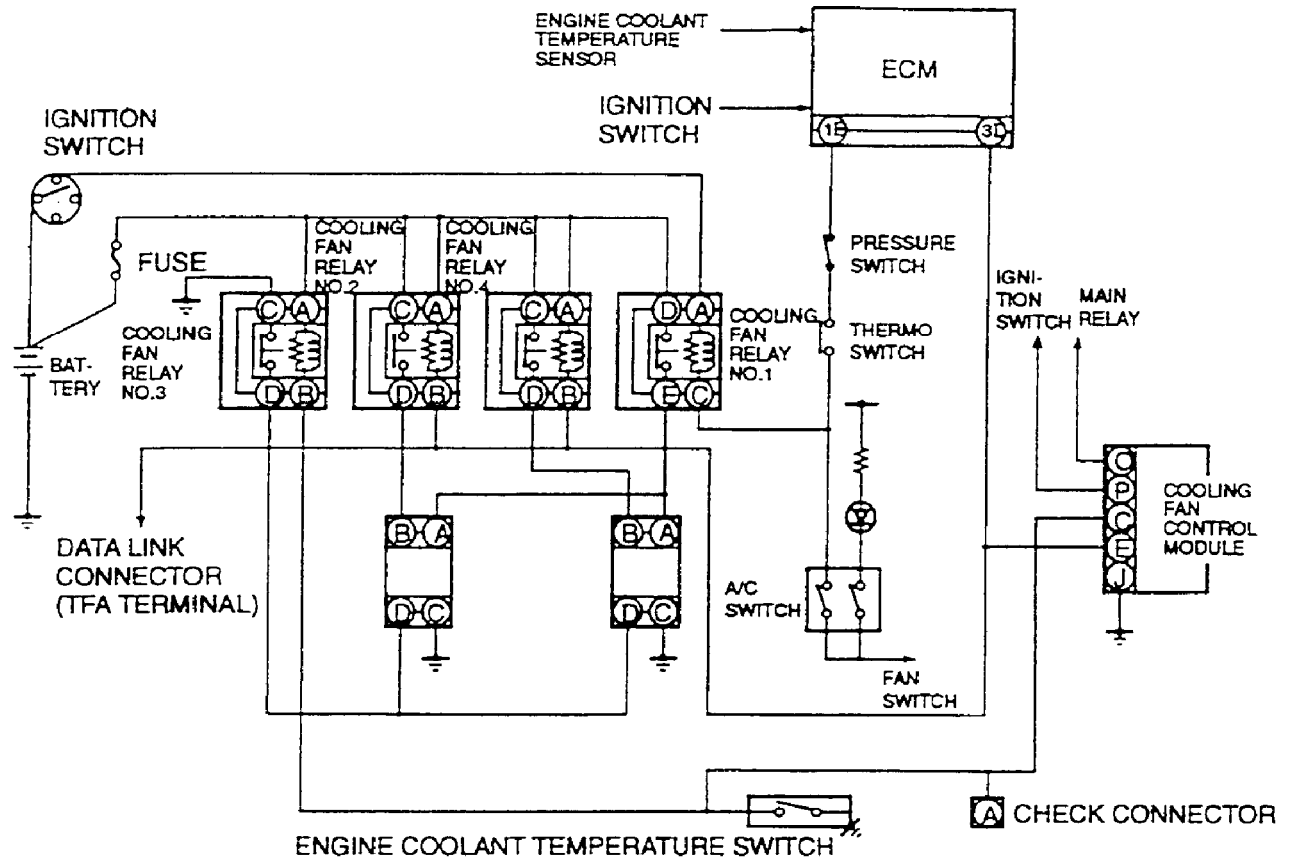
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### DESCRIPTION

To improve idle smoothness and engine reliability, the cooling fan control system controls the electrical fan speed by ECM. This system consists of the cooling fan, cooling fan relays, cooling fan control module, ECM, and input devices. See Figs. 14 and 15.



98E51627  
Fig. 14: Cooling Fan Control System Components

# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

## Article Text (p. 18)

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### Operation

| Engine condition<br>(No electrical load)                                                                                                                     |                                                                                                    | A/C operation | Cooling fan relay No.1 | Cooling fan relay No.2 | Cooling fan relay No.3 | Cooling fan relay No.4 | Cooling fan operation |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Engine coolant temperature below 105 °C {221 °F }                                                                                                            |                                                                                                    | OFF           | OFF                    | OFF                    | OFF                    | OFF                    | OFF                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | OFF                    | OFF                    | OFF                    | LOW                   |
| Engine coolant temperature 105—108 °C {221—226 °F }                                                                                                          |                                                                                                    | OFF           | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | OFF                    | ON                     | MIDDLE                |
| Engine coolant temperature above 108 °C {226 °F } (Engine coolant temperature switch ON)                                                                     |                                                                                                    | OFF           | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              |                                                                                                    | ON            | ON                     | ON                     | ON                     | ON                     | HIGH                  |
| In 10 min. after ignition switch is turned OFF. Engine coolant temperature above 108 °C {226 °F } for more than 2 min. before ignition switch is turned OFF. | Engine coolant temperature over 108 °C {226 °F } after ignition switch is turned OFF               | —             | OFF                    | ON                     | ON                     | ON                     | MIDDLE                |
|                                                                                                                                                              | Engine coolant temperature becomes lower than 108 °C {226 °F } after ignition switch is turned OFF | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| Engine coolant temperature sensor malfunction                                                                                                                |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |
| TFA terminal ground                                                                                                                                          |                                                                                                    | —             | OFF                    | ON                     | OFF                    | ON                     | LOW                   |

98H51745

Fig. 15: Cooling Fan Control System Operation

### SYSTEM INSPECTION

- 1) Verify that the engine coolant temperature is below 80°C (176°F)
- 2) Turn the ignition switch to ON for 15 seconds or longer.
- 3) Turn the ignition switch to OFF.
- 4) Ground the check connector by using a jumper wire.
- 5) Turn the ignition switch to ON and verify that the cooling fan operates approximately 100-150 seconds after the ignition switch is turned to ON.
- 6) If the cooling fan will not operate, inspect the following.
  - \* Battery positive voltage
  - \* Fan control signal
  - \* Engine coolant temperature signal
  - \* Ground

## **SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96**

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- 7 Turn the ignition switch to OFF.
- 8 Verify that the cooling fan keep operating after the ignition switch is turned to OFF.
- 9 If not, replace the cooling fan control module. See Fig. 5.
- 10) Wait for approximately 20 seconds.
- 11) Disconnect cooling fan relay connector A. Verify that the cooling fan operates at low speed. See Fig. 6.
- 12) If not, inspect the cooling fan relay.
- 13) Connect cooling fan relay connector A. Verify that the cooling fan operates at the speed before connector A is disconnected.
- 14) Disconnect the jumper wire from the check connector. Verify that the cooling fan operates at low speed.
- 15) Turn the ignition switch to ON.
- 16) Verify that the cooling fan stops 8-12 seconds after the ignition switch is turned to ON.
- 17) If not as specified, replace the cooling fan control module.

### **COOLING FAN CONTROL MODULE 1994 RX-7**

#### **REMOVAL/INSTALLATION**

- 1) Remove the ECM.
- 2) Disconnect the cooling fan control module connector.
- 3) Loosen nut A as shown. See Fig. 7.
- 4) Remove the cooling fan control module.
- 5) Install in the reverse order of removal. Tighten Nut A Torque to 7.9-10.7 N-m (80-110 kgs-cm, 70-95 in-lbs).

#### **INSPECTION**

- 1) With the cooling fan control module connector connected, measure the voltage at each terminal of the connector. Using a voltmeter, ground the negative lead to the body and insert the positive lead in each terminal of the connector.
- 2) If there is any incorrect output voltage while all input voltages are correct, inspect related systems. See Figs. 8 thru 10. When the systems are normal, replace the cooling fan control module.



# SERVICE TIPS FOR PERFORMING RX-7 FUEL LINE RECALL CAT. AD, NO. 002/96

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### COOLING FAN RELAY (NO. 1, 2, 3, 4) 1994 RX-7

#### INSPECTION

- 1) Disconnect the cooling fan relay.
- 2) Apply battery positive voltage and ground to terminals A and B of the cooling fan relay. See Fig. 11.
- 3) Check continuity of the relay.

#### TERMINAL CONTINUITY TABLE

| Operation              |  | A Type - Terminals D-E |  |
|------------------------|--|------------------------|--|
| B+ applied             |  | Continuity             |  |
| B+ not applied         |  | No continuity          |  |
| A Type - Terminals D-E |  | B Type - Terminals C-D |  |
| Continuity             |  | Continuity             |  |
| No continuity          |  | No continuity          |  |

NOTE: B+ = Battery positive voltage

- 4) If not as specified, replace the cooling fan relay.

For additional wiring schematic information see Figs. 16 and 17.





## TURBO CHARGER BOLT PART NUMBER MT 06-13

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### TURBO CHARGER BOLT SET

Model(s): 1993-94 Mazda RX-7  
Category: Mazda Tips  
Bulletin No.: MT 06-13  
Date: 1995

### DESCRIPTION

A bolt set is now available for the turbo chargers. The part number is N3A1-13-ZL7. See Fig. 1

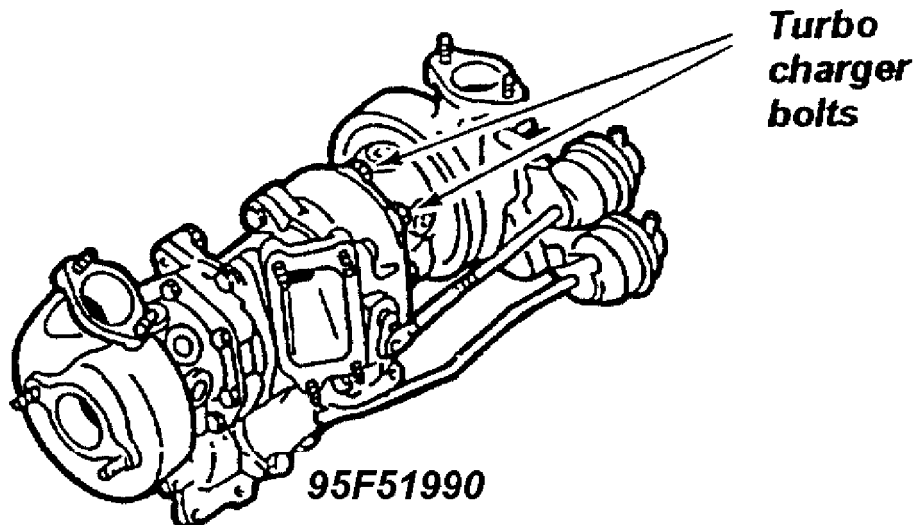


Fig. 1: Turbo Charger Bolt Location

END OF ARTICLE

# UNUSUAL NOISE FROM THE RIGHT ENGINE MOUNT CAT. B, NO. 002/93

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### UNUSUAL NOISE FROM THE RIGHT ENGINE MOUNT

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD3\*\*\*P0207061  
or lower produced through May 31, 1992  
Category: "B" Engine  
Bulletin No.: 002/93  
Date: 2/26/93

### DESCRIPTION

On some vehicles, an unusual noise may be heard from the right engine mount. This noise is most evident during idle or when driving on rough roads and/or speed bumps. See Fig. 1.

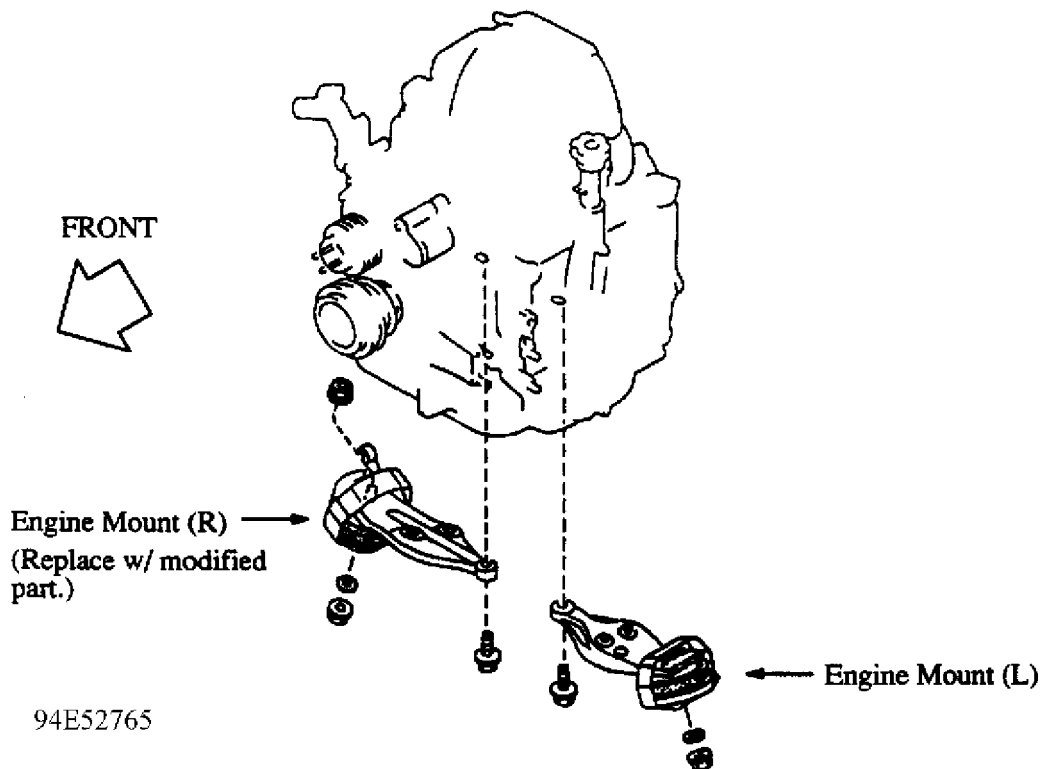


Fig. 1: Motor/Engine Mount Illustration

### REPAIR PROCEDURE

If the above condition occurs, replace the right engine mount with a modified part. The clearance between the rubber mount and mount housing has been increased to eliminate the noise. See Fig. 2.

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WORKSHOP MANUAL CORRECTION - VARIOUS CORRECTIONS

Model(s): 1993 Mazda RX-7  
Category: W - Workshop Manual Corrections  
Bulletin No.: 040/92  
Date: 11/19/92

### DESCRIPTION

Attached are pages for the 1993 RX-7 Workshop Manuals which required corrections for the reasons listed below:

1993 RX-7

- A-9 - correction to the Inspection of Cooling System text
- F-67 - correction to the Self-Diagnosis Checker Chart
- F-137 - correction to throttle illustration - valve operation in relation to temperature
- F-158 - correction to terminal 3D Test Condition items
- F-160 - correction to terminal 3M Remark item
- F-172 - correction to terminal 3D Test Condition items
- F-174 - correction to terminal 3M Remark item

### CORRECTIONS

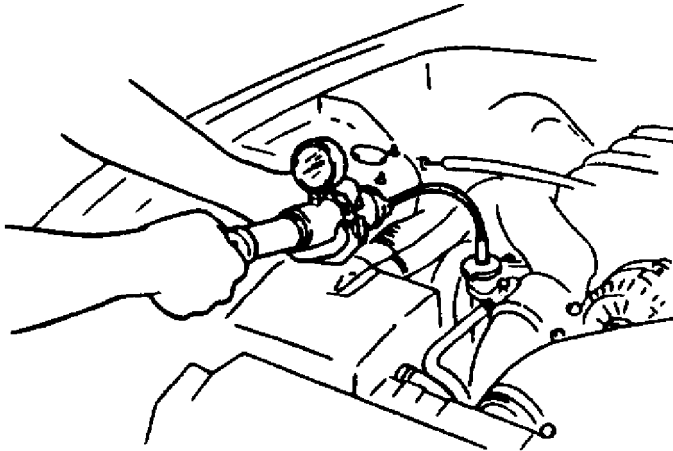
#### PAGE A-9: INSPECTION OF COOLING SYSTEM CORRECTION

Inspection Of Cooling System

1. Check the cooling system hoses (including the heater hoses) for cracks or wear. If necessary, replace the hoses.
2. Check the cooling system for leaks by applying a pressure of 142 kPa (1.45 kgf/cm<sup>2</sup>, 20.6 psi) with a radiator cap tester.

NOTE: Do not pressurize the system to more than 142 kPa (1.45 kgf/cm<sup>2</sup>, 20.6 psi).

WARNING: Be careful to avoid injury from escaping steam or hot water when removing the radiator cap.



94D55494

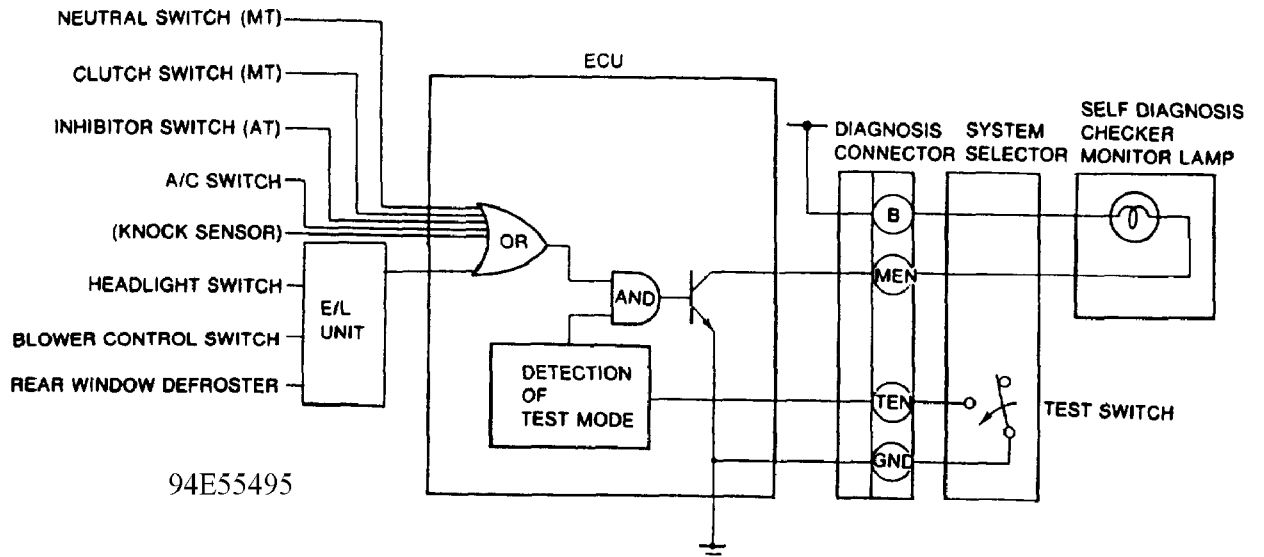
Fig. 1: Pressurizing the Cooling System

PAGE F-67: SELF-DIAGNOSIS CHECKER CHART CORRECTION

Switch Monitor Function

Individual switches can be inspected by the SST (Self-Diagnosis Checker or DT-S1000)

NOTE: The TEN terminal of the diagnostic connector must be grounded and the ignition switch ON (engine stopped). If either switch remains activated, the monitor lamp will be illuminated.



94E55495

Fig. 2: ECU Logic Circuit

LOGIC TABLE

| Switch | Self-Diagnosis Checker (Monitor temp) | Remarks |
|--------|---------------------------------------|---------|
| 3      | 3                                     | 3       |
| 3      | 3                                     | 3       |
| 3      | 3                                     | 3       |

WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

Article Text (p. 3)

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```
3          3 Light ON  3 Light OFF  3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Clutch      3 Pedal      3 Pedal      3 In neutral  3
3 switch (MT) 3 depressed 3 released   3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Neutral    3 In gear    3 Neutral    3 Clutch pedal released  3
3 switch (MT) 3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Inhibitor   3 L. S, D   3 N or P     3          3
3 switch (AT) 3 or R range 3 range     3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Headlight   3 ON        3 OFF        3 Headlight switch  3
3 switch      3          3          3 I or II position  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Blower      3 ON        3 OFF        3 At 3rd or 4th position  3
3 switch      3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 Rear window 3 ON        3 OFF        3          3
3 defroster   3          3          3          3
3 switch      3          3          3          3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 A/C switch  3 ON        3 OFF        3 Blower switch at 1st  3
3          3          3          3 or higher position  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

PAGE F-137: THROTTLE ILLUSTRATION CORRECTION

The illustration on page F-137 contains an illustration that has been revised. Fig. 3 contains the revised illustration.



WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

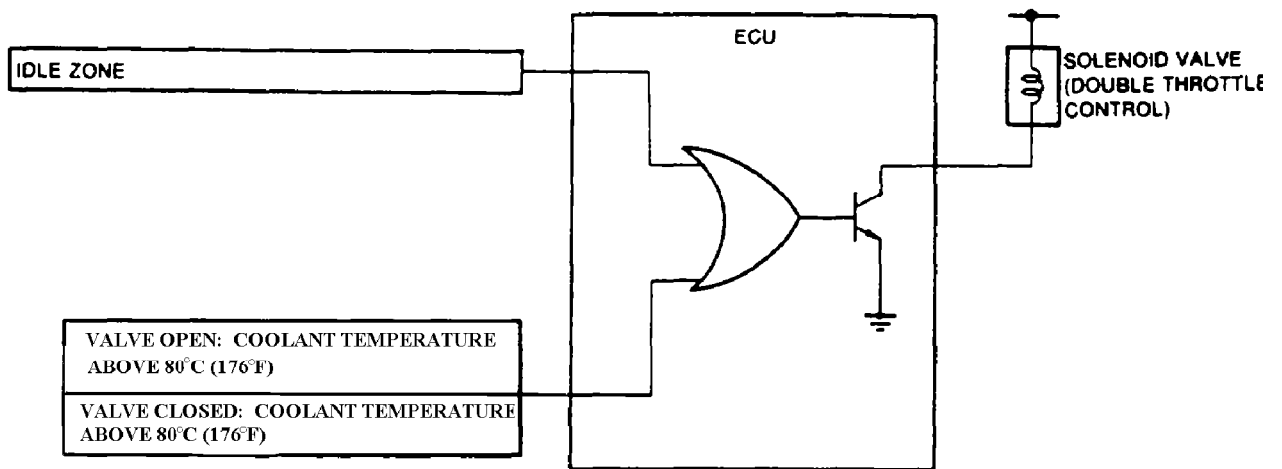
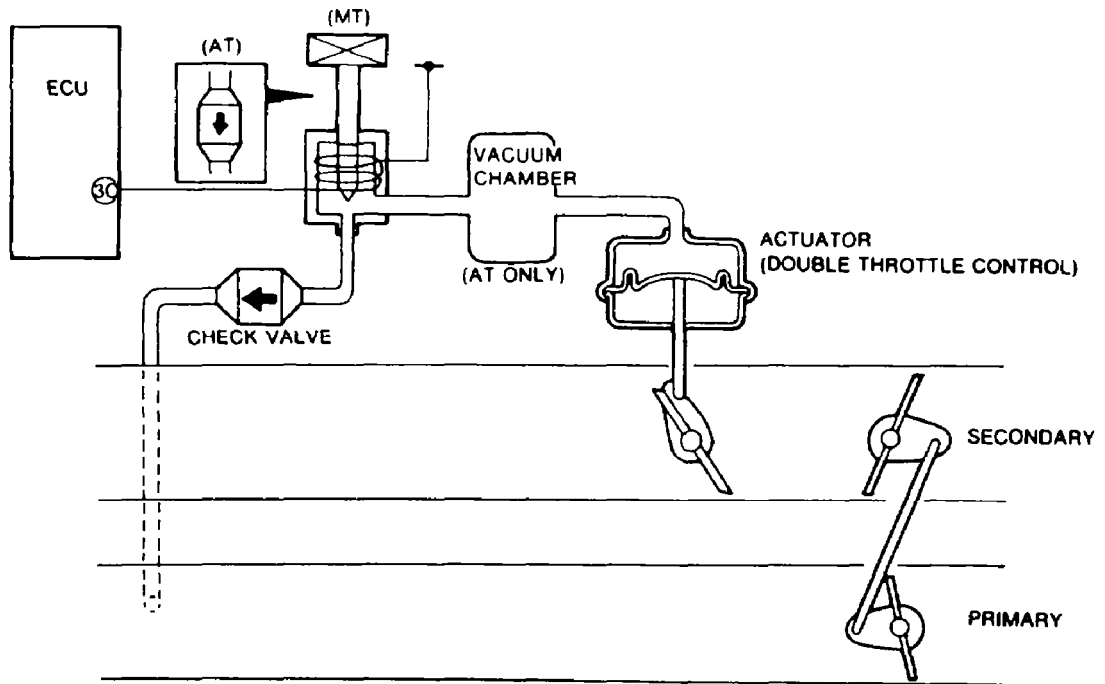
Article Text (p. 4)

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94F55496

Fig. 3: Solenoid Valve Logic Circuit

PAGE F-158: TERMINAL 3D TEST CONDITION CORRECTION

Page F-158 contains two corrections involving ECU terminal pin voltage tests. The terminals affected by the correction are listed below with the appropriate correction.

Terminal: 2K

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM CAT. W, NO. 040/92

## Article Text (p. 5)

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Under TEST CONDITIONS at battery voltage, TEST CONDITIONS should read "1st and 2nd position"

Terminal: 3D

Under TEST CONDITIONS at idle, TEST CONDITIONS should read "Electrical cooling fan does not operate" for battery voltage and "During electrical cooling fan operating" when voltage is below 1.0V.

### PAGE F-160: TERMINAL 3M REMARK CORRECTION

Page F-160 contains a correction involving ECU terminal pin voltage tests. The terminal affected by the correction is listed below with the appropriate correction.

Terminal: 3M

Under REMARK at 2.6-2.8V (reference), REMARK should read "Ignition switch ON (measure the terminal voltage by using the digital type voltmeter)"

### PAGE F-172: TERMINAL 3D TEST CONDITION CORRECTION

Page F-172 contains two corrections involving ECU terminal pin voltage tests. The terminals affected by the correction are listed below with the appropriate correction.

Terminal: 2K

Under TEST CONDITIONS for an ON condition, TEST CONDITIONS should read "1st and 2nd position"

Terminal: 3D

Under TEST CONDITIONS at idle, TEST CONDITIONS should read "Electrical cooling fan does not operate" for an OFF condition and "During electrical cooling fan operating" for an ON condition.

### PAGE F-174: TERMINAL 3M REMARK CORRECTION

Page F-174 contains a correction involving ECU terminal pin voltage tests. The terminal affected by the correction is listed below with the appropriate correction.

Terminal: 3M

Under REMARK at 2.6-2.8V (reference), REMARK should read "Ignition switch ON (measure the terminal voltage by using the digital type voltmeter)"

**END OF ARTICLE**

**UNUSUAL NOISE FROM THE RIGHT ENGINE MOUNT CAT. B, NO. 002/93**

**Article Text (p. 2)**

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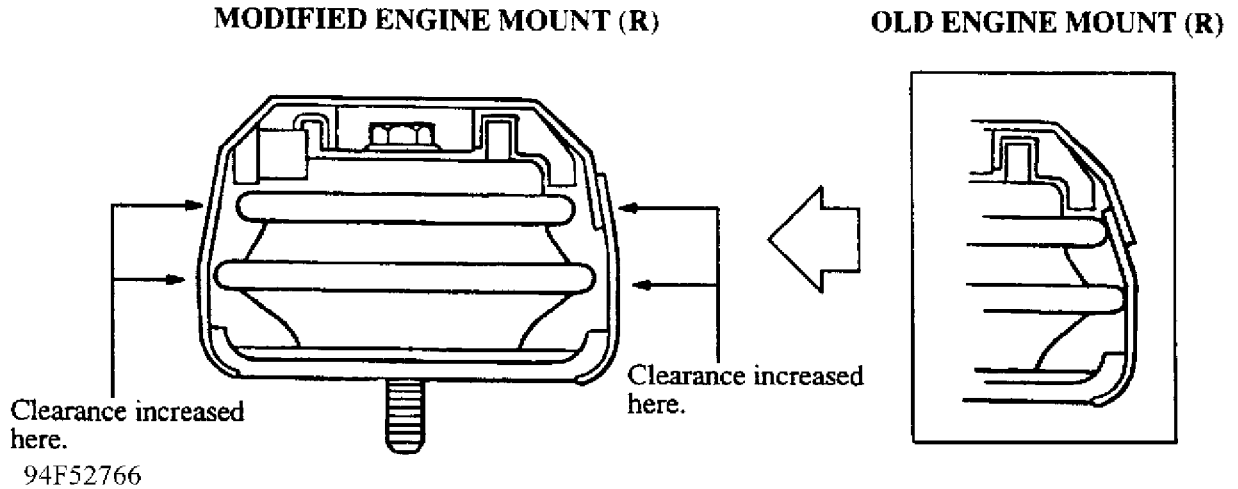


Fig. 2: Modified Engine Mount Illustration

Vehicles produced after the May 31, 1992 production date come with the modified right engine mount. Removal and installation procedures are outlined in appropriate service information

PARTS INFORMATION TABLE

| Part Number  | Description      | Qty |
|--------------|------------------|-----|
| FDOI 39 040C | Engine Mount (R) | 1   |

NOTE: Although the part has been modified, the part number is the same.

WARRANTY INFORMATION

(Applies To vehicles covered under warranty.)

Warranty Type Code: A  
 Customer Comment Code: 82  
 Damage Code: 97  
 Part No. of Main Cause: FD01 39 040C  
 Operation No.: C0601ARX  
 Labor Hours: 3.2 Hrs.

**END OF ARTICLE**

# CALIFORNIA REFORMULATED GASOLINE CAT. F, NO. 014/96

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### CALIFORNIA REFORMULATED GASOLINE

Model(s): All Mazda Models  
Category: F - Fuel & Emission Control Systems  
Bulletin No.: 014/96  
Date: June 6, 1996

### DESCRIPTION

This bulletin is issued to provide service personnel with information to answer commonly asked questions regarding California Reformulated Gasoline (CaRFG). Please use this information to address customer concerns.

### BACKGROUND

- \* The purpose of CaRFG is to reduce emissions.
- \* CaRFG replaces the traditionally high pollution generating gasoline distributed in Northern California.
- \* CaRFG improves the reformulated gasoline distributed in Southern California.

The California Air Resources Board (CARB) expects smog forming emissions from motor vehicles to decrease by approximately 15% due to CaRFG.

### MAZDA'S POSITION ON CaRFG

- \* CaRFG does not affect the new vehicle or emission warranty.
- \* Mazda recommends the use of CaRFG as a cost effective means of reducing emissions to provide cleaner air.
- \* Vehicle and laboratory testing of CaRFG ensures that CaRFG is acceptable for customer use.
- \* Based on the above studies, no unusual vehicle performance concerns are expected.

### DIFFERENCE BETWEEN CaRFG AND OTHER GASOLINES

CaRFG consists of the same basic components as other gasoline but, pollutes less due to cleaner burning components and fewer toxic components. These components provide:

- \* Reduced aromatic hydrocarbons to form less smog emissions.
- \* Added oxygenates to reduce emissions.
- \* Decreases the amount of vehicle fuel evaporation.
- \* Lower sulfur to provide more efficient catalytic converter

# CALIFORNIA REFORMULATED GASOLINE CAT. F, NO. 014/96

## Article Text (p. 2)

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operation.

- \* Reduced benzene by approximately 50%.

### **CaRFG AFFECT ON VEHICLE PERFORMANCE**

Properly blended CaRFG should have no adverse affect on vehicle performance, engine durability or fuel system components. Basic components of CaRFG are not significantly different from other cleaner burning gasoline used in the United States for several years.

If the vehicle is a California calibrated 1996 or later model, the vehicle will:

- \* Operate satisfactorily on gasoline in the other 49 states but the emission control system performance may be effected.
- \* Using gasoline other than CaRFG may cause the Malfunction Indicator Light (MIL) to illuminate or cause the vehicle to fail an emission test.

### **CaRFG AFFECT ON FUEL ECONOMY**

A very small reduction in MPG (less than one-half MPG) is possible if the customer uses gasoline without oxygenates. This is attributed to the lower energy content of oxygenates, which have been included in all Southern California gasoline since January 1995 and some gasoline since the 1970s.

NOTE: Driving habits, vehicle maintenance and weather conditions all affect fuel economy. Fuel economy may vary more than 1 MPG from one fill up to the next using the same gasoline.

### **NO SPECIAL ADDITIVES ARE NECESSARY WHEN USING CaRFG.**

It is not necessary to add anything to the vehicle's fuel tank after CaRFG is purchased from the service station. California regulations require deposit control additives in CaRFG to avoid port fuel injector and valve deposits.

### **OLDER VEHICLE'S PERFORMANCE USING CaRFG**

Older vehicles are expected to operate satisfactorily on CaRFG because these vehicles have been operating on gasoline similar to CaRFG for a number of years. However, considerable testing indicates that older, high mileage vehicles are more susceptible to fuel system problems due to age and normal wear and tear regardless of whether they are operated on conventional or CaRFG gasoline.

NOTE: Owners of older vehicles are encouraged to have their vehicle's fuel systems inspected periodically and to follow their vehicle manufacturers recommendations regarding vehicle maintenance.

**CALIFORNIA REFORMULATED GASOLINE CAT. F, NO. 014/96**

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**ODOR EMITTED FROM CaRFG**

CaRFG is not expected to smell different from gasoline most vehicles currently use. If unusual odor is noticed, it is probably be from oxygenates. Most service stations use vapor recovery systems to minimize gasoline vapor release to the atmosphere during refueling.

**ADDITIONAL INFORMATION REGARDING CaRFG**

Customers can receive more information on CaRFG from the California Air Resources Board at the following toll free number: 1-800-922-7349.

**END OF ARTICLE**

**ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**DIAGNOSTIC PROCEDURES FOR ECU'S, AIR FLOW METERS, FUEL PUMPS, AND ALTERNATORS**

Model(s): 1988-94 Mazda Vehicles (except Navajo and 1994 B-Series)

Category: "G" Engine Electrical, No.: 002/93, Date: 9/16/93

Category: "G" Engine Electrical, No.: 93-03, Date: Oct, 93

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. Outline Of Diagnostics, Parts Requirements And Warranty Application  
- Illustrates the steps from diagnostics through parts return and warranty submission.
2. Diagnostic Procedures - Step by step testing of the component and circuit.
3. Component Check Sheet - Details of the customer complaint and events leading to the repair.

NOTE: Proper completion of the check sheets are required for warranty claim submission.

INDEX

SECTION 1

- Outline
- ECU Diagnostics
- ECU Check Sheet

SECTION 2

- Outline
- Air Flow Meter Diagnostics
- Air Flow Meter Check Sheet

SECTION 3

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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Outline
Fuel Pump Diagnostics
Fuel Pump Check Sheet

SECTION 4

Outline
Charging System Diagnostics
Alternator and Battery Check Sheet

SECTION 5

Warranty Information

Refer to the appropriate service information for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER
UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3
3 MMA 3
UAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAA; 3
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
3 AAAAAAAAAAAAAAAAAAU 3
Trouble Found 3 3
3 3
UAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAA; 3
3 Complete 3 3 Hot Line 3 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU
Review
3 Receive Parts 3 Diagnostics
AAAAAAAAAAAAAAAAAU
3
UAAAAAAAAAAAAAAAAA;
3 Return Repl. Part 3
3 With Check Sheet 3
3 To Your Servicing 3
3 PDC 3
AAAAAAAAAAAAAAAAAU
3
UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU



# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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### SECTION 1 - ECU DIAGNOSTICS PROCEDURE

1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor And Adapter) as shown in Fig. 1. Place application panel sheet on the Engine Signal Monitor.

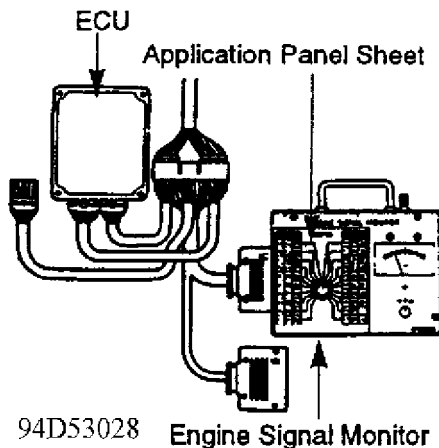


Fig. 1: Engine Signal Monitor and ECU

3. Measure the voltage according to the specifications in the appropriate service information
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

**CAUTION:** Terminals A & B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings. See Fig. 2 for illustration. Never apply current to these terminals, damage to the ECU will result.

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

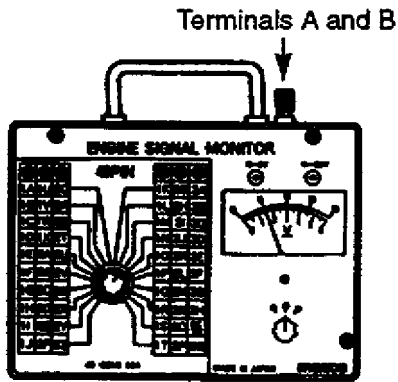
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1993 Mazda RX7

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94E53029

Fig. 2: Engine Signal Monitor

ECU CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_Yes \_\_\_\_\_No

3. Reason for replacement:

Terminal Voltage Out Of Specification: \_\_\_\_\_Yes \_\_\_\_\_No

| Terminal Number | Voltage Reading | Factory Specification |
|-----------------|-----------------|-----------------------|
|                 |                 |                       |
|                 |                 |                       |
|                 |                 |                       |
|                 |                 |                       |
|                 |                 |                       |
|                 |                 |                       |

According to Service Bulletin instructions: \_\_\_\_\_Category \_\_\_\_\_No.

According to DSM or Hot Line Authorization: \_\_\_\_\_(Authorization #)

Other: \_\_\_\_\_  
 \_\_\_\_\_

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Repair Type: \_\_\_\_\_ Warranty \_\_\_\_\_ Customer Pay

Technician's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

NOTE: This check sheet must be returned with the replaced part to your servicing PDC

AIR FLOW METER - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3

3 MMA 3
UAAAAAAAAAAAAAAAAA; 3
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
3
Trouble Found 3 3
3

UAAAAAAAAAAAAAAAAA; 3
3 Complete 3 3 Hot Line 3 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU

UAAAAAAAAAAAAAAAAA;
3 Receive Parts 3 Review
AAAAAAAAAAAAAAAAAU Diagnostics
3

UAAAAAAAAAAAAAAAAA;
3 Attach Copy Of 3
3 Check Sheet To 3
3 R.O. 3
AAAAAAAAAAAAAAAAAU
3

UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU

SECTION 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES

NOTE: Procedures listed below do not apply to the following model/year vehicles:

- 1988-92 B2600
1989-90 RX-7 (up to and including vehicles with a VIN of JM1FC3\*\*\*L0806489)
1993 RX-7

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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1. Check the air intake temperature sensor resistance.

A) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.

B) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time. See Fig. 3 for terminal identification.

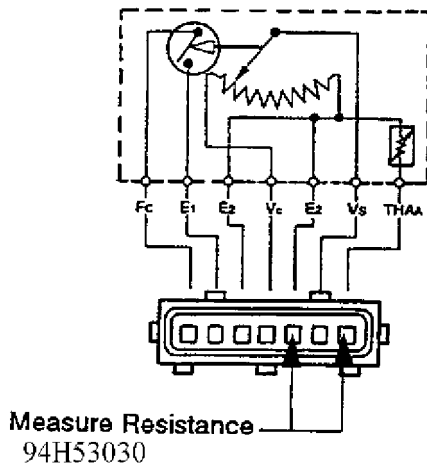


Fig. 3: Air Flow Meter Terminal

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

CAUTION: Refer to Fig. 3 and the "Standard Values" table when measuring resistance.

STANDARD VALUES TABLE

| Ambient Temp. (F) | Resistance (K, Ohms) | Ambient Temp. (F) | Resistance (K, Ohms) |
|-------------------|----------------------|-------------------|----------------------|
| 0                 | 11.1 - 18.7          | 70                | 1.9 - 2.9            |
| 10                | 8.2 - 13.7           | 80                | 1.5 - 2.3            |
| 20                | 6.4 - 10.3           | 90                | 1.2 - 1.9            |
| 30                | 4.9 - 7.9            | 100               | 0.9 - 1.5            |
| 40                | 3.8 - 6.0            | 110               | 0.8 - 1.3            |
| 50                | 3.0 - 4.7            | 120               | 0.6 - 1.1            |
| 60                | 2.4 - 3.7            |                   |                      |

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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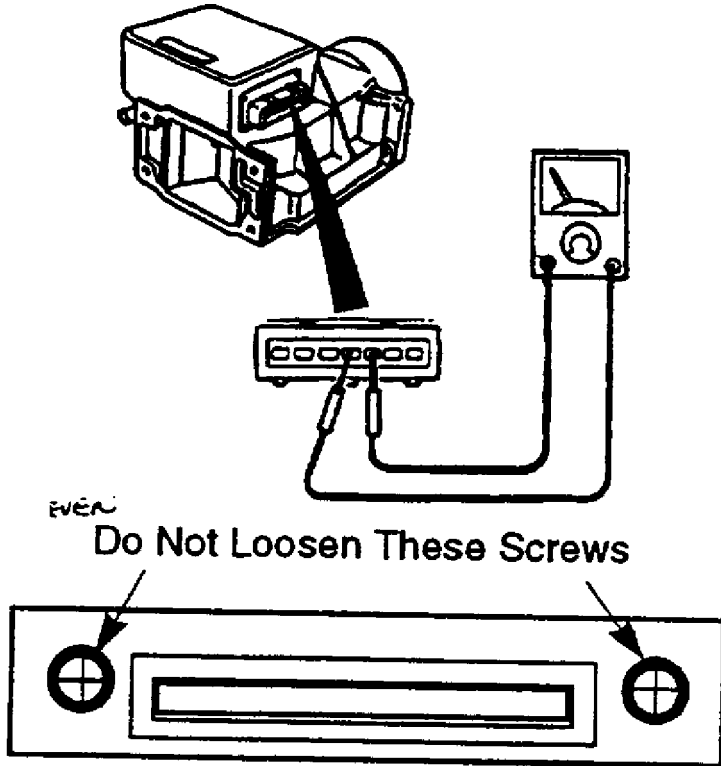
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AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

2. Check resistance between E2 and Vc. See Fig. 4.

Standard Value= 200 - 400 ohms



**NOTE: If the screws are loosened or removed, the warranty claim will be rejected.**

94I53031

Fig. 4: Air Flow Meter Resistance Check

NOTE: Use a multi-tester with the accuracy equivalent of a FLUK 70 Series.

The following models have air flow meters with measuring plates and should be diagnosed using the method listed below:

- |                       |                     |
|-----------------------|---------------------|
| 1986-89 323           | 1990-93 323/Protege |
| 1990-92 626/MX-6      | 1990-91 929         |
| 1988-93 MPV           | 1990-93 MX-5        |
| 1993 MX-3 (1.6 Litre) |                     |

1. Check for smooth movement of the measuring plate (see Fig. 5). If no problem is found, reinstall the air flow meter.

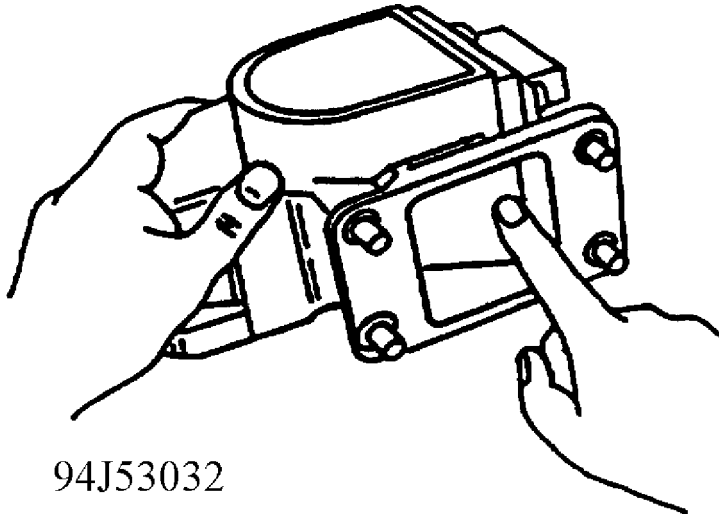
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94J53032

Fig. 5: Checking Air Flow Meter Door

2. If no problem is found in the air flow meter, contact the Technical Hotline for assistance.

AIR FLOW METER CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_\_/\_\_\_/\_\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_Yes \_\_\_\_\_No

3. Reason for replacement:

Air Flow Meter Out Of Specification: \_\_\_\_\_Yes \_\_\_\_\_No

| Measurement             | Factory Specifications |
|-------------------------|------------------------|
| Intake Air              |                        |
| Temperature Sensor      |                        |
| Base Resistance (E2-VC) |                        |

Measure Plate Does Not Move Smoothly \_\_\_\_\_YES \_\_\_\_\_NO

According to Service Bulletin instructions: \_\_\_\_\_Category \_\_\_\_\_No.

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According to DSM or Hot Line Authorization: \_\_\_\_\_ (Authorization #)

Other: \_\_\_\_\_

Technician's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3

MMA 3

UAAAAAAAAAAAAAAAAA;
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
3
Trouble Found 3 3
3

UAAAAAAAAAAAAAAAAA; 3
3 Hot Line 3 3
AAAAAAAAAAAAAAAAAU 3
3 3

UAAAAAAAAAAAAAAAAA;
3 Complete 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU

Review
Diagnostics

UAAAAAAAAAAAAAAAAA;
3 Receive Parts 3
AAAAAAAAAAAAAAAAAU
3

UAAAAAAAAAAAAAAAAA;
3 Keep Check Sheets 3
3 At Dealer 3
3 (Attach to R.O.) 3
AAAAAAAAAAAAAAAAAU
3

UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU

SECTION 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

- 1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.

# ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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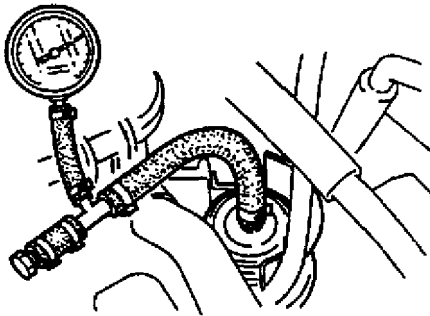
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3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

**WARNING:** Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the appropriate service information for further instructions.

4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter. See Fig. 6 for illustration.



94A53033

Fig. 6: Checking Fuel Pressure

6. Short circuit the fuel pump test terminals (yellow 2 pin connector) with a jumper wire on the following vehicles (see Fig. 7).

|              |               |
|--------------|---------------|
| 1988-89 323  | 1993 626/MX-6 |
| 1990-91 929  | 1989-92 MPV   |
| 1989-91 RX-7 |               |

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles (see Fig. 7).

|                     |               |
|---------------------|---------------|
| 1990-93 323/Protege | 1993 626/MX-6 |
| 1992-93 929         | 1992-93 MX-3  |
| 1990-93 MX-5        | 1993 RX-7     |



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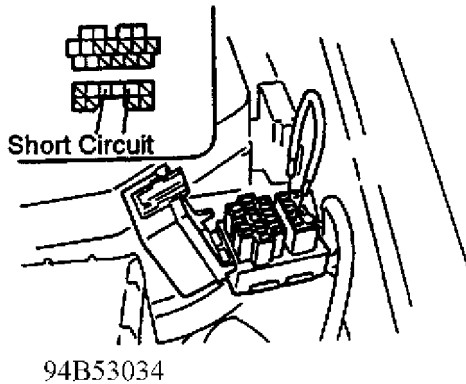


Fig. 7: Short Circuiting Fuel Pump

8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires. See FUEL PRESSURE TABLE For standard values

FUEL PRESSURE TABLE

| Year/Model          | Standard Value (PSI) |
|---------------------|----------------------|
| 1988-89 323         | 49 or Over           |
| 1990-91 323/Protege |                      |
| 1990-92 626/MX-6    |                      |
| 1990-91 929         |                      |
| MPV (All)           |                      |
| 1992-93 323/Protege | 52 or Over           |
| 1992-93 929         |                      |
| 1993 626/MX-6       |                      |
| MX-3 (All)          |                      |
| MX-5 (All)          |                      |
| 1989-91 RX-7        | 56 or Over           |
| 1993 RX-7           | 53 or Over           |

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

- A) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.
- B) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side). See Fig. 8 for illustration

**ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93**

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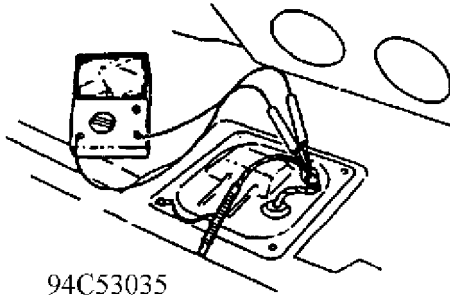


Fig. 8: Measuring Fuel Pump Voltage

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)  
9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.
11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance

FUEL PUMP CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Model: \_\_\_\_\_ M/T: \_\_\_\_\_ A/T: \_\_\_\_\_ VIN: \_\_\_\_\_

Repair Date: \_\_/\_\_/\_\_ Mileage: \_\_\_\_\_ Repair Order Number: \_\_\_\_\_

1. Customer Complaint: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Was the customer's complaint verified: \_\_\_\_\_ Yes \_\_\_\_\_ No

3. Reason for replacement:

Fuel Pump Did Not Operate \_\_\_\_\_ Yes \_\_\_\_\_ No

Insufficient Fuel Pressure: \_\_\_\_\_ yes \_\_\_\_\_ No

Maximum Fuel Pressure: \_\_\_\_\_ (PSI) Factory Specification: \_\_\_\_\_

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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According to Service Bulletin instructions:\_\_\_\_\_Category \_\_\_\_\_No.

According to DSM or Hot Line Authorization:\_\_\_\_\_ (Authorization #)

Other:\_\_\_\_\_

Technician's Signature:\_\_\_\_\_ Date:\_\_\_/\_\_\_/\_\_\_

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

DEALER

UAAAAAAAAAAAAAAAAA;
3 Diagnostics AAAAAAAAAAAAAAAAAA<AAAAAAAAAAAAAAAAA;
AAAAAAAAAAAAAAAAAU 3

MMA

UAAAAAAAAAAAAAAAAA;
3 Results AA No Trouble A Contact Region 3 3
AAAAAAAAAAAAAAAAAU Found 3 Hot Line 3 3
AAAAAAAAAAAAAAAAAU 3

Trouble Found

UAAAAAAAAAAAAAAAAA;
3 Complete 3
3 Check Sheet, AAAAAAAAAAAAAAAAAA Instruction 3 3
3 Order Part 3 Authorized AAAAAAAAAAAAAAAAAAU 3
AAAAAAAAAAAAAAAAAU Replacement 3 3
3 (Auth. No. Required) AAAAAAAAAAAU

Review
Diagnostics

UAAAAAAAAAAAAAAAAA;
3 Receive Parts 3
AAAAAAAAAAAAAAAAAU 3

UAAAAAAAAAAAAAAAAA;
3 Return Replacement 3
3 Part With Check 3
3 Sheet To Your 3
3 Servicing PDC 3
AAAAAAAAAAAAAAAAAU 3

UAAAAAAAAAAAAAAAAA;
3 Warranty Claim 3
3 Application 3
AAAAAAAAAAAAAAAAAU

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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1. Start the engine and confirm that the alternator warning light is not illuminating.

NOTE: If the warning light is illuminated, see Fig. 9, the self diagnosis operation is functioning. Check the alternator and related harness' according to appropriate service information.

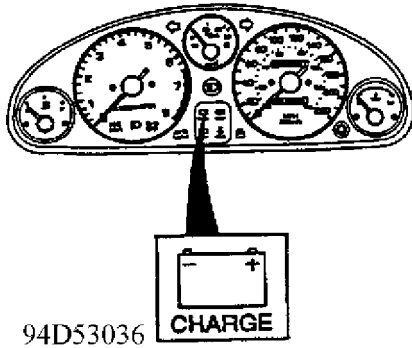


Fig. 9: Charge Indicator Light

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).
4. Apply the load test referring to the LOAD TEST TABLE. The final voltage must be above the standard minimum value shown in MINIMUM VOLTAGE TABLE.

LOAD TEST TABLE

| Model     | Test Load (Amps) |
|-----------|------------------|
| 323/Prot. | 180              |
| 626/MX-6  | 174              |
| 929       | 180              |
|           | 195              |
| MX-3      | 150              |
|           | 180              |
|           | 165              |
| MX-5      | 105              |
| RX-7      | 180              |

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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3 3 165 3
3 3 195 3
MPV
3 3 150 3
3 3 195 3
B-Series
3 3 150 3
3 3 195 3
3 3 195 3

MINIMUM VOLTAGE TABLE

Table with 3 columns: Aprox Battery Temperature, Minimum Voltage, and a third column with values like 9.6V, 9.5V, etc.

If the voltage measures at or above the minimum, proceed to step 5.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 5.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the appropriate service information for instructions.

- 5. Start the vehicle and raise the RPM to 2500.
6. Connect a battery load tester (VAT 40/70 or equivalent)
7. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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terminals "B" and "S". If resistance is present, repair the damaged harness and retest. If the voltage is still below 14.1V, replace the alternator.

14.1V to 14.7V - No trouble with the alternator or battery.

ALTERNATOR AND BATTERY CHECK SHEET

Dealer Name \_\_\_\_\_ Technician Number:\_\_\_\_\_

Vehicle Year:\_\_\_\_\_ Model:\_\_\_\_\_ M/T:\_\_\_\_\_ A/T:\_\_\_\_\_ VIN:\_\_\_\_\_

Repair Date:\_\_\_/\_\_\_/\_\_\_ Mileage:\_\_\_\_\_ Repair Order Number:\_\_\_\_\_

1. Customer Complaint:\_\_\_\_\_

2. Was the customer's complaint verified:\_\_\_\_\_Yes \_\_\_\_\_No

3. Reason for replacement:

Alternator output or battery voltage was out of spec.:\_\_\_\_\_Yes\_\_\_\_\_No

| 3 | 3 | 3 | 3 |
|---|---|---|---|
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |
| 3 | 3 | 3 | 3 |

According to Service Bulletin instructions:\_\_\_\_\_Category \_\_\_\_\_No.

According to DSM or Hot Line Authorization:\_\_\_\_\_ (Authorization #)

Other:\_\_\_\_\_

Repair Type: \_\_\_\_\_Warranty \_\_\_\_\_ Customer Pay

Technician's Signature:\_\_\_\_\_ Date:\_\_\_/\_\_\_/\_\_\_

3 MELA Comments: 3

ECU/AIR FLOW METER/FUEL PUMP/ALTERNATOR DIAGNOSTICS CAT. G, NO. 002/93

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Signature \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

SECTION 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code
Damage Code: Complete Applicable Code
Part Number Main Cause: Complete Applicable Part Number

OPERATION NUMBER AND LABOR HOURS TABLE

Table with 2 columns: Operation Number, Labor Hours. Rows include Engine Control Unit (ECU), Diagnosis (0.9), Air Flow Sensor (AFM), Diagnosis (0.4), Fuel Pump, Diagnosis (0.5), and Charging System, Diagnosis (1.4). Includes a note about labor hours.

END OF ARTICLE

# EMISSION INSPECTION & MAINTENANCE TEST PREPARATIONS CAT. F, NO. 005/93

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### PROPER PREPARATION FOR STATE EMISSION INSPECTION AND MAINTENANCE TEST

Model All Mazda Models  
Category F  
Bulletin No. 005/93  
Date April 28, 1993

#### DESCRIPTION

Some vehicles with properly functioning emission control systems may fail certain states' emission inspection and maintenance test(s) (tailpipe emission tests).

In order to avoid the above mentioned condition, make sure the following items are observed before conducting the test:

- \* Engine should be warmed up but not overheating (as indicated by gauge or warning light).
- \* All electrical loads and AC should be turned off.
- \* For 5-speed models: Neutral range should be selected.
- \* For automatic transmission models: "N" or "P" range should be selected.

NOTE: All Mazda vehicles meet the U.S. EPA and California emission standards when tested under the EPA certification test procedure.

#### PREPARATION PROCEDURE

Perform the following before conducting the emission inspection and maintenance test:

1. Before testing, bring the engine's operating temperature to normal by operating the engine for approximately 3 minutes at 2,500-3,000 rpm.

NOTE: When the cooling fan has cycled on and off twice, the engine has reached its normal operating temperature.

2. Test the vehicle as soon as possible after the engine has warmed up. Keep the engine at operating temperature during the test.

### END OF ARTICLE



# ENGINE PINGING,KNOCK - PREMIUM FUEL RECOMMENDATION CAT. F, NO. 018/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### PREMIUM FUEL RECOMMENDATION

Model(s):           1992 Mazda 929  
                      1993 Mazda RX-7  
                      1993 Mazda 626 (V6 Engine)  
                      1993 Mazda MX-6 (V6 Engine)  
Category:            F  
Bulletin No.:        018/92  
Date:                5/13/92

### DESCRIPTION

If the following problems are encountered on the models shown below, it may be the result of using a lower octane, non-premium fuel.

Engine Detonation (pinging)  
Engine Knock  
Lack of Power

NOTE: Problems listed are not model specific.

Customers experiencing any of the above symptoms should be referred to page 3-2 (or the back cover) of their Owner's Manuals. The information states; "Your Mazda vehicle will perform best with premium unleaded fuel having an octane rating (anti-knock index) of at least 91."

Dealers providing a full tank of fuel to customers upon delivery of new vehicles should use premium unleaded Fuel of 91 octane or higher.

### END OF ARTICLE

**ENGINE STALLS DURING DECELERATION - REPLACE ECU CAT. F, NO. 032/92**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**ENGINE STALLS DURING WARM UP/IDLE FLUCTUATION**

Model(s): 1993 Mazda RX-7  
Category: F  
Bulletin No.: 032/92  
Date: 12/23/92

**AFFECTED VINS**

This bulletin applies to 1993 RX-7 M/T models with a VIN of JM1FD3312P0208703 or lower produced through July 2, 1992.

This bulletin applies to 1993 RX-7 A/T models with a VIN of JM1FD331XP0210513 or lower produced through September 30, 1992.

**DESCRIPTION**

Some 1993 RX-7 vehicles may experience stalling during deceleration with the throttle release, approaching a stop. This occurs during initial warm up and, sometimes, after reaching normal operating temperatures. The engine will then restart easily and stalling may not reoccur until the next cold engine start.

Also, when idling with the A/C on, engine speed decreases as the A/C compressor engages and idle fluctuation may occur.

The ECU has been modified as a countermeasure. If any of the above symptoms are encountered, replace the ECU. The modified ECU is designed to:

1. Make necessary air-fuel ratio adjustments to maintain stable idle at all temperatures (for A/T & M/T).
2. Turn off the A/C compressor when the clutch pedal is depressed or when the accelerator pedal is released (for M/T).

**REPAIR PROCEDURE**

Removal & installation procedures can be found in the appropriate service information. See PARTS INFORMATION TABLE for list of replacement parts.

**PARTS INFORMATION TABLE**

| Part Number  | Description       |
|--------------|-------------------|
| N3A1 18 881R | ECU (Federal M/T) |

**ENGINE STALLS DURING DECELERATION - REPLACE ECU CAT. F, NO. 032/92**

**Article Text (p. 2)**

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AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
3 N3A2 18 881R 3 ECU (Federal A/T) 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
3 N3A3 18 881R 3 ECU (California M/T) 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
3 N3A4 18 881R 3 ECU (California A/T) 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**CORE RETURN PROCEDURES**

1. Fill out a Warranty Shipping Record form.
2. Ship the old ECU to:  
MMA - Customer Support  
2 Cromwell  
Irvine, CA 92718  
ATTN: Warranty Dept.
3. Failure to ship the old ECU will result in the denial of the warranty claim.
4. Refer to Parts Bulletin No. R-11 for details

**WARRANTY INFORMATION**

(Applies to Vehicles Covered Under Warranty.)

Warranty Type Code: A  
Customer Comment Code: 03  
Damage Code: 99  
Part No. of Main Cause: N3A1 18 881R  
N3A2 18 881R  
N3A3 18 881R  
N3A4 18 881R  
Operation No: F0812XRX  
Labor Hours: 0.3 hrs.

**END OF ARTICLE**

# HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### HESITATION (JERKING/BUCKING) WHILE DRIVING

Model(s): 1993-95 Mazda RX-7  
Category: F - Fuel & Emission Control System  
Bulletin No.: 005/97  
Date: March 10, 1997

### DESCRIPTION

A jerk or bucking condition may occur under any of the following conditions:

- \* Under light to moderate acceleration.
- \* Cruising at engine speed of 2000-2200 rpm.
- \* A/C ON.

This concern may be caused by improperly grounded engine harness, creating high resistance in the engine ground circuits. This condition affects the fuel control system. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

### REPAIR PROCEDURE

1. Clean and retorquer harness ground. See Fig. 1.
  - a. Locate ground on left side of engine, mounted to bracket behind A/C compressor. Refer to the applicable BETM or wiring diagram.
  - b. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
2. Clean and retorquer main battery ground and bracket mounting bolts (bracket used for mounting the ground). See Fig. 2.
  - a. Tightening Torque: 7 - 11 N.m (69.5 - 95.4 in-lb).
  - b. Remove the original ground strap and terminal bracket between the engine hanger and the bulkhead.
  - c. Install new style ground strap using the original bolts. See Fig. 3.
  - d. Tighten Torque: 16-23 N.m (12 - 17 ft-lb) engine hanger side), 7 - 11 N.m (69.5 - 95.4 in-lb), (engine room bulkhead side).
3. Verify repair.

**HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97**

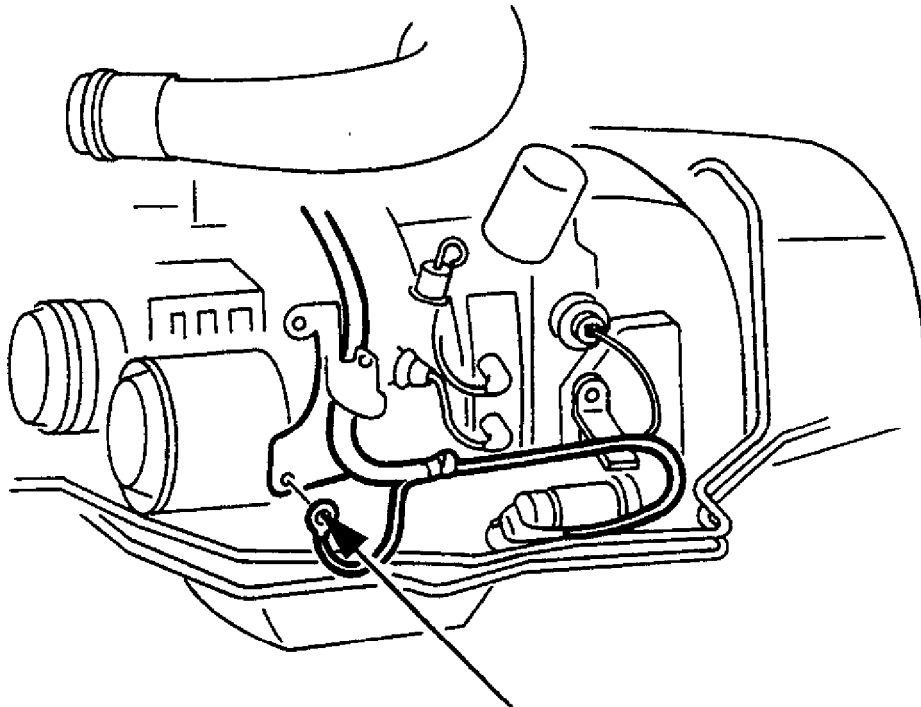
**Article Text (p. 2)**

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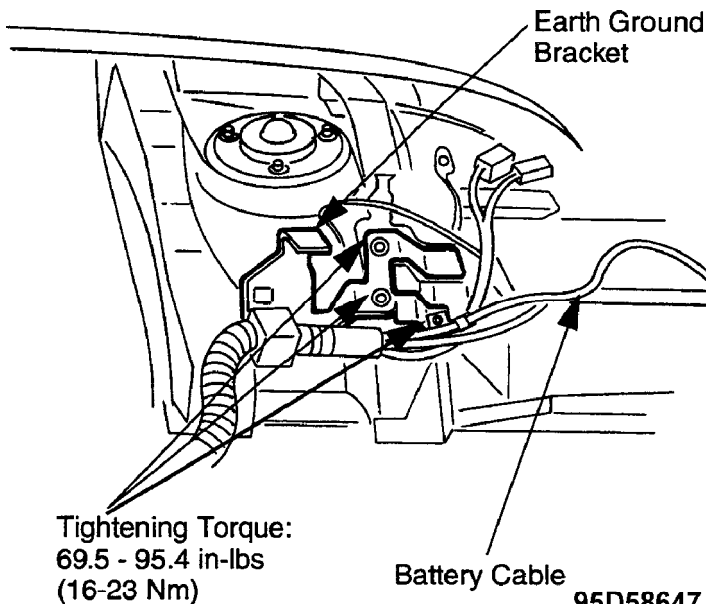


**Harness Ground**

**Tightening Torque: 69.5 - 95.4 in-lbs  
(7-11 Nm).**

**95C58646**

Fig. 1: Harness Ground - Location & Tightening Torque Measurement



**Tightening Torque:  
69.5 - 95.4 in-lbs  
(16-23 Nm)**

**Battery Cable**

**95D58647**

Fig. 2: Earth Ground Bracket - Location & Tightening Torque



# HESITATION WHILE DRIVING - CHECK ENGINE GROUND STRAP CAT. F, NO. 005/97

## Article Text (p. 4)

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```
^AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
3 FD02-67-E70 3 FD01-67-E70A 3 Earth Wire 3 1 3 A 3
^AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
3 NOTE: Interchangeability "A" = The new part can be used in place 3
3 of the old part but the old part CAN NOT be used in place 3
3 of the new part. 3
^AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
```

### WARRANTY INFORMATION

Applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty Term Information.

|                         |             |
|-------------------------|-------------|
| Warranty Type:          | A           |
| Symptom Code:           | 08          |
| Damage Code:            | 9S          |
| Part Number Main Cause: | FD02-67-E70 |
| Quantity:               | 1           |
| Operation Number:       | XX899XRX    |
| Labor Hours:            | 0.2 hrs.    |

### END OF ARTICLE

**PARTS BULLETIN - SPARK PLUG COIL/WIRE SET NO. T-1-6**

**Article Text**

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**SPARK PLUG COIL/WIRE SET**

Model(s): All Mazda Models Through 1995  
Category: Parts Bulletin  
Bulletin No.: T-1-6  
Date: November 1, 1990  
Revised: April, 24 1995

**DESCRIPTION**

A complete line of Mazda Spark Plug Wire Sets are available from your servicing PDC. These high-quality wire sets are manufactured for Mazda by NGK.

Each wire set includes the coil/wire(s) and is attractively packaged for merchandising purposes. The carton can be placed on a wall display. The part number and model applications are clearly indicated on the front and on the end of the carton. Each wire is numbered for easy installation and the instructions are printed on the back.

Complete wire sets cannot be used for new vehicle warranty. Individual wires are available under the MC part numbers, as indicated in the Parts Catalog Microfiche.

**PARTS INFORMATION**

PART NUMBERS AND APPLICATIONS TABLE

| Year/Model           | ⊗ | NGK P/N | ⊗ | Mazda P/N    |
|----------------------|---|---------|---|--------------|
| 1971-74 RX-2         | ⊗ | RC-ZE91 | ⊗ | 0000-18-091A |
| 1972-78 RX-3         | ⊗ | RC-ZE91 | ⊗ | 0000-18-091A |
| 1974-78 RX-4         | ⊗ | RC-ZE91 | ⊗ | 0000-18-091A |
| 1976-78 Cosmo        | ⊗ | RC-ZE91 | ⊗ | 0000-18-091A |
| 1974-77 Repu         | ⊗ | RC-ZE91 | ⊗ | 0000-18-091A |
| 1975-77 808 (1600CC) | ⊗ | RC-ZE92 | ⊗ | 0000-18-092A |
| 1976-77 808 (1300CC) | ⊗ | RC-ZE92 | ⊗ | 0000-18-092A |
| 1977-80 GLC          | ⊗ | RC-ZE92 | ⊗ | 0000-18-092A |
| 1981-83 GLC Wagon    | ⊗ | RC-ZE92 | ⊗ | 0000-18-092A |



PARTS BULLETIN - SPARK PLUG COIL/WIRE SET NO. T-1-6

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|                                           |   |          |   |              |
|-------------------------------------------|---|----------|---|--------------|
| 1972-74 808 (1600CC)                      | 3 | RC-ZE94A | 3 | 0000-18-094A |
| 1972-74 B1600                             | 3 | RC-ZE94A | 3 | 0000-18-094A |
| 1977-78 B1800                             | 3 | RC-ZE94A | 3 | 0000-18-094A |
| 1979-84 B2000                             | 3 | RC-ZE94A | 3 | 0000-18-094A |
| 1979-82 626                               | 3 | RC-ZE94A | 3 | 0000-18-094A |
| 1979-85 RX-7                              | 3 | RC-ZE97  | 3 | 0000-18-097B |
| 1981-85 GLC FWD                           | 3 | RC-ZE98  | 3 | 0000-18-098A |
| 1986-87 323                               | 3 | RC-ZE98  | 3 | 0000-18-098A |
| 1983-87 626 FWD                           | 3 | RC-ZX99A | 3 | 0000-18-099A |
| 1983-87 B2000                             | 3 | RC-ZX99A | 3 | 0000-18-099A |
| 1986-91 RX-7 (All Models)                 | 3 | RC-ZE02  | 3 | 0000-18-100A |
| 1987-93 B2600                             | 3 | RC-ME51  | 3 | 0000-18-101A |
| 1988-89 323 (Turbo)                       | 3 | RC-ZE07  | 3 | 0000-18-102A |
| 1988-91 929 (Except S)                    | 3 | RC-ZE06  | 3 | 0000-18-103A |
| 1989-94 MPV (3.0L)                        | 3 | RC-ZE06  | 3 | 0000-18-103A |
| 1987-93 B2600i (2.6L)                     | 3 | RC-ZE17  | 3 | 0000-18-104A |
| 1989-94 MPV (2.6L)                        | 3 | RC-ZE17  | 3 | 0000-18-104A |
| 1988-92 626/MX-6                          | 3 | RC-ZX12  | 3 | 0000-18-105A |
| 1987-93 B2200                             | 3 | RC-ZE94A | 3 | 0000-18-094A |
| 1990-94 Protege (1.8L/DOHC)               | 3 | RC-ZX18  | 3 | 0000-18-118A |
| 1988-94 323/Protege<br>(1.6L & 1.8L SOHC) | 3 | RC-ZX19  | 3 | 0000-18-119A |
| MX-3 (1.6L)                               | 3 |          | 3 |              |
| 1990-95 Miata                             | 3 | RC-ZE21  | 3 | 0000-18-121A |
| 1990-91 929S                              | 3 | RC-ZX22  | 3 | 0000-18-122A |
| 1992-93 MX-3 (1.3L)                       | 3 | RC-ZE25  | 3 | 0000-18-125A |
| 1992-95 929                               | 3 | RC-ZE26  | 3 | 0000-18-126A |



# SPARK PLUG CROSS-REFERENCE CHART NO. T-1-3

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### SPARK PLUG CROSS-REFERENCE CHART

Model: All Mazda  
Date: November 1, 1990 (Revised - April 27, 1992)  
No: T-1-3  
Group: Parts

#### SPARK PLUGS FOR PISTON ENGINES

| YEAR    | MODEL                          | NGK P/N   | MAZDA P/N                        | BLISTER PACK    |
|---------|--------------------------------|-----------|----------------------------------|-----------------|
| 1992    | MX-3 1.8L, V-6                 | BKR6E11   | BP03-18-110                      | -               |
| 1992    | MX-3 (1.6L)                    | BKR5E11   | BP01-18-110                      | -               |
| 1992    | 929 COLD TYPE                  | BKR6EVX11 | JE43-18-110                      | -               |
| 1992    | 929 STD. TYPE                  | BKR5EVX11 | JE41-18-110                      | -               |
| 1988-91 | 929/929S                       | ZFR6A11   | F201-18-110                      | -               |
| 1989    | MPV                            | ZFR6A11   | F201-1B-110<br>(Prod. 8701-9623) | -               |
|         |                                | ZFR6E11   | F285-18-110<br>(Prod. 9623-9B01) | -               |
| 1990-92 | MPV                            | ZFR5F11   | F287-18-110                      | -               |
| 1993    | MX6/626 (4CYL.)<br>(STD TYPE)  | BKR5E11   | BP01-18-110                      | -               |
| 1993    | MX6/626 (4CYL.)<br>(COLD TYPE) | BKR6E11   | BP03-18-110                      | -               |
| 1993    | MX6/626 (V6)<br>(STD TYPE)     | ZFR5F11   | F287-18-110                      | -               |
| 1993    | MX6/626 (V6)                   | ZFR6E11   | F285-18-110                      | -               |
| 1988-92 | MX-6/626                       | ZFR6A11   | F201-18-110                      | -               |
| 1979-82 | 626                            | BP5ES     | 0660-18-110                      | 8AG1-18-110A-BP |
| 1979-87 | 626                            | BPR5ES*   | 8914-18-110                      | 8AB1-18-110A-BP |
| 1986-87 | 626 (Turbo)                    | BPR6ES    | 1690-18-110                      | -               |
| 1990-92 | MIATA                          | BKR6E11   | BP03-18-110                      | -               |
| 1986-92 | 323                            | BPR5ES11* | B601-18-110                      | -               |
| 1990-92 | PROTEGE SOHC 1.8L              | BKR5E11   | BP01-18-110                      | -               |
| 1990-92 | PROTEGE DOHC 1.8L              | BKR6E11   | BP03-18-110                      | -               |
| 1988-89 | 323 (Turbo)                    | BCPR6E11* | F220-18-110                      | -               |
| 1987-88 | 323 (Wagon)                    | BPR5ES11* | B601-18-110                      | -               |
| 1987-92 | B2200                          | BPR5ES    | 8914-18-110                      | 8AB1-18-110A-BP |
| 1987-88 | B2600                          | BPR6ES11* | B601-18-110                      | -               |
| 1989-92 | B2600i                         | ZFR6A11*  | F201-18-110                      | -               |
| 1977-79 | GLC                            | BP6ES     | 025G-18-110                      | 8AU1-18-110A-BP |
| 1977-79 | GLC                            | BPRBES*   | 1BG0-18-110                      | -               |
| 1977-80 | GLC                            | BP5ES     | 0660-18-110                      | 8AG1-18-110A-BP |
| 1977-85 | GLC                            | BPR5ES*   | 8G14-18-110                      | 8AB1-18-110A-BP |

# SPARK PLUG CROSS-REFERENCE CHART NO. T-1-3

## Article Text (p. 2)

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|         |             |          |             |                 |
|---------|-------------|----------|-------------|-----------------|
| 1979-80 | GLC (Wagon) | BP5ES    | 0660-18-110 | 8AG1-18-110A-BP |
| 1980-83 | GLC (Wagon) | BPR5ES * | 8G14-18-110 | 8AB1-18-110A-BP |
| 1986    |             |          |             |                 |

|         |            |          |             |                 |
|---------|------------|----------|-------------|-----------------|
| 1972-77 | 808        | BP7ES    | 0745-18-110 | -               |
| 1976    | 808 (1300) | BP6ES13  | 3710-18-110 | -               |
| 1977    | 808 (1300) | BPR6ES * | 1690-18-110 | -               |
| 1972-77 | 808 (1600) | BP6ES    | 0259-18-110 | 8AU1-18-110A-BP |
| 1972-76 | B1600      | BP6ES    | 0259-18-110 | 8AU1-18-110A-BP |
| 1972-76 | B1600      | BP7ES    | 0745-18-110 | -               |
| 1977-78 | B1800      | BP6ES    | 0259-18-110 | 8AU1-18-110A-BP |
| 1979    | B2000      | BPR5ES * | 8914-18-110 | 8AB1-18-110A-BP |
| 1981-87 |            |          |             |                 |

|         |       |          |             |   |
|---------|-------|----------|-------------|---|
| 1980-81 | B2000 | BPRBES * | 1690-18-110 | - |
| 1970    | 1500  | BP7ES    | 0745-18-110 | - |
| 1970-72 | 1800  | BP7ES    | 0745-18-110 | - |
| 1971    | 616   | BP7ES    | 0745-18-110 | - |
| 1972-73 | 618   | BP7ES    | 0745-18-110 | - |

\* = Resistor Plug

|         |            |         |             |                  |
|---------|------------|---------|-------------|------------------|
| 1974-76 | REPU       | B7EM    | 2328-18-600 | 8AH1-18-110A-BP  |
| 1977    | REPU       | B7ET    | 3743-18-600 | 8AF1-18-110A-BP  |
| 1971-74 | RX-2       | B7EM    | 2328-18J600 | 8AH1-18-1 10A-BP |
| 1972-75 | RX-3       | B7EM    | 2328-18-600 | 8AH1-18-1 10A-BP |
| 1976    | RX-3       | BR7ET * | 3648-18-600 | -                |
| 1977-78 | RX-3       | B7ET    | 3743-18-600 | 8AF1-18-110A-BP  |
| 1972-78 | RX-3       | B8EM    | 2359-18-600 | -                |
| 1974-75 | RX4        | B7EM    | 2328-18-600 | 8AH1-18-110A-BP  |
| 1974-78 | RX4        | BR7EM   | 2182-18-600 | -                |
| 1974-78 | RX4        | B7EMV   | 1757-18-600 | -                |
| 1976-78 | RX4        | B7ET    | 3743-18-600 | 8AF1-18-1110A-BP |
| 1976-78 | RX4        | BR7ET   | 3648-18-600 | -                |
| 1976-78 | RX4        | BR8ET * | 3649-18-600 | 8AF3-18-110A-BP  |
| 1979    | RX-7       | B7ET    | 3743-18-600 | 8AF1-18-110A-BP  |
| 1979    | RX-7       | BR7ET   | 3648-18-600 | -                |
| 1980    | RX-7       | BR8ET   | 3649-18-600 | 8AF3-18-110A-BP  |
| 1980    | RX-7       | BR9ET   | 8344-18-600 | -                |
| 1981-85 | RX-7       | BR8EQ14 | N201-18-600 | 8AF2-18-110A-BP  |
| 1984-85 | RX-7       | BR9EQ14 | N203-18-600 | -                |
| 1986-91 | RX-7       | BUR7EQ  | N343-18-110 | N3X4-18-110      |
|         | (Leading)  |         |             |                  |
| 1986-91 | RX-7       | BUR9EQ  | N342-18-110 | N3X4-18-110      |
|         | (Trailing) |         |             |                  |
| 1993    | RX-7       | BUR7EQP | N3A2-A8-110 | N3X5-18-110      |
|         | (Leading)  |         |             |                  |
| 1993    | RX-7       | BUR9EQP | N3A1-18-110 | N3X5-18-110      |
|         | (Trailing) |         |             |                  |

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

(See Fig. 1).

# SPARK PLUG CROSS-REFERENCE CHART NO. T-1-3

## Article Text (p. 3)

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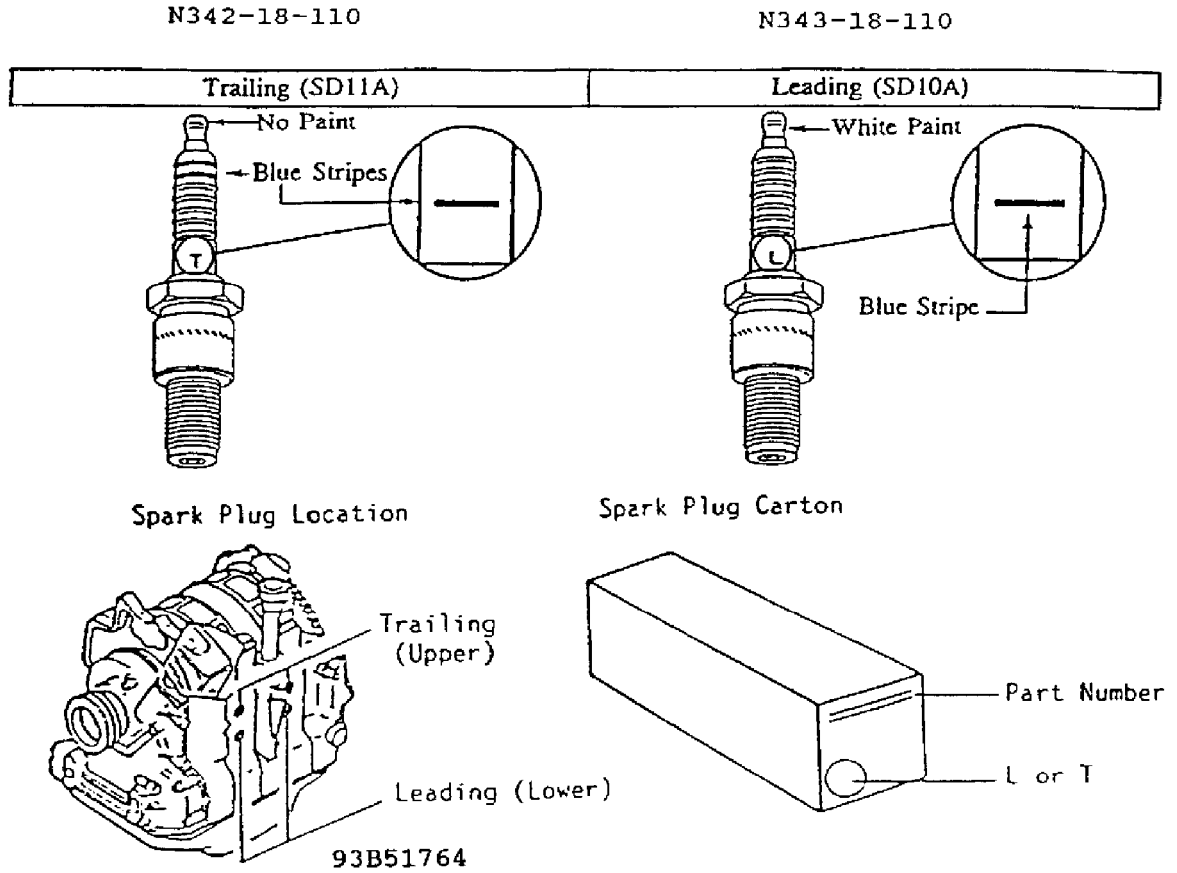


Fig. 1: Spark Plug Identification for 1986-91 RX-7 Engines

END OF ARTICLE

# TAS (THROTTLE ADJUSTMENT SCREW) LOCATION/ADJUSTMENT CAT. F, NO. 014/98

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### TAS (THROTTLE ADJUSTMENT SCREW) ADJUSTMENT

Model(s): All Mazda Models with Fuel Injection  
Category: F (01) - Fuel & Emission Control  
Bulletin No.: 014/98  
Date: December 9, 1998

### VEHICLES AFFECTED

All fuel injected models.

### DESCRIPTION

Fuel injected vehicles with idle speed control motors should NOT have the TAS (Throttle Adjustment Screw) adjusted for any reason. The TAS functions as a stopper when the throttle valve is fully closed. During production, the TAS is accurately set by measuring the airflow rate past a closed throttle plate. Any adjustment to this screw will affect PCM control of idle speed.

Customers complaining of low idle speed should have their vehicle repaired using the Workshop Manual.

- NOTE:
- \* Tampering with this screw will affect the idle contact switch and/or throttle position sensor settings. This can lead to rough idle and difficulty in diagnosis of idle quality concerns.
  - \* The TAS locations on the examples below may vary depending on model year of vehicle. See Fig. 1.

# TAS (THROTTLE ADJUSTMENT SCREW) LOCATION/ADJUSTMENT CAT. F, NO. 014/98

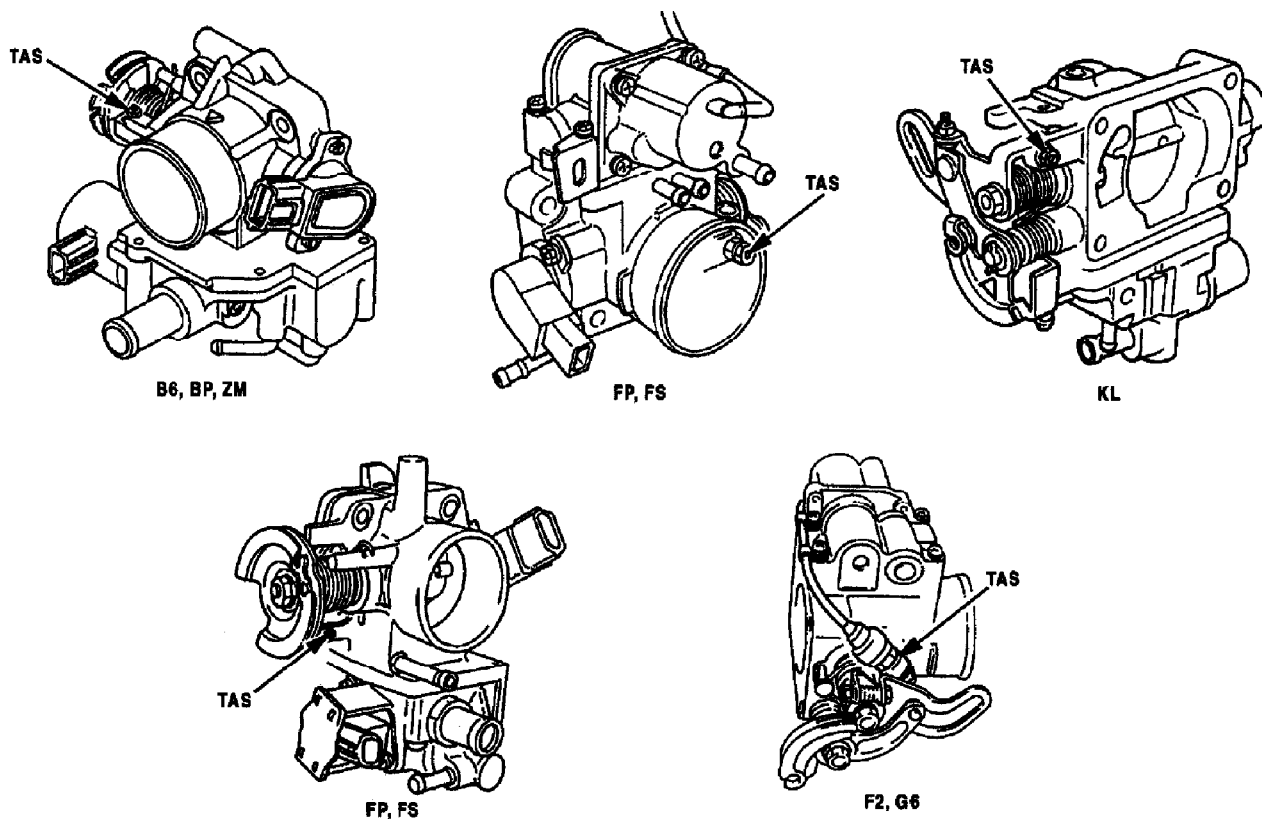
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98B54057

Fig. 1: Throttle Adjustment Screw Locations

END OF ARTICLE

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM INSPECTION CAT. W, NO. 028/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WORKSHOP MANUAL CORRECTION - FUEL SYSTEM

Model(s): 1986-88 Mazda RX-7  
1993 Mazda RX-7  
Category: W - Workshop Manual Corrections  
Bulletin No.: 028/92  
Date: 7/23/92

### DESCRIPTION

Attached are procedures for the 1986-88 RX-7 Workshop Manuals which provide clear fuel system inspection procedures. Also attached are corrections for the 1993 RX-7 Workshop manual.

### AFFECTED PAGES

1986 RX-7  
4-50  
4-50-1

1987 RX-7  
4A-68

1988 RX-7  
4A-68-1

1993 RX-7  
J-16  
J-59

### CORRECTIONS

#### 1986-88 RX-7: FUEL PRESSURE RELEASE AND SERVICING FUEL SYSTEM

Fuel in the fuel lines remains under high pressure even when the engine is not running.

A) Before disconnecting a fuel line, release fuel pressure from the fuel lines to eliminate the possibility of injury or fire.

1. Start the engine.
2. Disconnect the fuel pump connector with the engine running.  
Fig. 1.



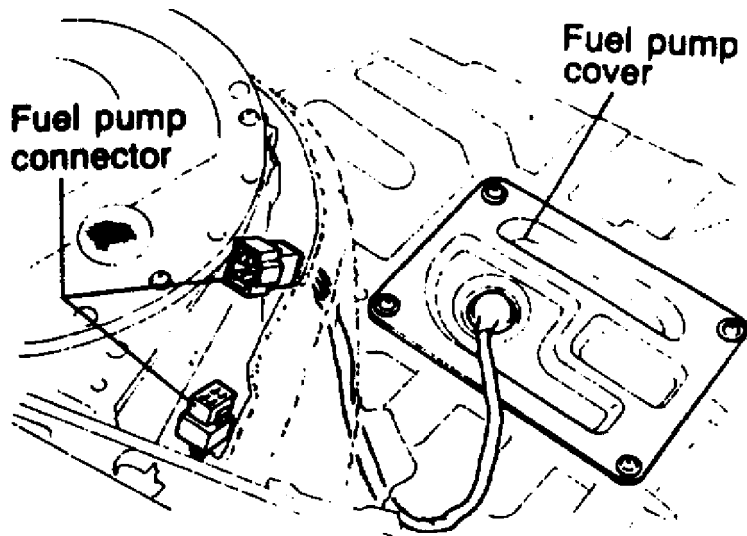
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94C54090

Fig. 1: Fuel pump Connector

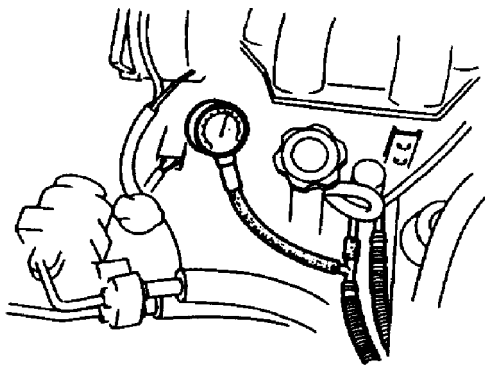
3. Allow the engine to stall, then turn the ignition switch OFF.
- B) Use a rag to protect from fuel spraying out when disconnecting the hoses, and plug the hoses after removal to prevent leakage.

#### System Operation

**WARNING:** Before disconnecting any fuel line, release the fuel pressure from the fuel system to reduce the possibility of injury or fire. (Refer to Page 4-50)

#### Hold Pressure Inspection

1. Release the fuel pressure from the fuel system.
2. Disconnect the negative battery terminal.
3. Install a fuel pressure gauge between the fuel filter and the pulsation damper. See Fig. 2.



94D54091

Fig. 2: Measuring Fuel Pressure

4. Connect the negative battery terminal

# WORKSHOP MANUAL CORRECTION - FUEL SYSTEM INSPECTION CAT. W, NO. 028/92

## Article Text (p. 3)

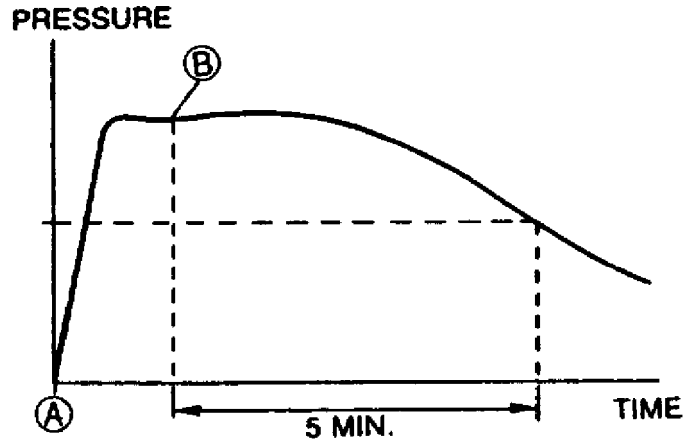
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5. Connect the terminals of the check connector (Yellow: 2-pin) with a jumper wire.
6. Turn the ignition switch ON for 10 sec. to operate the fuel pump. (Point A on Fig. 3).



94E54092

Fig. 3: Fuel Pressure vs. Time Graph

7. Turn the ignition switch OFF and disconnect the jumper wire (Point B on Fig. 3).
8. Observe the fuel pressure after 15 minutes.

Fuel Pressure

Drop less than 20 Kpa (0.2 kg/cm - 2.8 psi)

9. If not as specified, perform the following inspection.
  - \* Fuel pump on vehicle inspection. (Refer to page 4-51)
  - \* Pressure regulator inspection. (Refer to page 4-52)
  - \* Injector on vehicle inspection. (Refer to page 4-53)

## TRANSMISSION

### PAGE J-16: NEW EXTENSION HOUSING DISASSEMBLY INSTRUCTIONS

Disassembly Note - Extension Housing

1. Temporarily reinstall the shift lever, and move the control rod end to the neutral position. Fig. 4

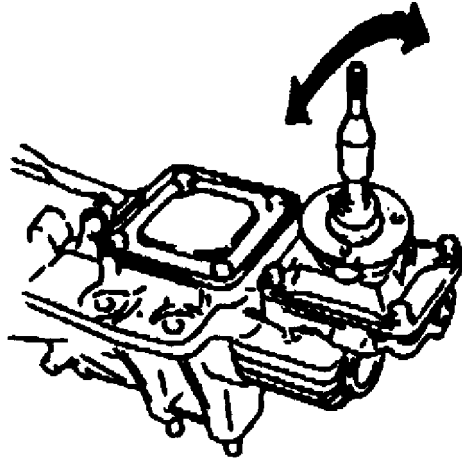
**WORKSHOP MANUAL CORRECTION - FUEL SYSTEM INSPECTION CAT. W, NO. 028/92**

**Article Text (p. 4)**

1993 Mazda RX7

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94F54093

Fig. 4: Positioning Shift Lever

2. Remove the shift lever.
3. Remove the extension housing installation bolts.

**CAUTION:** When removing the extension housing, be careful that the control lever is not pulled into or pushed against the shift rod gates.

4. Lift up on and remove the extension housing from the center housing.

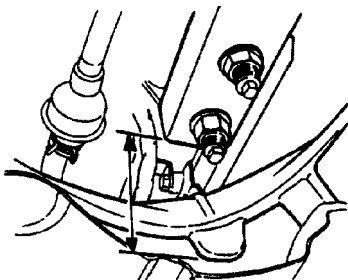
**PAGE J-59: PPF INSPECTION DIMENSIONS PROVIDED**

Measure the distance from the bottom of the front tunnel reinforcement to the point directly above it on the PPF. See Fig. 5

Standard: 77.1 mm (3.04 in)

Acceptable Range: 72-79 mm (2.83-3.11 in)

**CAUTION:** If the distance is not within the acceptable range, readjust the PPF.



94G54094

Fig. 5: PPF Measurement

**END OF ARTICLE**

# 1ST AND 2ND GEAR HARD TO SHIFT: IMPROVED CLUTCH HUB CAT. J, NO. 002/94

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### 1st AND 2nd GEAR HARD TO SHIFT

Model(s): Mazda RX-7  
1993 - Vehicles with a VIN of JM1FD\*\*\*P0200001 through JM1FD\*\*\*R0299999  
1994 - Vehicles with a VIN of JM1FD\*\*\*R0300001 through JM1FD\*\*\*R0300031

NOTE: The asterisk (\*) in the VIN range can be any number (0 through 9) or "X".

Category: J  
Bulletin No.: 002/94  
Date: 1/20/94

### DESCRIPTION

When shifting into 1st and/or 2nd gear, the shift movement may be stiff or binding may be felt. This is caused by the chamfer on the tips of the clutch hub sleeve.

To improve the shift feeling, since August 1, 1993 production, the chamfer on the tips of the clutch hub sleeves are formed using a press. This process increases the accuracy and consistency of the chamfer.

### REPAIR PROCEDURE

1. Verify the customer complaint.
2. Replace the 1st and 2nd clutch hub set and synchronizer ring according to the instructions in the appropriate service information

### PARTS INFORMATION TABLE

| Part Number  | Description | Qty. | Interchangeability |   |    |
|--------------|-------------|------|--------------------|---|----|
| R523 17 260A | R523 17 260 | 1-2  | Clutch Hub Set     | 1 | AN |

### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A  
Customer Comment Code: 24  
Damage Code: 9M  
Part Number Main Cause: R523 17 260A  
Quantity: 1

**1ST AND 2ND GEAR HARD TO SHIFT: IMPROVED CLUTCH HUB CAT. J, NO. 002/94**

**Article Text (p. 2)**

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Operation Number:

J0304BRX

Labor Hours:

7.2Hrs.

**END OF ARTICLE**

# 5TH GEAR SHIFTING NOISE: NEW SHIFT SELECT SPIDLE CAT. J, NO. 001/94

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### 5th GEAR SHIFTING NOISE

Model(s): 1993 RX-7 - Vehicles with a VIN of JM1FD332\*P0100001 through JM1FD332\*P0210508

NOTE: The asterisk (\*) in the VIN range can be any number (0 through 9) or "X".

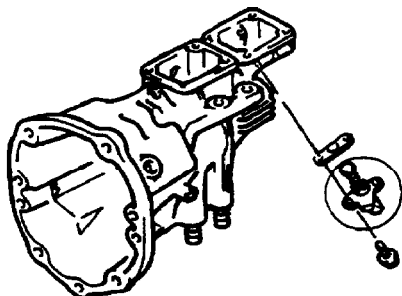
Category: J  
Bulletin No.: 001/94  
Date: 1/7/94  
Revised: 1/27/94

### DESCRIPTION

If grinding occurs when shifting to 5th gear, a 5th gear synchronizer ring, damaged by mis-shifting, may be the cause. To correct this concern, the shift select spindle has been modified to increase accuracy of the shift pattern.

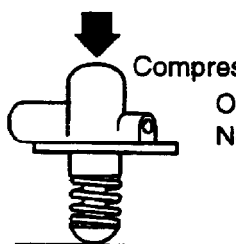
### REPAIR PROCEDURES

1. Verify complaint.
2. Replace the shift select spindle and 5th gear synchronizer ring.
3. Inspect related parts for damage. Replace as necessary.



94I52272

Fig. 1: Shift Select Spindle



Compress Spindle And Record Spring Force

Old Part= 6.7 +/- 0.7 kg  
New Part= 8.9 +/- 0.7 kg

### PARTS INFORMATION TABLE

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;

Part Number Description

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

R503 17 550 Shift Select Spindle

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

W501 17 725B 5th Gear Synchronizer

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

NOTE: The part number of the spindle has not changed.  
Parts in your facing PDC are new. Dealers with  
spindles existing in inventory should check the

**5TH GEAR SHIFTING NOISE: NEW SHIFT SELECT SPIDLE CAT. J, NO. 001/94**

**Article Text (p. 2)**

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<sup>3</sup> spindle using the method Shown below. <sup>3</sup>  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

WARRANTY INFORMATION

(Applies to vehicles covered under normal warranty)

Warranty Type: A  
Symptom Code: 82  
Damage Code: 24  
Part Number Main Cause: R503 17 550  
Operation Number: J0312XRX  
Labor Hours: 4.8Hrs.

**END OF ARTICLE**





## DTC DIAGNOSTIC TROUBLE SHOOTING TIPS MT 0597-07

### Article Text

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

DTC DIAGNOSTICS

Model(s): All Mazda Models  
Category: Mazda Tips  
Bulletin No.: MT 0597-07  
Date: May, 1997

### DESCRIPTION

The diagnostic procedures for DTCs (Diagnostic Trouble Codes) in the Workshop manual don't always include the procedure to check related connectors that are within the DTC component's circuit.

Whenever performing diagnostic procedures, always use the wiring diagram in conjunction with the Workshop Manual. Check each related connector for the following:

- \* Incomplete connection
- \* Loose female terminals
- \* Terminals that are pushed out of their connectors
- \* Water inside the connector
- \* Terminal corrosion

Also check each related harness for damage.

**END OF ARTICLE**

# REMANUFACTURED TRANS (CANADIAN) - DIAGNOSIS SHEET CAT. J, NO. 95-02

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### REMANUFACTURED TRANSMISSIONS

Model(s): All Mazda (Canadian) Models through 1995  
Category: J - Manual Transmission  
Bulletin No.: 95-02  
Date: May 1995

### DESCRIPTION

Remanufactured Transmissions and Transaxles which are supplied by Mazda Canada Inc., are rebuilt by M.A.N.A. (Mazda North America Inc.). This division of Mazda supplies remanufactured units for both Canada and United States.

In their continued efforts to upgrade the quality of these remanufactured units they are looking for more information on what initially failed and why. This will allow the cause to be recognized and addressed during the remanufacturing of the failed unit.

To assist M.A.N.A. in their efforts, the following procedures will be put into place immediately:

1. A properly completed "Warranty Tag" (P/N 9999-94-5011-E/F) must be attached, directly to the body of the core unit (Attachment #1 is a completed sample).
2. A properly completed "Automatic Transmission, Diagnosis Information Sheet" must be folded twice and stapled to the "Warranty Tag". See Fig. 1.


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**mazda**  
MAZDA CANADA INC.

# WARRANTY TAG

|                                              |
|----------------------------------------------|
| <b>PART NO.</b>                              |
| <b>TROUBLE DESCRIPTION/CUSTOMER COMMENTS</b> |
| <b>R.O. NO.</b>                              |
| <b>VIN</b>                                   |
| <b>REPAIR DATE</b>                           |
| <b>KILOMETERS</b>                            |
| <b>DELIVERY DATE</b>                         |
| <b>TYPE OF WARRANTY</b>                      |
| <b>DEALER NAME &amp; ADDRESS</b>             |

9999-94-5011 E/F  
Rev. 05/89

94C59313

Fig. 1: Example of Warranty Tag

3. The defective unit must be shipped to the Quality Assurance Centre

**REMANUFACTURED TRANS (CANADIAN) - DIAGNOSIS SHEET CAT. J, NO. 95-02**

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as specified in the enclosed revised Parts Merchandising Bulletin.

If a core unit is received without a properly completed "Warranty Tag" and/or properly completed "Automatic Transmission Diagnosis Information Sheet" the core credit will not be processed for payment. The dealer will be advised of the situation by the Warranty Administration Department. Once the missing information is faxed/received by the Warranty Administration Department, the core credit will be processed.

If the requested information is not received within 10 working days, the core unit will be shipped back to the dealer, freight collect.

Two copies of this Service Bulletin are being supplied to each dealer. Please give the second copy to the Mazda Parts Manager.

NOTE: Five copies of the Automatic Transmission Diagnosis Information Sheet are being supplied with this bulletin. Ensure 1 copy remains intact with the original bulletin so that additional copies can be produced as necessary by your dealership.

Your understanding and continued co-operation are appreciated. See Fig. 1 for example.

**AUTOMATIC TRANSMISSION DIAGNOSIS INFORMATION SHEET**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

1. Dealer Code \_\_\_\_\_ RO \_\_\_\_\_ Date \_\_\_\_\_ Model Yr. \_\_\_\_\_  
VIN \_\_\_\_\_ Odometer \_\_\_\_\_

2. Customer Concern: (Check appropriate box)

| Shifting/Engagement:       | Does Not Occur | Slips | Delayed |
|----------------------------|----------------|-------|---------|
| Harsh                      |                |       |         |
| A. Engagement into drive   | _____          | _____ | _____   |
| B. Engagement into reverse | _____          | _____ | _____   |
| C. 1-2 Upshift             | _____          | _____ | _____   |
| D. 2-3 Upshift             | _____          | _____ | _____   |
| E. 3-4 Upshift             | _____          | _____ | _____   |
| F. Downshifts              | _____          | _____ | _____   |
| G. Kickdowns               | _____          | _____ | _____   |

Noise/Vibration: \_\_\_\_\_ Clunk \_\_\_\_\_ Whine \_\_\_\_\_ Buzz \_\_\_\_\_ Other \_\_\_\_\_  
Condition Occurs: \_\_\_\_\_ Hot \_\_\_\_\_ Cold \_\_\_\_\_  
Frequency: \_\_\_\_\_ Intermittent \_\_\_\_\_ Always \_\_\_\_\_

Other: \_\_\_\_\_

3. Technician Diagnosis:

Visual Inspection: (note leaks) \_\_\_\_\_

**REMANUFACTURED TRANS (CANADIAN) - DIAGNOSIS SHEET CAT. J, NO. 95-02**

**Article Text (p. 4)**

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Fluid Condition:    \_\_\_\_\_ Burnt       \_\_\_\_\_ Normal  
Fluid Level:        \_\_\_\_\_ Correct    \_\_\_\_\_ High     \_\_\_\_\_ Low

Line Pressure (record applicable data)

|    | Idle  | WOT   |
|----|-------|-------|
| P  | _____ | N/A   |
| R  | _____ | _____ |
| N  | _____ | N/A   |
| OD | _____ | _____ |
| D  | _____ | _____ |
| 2  | _____ | _____ |
| 1  | _____ | _____ |

4. Replacement Transmission Identification: (unit to be installed into vehicle)

Installation date \_\_\_\_\_ Part Number \_\_\_\_\_ Unit Serial No. \_\_\_\_\_

5. Transmission Identification: (MCI use only)

\_\_\_\_\_ Original unit       \_\_\_\_\_ reman unit  
\_\_\_\_\_ Unit Serial Number

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

**END OF ARTICLE**

# ALIGNMENT SPECIFICATIONS (CANADIAN) CAT. N, NO. 95-02

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### ALIGNMENT SPECIFICATIONS

Models: 1993-95 Mazda Models (Except 1994-95 B-Series) (Canada)  
Category: N - Steering  
Bulletin No.: 95-02  
Date: January, 1995

### APPLICABLE MODELS

All models except 1994-95 B-Series.

### DESCRIPTION

This bulletin provides background information on standard specification and measuring conditions for wheel alignment.

Measured values are not absolute. Variations occur between technician, equipment and the condition of the vehicle at the time of measurement. To avoid unnecessary adjustments, specifications and measurement conditions have been changed in the Workshop Manual. These changes are described below.

NOTE: Changes in the specifications do not imply that alignment tolerances have increased during production. Vehicle alignment is set to the median specifications during production and technicians should also use median specifications during alignment adjustment.

### NEW SPECIFICATIONS TABLE

| Items | Standard                                   | Note                                     |
|-------|--------------------------------------------|------------------------------------------|
| ~~~~~ |                                            |                                          |
| F     | Camber (Difference between right and left) | ±1 (±1.5) degrees                        |
| R     | Caster (Difference between right and left) | ±1 (±1.5) degrees                        |
| N     | ~~~~~                                      |                                          |
| T     | Toe (Total toe-in)                         | ±4mm (Angle indicated is also described) |
| ~~~~~ |                                            |                                          |
| R     | Camber (Difference between right and left) | ±1 (±1.5) degrees                        |
| E     | Toe (Total toe-in)                         | ±4mm (Angle One side toe is              |

# ALIGNMENT SPECIFICATIONS (CANADIAN) CAT. N, NO. 95-02

## Article Text (p. 2)

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```

3 A 3           3 indicated is 3 not mentioned. 3
3 R 3           3 also described) 3 (No specification) 3
3  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3  Thrust Angle 3  ±0.8 degrees 3
3  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
3 NOTE: Each vehicle varies in specification median. Refer to the 3
3  Workshop Manual for each vehicle's specification. 3
3  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    
```

### VEHICLE PREPARATION AND CONDITION

1. The vehicle should have:

- \* No Passengers
- \* No Luggage
- \* Gas Tank Full, Radiator And Engine Oil To The Specified Levels
- \* Spare Tire, Jack And Tools Stored In Designated Areas
- \* Tire Pressure Checked And, If Necessary, Adjusted

NOTE: If the specifications are different (depending on load conditions), adjust the pressure for the lightest load.

2. The table below contains examples of front caster specifications based on fuel tank level.

#### CASTER SPECIFICATION TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
3 Fuel Gauge 3 Front Caster 3
3 Indication 3 (Shown in degrees, minutes) 3
3 Empty 3 3 degrees 05' to 5 degrees 05' 3
3 1/4 3 3 degrees 10' to 5 degrees 10' 3
3 1/2 3 3 degrees 15' to 5 degrees 15' 3
3 3/4 3 3 degrees 20' to 5 degrees 20' 3
3 Full 3 3 degrees 25' to 5 degrees 25' 3
3 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    
```

```

3 NOTE: Specifications may differ between 3
3  models. 3
3  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU
    
```

3. Follow the operating procedures specified for the alignment equipment being used.
4. Prior to measuring the current settings, firmly push the vehicle bumper up and down to stabilize the vehicle's height.

**END OF ARTICLE**

ALIGNMENT SPECIFICATIONS AND TOLERANCES -INFORMATION CAT. N, NO. 001/95

Article Text

1993 Mazda RX7

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ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

ALIGNMENT SPECIFICATIONS

Model(s): All Mazda Models (except Navajo & 1994 and on B-Series vehicles)
Category: N - Steering
Bulletin No.: 001/95
Date: 1/19/95

NOTE: This bulletin was originally released as Cat N, #003/94. Replace the original bulletin with this revised copy.

APPLICABLE MODELS

All models except Navajo and 1994 and on B-Series

DESCRIPTION

This bulletin provides background information on standard specification and measuring conditions for wheel alignment. Measured values are not absolute. Variations occur between technician, equipment and the condition of the vehicle at the time of measurement. To avoid unnecessary adjustments, specifications and measurement conditions have been changed in the workshop manual. These changes are described below.

NOTE: Changes in the specifications do not imply that alignment tolerances have increased during production. Vehicle alignment is set to the median specifications during production and technicians should also use median specifications during alignment adjustment.

NEW SPECIFICATIONS TABLE

Table with 4 columns: Items, Standard Tolerance, Note, and an empty column. Rows include Front Camber (Difference between right and left), Caster (Difference between right and left), and Toe (Total toe-in).



ALIGNMENT SPECIFICATIONS AND TOLERANCES -INFORMATION CAT. N, NO. 001/95

Article Text (p. 2)

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Table with 3 columns: Alignment Item, Specification, and Notes. Includes rows for Rear Camber (Difference between right and left) and Toe (Total toe in). Specifications include degrees and mm values.

NOTE: Each vehicle varies in specification median. Refer to the appropriate service information for each vehicle's specification.

VEHICLE PREPARATION AND CONDITION

- 1. The vehicle should have:
\* No Passengers
\* No Luggage
\* Gas Tank Full, Radiator and Engine Oil To The Specified Levels
\* Spare Tire, Jack And Tool Stored In Designated Areas
\* Tire Pressure Checked And, If Necessary, Adjusted.

NOTE: If the specifications are different (depending on load conditions), adjust the pressure for the lightest load.

- 2. The table below contains examples of front caster specifications based on fuel tank level.

CASTER EXAMPLE TABLE

Table with 3 columns: Fuel Gauge Indication, Front Caster (Shown in degrees, minutes), and Empty/Full specifications. Rows show fuel levels from Empty to Full and corresponding caster ranges.

NOTE: Specifications may differ between models.

- 3. Follow the operating procedures specified for the alignment equipment being used.
4. Prior to measuring the current settings, firmly push the vehicle bumper up and down to stabilize the vehicle's height.

**ALIGNMENT SPECIFICATIONS AND TOLERANCES -INFORMATION CAT. N, NO. 001/95**

**Article Text (p. 3)**

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**END OF ARTICLE**

# CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE CAT. N, NO. 004/97

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE

Model(s): All Mazda Models with Rack/Pinion  
Category: N - Steering System  
Bulletin No.: 004/97  
Date: December 28, 1997

### DESCRIPTION

Customers complaining of problems associated with power steering fluid loss should have the vehicle inspected according to the instructions in section N of the workshop manual. If the leak is determined to be coming from the power steering gear, follow the procedures listed below.

NOTE: Service Managers should place a copy of this bulletin in section N of the workshop manual.

### INSPECTION PROCEDURE

1. Check the color of the fluid that is leaking. See Fig. 1.
  - \* If the fluid is red, proceed to step 3.
  - \* If the fluid is any color other than red, (i.e. yellow, colorless), this is grease and no problem exists with the power steering gear. Proceed to step 2.
2. Inspect the boot for damage (i.e. cracks or tears).
3. Remove the boot wire and inspect the inside of the boot for contamination (dirt, water, etc.). See Fig. 1.
  - \* If there is a large quantity of red fluid inside the boot, this indicates insufficient sealing. Replace the side seal and the power steering gear according to section N of the workshop manual. See Fig. 1.
  - \* If a minimal quantity of red fluid is present, proceed to step 4.
4. Start the engine and turn the steering wheel right and left, lock to lock.
  - \* If the fluid is leaking, replace the side seal and the power steering gear according to section N of the workshop manual.
  - \* If no fluid is leaking, no problem exists in the power steering

**CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE CAT. N, NO. 004/97**

**Article Text (p. 2)**

1993 Mazda RX7

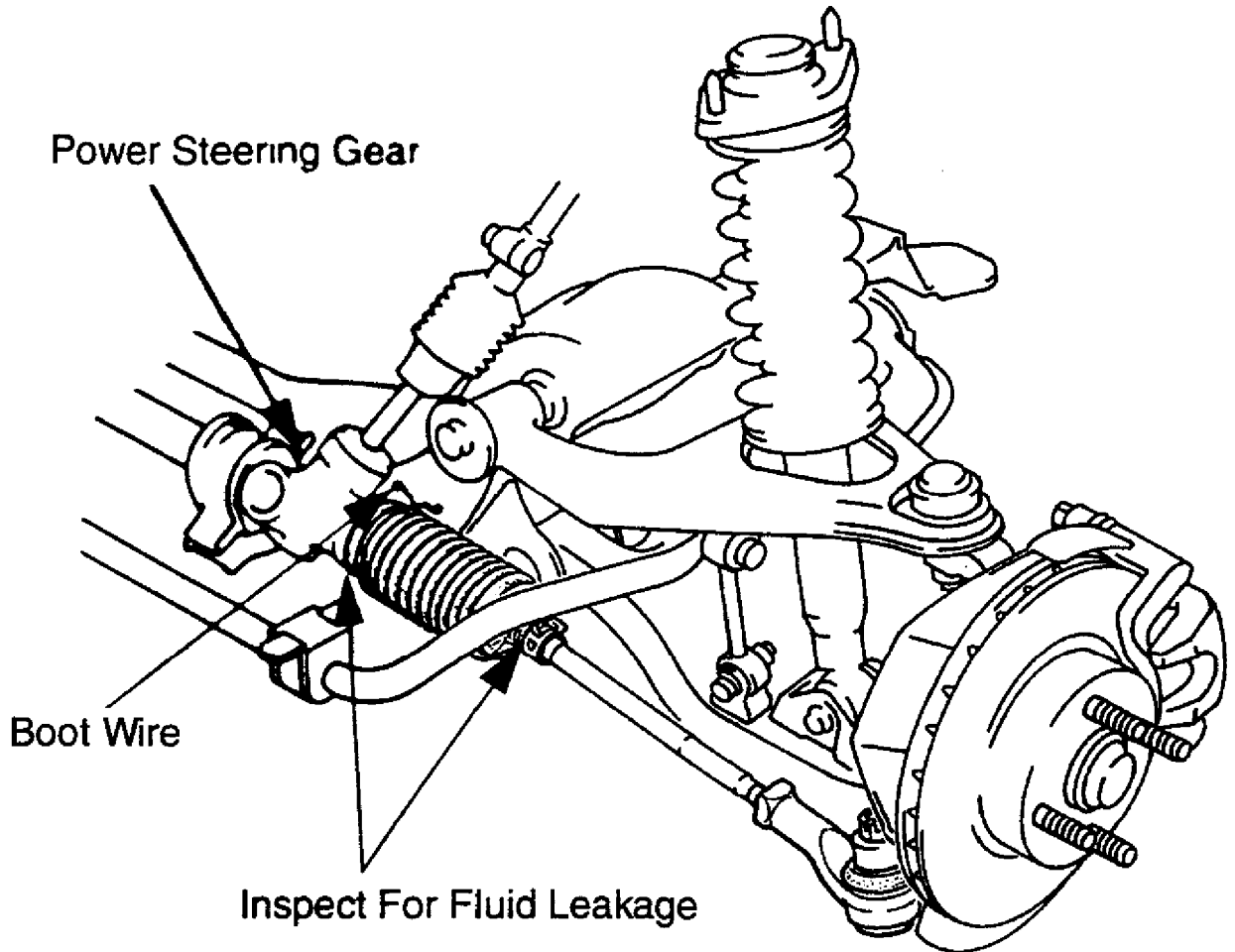
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gear.

**CAUTION:** DO NOT keep the steering wheel fully turned to the locked position for more than five seconds. Power steering system damage may occur.



97A54353

Fig. 1: Power Steering Gear & Boot Wire - Inspect Fluid Leakage

**END OF ARTICLE**

# FRONT SUSPENSION UPPER ARM BUSHING NOISE CAT. R, NO. 004/93

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### FRONT UPPER BUSHING NOISE

Model 1993 Mazda RX-7  
Category R, No.: 004/93, Date: 9/22/93  
Category R, No.: 93-02, Date: Sept, 93

#### APPLICABLE MODELS

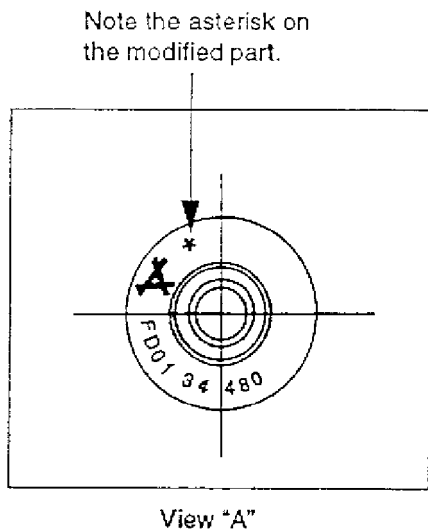
```
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Model      3 Year      3 VIN Range(s)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Mazda RX-7 3 1993 3 JM1FD33**P0200001 through JM1FD33**P0204513
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

#### DESCRIPTION

A customer may complain of an unusual noise from the front suspension upper arm bushing when the vehicle moves from a stop. Turning the steering wheel when the vehicle is stationary may also produce the noise.

#### REPAIR PROCEDURE

Verify the condition and replace the upper arm rubber bushing with a modified one designed to eliminate the noise. See Figs. 1 and 2.



94G50423

Fig. 1: Modified Bushing Identification

**FRONT SUSPENSION UPPER ARM BUSHING NOISE CAT. R, NO. 004/93**

**Article Text (p. 2)**

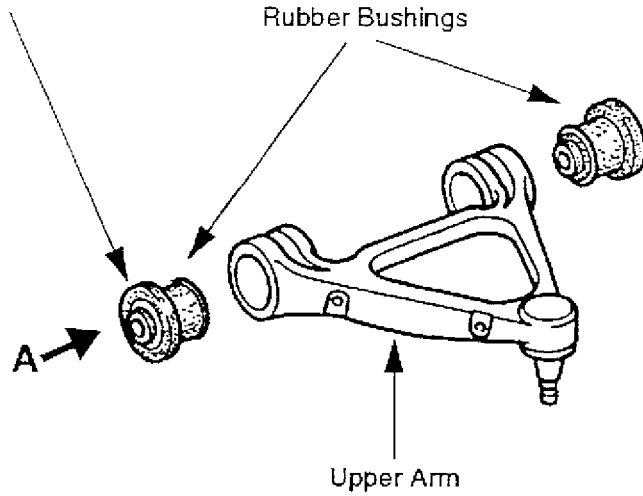
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Cut Away This Lip and Remove Bushing With Hydraulic Press. Lubricate New Bushing With Soapy Water And Install With Press



94H50424

Fig. 2: Front Suspension Upper Arm Assembly

PARTS INFORMATION TABLE

| Part Description              | Q | Part Number   |
|-------------------------------|---|---------------|
| Rubber Bushing - 2 (one side) | 2 | FD01 34 480A* |

NOTE: \*-Part number remains the same.

**END OF ARTICLE**

# HIGH STEERING WHEEL EFFORT - VERIFY CONDITION MT 0995-05

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### STEERING WHEEL EFFORT

Model(s): All Mazda  
Category: Mazda Tips  
Bulletin No.: MT 0995-05  
Date: 1995

### DESCRIPTION

If a customer complains of high or uneven steering effort, before attempting any repair, verify the amount of force required to turn the steering wheel. Use the instructions in the Workshop Manual, category "N", under "Steering Wheel Effort". This procedure involves using a pull scale.

CAUTION: Before measuring steering wheel effort make sure that:

1. Tires are the correct size and correctly inflated.
  2. Power steering fluid level and condition are OK.
  3. Vehicle is on a hard, level surface for testing.
- \* If the force is within the specification listed in the Workshop Manual, inform the customer that this is a normal condition.
  - \* If the force is out of specification and/or abnormally high, then troubleshoot per the Workshop Manual.

END OF ARTICLE

# INSTALLATION OF TIRE CHAINS CAT. Q, NO. 005/93

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### INSTALLATION OF TIRE CHAINS

Model(s): All Mazda Models  
Category: "Q" Tires/Wheels  
Bulletin No.: 005/93  
Date: 6/3/93

#### DESCRIPTION

Tire chains may scratch or chip aluminum wheels. If chains are to be installed, aluminum wheels should be changed to steel wheels.

Please remind your customers of the following instructions when installing tire chains on their vehicle. These recommendations are also explained in the vehicles owner's manual.

1. Investigate local regulations before using tire chains.
2. Use only SAE Class "S" chains, and make sure they fit the vehicle's tires.
3. Follow the chain manufacturer's instructions.
4. Remove the steel wheel covers (if equipped) to avoid scratches or damage.
5. Front Wheel Drive Vehicle: Secure the chains on the front tires as tightly as possible. Retighten after one-half mile of driving.  
Rear Wheel Drive Vehicles: Secure the chains to the rear wheels as tightly as possible. Retighten after one-half mile of driving.

#### CAUTION:

- CHAINS MAY AFFECT VEHICLE HANDLING.
- DO NOT GO FASTER THAN 30 MPH OR THE MANUFACTURER'S RECOMMENDED SPEED, WHICHEVER IS LOWER.
- DRIVE CAREFULLY AND AVOID BUMPS, HOLES AND SHARP TURNS.
- AVOID LOCKED-WHEEL BRAKING.
- DO NOT USE CHAINS ON THE TEMPORARY TIRE. THEY MAY DAMAGE THE VEHICLE AND THE TIRE.

### END OF ARTICLE



**NOISE WHEN TURNING STEERING WHEEL: NEW RACK BOOTS CAT. N, NO. 002/93**

**Article Text**

1993 Mazda RX7

For www.iluvmyrx7.com

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**ARTICLE BEGINNING**

TECHNICAL SERVICE BULLETIN

**NOISE FROM FRONT OF VEHICLE WHILE TURNING STEERING WHEEL**

Model(s): 1993 Mazda RX-7 with a VIN of JM1FD33\*\*P0200001  
 through JM1FD33\*\*P0210661.

NOTE: The asterisk (\*) in the VIN range can be any number (0 through 9) or "X".

Category: "N" Steering  
 Bulletin No.: 002/93  
 Date: 10/21/93

DESCRIPTION

Turning the steering wheel while the vehicle is stationary may produce an unusual noise from the front of the vehicle. This noise is generated from the steering linkage boots. The diameter of the boots have been increased to correct this problem.

REPAIR PROCEDURE

1. Confirm the noise. If the noise is coming from another source, refer to the appropriate service information for troubleshooting information. If the noise is coming from the boots, proceed to step 2.
2. Replace the boots with the redesigned boot.

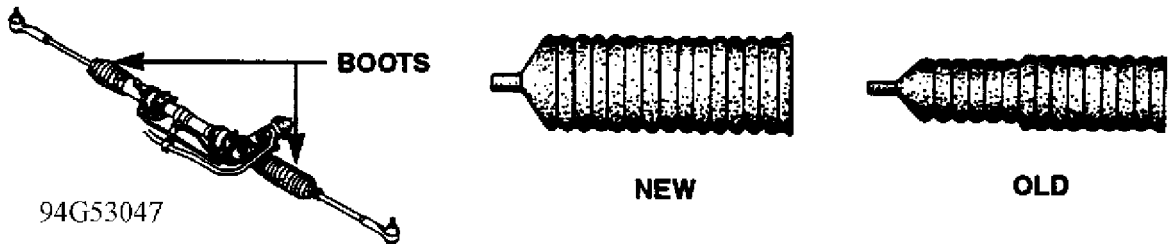


Fig. 1: Steering Gear Dust Boots

PARTS INFORMATION TABLE

| Part Number  | Description                    | Quantity |
|--------------|--------------------------------|----------|
| FD01 32 125A | FD01 32 125 Boot, Rack (Left)  | 1        |
| FD02 32 125A | FD02 32 125 Boot, Rack (Right) | 1        |

# NOISE WHEN TURNING STEERING WHEEL: NEW RACK BOOTS CAT. N, NO. 002/93

## Article Text (p. 2)

1993 Mazda RX7

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### WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

|                         |                                                          |
|-------------------------|----------------------------------------------------------|
| Warranty Type:          | A                                                        |
| Customer Comment Code:  | 82                                                       |
| Damage Code:            | 9B                                                       |
| Part Number Main Cause: | See PARTS INFORMATION TABLE                              |
| Related Parts:          | See PARTS INFORMATION TABLE                              |
| Quantity:               | See PARTS INFORMATION TABLE                              |
| Operation Number:       | N0205BRX                                                 |
| Labor Hours:            | 2.3 Hrs. (Includes front wheel alignment and adjustment) |

**END OF ARTICLE**

# RIDE QUALITY - PROPER TIRE INFLATION CAT. Q, NO. 002/92

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### RIDE QUALITY

Model(s): 1993 Mazda Models  
Category: Q  
Bulletin No.: 002/92  
Date: 7/16/92

### DESCRIPTION

Vehicle tires are inflated with excessive air pressure during assembly in order to properly seat the tire bead and to prevent flat-spotting during storage. Excessive tire pressure can increase steering wheel vibration and effect overall ride of the vehicle .

### INSPECTION & ADJUSTMENT PROCEDURE

Check and adjust the tire pressure at pre-delivery inspection and any other service interval. The proper tire inflation values are shown in Fig. 1 and can also be found on the vehicle certification label located on the driver's side door.

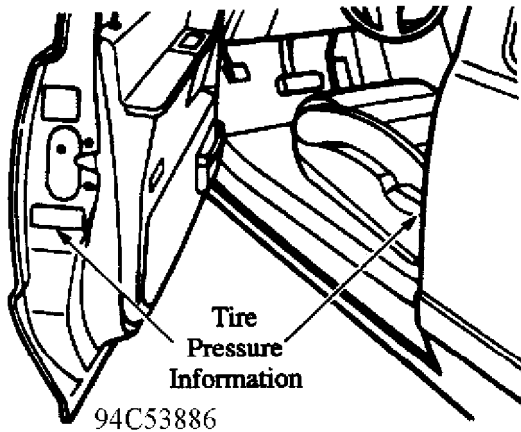


Fig. 1: Location of Vehicle Certification Label

#### TIRE PRESSURE SPECIFICATION TABLE

| Model       | Front  | Rear   |
|-------------|--------|--------|
| 323/Protege | 32 psi | 32 psi |
| 626/MX-6    | 32 psi | 26 psi |
| 929         | 28 psi | 28 psi |

RIDE QUALITY - PROPER TIRE INFLATION CAT. Q, NO. 002/92

Article Text (p. 2)

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```

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      MX-3      3      3      3      3
3      1.6L      3      32 psi  3      32 psi  3
3      1.8L      3      28 psi  3      28 psi  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      MX-5 Miata 3      26 psi  3      26 psi  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      RX-7      3      32 psi  3      32 psi  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      Navajo    3      26 psi  3      26 psi  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      B-Series  3      3      3
3      4 X 2    3      26 psi  3      35 psi  3
3      4 X 4    3      28 psi  3      31 psi  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      MPV      3      35 psi  3      32 psi  3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

END OF ARTICLE

# STEERING WHEEL SLIGHTLY OFF CENTER CAT. N, NO. 001/96

## Article Text

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### STEERING WHEEL SLIGHTLY OFF CENTER

Model(s): 1989-97 Mazda MPV  
1990-97 Mazda 323/Protege  
1990-97 Mazda MX-5  
1992-95 Mazda 929  
1992-95 Mazda MX-3  
1993-95 Mazda RX-7  
1993-97 Mazda 626/MX-6  
1995-97 Mazda Millenia  
Category: N - Steering System  
Bulletin No.: 001/96  
Date: November 7, 1996

NOTE: This bulletin replaces bulletin Cat. N, No. 001/94 and Cat. N, No. 005/95

### APPLIED MODELS/VINS

All Models except the Navajo and B-Series.

### DESCRIPTION

Some vehicles may have an off center steering wheel but no right or left hand pulling. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

### REPAIR PROCEDURE

1. Test drive the vehicle on a straight road.
2. Place the steering wheel in a neutral position.
  - \* If the vehicle tracks straight and the steering wheel is NOT in a centered position, proceed to step 3.
3. Use the outside circumference of the steering wheel to measure the distance between the center position and the neutral position.
  - \* If the measurement is more than 30mm (1.18in) remove the steering wheel and install it in the centered position. See the workshop manual for removal and installation procedures.
  - \* If the measurement is less than 30mm (1.18in):
    - a) Loosen both right and left hand tie-rod end lock nuts.

**STEERING WHEEL SLIGHTLY OFF CENTER CAT. N, NO. 001/96**

**Article Text (p. 2)**

1993 Mazda RX7

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- b) Turn the tie-rod ends in opposite directions by equal amounts, until the steering wheel is centered.

3. Verify the repair.

The chart below shows the approximate distance the outside diameter will move for every 1/4 (90 degree) turn of the tie-rod end.

Tie-Rod End - Turns vs. Distance Moved Table

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
@           Model           @ Approximate Distance @
@                               @ (1/4 turn) @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1990-97 323/Protege @      8mm (with PS) @
@                               @ 11-12mm (without PS) @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1992-95 MX-3 @      7mm (6 cyl.) @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1993-95 RX-7 @      7mm @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1993-97 626/MX-6 @      9-10mm @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1992-95 929 @      11mm @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1989-97 MPV @      13mm (4x2) @
@                               @ 12mm (4x4) @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1990-97 MX-5 @      8mm (with PS) @
@                               @ 10mm (without PS) @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
@ 1995-97 Millenia @      10mm @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

**WARRANTY INFORMATION**

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

Warranty Type: A  
Symptom Code: 30  
Damage Code: 9H  
Part Number Main Cause: 5555-FE-001  
Quantity: 0  
Operation Number: XX0640RX  
Labor Hrs: 0.5 Hrs.

**END OF ARTICLE**

# STEERING WHEEL SLIGHTLY OFF CENTER (CANADIAN) CAT. N, NO. 95-04

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### STEERING WHEEL SLIGHTLY OFF CENTER

Model(s): 1983-95 Mazda Models (Except B-Series) (Canadian)  
Category: N - Steering  
Bulletin No.: 95-04  
Date: April, 1995

### DESCRIPTION

The steering wheel on some models may be slightly off center. The vehicle still drives straight and does not pull right or left.

If a customer complains of the position of the steering wheel, confirm that the vehicle is not pulling and repair according to the instructions in this bulletin.

### REPAIR PROCEDURE

1. Drive on a straight road and place the steering wheel in a neutral position. If the steering wheel is not centered, go to step 2.
2. Using the outside circumference of the steering wheel, measure the distance between the neutral position and the center position.

NOTE: If the distance is larger than 30 mm (1.18 in.) remove the steering wheel and reinstall in the correct position. If the steering wheel is still off center, proceed to step 3.

3. Measure the distance described in step 2. If less than 30 mm (1.18 in) loosen both left and right tie rod end lock nuts. Turn the rods in the opposite directions by the same amount until the steering wheel is centered.
4. Road test the vehicle to confirm the steering wheel is centered. If not centered, repeat step 3.

The TIE ROD OUTSIDE CIRCUMFERENCE DISTANCE TABLE below shows the approximate distance that the outside circumference will move per 90 degree turn on the tie rod (both left and right in opposite directions).

#### TIE ROD CIRCUMFERENCE DISTANCE TABLE

| Model                | Type     | Approx. Distance |
|----------------------|----------|------------------|
| 1990-94 323/Protege, | With P/S | 8 mm             |

STEERING WHEEL SLIGHTLY OFF CENTER (CANADIAN) CAT. N, NO. 95-04

Article Text (p. 2)

1993 Mazda RX7

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```

3      1995 Protege      3 Without P/S 3      12 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1992-95 MX-3     3 4 cyl.      3      8 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1992-95 626/MX-6 3 All        3      9 mm      3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1992-95 929      3 All        3      11 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1989-95 MPV      3 4 x 2      3      13 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1990-95 MX-5 Miata 3 All        3      10 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-
3      1995 Millenia    3 All        3      10 mm     3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT microfiche For Current Warranty Term Information).

```

Warranty Type:      0
Symptom Code:      30
Damage Code:       9H
Part Number Main Cause: 5555 FE 001
Operation Number:  XX0640RX
Labor Hours:       0.5 Hrs.

```

END OF ARTICLE



# WHEEL BALANCE TIPS FOR HIGHER PRECISION RESULTS MT 0897-08

## Article Text

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### ARTICLE BEGINNING

TECHNICAL INFORMATION TIP - MANUFACTURER

WHEEL BALANCE

Model(s): All Mazda Model  
Category: Mazda Tips  
Bulletin No.: MT 0897-08  
Date: August, 1997

### DESCRIPTION

Use the following hints for customer complaints which require a higher precision wheel balance than usual.

- \* Use the proper size cone on the inside of the wheel for precise center hole positioning on the spindle. If the cone diameter and wheel hole are not properly matched, it may cause too much run-out and incorrect wheel balance.
- \* For improved centering, tighten the wing nut while turning the wheel by hand.
- \* Adjust the unbalance amount to the smallest possible (10 grams or 0.35 ounces or less). Most wheel balance machines do not indicate unbalance amounts of less than 10 grams, so check your machine's operating instructions for it's accuracy specification.
- \* Check the precision of your balancing equipment and procedure. When you are finished with the wheel balance, turn the wheel approximately 90 degrees on the balancer and check again. If the unbalance amount is greater than 10 grams, there is a problem with either the equipment or the balancing procedure.

END OF ARTICLE

# WHEEL CENTER CAP STICKS OUT: MODIFIED CENTER CAPS CAT. Q, NO. 003/92

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

### WHEEL CENTER CAP STICKS OUT

Model(s): 1993 Mazda RX-7  
Category: Q  
Number: 003/92  
Date: 9/14/92

### DESCRIPTION

Some vehicles may have aluminum wheel center cap(s) that do not fit flush with the wheel. This is caused by the contact between the cap and the axle flange. (See Fig. 1).

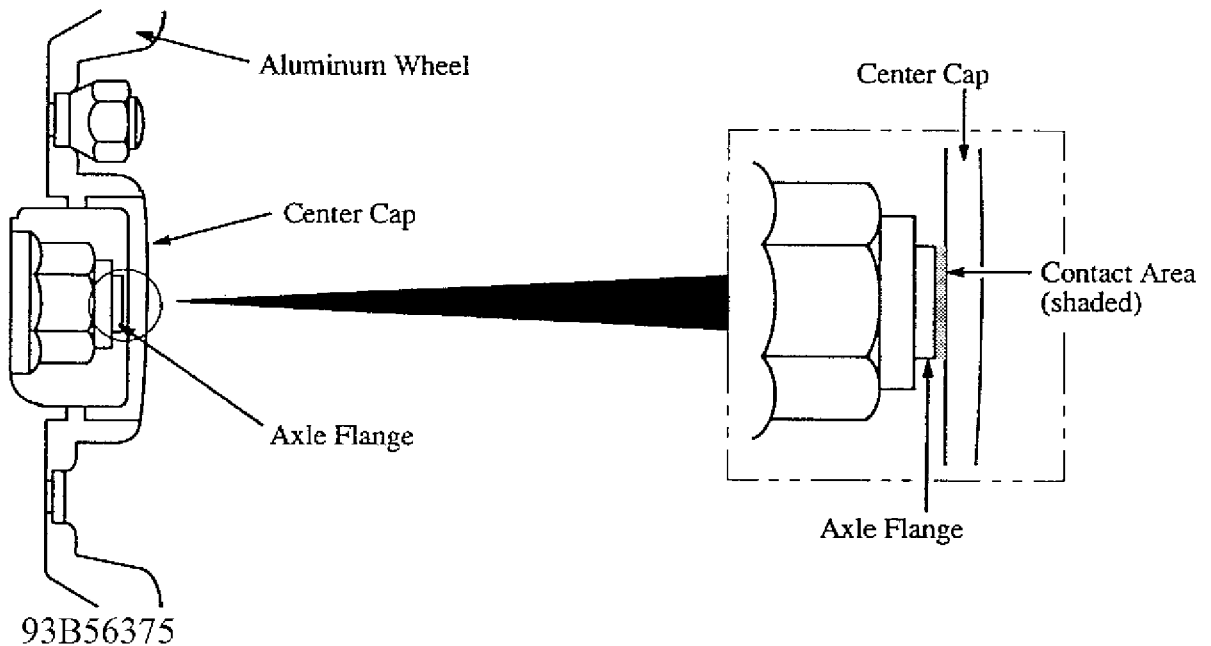


Fig. 1: Center Cap/Axle Flange Contact

### REPAIR PROCEDURE

If this condition occurs, the center cap(s) should be replaced with a modified one.

### PARTS INFORMATION TABLE

| PARTS INFORMATION TABLE |             |     |          |  |
|-------------------------|-------------|-----|----------|--|
| Part Number             | Description | Int | Quantity |  |
| New                     | Old         |     |          |  |

**WHEEL CENTER CAP STICKS OUT: MODIFIED CENTER CAPS CAT. Q, NO. 003/92**

**Article Text (p. 2)**

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FD01 37 191B      FD01 37 191A    Cap, Center      A      4  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

NOTE: Interchangeability code "A" means that a new part can be used in place of an old one, but an old part cannot be used in place of a new one.

**END OF ARTICLE**

# FUEL HOSE MAY LEAK FROM EXCESSIVE ENGINE HEAT

## Article Text

1993 Mazda RX7

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### ARTICLE BEGINNING

NHTSA RECALL BULLETIN

Model(s): 1993 Mazda RX7  
1994 Mazda RX7  
Campaign No: 95V069000  
Number of Affected Vehicles: 13400  
Beginning Date of Manufacture: 1991 DEC  
Ending Date of Manufacture: 1994 SEP

#### VEHICLE DESCRIPTION:

Passenger vehicles.

#### SYSTEM:

Fuel; fuel lines; hoses; non-metallic.

#### FAULT:

Broken, Shattered, Cracked, Split, Collapsed.

#### DESCRIPTION OF DEFECT:

Residual engine heat can cause premature deterioration of the fuel hose causing the hose to leak. Also, removing and reinstalling the deteriorated fuel hoses increases the likelihood of a leak.

#### CONSEQUENCE OF DEFECT:

This condition can result in an engine compartment fire.

#### CORRECTIVE ACTION:

Dealers will install an additional control unit for the electric cooling fan. The fan will then activate after the engine is turned off when the coolant exceeds a specified temperature. The fuel hoses will also be replaced with revised hoses.

#### NOTE:

If your vehicle is presented to an authorized dealer on an agreed upon service date and the remedy is not provided free of charge within a reasonable time, please contact Mazda at 1-800-222-5500. Also contact the National Highway Traffic Safety Administration's Auto Safety Hotline at 1-800-424-9393.

#### ADDITIONAL INFORMATION:

The National Highway Traffic Safety Administration operates Monday through Friday from 8:00 AM to 4:00 PM, Eastern Time. For more

**FUEL HOSE MAY LEAK FROM EXCESSIVE ENGINE HEAT**

**Article Text (p. 2)**

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information call (800) 424-9393 or (202) 366-0123. For the hearing impaired, call (800) 424-9153.

**END OF ARTICLE**

# RADIATOR CAP PRESSURE SET TOO HIGH

## Article Text

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### ARTICLE BEGINNING

NHTSA RECALL BULLETIN

Model(s): 1993 Mazda RX7  
1994 Mazda RX7  
Campaign No: 94V094000  
Number of Affected Vehicles: 12316  
Beginning Date of Manufacture: 1991 DEC  
Ending Date of Manufacture: 1994 JAN

### VEHICLE DESCRIPTION:

Passenger vehicles.

### DESCRIPTION OF DEFECT:

The radiator cap pressure relief valve release pressure is set too high. This can cause the coolant to reach temperatures that exceed the thermal design limits of some components of the coolant system. Should this occur, engine coolant can leak collect on top of the engine.

### FAULT:

Burned, Overheated, Burnt out, Melted

### SYSTEM:

Engine cooling system.

### CONSEQUENCE OF DEFECT:

If engine coolant leaks onto the hot engine exhaust manifold from the top of the engine, an engine compartment fire can result.

### CORRECTIVE ACTION:

Dealers will inspect the vehicles and if any vehicle exhibits coolant leakage or if the coolant level has dropped to the point where the coolant loss would be sufficient to trigger the coolant level warning system, components potentially subject to deterioration from overheating would be replaced. These parts include the water pump bearing housing, the water level sensor and radiator upper hose, the thermostat gasket, and all water hoses located above the engine. In addition, all vehicles in which those components are replaced would also have the cooling system and other systems that carry flammable liquids checked to make certain that engine overheating had not caused any problems in those systems. any identified problems will be repaired. The radiator cap, filler cap, and filler cap body of all recalled vehicles will be replaced by newly designed parts.

### NOTE:

## **RADIATOR CAP PRESSURE SET TOO HIGH**

### **Article Text (p. 2)**

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If your vehicle is presented to an authorized dealer on an agreed upon service date and the remedy is not provided within a reasonable time or the remedy does not correct the defect or noncompliance, please contact Mazda Service Center at 1-800-222-5500. Also, contact the National Highway Traffic Safety Administration's auto safety hotline at 1-800-424-9393.

#### **ADDITIONAL INFORMATION:**

The National Highway Traffic Safety Administration operates Monday through Friday from 8:00 AM to 4:00 PM, Eastern Time. For more information call (800) 424-9393 or (202) 366-0123. For the hearing impaired, call (800) 424-9153.

**END OF ARTICLE**

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)**

**Article Text**

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**ARTICLE BEGINNING**

RECALL CAMPAIGN

RX-7 FUEL LEAKAGE RECALL CAMPAIGN NUMBER 60504

Model(s): 1993-94 Mazda RX-7 (Canadian)  
Category: RC - Recall  
Bulletin No.: 95-01  
Date: May, 1995

**DESCRIPTION**

If an RX-7 is driven under severe conditions such as high speed and uphill driving, and the engine is turned off, the temperature of the engine compartment rises because of the residual engine heat, to the extent that it may cause premature deterioration of the fuel hoses elasticity. Repetitive operation may lead to a reduction in the sealing performance of the fuel hoses, and in rare cases, engine compartment fires can result.

Therefore, these vehicles must be repaired by replacing the fuel hoses with modified fuel hoses.

**SUBJECT VEHICLES**

VEHICLE INFORMATION TABLE

```

UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;
@ Model Year & Model @ Vin Range @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
@ 1993 RX-7 @ JM1FD33**PO200001-210660 @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
@ 1994-95 RX-7 @ JM1FD33**RO300001-S0400026 @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA^
@ * - Can be replaced by any letter or number. @
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

```

**OWNER NOTIFICATION**

The owners of the subject vehicles will be notified by first class mail around May 12, 1995.

**REPAIR PARTS**

An initial quantity of Recall Labels are enclosed with this Service Bulletin (Part Number 9999-94 5032E/F). Additional quantities can be ordered through normal parts ordering channels.

Following completion of the repair, fill out the Recall Label with the appropriate information and affix it to left front (driver's) door



**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)**

**Article Text (p. 2)**

1993 Mazda RX7

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as shown in Fig. 31 & Fig. 74.

SPECIAL NOTE: Under separate cover, a container of special adhesive was shipped to every dealer. The adhesive was strapped with a note which clearly indicates that this adhesive is the only adhesive that can be used to carry out the repairs for this Recall. Do not attempt to carry out this Recall unless you have the adhesive. If your dealer has not received the adhesive, please contact the Technical Hot Line at 1-800-268-9400.

Initial quantities of the Fuel Hose Kit, part number N3A1-13-S70 have already been shipped. However please confirm parts stock with each new customer that books an appointment to have this Recall completed.

In addition to the above mentioned parts the following parts will have to be ordered, depending on which repair procedure(s) is required.

If Procedure A is performed:  
no additional parts order is necessary.

If Procedure B & C are performed:  
order Throttle Water Hose Kit, part number N3A1-13-S60  
and Filler Cap Kit, part number N3Z1-15-S10B

If Procedure B, C, & D are performed:  
order Throttle Water Hose Kit, part number N3A1-13-S60  
Filler Cap Kit, part number N3Z1-15-S10B  
Thermostat Gasket, part number N3C1-15-173  
Water Pump Kit, part number N3Z1-15-S20

NOTE: To Determine The Correct Repair Procedure:

The subject vehicles of Recall No. 60504 (Fuel Leakage) could also be subject to Recall No. 54407 (Coolant Leakage) which was launched in July, 1994. When the subject vehicles are brought in for repair, please check if recall campaign No. 54407 has been performed. If not, please perform recall No. 54407 in addition to No. 60504, based on the Repair Procedures found flow chart on the following page.

Please follow the flow chart to determine which procedure to perform before beginning repairs on each vehicle.

SUBJECT VIN RANGE TABLE

|                                                                     |                |                                       |
|---------------------------------------------------------------------|----------------|---------------------------------------|
| UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; |                |                                       |
| 3                                                                   | Fuel Leakage 3 | 1993 JM1FD33**PO200001-210660 3       |
| 3                                                                   |                | 31994-95 JM1FD33**R0300001-S0400026 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA'  |                |                                       |
| 3                                                                   | Coolant Leak 3 | 1993-94 JM1FD33**PO200001-R0302076 3  |

**RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)**

**Article Text (p. 3)**

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AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
3 \* - Can be replaced by any letter or number. 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

**VEHICLE SUBJECT TO RECALL - FLOW CHART**

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;  
3 Is The vehicle subject to AAANOAA' No further action required. 3  
3 Recall No. 60504? 3 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

YES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;  
3 Are there recall labels AAYESAA' No further action required 3  
3 indicating both recalls 3 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU  
3 No. 60504 & No. 54407 have 3  
3 been completed? 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;  
3 Is vehicle subject to AAANOAA' Follow Repair Procedure A 3  
3 Recall No. 54407? 3 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU 3 (Replace Fuel Hoses) 3

YES

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; 3  
3 Has recall repair No, 54407 AAYESAA' 3  
3 been performed? 3 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

NO

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA; UAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA;  
3 Does vehicle have any AAANOAA' Follow Repair Procedure 3  
3 Coolant Leakage? 3 B, C & E 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU 3 (Replace Fuel and 3  
3 Coolant Hoses) 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU  
3 Follow Repair Procedure 3  
3 B, C, D & E 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAYESAAA' (Replace Fuel and Coolant 3  
3 Hoses and Water Pump) 3  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAU

**FUEL HOSES REPLACEMENT PROCEDURES**

**PRE-CAUTIONS:**

1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

## RX-7 FUEL LEAKAGE RECALL CAMPAIGN #60504 (CANADIAN)

### Article Text (p. 4)

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If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

### PROCEDURE A - REPLACEMENT OF FUEL HOSE KIT

To be performed on ALL customer (sold) vehicles.

1. Start the engine.
2. Remove the circuit opening relay. See Fig. 1.

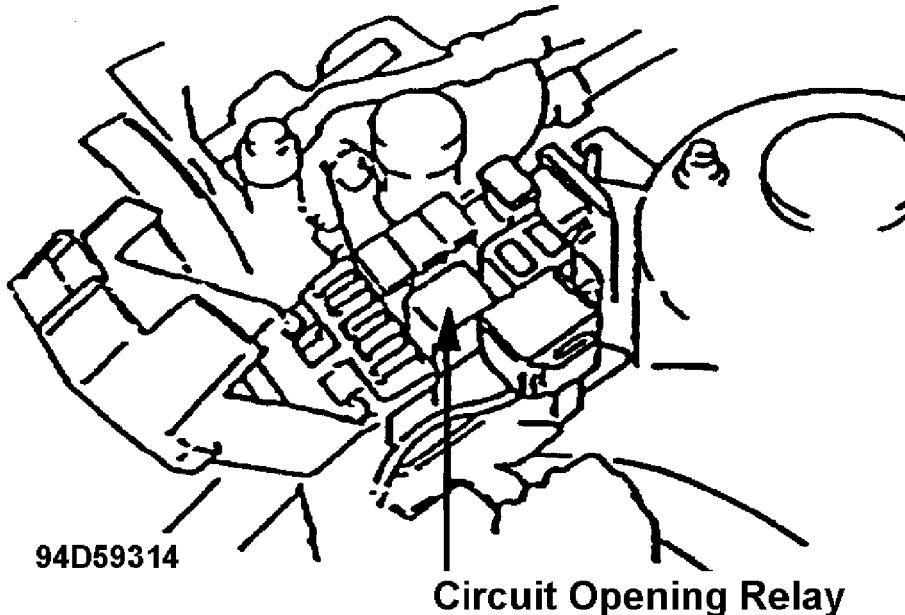


Fig. 1: Location of Circuit Opening Relay

3. After the engine stalls, crank the engine for 15 - 20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay.
6. Disconnect the negative terminal from the battery.

NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.

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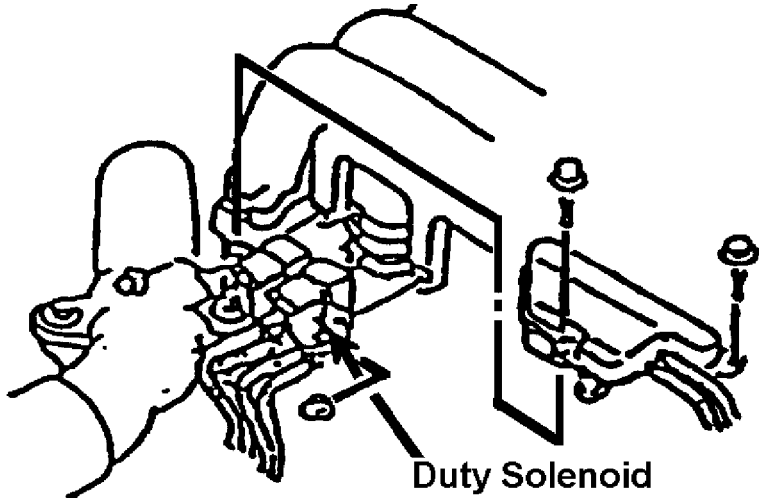
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8. Remove the bolts from the duty solenoid and the pressure chamber.  
See Fig. 2.

Tightening Torque: 70-100 kgf. cm. (61-86 in-lbf)



**Remove Bolts from Duty Solenoid 94E59315**

Fig. 2: Removing Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 3.

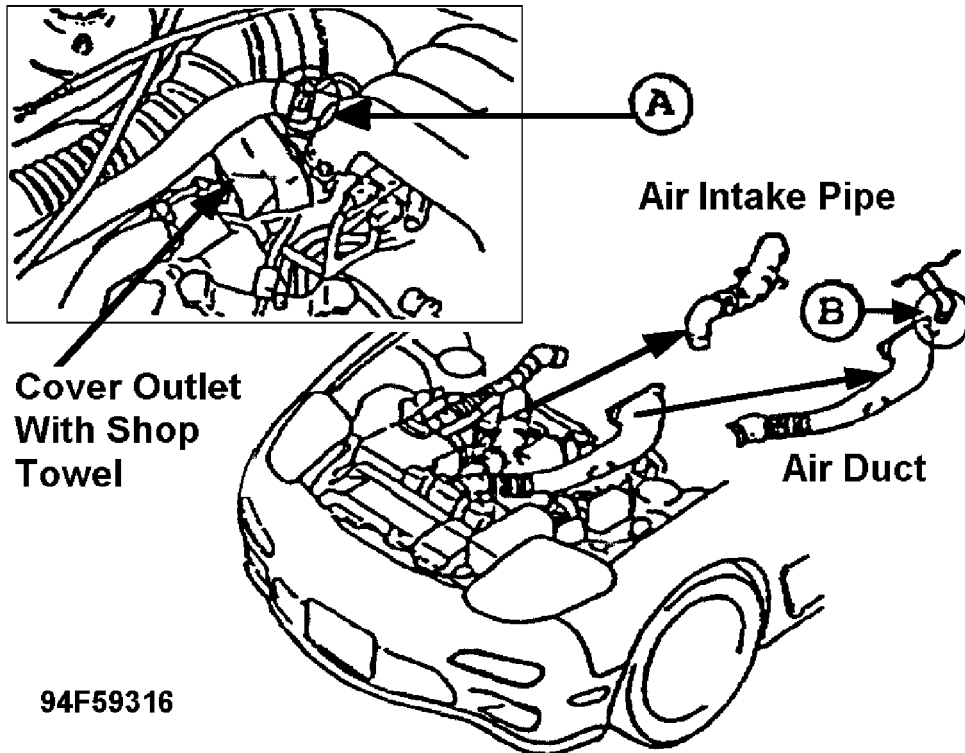


Fig. 3: Disconnecting the Air Pipe

10. Disconnect the AWS hose and Air Duct B at the joint as shown

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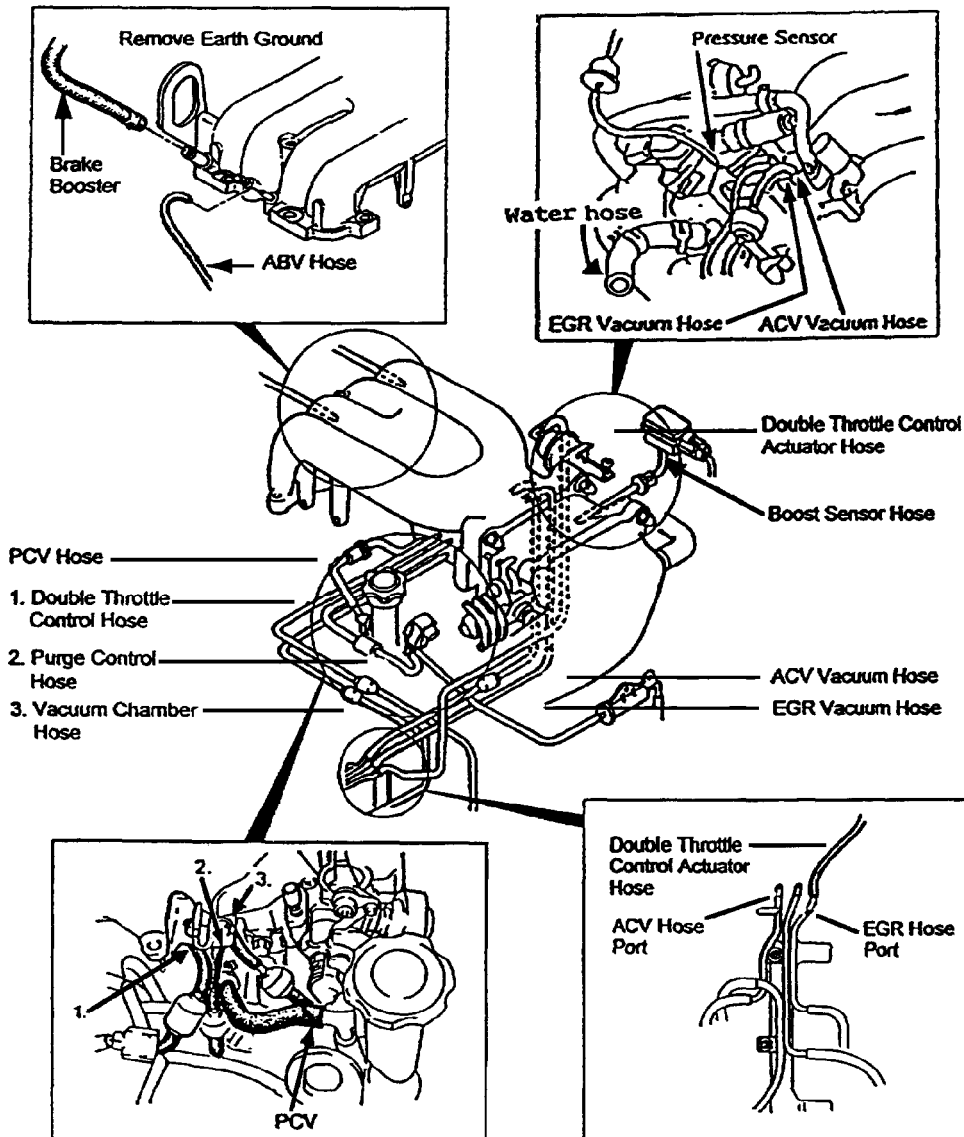
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in Fig. 3.

11. Remove the air intake pipe from the outlet of the turbo, and cover the outlet with a shop towel.
12. Remove the air duct from the inter cooler.
13. Remove the hoses from the extension manifold. See Fig. 4.

NOTE: Disconnect the hoses at the locations indicated by arrows (-->) only!

Remove these four parts referring to Step 16.



94G59317

Fig. 4: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

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14. Remove the harnesses from the extension manifold. See Fig. 4.
15. Remove the accelerator cable and the cruise cable. See Fig. 5.

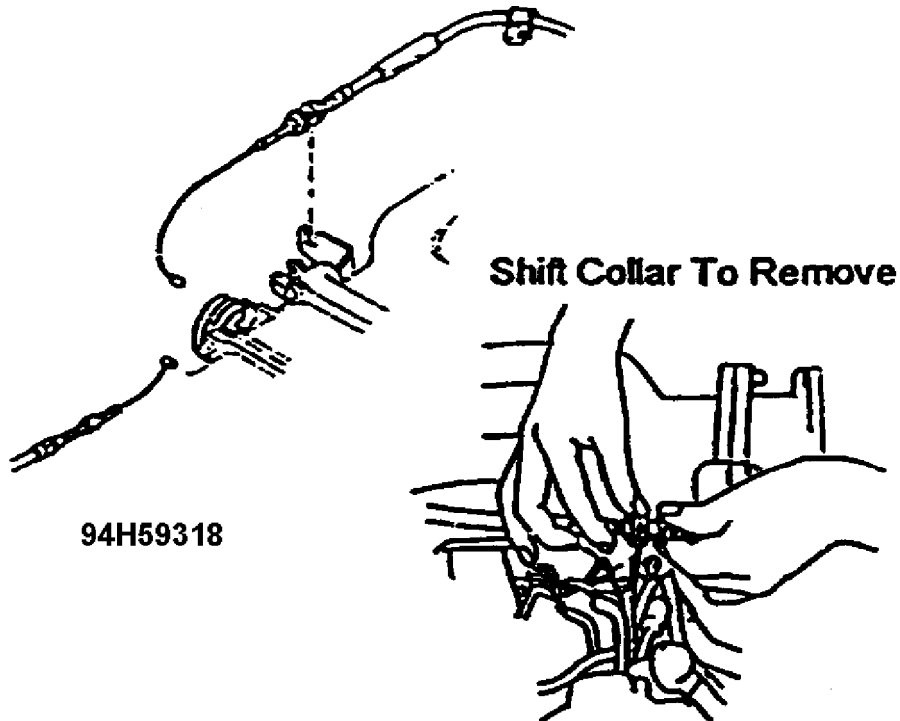


Fig. 5: Removing Accelerator Cable & the Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrow (-->) only. See Figs. 6, 7, & 8.

Harnesses:

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

Vacuum Tubes:

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose

Hoses:

- \* Water Hose

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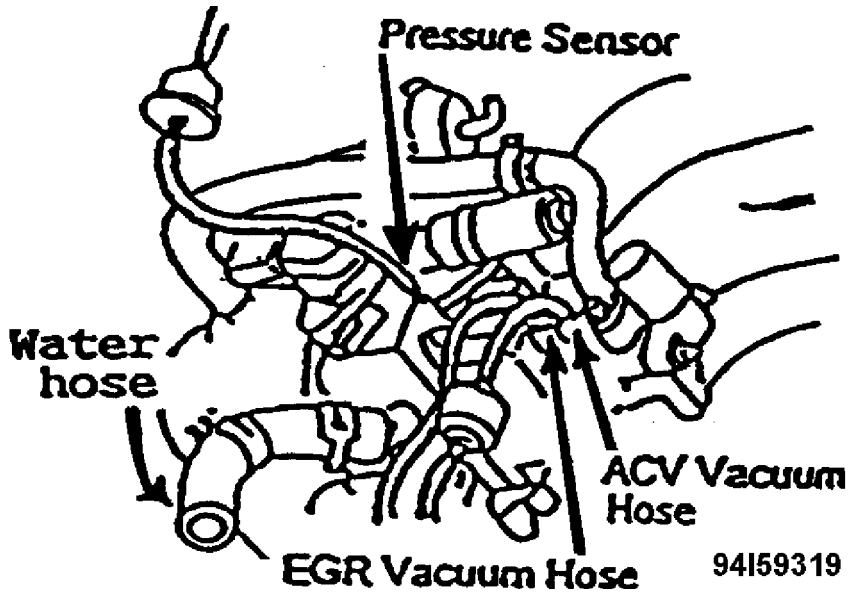


Fig. 6: EGR & ACV Vacuum Hose, Water Hose & Pressure Sensor

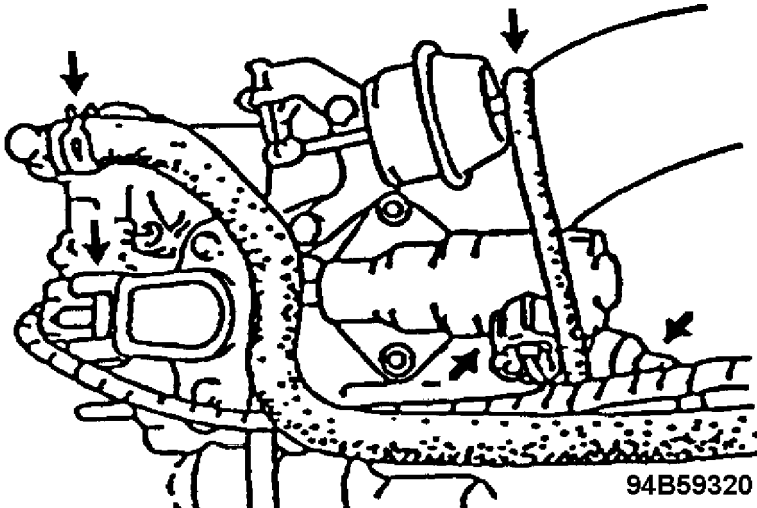


Fig. 7: Hose & Vacuum Tubes Identification

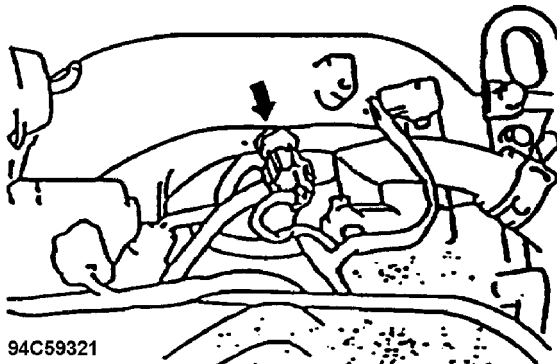


Fig. 8: Switch Identification

17. Remove the extension manifold and throttle body.

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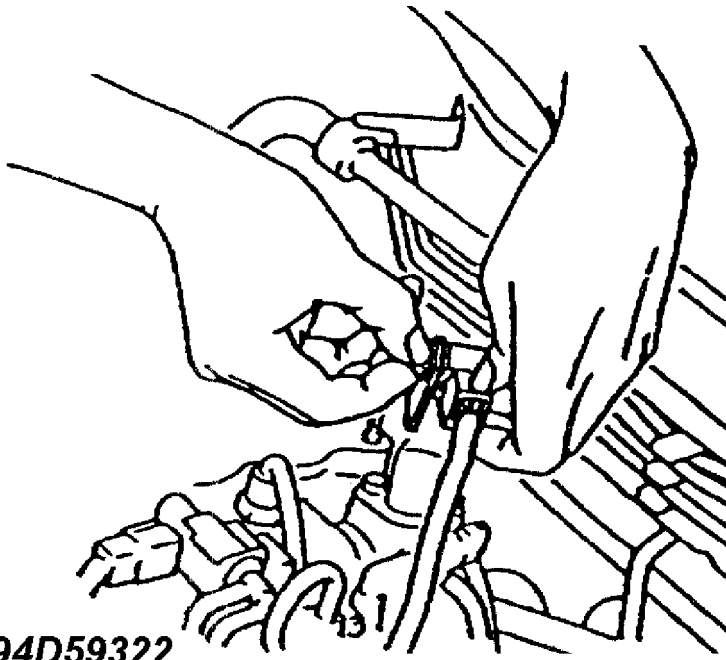
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NOTE: Cover exposed intake holes with shop towels.  
Torque for re-tightening the bolt:  
Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

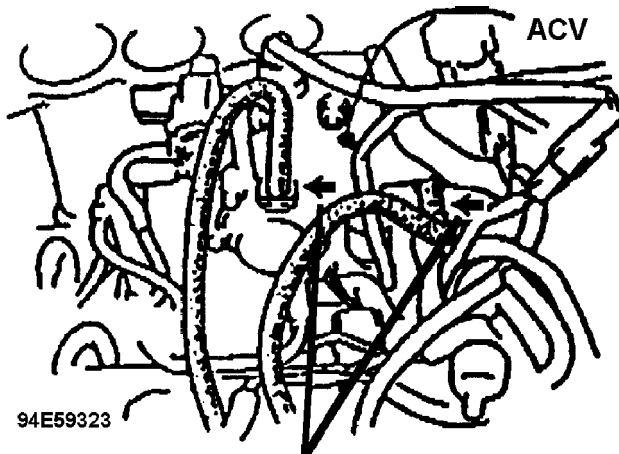
When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts shown in Figs. 9 & 10.



**94D59322**  
Fig. 9: O2 Sensor Coupler on the ACV



**94E59323**  
**DO NOT DAMAGE**  
Fig. 10: ACV Vacuum Tubes

19. Remove the nut shown in Fig. 11. Remove the three-way solenoid.



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NOTE: Do not remove the vacuum tube from the solenoid.

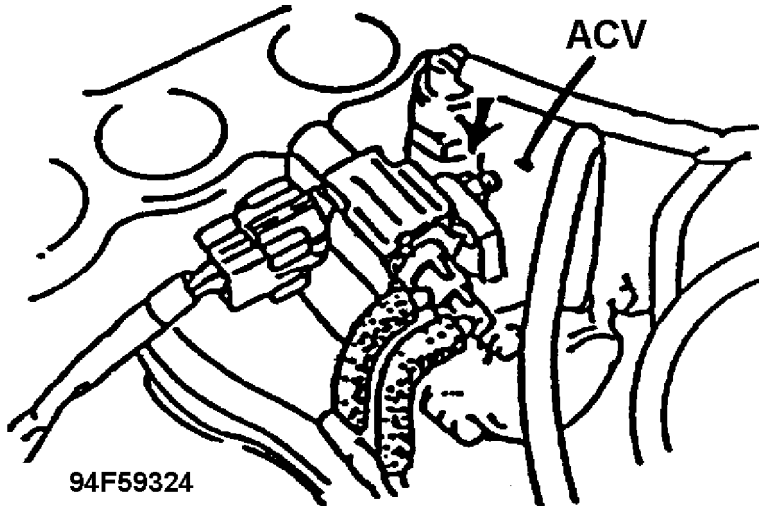


Fig. 11: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 12.

Tightening torque: 70-100 kgf.cm (61-86 in-lbf)

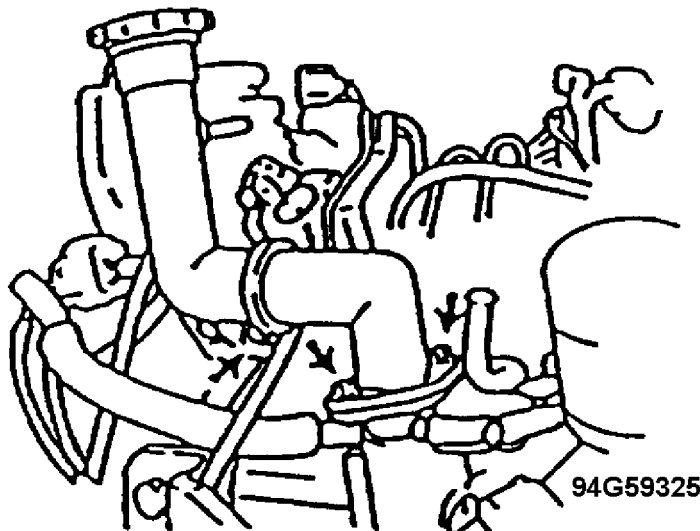


Fig. 12: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in Fig. 13. Tightening torque of the nuts for reassembly:

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

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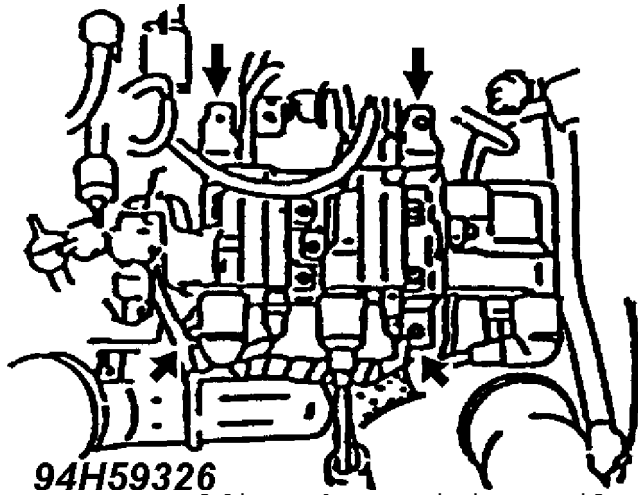


Fig. 13: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal:

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See E in Fig. 14.
3. Remove the ACV. Re-tightening torque of the nuts:  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold.  
See A in Fig. 14. Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

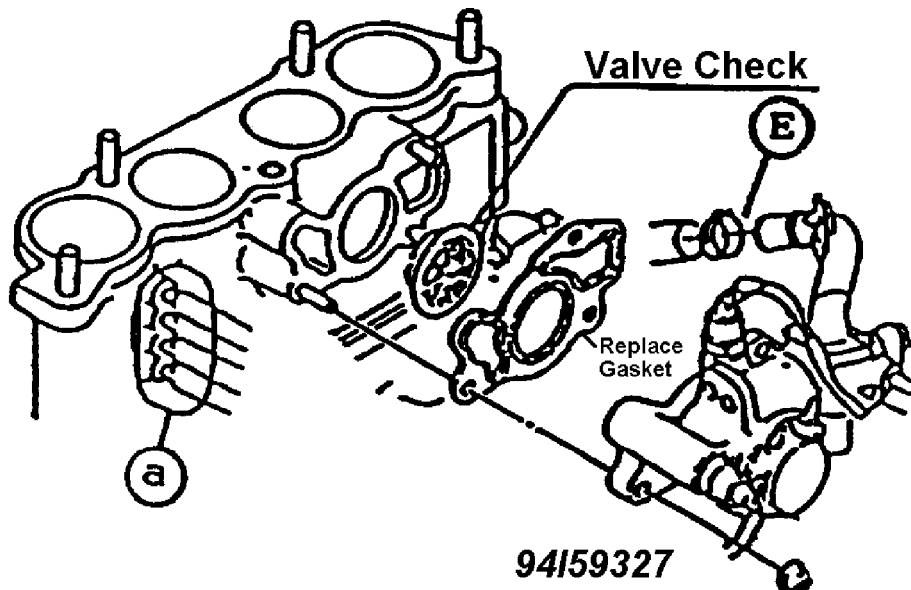


Fig. 14: Removal of Relief Air Hose & Vacuum Tubes

NOTE: \* When reassembling, replace the ACV gasket with a new one.

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Gasket: N3A3-13-996

- \* When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- \* Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

23. Move the vacuum pipe assembly toward the steering shaft side.  
See Fig. 15.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 15.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off where indicated by scissors in Fig. 15, makes the work easier).

NOTE: \* Do not remove hoses other than 1-14.

\* Remove the hoses on the sides indicated by arrows (-->) shown in Fig. 15.

\* Be careful not to damage any pipes.

\* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D as shown in Fig. 15.

5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10 and 11 with new ones.

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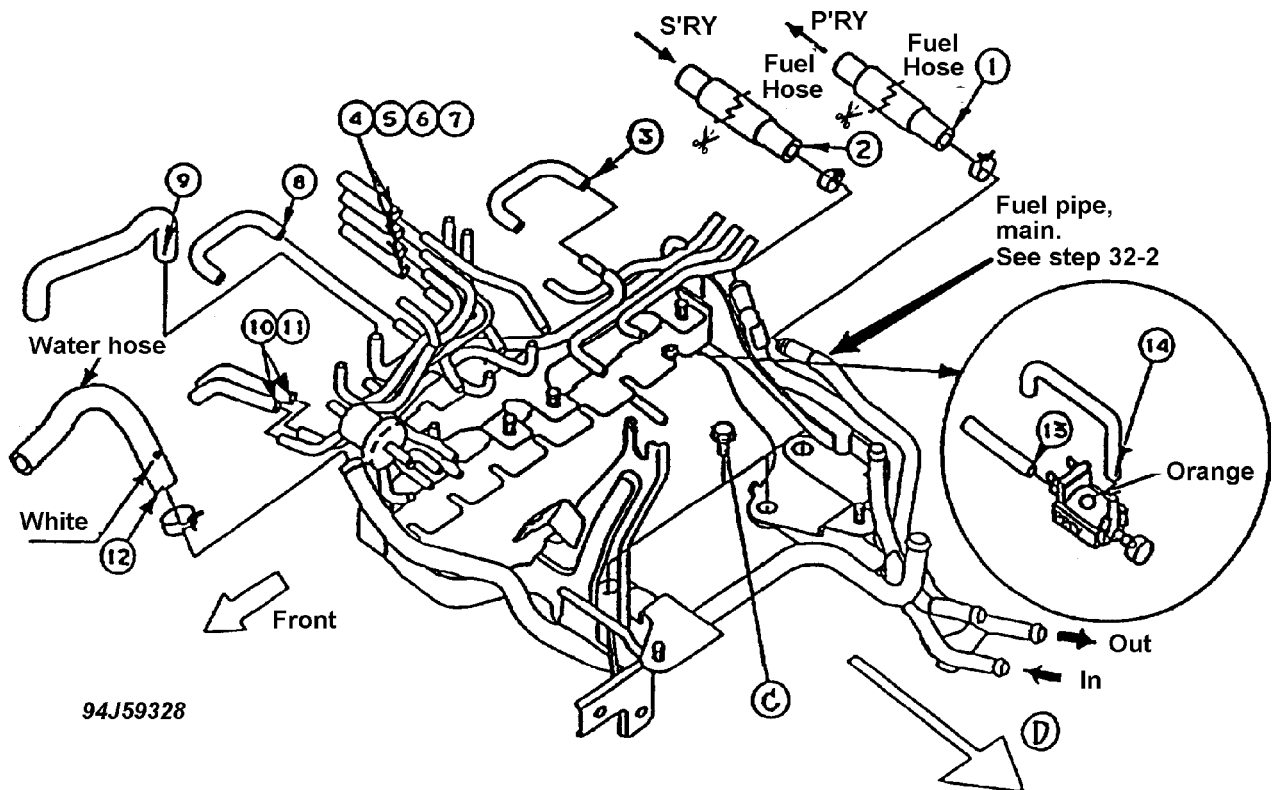


Fig. 15: Exploded View of Tubes & Hoses for Modification

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 16.

1. Loosen the four bolts.
2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

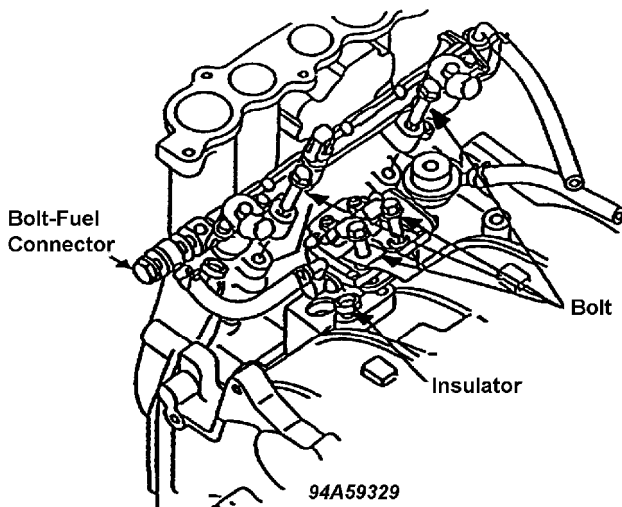


Fig. 16: Removal of Primary & Secondary Fuel Distributor & Insulator

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25. Remove the fuel hose from the primary fuel distributor.  
See Fig. 17.

- NOTE:
- \* When turning the screw be careful not to break the heads ( + ) of the screws F (two) because they are tight.
  - \* Be careful not to damage the pipe at the hose insertion location on the primary inlet side.

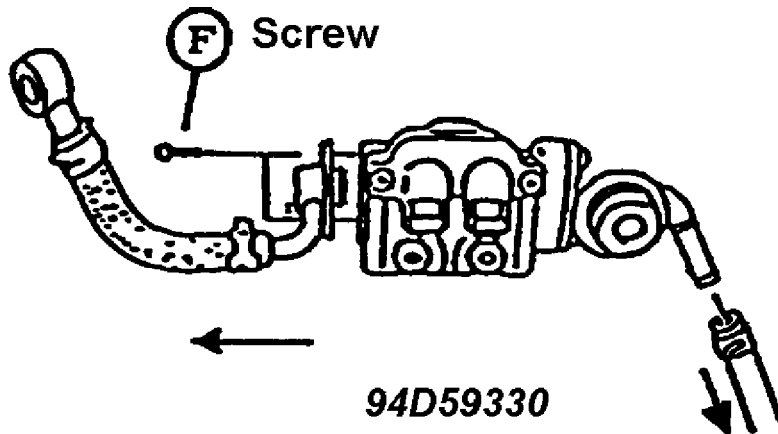


Fig. 17: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor outlet side. See Fig. 18.

- NOTE:
- \* When installing, do not twist the "O" ring.
  - \* Replace the bolts with modified ones. See letter G in Fig. 18.  
Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)
- Fuel Hose: N3Z1-13-420  
Bolt: 99796-0510 x 2 pcs.

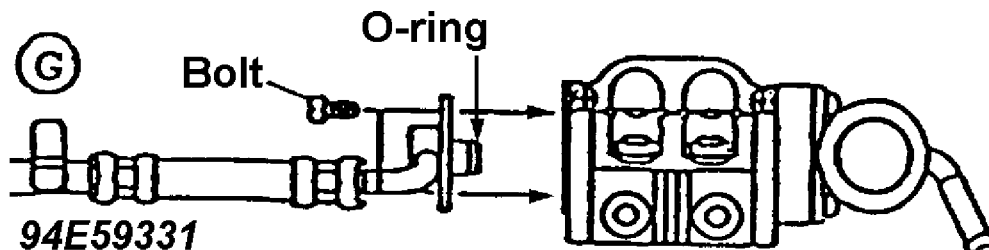


Fig. 18: Installing Primary Fuel Distributor Outlet Modified Hose

27-1. Install the hose on the inlet side of the primary fuel distributor. See Fig. 19.

Fuel hose: N3Z1-13-415.

- \* Submerge the hose end with the white mark into adhesive.

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\* Use adhesive specially prepared for this work.

NOTE: Be careful not to use another adhesive.

\* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel hose: N3Z1-13-415.

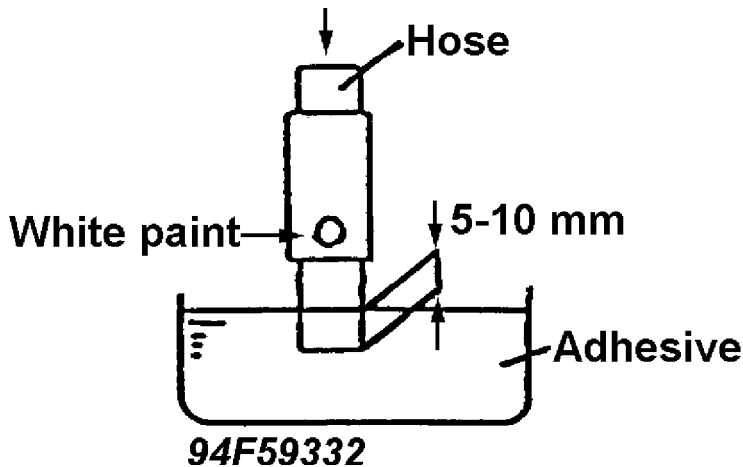


Fig. 19: Installing Hose on Inlet Side of Primary Fuel Distributor  
Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

NOTE:

- \* Use two clips on the fuel distributor side.
- \* Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 20 and 21. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
- \* Replace all hose clips with new ones.
- \* Do not use clips other than those included, part number below.
- \* Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs. (with Red colored holder)

Protector: N3B7-1 3428A

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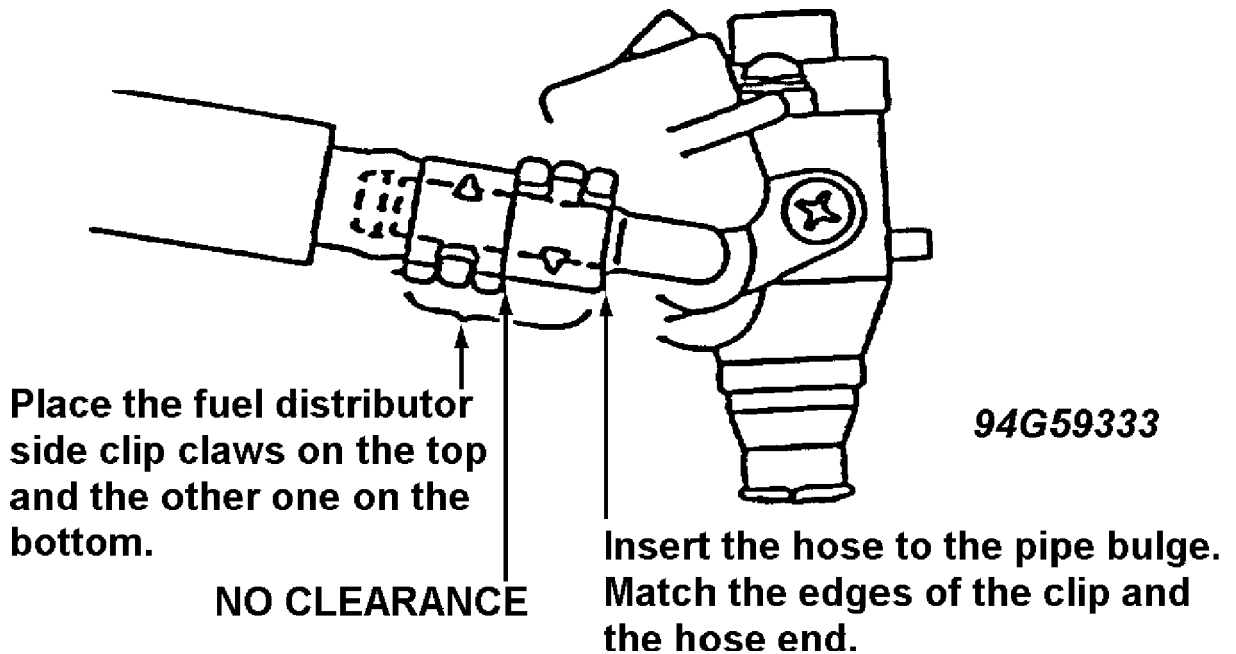


Fig. 20: Installation of Clips on Hose

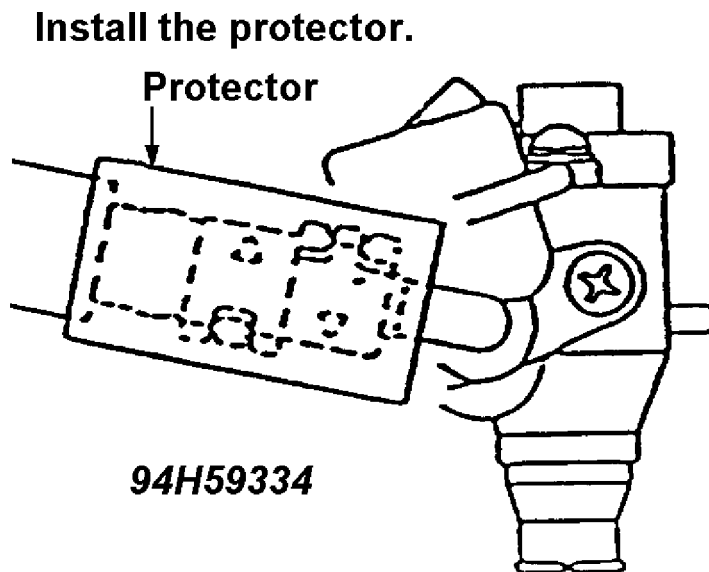


Fig. 21: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor. See Fig. 22.

NOTE: \* Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.  
Tightening Torques: 240-360 kgf.cm (208-312 in-lbf)

\* Use new gaskets.

Gasket: N236-13-483 x 2pcs.

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\* Reuse the connector bolts.

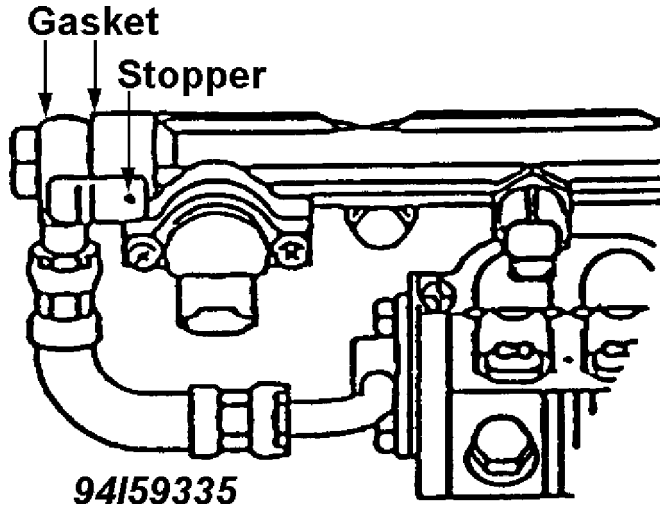


Fig. 22: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 23.

NOTE: \* Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415  
Clip: 8574-13-157  
(Clip - with Pink Colored holder)

\* For the direction of the clip claws, see Fig. 23.

\* Do not place the clip on the pipe bulge.

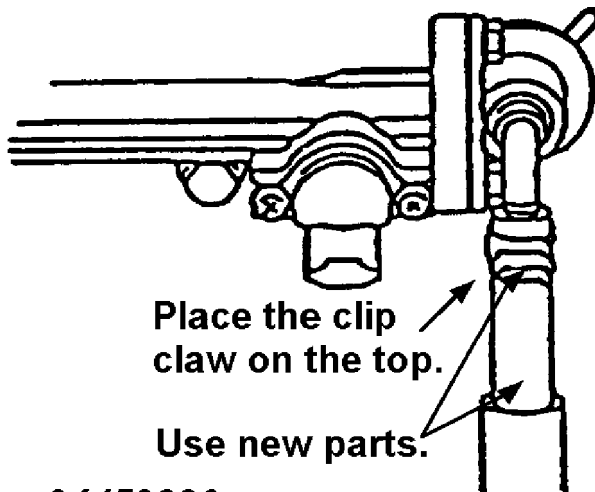


Fig. 23: Return Side of Secondary Fuel Distributor Hose Replacement  
Place the Clip Claw on the Top - Use New Parts



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30. Replace the two vacuum tubes with new ones. See Fig. 24.  
Vacuum tube: 99351-04150 x 2 pcs.

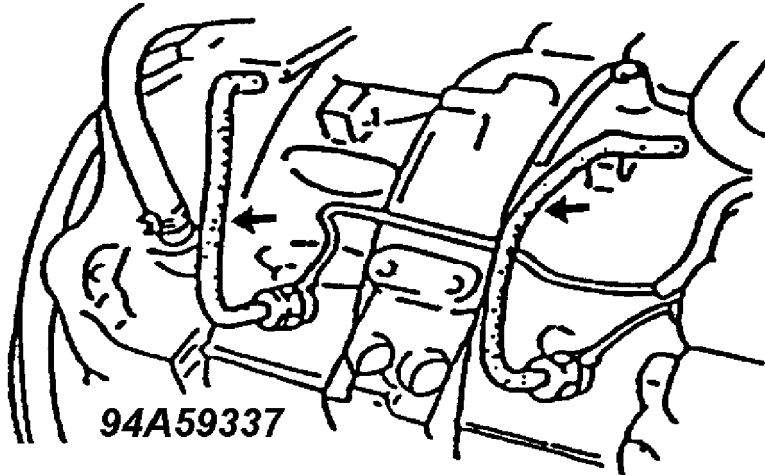


Fig. 24: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 25.

NOTE: Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

- 32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side (indicated by the arrow in Fig. 25). To apply adhesive see step 27-1.

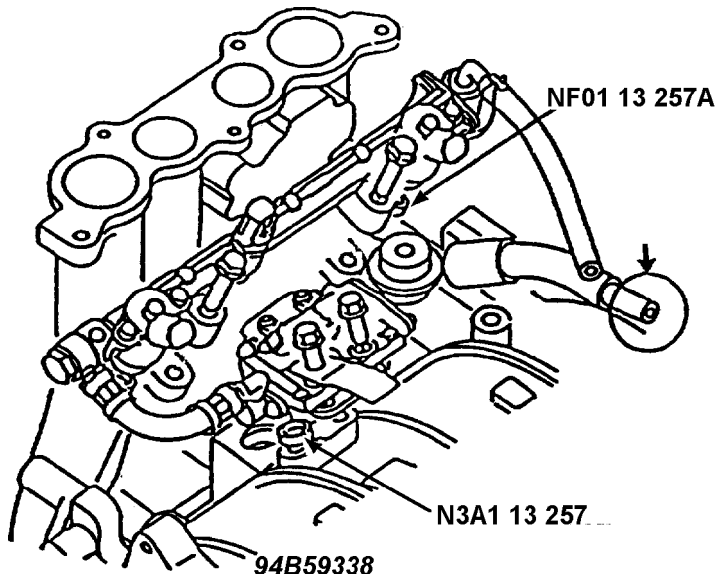


Fig. 25: Installing Fuel Distributors to the Engine

- 32-2. Connect the hose between the fuel distributor and the vacuum

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pipe-assembly. See Fig. 26.

- NOTE: \* Replace the clips (outlet side of the secondary fuel distributor) with new ones.  
Clip (Secondary): 8574-13-157  
(Clip with Pink colored holder)
- \* For the direction of the clip claw, see Fig. 26.
- \* Do not use clips other than those included, part number below.
- \* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe, shown with an arrow in Fig. 15.

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.  
(Clip with Red colored holder)

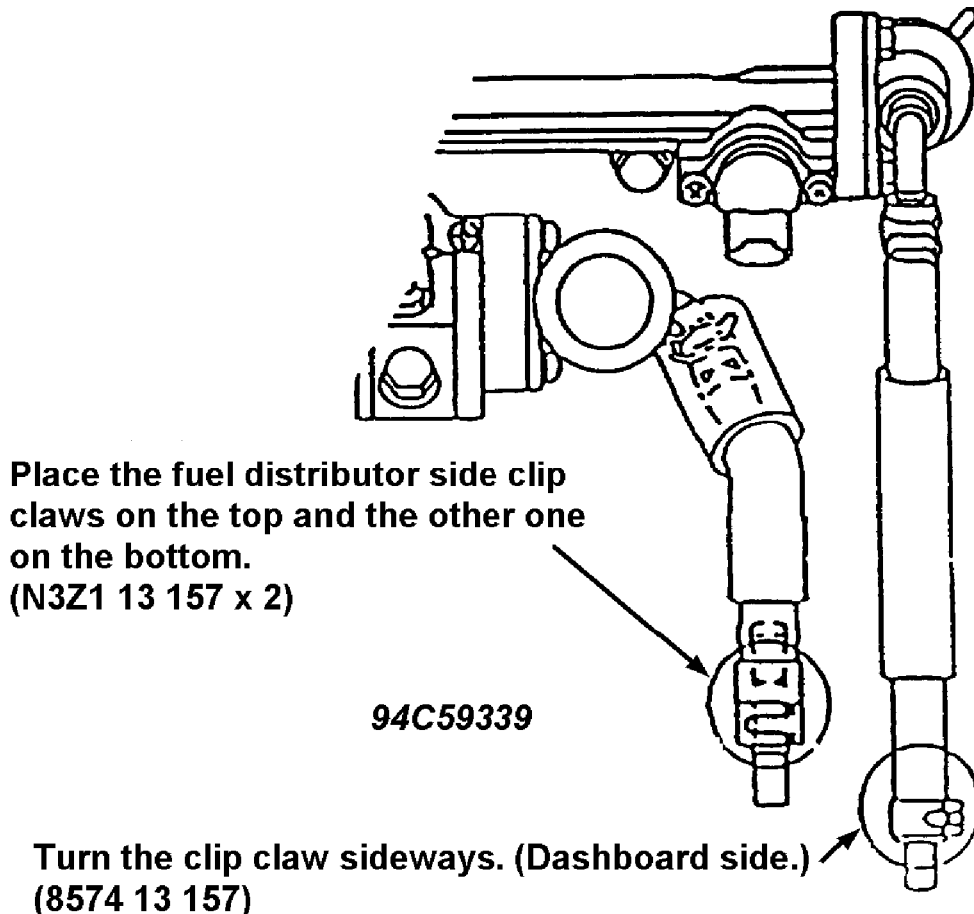


Fig. 26: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly  
Place the Clip Claws in Opposite Directions

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32-3. Replace the main fuel hose with a new one. See Fig. 27.

NOTE: \* The hose and the clips shown in Fig. 27 should be replaced with new ones.

\* Be careful not to use the hose and the clips other than those included, part numbers below.

\* Apply adhesive to the hose end [short end side only shown by the arrow in Fig. 27] then install it. (To apply adhesive, see step 27-1.)

\* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1-13-421

Clip: 8574-13-157 x 2 pcs. (Clip with Pink colored holder.)

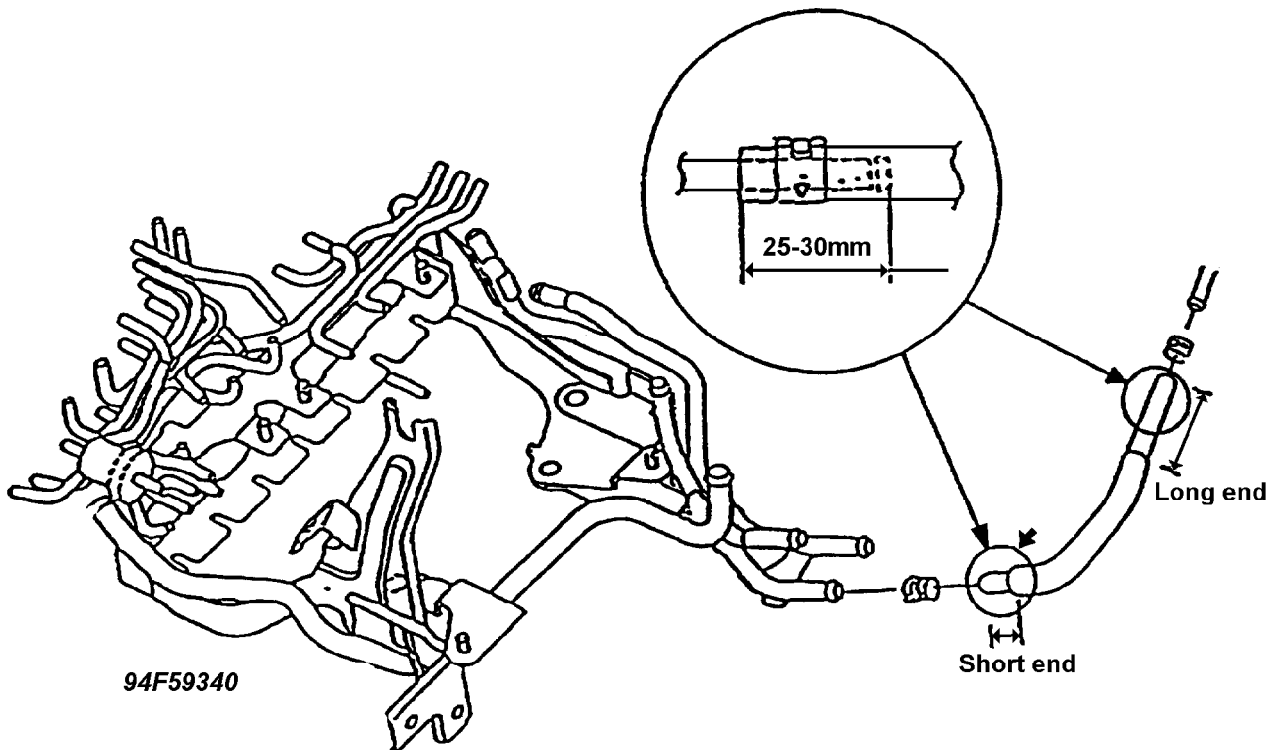


Fig. 27: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited, resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

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the ground terminal. See Fig. 28.

3. Pinch the fuel return hose with a suitable tool, to stop any fuel return to the tank. See Fig. 29.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.

\* Check for fuel leakage visually and by odor. Carefully check the positions (seven) indicated by the arrows shown in Fig. 29. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

### Diagnostic Connector To Ground Terminal

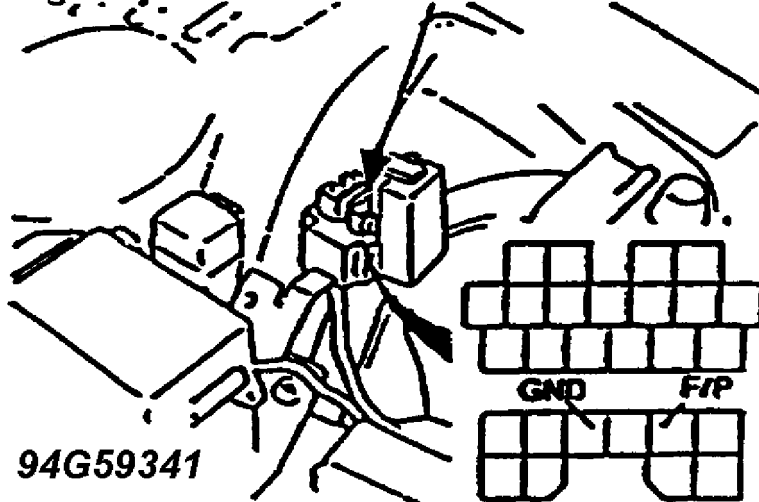


Fig. 28: Diagnostic Connector to Ground Terminal

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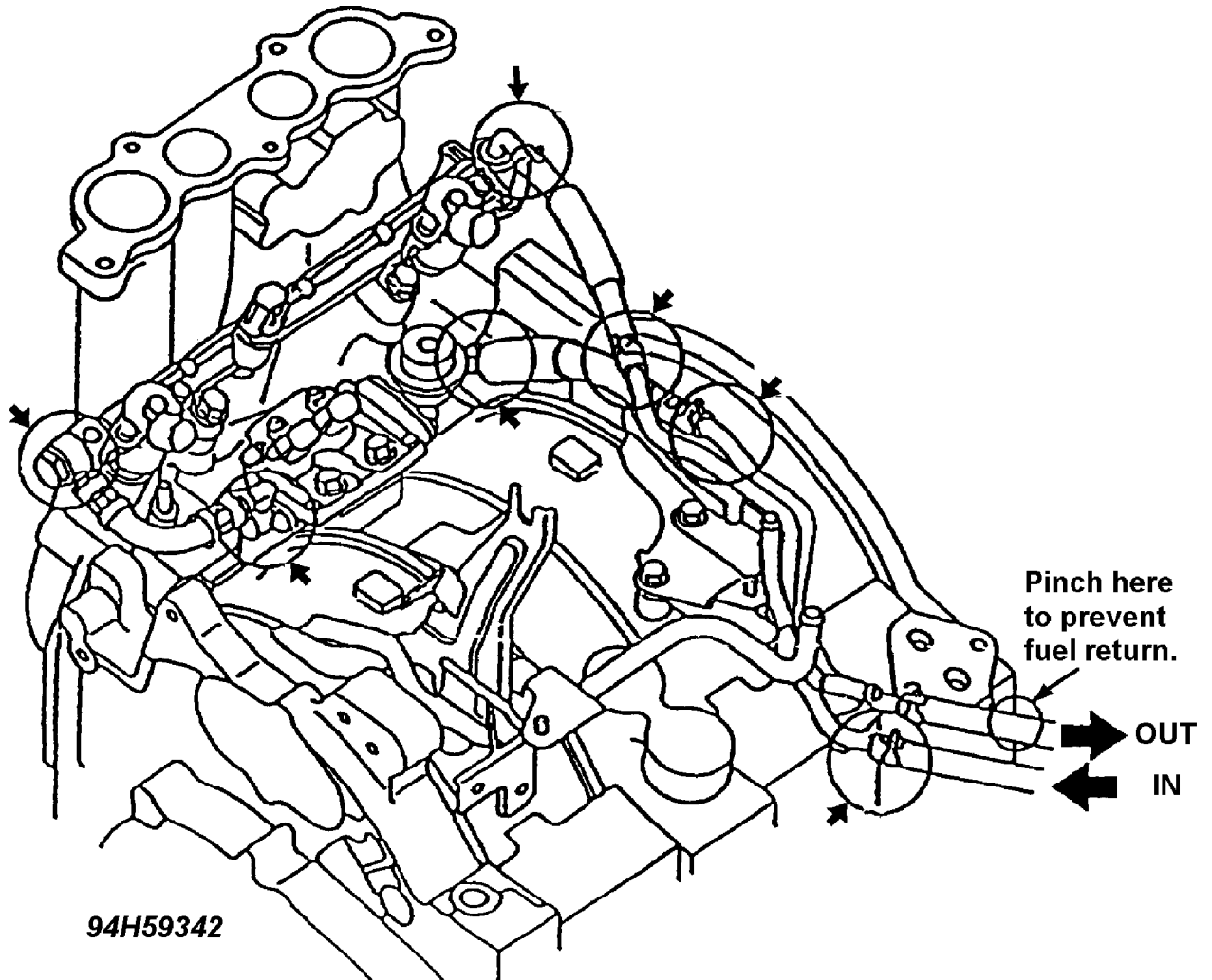


Fig. 29: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly. See Fig. 30.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).

Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

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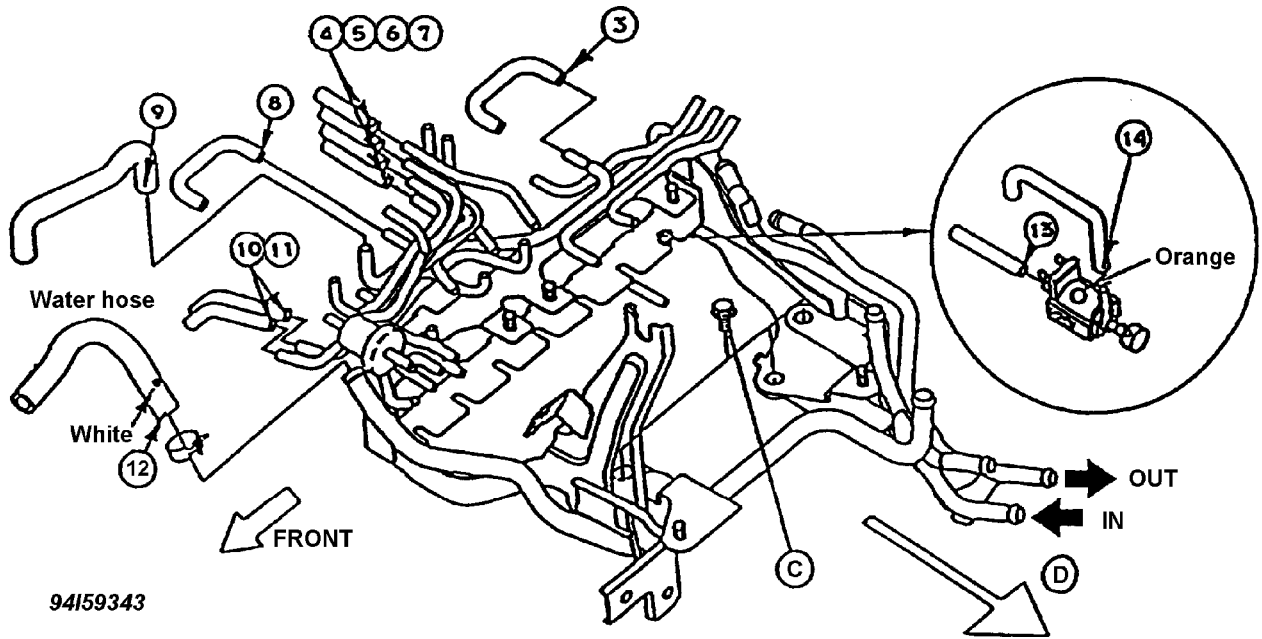


Fig. 30: Installation of Vacuum Tubes

35. Assemble the pans in the reverse order of removal.
36. Affix the recall label (No. 60504) onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 31.

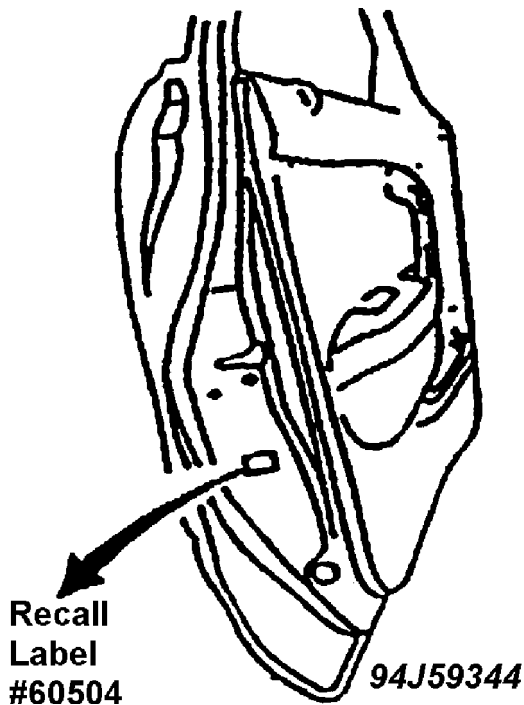


Fig. 31: Recall Label #60504 Identification

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#### PRE-CAUTIONS:

1. Boost tubes, water hoses and fuel hoses should be removed and replaced on the designated side only as shown in the procedure (do not remove any joint other than those indicated).
2. Do not remove any fuel hose during the check for fuel leakage after replacement (please see step 33).

If a hose(s) is removed mistakenly, replace the clip(s) and the hose(s) with new one(s).

3. Be sure to use the hoses, clips and gaskets designated in this procedure, and do not reuse the removed parts.
4. When installing the hoses, be sure to check their locations in accordance with the instruction, and install them correctly.

#### PROCEDURE B - REPLACEMENT OF FUEL HOSE KIT AND THROTTLE HOSE KIT

To be performed on ALL customer (sold) vehicles.

NOTE: Throttle Hose Kit, part number N3A1-13-S60 and Filler Cap Kit, part number N3Z1-15-S10B must be ordered separately and are not included in Fuel Hose Kit.

1. Start the engine.
2. Remove the circuit opening relay.
3. After the engine stalls, crank the engine for 15-20 seconds to purge the injectors.
4. Turn the ignition switch off.
5. Install the circuit opening relay. See Fig. 32.

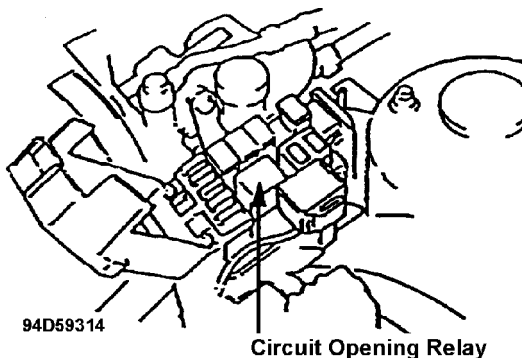


Fig. 32: Finding the Circuit Opening Relay

6. Disconnect the negative terminal from the battery.

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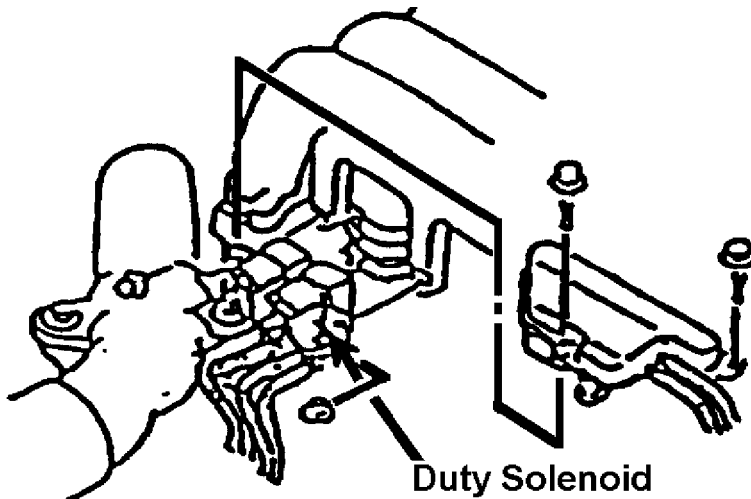
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NOTE: Record all preset stations on the vehicle's audio system prior to disconnecting the battery terminal.

7. Drain coolant and retain in an appropriate container.
8. Remove the bolts from the duty solenoid and the pressure chamber. Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)  
See Fig. 33.



**Remove Bolts from Duty Solenoid 94E59315**

Fig. 33: Removal of Bolts from Duty Solenoid

9. Disconnect the air pipe at joint A shown in Fig. 33.
10. Disconnect the AWS hose and the air duct B at the joint as shown in Fig. 34.

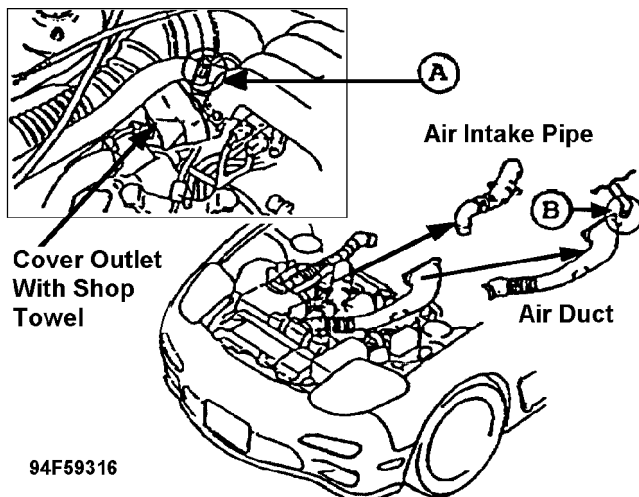


Fig. 34: Disconnecting the Air Pipe & Hose

11. Remove the air intake pipe from the outlet of the turbo. and cover



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the outlet with a shop towel.

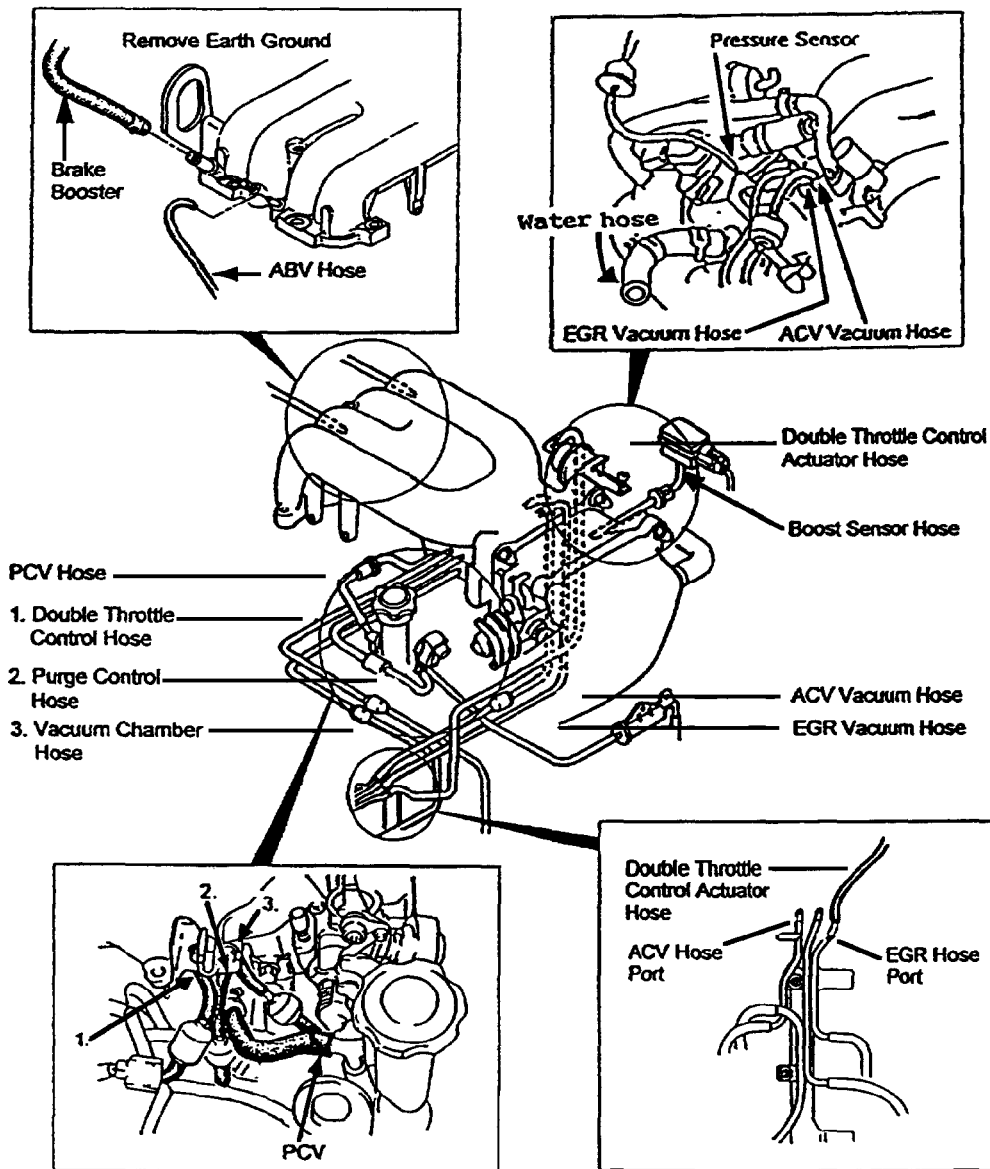
12. Remove the air duct from the inter cooler.

13. Remove the hoses from the extension manifold. See Fig. 35.

NOTE: Disconnect the hoses at the locations indicated by the arrows (--->) shown in Fig. 35 only!

14. Remove the harnesses from the extension manifold. See Fig. 35.

Remove these four parts referring to Step 16.



94G59317

Fig. 35: Removing Hoses & Harnesses From the Extension Manifold

NOTE: Use the above illustration to determine the hose location.

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15. Remove the accelerator cable and the cruise cable. See Fig. 35.

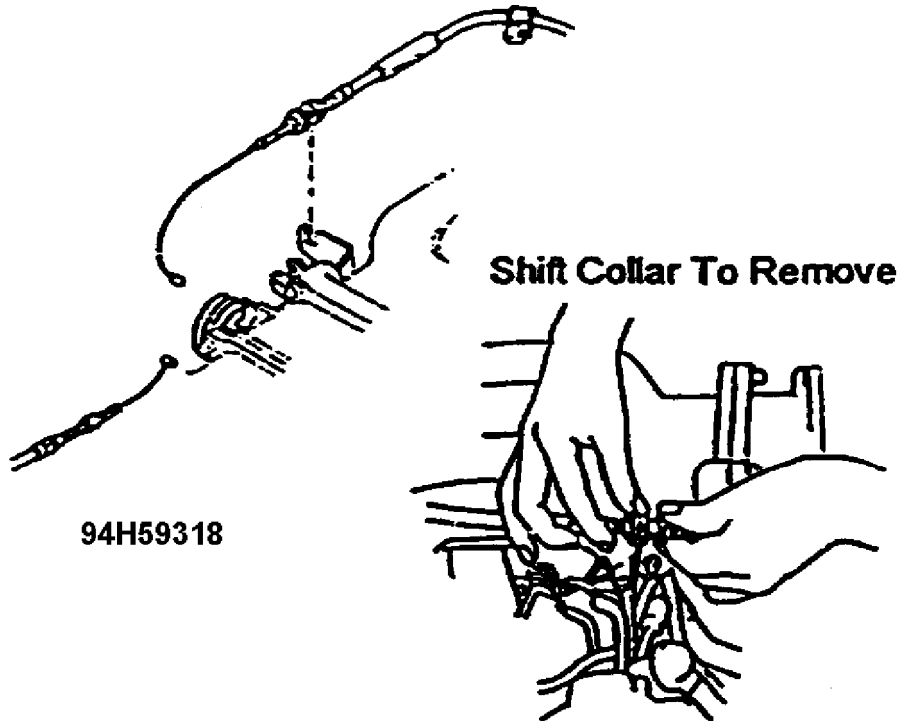


Fig. 36: Removing Accelerator Cable & Cruise Cable

16. Raise the extension manifold and disconnect the following harnesses, vacuum tubes and hoses from the side indicated by the arrows (-->) only. See Figs. 37, 38, & 39.

**Harnesses:**

- \* Inlet Air Temperature Sensor
- \* AB Solenoid
- \* ISC Valve

**Vacuum Tubes:**

- \* EGR Vacuum Hose
- \* ACV Vacuum Hose
- \* Purge Hose
- \* Double Throttle Control Hose
- \* Double Throttle Control Actuator Hose

**Hoses:**

- \* Water Hose

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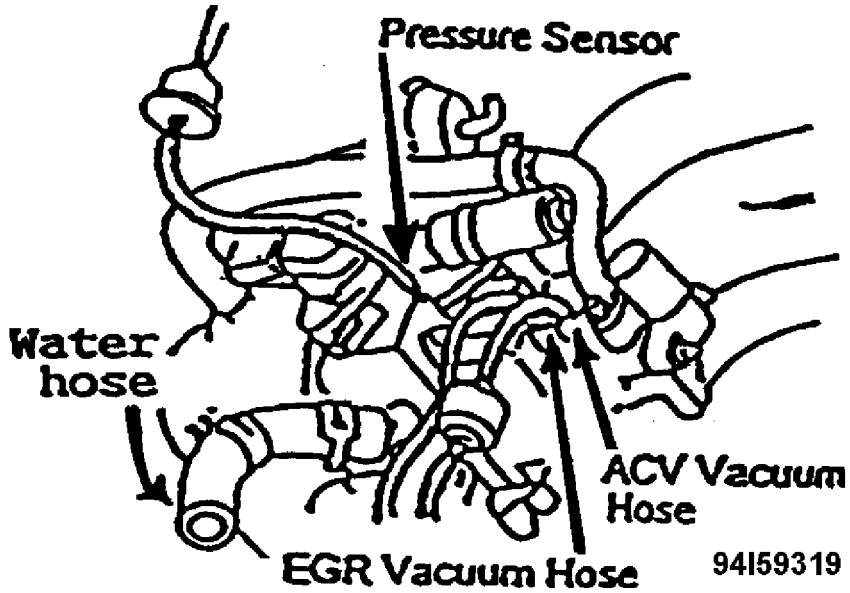


Fig. 37: EGR Vacuum Hose & ACV Vacuum Hose

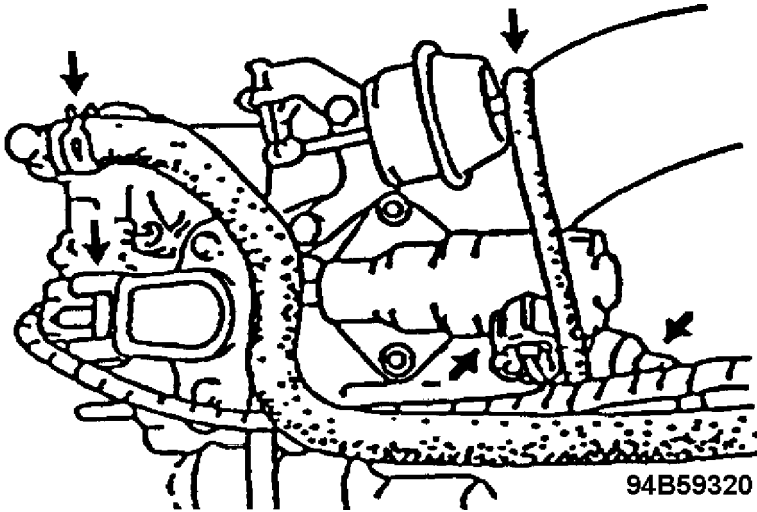


Fig. 38: Hoses to Disconnect

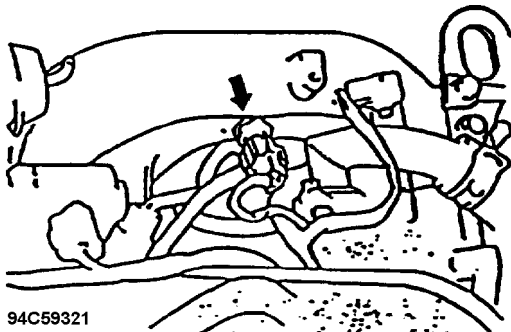


Fig. 39: Switch to Disconnect

17. Remove the extension manifold and throttle body.

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NOTE: Cover exposed intake holes with shop towel.

Torque for re-tightening the bolt:

Tightening Torque: 160-230 kgf.cm (139-199 in-lbf)

When reassembling, replace the intake manifold gasket with a new one.

Gasket: N3A1-13-112

18. Remove the following parts. See Figs. 40 & 41.

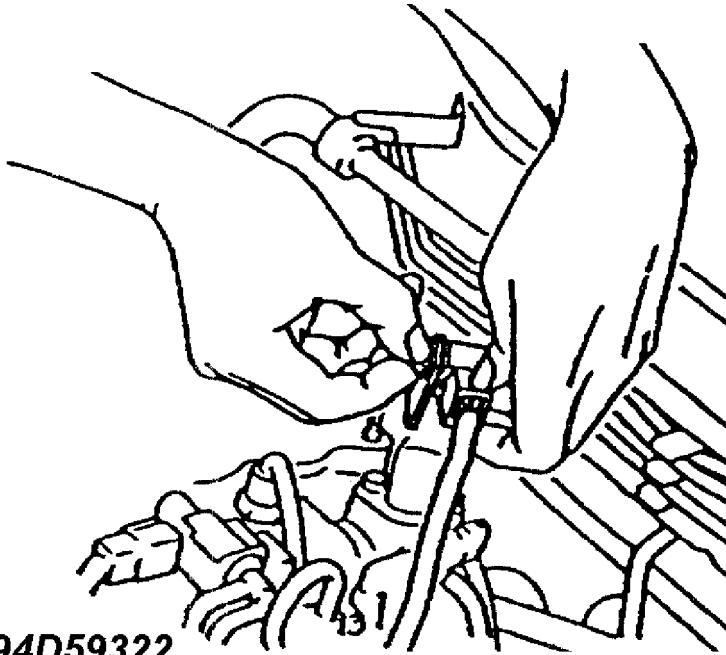


Fig. 40: **94D59322** O2 Sensor Coupler on the ACV

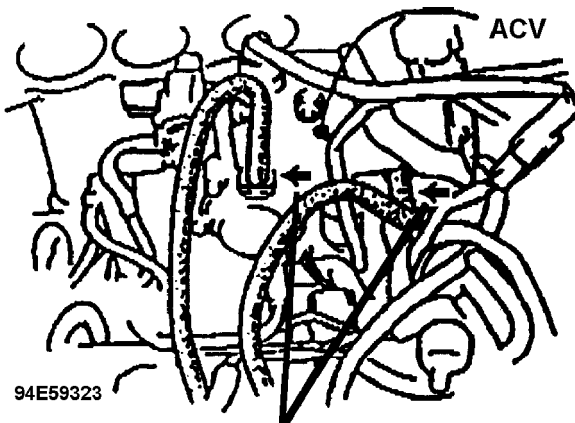


Fig. 41: **DO NOT DAMAGE** ACV Vacuum Tubes

19. Remove the nut shown in Fig. 42. Remove the three-way solenoid.

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NOTE: Do not remove the vacuum tube from the solenoid.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

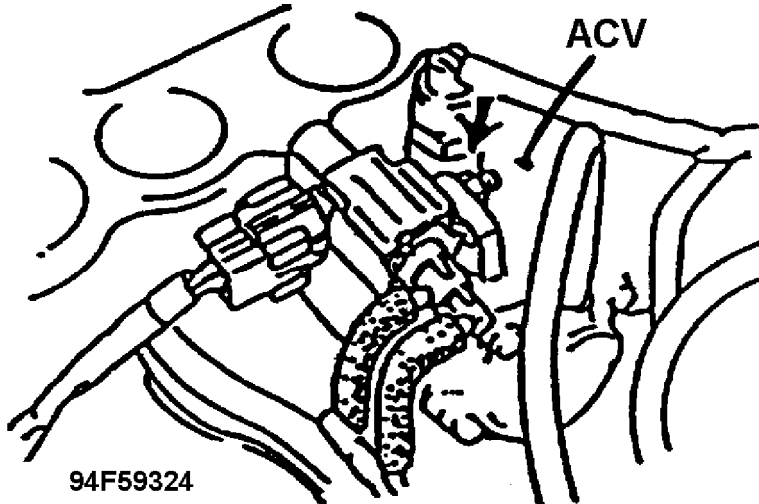


Fig. 42: Three-Way Solenoid Nut to be Removed

20. Remove the oil filler pipe. See Fig. 43.

Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)

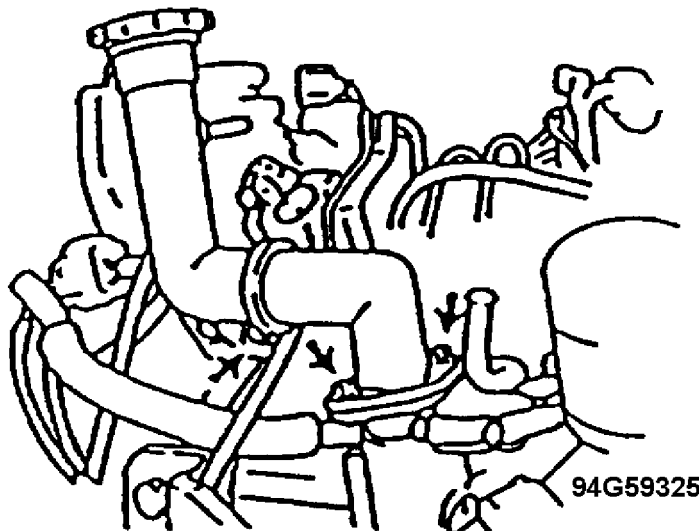


Fig. 43: Oil Filler Pipe Identification

21. Remove the ignition coil assembly. Remove the four nuts shown in Fig. 44. Tightening torque of the nuts for reassembly:

Tightening torque: 70-100 kgf.cm (61-86 in lbf)

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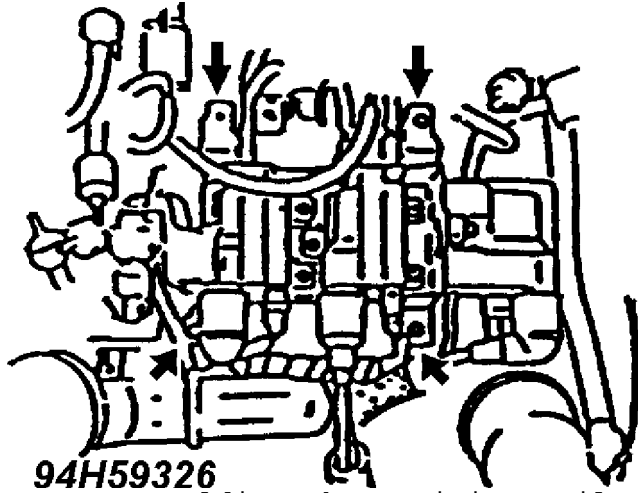


Fig. 44: Four Nuts Holding the Ignition Coil Assembly

22. ACV Removal

1. Disconnect the couplers from each solenoid valve in the ACV.
2. Remove the relief air hose. See letter E in Fig. 45.
3. Remove the ACV. Re-tightening torque of the nuts:  
Tightening Torque: 70-100 kgf.cm (61-86 in-lbf)
4. Remove the vacuum tubes from the inlet manifold. See Fig. 45.  
Replace the vacuum tubes with new ones.

Vacuum tube: 99351-04095 x 4 pcs.

NOTE: \* When reassembling, replace the ACV gasket with a new one.

Gasket: N3A3-13-996

- \* When reassembling, be sure to insert the check valve in the step cut position of the intake manifold, then attach the ACV.
- \* Make sure that the wire harnesses of the solenoid valve will not touch the ACV.

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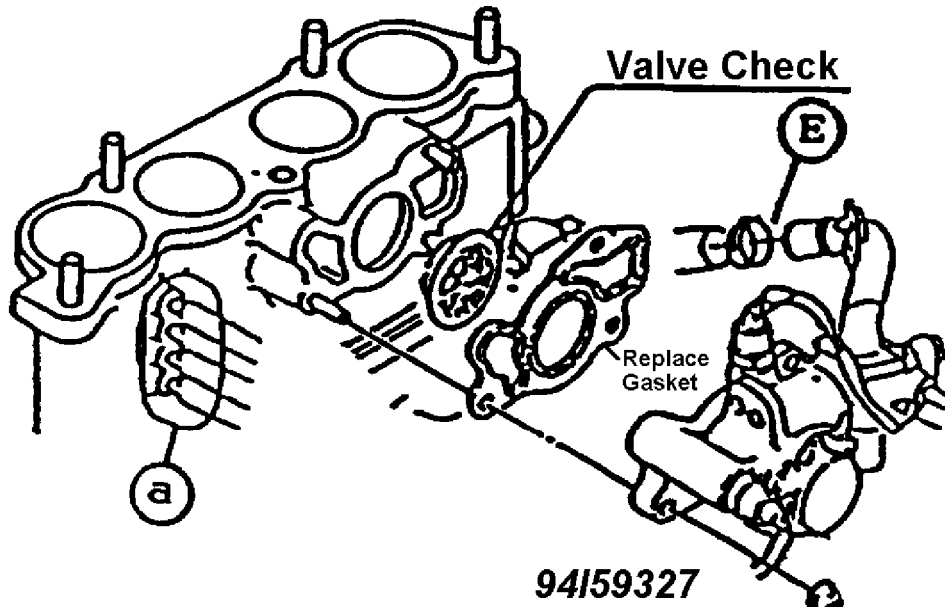


Fig. 45: Removal of Relief Air Hose & Vacuum Tubes

23. Move the vacuum pipe assembly toward the steering shaft side. See Fig. 46.

1. Loosen the three bolts that attach the vacuum pipe to the engine. See letter C in Fig. 46.
2. Disconnect the coupler from the solenoid valve attached to the vacuum pipe.
3. Remove the vacuum tubes, water hose and fuel hoses (cutting the fuel hoses off at the position marked with scissors makes the work easier). See Fig. 46.

NOTE: \* Do not remove hoses other than 1-14.

\* Remove the hoses on the sides indicated by arrows (-->) in Fig. 46.

\* Be careful not to damage any pipes.

\* When removing the hoses, do not use any spray type lubricant.

4. Move the vacuum pipe assembly toward direction D.

5. When reassembling, replace the hoses 1, 2, 3, 4, 5, 6, 7, 8, 10, and 11 with new ones.

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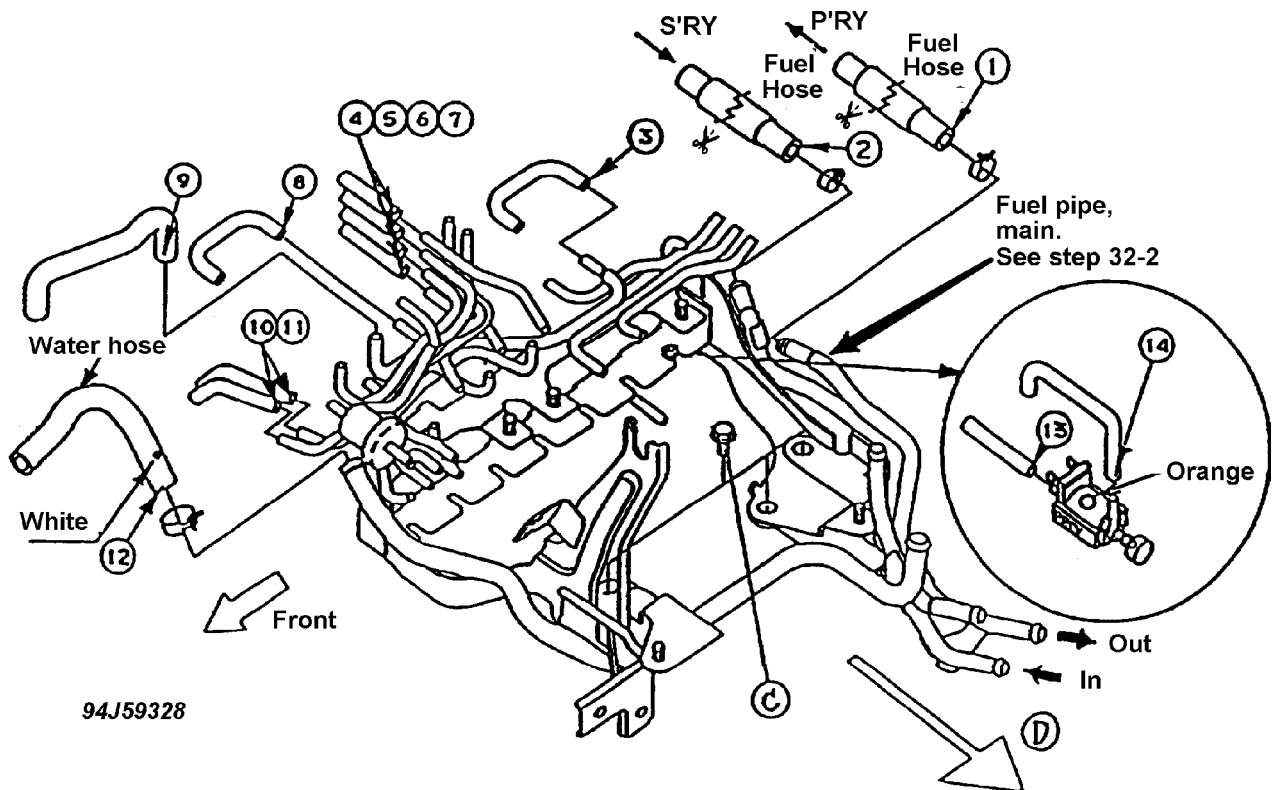


Fig. 46: Exploded View of Tubes & Hoses for Modification

6. Replace the front throttle body water hose with a new one and attach it with two new hose clamps. See Fig. 47.

NOTE: Holder must be removed from clamps.

Water hose: N3A1-13-692A

Clamps: 99287-1400P x 2 pcs.

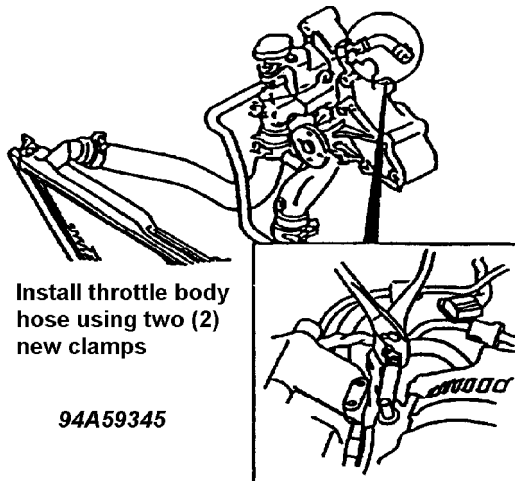


Fig. 47: Installing Throttle Body Hose (N3A1-13-692A)  
Use Two New Clamps



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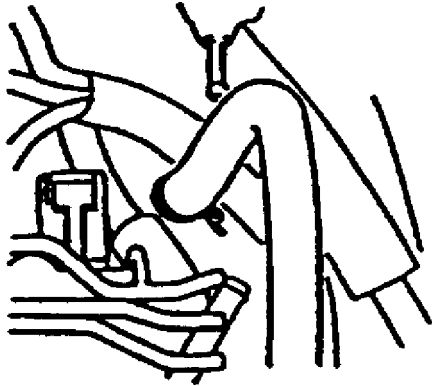
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7. Use long needle nose pliers to remove hose clamps, and replace the rear throttle body water hose with a new one. Remove holders from clamps. Attach with two new clamps. See Fig. 48.

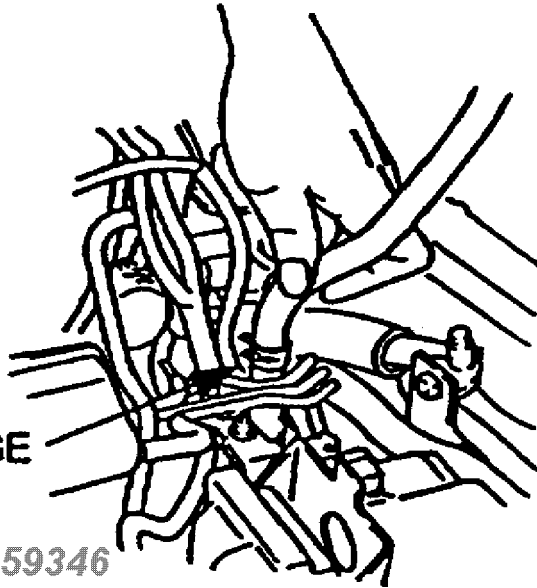
Water hose: N3A1-13-681A

Clamps: 99287-1400P x 2 pcs.



**Install New Rear  
Throttle Body Water  
Hose. Use New  
Clamps**

**DO NOT DAMAGE**



**94B59346**

Fig. 48: Installing New Rear Throttle Body Water Hose (N3A1-13-681A)  
Use New Clamps

8. Replace the throttle body water hose with a new one using two new clamps. See Fig. 49.

Water hose: N3A1-13-691A

Clamps: 99287-1400P 2 pcs.

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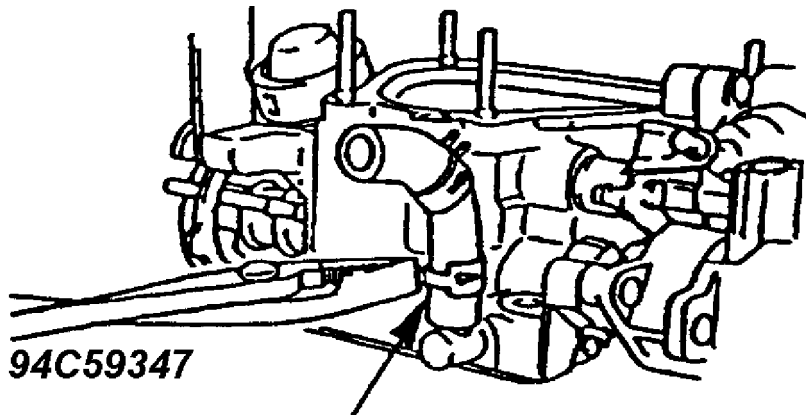
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**Install New Throttle Body Water  
Hose Using Two (2) New Clamps**

Fig. 49: Installing New Throttle Body Water Hose (N3A1-13-691A)  
Use Two New Clamps

24. Removal of primary fuel distributor, secondary fuel distributor and insulator. See Fig. 50.
1. Loosen the four bolts.
  2. Loosen the connector bolt from the inlet of the secondary fuel distributor.

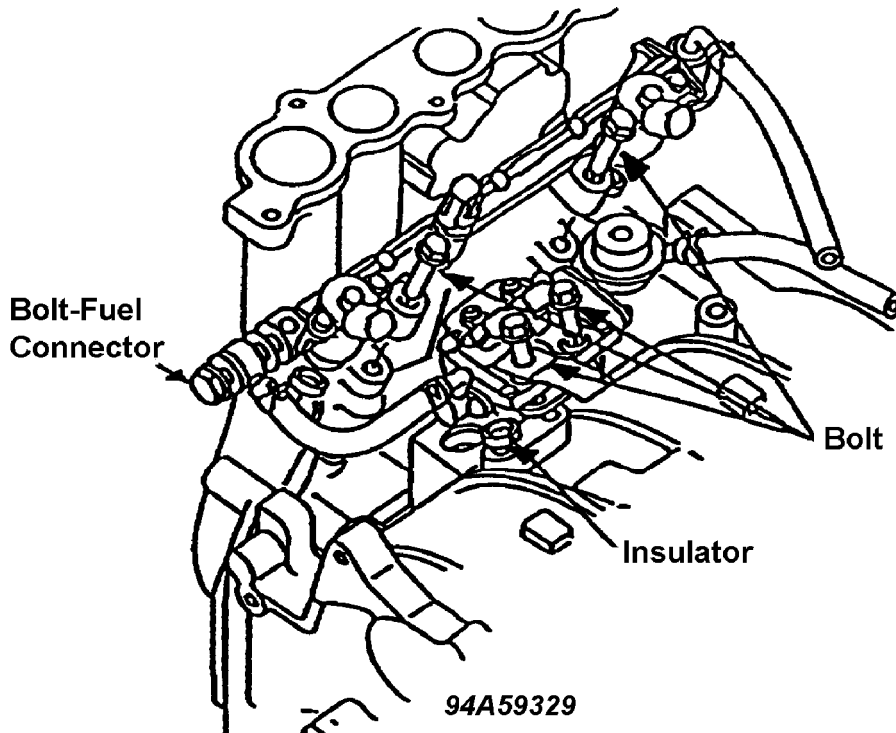


Fig. 50: Removal of Primary & Secondary Fuel Distributor & Insulator

25. Remove the fuel hose from the primary fuel distributor.

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See Fig. 51.

NOTE: \* When turning the screw be careful not to break the heads (+) of the screws F (two) because they are tight.

\* Be careful not to damage the pipe at the hose insertion location on the primary inlet side.

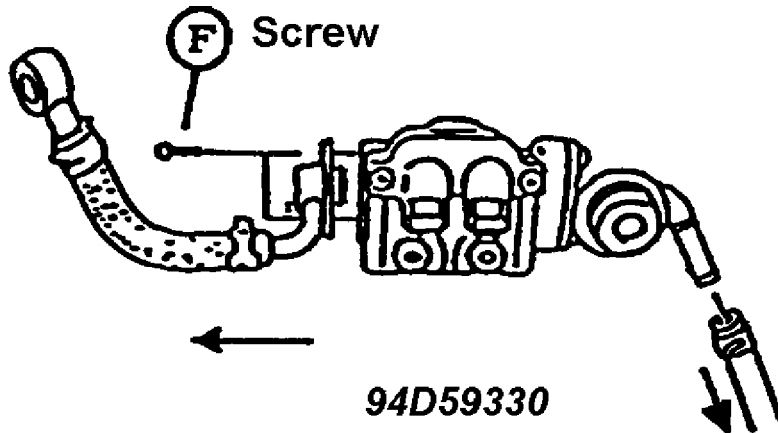


Fig. 51: Removal of Hose from Primary Fuel Distributor

26. Install the modified fuel hose on the primary fuel distributor outlet side. See Fig. 52.

NOTE: \* When installing, do not twist the "O" ring.

\* Replace the bolts with modified ones. See letter G in Fig. 52.

Tightening Torque: 25-36 kgf.cm (22-31 in-lbf)

Fuel Hose: N3Z1-13-420

Bolt: 99796-0810 x 2 pcs.

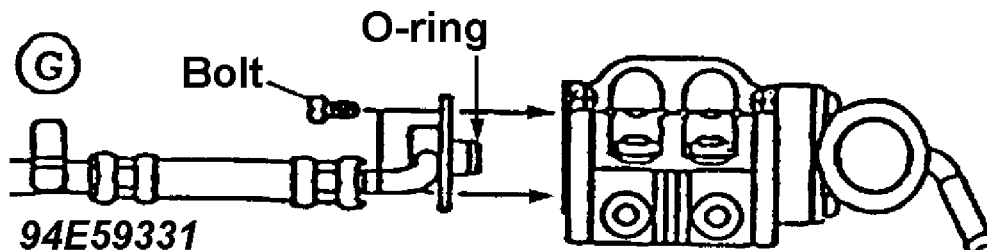


Fig. 52: Primary Fuel Distributor Outlet Modified Hose

27-1. Install the hose on the inlet side of the primary fuel distributor. See Fig. 53.

\* Submerge the hose end with the white mark into adhesive.

\* Use adhesive specially prepared for this work.

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NOTE: Be careful not to use another adhesive.

\* Install the hose (white mark side) within five minutes after applying adhesive.

NOTE: Before installing the hose, degrease the pipe for better adhesion.

Fuel Hose: N3Z1-13-415

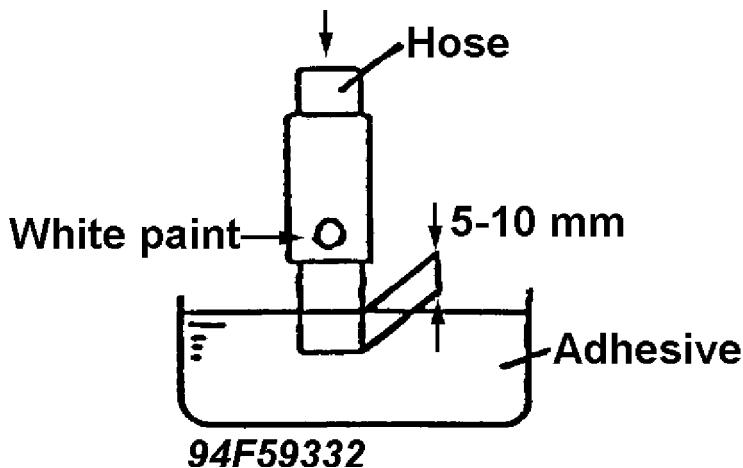


Fig. 53: Installing Hose on Inlet Side of Primary Fuel Distributor Submerging Hose End with White Mark into Adhesive

27-2. Install the clips on the hose of the inlet side of the primary fuel distributor.

- NOTE:
- \* Use two clips on the fuel distributor side.
  - \* Place the fuel distributor side clip claws on the top and the other one on the bottom. For the directions of the clip claws, see Figs. 54 and 55. Insert the hose to the pipe bulge. Match the edges of the clip and the hose end.
  - \* Replace all hose clips with new ones.
  - \* Do not use clips other than those included, part number below.
  - \* Be careful not to place the clip on the pipe bulge.

Clip: N3Z1-13-157 x 2pcs.

Protector: N3B7-13-428A

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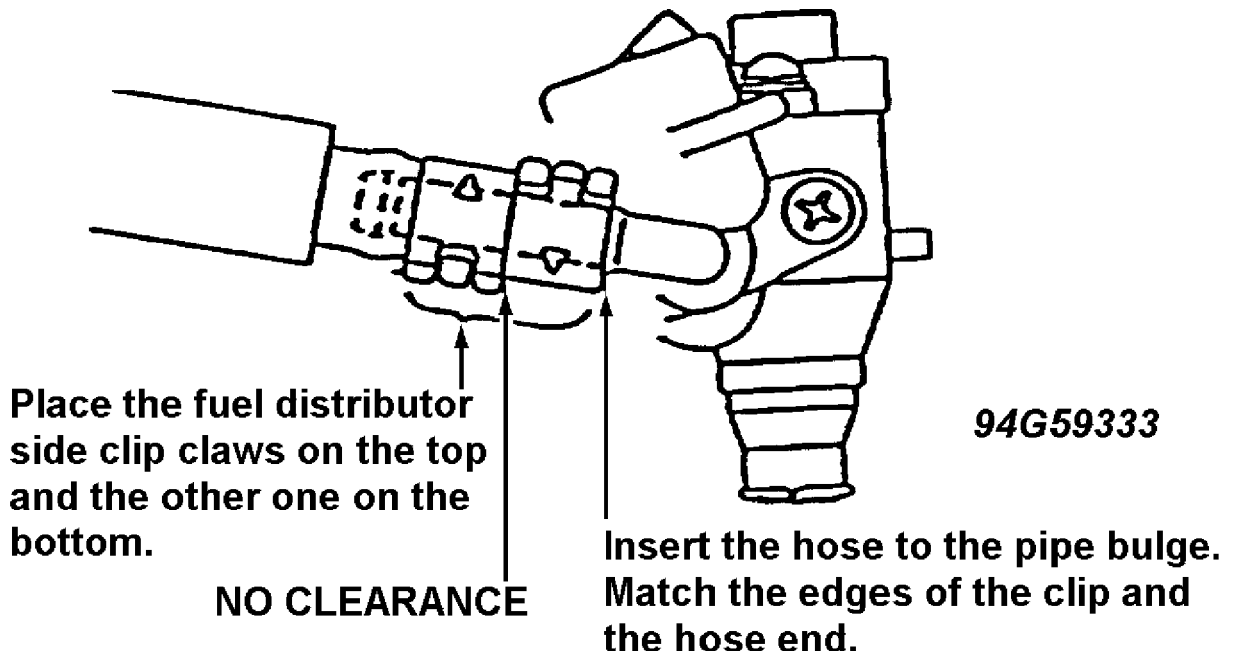


Fig. 54: Installation of Clips on Hose

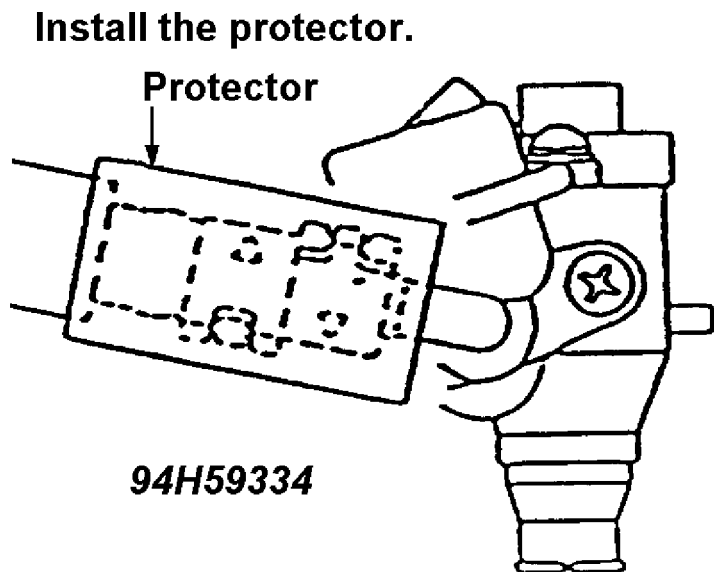


Fig. 55: Installation of Protector

28. Install the fuel hose on the secondary fuel distributor.  
See Fig. 56.

NOTE: \* Place the connector stopper on the secondary fuel distributor body, then tighten the connector bolts.

Tightening Torque: 240-360 kgf.cm (208-312 in-lbf)

\* Use new gaskets.

Gasket: N236-13-483 x 21pcs.

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\* Reuse the connector bolts.

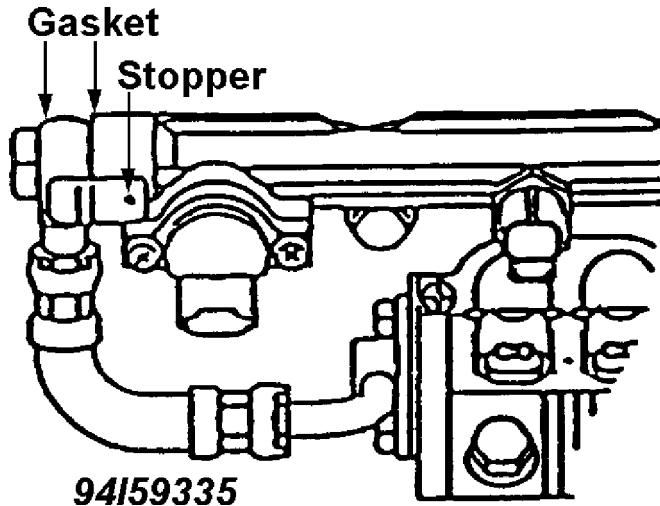


Fig. 56: Installation of Fuel Hose on Secondary Fuel Distributor

29. Replace the fuel hose on the return side of the secondary fuel distributor with a new one. See Fig. 57.

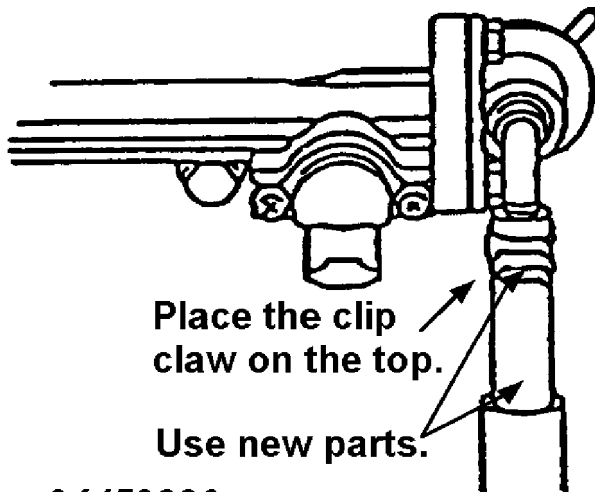
NOTE: \* Replace the clip also with a new one. Do not use clips other than those included, part number below.

Fuel hose: N370-13-415

Clip: 8574-13-157

\* For the direction of the clip claws, see Fig. 57.

\* Do not place the clip on the pipe on the bulge.



**94J59336**

Fig. 57: Return Side of Secondary Fuel Distributor Hose Replacement  
Place the Clip Claw on the Top - Use New Parts

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30. Replace the two vacuum tubes with new ones. See Fig. 58.

Vacuum tube: 99351-04150 x 2 pcs.

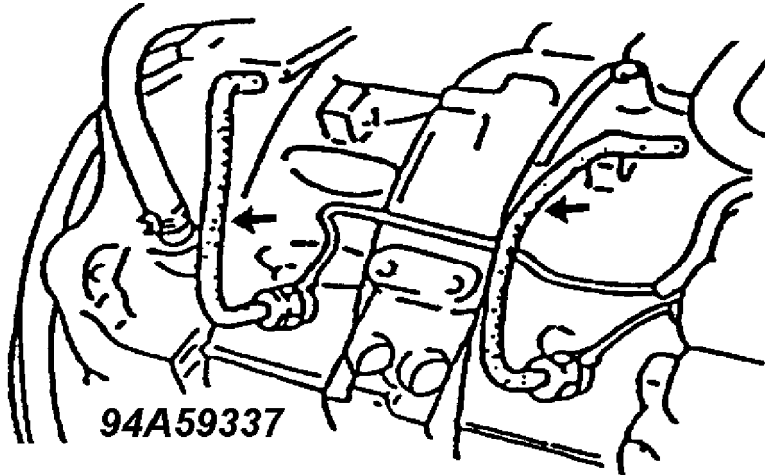


Fig. 58: Location of Vacuum Tubes

31. Install the primary fuel distributor and the secondary fuel distributor to the engine. See Fig. 59.

NOTE: \* Replace the four insulators with new ones.

Insulator (for primary): N3A1-13-257 x 2 pcs.

Insulator (for secondary): NF01-13-257A x 2 pcs.

32-1. Apply adhesive to the hose end on the primary fuel distributor outlet side indicated by the arrow in Fig. 59. To apply adhesive see step 27-1.

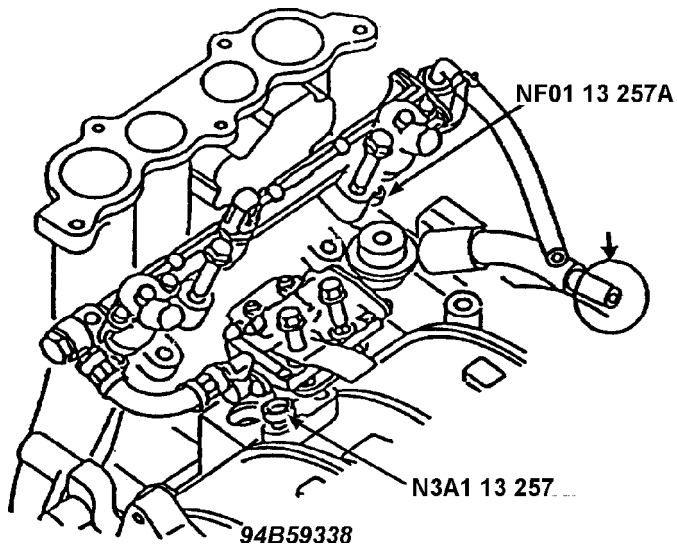


Fig. 59: Installing Primary & Secondary Fuel Distributors to Engine

32-2. Connect the hose between the fuel distributor and the vacuum

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pipe assembly. See Fig. 60.

NOTE: \* Replace the clips (outlet side of the secondary fuel distributor) with new ones.

Clip (Secondary): 8574-13-157

\* For the direction of the clip claw, see Fig. 60.

\* Do not use clips other than those included, part number below.

\* Be sure to use two clips for the joint between the primary fuel distributor and the main fuel pipe. (see arrow in Fig. 46.)

NOTE: For the direction of the clips claw, see step 27-2.

Clip (Primary): N3Z1-13-157 x 2 pcs.

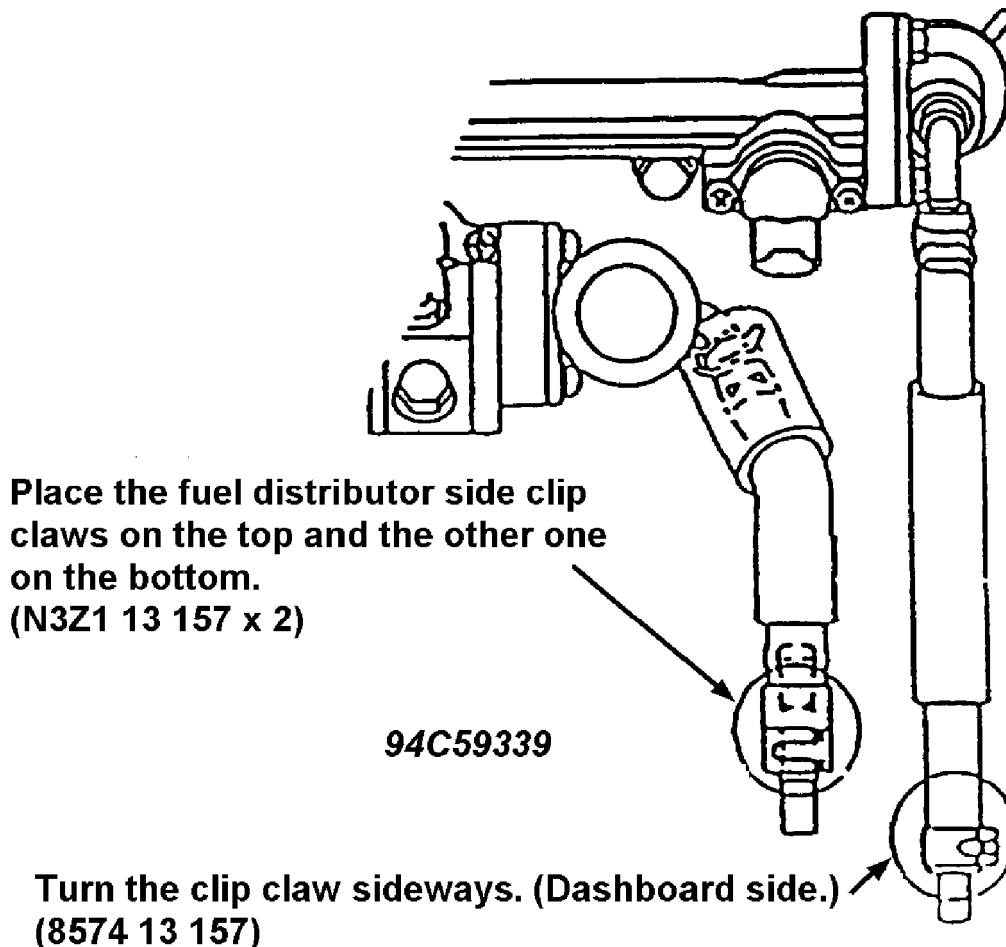


Fig. 60: Connecting Hose Fuel Distributor & Vacuum Pipe Assembly  
Place the Clip Claws in Opposite Directions



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32-3. Replace the main fuel hose with a new one. See Fig. 61.

NOTE: \* The hose and the clips shown in Fig. 61 should be replaced with new ones.

\* Be careful not to use the hose and the clips other than those included, part number's below.

\* Apply adhesive to the hose end (short end side only, indicated by the arrow in Fig. 61), then install it. (To apply adhesive, see step 27-1.)

\* Insertion depth of both hose ends should be 25 - 30 mm.

Fuel hose: N3Z1 -13-421.

Clip: 8574-13-157 x 2 pcs.

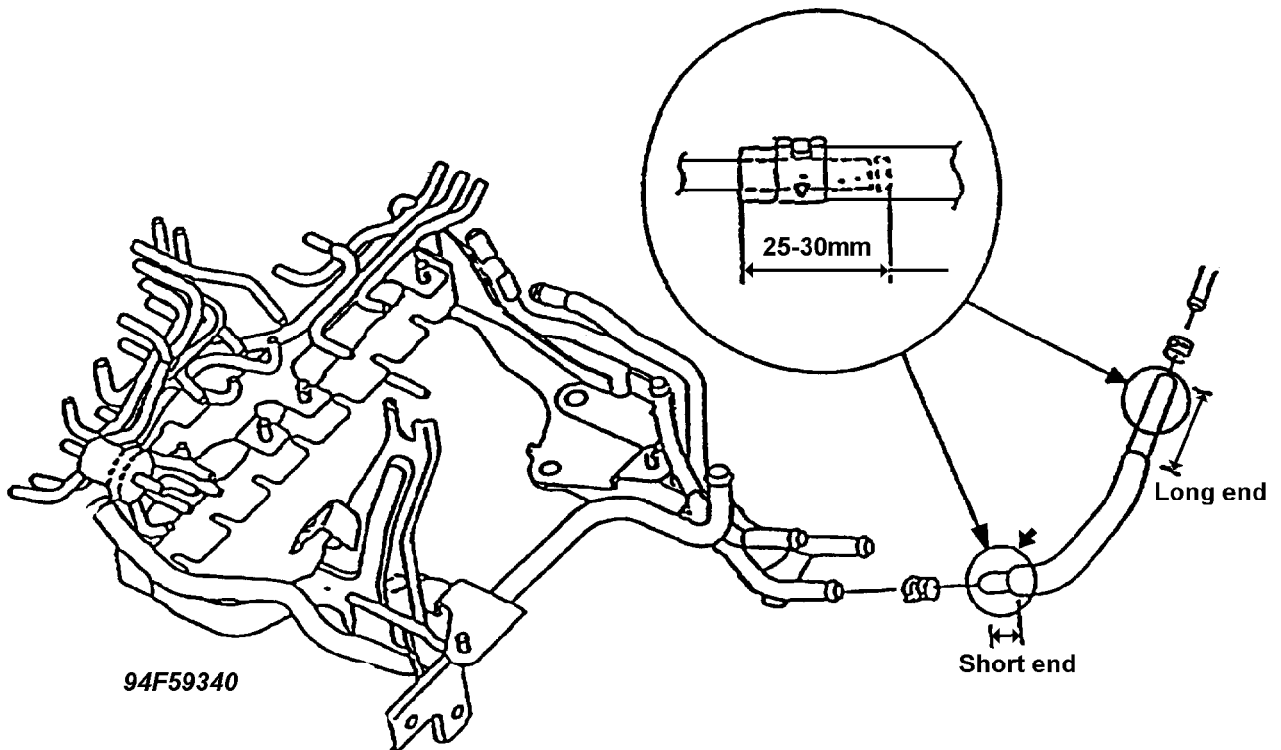


Fig. 61: Replacement of Main Fuel Hose

33. Check for fuel leakage.

WARNING: Do not smoke, carry lighted tobacco, or an open flame of any type when working on or near a fuel related component. Highly flammable mixtures are present and may be ignited resulting in possible injury.

1. Connect the negative terminal to the battery.
2. Connect the fuel pump terminal of the diagnostic connector to

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the ground terminal. See Fig. 62.

3. Pinch the fuel return hose with a suitable tool to stop any fuel return to the tank. See Fig. 63.

NOTE: Use a dull-edged SST so that it does not damage the hose.

4. Operate the fuel pump for more than five minutes, and check for fuel leakage.
- \* Check for fuel leakage visually and by odor. Carefully check the positions (seven) indicated by the arrows in Fig. 63. If fuel leakage is found, repair the problem. Once repaired, check again according to the above steps.

### Diagnostic Connector To Ground Terminal

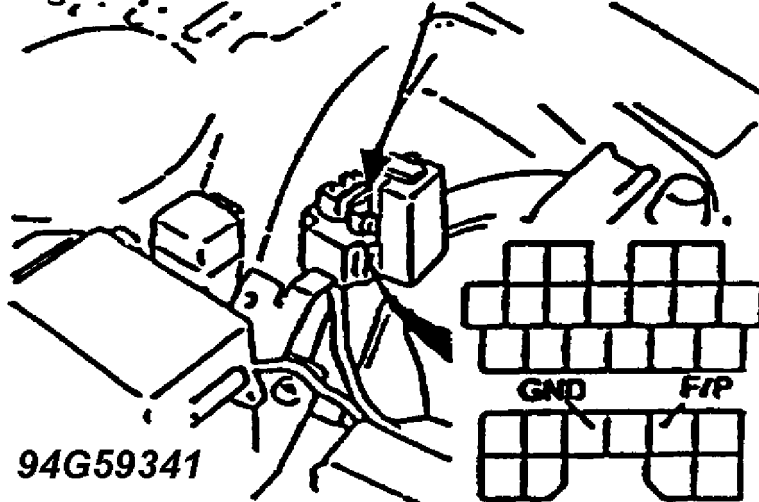


Fig. 62: Diagnostic Connector to Ground Terminal

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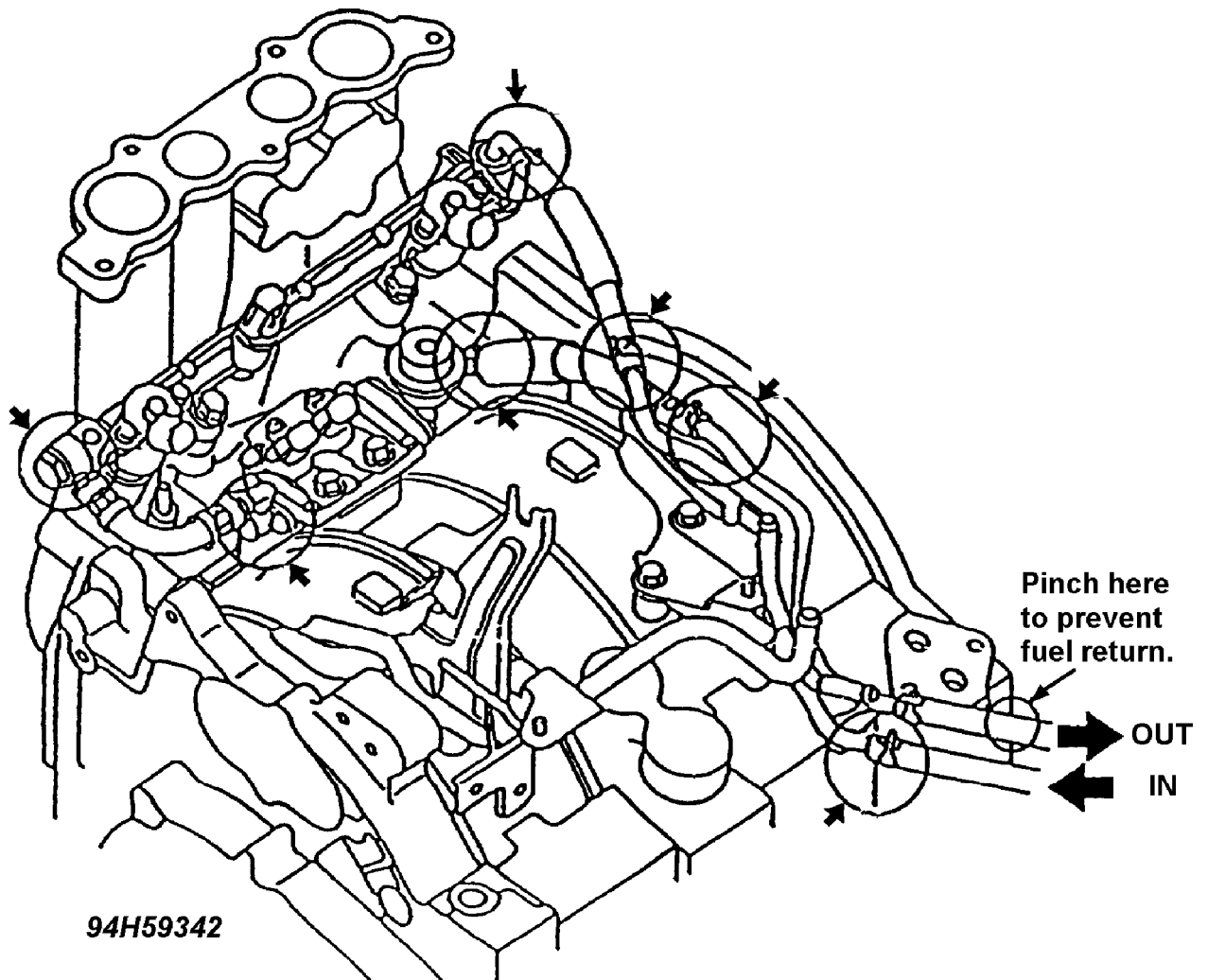


Fig. 63: Seven Fuel Leakage Areas

34. Install the vacuum pipe assembly.

1. Replace the vacuum tubes 4, 5, 6, 7, 10 and 11 with new ones.
2. Connect the hoses 3 - 14 to the vacuum pipe assembly.
3. Connect the coupler of each solenoid valve.
4. Install the vacuum pipes to the engine by tightening the bolts (three pieces).

Tightening torque: 160-230 kgf.cm (139-199 in-lbf)

Vacuum tubes 10 and 11: N3A4-20-344 x 2 pcs.

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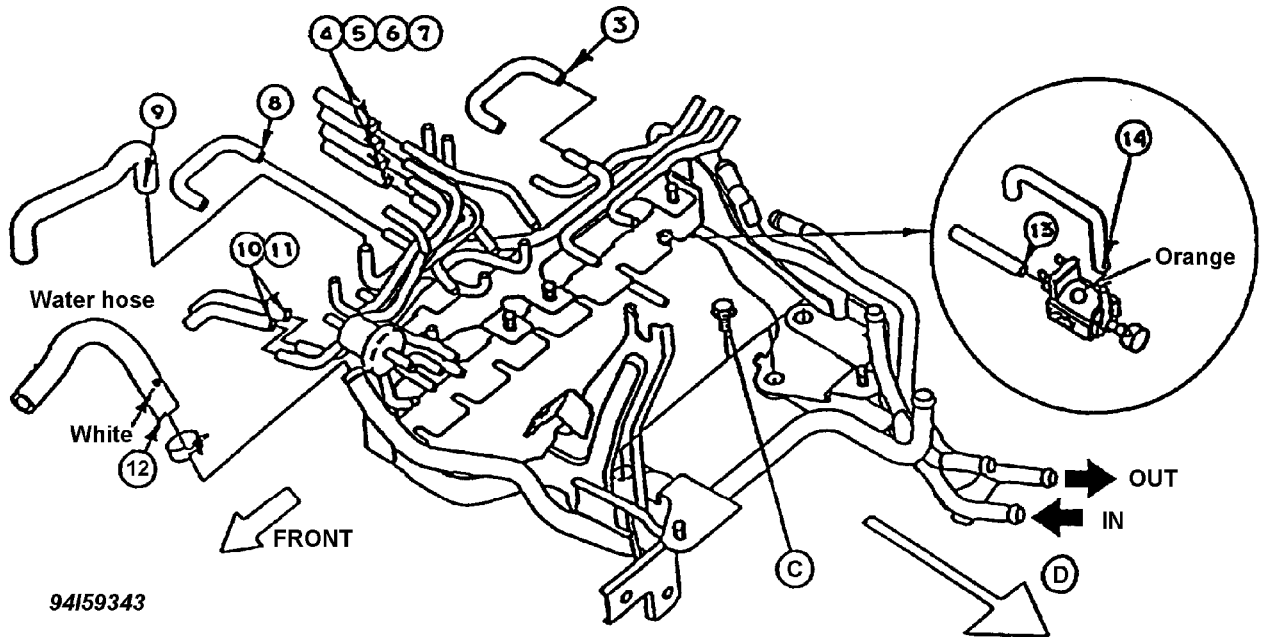


Fig. 64: Installation of Vacuum Tubes

35. Assemble the parts in the reverse order of removal.

**PROCEDURE C - REPLACEMENT OF THE FILLER CAP KIT**

NOTE: Procedure C is continued from procedure B.

The parts listed in this procedure must be ordered separately and are not included with the Fuel Recall Parts Kit.

36. Loosen the bolts of the filler cap body. Remove and discard the body and cap. Replace body, cap, and "O" ring with new ones from kit. See Fig. 65.

Kit Part Number - N3Z1-15-S10B

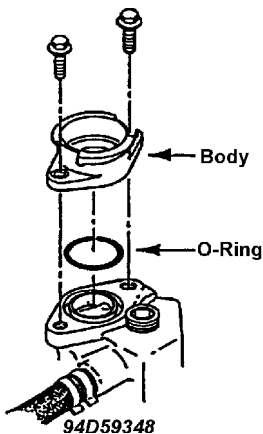


Fig. 65: Replacing Body Cap & "O" Rings

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37. Remove and discard the radiator cap from the sure tank and replace it with a new one.

Rad-cap: Included in Kit

NOTE: If the vehicle has no coolant leakage experienced and no coolant leakage at present, proceed to PROCEDURE E.

### PROCEDURE D - REPLACEMENT OF THE WATER PUMP KIT

NOTE: Procedure D is continued from procedure E.

Water Pump Kit Part number N3Z1-15-S20

Thermostat Gasket must be ordered separately and is not included in the Fuel Hose Parts Kit.

38. Remove the bolts from the fresh air duct, and remove the fresh air duct. See Fig. 66.

\* Remove the rubber hoses from the air cleaner.

\* Remove the air cleaner installation bolts.

39. Remove the upper radiator hose. See Fig. 66.

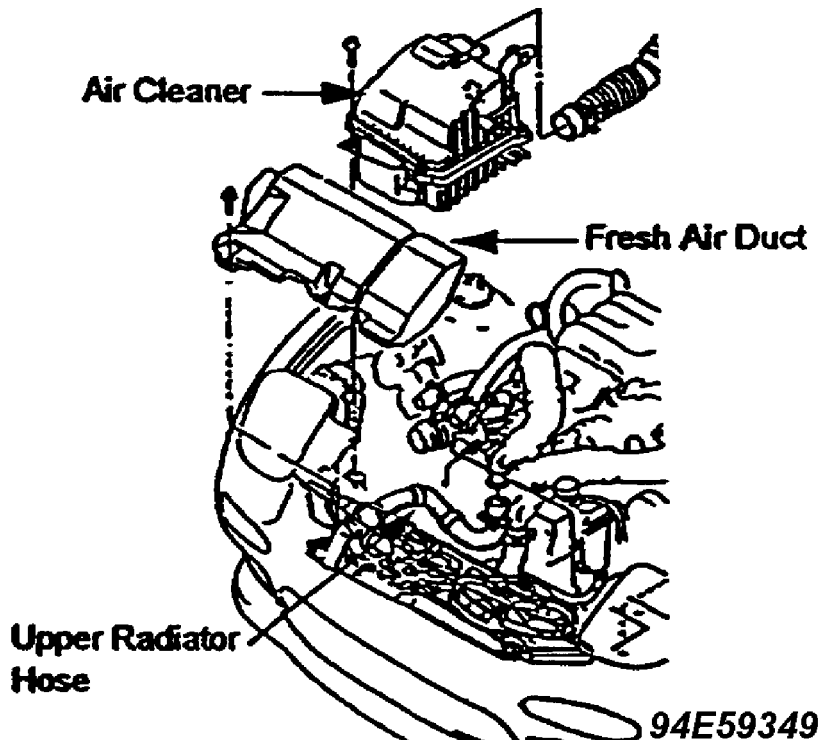


Fig. 66: Fresh Air Duct Bolts & Upper Radiator Hose

40. Remove the alternator installation nuts from the alternator

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adjuster bracket to remove the tension control bolt.

41. Remove the water pump pulley and alternator belt. See Fig. 67.

\* Loosen the four bolts from the water pump pulley.

\* Loosen the alternator belt.

\* Remove the bolts from the water pump pulley.

\* Move the belt, and remove the water pump pulley.

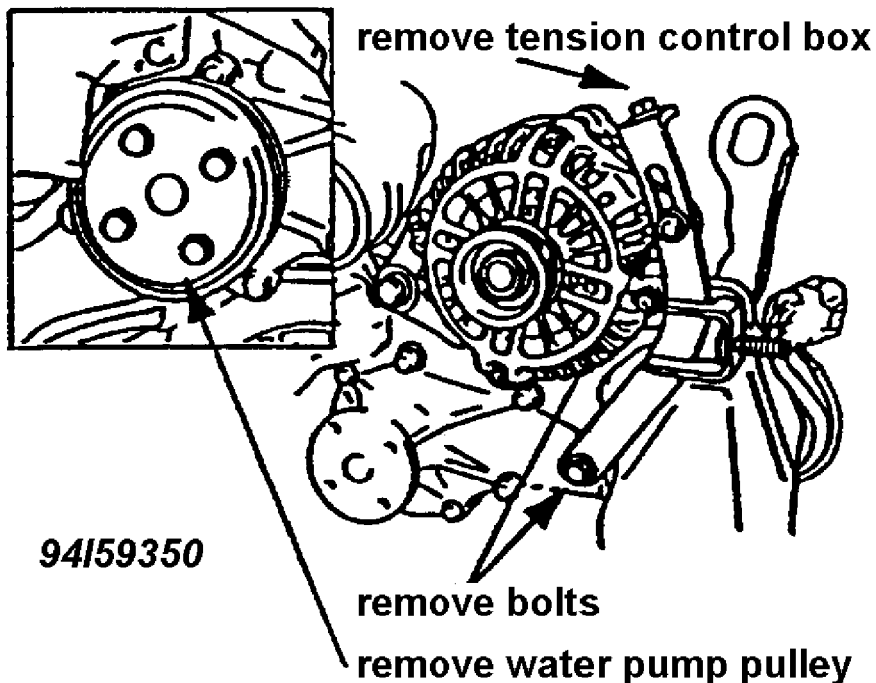


Fig. 67: Alternator Bracket & Water Pump Pulley

42. Remove the alternator adjuster bracket.

\* Remove the bolts attaching the alternator adjuster bracket to the water pump.

43. Remove the nut attaching the alternator adjusting bracket to the power steering bracket. See Fig. 68.

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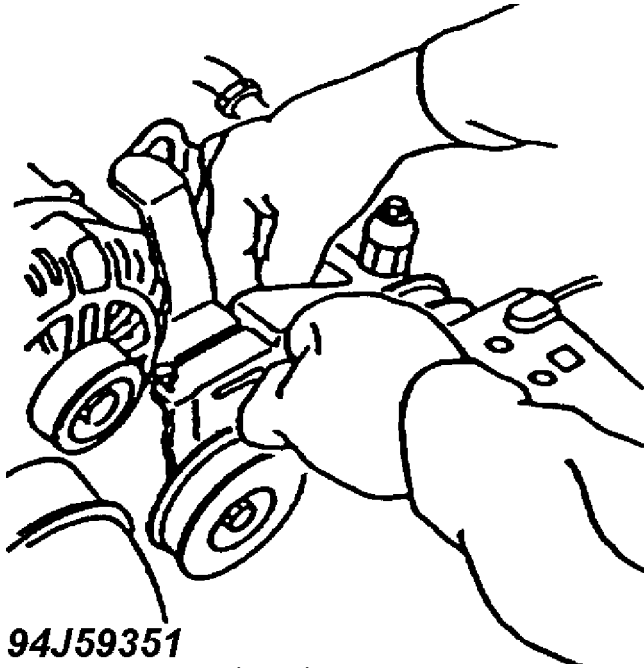
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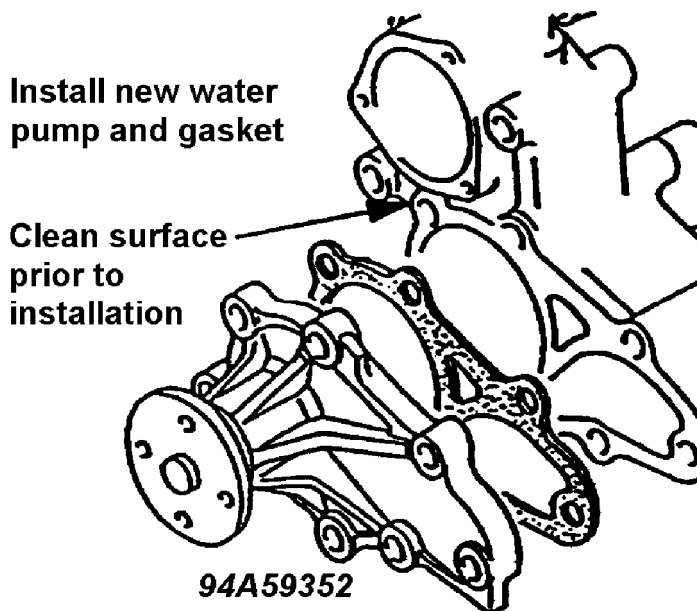
Fig. 68: Alternator Adjusting Bracket Nut to Power Steering Bracket

44. Remove the water pump and discard. Remove and discard gasket and clean gasket surface.

45. Install new water pump using the new gasket. See Fig. 69.

Water pump: Included in Kit

Gasket: Included in Kit



**94A59352**

Fig. 69: Installing New Water Pump Gasket

NOTE: Be sure that oil metering line retaining clip is installed

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correctly on the outside of the water pump at bolt "A".  
See Fig. 70.

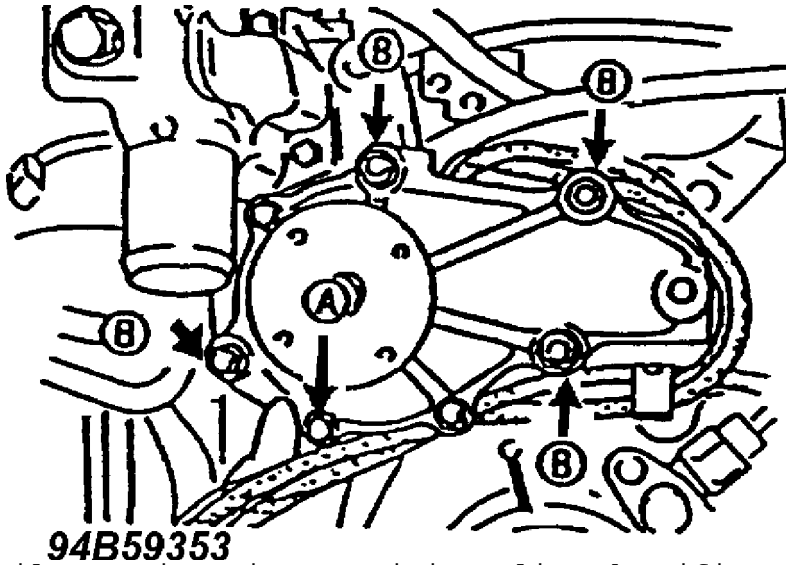


Fig. 70: Oil Metering Line Retaining Clip Identification

46. Disconnect the low coolant switch connector. See Fig. 71.

47. Remove the surge tank hose from the thermostat cover.

48. Remove the thermostat cover.

\* Remove the thermostat.

\* Install thermostat with new gasket.

Gasket: N3C1-15-173

NOTE: Ensure that the jiggle pin is in the 12:00 o'clock position.



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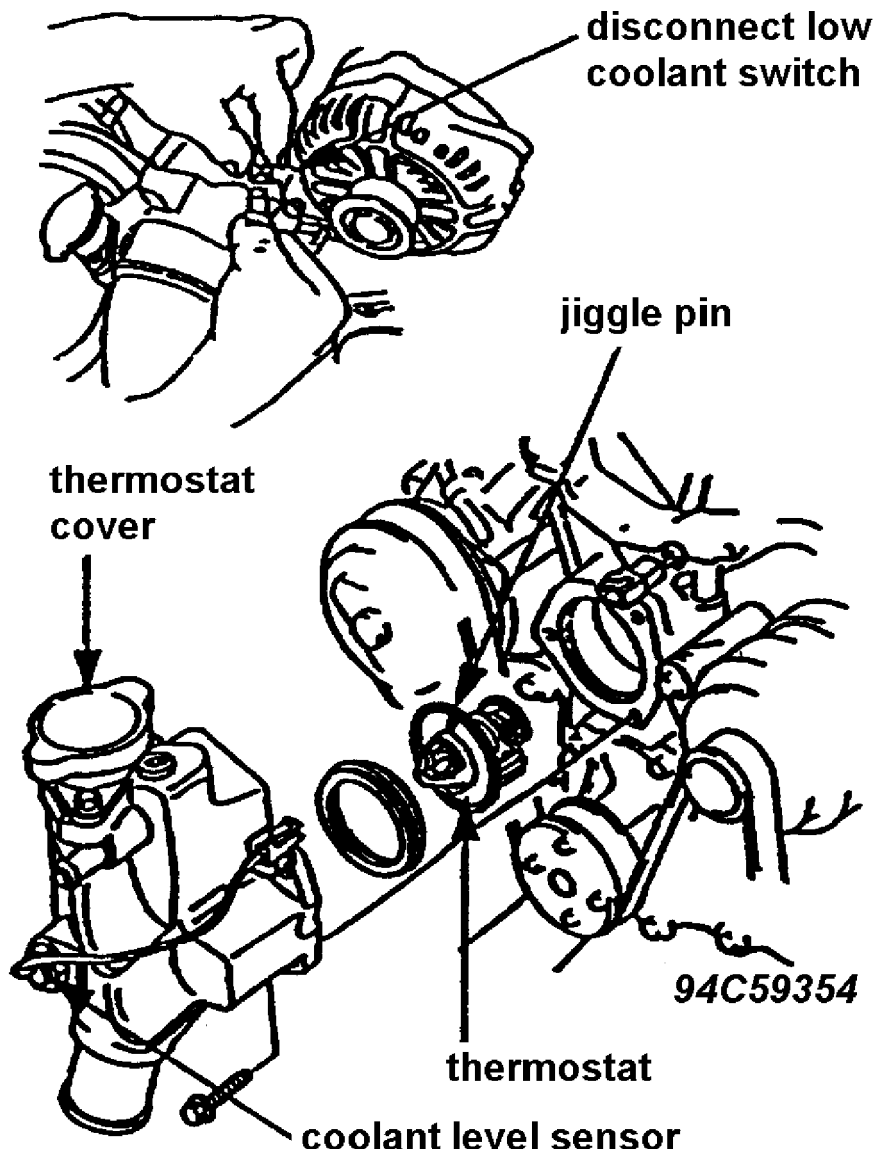


Fig. 71: Jiggle Pin Identification

49. Install a new coolant level sensor and gasket.

Level sensor: Included in Kit

Gasket: Included in Kit

50. Install the thermostat cover.

NOTE: Install water level sensor connector bracket.

51. Connect the coolant level sensor.

52. Install alternator bracket, pulley, and belt in reverse order of removal. See Fig. 67.

53. Install new upper radiator hose.

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Radiator hose: Included in Kit

54. Install air cleaner and fresh air duct.

**PROCEDURE E - COOLING SYSTEM CHECK/AFFIXING CAMPAIGN LABELS**

NOTE: Procedure E is continued from procedure D.

55. After assembling parts, follow the instructions below prior to replenishing coolant.

- \* Measure the concentration of antifreeze in the removed coolant with a hydrometer.
- \* If the concentration is more than 45%, use the removed coolant to fill the system, purge air from the system and fill the coolant reservoir to the "F" mark.
- \* If the concentration is 45% or less, add 100% anti-freeze to the coolant system as specified in the ANTI-FREEZE CONCENTRATION TABLE.
- \* Purge the system of air. Use the original coolant to fill the reservoir to the "F" mark.

NOTE: Coolant refers to the fluid drained from the vehicle.  
Anti-Freeze refers to 100% new coolant.

ANTI-FREEZE CONCENTRATION TABLE

| Concentration Of Anti-Freeze | Amount of Anti-Freeze To Be Added |
|------------------------------|-----------------------------------|
| 0-5%                         | 4.4L                              |
| 5-10%                        | 4.1L                              |
| 10-15%                       | 3.8L                              |
| 15-20%                       | 3.5L                              |
| 20-25%                       | 3.1L                              |
| 25-30%                       | 2.7L                              |
| 30-35%                       | 2.2L                              |
| 35-40%                       | 1.6L                              |
| 40-45%                       | 1.0L                              |

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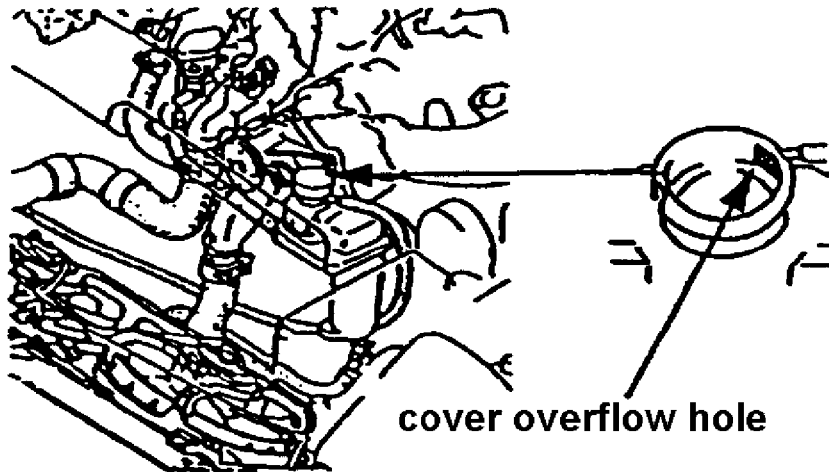
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<sup>3</sup> Use Hydrometer To Measure Concentration <sup>3</sup>

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUU

56. Remove the cap from the surge tank and close the overflow hole in the surge tank neck with tape. See Fig. 72.

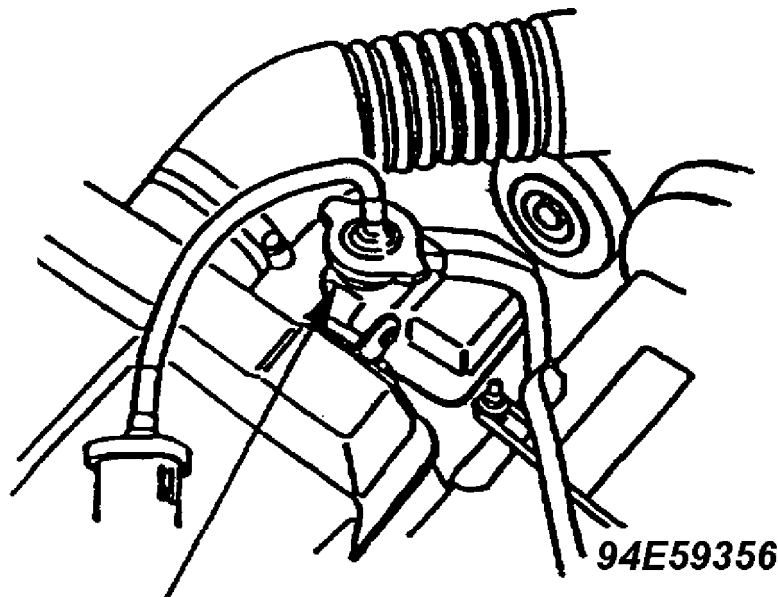


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Fig. 72: Cover Overflow Hole

57. Install the radiator pressure tester on surge tank.

58. Apply 15 psi. See Fig. 73.



**Install radiator tester and apply 15psi.  
Verify that pressure holds.**

Fig. 73: Radiator Pressure Tester Application

59. Verify that pressure holds.

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NOTE: If the radiator coolant pressure has dropped, locate the leak and repair as necessary. Retest after repair following the above procedures. After confirmation that no leaks are present, remove the tape from the overflow hole and install the pressure cap.

60. Affix the Campaign Label number 54407 and number 60504 onto the driver's side door for future confirmation that the campaign has been completed on this vehicle. See Fig. 74.

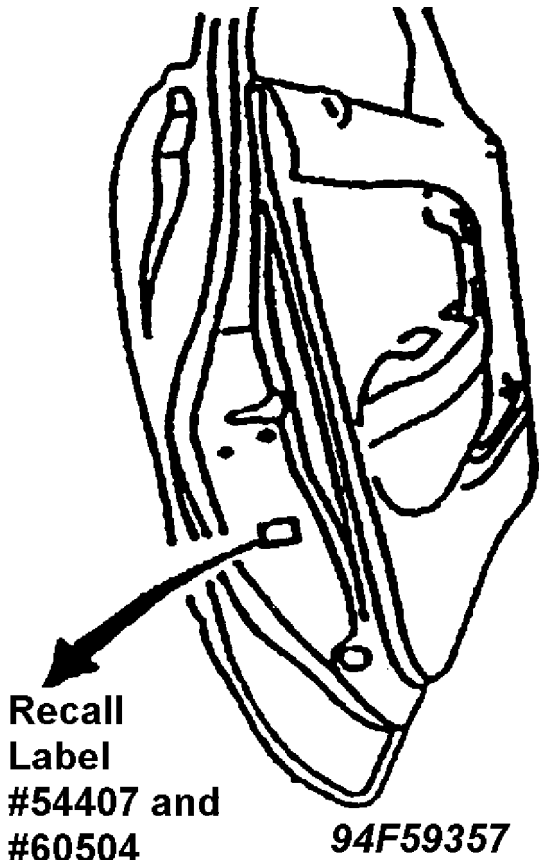


Fig. 74: Recall Label #54407 & #60504 Identification

## WARRANTY INFORMATION

REPAIR CONTENT - FUEL HOSE AND COOLING SYSTEM WARRANTY TABLE

| Warranty Type | 5     | 5     | 5     |
|---------------|-------|-------|-------|
| Recall No.    | 60504 | 60504 | 60504 |
| Process Code  | D     | E     | F     |

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|                                                                               |                  |                  |                  |   |
|-------------------------------------------------------------------------------|------------------|------------------|------------------|---|
| 3 Labor Hours                                                                 | 3 4.6 Hrs.       | 3 3.2 Hrs.       | 3 2.4 Hrs.       | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |
| 3 Replacement                                                                 | 3 N3A1-13-S70    | 3 N3A1-13-S70    | 3 N3A1-13-S70    | 3 |
| 3 Part No.                                                                    | 3                | 3                | 3                | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |
| 3                                                                             | 3 N3Z1-15-S10B   | 3 N3Z1-15-S10B   | 3                | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |
| 3                                                                             | 3 N3A1-13-S60    | 3 N3A1-13-S60    | 3                | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |
| 3                                                                             | 3 N3C1-15-173    | 3                | 3                | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |
| 3                                                                             | 3 N3Z1-15-S20    | 3                | 3                | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |
| 3                                                                             | 3 All Quantities | 3 All Quantities | 3 All Quantities | 3 |
| 3                                                                             | 3 are 1          | 3 are 1          | 3 are 1          | 3 |
| AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA~ |                  |                  |                  |   |

**END OF ARTICLE**