

EAGLE TUGS



Parts and Service Manual



Vehicle Types: TT-4, TT-5, TT-6, & TT-8
Engine Type: Wiscon Gas TME 27 Engine Model

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INTRODUCTION

From everyone at Eagle Tugs, we would like to say Thank You for purchasing an Eagle TT-series tow tractor. We take a lot of pride in the quality of the products that we build, as well as our continued customer service. Our goal is to build a long term relationship with our customers. We want you, the customer, to be 100% satisfied with your Eagle experience. To us, this means that your Eagle TT-series tractor is functionally superior to any other products you have used. This also means that your Eagle product is continually supported in a professional, timely manner.

PURPOSE & USE OF THIS MANUAL

This manual is designed as a reference guide to make the reader more familiar with the components of the Eagle TT-4, TT-5, TT-6, and TT-8 tow tractor models. This manual includes part numbers and descriptions to assist the reader in ordering component spare/service parts. The manual also outlines the Scheduled Maintenance Intervals recommended by Eagle in order to keep your vehicle running properly. In this manual you will also find the Eagle Standard Warranty on all of the TT-series tow tractors. However, for more detailed information on the Eagle Warranty and procedure, as well as information pertaining to the safe operation of your Eagle product, please see the Eagle Operations Manual that was also included with your vehicle.

TECHNICAL ASSISTANCE

When addressing a repair procedure or operational problem, please remember that Eagle technical support is only a phone call away. Eagle technicians are available to assist you in vehicle diagnostics and recommended repair procedures. We encourage you to use this service to reduce machine down-time and to gain a better understanding of proper repair procedures.

ORDERING SPARE/SERVICE PARTS

Eagle inventories most of the component parts found in its TT-series tow tractors, and most spare/service parts can be shipped the same day the order is received. Parts orders need to be received at Eagle by 12:00 pm (Noon) EST in order for the parts to be shipped that same day. Parts ordered after 12:00 pm EST will most likely be shipped the following day.

NOTE: PLEASE CHECK OUR WEBSITE PERIODICALLY FOR MANUAL UPDATES AS WELL AS SERVICE BULLETINS.

Eagle Corporate Office

26111 Northline Rd
Taylor, MI 48180
(800) 671-0431
www.eagletugs.com

Customer Service

customerservice@eagletugs.com
(734) 442-1000 -- (800) 671-0431

Parts & Service

parts@eagletugs.com
(734) 442-1000 -- (800) 671-0431

Technical Support

support@eagletugs.com
(734) 442-1000 -- (800) 671-0431

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WARRANTY

IMPORTANT SAFETY NOTICE

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all industrial engines as well as the personal safety of the individual performing the work. This Service Manual provides general directions for accomplishing service and repair work with tested and effective techniques. Following them will help assure reliability.

There are numerous variations in procedures, techniques, tools and parts for servicing equipment, as well as in the skill of the individual doing the work. This Manual cannot possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this Manual must first establish he compromises his/her personal safety, and/or the equipment integrity by his/her choice of methods, tools or parts.

WARNINGS

The following list contains some general WARNINGS that you should follow when you work on equipment:

- Always wear safety glasses for eye protection.
- Use safety stands whenever a procedure requires you to be under the equipment.
- Be sure that the ignitions switch is always in the OFF position, unless otherwise required by the procedure.
- Set the parking brake (if equipped) when working on the equipment. Place wood blocks (4" x 4" or larger) to the front and rear surfaces of the tires to provide further restraint from inadvertent equipment movement.
- Operate the engine only in a well-ventilated area to avoid the danger of carbon monoxide.
- Keep yourself and your clothing away from moving parts when the engine is running, especially the fan and belts.
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler.
- Do not smoke while working on the equipment.
- To avoid injury, always remove rings, watches, loose hanging jewelry, and loose clothing before beginning to work on the equipment. Tie long hair securely behind the head.
- Keep hands and other objects clear of the radiator and blades.

For more information regarding safety please refer to the operations manual provided with your tug. This manual can also be found on the Eagle Tugs website at www.eagletugs.com.

WARRANTY

VEHICLE ID INFORMATION

This information can be found on the tractor's I.D. Plate located on the firewall next to the driver's seat. Additionally, there is a permanent serial number located on the rear bulkhead inside the engine compartment.


MODEL _____

SERIAL NO _____

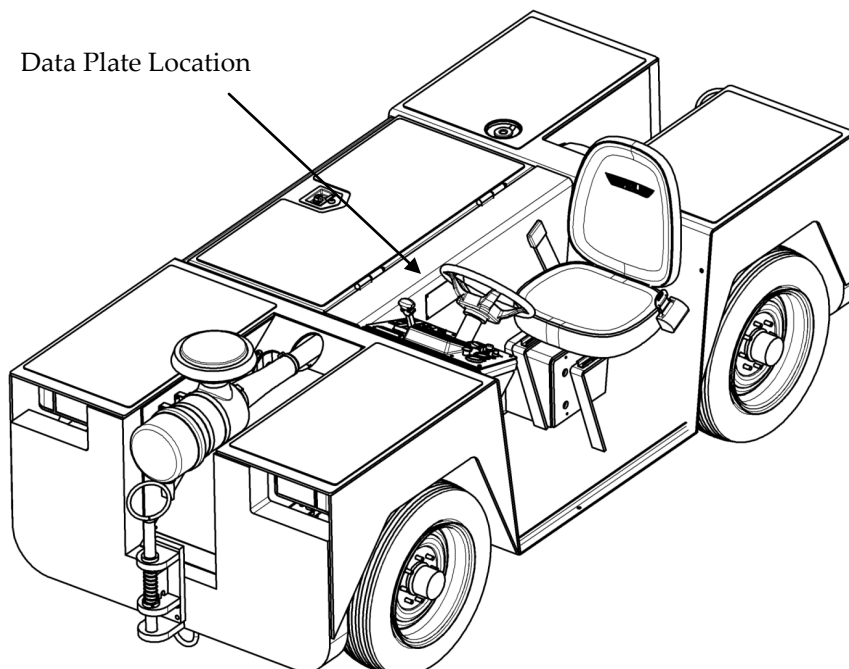
MFG DATE _____

ENGINE TYPE _____

ENGINE SERIAL NO _____

VEHICLE S/N	_____	ENGINE POWER	kW	_____	hp	_____
MFG. DATE	_____	TRACTOR MASS	kg	_____	lb	_____
MODEL #	_____	DRAW BAR PULL	N	_____	lbf	_____
ENGINE	_____	TOW CAPACITY	kg	_____	lb	_____
ENGINE S/N	_____	VERTICAL HITCH CAP.	N	_____	lbf	_____
MANUFACTURED BY:  26111 NORTHLINE RD. TAYLOR, MI 48180 USA PHONE: 800-671-0431 sales@eaglelugs.com www.eaglelugs.com						

Data Plate Location



WARRANTY

3-Year Limited Warranty Information*

The Eagle Tugs (Eagle) 3-Year Warranty covers all TT-series, eTT-series, XL-series, eXL-series and USATS tow tractors, used in aviation applications. Eagle Tugs warrants that these tractors will be free from defects in material and workmanship for a period of 3 years or 3,000 operating hours, with the exception of the electrical system (see electrical component warranty below), from date of delivery to the first customer (or first use), whichever comes first. Written notice of any claimed defect must be given to Eagle within the warranty period and within thirty (30) days after such defect is discovered. Liability under this warranty is limited to either replacing or repairing, at Eagle's election, any part or parts deemed defective after examination by Eagle or an Authorized Service Representative. Any Eagle tractor or any of its parts returned by the customer to Eagle or an Authorized Service Representative via prepaid transportation, and which is found to be defective, will be repaired or replaced and returned to the customer prepaid. On the other hand, should a part be found not defective, inspection and handling charges may be charged to the customer or Authorized Service Representative by Eagle.

Electrical Component Warranty: Electrical components including but not limited to display, starters, alternators and electric fans shall be covered under the respective original manufacturers warranty for each individual component. Copies of the respective warranties are available upon request.

This warranty does not extend to the tires, batteries, and battery chargers as these are warranted directly to the user by their respective manufacturer and not by Eagle or an Authorized Service Representative.

This warranty does not apply to any Eagle tow tractor, or component part(s) that have been subjected to misuse, accident, vandalism, environmental conditions, improper handling or application, maintenance neglect, including lack of lubricants or fluids; nor does it extend to the Eagle tow tractor and/or parts which have been repaired or altered outside of Eagle's plant or the facility of an Authorized Service Representative without the permission of Eagle.

This warranty does not apply to routine maintenance or wearable parts of the Eagle tow tractor such as filters, seals, plugs, hoses, belts, brake pads or shoes, light bulbs, fuses or similar items. Moreover, this warranty does not extend beyond its original term for any Eagle tow tractor or part replaced or repaired under warranty.

This warranty does not cover or provide credit for the following: tractor rental or other substitute equipment; lodging; loss of time, income, sales or profits; loss of the use of tractor; telephone calls or communication expense; lift truck; storage fees; injury or death to persons or damage or destruction of property; or consequential, incidental or punitive damages.

Labor Allowance: A labor allowance may be issued upon request at Eagle's discretion. Allowable labor hours and a per hour labor rate will be determined by Eagle according to reasonable automotive standards.

Warranty Claim Procedure: When a warranty situation arises, it is essential that the customer contact Eagle's Warranty Department at +1 734-442-1000. The customer will need to provide Eagle with the tow tractor serial number and engine hours. A customer service representative will analyze the problem and determine the next steps. In many cases Eagle's technical support personnel will be able to analyze the problem and recommend adjustments that will solve the problem and reduce down time. If further service is required, an Eagle customer service representative will work with customer personnel to arrange a service provider and/or parts be sent to your facility for the repair as quickly as possible.

EXCEPT AS SET FORTH ABOVE, ALL WARRANTIES, CONDITIONS, REPRESENTATIONS, INDEMNITIES AND GUARANTEES, EXPRESS OR IMPLIED, WHETHER ARISING BY STATUTE, CUSTOM OF TRADE OR UNDER ORAL OR WRITTEN STATEMENTS MADE BY OR ON BEHALF OF EAGLE NEGOTIATIONS WITH CUSTOMER, DISTRIBUTOR, DEALER OR ANY REPRESENTATIVE, ARE HEREBY OVERWRITTEN AND EXCLUDED, AND NO LIABILITY SHALL ATTACH TO EAGLE, EITHER IN CONTRACT OR IN TORT, OR STRICT LIABILITY IN TORT, FOR ANY DAMAGE TO PROPERTY, LOSS OF PROFITS, DAMAGES, COSTS, CHARGES, LIABILITY OR EXPENSES, WHETHER DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, WHICH ARISE OUT OF OR IN CONNECTION WITH THE SALE OR USE OF ANY EAGLE MACHINE OR THE SUPPLY OF SERVICES.

SUBJECT TO CHANGE WITHOUT NOTICE

Please check our website www.eagletugs.com periodically for service bulletins and manual updates.

*Note - The Eagle Tugs 3-Year Warranty covers TT-series, eTT-series, XL-series, eXL-series and USATS tow tractors used in aviation applications. All MTT and RTT-series, and Transit Pro tow tractors, and all Eagle models which are used in industrial applications, are covered under the Eagle **Standard Warranty** of 1 Year or 2,000 hours. Eagle Bob Tails are covered under Ford Motor Company's Standard Warranty for each respective Ford truck model.

WARRANTY

Standard Limited Warranty Information*

The Eagle Tugs (EAGLE) Standard Warranty covers all MTT, RTT-series and Transit Pro tow tractors, as well as all Eagle tow tractor models used in industrial applications. Eagle Tugs warrants that these tractors will be free from defects in material and workmanship for a period of 1 year or 2,000 operating hours, with the exception of the electrical system (see electrical component warranty below), from date of delivery to the first customer (or first use), whichever comes first. Written notice of any claimed defect must be given to Eagle within the warranty period and within thirty (30) days after such defect is discovered. Liability under this warranty is limited to either replacing or repairing, at Eagle's election, any part or parts deemed defective after examination by Eagle or an Authorized Service Representative. Any Eagle tractor or any of its parts returned by the customer to Eagle or an Authorized Service Representative via prepaid transportation, and which is found to be defective, will be repaired or replaced and returned to the customer prepaid. On the other hand, should a part be found not defective, inspection and handling charges may be charged to the customer or Authorized Service Representative by Eagle.

Electrical Component Warranty: Electrical components including but not limited to display, starters, alternators and electric fans shall be covered under the respective original manufacturers warranty for each individual component. Copies of the respective warranties are available upon request.

This warranty does not extend to the tires, batteries, and battery chargers as these are warranted directly to the user by their respective manufacturer and not by Eagle or an Authorized Service Representative.

This warranty does not apply to any Eagle tow tractor, or component part(s) that have been subjected to misuse, accident, vandalism, environmental conditions, improper handling or application, maintenance neglect, including lack of lubricants or fluids; nor does it extend to the Eagle tow tractor and/or parts which have been repaired or altered outside of Eagle's plant or the facility of an Authorized Service Representative without the permission of Eagle.

This warranty does not apply to routine maintenance or wearable parts of the Eagle tow tractor such as filters, seals, plugs, hoses, belts, brake pads or shoes, light bulbs, fuses or similar items. Moreover, this warranty does not extend beyond its original term for any Eagle tow tractor or part replaced or repaired under warranty.

This warranty does not cover or provide credit for the following: tractor rental or other substitute equipment; lodging; loss of time, income, sales or profits; loss of the use of tractor; telephone calls or communication expense; lift truck; storage fees; injury or death to persons or damage or destruction of property; or consequential, incidental or punitive damages.

Labor Allowance: A labor allowance may be issued upon request at Eagle's discretion. Allowable labor hours and a per hour labor rate will be determined by Eagle according to reasonable automotive standards.

Warranty Claim Procedure: When a warranty situation arises, it is essential that the customer contact Eagle's Warranty Department at +1 734-442-1000. The customer will need to provide Eagle with the tow tractor serial number and engine hours. A customer service representative will analyze the problem and determine the next steps. In many cases Eagle's technical support personnel will be able to analyze the problem and recommend adjustments that will solve the problem and reduce down time. If further service is required, an Eagle customer service representative will work with customer personnel to arrange a service provider and/or parts be sent to your facility for the repair as quickly as possible.

EXCEPT AS SET FORTH ABOVE, ALL WARRANTIES, CONDITIONS, REPRESENTATIONS, INDEMNITIES AND GUARANTEES, EXPRESS OR IMPLIED, WHETHER ARISING BY STATUTE, CUSTOM OF TRADE OR UNDER ORAL OR WRITTEN STATEMENTS MADE BY OR ON BEHALF OF EAGLE NEGOTIATIONS WITH CUSTOMER, DISTRIBUTOR, DEALER OR ANY REPRESENTATIVE, ARE HEREBY OVERWRITTEN AND EXCLUDED, AND NO LIABILITY SHALL ATTACH TO EAGLE, EITHER IN CONTRACT OR IN TORT, OR STRICT LIABILITY IN TORT, FOR ANY DAMAGE TO PROPERTY, LOSS OF PROFITS, DAMAGES, COSTS, CHARGES, LIABILITY OR EXPENSES, WHETHER DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, WHICH ARISE OUT OF OR IN CONNECTION WITH THE SALE OR USE OF ANY EAGLE MACHINE OR THE SUPPLY OF SERVICES.

SUBJECT TO CHANGE WITHOUT NOTICE

Please check our website www.eagletugs.com periodically for service bulletins and manual updates.

*Note - The Eagle Tugs **3-Year Warranty** covers TT-series, eTT-series, XL-series, eXL-series and USATS tow tractors which are used in aviation applications. All MTT and RTT-series, and Transit Pro models, as well as all Eagle tow tractor models which are used in industrial applications, are covered under the Eagle Standard Warranty of 1 Year or 2,000 hours. Eagle Bob Tails are covered under Ford Motor Company's Standard Warranty for each respective Ford truck model.

WARRANTY

WARRANTY REGISTRATION INFORMATION

Please complete and return the Eagle Tugs Warranty Registration Card provided with your tug or fill out and submit on line at www.eagletugs.com.

AUTHORIZED WISCONSIN MOTORS DISTRIBUTOR INFORMATION

The Wisconsin Motors Distributor Information can be found on the Wisconsin Motors website at www.wisconsinmotors.com. If you need help finding a distributor in your area please call Eagle Tugs at 800-671-0431.

TIRES

For tire warranty please contact Eagle directly at by phone at 800-671-0431, by email at www.support@eagletugs.com or through our website at www.eagletugs.com.

BATTERY

In the U.S. and Canada, call 1-888-823-0954 or 1-877-255-2287

Outside the Continental U.S. and Canada please contact Eagle directly.

NOTE: At the time a warranty claim is filed it may be necessary for Eagle Tugs to request a copy of the maintenance records kept on your tug. For your convenience a printable Preventative Maintenance Schedule page is available in the Maintenance section of this manual.

SERVICE PARTS ILLUSTRATIONS & DETAIL

IDENTIFICATION KEY

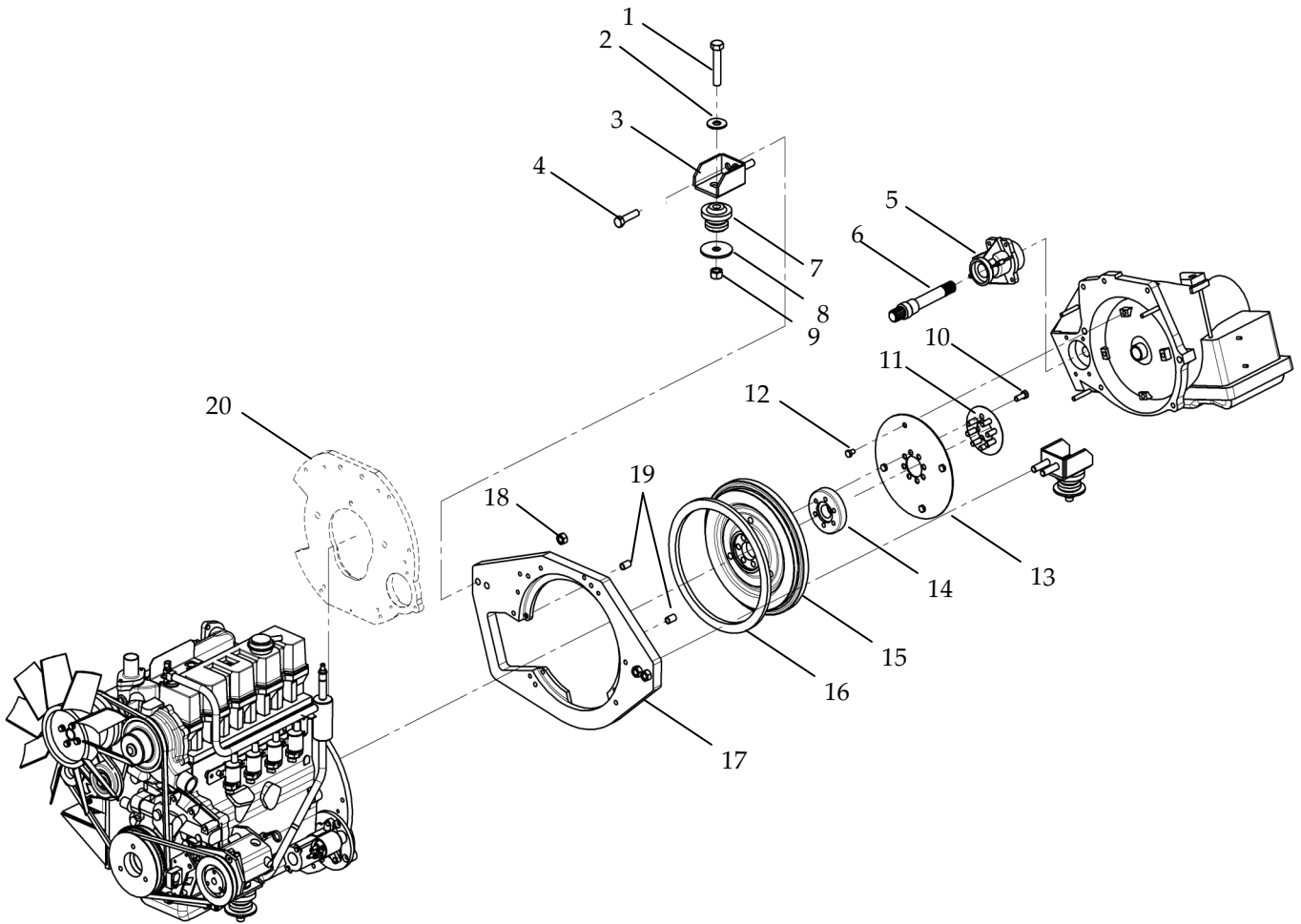
The following abbreviations are used throughout the parts lists in this section.

Abbreviation	Meaning	Purpose
NL	Not Listed	Part required but not shown on diagram
NPN	No Part Number	Parts shown and numbered, but not stocked and sold by Eagle. Typically used for bolts, clamps, etc...
AR	As required	

**!TO HELP US SERVICE YOU BETTER. HAVE TUG MODEL AND SERIAL NUMBER AVAILABLE
WHEN ORDERING PARTS**

POWER TRAIN

ENGINE TO TRANSMISSION ADAPTER PLATES



POWER TRAIN

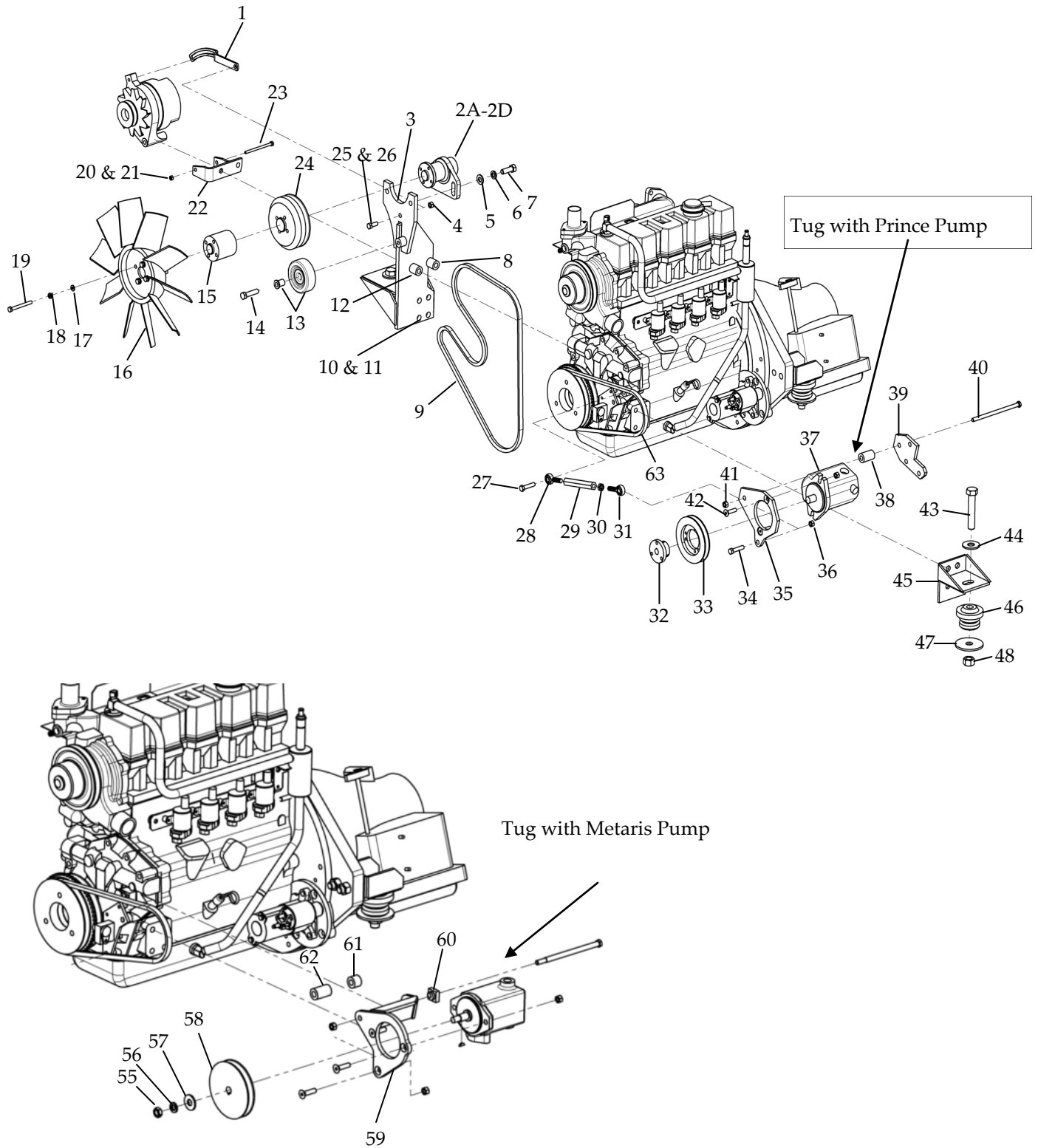
ENGINE TO TRANSMISSION ADAPTER PLATES

Item	Part Number	Qty	Description
1	NPN	4	3/4-10 X 3.5 GR8 HCS
2	NPN	4	3/4 FLAT WASHER
3	B-TT5D-00009	2	ENGINE MOUNT-TRANS
4	NPN	4	5/8-11 X 2.5 GR8 HCS
5	A-TT5D-00011-MOD	1	TRANSMISSION CONE
6	A-TT8-00201-2*	1	TRANS OUTPUT YOKE SHAFT REAR
7	A-TT5D-00013-1	4	ISOLATOR
8	A-TT5D-00010	4	LORD WASHER
9	NPN	4	3/4 LOCK NUT
10	NPN	6	10-1.5 X 50 10.9 HCS
11	TMD27C00611	1	FLEX PLATE WASHER
12	6501099	4	TORQ CONVERTER BOLTS
13	TMD27C00610-MOD	1	FLEX PLATE
14	B-TT5D-00017-1	1	FLEX PLATE ADAPTER
15	TMD27C05470	1	FLY WHEEL
16	TM27C00524	1	RING GEAR
17	B-TT10TD-00001-WI	1	TRANS PLATE
18	NPN	4	5/8 LOCK NUT
19	5240849	2	DOWEL PIN
20	TMD27B00521-MOD	1	ENGINE PLATE

*See Drive Line Section for more detail including drive shaft.

POWER TRAIN

ENGINE DRESS



POWER TRAIN

ENGINE DRESS

Item	Part Number	Qty	Description
1	TM27M00301	1	ALTERNATOR ADJUSTING STRAP
2A	A-TT8-00356	1	REMOTE FAN SHAFT
2B	A-TT8W-00355	1	REMOTE FAN SHAFT HOUSING
2C	A-TT8-000357	2	REMOTE FAN BEARING
2D	A-TT8-00358	1	REMOTE FAN SNAP RING
3	A-TT8W-00354	1	REMOTE FAN BRACKET
4	NPN	1	3/8-16 LOCK NUT
5	NPN	1	1/2 FLAT WASHER
6	NPN	1	1/2 SPLIT LOCK WASHER
7	NPN	1	1/2-13 X 1.25 GR8 HCS BOLT
8	NPN	1	12-1.75 X 80 10.9 HCS
9	9680	1	BELT
10	NPN	2	12MM SPLIT LOCK WASHER
11	NPN	4	14-20 X 30 10.9 HCS
12	NPN	1	12-1.75 X 70 10.9 HCS
13	38020	1	IDLER PULLEY
14	NPN	1	12-1.75 X 50 10.9 HCS
15	A-TT8W-00360	1	FAN SPACER
16	A-TT8-00312	1	REMOTE FAN BLADE
17	NPN	4	5/16 FLAT WASHER
18	NPN	4	8MM SPLIT LOCK WASHER
19	NPN	4	8-1.25 X 90 10.9 HCS
20	XM37001	1	LOCK WASHER, M10
21	15XXM35000	1	NUT, M10-1.5
22	TM27M00411	1	ALTERNATOR BRACKET
23	XM32007	1	SCREW, M10-1.5 X 110 HCS
24	A-TT8W-00363	1	REMOTE FAN SHAFT PULLEY
25	NPN	1	3/8-16 X 1.25 GR8 HCS
26	NPN	1	3/8 FLAT WASHER
27	NPN	1	10-1.5 X 50 10.9 HCS
28	A-TT4-00214	1	BALL JOINT ROD END L/H THREAD
29	A-TT4-00216	1	ADJUSTMENT SHAFT
30	NPN	1	7/16-20 JAM NUT

NOTE:

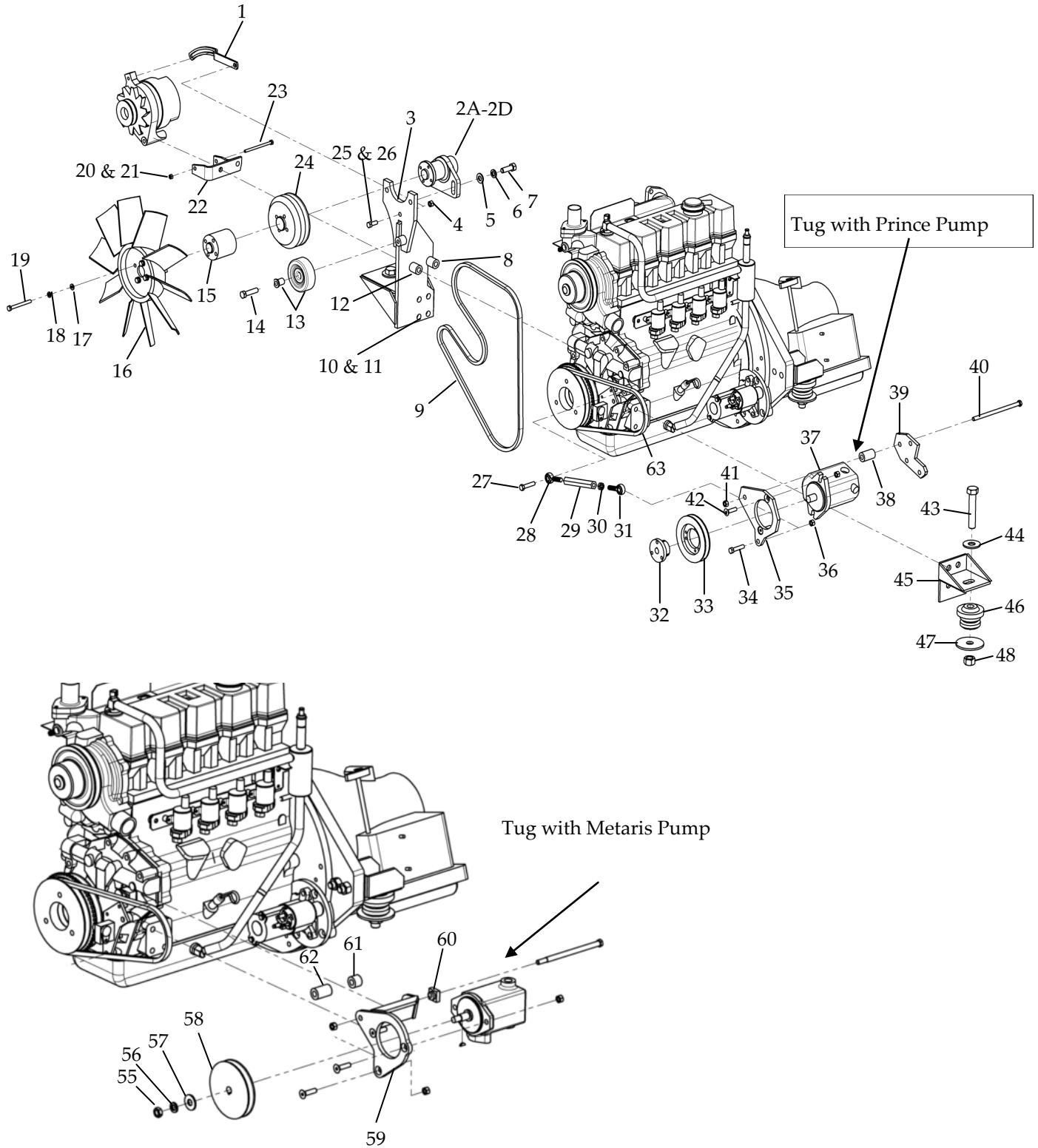
*FOR TRANSIT PRO MODELS SEE ADDENDUM-PARTS MAY DIFFER FROM NON TRANSIT PRO MODELS

**FOR MOELS WITH FRONT TUNNEL RADIATOR SEE FAN SET UP IN COOLING SECTION OF THIS MANUAL.

***SEE THE FOLLOWING PAGES FOR SPECIFIC ALTERNATOR OPTIONS

POWER TRAIN

ENGINE DRESS



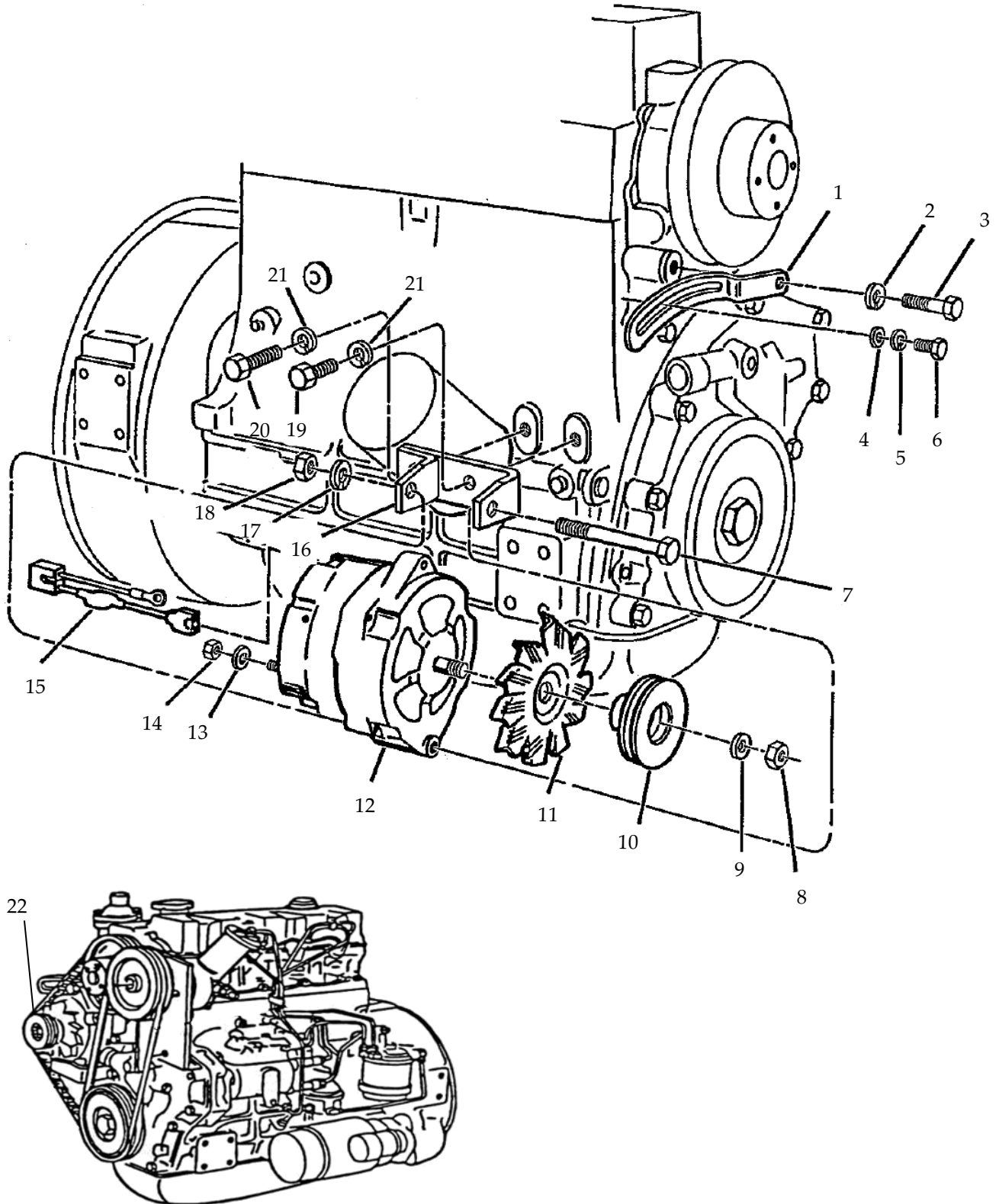
POWER TRAIN

ENGINE DRESS CONT.

Item			
31	A-TT4-00215	1	BALL JOINT ROD END R/H THREAD
32	*A-TT10-00816	1	QD BUSHING
33	*A-TT8-00814	1	PULLEY FOR PRINCE PUMP
34	NPN	1	7/16-14 X 1.5 GR 8 HSCS
35	A-TT4-00827	1	PRINCE PUMP BRACKET FRONT
36	NPN	1	7/16-14 LOCK NUT
37	*SP20PB11L145H2R	1	PRINCE PUMP
37	*V10F1T3T3C3F20	1	METARIS PUMP
38	NPN	1	1/2-10 X 1.5 SPACER
39	A-TT4-00826	1	PRINCE PUMP BRACKET
40	*NPN	1	7/16-14 X 6.5 GR8 HCS
41	NPN	1	7/16-14 LOCK NUT
42	NPN	1	3/8-16 X 1.5 FHSCS
43	NPN	4	3/4-10 X 3.5 GR 8 HCS
44	NPN	4	3/4 FLAT WASHER
45	B-TT5D-0006	1	ENGINE MOUNT R/H
46	A-TT5D-00013-1	4	ISOLATOR
47	A-TT5D-00010	4	LORD WASHER
48	NPN	4	3/4 LOCK NUT
49	A-TT4-00651	1	OIL PRESSURE SENDING UNIT
50	TM27M00303	1	OIL PRESSURE SWITCH
51	A-TT4-00652	1	WATER TEMPERATURE SENDER
52	A-TT4-00653-1	1	FAN SWITCH****USED ONLY ON MODELS WITH FRONT COOLING SYSTEM & ELECTRIC FANS
53	B-TT5D-0009	2	ENGINE MOUNT-TRANS
54	NPN	1	SPACER 1/2-10 X .85
55	NPN	1	1/2-20 JAM NUT
56	NPN	1	1/2 LOCK WASHER
57	NPN	1	7/16 FLAT WASHER
58	A-TT8-00814-1	1	PULLEY FOR METARIS PUMP
59	A-TT4-00827-1	1	METARIS PUMP BRACKET FRONT
60	A-TT10-00827-1 DETAIL D	1	BRACKET ADJUSTOR
61	NPN	1	1 X .79 ROUND STOCK
62	NPN	1	1 X 1.56 ROUND STOCK
63	9415	1	PRINCE PUMP HYD BELT

POWER TRAIN

STANDARD 65 AMP ALTERNATOR ASSEMBLY



POWER TRAIN

STANDARD 65 AMP ALTERNATOR ASSEMBLY

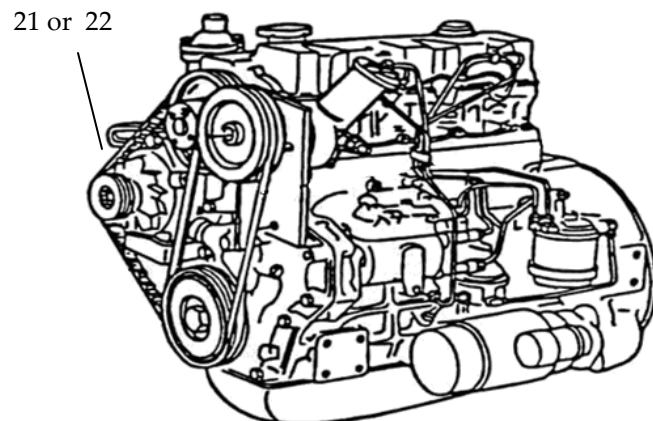
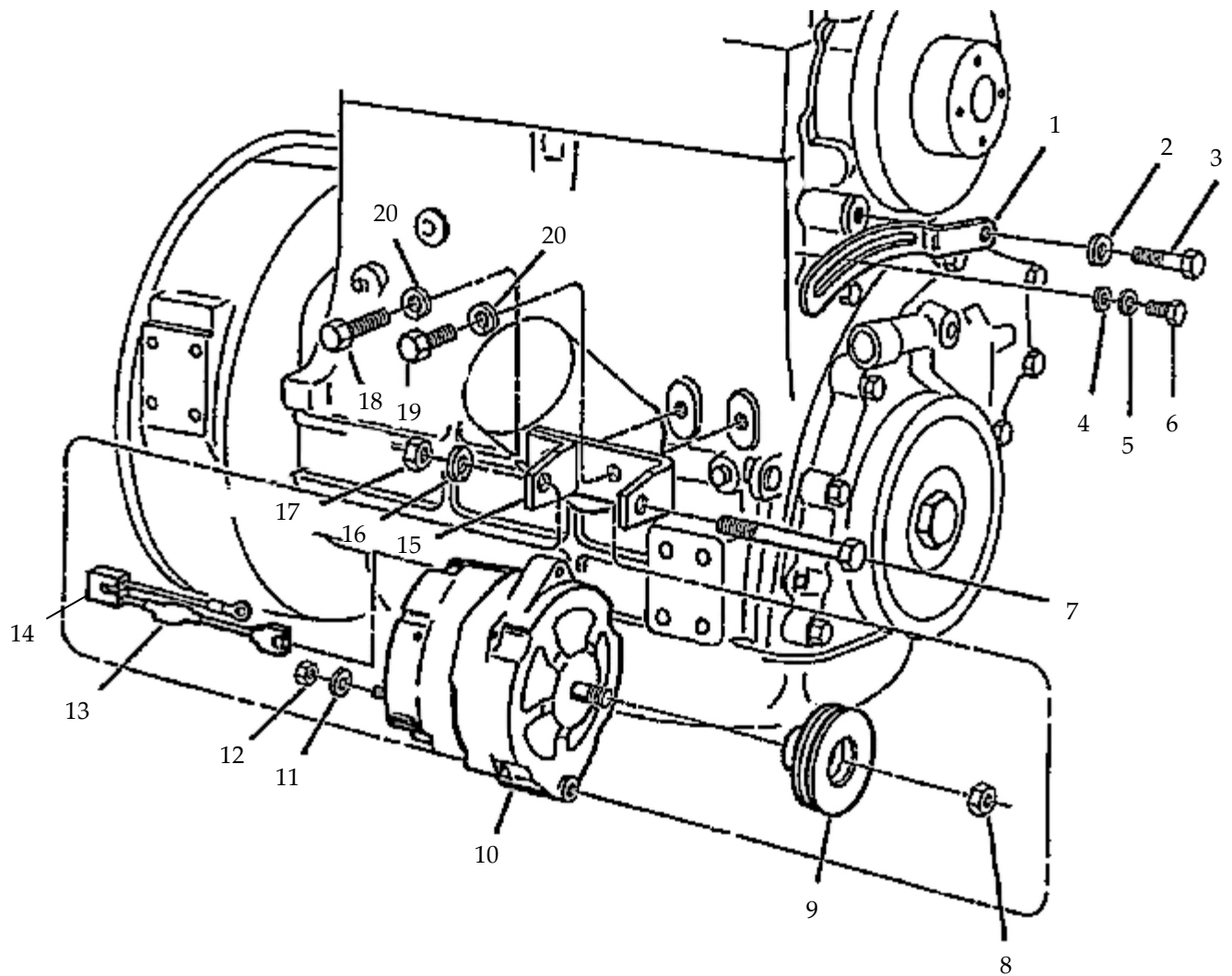
Item	Part Number	Qty	Description
1	TM27M00301	1	ALTERNATOR ADJUSTING STRAP
2	XM37001	1	LOCK WASHER M10
3	XM32108	1	SCREW, M10 X 85
4	X14141	1	FLAT WASHER .406 ID
5	XM37002	1	LOCK WASHER M8
6	XM32039	1	SCREW, M8 X 30
7	XM32007	1	SCREW, M10 X 110
8	NPN	1	NUT, PULLEY,FAN TO ALT INC W/ ITEM 12
9	NPN	1	PULLEY,FAN TO ALT INC W/ITEM 12
10	F600M00379	1	ALTERNATOR PULLEY
11	HD277M00407	1	FAN, ALTERNATOR PULLEY
12	*10120182	1	ALTERNATOR
13	13XXM37013	1	LOCK WASHER M6 IT
14	13XXM35001	1	NUT, M6
15	10120162	1	ALTERNATOR HARNESS
16	TM27M00411	1	ALTERNATOR BRACKET
17	XM37001	1	LOCK WASHER M10
18	15XXM35000	1	NUT, M10
19	XM32045	1	SCREW, M12 X 25
20	XM32046	1	SCREW, M12 X 30
21	XM37008	2	LOCK WASHER M12
22	X27019504	1	ALTERNATOR BELT

NOTE:

*ALTERNATOR COMPONENTS NOT SERVICED SEPERATELY

POWER TRAIN

HIGH OUTPUT ALTERNATOR -TUGS WITH CAB, TRANSIT PRO & EXTRA OPTIONS



POWER TRAIN

HIGH OUTPUT ALTERNATOR -TUGS WITH CAB, TRANSIT PRO & EXTRA OPTIONS

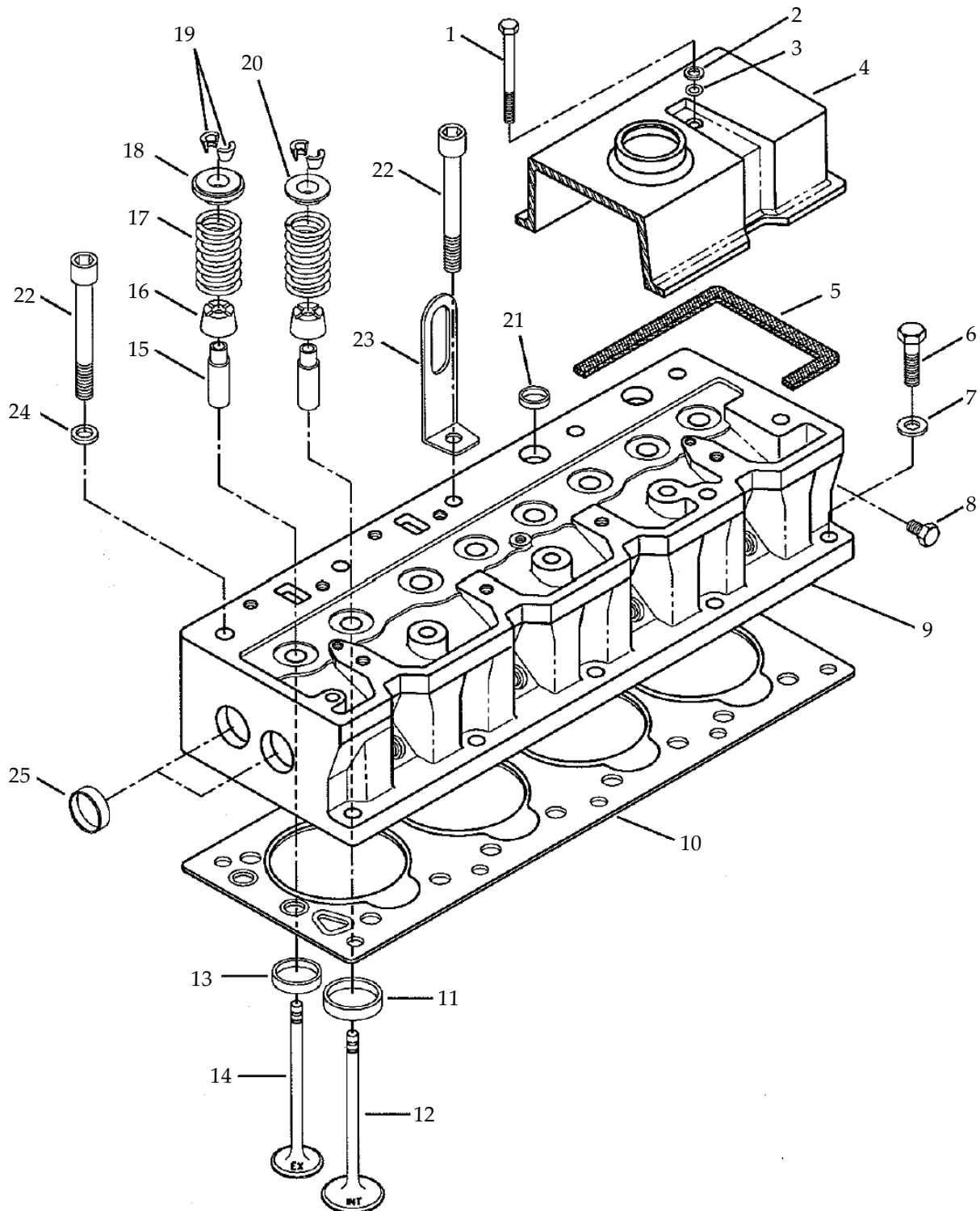
Item	Part Number	Qty	Description
1	TM27M00301	1	STRAP, ALTERNATOR ADJUSTING
2	XM37001	1	WASHER M10 LOCK
3	XM32108	1	SCREW, M10 X
4	X14141	1	FLAT WASHER .406 ID
5	XM37002	1	LOCK WASHER M8
6	XM32039	1	SCREW, M8 X 30
7	XM32007	1	SCREW, M10 X 110
8	85-2600	1	M16-1.5 X 24 MM FLANGENUT
9	F600M00379	1	ALTERNATOR PULLEY
10	*AE-OPT-0020	1	HI OUTPUT ALTERNATOR
11	NPN	1	6MM LOCK WASHER
12	NPN	1	6MM-1 NUT
13	AE-OPT-0020-A	1	SINGLE WIRE STATOR PLUG
14	AE-OPT-0020-B	1	3 WIRE REGULAR PLUG
15	TM27M00411	1	ALTERNATOR BRACKET
16	XM37001	1	LOCK WASHER M10
17	15XXM35000	1	NUT, M10
18	XM32045	1	SCREW, M12 X 25
19	XM32046	2	SCREW, M12 X 30
20	XM37008	1	LOCK WASHER M12
21	X27019504	1	ALTERNATOR BELT FOR TUGS WITH FRONT COOLING SYSTEM
22	9680	1	ALTERNATOR BELT FOR TUGS WITH REAR COOLING SYSTEM

NOTE:

*ALTERNATOR COMPONENTS NOT SERVICED SEPERATELY

POWER TRAIN

HEAD COVER ASSEMBLY



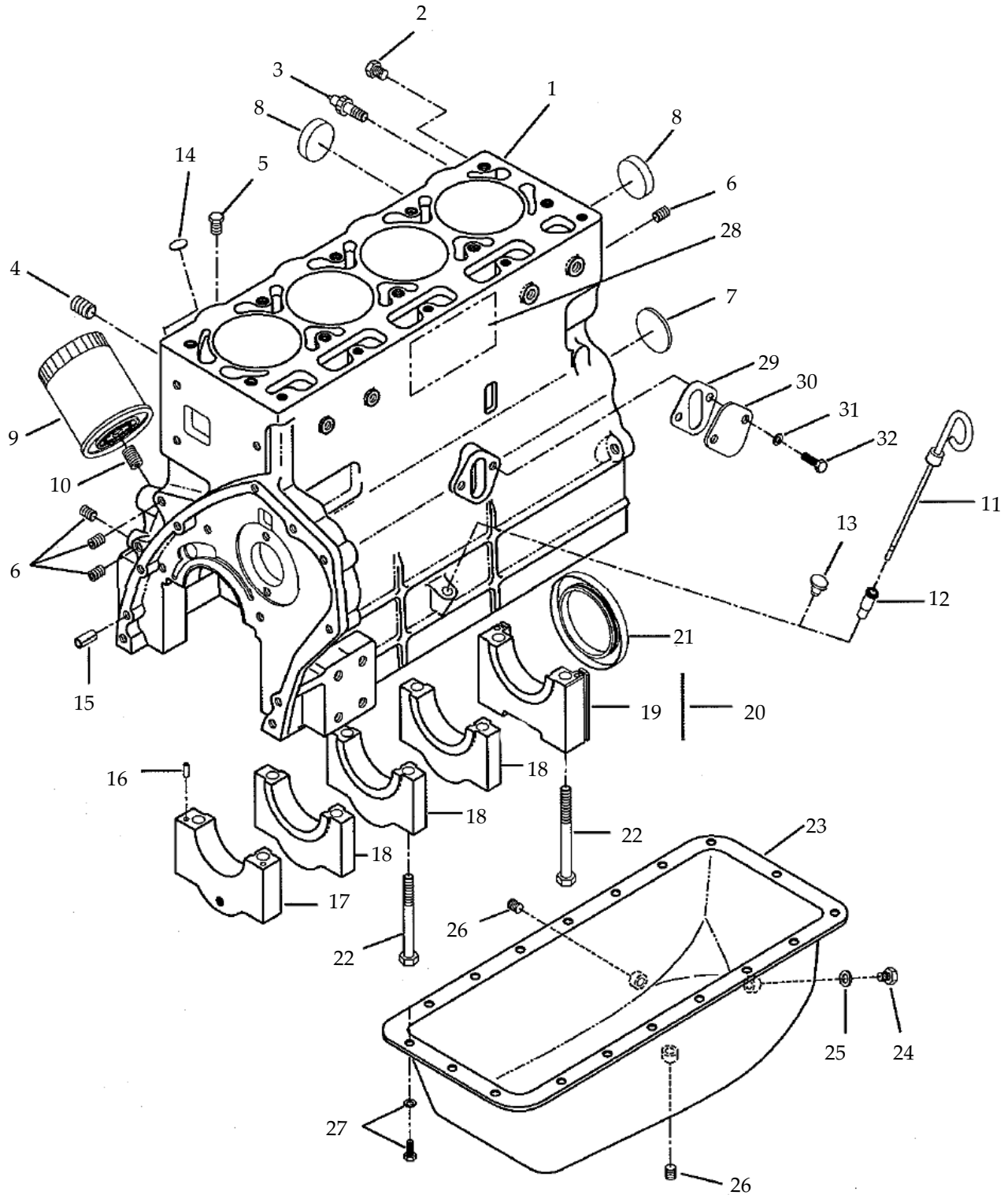
POWER TRAIN

HEAD COVER ASSEMBLY

Item	Part Number	Qty	Description
1	XM32072	3	SCREW M8 X 85
2	X14596	3	FLAT WASHER .344
3	XM39000	3	O-RING, CYLINDER HEAD COVER
4	TM27A00623	1	VALVE COVER
5	TM27A00502	1	GASKET, CYLINDER HEAD COVER
6	XM32021	5	SCREW M10 X 40
7	X14141	5	FLAT WASHER .406
8	26XX26129	1	PLUG, LEFT REAR OIL GALLERY
9	TM27A05120	1	CYL HEAD INC ITEM 8,9,11-21 & 25
10	TMD27A00614	1	CYLINDER HEAD GASKET
11	TMD27A00402	4	INSERT, INTAKE VALVE SEAT
12	TM27I00504	4	INTAKE VALVE
13	TM27A00210	4	INSERT, EXHAUST VALVE SEAT
14	TM27I00509	4	EXHAUST VALVE, STELLITE
15	TM27I00318	8	GUIDE INTAKE & EXHAUST VALVE
16	TM27I00319	8	SEAL, VALVE STEM OIL INTAKE & EXHAUST
17	TM27I00309	8	SPRING, INTAKE & EXHAUST
18	TM27I00308	4	ROTO-COIL, EXHAUST
19	AH19	16	LOCK, VALVE SPRING RETAINER
20	TM27I00300	4	RETAINER, VALVE SPRING INTAKE
21	X07689	2	PLUG CUP, CYLINDER HEAD TOP
22	XM32134	10	SCREW, SHCS M12 X 1.75 X 130
23	TM27Z00402	1	BRACKET, ENGINE LIFTING
24	XM37003	9	FLAT WASHER M12
25	X02583	4	PLUG, CAP CYL HEAD FRONT & REAR
26	TM27A04124	1	HEAD COVER ASSY INCLUDES ITEMS 1-13

POWER TRAIN

CRANKCASE, BEARING CAPS AND OIL FILTER



POWER TRAIN

CRANKCASE, BEARING CAPS AND OIL FILTER

Item	Part Number	Qty	Description
1	TME27-LB01	1	LONG BLOCK, SERVICE ASSEMBLY
2	10200021	1	PLUG, HX HD 1/4" NPT, BRASS WATER DRAIN
3	TM27M00303	1	SWITCH, LOW OIL PRESSURE
4	26XX00110	1	PLUG, COUNTERSUNK, 3/8" NPT, OIL BRASS
5	26XX26167	1	PLUG, HEX HD 1/4" NPT VERTICLE GALLERY
6	26XX00137A	4	PLUG COUNTERSUNK 1/4" NPT OIL GALLERY
7	X02208	1	PLUG, EXPANSIOIN, REAR CAM BORE
8	X13304	5	PLUG, CUP, CRANKCASE CORE HOLE,
9	TM27L00213	1	OIL FILTER
10	TM27L00202	1	ADAPTER, OIL FILTER
11	TM27L04030	1	OIL GAUGE ROD & CAP
12	F400L02911	1	SUPPORT, OIL GAUGE ROD INCLUDES O RING
13	X07663	1	PLUG,CRKCASE OIL GAUGE ROD HOLE LEFT
14	X02277	1	PLUG 1" DIA OIL GAUGE ROD HOLE
15	X17025	2	DOWEL PIN, GEAR COVER TO CRANKCASE
16	TM27B00322	4	DOWN, BEARING CAP 3/16" X 3/4
17	TMD27B00402	1	CAP, CRANKSHAFT FRONT MAIN BEARING
18	TMD27B00403	3	CAP, CRNKSHTF INTERMED MAIN BEARING
19	TMD27B00406	1	CAP,CRANDSHAFT REAR MAIN BEARING
20	X07840	2	INSERT, CURING, REAR MAIN BEARING CAP
21	TMD27L00501	1	SEAL, OIL REAR CRANKSHAFT
22	**XM32137	10	SCREW ,HHCS,M14 X 95MM LONG
23	TM27L00525	1	OIL PAN ASSEMBLY(INC ITEMS 26-18)
24	F400B00282	1	PLUG, OIL DRAIN 1/2-20
25	*X14583	1	FLAT WASHER .515 NYLON
26	26XX00110	2	PLUG, COUNTERSUNK, 3/8" NPT
27	XM32077	18	SCREW & WASHER M8 X 16 LONG
28	NPN	1	NAMEPLATE
29	X07872	1	GASKET, FUEL PUMP
30	F600B00234	1	COVER, FUEL PUMP
31	X14192	2	LOCK WASHER .344
32	XM32028	2	SCREW M8 X 25 LONG

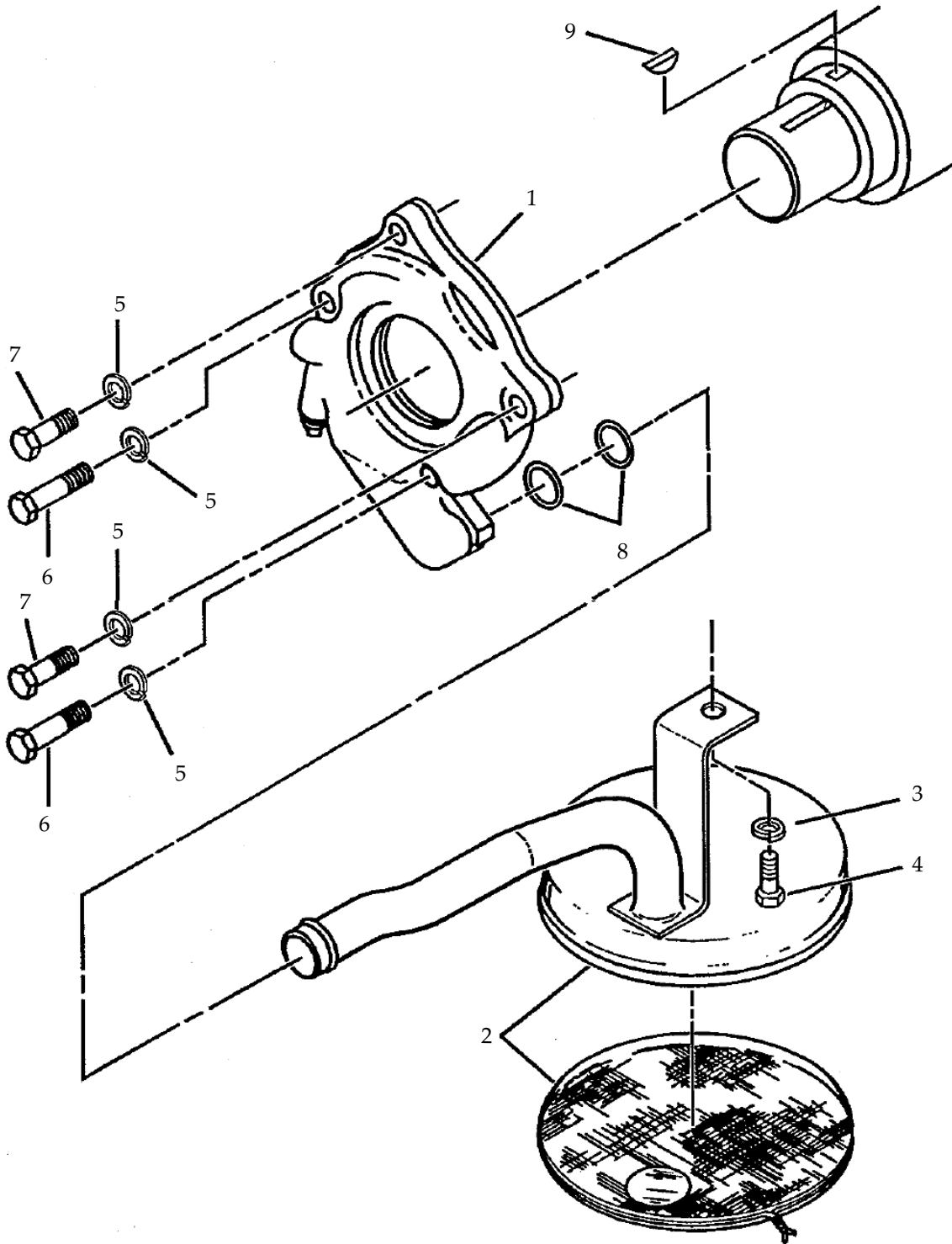
NOTE:

*REFER TO "ENGINE SPECIFICATION NUMBER" WHEN ORDERING PARTS TO DETERMINE THE CORRECT PART NUMBER.

**INCLUDED IN THE OIL PAN GASKET(RTV) & REAR BEARING SEAL KIT TM27T00138

POWER TRAIN

OIL PUMP ASSEMBLY



POWER TRAIN

OIL PUMP ASSEMBLY

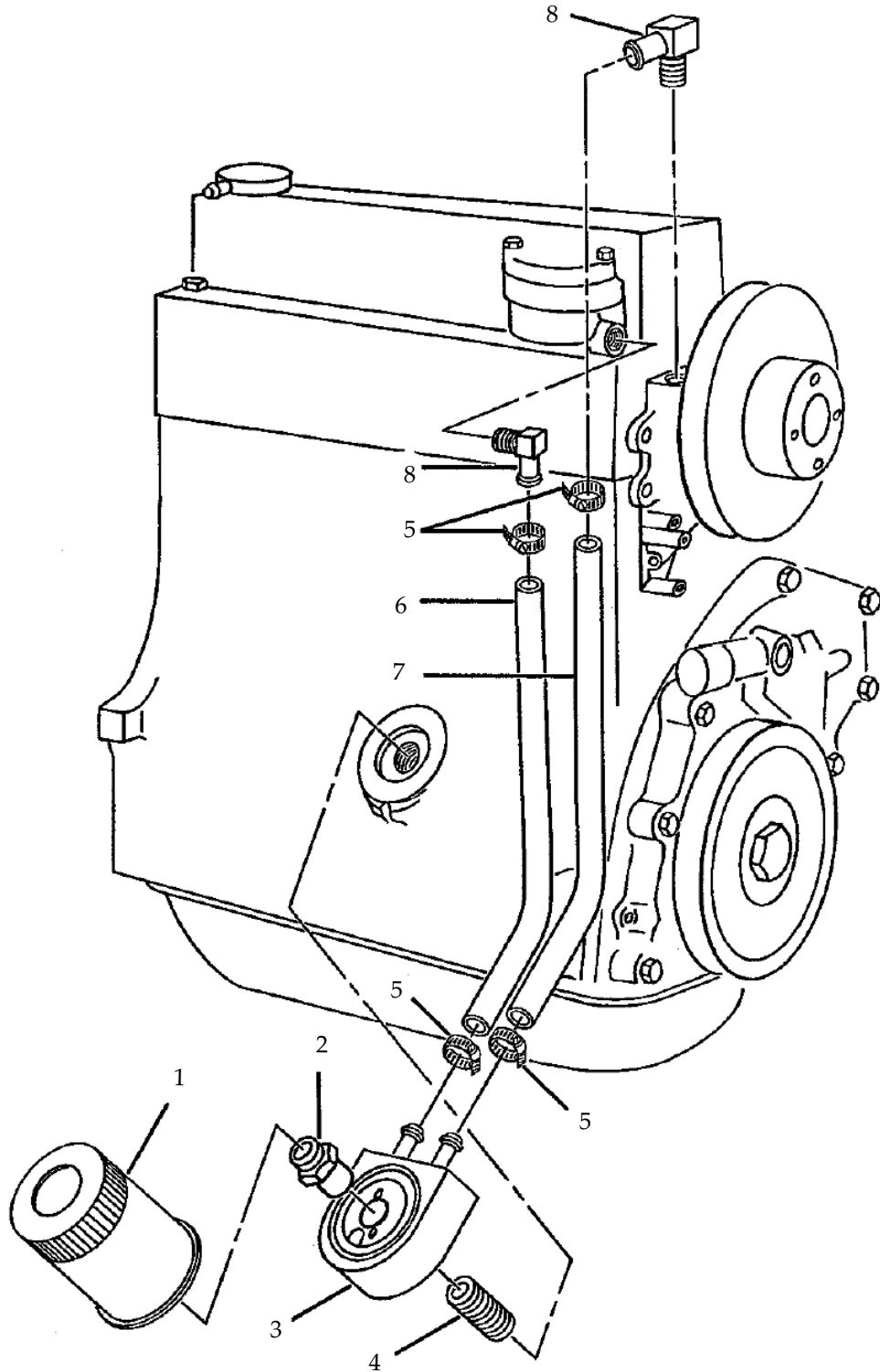
Item	Part Number	Qty	Description
1	*TM27L06090	1	OIL PUMP ASSY
2	TM27L05180	1	TUBE ASSY, OIL PUMP INLET
3	XM37001	1	LOCK WASHER M10
4	XM32052	1	SCREW M10 X 20
5	XM37002	4	LOCK WASHER M8
6	XM32041	2	SCREW M8 X 45
7	XM32039	2	SCREW M8 X 30
8	X06414	2	SEAL, O-RING, OIL PUMP INLET TUBE
9	X00692	1	CRANKSHAFT KEY

NOTE:

*OIL PUMP COMPONENTS NOT SERVICED SEPERATELY

POWER TRAIN

OIL COOLER GASOLINE



POWER TRAIN

OIL COOLER GASOLINE

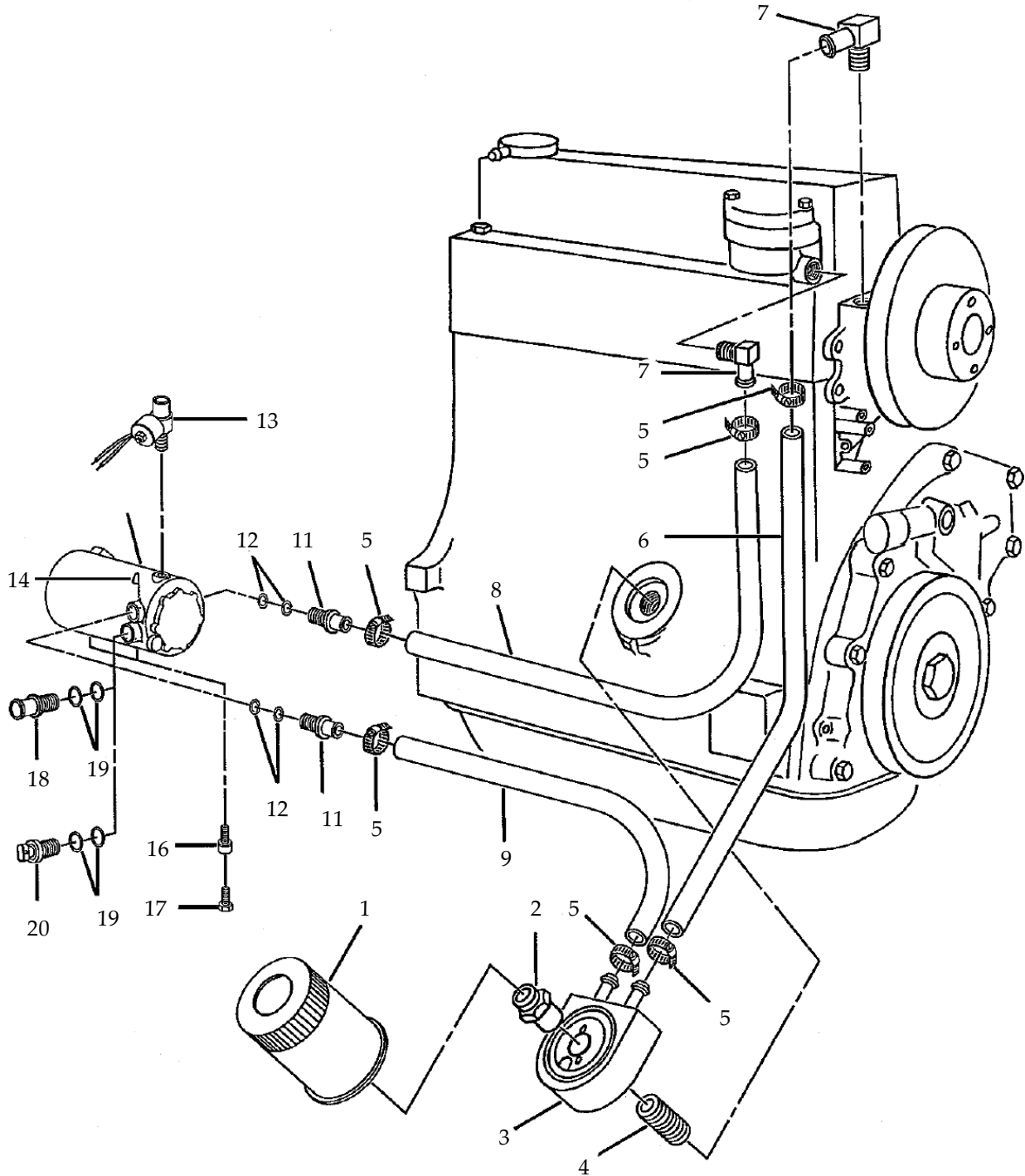
Item	Part Number	Qty	Description
1	TM27L00213	1	OIL FILTER
2	TM27L00204	1	CONNECTOR, OIL COOLER
3	TM27L00522	1	OIL COOLER
4	TM27L00202	1	ADAPTER, OIL FILTER
5	X02783	4	HOSE CLAMP #12
6	NAPA H153	1	5/8" HEATER HOSE 32" LONG
7	NAPA H153	1	5/8" HEATER HOSE 40" LONG
8	X08247230	2	SEAL, O-RING, OIL PUMP INLET TUBE

NOTE:

*5/8" HEATER HOSE MAY BE ZIP TIED IN A POSITION OTHER THAN SHOW TO PROTECT FROM OTHER MOVING PARTS. WHEN REPLACING HOSES BE SURE TO SECURE THEM AWAY FROM OTHER MOVING PARTS.

POWER TRAIN

OIL COOLER LPG



POWER TRAIN

OIL COOLER LPG

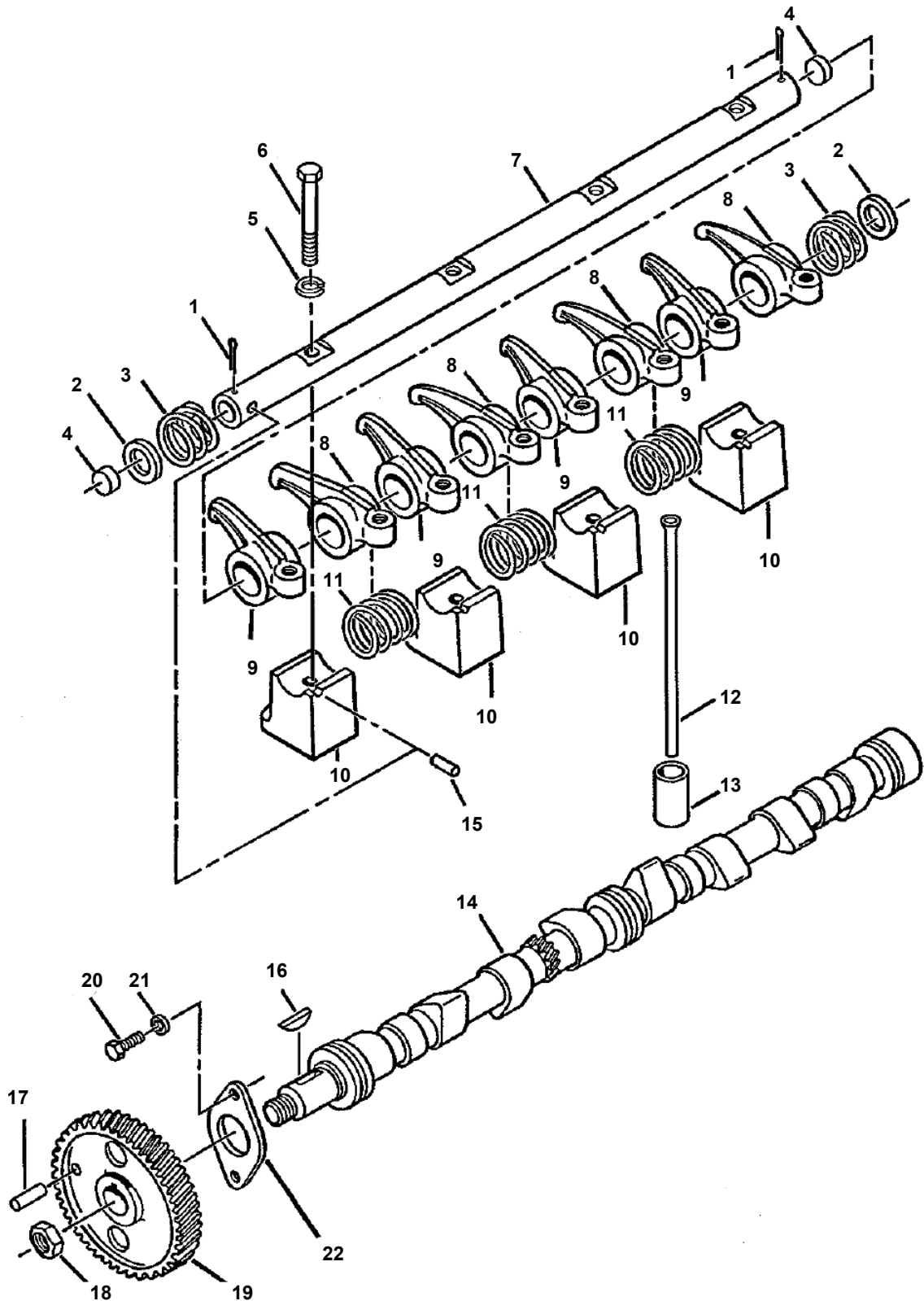
Item	Part Number	Qty	Description
1	TM27L00213	1	OIL FILTER
2	TM27L00204	1	CONNECTOR, OIL COOLER
3	TM27L00522	1	OIL COOLER
4	TM27L00202	1	ADAPTER, OIL FILTER
5	X02783	2	HOSE CLAMP #12
6	NAPA H153	1	5/8" HEATER HOSE X 32" LONG
7	26XX26176	2	ELBOW 5/8HX 3/8P
8	NAPA H153	1	5/8" HEATER HOSE X 32" LONG
9	NAPA H153	1	5/8" HEATER HOSE X 34" LONG
10	X26232	2	FITTING 70 DEG SLIP FIT(NOT SHOWN)
11	X26237	2	FITTING COOLANT STRAIGHT SLIP FIT
12	X26235	2	O-RING, COOLANT FITTING(2 PER)
13	TM27F00557	1	LPG REGULATOR-EPR
14	X26233	4	RETAINING CLIP SLIP FIT
15	TM27F00551	1	LOCKOFF, FUEL, LPG, 12VDC
16	20200012	3	MOUNT, ISOLATOR, M8
17	NPN	3	SCREW M8 X 20
18	X26231	1	3/4 STRAIGHT FUEL OUTLET FITTING
19	X26236	2	O-RING, FUEL OUTLET FITTING(2PER)
20	TM27F00243	1	LPG TEMP SENSOR, FUEL OUTLET SLIP FIT BRASS
21	TM27F00244	1	KIT-EPR FITTINGS-2007 SERIES INCLUDES ITEMS 10,14,18 & 20

NOTE:

*5/8" HEATER HOSE MAY BE ZIP TIED IN A POSITION OTHER THAN SHOW TO PROTECT FROM OTHER MOVING PARTS. WHEN REPLACING HOSES BE SURE TO SECURE THEM AWAY FROM OTHER MOVING PARTS.

POWER TRAIN

CAMSHAFT AND ROCKER ARMS



POWER TRAIN

CAMSHAFT AND ROCKER ARMS

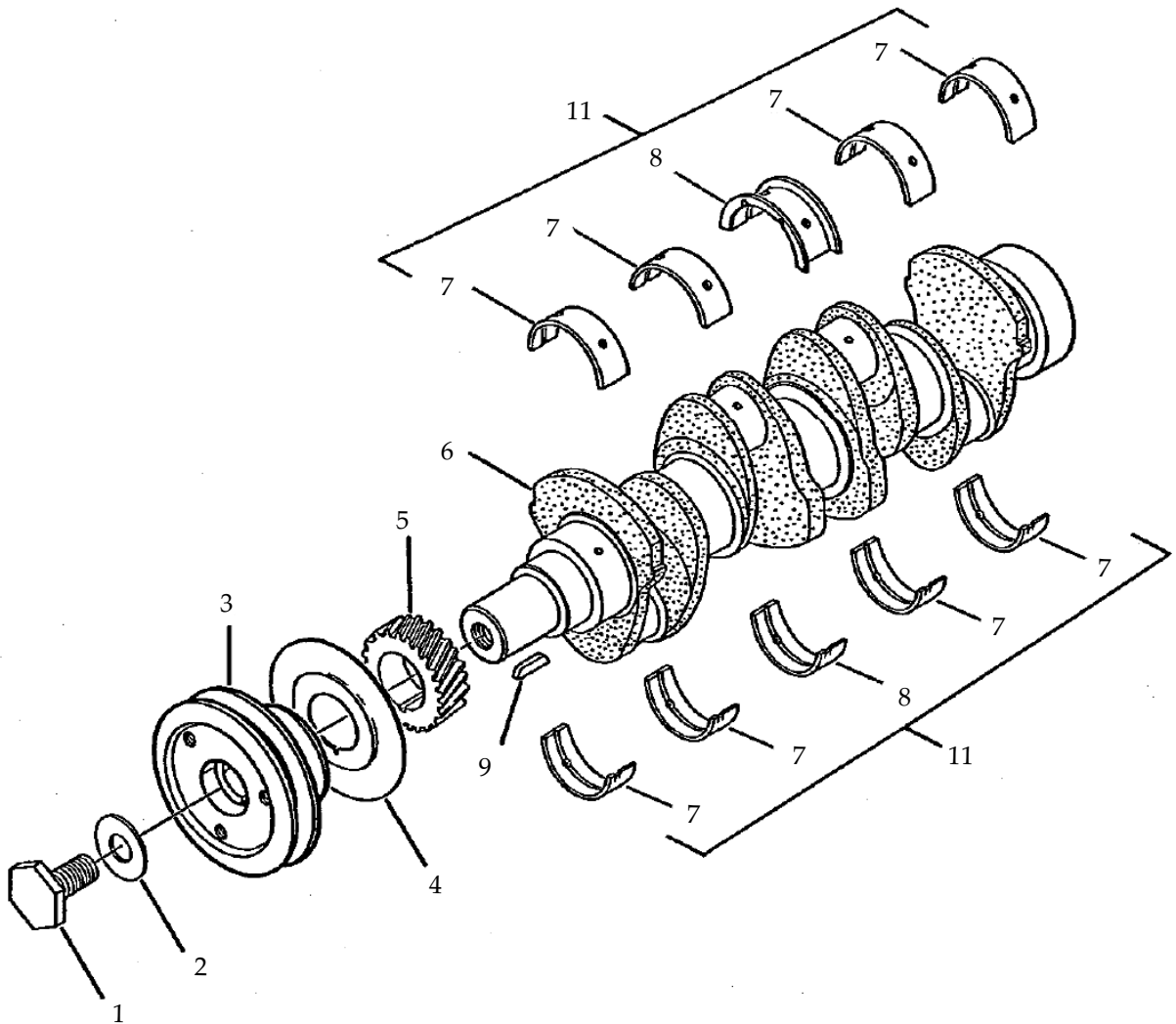
Item	Part Number	Qty	Description
1	X00623	2	COTTER PIN
2	X14589	2	WASHER, ROCKER SHAFT
3	TM27I00313	2	SPRING, ROCKER ARM SHAFT
4	X07815	2	PLUG, ROCKER ARM SHAFT
5	XM37005	4	FLAT WASHER ROCKER ARM SHAFT TO CYLINDER HEAD
6	XM32031	4	SCREW, ROCK ARM SHAFT TO CYLINDER HEAD
7	TM27I05162	1	SHAFT, ROCKER ARM (INCL ITEM 4)
8	TM27I05150	4	ARM ASSEMBLY, ROCKER, INTAKE
9	TM27I05140	4	ARM ASSEMBLY, ROCKER, EXHAUST
10	TM27I00314	4	SUPPORT, ROCKER ARM SHAFT
11	TM27I00303	3	SPRING, ROCKER ARM SHAFT
12	TM27I00403	8	PUSH ROD
13	TM27I00305	8	TAPPET, VALVE
14	TMD27I00402	1	CAMSHAFT
15	X17066	1	PIN, FRONT SUPPORT TO SHAFT
16	X00599D	1	KEY, CAM GEAR TO CAMSHAFT
17	TM27H00201	1	PIN, CAM POSITION
18	X18255	1	NUT, CAM SHAFT GEAR(TORQ TO 85 FT LB)
19	TM27H00411	1	GEAR, CAN SHAFT, 21 DEGREES
20	XM32019	2	SCREW, THRUST PLATE TO CRANKCASE
21	XM37012	2	LOCK WASHER, THRUST PLATE TO CRANKCASE
22	F400I00246	1	PLATE, CAMSHAFT THRUST
23	TM27I05164	1	ROCKER ARM SHAFT ASSY(INC ITEM 1-11)

NOTE:

*ROCKER ARM ADJUSTING SCREW NOT SERVICED SEPERATELY

POWER TRAIN

CRANKSHAFT & PULLEY



POWER TRAIN

CRANKSHAFT & PULLEY

Item	Part Number	Qty	Description
1	XM32064	1	SCREW, M16 X 35 LONG-36MM HEAD
2	XM37014	1	FLAT WASHER, CRANKSHAFT PULLEY TO CRANKSHAFT
3	TM27C00511	1	PULLEY, CRANKSHAFT
4	TM27C00408	1	OIL SLINGER
5	TM27H00407	1	GEAR CRANKSHAFT 21 DEGREES
6	TMD27C03050	1	CRANKSHAFT (INC ITEMS 9 & 10)
7	*10071001	4	1/2 SHELL BEARING KIT (CONTAINS 2)
8	*10071002	1	BEARING KIT(1 SHELL BEARING,1 SHELL BEARING WITH FLANGE)
9	X00666	1	KEY, CRANKSHAFT GEAR & PULLEY TO CRANKSHAFT
10	X00692	1	KEY, CRANKSHAFT(NOT SHOWN)
11	TM27T00102	1	BEARING KIT, CRANKSHAFT INCLUDES ITEM S 7 & 8

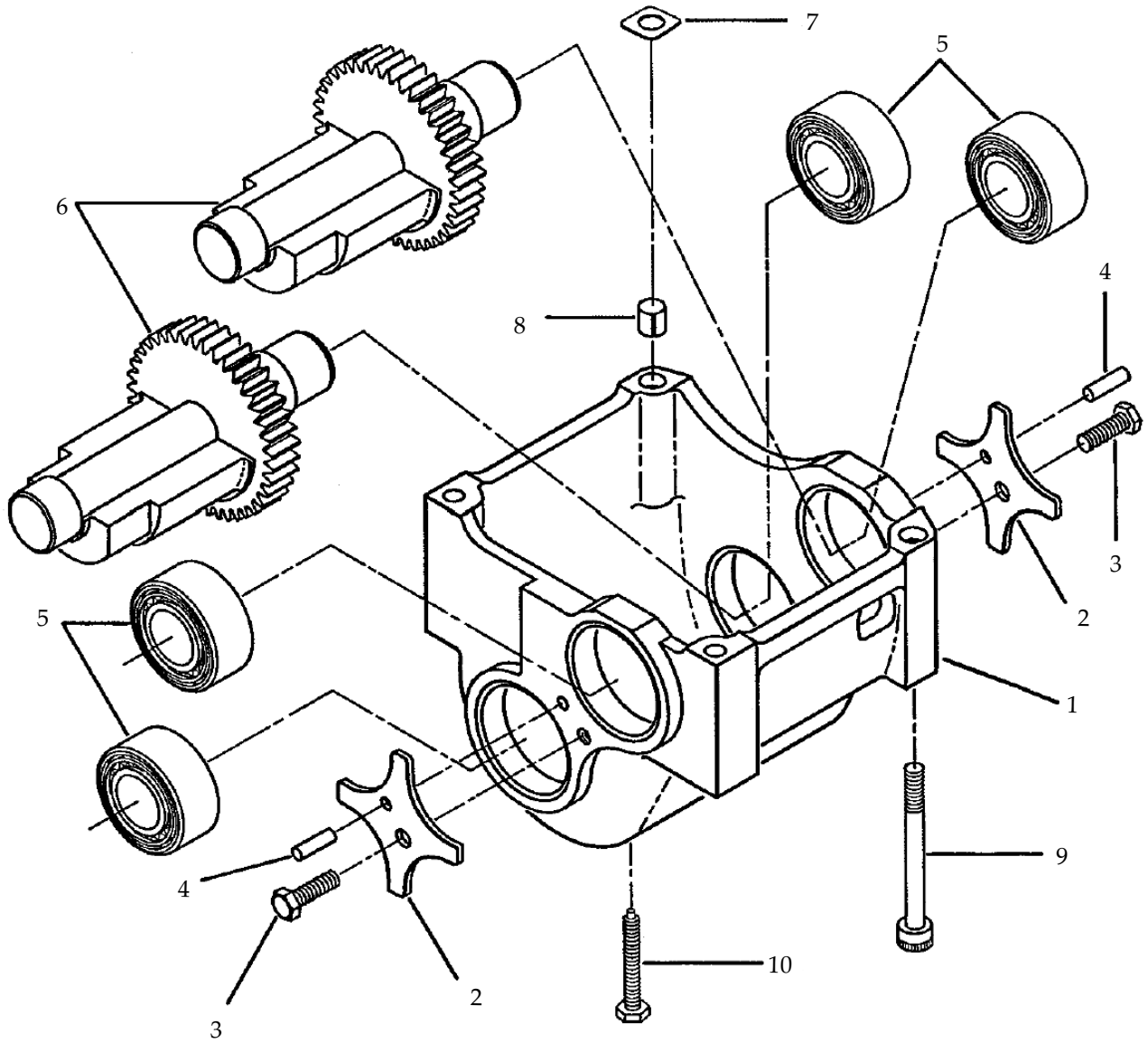
NOTE:

*SHELL BEARINGS ARE SERVICED IN:

STANDARD-10071001	STANDARD-10071002
0.25mm-1007100125	0.25MM-1007100225
0.50MM-1007100150	0.50MM-1007100250

POWER TRAIN

BALANCER ASSEMBLY



POWER TRAIN

BALANCER ASSEMBLY

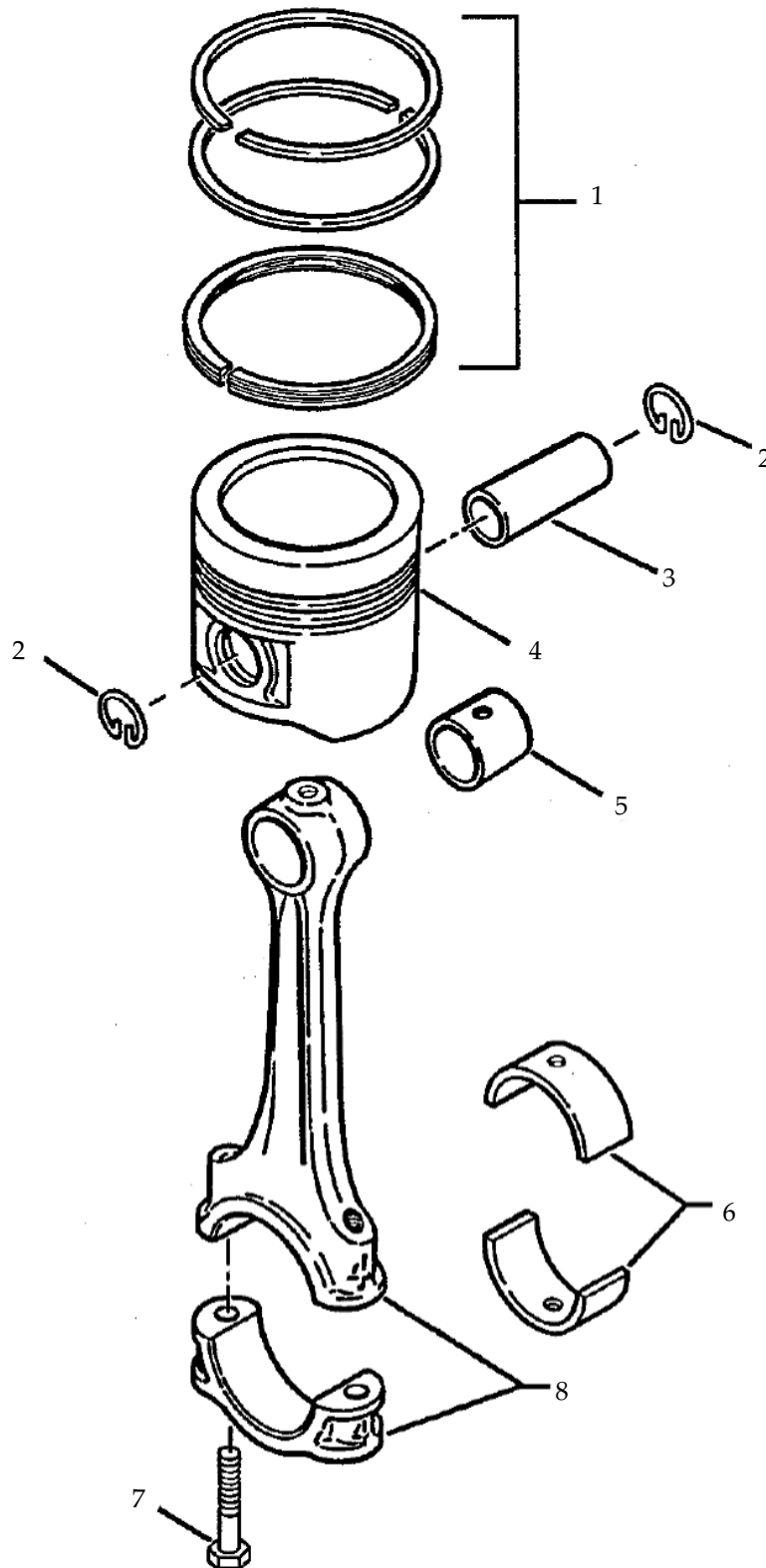
Item	Part Number	Qty	Description
1	TM27B00629	1	HOUSING, BALANCER
2	TM27B00320	2	LOCKPLATE, BEARING RETAINER
3	XM32019	2	SCREW M8 X 16
4	XM17200	2	ROLL PIN 5.0 X 10
5	TM27B00314	4	BEARING BALANCER SHAFT
6	TM27B00518	2	BALANCER SHAFT
7	*TM27B00319-005	5	SHIM, .005" THICK
7	*TM27B00319-009	10	SHIM, .009" THICK
7	*TM27B00319-012	5	SHIM, .012" THICK
8	TM27B00315	5	DOWEL BUSHING
9	XM32131	4	SCREW, SHCS M8-1.25 X 90
10	TM27T00200	1	KEEPER SCREW
11	TM27B06290	1	BALANCER ASSEMBLY INCLUDES ITEMS 1-6

NOTE:

*PART OF 10151001 BALANCER SHIM KIT

POWER TRAIN

PISTON & CONNECTING ROD



POWER TRAIN

PISTON & CONNECTING ROD

Item	Part Number	Qty	Description
1	*TM27T00120	4	RING SET(SINGLE PISTON)
2	K80A00203	8	RING, RETAINING, PISTON PIN
3	TMD27A00300	4	PISTON PIN
4	**TM27A05002E	4	PISTON(INCLUDES ITEMS 2 & 3)
5	TM27G00304	4	BUSHING, PISTON PIN
6	***NPN	8	BEARING, CONNECTING ROD UPPER & LOWER
7	Z145D00300	8	BOLT, CONNECTING ROD
8	TMD27D03002	4	ROD ASSEMBLY, CONNECTING (INCLUDES ITEMS 5 & 7)
9	****TM20T00102	4	BEARING SET, CONNECTING ROD (SINGLE ROD, INCLUDES ITEM 6)
10	TM27A05003	4	PISTON & ROD ASSY(INCLUDES ITEMS 1-9)

NOTE:

*PISTON RING SETS ARE SERVICED IN:

STANDARD	TM27T00120 (SINGLE PISTON SET)
0.50mm	TM27T0012050 (SINGLE PISTON SET)
0.75mm	TM27T0012075 (SINGLE PISTON SET)
1.00mm	TM27T00120100 (SINGLE PISTON SET)

**PISTONS ARE SERVICED IN:

STANDARD	TM27A05002E
0.50mm	TM27A05002E50
0.75mm	TM27A05002E75
1.00mm	TM27A05002E100

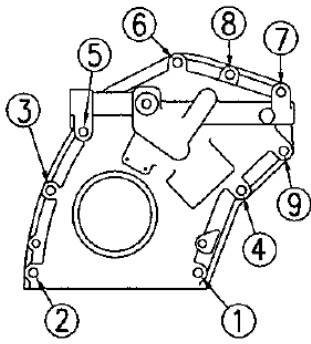
***INCLUDED IN ITEM 9

****CONNECTIN ROD BEARINGS ARE SERVICED IN:

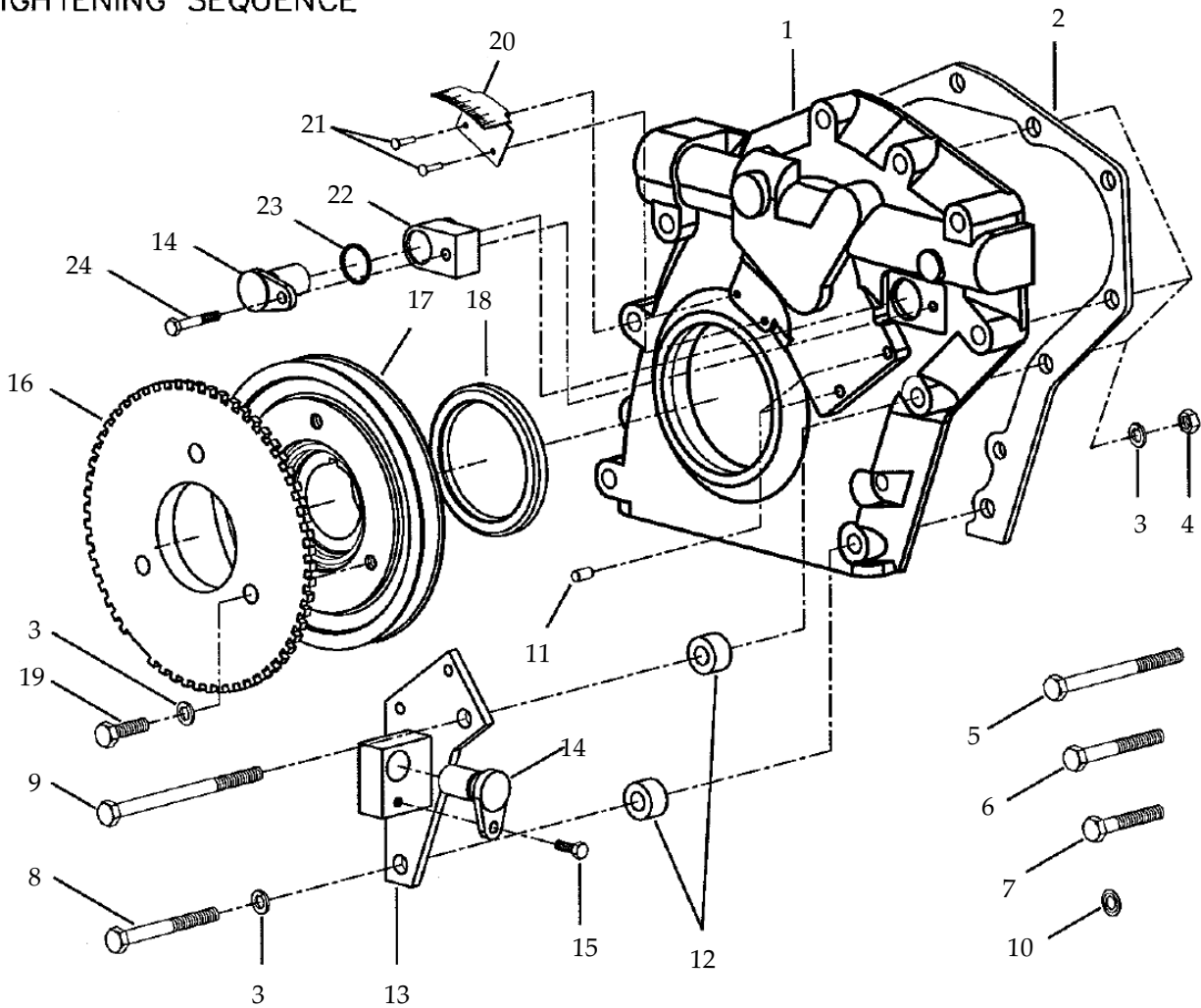
STANDARD	TM20T00102 (SINGLE ROD SET)
0.25mm	TM20T00102025 (SINGLE ROD SET)
0.50mm	TM20T00102050 (SINGLE ROD SET)
0.75mm	TM27T00102075 (SINGLE ROD SET)
1.00mm	TM27T00102100 (SINGLE ROD SET)

POWER TRAIN

GEAR COVER & TIMING SENSORS



BOLT LOCATION &
TIGHTENING SEQUENCE



POWER TRAIN

GEAR COVER & TIMING SENSORS

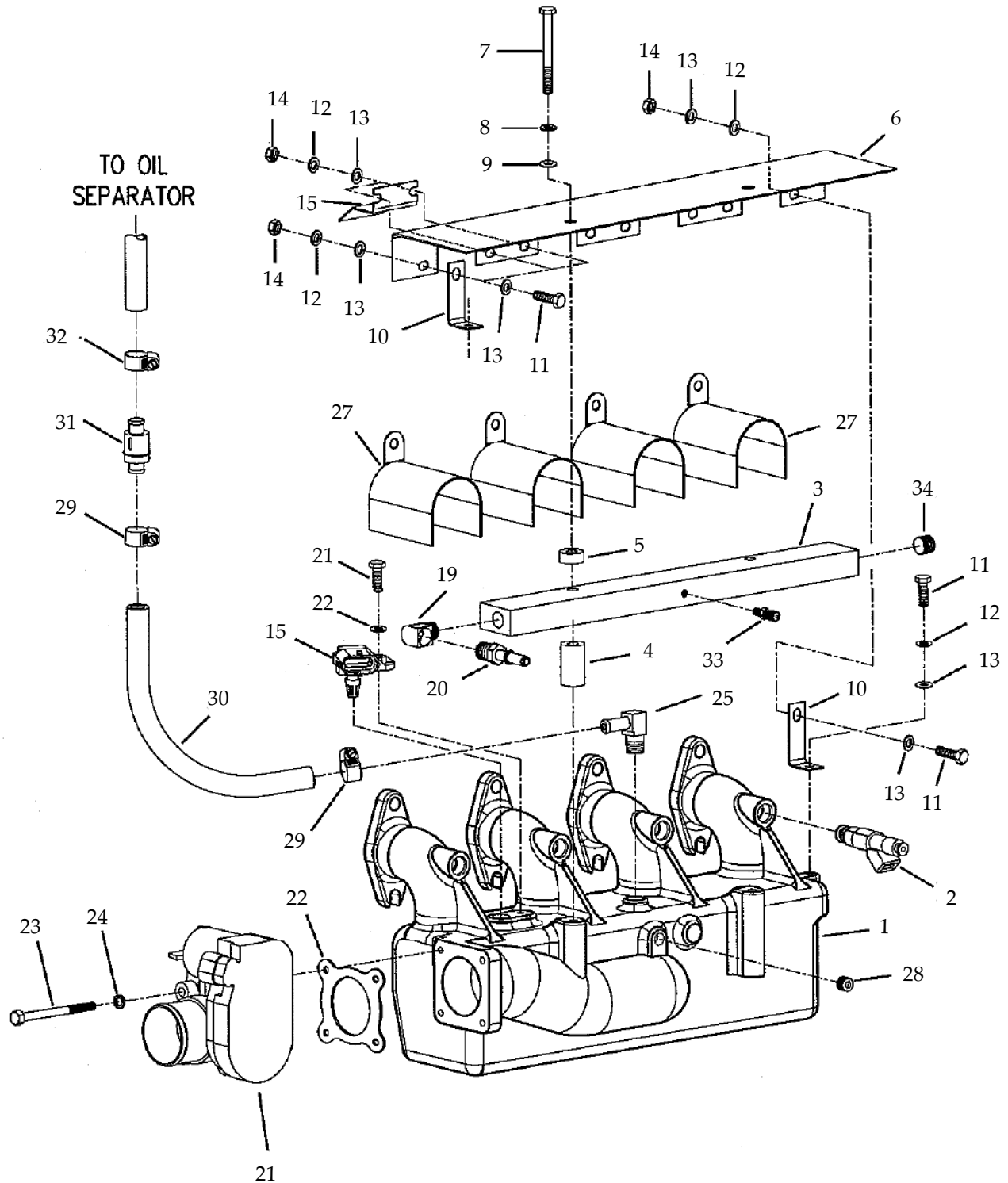
Item	Part Number	Qty	Description
1	TM27B00634	1	GEAR COVER
2	*TM27B00529	1	GASKET, GEAR COVER
3	XM37001	10	LOCK WASHER M10
4	15XXM35000	3	NUT M10 X 1.5
5	XM32068	2	SCREW M10 X 90
6	XM32115	2	SCREW M10 X 60
7	XM32026	3	SCREW M10 X 45
8	XM32067	1	SCREW M10 X 70
9	XM32007	1	SCREW M10 X 110
10	XM14134	2	WASHER, COPPER M10
11	X07874	2	DOWEL PIN, .25" DIA X .5" LONG
12	TM27B00426	2	SPACER, BRACKET, CRANK TRIGGER
13	TM27B00425	1	BRACKET, CRANK TRIGGER
14	TM27M00326	2	SENSOR, CAM/CRANK
15	XD4	1	SCREW, HHCS 1/4-20 X 1/2
16	TM27H00412	1	CRANK TRIGGER WHEEL
17	TM27C00401	1	PULLEY, CRANKSHAFT
18	X07845	1	SEAL, CRANKSHAFT
19	XM32073	3	SCREW M10 X 25
20	TM27B00419	1	TIMING POINTER PLATE
21	X22149	2	SCREW, DRIVE #6 X 5/16 TIMING POINTER TO GC
22	TM27B00424	1	ADAPTER, CAM SENSOR
23	X07875	1	O-RING, 5/8" ID X 1/16"-SENSOR, CAM
24	XD8	1	SCREW, HHCS 1/4-20 X 1 1/4" LONG

NOTE:

*INCLUDED IN FRONT END GASKET SET TMD27U02004

POWER TRAIN

INTAKE MANIFOLD, EFI AND HEAT SHIELD REAR INLET-GASOLINE



POWER TRAIN

INTAKE MANIFOLD, EFI AND HEAT SHIELD REAR INLET-GASOLINE

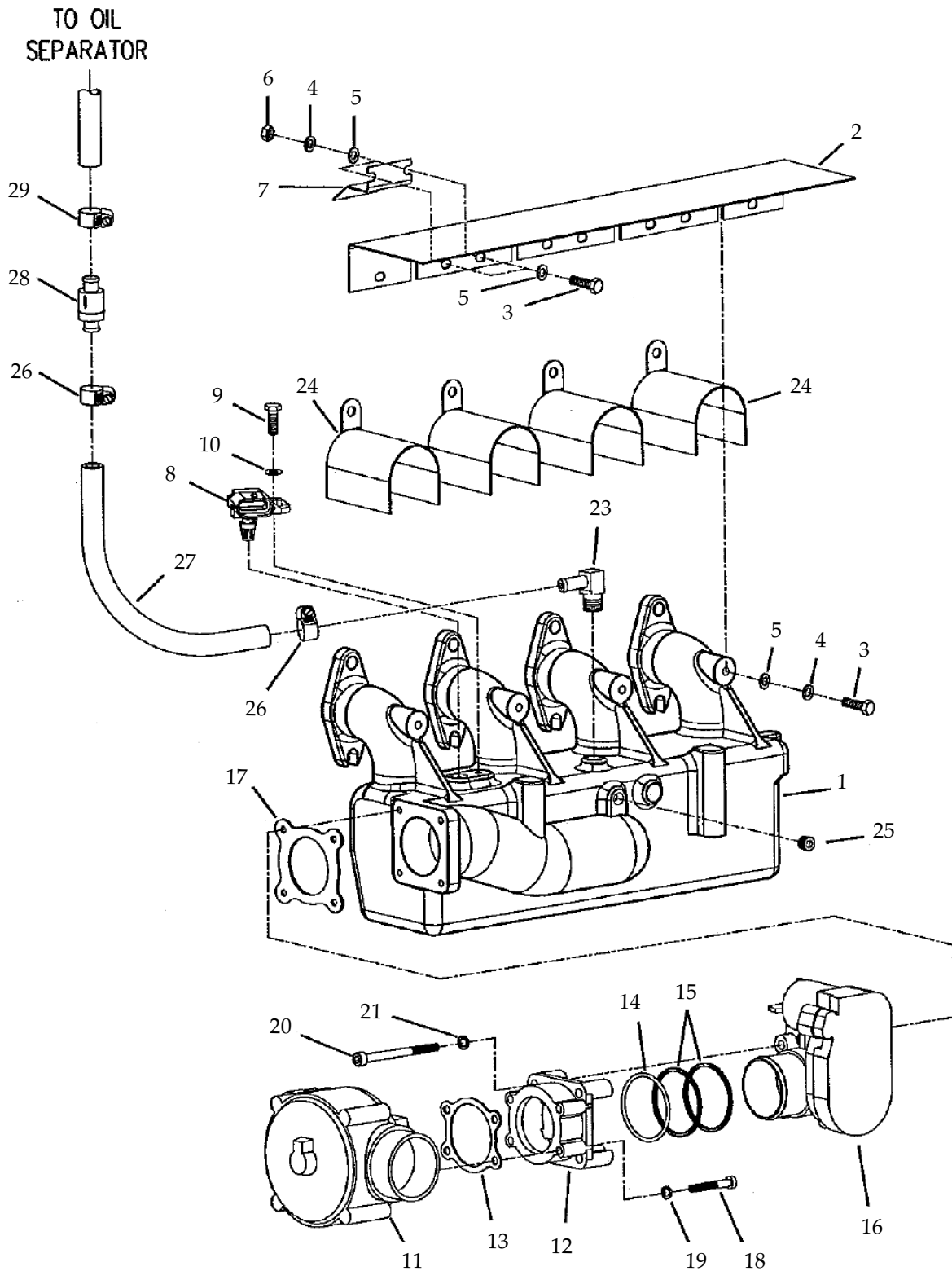
Item	Part Number	Qty	Description
1	*TM27F00552	1	INTAKE MANIFOLD, REAR INLET PLENUM
2	TM27F00331	1	INJECTOR
3	TM27F00468	4	FUEL RAIL
4	TM27F00241	1	SPACER, FUEL RAIL BOTTOM
5	TM27F00242	2	SPACER, FUEL RAIL TOP
6	TM27F00546	2	HEAT SHIELD, FUEL RAIL
7	XM32075	1	SCREW M8 X 80
8	XM37002	2	LOCK WASHER M8
9	X14219	2	FLAT WASHER M8
10	TM27F00340	2	HEAT SHIELD, SUPPORT(FRONT & REAR)
11	XM32008	2	SCREW M6 X 16
12	XM37000	8	LOCK WASHER M6
13	XM36000	8	FLAT WASHER M6
14	XM35001	10	HEX NUT M6
15	TM27F00333	4	HEAT SHIELD, TMAP
16	TM27F00235	1	SENSOR, TMAP
17	XM32014	1	SCREW M6 X 20
18	XM36000	1	FLAT WASHER M6
19	RF1099	1	ELBOW, 90 DEG, 1/4 MP X 1/4 FP
20	X26227	1	FITTING, 1/4P X SAE J2044
21	TM27F00545	1	THROTTLE BODY, BOSCH 40MM
22	TM27F00332	1	GASKET, THROTTLE BODY
23	XM32157	1	SCREW M6 X 50
24	XM37000	4	LOCK WASHER M6
25	RF1560	4	ELBOW, 1/4P X 3/8 H
26	X02288	1	PLUG, CUP 1 1/2"(NOT SHOWN)
27	TM27F00466	4	HEAT SHIELD, INJECTOR
28	XK121	4	PLUG, 1/8" NPT, HEX, CSK
29	X02864	1	HOSE CLAMP
30	LL207-16	2	HOSE, 1/2"ID X 16
31	LO230	1	PCV VALVE
32	X02812	1	CLAMP, #10 WORM
33	TM27F00248	1	SCHRADER VALVE
34	26XX00137A	1	PLUG, 1/4" NPT, CSK
35	*TM27F05520	1	ASSEMBLY, EFT, REAR INLET, GAS INCLUDES ITEMS 1-26,33,34

NOTE:

*REFER TO "ENGINE SPECIFICATION NUMBER" WHEN ORDERING PARTS TO DETERMINE CORRECT PART NUMBER

POWER TRAIN

INTAKE MANIFOLD, EFI & HEAT SHIELD REAR INLET-LPG ONLY



POWER TRAIN

INTAKE MANIFOLD, EFI & HEAT SHIELD REAR INLET-LPG ONLY

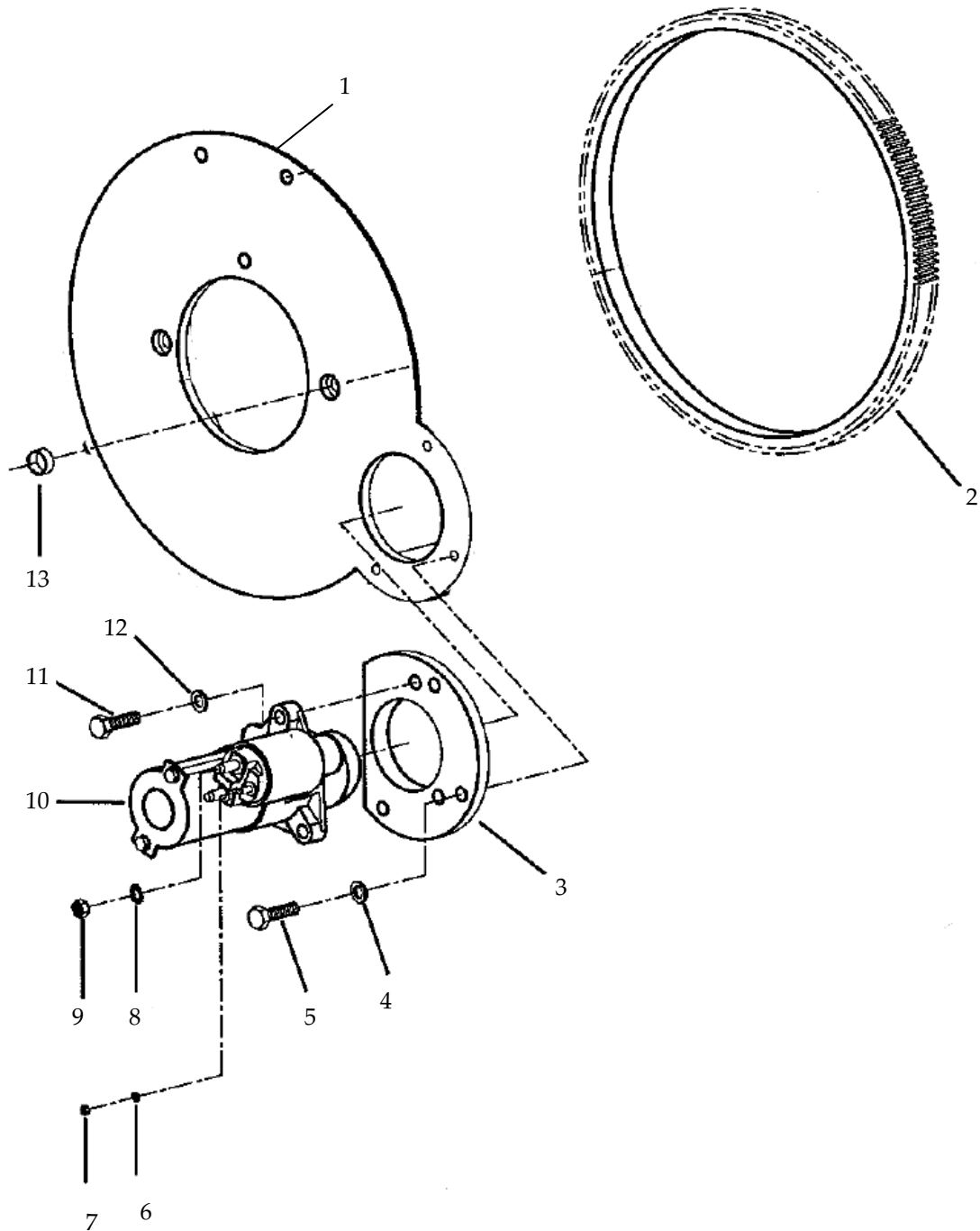
Item	Part Number	Qty	Description
1	*TM27F00554	1	INTAKE MANIFOLD, REAR INLET PLENUM
2	TM27F00548	1	HEAT SHEILD,PLENUM
3	XM32008	6	SCREW M6 X 16
4	XM37000	6	LOCK WASHER M6
5	XM36000	8	FLAT WASHER M6
6	XM35001	2	HEX NUT M6
7	TM27F00333	1	HEAT SHIELD, TMAP
8	TM27F00235	1	SENSOR, TMAP
9	XM32014	1	SCREW M6 X 20
10	XM36000	1	FLAT WASHER M6
11	TM27F00550	1	MIXER, LPG
12	TM27F00558	1	ADAPTER THROTTLE VALVE
13	TM27F00246	1	GASKET, ADAPTER TO MIXER
14	X07876	1	O-RING, 134 ADAPTER TO THROTTLE BODY
15	X07877	2	QUAD RING,134 ADAPT TO THROTTLE BODY
16	TM27F00545	1	THROTTLE BODY, BOSCH 40MM
17	TM27F00332	1	GASKET, THROTTLE BODY
18	X22153	4	SCREW MACHINE #12-24 X 1 1/2
19	X00228	4	LOCK WASHER #12
20	XM32158	4	SCREW M6 X 75 SOCKET HEAD
21	XM37023	4	LOCK WASHER M6 HIGH COLLAR
22	X02288	4	PLUG, CAP 1 1/2 DIA (NOT SHOWN)
23	RF1560	1	ELBOW 1/4P X 3/8H
24	TM27F00466	4	HEAT SHIELD, INJECTOR
25	XK121	1	PLUG, 1/8P, HEX COUNTERSUNK
26	X02864	2	HOSE CLAMP
27	LL207-16	1	HOSE 1/2" ID X 16"
28	LO230	1	PCV VALVE
29	X02812	1	CLAMP #10
30	*TM27F05540	1	ASSEMBLY, EFT, REAR INLET, LP INCLUDES ITEMS 1-23

NOTE:

*REFER TO "ENGINE SPECIFICATION NUMBER" WHEN ODERING PARTS TO DETERMINE CORRECT PART NUMBER

POWER TRAIN

STARTER



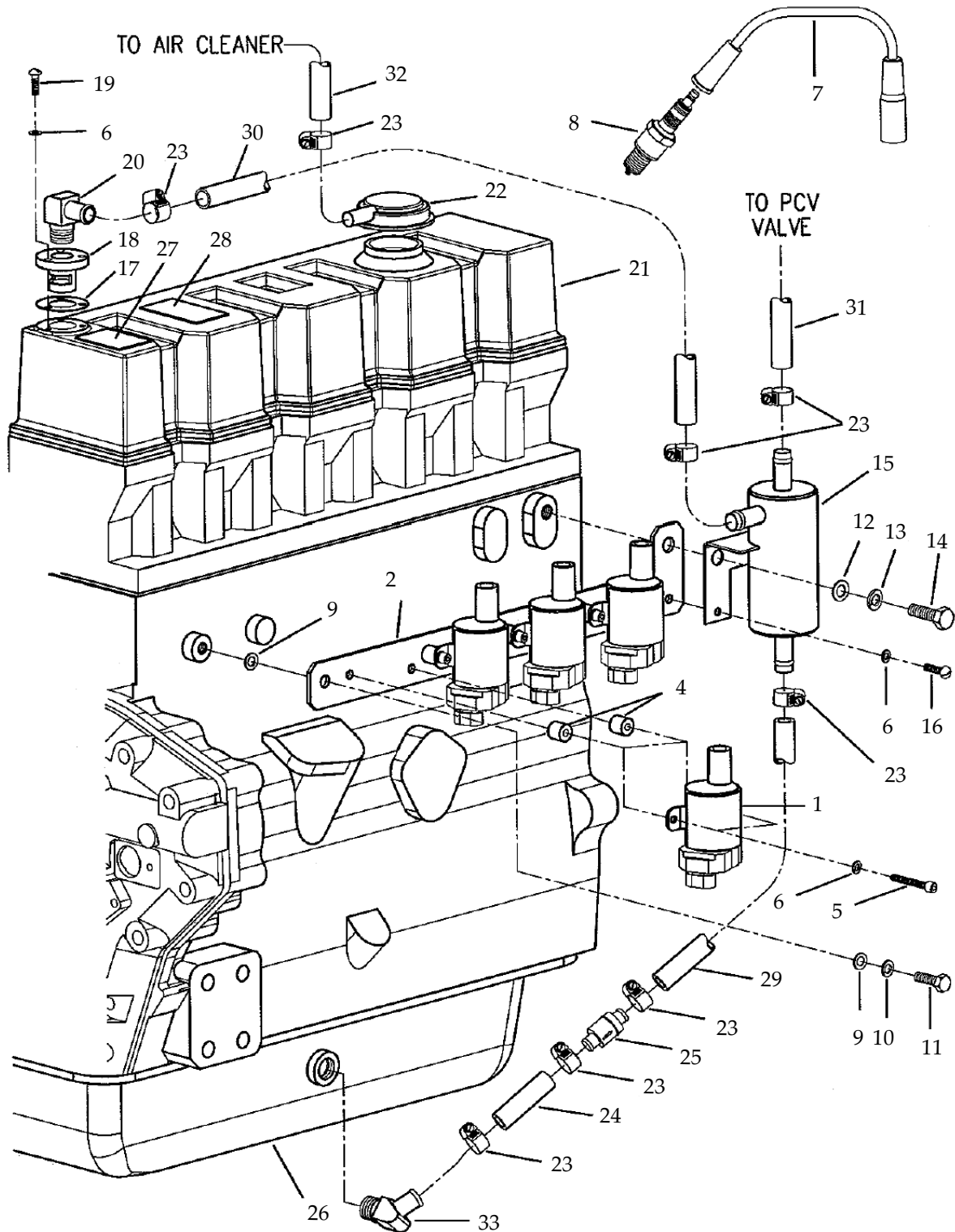
POWER TRAIN

STARTER

Item	Part Number	Qty	Description
1	TMD27B00521 MOD	1	ENGINE PLATE
2	TM27C00524	1	RING GEAR
3	TM27B00533	1	ADAPTER, STARTER
4	PH66	2	FLAT WASHER .406" ID
5	XC58	3	SCREW 3/8-16 X 1 FHSCS
6	PE113	1	LOCK WASHER #10
7	XM35004	1	NUT M5 X 0.8
8	PE46	1	LOCK WASHER 5/16
9	XM35002	1	NUT M8 X 1.25
10	TM27M00520	1	STARTER
11	XD28	2	SCREW 3/8-16 X 1 1/8
12	PE5	2	LOCK WASHER 3/8
13	X07005	2	DOWEL, RING, FLYWHEEL TO CRNK CASE

POWER TRAIN

IGNITION COILS & PCV SYSTEM



POWER TRAIN

IGNITION COILS & PCV SYSTEM

Item	Part Number	Qty	Description
1	TM27M00414	4	IGNITION COIL
2	TM27M00521	1	BRACKET, COIL MOUNTING
3	TM27M00245	9	CLINCH NUT 10-32(NOT SHOWN)
4	TM27M00244	8	SPACER .20"ID X .50" ODX .47
5	XB106	8	SCREW, SHCS 10-32 X 1
6	PE14	12	LOCK WASHER #10
7	TM27M00325	4	SPARK PLUG WIRE
8	TM27M00322	4	SPARK PLUG
9	X14219	2	FLAT WASHER .344 ID
10	XM37002	1	LOCK WASHER M8
11	XM32028	1	SCREW M8 X 20
12	X14141	1	FLAT WASHER .406 ID
13	XM37001	1	LOCK WASHER M10
14	XM32052	1	SCREW M10 X 20
15	TM27L05260	1	OIL SEPERATOR
16	XA8	1	SCREW 10-32 X 1/2
17	TM27B00427	1	GASKET, PCV FITTING
18	TM27B00428	3	FITTING, PCV TO VALVE COVER
19	XA9	3	SCREW 10-32 X 5/8
20	X26228	1	ELBOW 1/2 H X 3/8 P
21	TM27A00623	1	VALVE COVER
22	TM27L00412	1	OIL FILLER CAP
23	X02812	9	HOSE CLAMP #10
24	LL202-9	1	HOSE 1/2" ID X 9
25	TM27L00214	1	CHECK VALVE
26	TM27L00525	1	OIL PAN W/ PCV CONNECTION
27	10250002	1	LABEL-WARN ROTATING FAN
28	NPN	1	LABEL-EMISSIONS
29	LL202-6	1	HOSE 1/2" ID X 6
30	LL202--20	1	HOSE 1/2"ID X 20
31	LL202-7	1	HOSE 1/2" ID X 7
32	*LL202-18	1	HOSE 1/2" ID X 18
33	X26238	1	ELBOW 45 DEG, 1/2 H X 3/8 P

NOTE:

*REFER TO "ENGINE SPECIFICATION NUMBER" WHEN ORDERING PARTS TO DETERMINE CORRECT PART NUMBER

POWER TRAIN

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POWER TRAIN

ENGINE GASKET SETS

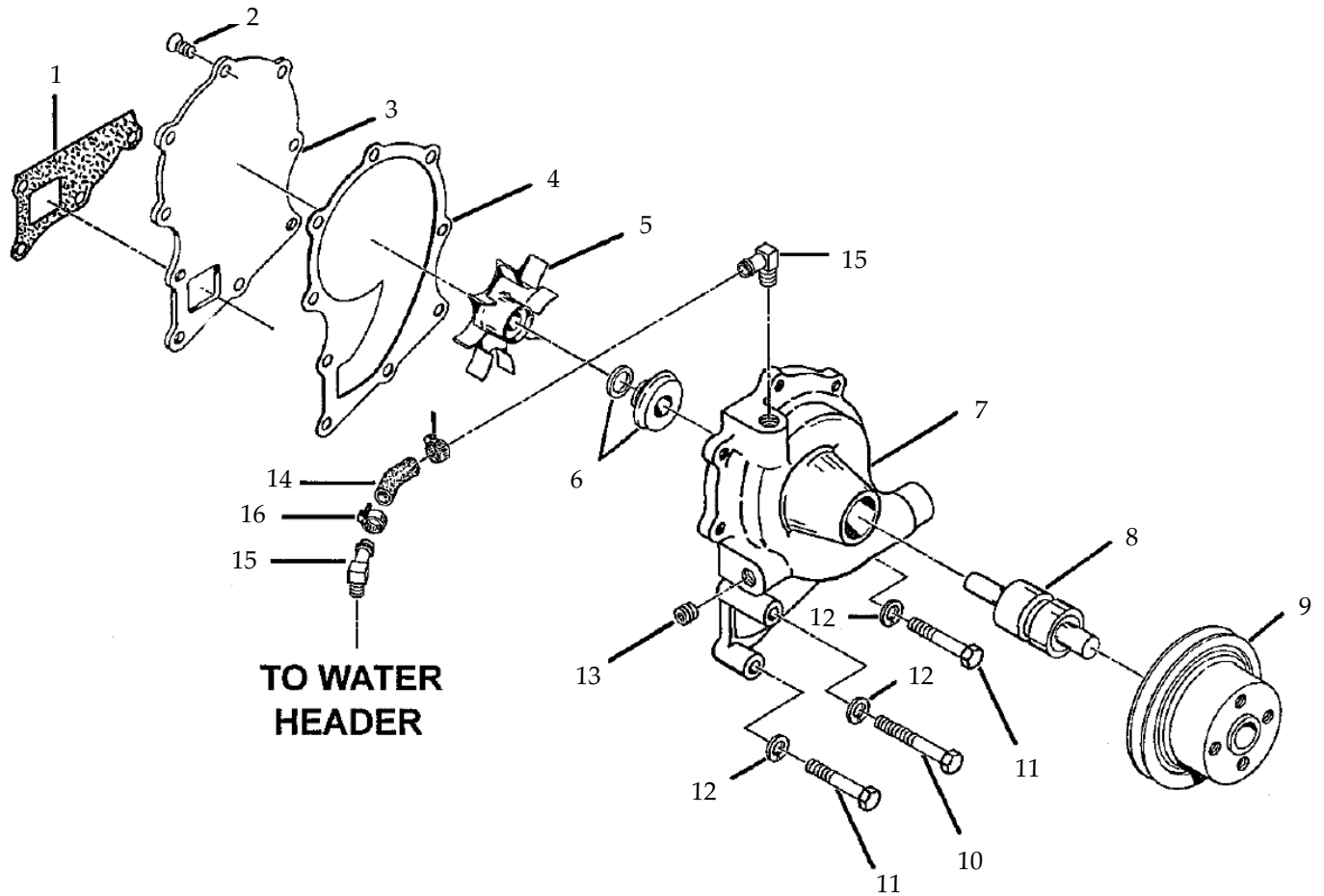
Item	Part Number	Qty	Description
1	TMD27U01007		GASKET SET-TOP END
	TMD27A00614	1	GASKET-CYLINDER HEAD
	TM27A00502	1	GASKET-CYLINDER HEAD COVER
	X14596	3	WASHER, .344, FLAT
	XM39000	3	O-RING, 8.0 ID
	TM27E00503	1	GASKET, MANIFOLD
	TM27K00202	2	GASKET WATER OUTLET HEADER
	X07854	1	GASKET-WATER OUTLET
	X14192	2	GASKET-WATER OUTLET HEADER
	TM27F00332	1	GASKET-THROTTLE BODY TO MANIFOLD
	TM27F00206	1	GASKET-CARBURETOR (NOT APPLICABLE)
	TM27F00308	1	GASKET-CARBURETOR (NOT APPLICABLE)
	F401M00219	1	GASKET-DISTRIBUTOR (NOT APPLICABLE)
	TTP10121	1	INSTRUCTION SHEET-CLY HD TORQUE
2	TM27T00138		GASKET SET, REAR END & PAN
	TM27B00305	1	SYRINGE
	X07818	1	GASKET MATERIAL-RTV TUBE
	X07840	2	INSERT CURING-RTV
	TMD27L00501	1	OIL SEAL-CRANKSHAFT-REAR-1PIECE
	WM10308	1	INSTRUCTION SHEET-RTV
3	TM27U02004		GASKET SET, FRONT END
	TM27B00529	1	GASKET-GEAR COVER
	TM27K00301	1	GASKET-WATER PUMP
	X07845	1	OIL SEAL-GEAR COVER

NOTE:

*REFER TO "ENGINE SPECIFICATION NUMBER" WHEN ORDERING PARTS TO DETERMINE CORRECT PART NUMBER

COOLING SYSTEM

WATER PUMP ASSEMBLY



COOLING SYSTEM

WATER PUMP ASSEMBLY

Item	Part Number	Qty	Description
1	*TM27K00301	1	GASKET, WATER PUMP TO CRANKCASE
2	**XM32012	6	SCREW, BACKPLATE TO CRANKCASE
3	**TM27K00405	1	PLATE, WATER PUMP BACK
4	**TM27K00403	1	GASKET, WATER PUMP BACK PLATE
5	**TM27K00428	1	IMPELLER, WATER PUMP
6	**TM27K00327	1	SEAL, WATER PUMP
7	TM27K06103	1	WATER PUMP ASSY COMPLETE USED ON TUGS WITH FRONT COOLING INC ITEMS 1-9 & 13
7	TM27K06102	1	WATER PUMP ASSY COMPLETE USED ON TUGS WITH REAR COOLING INC ITEMS 1-9 & 13
8	**TMK00328	1	SHAFT & BEARING ASSY
9	***TM27K00406	1	PULLEY FOR TUGS WITH FRONT COOLING
	***TM27K00412	1	PULLEY FOR TUGS WITH REAR COOLING
10	XM32108	1	SCREW M10 X 85
11	XM32011	2	SCREW M10 X 55
12	XM37001	3	LOCK WASHER M10
13	26XX26166	1	PLUG 3/8 NPT HEX HEAD
14	TM27K00309	1	HOSE 5/8 ID
15	26XX26176	2	ELBOW 5/5HX 3/8P
16	X02812	2	HOSE CLAMP WATER BY PASS

NOTE:

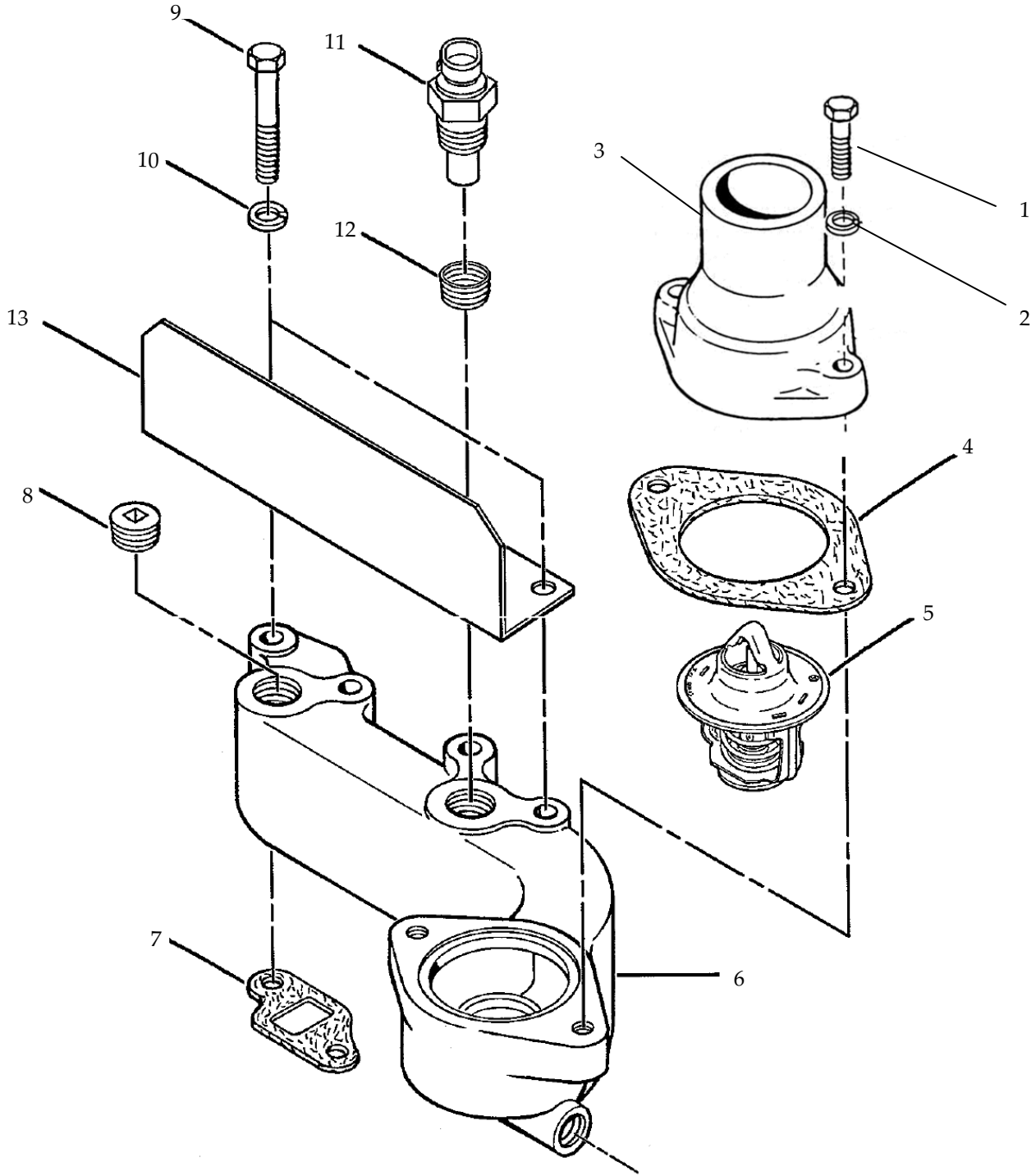
*INCLUDED IN FRONT END GASKET SET TM27U02004

**NOT SERVICED SEPERATELY

***WATER PUMP PULLEY INSTALLATION INSTRUCTIONS, FORM X30078, PACKAGED WITH SEVICE PUMP
AND MUST BE FOLLOWED WHEN ASSEMBLING PULLEY TO PUMP

COOLING SYSTEM

WATER HEADER AND THERMOSTAT



TO WATER PUMP GASOLINE
TO OIL COOLER LPG

COOLING SYSTEM

WATER HEADER AND THERMOSTAT

Item	Part Number	Qty	Description
1	XM32039	2	SCREW M8 X 30
2	XM37002	2	LOCK WASHER M8
3	TM27L00404	1	ELBOW, WATER OUTLET
4	X07854*	1	GASKET, WATER OUTLET ELBOW
5	TM27K00429	1	THERMOSTAT
6	TM27K00503*	1	HEADER, WATER OUTLET
7	TM27K00202	2	GASKET, WATER OUTLET HEADER
8	26XX00101B	1	PLUG 1/2" NPT CSK TUGS WITH FRONT COOLING SYSTEM
8a	05710B-106	1	FITTING, 90 DEG 5/8 X 3/8 TUGS WITH REAR COOLING SYSTEM(NOT SHOWN)
9	XM32038	4	SCREW M8 X 70
10	XM37002	4	LOCK WASHER M8
11	TM27M00246	1	SENSOR, ENGINE TEMPERATURE
12	X12253	1	BUSHING, REDUCER 1/2" TO 3/8" NPT
13	TM27F00467	1	HEAT SHIELD ECT SENSOR

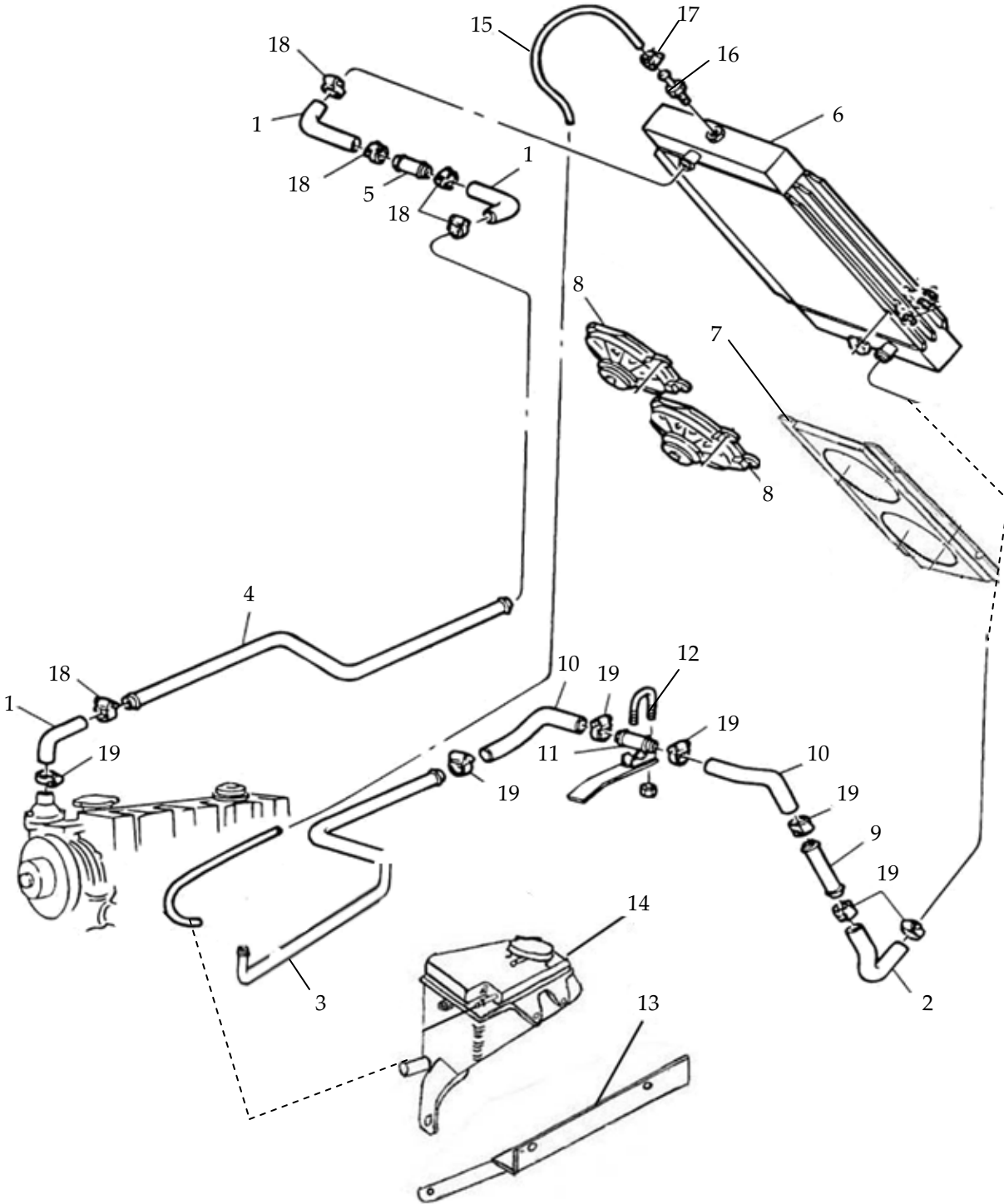
NOTE:

*INCLUDED IN TO P END GASKET SET TMD27U01007

**REPLENISH ANYTIME COOLING SYSTEM IS SERVICED

COOLING SYSTEM

RADIATOR, FANS & HOSES TUGS WITH FRONT TUNNEL RADIATOR



COOLING SYSTEM

RADIATOR, FANS & HOSES TUGS WITH FRONT TUNNEL RADIATOR

Item	Part Number	Qty	Description
1	A-TT4-00317	3	90 DEGREE HOSE
2	A-TT4-00314	2	BOTTOM RADIATOR HOSE
3	A-TT4W-00326	1	BOTTOM RADIATOR TUBE
4	A-TT4F-00326	1	TOP RADIATOR TUBE
5	A-TT8D-00100	1	CONNECTOR TUBE
6	A-TT4C-00311	1	RADIATOR
7	A-TT8-00341-2	1	FAN SHROUD
8	A-TT4-00312-4	2	COOLING FAN
9	NPN	1	CONNECTOR TUBE
10	A-TT4-00323	2	BOTTOM HOSE
11	A-TT8D-00100	1	CONNECTOR TUBE
12	A-TT4-00328	2	U-BOLT
13	NPN	1	RESERVOIR BRACKET
14	A-TT4-00322-2	1	RESERVOIR FILL TANK
15	NPN	1	3/8" HOSE
16	05706B-104	1	FITTING, SSTRAIGHT 3/8 X 1/4
17	NPN	1	#10 HOSE CLAMP
18	NPN	4	#20 HOSE CLAMP
19	NPN	6	#24 HOSE CLAMP

COOLING SYSTEM

RADIATOR, FANS & HOSES WITH REAR TUNNEL COPPER RADIATOR

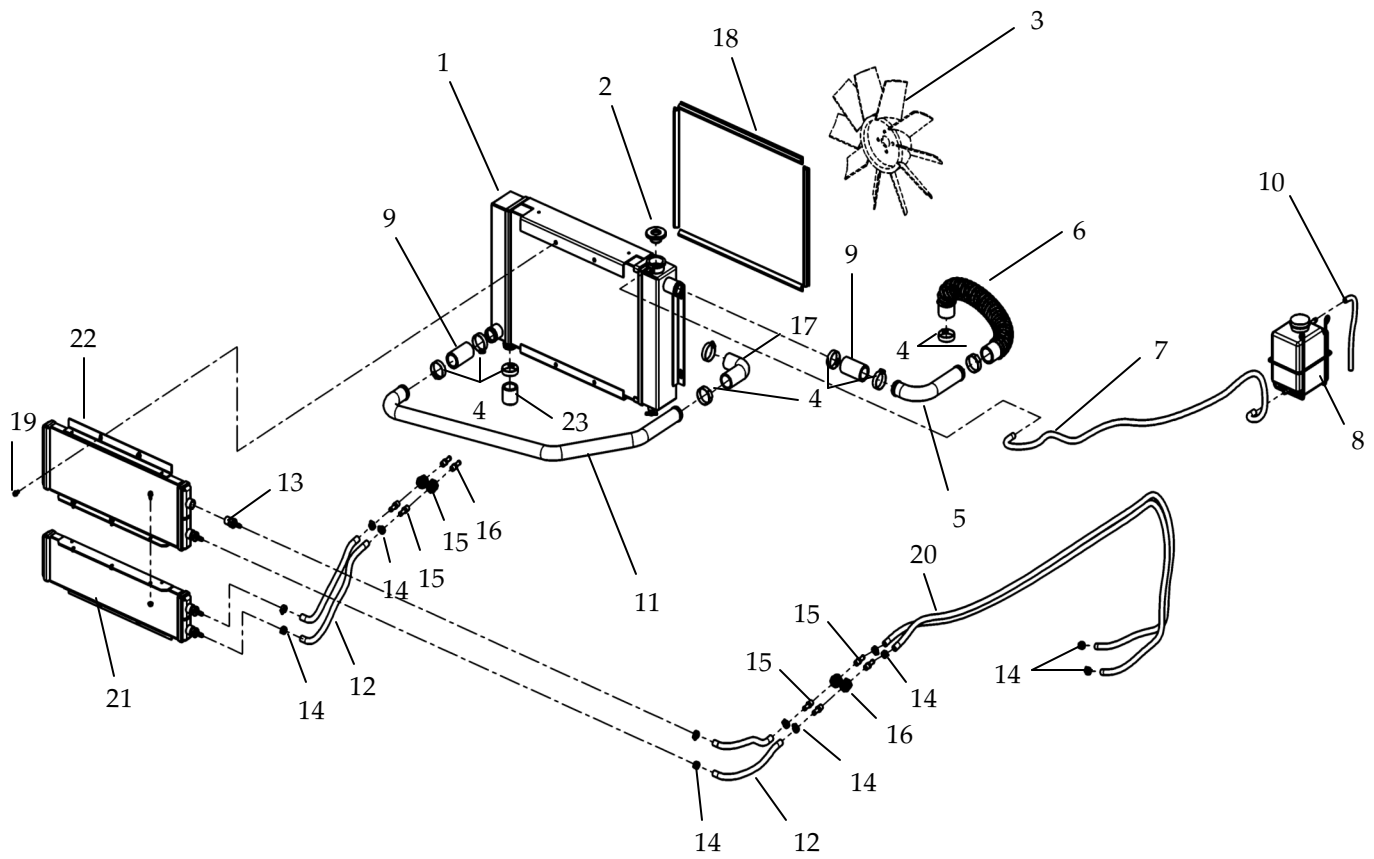
Item	Part Number	Qty	Description
1	*B-TT4-00313	1	*COPPER RADIATOR
2	A-USAT5-00330	1	RADIATOR CAP
3	A-TT8-00312	1	FAN
4	NPN	8	# 24 HOSE CLAMP
5	A-TT8-00322	1	COOLANT ELBOW
6	A-TT10-00323	1	RADIATOR HOSE
7	H05705	1	5/16 HOSE SAE30R7 WK PR 75 "
8	A-TT10TD-00322	1	SURGE TANK
9	A-TT4-00331	2	COOLING HOSE 1.5 ID X 4 IN
10	NPN	1	CLEAR NYLON HOSE 36"
11	A-TT4W-00327	1	COOLANT OUTLET PIPE
12	H05705	4	5/16 HOSE SAE30R7 WK PR 20 "
13	A-TT4-00221-1	2	TRANSMISSION COOLER
14	NPN	12	#4 HOSE CLAMP
15	05706B-104	8	FITTING, STRAIGHT 3/8 X 1/4
16	A-TT4-00280	4	BULKHEAD FITTING
17	A-TT10-00316	1	WATER PUMP HOSE, RADIATOR
18	A-TT8-00314	1	FAN SHROUD SEAL
19	1040	8	TRANSMISSION COOLER MOUNT
20	H05705	2	5/16 HOSE SAE30R7 WK PR 80 "
21	B-TT4-00315	1	RADIATOR END CAP 1.5"

NOTE:

*FUTURE REPLACEMENT OF COPPER RADIATOR SHOWN ON THIS PAGE WILL REQUIRE RETRO FIT TO ALUMINUM RADIATOR WITH NEW TRANSMISSION AND POWER STEERING COOLERS INCLUDED AS SHOWN ON NEXT PAGE. HOWEVER, REPLACEMENT OF COOLERS SHOWN AS ITEM 13 ARE AVAILABLE WITHOUT REPLACING COPPER RADIATOR.

COOLING SYSTEM

RADIATOR, FAN & HOSES WITH REAR TUNNEL ALUMINUM RADIATOR



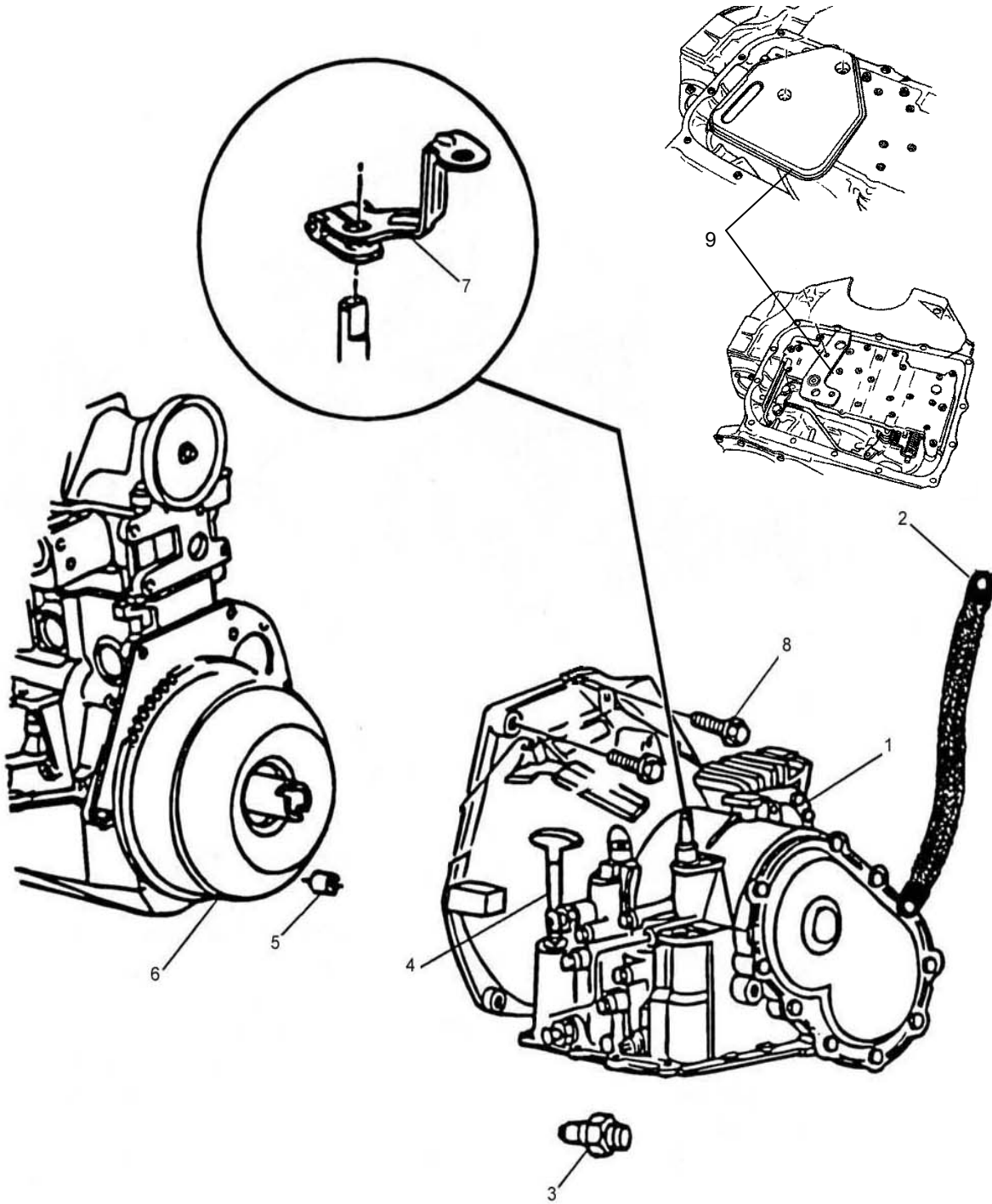
COOLING SYSTEM

RADIATOR, FAN & HOSES WITH REAR TUNNEL ALUMINUM RADIATOR

Item	Part Number	Qty	Description
1	B-TT4-00313	1	ALUMINUM RADIATOR WITH COOLERS
1	B-TT4-00313-A	1	ALUMINUM RADIATOR WITHOUT COOLERS
2	A-USAT5-00330	1	RADIATOR CAP
3	A-TT8-00312	1	FAN BLADE
4	NPN	9	# 24 HOSE CLAMP
5	A-TT8-00322	1	COOLANT ELBOW
6	A-TT10-00323	1	RADIATOR HOSE
7	H05705	1	5/16 HOSE SAE30R7 WK PR 75 "
8	A-TT10TD-00322	1	SURGE TANK
9	A-TT4-00331	2	COOLING HOSE 1.5 ID X 4 IN
10	NPN	1	CLEAR NYLON HOSE 36"
11	A-TT4W-00327	1	COOLANT OUTLET PIPE
12	H05705	4	5/16 HOSE SAE30R7 WK PR 20 "
13	10506B-108	4	FITTING, PUSH ON 06 TO 1/2M
14	NPN	12	#4 HOSE CLAMP
15	05706B-104	8	FITTING, STRAIGHT 3/8 X 1/4
16	A-TT4-00280	4	BULKHEAD FITTING
17	A-TT10-00316	1	WATER PUMP HOSE, RADIATOR
18	A-TT8-00314	1	FAN SHROUD SEAL
19	NPN	6	1/4-20 X .5 FLANGE BOLT AND NUT
20	H05705	2	5/16 HOSE SAE30R7 WK PR 80 "
21	B-TT4-00221-2	1	POWER STEERING COOLER
22	B-TT4-00221-1	1	TRANSMISSION COOLER
23	B-TT4-00315	1	END CAP 1.5" ID

TRANSMISSION

TRANSAXLE MOUNTING & MISC. PARTS (ALL TT 4-8 MODELS)



TRANSMISSION

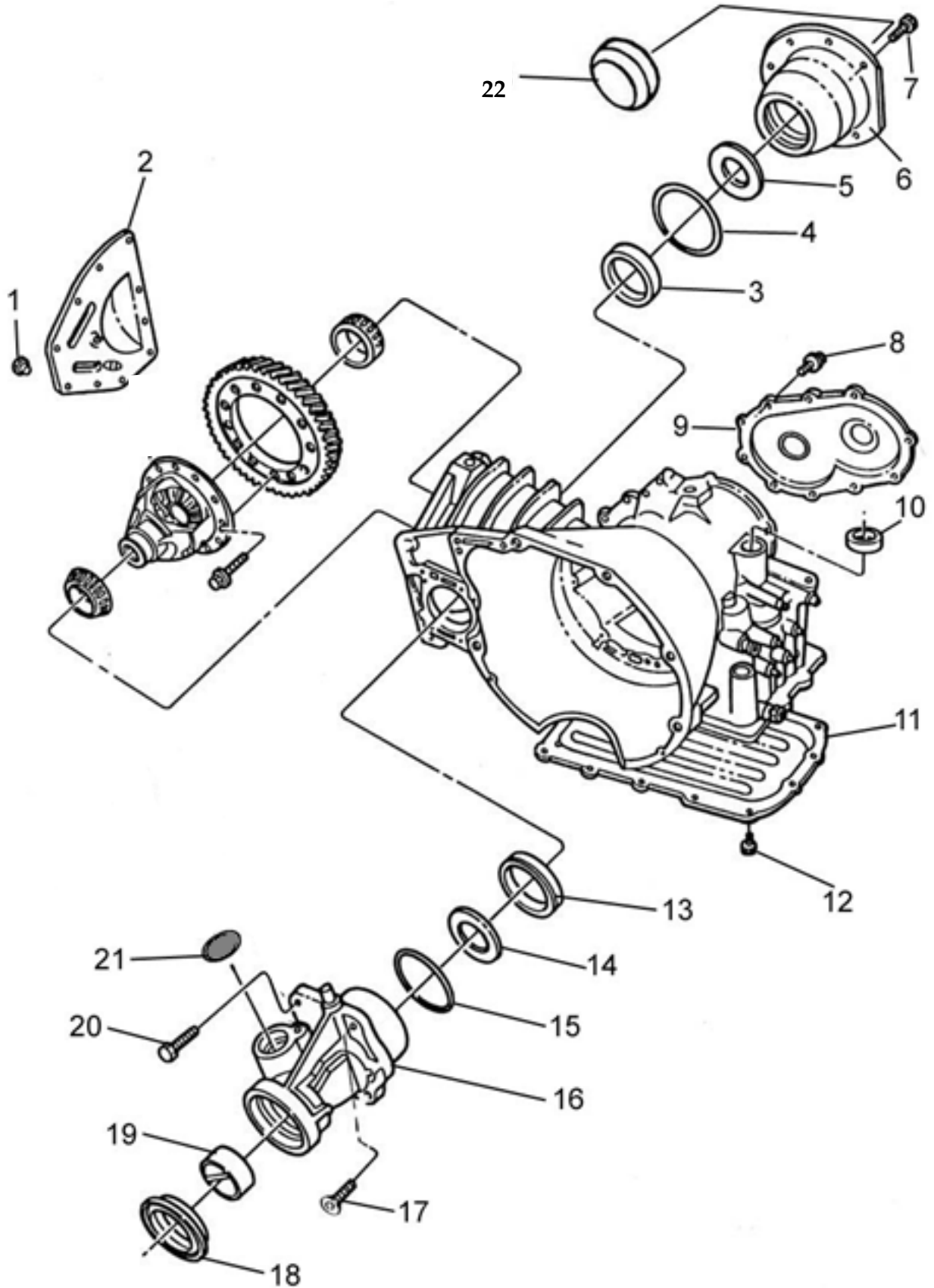
TRANSAXLE MOUNTING & MISC. PARTS (ALL TT 4-8 MODELS)

Item	Part Number	Qty	Description
1	A-TT5D-0018-1	1	TRANSMISSION
2	A-TN4-00707	1	GROUND STRAP
3	3747361	1	SWITCH-NEUTRAL STARTER & BACK UP LIGHT
4	4856444	1	DIPSTICK-TRANMISSION FLUID
5	5240849	2	DOWEL PIN-TRANS TO ENGINE ALIGNMENT
6	*4778718	1	TORQUE CONVERTER
7	A-TT4-00419	1	TRANSAXLE SHIFT LEVER-MANUAL CONTROL
8	6501741	2	SCREW-HEX CAP-WITH WASHER M12-1.75 X 30
9	85705	1	GASKET & FILTER MAINTENANCE PACKAGE
10	2926502	1	PLUG-TRANS NEUTRAL SWITCH(NOT SHOWN)

*Torque converters may vary. Please contact Eagle for further information.

TRANSMISSION

TRANSAXLE CASE EXTENTION & RETAINER (ALL TT 4-8 MODELS)



TRANSMISSION

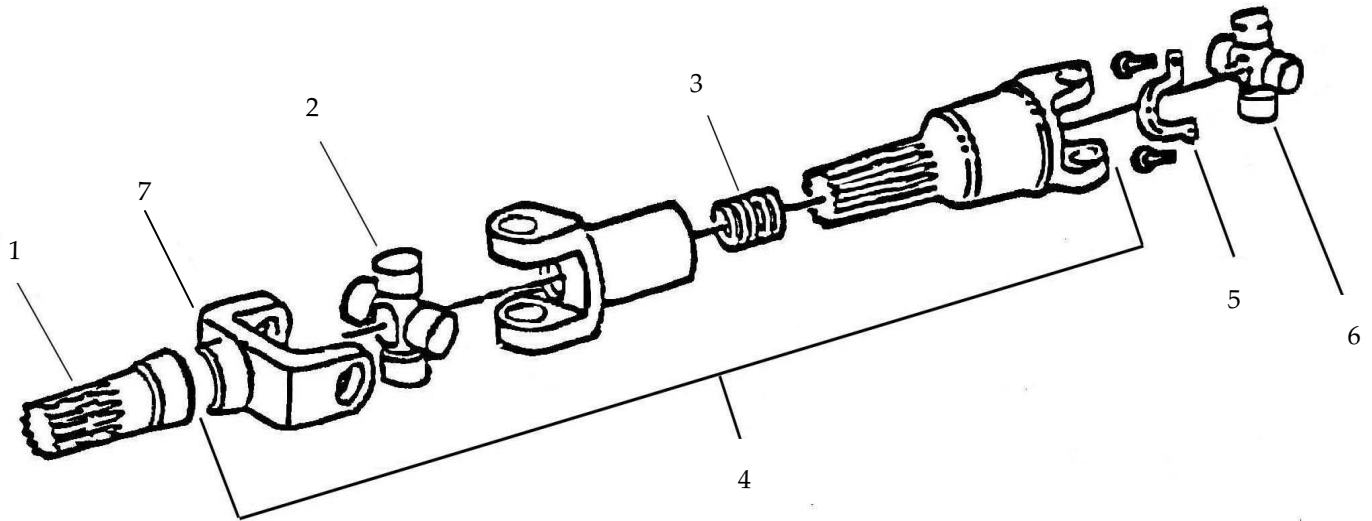
TRANSAXLE CASE EXTENTION & RETAINER (ALL TT 4-8 MODELS)

Item	Part Number	Qty	Description
1	6501474	10	SCREW-HEX CAP-WASH M8-1.25 X 16
2	4471573	1	PAN
3	NPN	1	CUP(NOT SOLD SEPARATELY)
4	4504568	1	SPACER KIT
5	4269787	1	RETAINER, OIL
6	4329829	1	RETAINER, BEARING
	6500368	6	SCREW-HEX CAP-M8 X 1.25 X 23
7	NPN	6	SCREW-HEX CAP-WASH HEAD M8-1.25 X 2
8	NPN	10	SCREW-HEX CAP M8-1.25 X 15
9	4659342	1	COVER, TRANS. END
	82180	1	RTV SEALANT
	6501474	10	SCREW-HEX CAP WASH M8-1.25 X 16
10	3878447	1	SEAL, MANUAL VALVE SHAFT
11	4471573	1	PAN, TRANSAXLE OIL
12	6501474	12	SCREW-HEX CAP WASH M8-1.25 X 16
	6101285	1	SCREW-HEX CAP-WASH M6-1 X 16
13	4567022	1	CUP
14	4567494	1	RETAINER
15	6500111	1	O-RING
16	A-TT5D-00011-MOD	1	*TRANSMISSION CONE
	6500511	4	SCREW-HEX CAP-WASH M8-1.25 X 33
17	NPN	2	M8 HEX HEAD SCREW
18	4412522	1	SEAL
19	NPN	1	BUSHING (SERVICED IN EXT.)
20	NPN	4	SCREW-HEX CAP WASH HEAD M8-1.25 X 30
21	A-TT4-00658	1	TRANS EXP PLUG
22	A-TT4-00657	1	TRANSMISSION PLUG (2WD ONLY)

*PLEASE HAVE TUG MODEL AND SERIAL NUMBER AVAILABLE WHEN ORDERING THIS PART

DRIVELINE

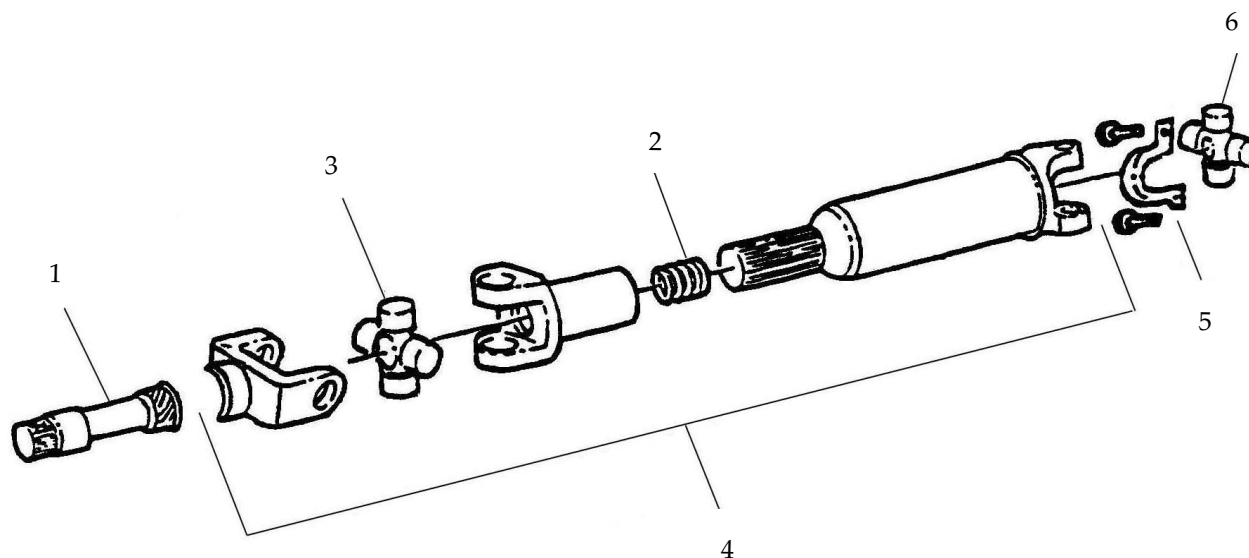
DRIVE SHAFT ASSEMBLY-FRONT (ALL TT 4-8 MODELS)



Item	Part Number	Qty.	Description
1	A-TT8-00201-1	1	TRANSMISSION OUTPUT YOKE SHAFT-FRONT
2	A-TT4-00132-1	1	CROSS BEARING FRONT D/S NEW STYLE
3	A-TT4-00134	1	DRIVE SHAFT SPRING
4	A-TT8-00202-4	1	DRIVE SHAFT
5	A-TT4-00130	2	END YOKE STRAP AND BOLT KIT
6	A-TT4-00137-1	1	CROSS BEARING FRONT D/S NEW STYLE
7	2-4-1921	1	END YOKE

DRIVELINE

DRIVESHAFT ASSEMBLY—REAR (ALL TT 4-8 MODELS)

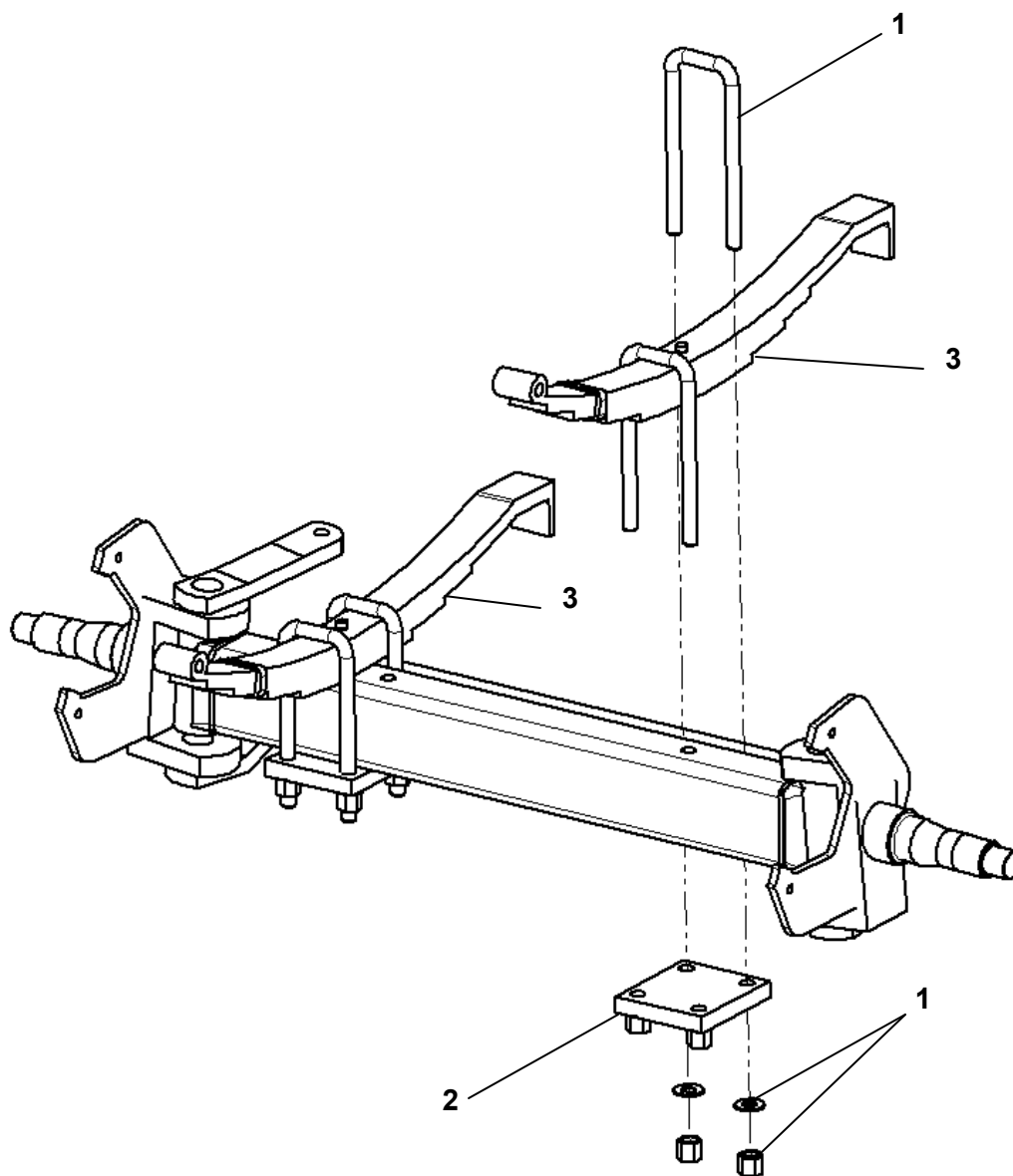


Item	Part Number	Qty.	Description
1	A-TT8-00201-2	1	TRANSMISSION OUTPUT YOKE SHAFT-REAR
2	A-TT4-00134	1	DRIVE SHAFT SPRING
3	A-TT4-00132-1	1	CROSS BEARING FRONT D/S NEW STYLE
4	AB-TT4-00130-1	1	DRIVE SHAFT
5	A-TT4-00130	2	END YOKE STRAP KIT
6	A-TT4-00137	1	CROSS BEARING REAR D/S NEW STYLE

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AXLES

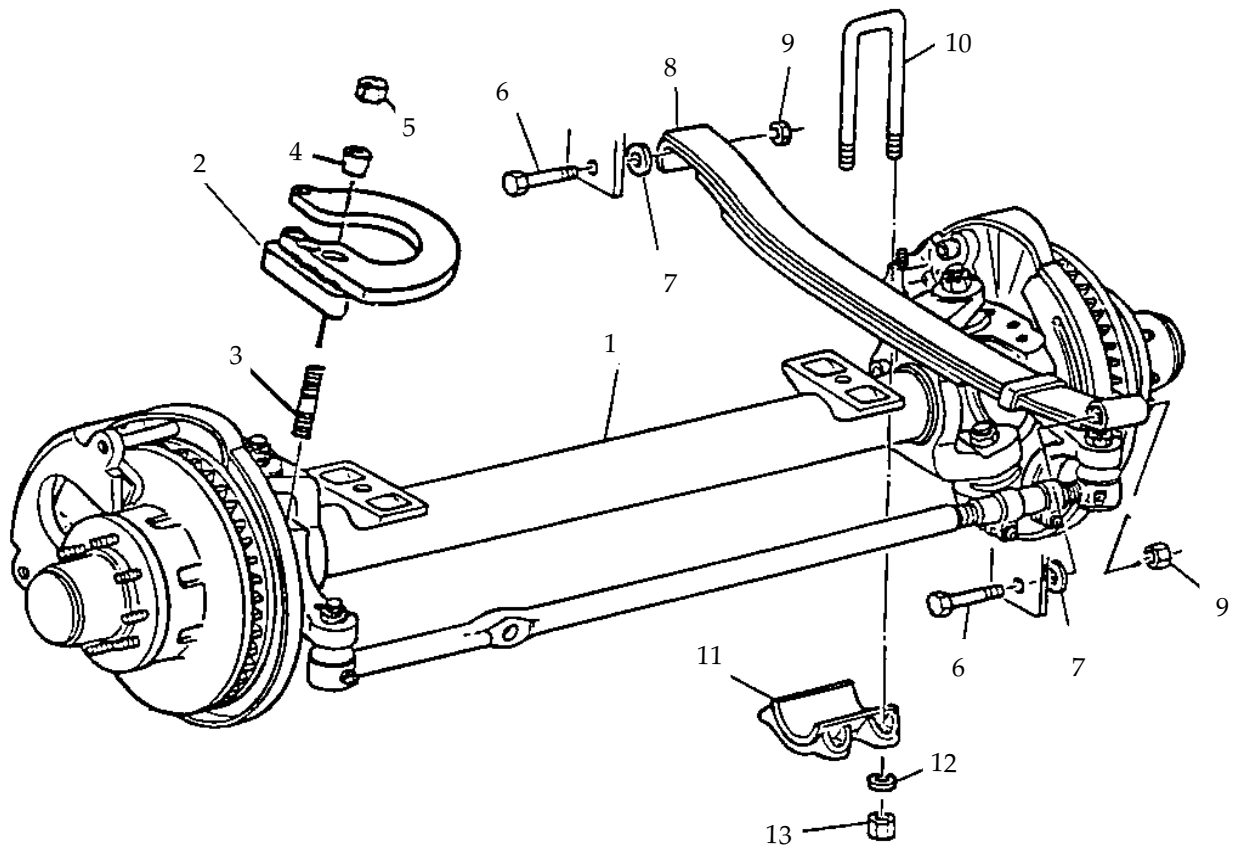
AXLE ASSEMBLY – BRIERTON FRONT NON-DRIVE TT4-TT6 2WD ONLY



Item	Part Number	Qty	Description
1	A-TT10-00117	4	U-BOLT KIT
2	A-TT4-00113	2	SPRING MOUNT PAD
3	A-TT4-00116	2	LEAF SPRING

AXLES

AXLE ASSEMBLY—DANA FRONT NON-DRIVE TT4-TT6 2WD ONLY

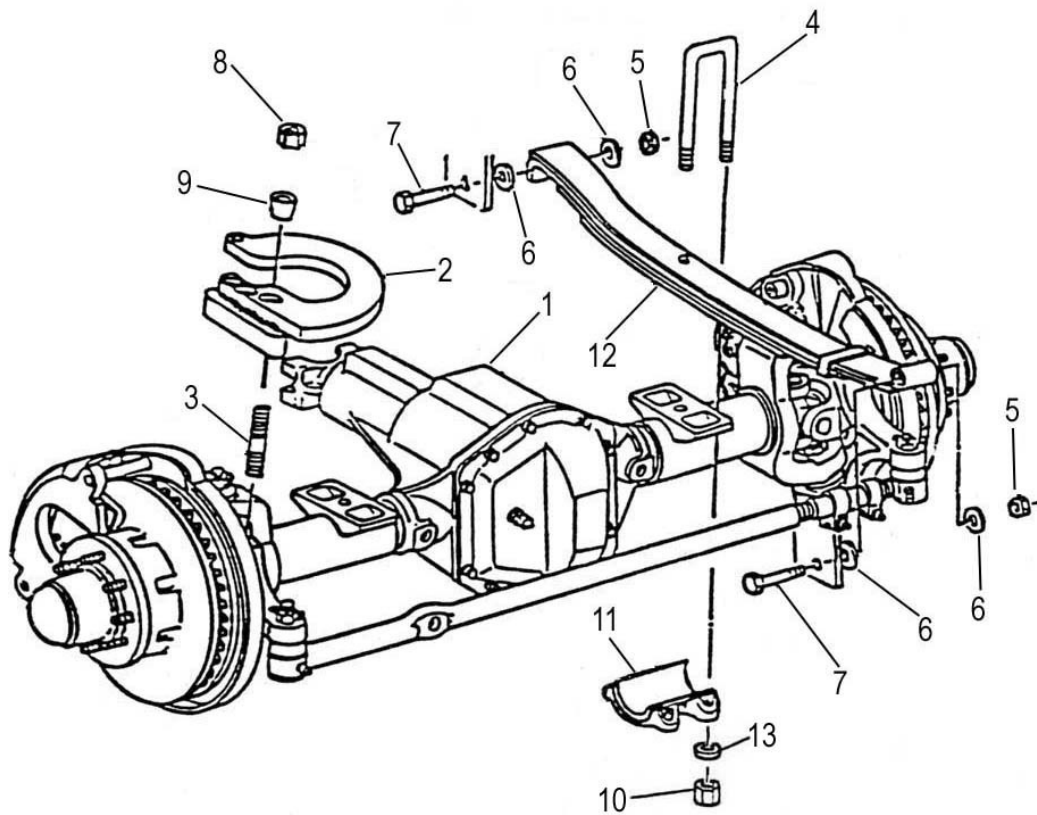


Item	Part Number	Qty	Description
1	A-TT4-00111	1	AXLE ASSY-FRONT NON-DRIVE
2	C-TT4-00113-1-MACH	1	STEERING ARM - TT4-6 2WD
3	A-TT8-00115	3	STUD-STEERING ARM
4	3965138	3	BUSHING
5	NPN	3	9/16-18 GR8 HEX NUT
6	NPN	4	SCREW-HEX CAP 3/8-16X3.5
7	A-TT4-00119	12	NYLON WASHER
8	A-TT4-00116	2	LEAF SPRING
9	NPN	8	3/8-16 LOCK NUT
10	A-TT4-00362-1	4	U-BOLT KIT
11	A-TT4-00363	2	AXLE CLAMP PLATE(MODIFIED)
12	A-TT4-00366**	8	WASHER, U-BOLT
13	A-TT4-00365**	8	NUT, U-BOLT

**INCLUDED IN U-BOLT KIT

AXLES

AXLE ASSEMBLY – FRONT DRIVE (ALL WHEEL DRIVE)

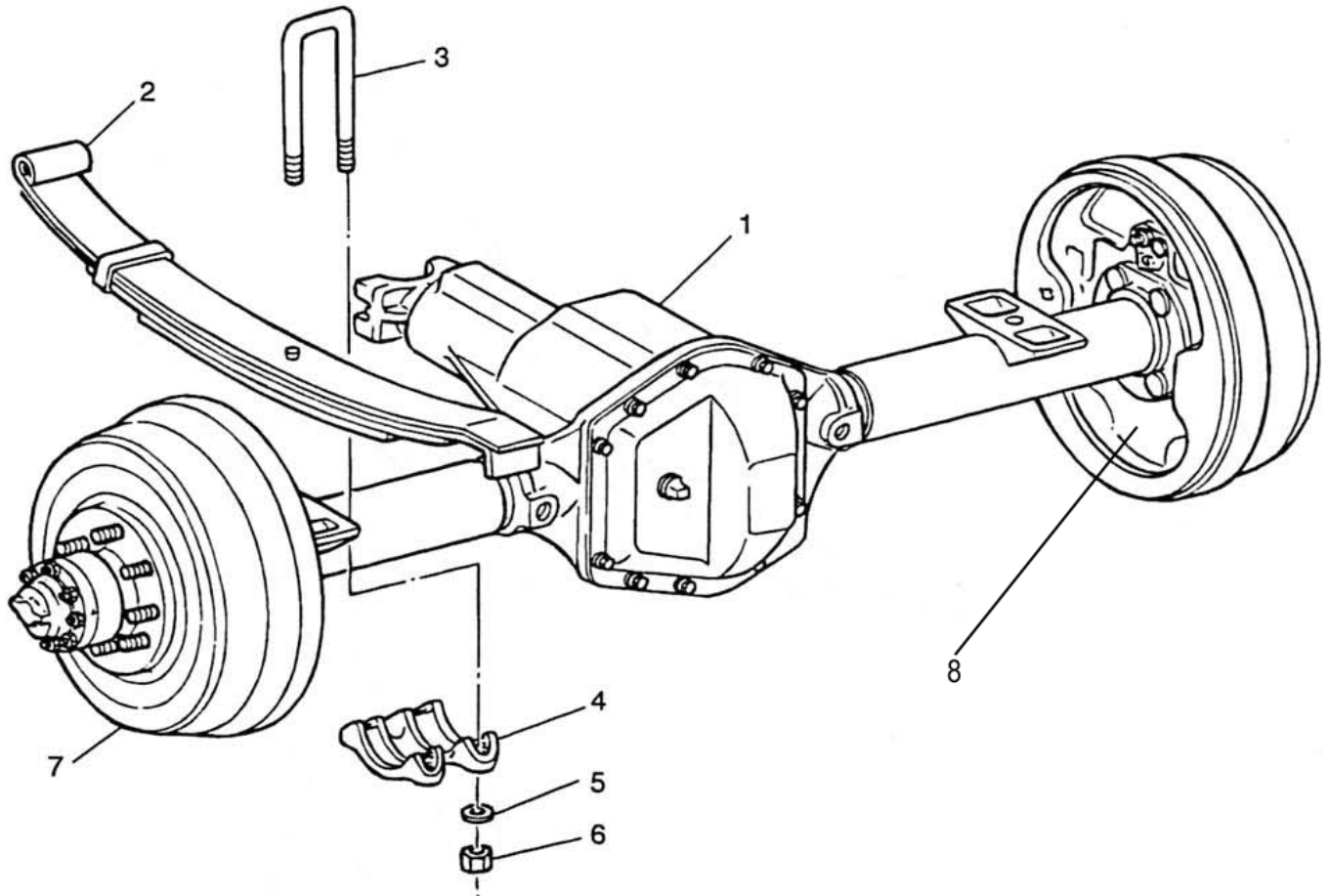


Item	Part Number	Qty.	Description
1	A-TT8-00371	1	FRONT DRIVE AXLE ASSEMBLY
2	C-TT4-00113-2-MACH	1	STEERING ARM - TT4-TT8/2 AWD
3	A-TT8-00115	3	STUD - STEERING ARM
4	A-TT4-00362-1	4	KIT
5	NPN	4	3/8X16 LOCK NUT
6	A-TT4-00119	8	NYLON WASHER
7	NPN	4	SCREW-HEX CAP 3/8-16X3.5
8	NPN	3	NUT 9/16-18 GR8
9	3965138	3	BUSHING
10	A-TT4-00365**	8	NUT, U-BOLT
11	A-TT4-00118-3	2	MACHINED AXLE CLAMP PLATE
12	A-TT4-00116	2	LEAF SPRING
13	A-TT4-00366**	8	WASHER, U-BOLT

**INCLUDED IN U-BOLT KIT

AXLES

AXLE ASSEMBLY— REAR (ALL TT 4-8 MODELS)



Item	Part Number	Qty	Description
1	A-TT4-00361**	1	REAR AXLE ASSEMBLY
2	A-TT4-00116	2	LEAF SPRING
3	A-TT4-00362-1	4	U-BOLT KIT
4	A-TT4-00363	2	AXLE CLAMP PLATE
5	A-TT4-00366*	8	WASHER
6	A-TT4-00365*	8	NUT
7	4313905	1	LEFT HAND BACKING PLATE
8	4313904	1	RIGHT HAND BACKING PLATE

*INCLUDED IN U-BOLT KIT

**CALL EAGLE TUGS FOR INFORMATION IF YOUR TUG IS EQUIPPED WITH LIMITED SLIP

AXLES

RECOMMENDED TORQUE SPECIFICATIONS FOR DANA 44 AXLE (FRONT)

POSITION	THREAD	WRENCH TORQUE (LBS.-FT)
Drive Pinion Nut	3/4 - 16	175-225
Differential Bearing Cup Cap Screws	1/2 - 13	70-90
Ring Gear Cap Screws	3/8 - 24	45-65
Cover Screws	5/16 - 18	28-33 (Note A)
Axle Shaft Bearing & Brake Retainer Nuts	3/8 - 24	40-50
Spindle Mounting Nuts	3/8 - 24	40
Spindle Mounting Nuts	7/16 - 20	50-60
Tie Rod Stud Nut	1/2 - 20	35 Min (Note B)
Tie Rod Stud Nut	9/16 - 18	35 Min (Note B)
Tie Rod Clamp Nuts	3/8 - 24	15-25
Tie Rod Clamp Nuts	7/16 - 20	25-40
Steering Arm Nuts	9/16 / 18	80-100
Steering Bolt Stop Screw & Jam Nut	3/8 - 24	10-20

RECOMMENDED TORQUE SPECIFICATIONS FOR DANA 60 AXLE (REAR)

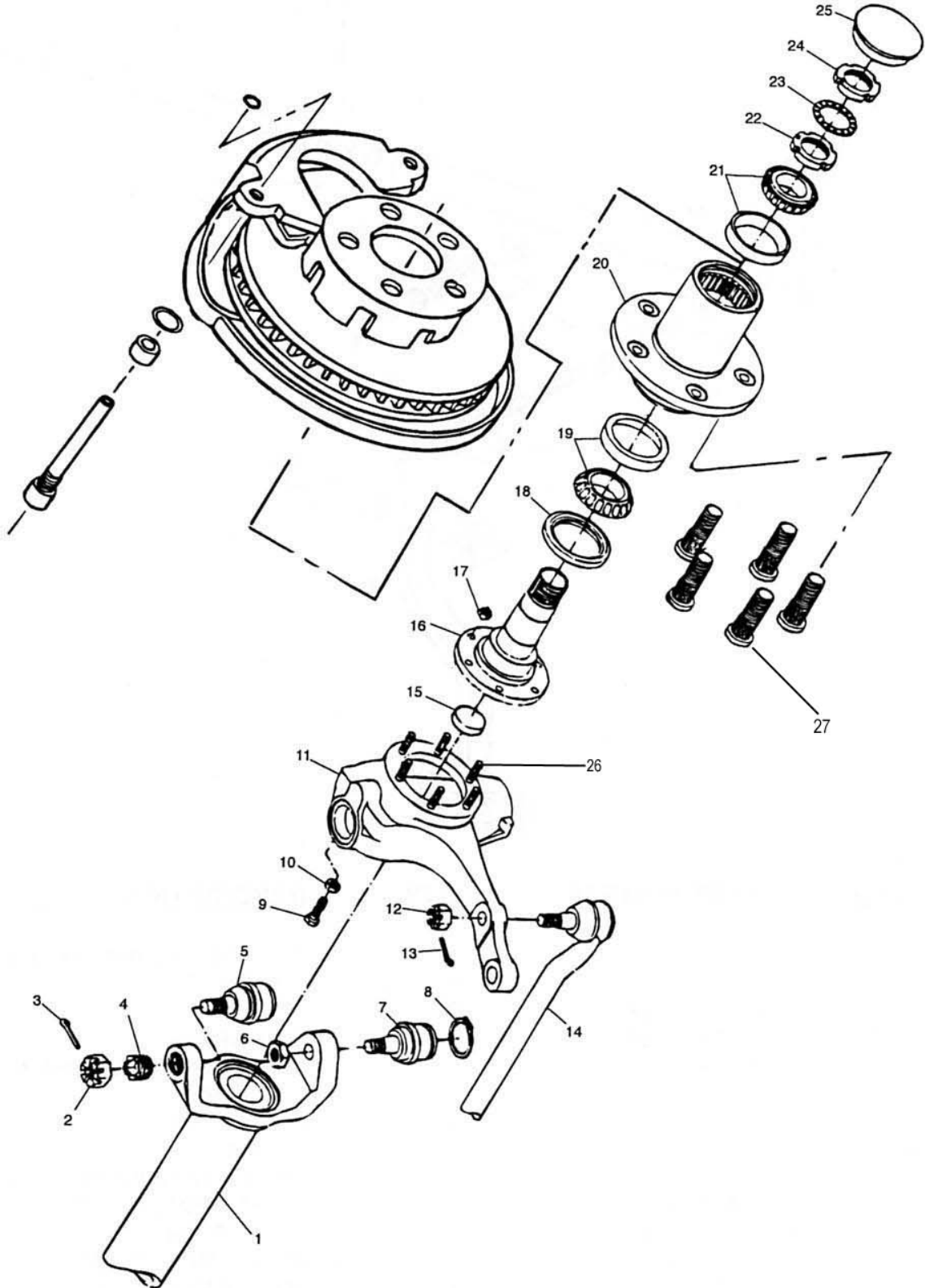
POSITION	THREAD	WRENCH TORQUE (LBS.-FT)
Drive Pinion Nut	7/8 - 14	240-300
Differential Bearing Cup Cap Screws	1/2 - 13	70-90
Ring Gear Cap Screws	1/2 - 20	100-120
Ring Gear Cap Screws	1/2 - 20	120-14 (Note A)
Cover Screws	3/8 - 16	30-40
Brake Retainer Nuts	7/16 - 20	64-70
Axle Shaft Flange Nuts	7/16 - 20	64-70
Upper Kingpin	1 1/8 - 12	500-600
Kingpin Cap Cap Screws	1/2 - 20	70-90
Spindle Mounting Nuts	1/2 - 20	60-80
Tie Rod Stud Nut	5/8 - 18	70 Min (Note B)
Tie Rod Clamp Nuts	1/2 - 20	35-45
Steering Arm Nuts	1/2 - 20	70-90
Steering Bolt Stop Screw & Jam Nut	1/2 - 20	10-20

A. For Grade 9 fastener with locking serrations on underside of cap screw head or nut.

B. If cotter pin cannot be installed after minimum torque is attained, the nut must be advanced until cotter pin can be installed.

AXLES

AXLE ASSEMBLY BREAKDOWN – DANA FRONT NON-DRIVE (2WD) ONLY



AXLES

AXLE ASSEMBLY BREAKDOWN –DANA FRONT NON-DRIVE (2WD) ONLY

Item	Part Number	Qty	Description
1	29775-29X	1	TUBE ASSEMBLY
2	44101	2	NUT-SLOTTED
3	500024-8	2	PIN-COTTER
4	35417	2	RING-ADJUSTING
5	40112	1	SOCKET ASSEMBLY UPPER
6	35566	2	NUT-LOCK
7	40113	1	SOCKET ASSEMBLY LOWER
8	35928	1	RING-SNAP
9	31026-1	2	BOLT-STOP
10	500381-3	2	NUT-JAM
11	706652X	KIT	STEERING KNUCKLE R/H INCLUDES ITEMS 33-39 & 42
11	706653X	KIT	STEERING KNUCKLE L/H INCLUDES ITEMS 33-39 & 42
12	44101	2	NUT-SLOTTED
13	500024-6	2	PIN-COTTER
14	044TR115-16X	1	TIE ROD ASSEMBLY
15	36544	2	PLUG-CAP
16	38428	2	SPINDLE-WHEEL BEARING
17	35704	12	NUT-LOCK
18	36361	2	SEAL-LOCK
19	706690-X	KIT	INNER WHEEL BEARING
20	044HU103	2	HUB & ROTOR ASSEMBLY
21	706111-X	KIT	OUTER WHEEL BEARING
22	21588X	2	SPINDLE NUT
23	36569	2	LK WASHER-WHEEL BRG NUT
24	31139	2	NUT-SPINDLE
25	31552	2	CAP-HUB
26	36326-2	6	STUD STEERING KNUCKLE
N/S	044WC101-2	1	CALIPER ASSEMBLY R/H
N/S	044WC101-1	1	CALIPER ASSEMBLY L/H
N/S	044WB101-1	1	BRACKET ASSEMBLY-CALIPER L/H
N/S	044WB101-2	1	BRACKER ASSEMBLY-CALIPER R/H
27	610286	8	WHEEL STUDS

Recommended tools:

OTC 7157 To remove Front Axle Spindle Nut (Dana 44)

OTC 7080 To remove Front Axle Top Ball Joint (Dana 44)

OTC 1902 To remove Front & Rear Axle Spindle Nut (Dana 70)

AXLES

AXLE ASSEMBLY BREAKDOWN –BRIERTON FRONT NON-DRIVE (2WD) ONLY

Item	Part Number	Qty	Description
1	03-30910	1	AXLE BEAM WELDMENT
2	03-30913	1	LH KNUCKLE WELDMENT
3	03-30912	1	RH KNUCKLE WELDMENT
4	02-21048	1	TIE ROD ASSEMBLY
5	06-61742	2	HUB & ROTOR
6	06-61779	2	OIL SEAL, CHICAGO RAWHIDE CR 24898
7	130513100	2	INNER CONE, TIMKEN LM104949
8	06-61794	2	INNER CUP, TIMKEN JLM104910
9	06-61795	2	OUTER CUP, TIMKEN LM501310
10	06-61781	2	OUTER CONE, TIMKEN LM501349
11	06-61756	2	SPINDLE NUT SPACER
12	323400160	2	NUT, 1.25-12 SLOTTED
13	06-61743	2	GREASE CAP, 044HK01
14	324604160	2	COTTER PIN
18	06-61688	2	KING PIN
19	06-60498	2	T126 THRUST BEARING
20	06-60547	4	KING PIN CAP STD
21	06-61376	4	KING PIN CAP GASKET
22	06-61080	8	10-24 BHC SCREW
23	06-61081	8	#10 LOCK WASHER
24	06-60811	8	3/8-16 SET SCREW
25	06-61721	4	KING PIN BUSHING
28	06-1746K RH	1	CALIPER RH
29	06-61747K LH	1	CALIPER LH
30	RD52	1	BRAKE PAD
31	06-61749	2	RETAINER, INBOARD BRAKE PAD
32	06-61750	4	CALIPER MOUNTING BOLT
33	06-61751	2	SLEEVE RETAINING BOLT
34	390406410	4	GREASE ZERK, 1/4-28 UNF
35	321800090	2	NUT, 1./2-13 HEX JAM
36	320224100	2	1.2-13 X2 HHCS GR 5

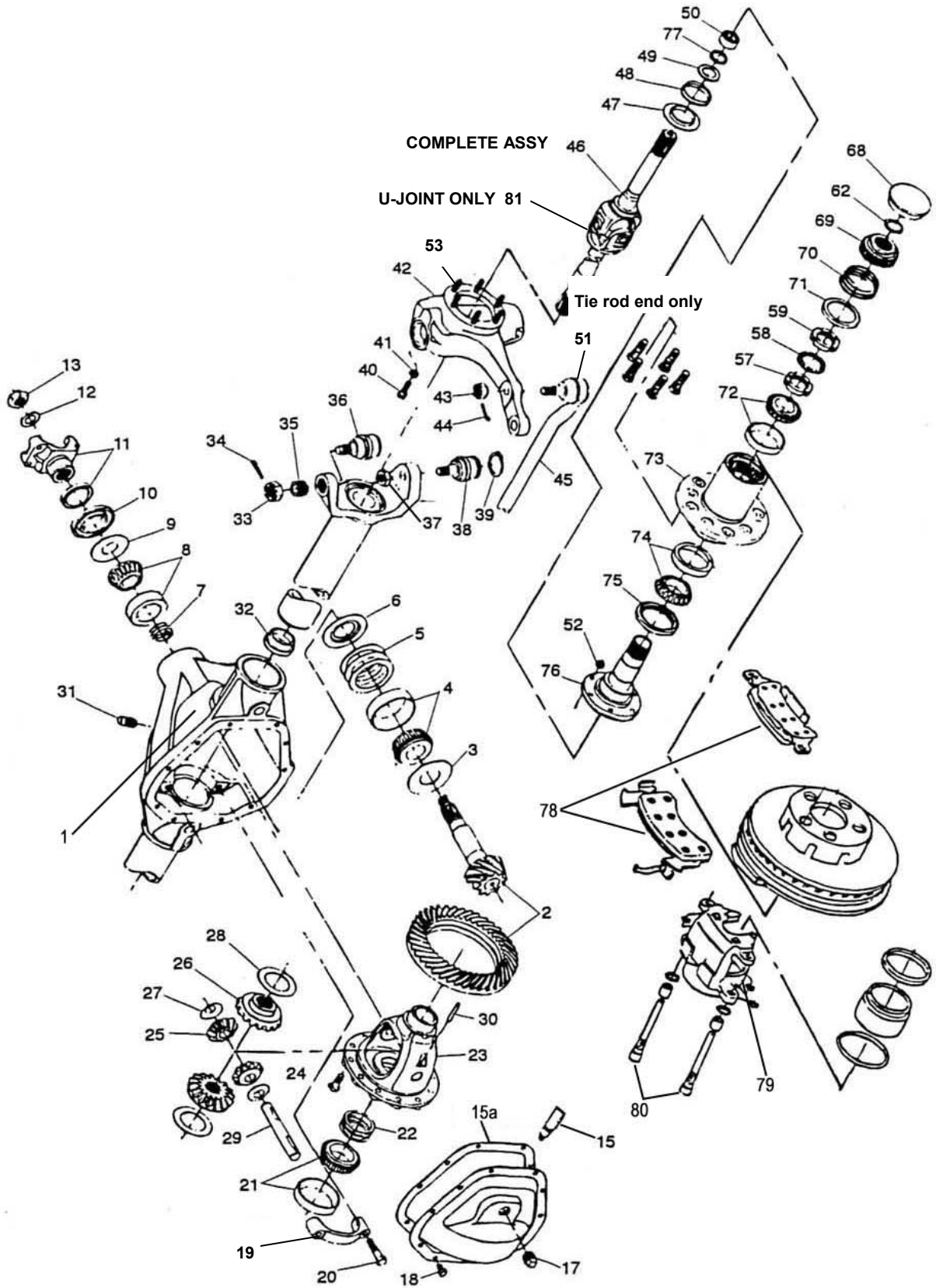
AXLES

AXLE ASSEMBLY BREAKDOWN – FRONT DRIVE (ALL WHEEL DRIVE)

Item	Part Number	Qty	Description
1	A-TT8-00371	1	COMPLETE AXLE ASSEMBLY
2	22404X	1	GEAR & PINION ASSEMBLY
3	30764	1	SLINGER-PINION OIL INNER
4	706031X	KIT	INNER PINION BEARING
5	706617X	KIT	SHIM-PINION ADJ INC ITEMS 5,7,12,13,15,15A
6	30765	1	BAFFLE-PINION OIL
7	706617X	KIT	SEE ITEM 5
8	706030	KIT	OUTER PINION BEARING & RACE
9	13575	1	SLINGER-PINION OIL OUTER
10	39118	1	SEAL-OIL
11	345761X	1	END YOKE ASSEMBLY
12	30186	1	WASHER-PINION NUT
13	30185	1	NUT-PINION
15	82180	AR	RTV SEALANT
16	34685	1	GASKET
17	36472	1	PLUG-COVER PLATE
18	34279	10	SCREW-FLANGE HD
19	N/A	2	CAP DIFFERENTIAL BEARING NOT SERVICED SEPERATELY
20	48632-1	2	1/2-13 X 2.25 GRD8 HEX BOLT
21	706032X	KIT	DIFFERENTIAL BEARING & RACE
22	706618X	KIT	DIFFERENTIAL SHIM INC ITEMS 22,15 &15A
23	25806X	1	CASE-DIFFERENTIAL ASSY
	32684	1	CASE-DIFFERENTIAL
24	41221	10	BOLT-DRIVE GEAR
25	17717	2	PINION-DIFFERENTIAL
26	706027X	2	GEAR-DIFF KIT INC ITEMS 15A & 24-29
27	13338-3	2	THRUST WASHER DIFFERENTIAL PINION
28	32121	2	THRUST WASHER DIFFERENTIAL GEAR
29	39194	1	SHAFT-DIFFERENTIAL
30	13449	1	PIN-ROLL
31	16979	1	VENT
32	36352	2	SEAL & GUIDE-SHAFT
33	44101	2	NUT-SLOTTED
34	500024-8	2	PIN-COTTER
35	35417	2	RING-ADJUSTING
36	40112	1	SOCKET ASSEMBLY-UPPER
37	35566	2	NUT-LOCK
38	40113	1	SOCKET ASSEMBLY-LOWER
39	35928	1	RING-SNAP

AXLES

AXLE ASSEMBLY BREAKDOWN—FRONT DRIVE (ALL WHEEL DRIVE)



AXLES

AXLE ASSEMBLY BREAKDOWN—FRONT DRIVE (ALL WHEEL DRIVE)

Item	Part Number	Qty	Description
40	310026-2	2	BOLT-STOP
41	500381-3	2	NUT-LOCK
42	706653X	KIT	STEERING KNUCKLE L/H INCLUDES ITEMS 33-39,42 & 53
42	706652X	KIT	STEERING KNUCKLE R/H INCLUDES ITEMS 33-39,42 & 53
43	44101	2	NUT-SLOTTED
44	500024-4	2	PIN-COTTER
45	044TR115-16X	1	TIE ROD ASSEMBLY
46	660091-18	2	SHAFT & JOINT ASSY INC ITEM 47
47	36364	1	SLINGER
48	38128	2	SEAL-OIL
49	38106	2	SPACER
50	550759	2	BEARING-NEEDLE
51	044TR119	2	TIE ROD END ONLY FOR ITEM 45
52	500381-3	12	NUT-LOCK FOR ITEM 53
53	36326-2	12	STUD FOR ITEM 42
57	21588X	2	SPINDLE NUT
58	36569	2	LOCK-RETAINING NUT
59	31139	2	NUT-SPINDLE
62	31624	2	RING-SNAP
68	31552	2	CAP-HUB
69	42667	2	GEAR-AXLE DRIVE
70	35218	2	SPRING PRESSURE
71	32589	2	PLATE-SPRING RETAINING
72	706111X	KIT	OUTER WHEEL BEARING & RACE
73	044HU103	2	HUB & ROTOR ASSEMBLY
74	706690-X	KIT	INNER WHEEL BEARING & RACE
75	36366	2	AXLE SEAL
76	706570	KIT	SPINDLE ASSEMBLY INCLUDES ITEMS 48,49,5,77 & 76
	706527X	KIT	SPINDLE SEAL & BEARING INCLUDES ITEMS 50,77,48 & 49
77	36361	1	SEAL-OIL
78	RD52	1 SET	BRAKE PAD SET
79	18009659	1	CALIPER WITHOUT PADS -R/H
79	18009658	1	CALIPER WITHOUT PADS-L/H
79	044WC101-1	1	CALIPER ASSY WITH PADS L/H
79	044WC101-2	1	CALIPER ASSY WITH PADS R/H
80	5468226	1SET	ANCHOR BOLTS
81	5-297-1X	2	GREASABLE U-JOINT FOR ITEM 46

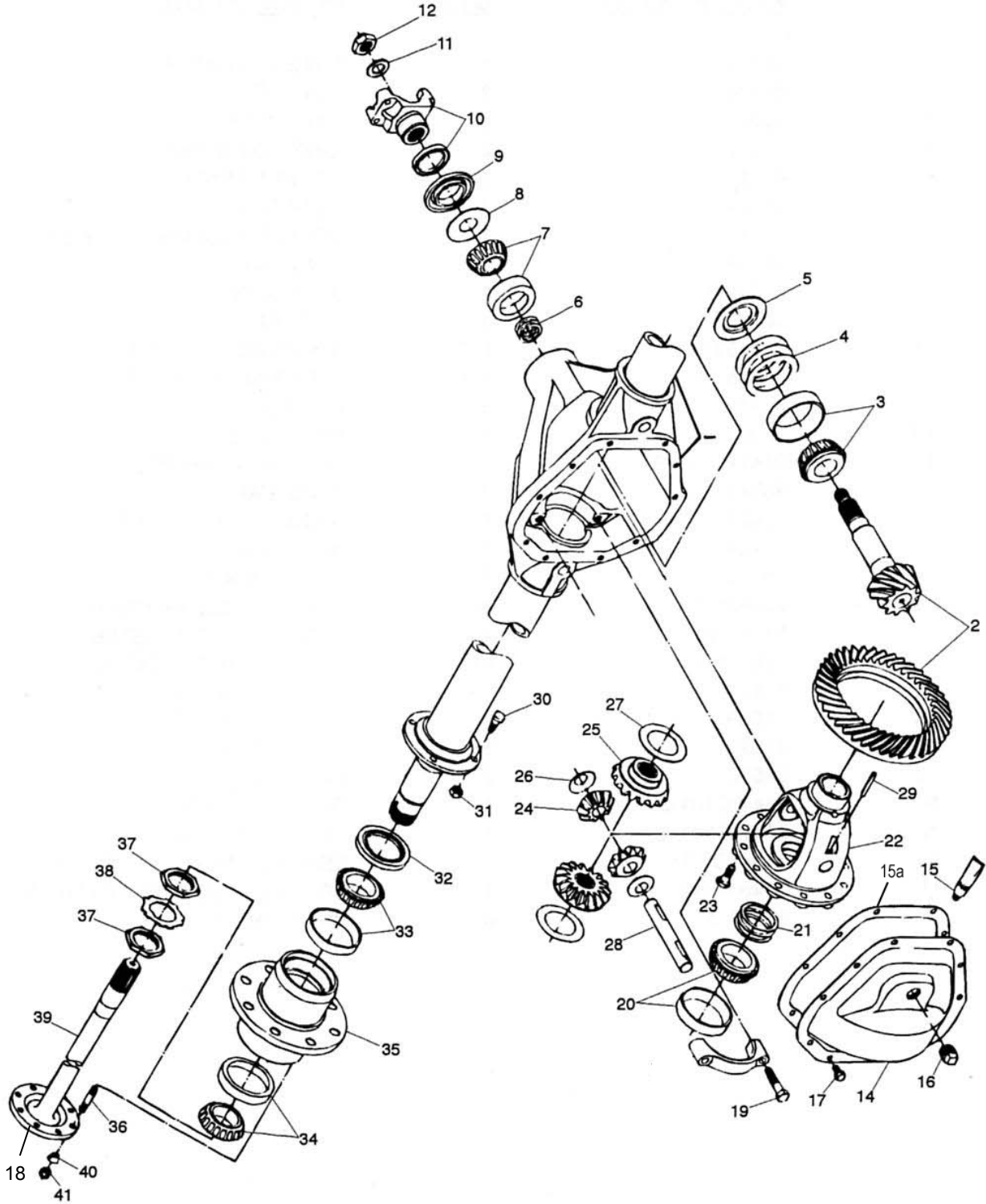
AXLES

AXLE ASSEMBLY BREAKDOWN – REAR DRIVE

Item	Part Number	Qty	Description
1	A-TT4-00361	1	COMPLETE AXLE ASSEMBLY
2	706033-10X	KIT	DRIVE GEAR & PINION
3	706046X	KIT	INNER PINION BEARING & RACE
4	706672X	KIT	SHIM-DRIVE PINION ADJUSTING
5	30765	1	BAFFLE-PINION BEARING
6	706672X	KIT	SHIM-PINION BEARING ADJUSTING
7	706045X	KIT	OUTER PINION BEARING & RACE
8	30273	1	SLINGER-PINION BEARING
9	38427	1	SEAL-PINION
10	345731X	1	END YOKE ASSEMBLY
11	30275	1	WASHER-PINION NUT
12	30271	1	NUT-PINION
14	73597	1	COVER ASSEMBLY
15	82180		RTV SEALANT
15a	39697	1	COVER GASKET
16	98785	1	PLUG-PIPE SLOTTED
17	34822	10	SCREW-FLANGE HD
18	39697	1	AXLE SHAFT GASKET
19	48632-1	2	1/2-13 x 2.25 GRD8 BOLT BEARING CAP
20	706047X	KIT	BEARING & RACE
21	706673X	KIT	SHIM-DIFFERENTIAL BEARING
22	706669X	KIT	CASE-DIFFERENTIAL
23	30266	10	BOLT-DRIVE GEAR
24	ITEM 43 OR 44	KIT	PINION-DIFFERENTIAL
25	ITEM 43 OR 44	KIT	GEAR-DIFFERENTIAL
26	ITEM 43 OR 44	KIT	THRUST WASHER-PINION
27	ITEM 43 OR 44	KIT	THRUST WASHER-GEAR
28	ITEM 43 OR 44	KIT	SHAFT-DIFFERENTIAL
29	500598-21	1	LOCK-DIFFERENTIAL
30	36253	8	BOLT-BRAKE MANUFACTURING
31	36805	8	NUT-BRAKE MANUFACTURING
32	36240	2	SEAL-OIL
33	706071X	KIT	INNER WHEEL BEARING
34	706072X	KIT	OUTER WHEEL BEARING
35	36241	2	HUB & DRUM ASSEMBLY
36	36847	8	STUD-HUB

AXLES

AXLE ASSEMBLY BREAKDOWN — REAR DRIVE



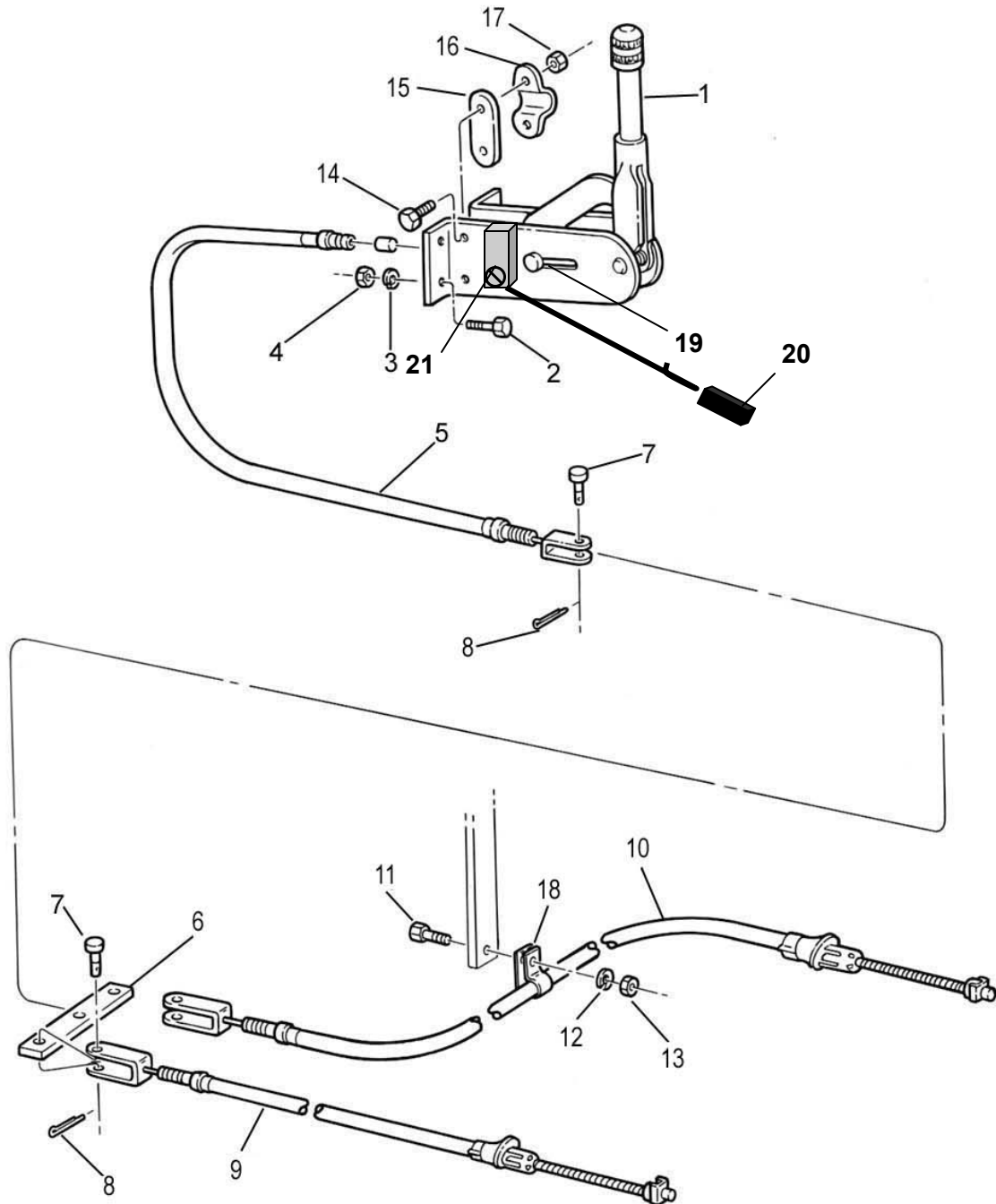
AXLES

AXLE ASSEMBLY BREAKDOWN – REAR DRIVE CONT

Item	Part Number	Qty	Description
37	30636	4	NUT-SPINDLE
38	30637	2	LOCK WASHER WHEEL BEARING
39	34887-7	1	SHAFT-AXLE FLANGE LONG
	34887-10	1	SHAFT-AXLE FLANGE SHORT
40	31534	16	ADAPTER-STUD
41	36805	24	NUT-LOCK
42	16979	1	VENT
43	706671X	1	DIFF PARTS (STD) INC 15, 21-23, 29
44	707084X	1	DIFF PARTS (LTD SLIP) INC 15, 21, 23, 24, 26, 28, 29, 43-48

BRAKES

PARKING BRAKE ACTUATOR ASSEMBLY



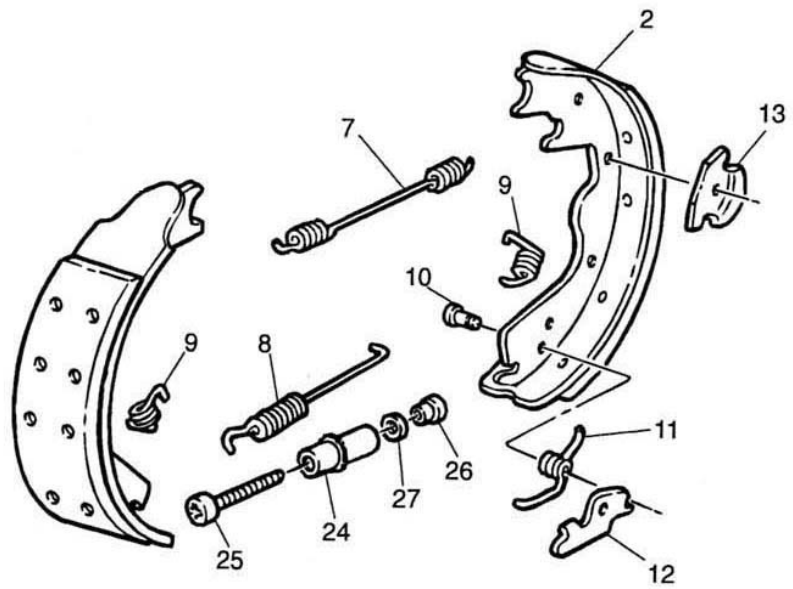
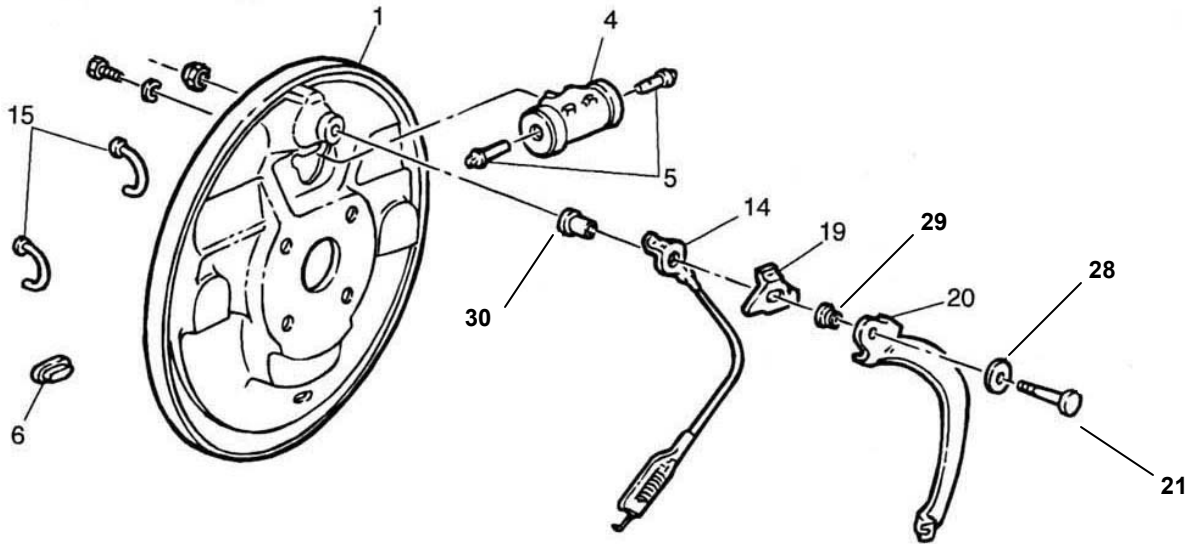
BRAKES

PARKING BRAKE ACTUATOR ASSEMBLY

Item	Part Number	Qty	Description
1	A-TT4-00141	1	HANDBRAKE
2	NPN	4	SCREW-HEX CAP-5/16-18 X 1
3	NPN	4	WASHER-FLAT-5/16
4	NPN	4	NUT-LOCK-5/16-18
5	B-TT4-00145	1	CABLE PRIMARY
6	A-TT4-00146	1	BAR EQUALIZER
7	A-TT4-00193	3	CLEVIS PIN
8	NPN	3	COTTER PIN
9	A-TT4-00151	1	PARKING BRAKE CABLE LEFT REAR
10	A-TT4-00150	1	PARKING BRAKE CABLE RIGHT REAR
11	NPN	1	SCREW-HEX CAP-14-20 X 1
12	NPN	1	WASHER-FLAT-1/4
13	NPN	1	NUT-LOCK-1/4-20
14	NPN	1	SCREW-HEX CAP-1/4-28 X 1
15	NPN	1	CABLE CLAMP PLATE
16	NPN	1	CABLE CLAMP HANDLE
17	NPN	2	NUT-LOCK-1/4-28
18	NPN	2	CABLE CLAMP
19	81008429	1	CONTACT PIN
20	82050000	1	PROXIMITY SENSOR
21	82066700	1	MOUNTING SCREW
22	AE-OPT-0069	1	HANDBRAKE "ON" WARNING (OPTIONAL)

BRAKES

DRUM BRAKE ASSEMBLY—REAR



BRAKES

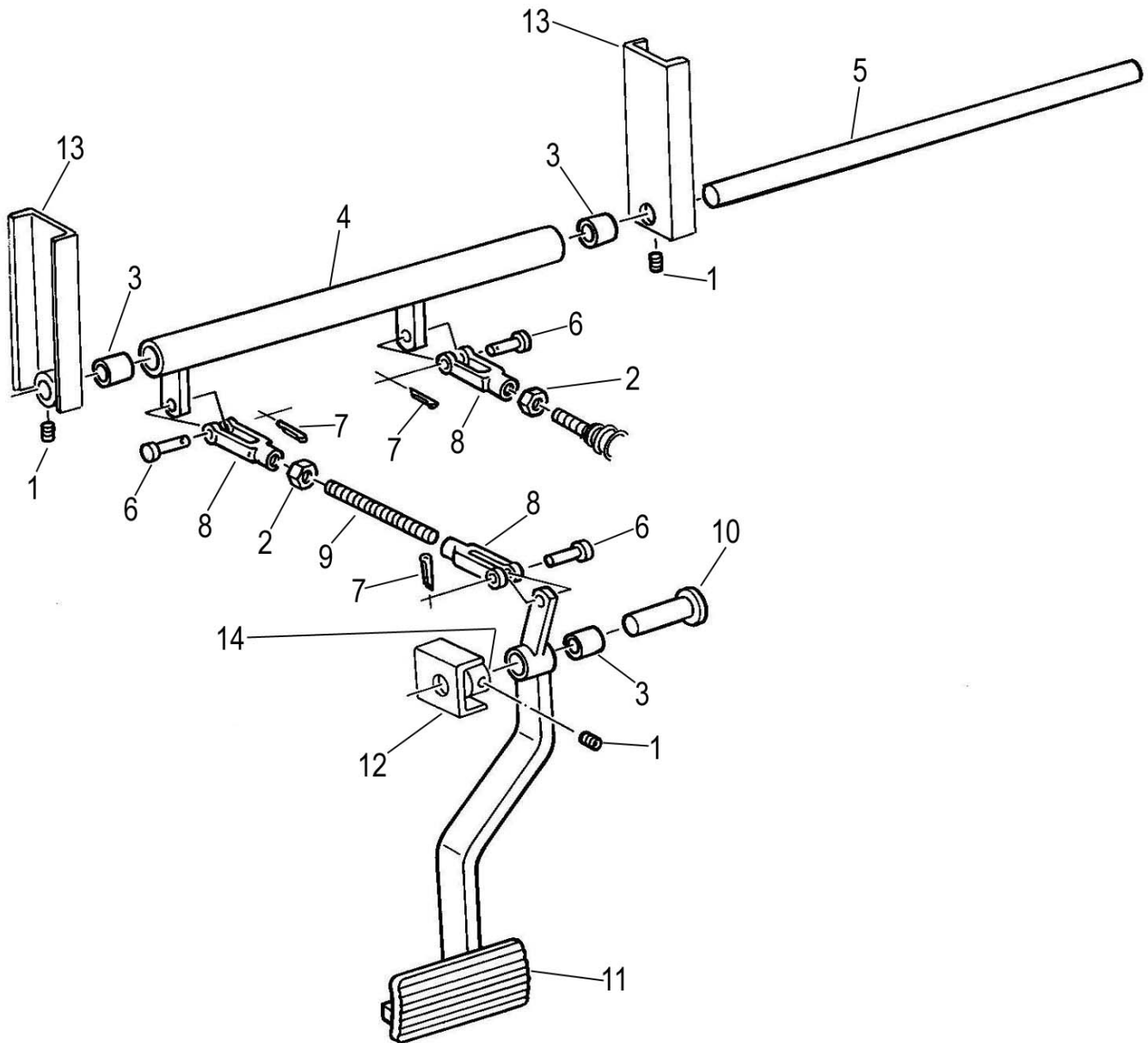
DRUM BRAKE ASSEMBLY—REAR

Item	Part Number	Qty	Description
	060WD101	1	BRAKE ASSEMBLY L/H
	060WD100	1	BRAKE ASSEMBLY R/H
1	4313905	1	BACKING PLATE L/H
1	4313904	1	BACKING PLATE R/H
2	FR357	1 SET	SHOE & LINING SET
4	2235585	1	CYLINDER ASSEMBLY L/H
4	2235586	1	CYLINDER ASSEMBLY R/H
5	315834	2	WHEEL CYLINDERS CONNECTING LINK
6	*SEE KIT BELOW	1	COVER
7	*SEE KIT BELOW	1	SPRING-UPPER
8	*SEE KIT BELOW	1	SPRING-LOWER
9	*SEE KIT BELOW	2	SPRING-HOLD DOWN
10	*SEE KIT BELOW	1	PIN
11	*SEE KIT BELOW	1	SPRING TENSION
12	*SEE KIT BELOW	1	BRAKE ADJUSTING LINK
13	*SEE KIT BELOW	1	CABLE GUIDE
14	*SEE KIT BELOW	1	CABLE ASSEMBLY
15	*SEE KIT BELOW	2	SPRING-HOLD DOWN
19	4383299	1	PARKING BRAKE CAM L/H
19	4383298	1	PARKING BRAKE CAM R/H
20	4383264	1	PARKING BRAKE LEVER (LEFT)
20	4383265	1	PARKING BRAKE LEVER (RIGHT)
21	4419698	1	BRAKE ANCHOR BOLT
24	*SEE KIT BELOW	1	BRAKE ADJUSTING SOCKET L/H
25	*SEE KIT BELOW	1	BRAKE ADJUSTING SCREW L/H
26	*SEE KIT BELOW	1	BRAKE ADJUSTING SOCKET
27	*SEE KIT BELOW	1	WASHER FLAT
28	3492670	1	WASHER
29	3492656	1	SPRING
30	4383600	1	SPACER
KIT	H2588	LEFT	BRAKE ADJUSTING KIT INCLUDES ITEMS 6,10-14,20,24-27
KIT	H2589	RIGHT	BRAKE ADJUSTING KIT INCLUDES ITEMS 6,10-14,20,24-27
KIT	H7146	LEFT OR RIGHT	BRAKE SPRING KIT INCLUDES ITEMS 7-9 & 15

**KIT PARTS NOT SOLD SEPERATELY

BRAKES

BRAKE ACTUATOR ASSEMBLY



BRAKES

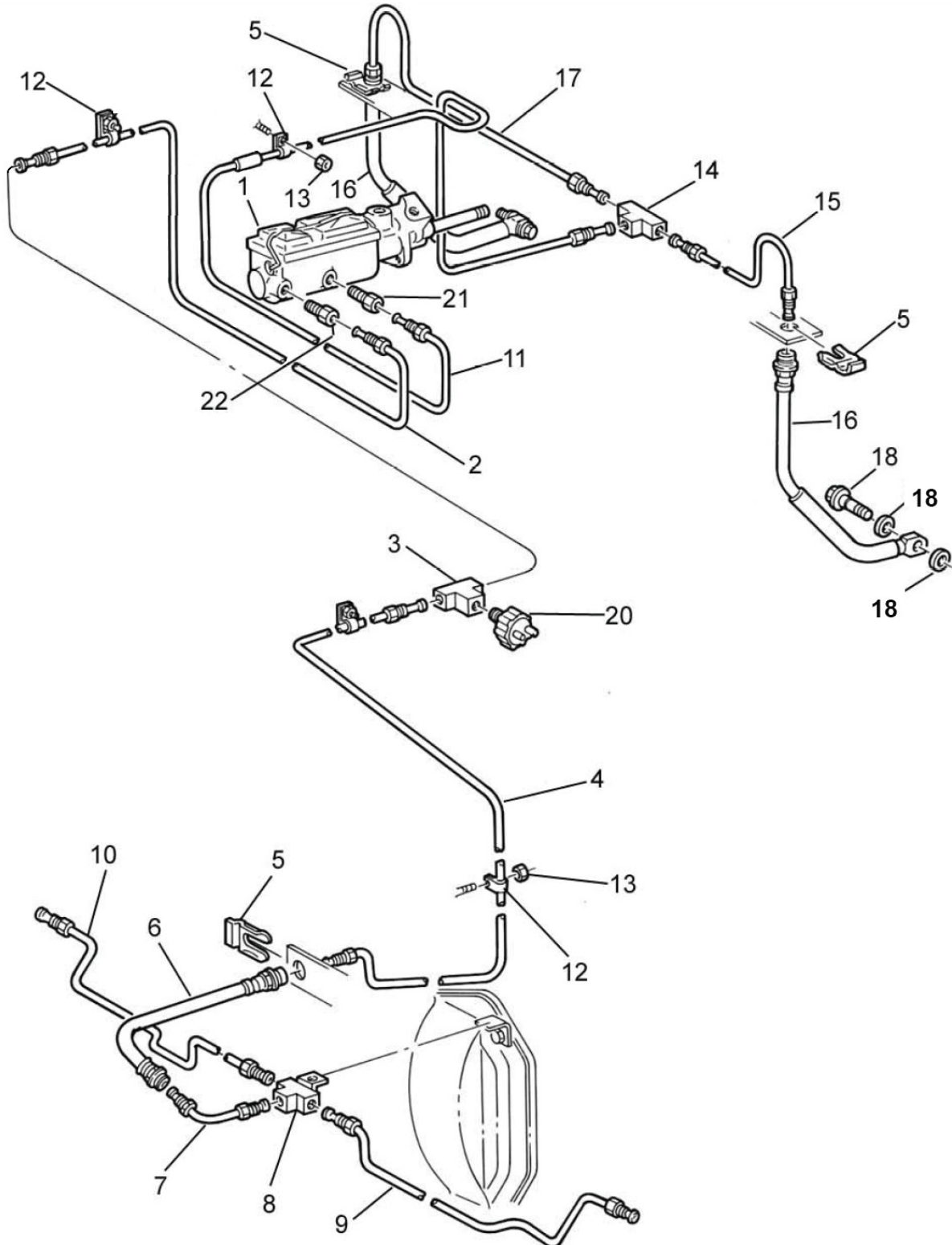
BRAKE ACTUATOR ASSEMBLY

Item	Part Number	Qty	Description
1	NPN	4	¼-20 SET SCREW
2	NPN	2	½-20 NUT
3	C-TT4-10188	3	THOMSON NYLINER BEARING
4	C-TT4-10186	1	BELL CRANK
5	C-TT4-10187	1	BELL CRANK PIVOT SHAFT
6	A-TT4-00193	3	CLEVIS PIN
7	NPN	3	COTTER PIN
8	A-TT4-10192	3	CLEVIS
9	NPN	1	½-20 X 12 ADJUSTING ROD
10	C-TT4-10182	1	BRAKE PEDAL PIVOT SHAFT
11	C-TT4-10181	1	BRAKE PEDAL
12	NPN	1	BRAKE PEDAL PIVOT
13	NPN	2	BELL CRANK STANDOFF
14	A-TT2-0057*	2	SHAFT COLLAR 3/4

* Welded to truck

BRAKES

BRAKE SYSTEM—HYDRAULIC



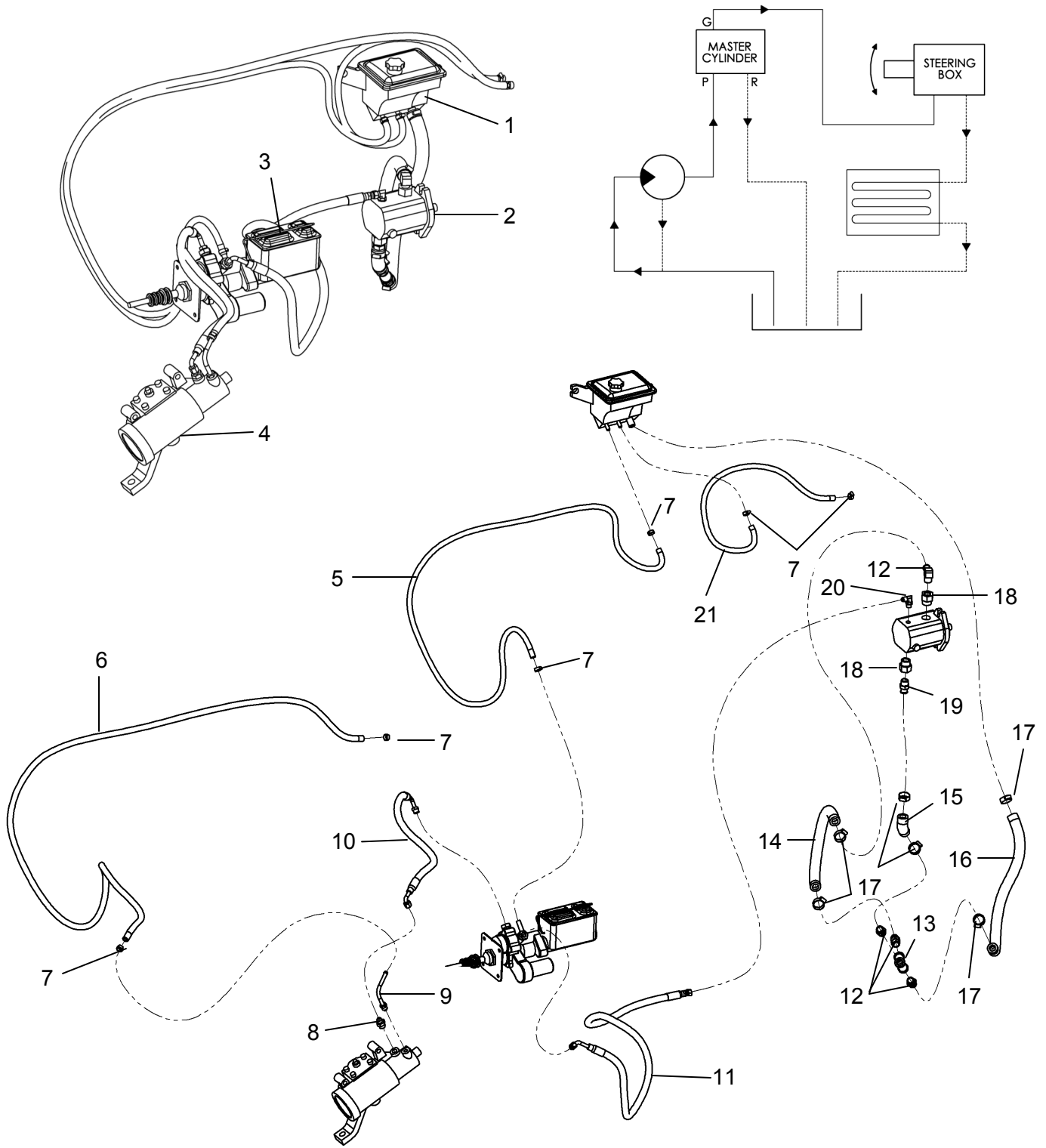
BRAKES

BRAKE SYSEYEM – HYDRAULIC

Item	Part Number	Qty	Description
1	A-TT4-00161-1	1	MASTER CYLINDER
2	A-TT4-00162	1	BRAKE LINE MASTER CYLINDER
3	A-TT4-00163	1	BRAKE LIGHT SWITCH TEE
4	A-TT4Y-00164	1	BRAKE LINE REAR-REAR COOLING SYSTEM ONLY
4	A-TT4W-00164	1	BRAKE LINE REAR-FRONT COOLING SYSTEM ONLY
5	A-TT4-00165	3	BRAKE HOSE CLAMP
6	A-TT4-00166	1	BRAKE HOSE REAR
7	A-TT4-00167	1	BRAKE LINE
8	A-TT4-00168	1	CROSS TEE
9	A-TT4-00169	1	BRAKE LINE REAR RT
10	A-TT4-00170	1	BRAKE LINE LEFT REAR LT
11	A-TT4-00171	1	BRAKE LINE REAR
12	NPN	4	LINE CLAMP
13	NPN	4	NUT-10-32
14	A-TT4-00174	1	CROSS TEE
15	A-TT4-00175	1	BRAKE LINE FRONT RIGHT
16	A-TT4-00176-1	2	CALIPER BRAKE LINE
17	A-TT4-00177	1	BRAKE LINE FRONT LEFT
18	A-TT4-00178	2	BANJO BOLT & WASHER KIT
20	A-TT4-00173	1	BRAKE LIGHT SWITCH
21	A-TT5-00180	1	FITTING-MASTER CYLINDER ADAPTER
22	A-TT5-00181	1	FITTING-MASTER CYLINDER ADAPTER

HYDRAULIC ASSIST

HYDRAULIC ASSIST SYSTEM WITH PRINCE PUMP



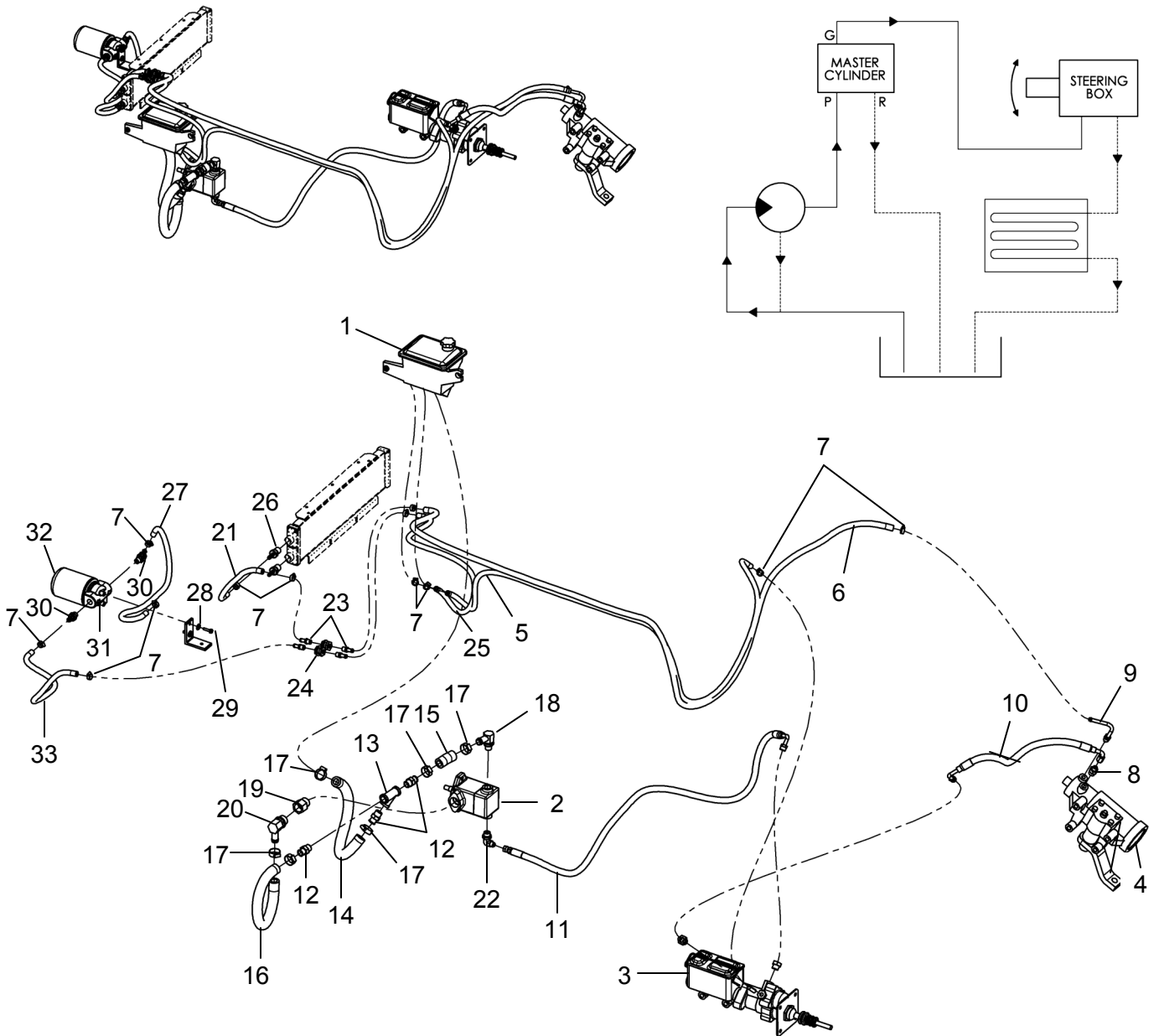
HYDRAULIC ASSIST

HYDRAULIC ASSIST SYSTEM WITH PRINCE PUMP

Item	Part Number	Qty	Description
1	F81Z3A697BB	1	RESERVOIR POWER STEERING FLUID
2	SP20P11L145H2R	1	PRINCE PUMP
3	A-TT4-00161-1	1	MASTER CYLINDER
4	A-TT4-00381	1	STEERING GEAR BOX
5	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 100"
6	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 114"
7	NPN	6	# 4 HOSE CLAMP
8	A-TT4-00213	1	METRIC PORT ADAPTER
9	A-TT4-00204	1	RETURN LINE EXTENDER
10	06U-666-23-06U-B67	1	HYDRAULIC HOSE
11	06U-B67-56-06U-606	1	HYDRAULIC HOSE
12	A-TT4-00606-1A	4	FITTING MALE COUPLING
13	A-TT4-00606-1	1	Y FITTING BLACK IRON
14	12GMV MEGA VAC	1	3/4 SUCTION HOSE 19"
15	12GMV MEGA VAC	1	3/4 SUCTION HOSE 3"
16	12GMV MEGA VAC	1	3/4 SUCTION HOSE 21"
17	NPN	6	#12 HOSE CLAMPS
18	C3269X12X8	2	FEMALE PIPE ADAPTER
19	269HB-12-8	1	ELBOW 3/4 X 1/2
20	C5515X6	1	FITTING, ELBOW 3/8 X 3/8
21	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 46"

HYDRAULIC ASSIST

HYDRAULIC ASSIST SYSTEM WITH METARIS PUMP



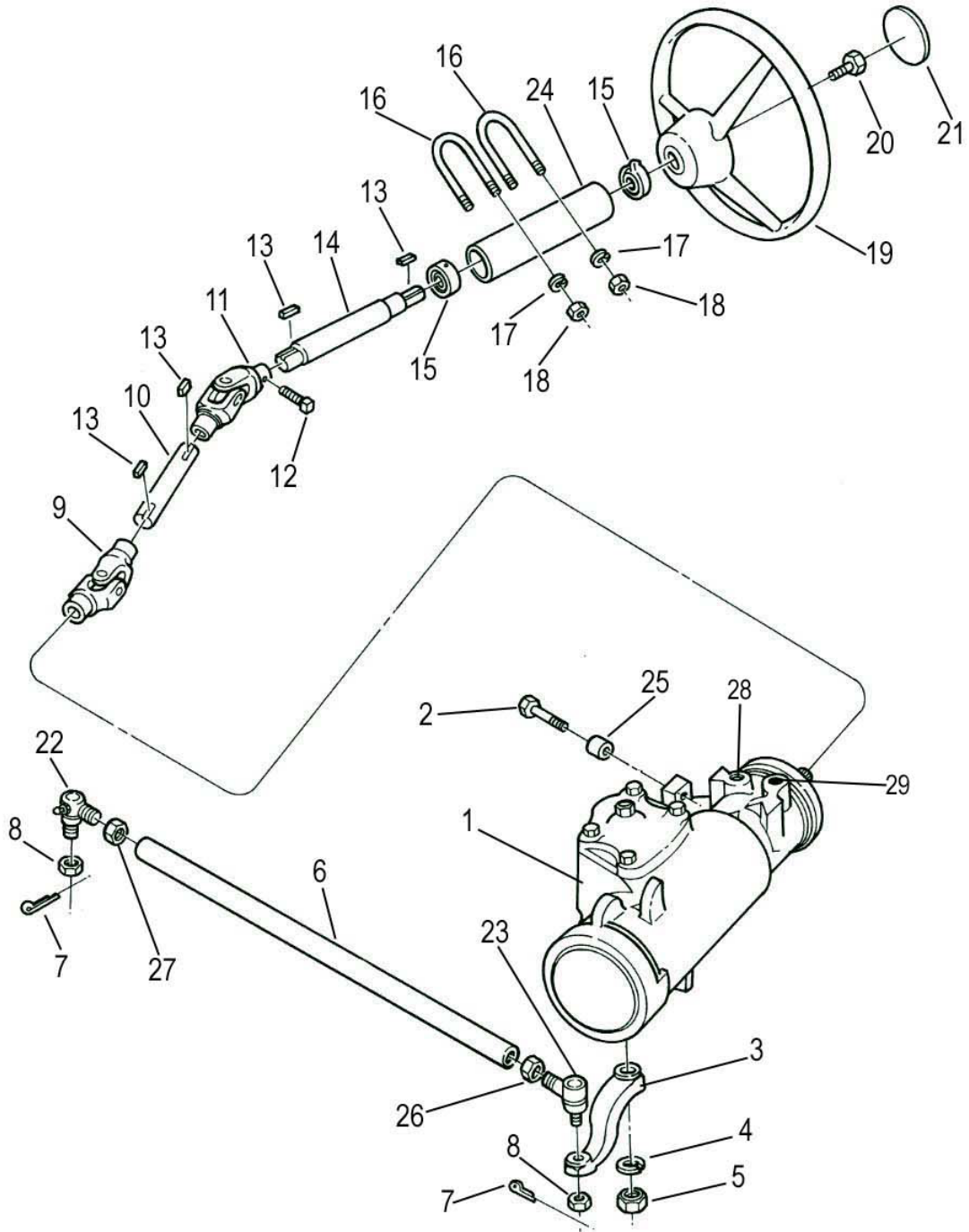
HYDRAULIC ASSIST

HYDRAULIC ASSIST SYSTEM WITH METARIS PUMP

Item	Part Number	Qty	Description
1	F81Z3A697BB	1	RESERVOIR POWER STEERING FLUID
2	V10F1T3T11C3F20L	1	METARIS PUMP
3	A-TT4-00161-1	1	MASTER CYLINDER
4	A-TT4-00381	1	STEERING GEAR BOX
5	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 100"
6	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 114"
7	NPN	9	# 4 HOSE CLAMP
8	A-TT4-00213	1	METRIC PORT ADAPTER
9	A-TT4-00204	1	RETURN LINE EXTENDER
10	06U-666-23-06U-B67	1	HYDRAULIC HOSE
11	06U-B67-56-06U-606	1	HYDRAULIC HOSE
12	A-TT4-00606-1A	3	FITTING MALE COUPLING
13	A-TT4-00606-1	1	Y FITTING BLACK IRON
14	12GMV MEGA VAC	1	3/4 SUCTION HOSE 20"
15	12GMV MEGA VAC	1	3/4 SUCTION HOSE 3"
16	12GMV MEGA VAC	1	3/4 SUCTION HOSE 21.5"
17	NPN	6	#12 HOSE CLAMPS
18	4601-12-08	1	1/2 M SAE 3/4 SUCTION BARB 90 DEG FITTING
19	7033X14X12	1	7/8 M SAE 3/4 F SAE FITTING
20	25TB-12-12	1	3/4 M SAE 3/4 SUCTION BARB 90 DEG FITTING
21	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 20"
22	C5515X6X8	1	1/2 M SAEM JIC 37 FITTING
23	05706B-104	4	FITTING 3/8 X 1/4
24	A-TT4-00280	2	BULKHEAD FITTING
25	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 36"
26	10506B-108	2	FITTING, PUSH ON 06 TO 1/2M
27	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 33"
28	NPN	1	1/4 LOCK WASER
29	NPN	1	1/4-20 X 3/4 BOLT
30	4312-06-08	2	STRAIGHT BARB 1/2"
31	SAF-05-25-0	1	FILTER HEAD
32	SF-6520	1	FILTER ELEMENT
33	H10106	1	3/8 HYDRAULIC HOSE WK PSI 350 33"

STEERING SYSTEM

STEERING SYSTEM BREAKDOWN



STEERING SYSTEM

STEERING SYSTEM BREAKDOWN

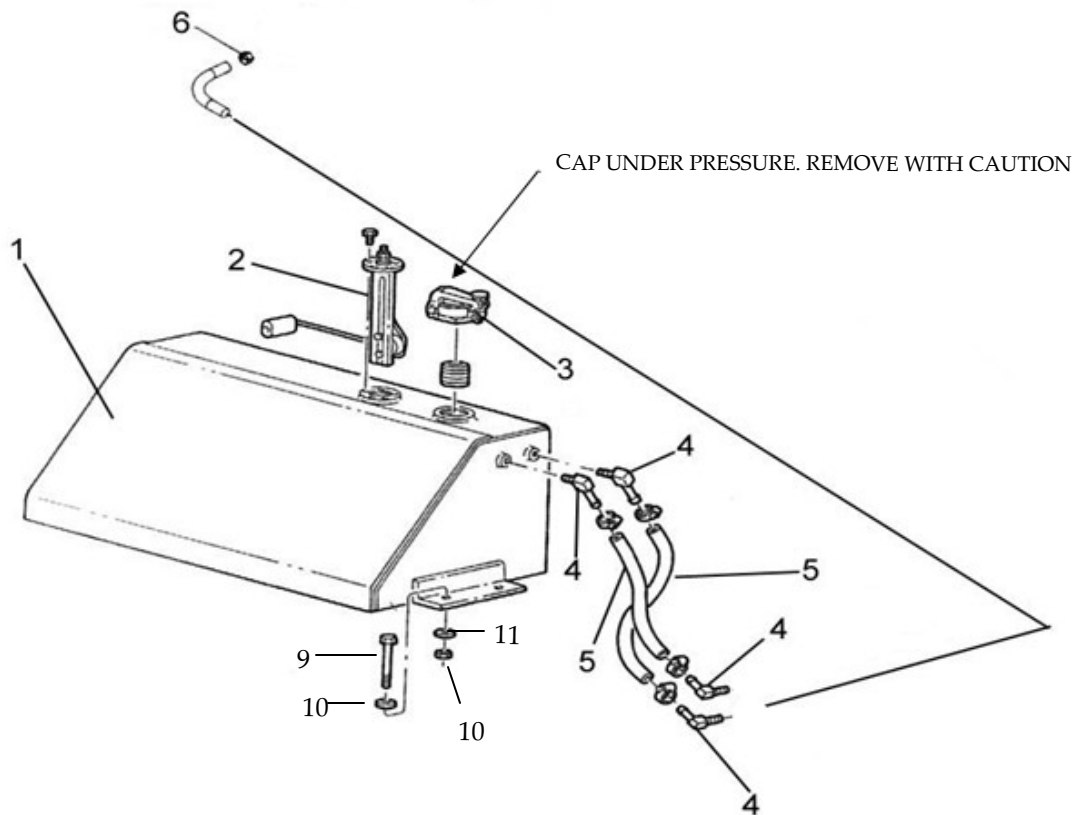
Item	Part Number	Qty	Description
1	A-TT4-00381	1	STEERING BOX
2	NPN	4	SCREW-HEX CAP-7/16-14 X 2 GR8
3	A-TT4-00382	1	PITTMAN ARM
4	NPN	1	WASHER-LOCK-3/4
5	NPN	1	NUT-LOW-3/4-10
6	A-TT4-00386	1	DRAG LINK
7	NPN*	2	COTTER PIN 1/8 X 1 1/2
8	NPN*	2	NUT-TIE ROD 1/2-20
9	A-TT4-00389	1	UNIVERSAL COUPLER
10	A-TT4-00390	1	SHAFT COUPLING
11	A-TT4-00391	1	UNIVERSAL JOINT
12	NPN	2	LOCKING BOLT-DOG POINT 3/8-16
13	A-TT4-00393	4	GIBB KEY
14	A-TT4-00394-1	1	STEERING SHAFT
15	A-TT4-00395	2	BEARING
16	A-TT4-00396	2	2 1/8 U-BOLT 3/8HD
17	NPN**	4	WASHER-FLAT-5/16
18	NPN**	4	NUT-LOCK-5/16-18
19	A-TT4-00399-1	1	STEERING WHEEL
20	N/A	1	SCREW-HEX CAP-3/8-24 X 1
21	A-TT4-00401-1	1	COVER PLATE
22	A-TT4-00402	1	TIE ROD END L/H
23	A-TT4-00403	1	TIE ROD END R/H
24	A-TT4-00404	1	STEERING TUBE
25	A-TT4-00405	4	SPACERS
26	A-TT4-00406	1	3/4-16 NUT-JAM-L/H
27	A-TT4-00407	1	3/4-16 NUT-JAM-R/H
28	A-TT4-00212	1	HIGH PRESSURE EXTENDER
29	A-TT4-00204	1	RETURN LINE EXTENDER

*ITEMS 7 & 8 NOT SOLD SEPERATELY. THESE PARTS ARE INCLUDED IN ITEMS 22 & 23

**ITEM 17 & 18 ARE INCLUDED IN ITEM 16

FUEL SYSTEM

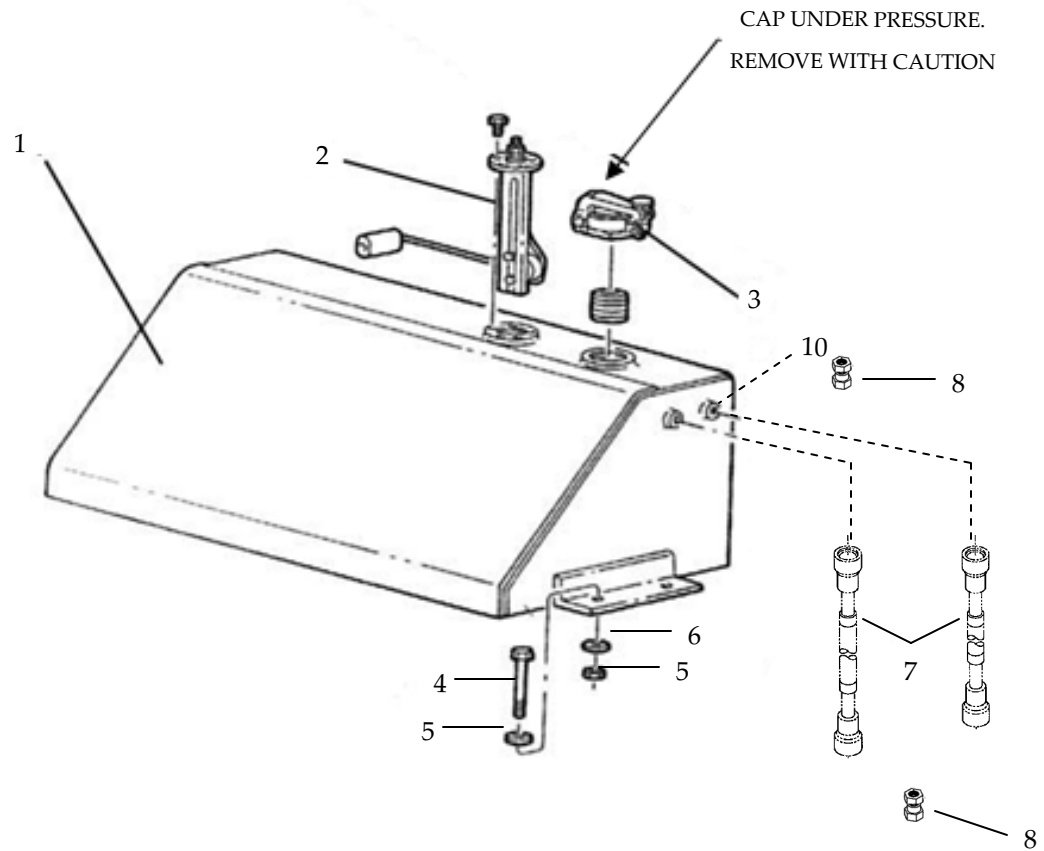
GAS TANK-CARBURETED ENGINE ONLY



Item	Part Number	Qty	Description
1	A-TT4-00273	1	FUEL TANK
2	A-TT4-00276	1	FUEL SENDING UNIT
3	A-TT4-00271-2	1	FUEL CAP
4	A-TT4F-00274	6	90 DEGREE ELBOW FITTING
5	NPN	2	5/16 HIGH PRESSURE LINE 350 PSI
6	NPN	14	#4 HOSE CLAMP
7	F8JL9A011AA	1	FILTER - FUEL TANK
8	A-TT4-00280	2	BULKHEAD FITTING
9	NPN	4	SCREW 3/16 X 3 1/2 GR8 HCS
10	NPN	16	3/16 FLAT WASHER
11	A-TT4-00273-WASHER	8	TANK MOUNT WASHER
12	NPN	8	3/16 LOCK NUT (NOT SHOWN)

FUEL SYSTEM

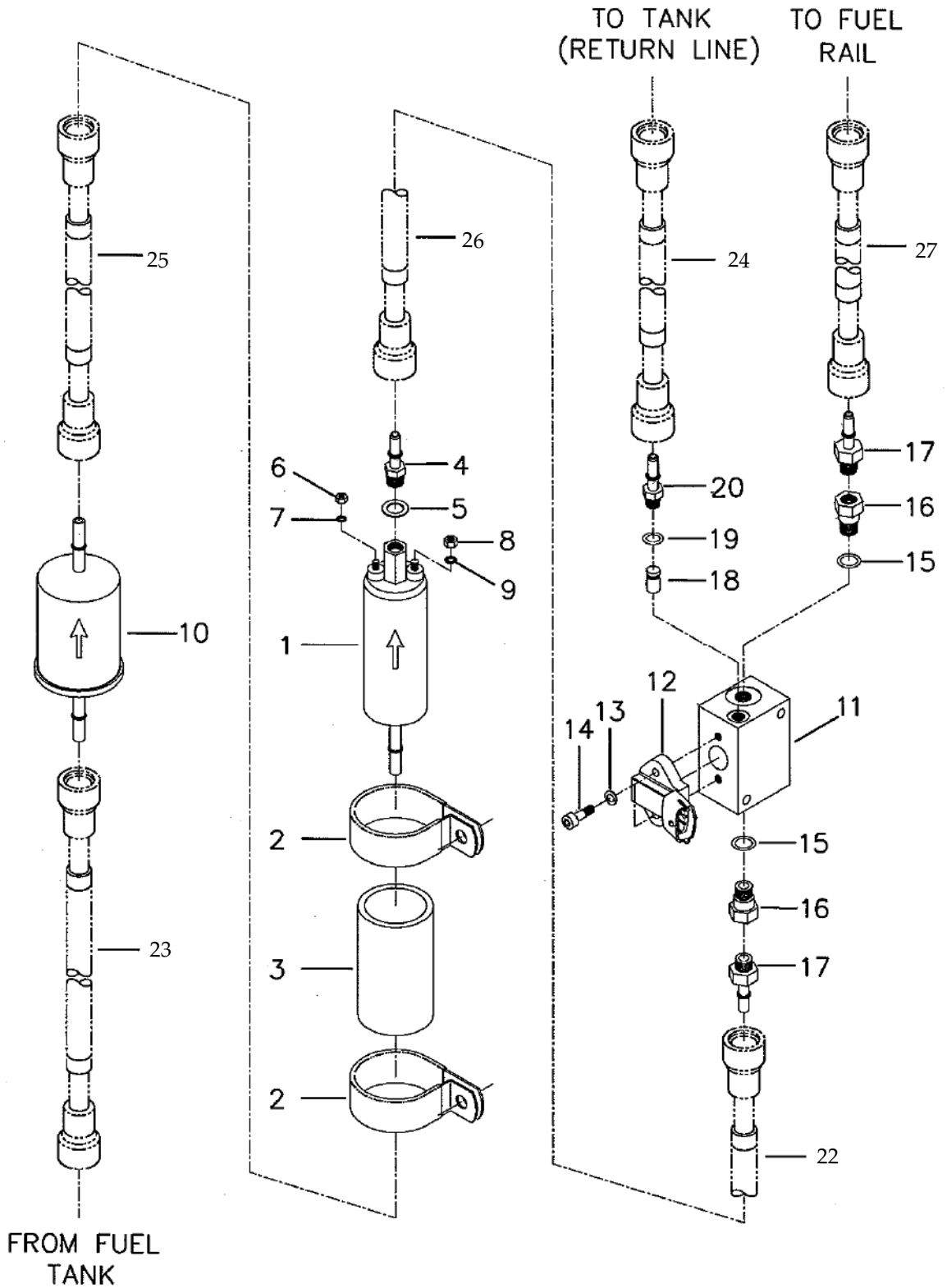
GAS TANK-EFI & FRONT COOLING SYSTEM



Item	Part Number	Qty	Description
1	A-TT4-00273	1	FUEL TANK
2	A-TT4-00276	1	FUEL SENDING UNIT
3	A-TT4-00271-2	1	FUEL CAP
4	NPN	4	SCREW 3/16 X 3 1/2 GR8 HCS
5	NPN	16	3/16 FLAT WASHER
6	A-TT4-00273-WASHER	8	TANK MOUNT WASHER
7	NPN	8	3/16 LOCK NUT (NOT SHOWN)
8	A-TT4-00280	6	BULKHEAD FITTING
9	A-TT4-00269-A	2	FUEL LINE
10	X26227	7	FUEL LINE FITTING 1/4 X J2044

FUEL SYSTEM

ENGINE FUEL LINE – TUGS WITH FRONT COOLING SYSTEM



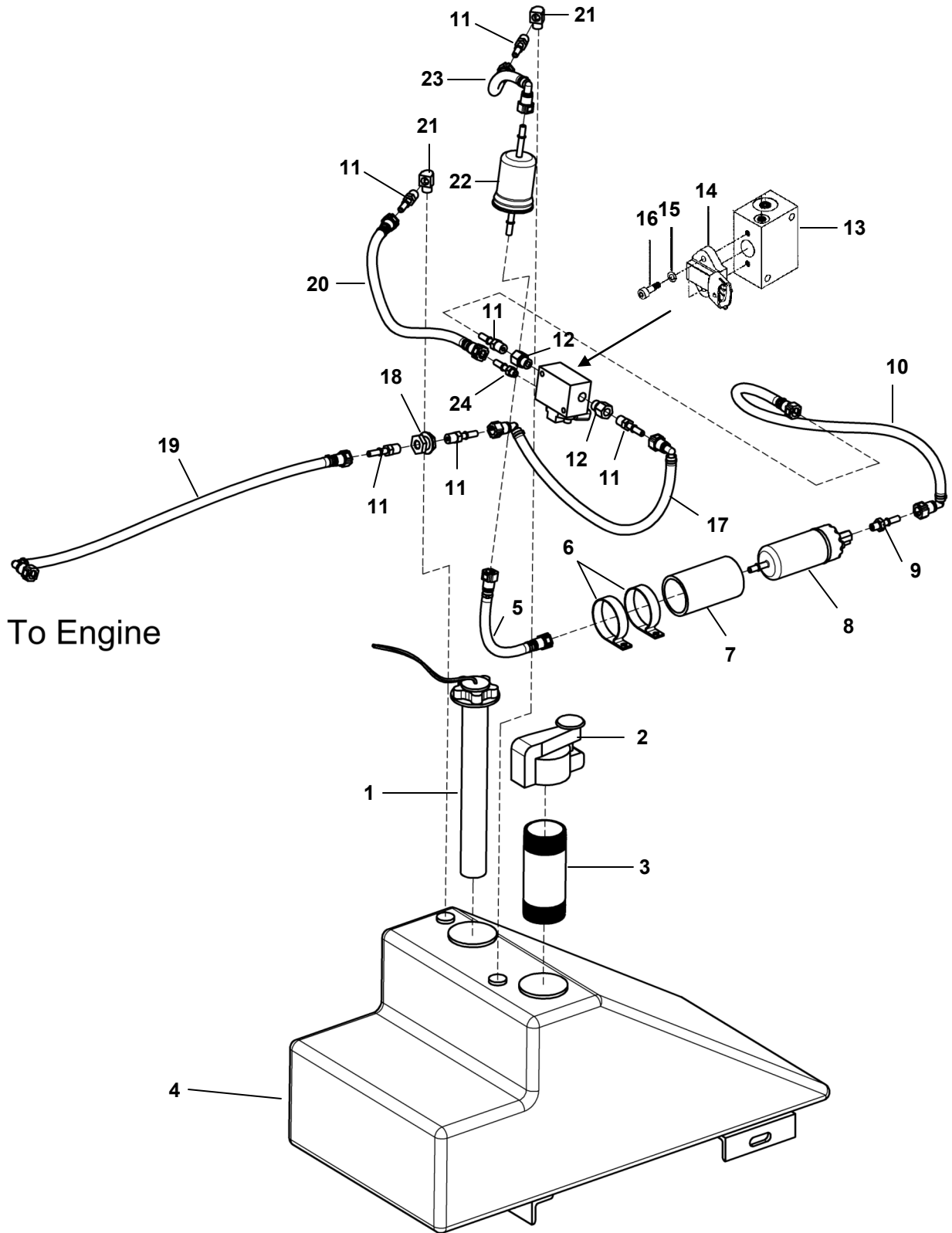
FUEL SYSTEM

ENGINE FUEL LINE—TUGS WITH FRONT COOLING SYSTEM

Item	Part Number	Qty	Description
1	TM27F00337	1	FUEL PUMP
2	TM27F00240	2	CLAMP, PUMP MOUNTING
3	TM27F00237	1	ISOLATOR, FEED PUMP
4	TM27F00338	1	FITTING, M10 X SAE J2044
5	TM27F00238	1	WASHER, M10 COPPER
6	20200005	1	NUT M4, POSITIVE TERMINAL
7	20200004	1	LOCK WASHER M4, INTERNAL TOOTH
8	13XXM35004	1	NUT M5, NEGATIVE TERMINAL
9	XM37021	1	LOCK WASHER M5, INTERNAL TOOTH
10	TM27F00339	1	FUEL FILTER
11	TM27F00341	1	FUEL MANIFOLD, PWM SYS INCUDES ITEMS 12-14 & 18
12	TM27F00247	1	FUEL PRESSURE & TEMP SENSOR
13	NPN	2	WASHER-SPRING LOCK M6
14	NPN	2	SCREW, M6-1 X 20
15	X07879	2	O RING 906
16	X26230	2	FITTING 3/8 X 1/4 NPT
17	X26227	2	FITTING 1/4 NPT X SAE J2044
18	NPN	1	CHECK VALVE-NOT SOLD SEPERATELY
19	X07878	1	O RING 903
20	X26229	1	FITTING 3/16 PORT X SAE J2044
21	9367K65	1	HEAT SHEILD (NOT SHOWN)
22	A-TT4-00269-A	1	FUEL LINE 10"
23	A-TT4-00269-C	1	FUEL LINE 22"
24	A-TT4-00269-D	1	FUEL LINE 43"
25	A-TT4-00269-E	1	FUEL LINE 3"
26	A-TT4-00269-F	1	FUEL LINE 21"
27	A-TT4-00269-G	1	FUEL LINE 45"

FUEL SYSTEM

FUEL SYSTEM



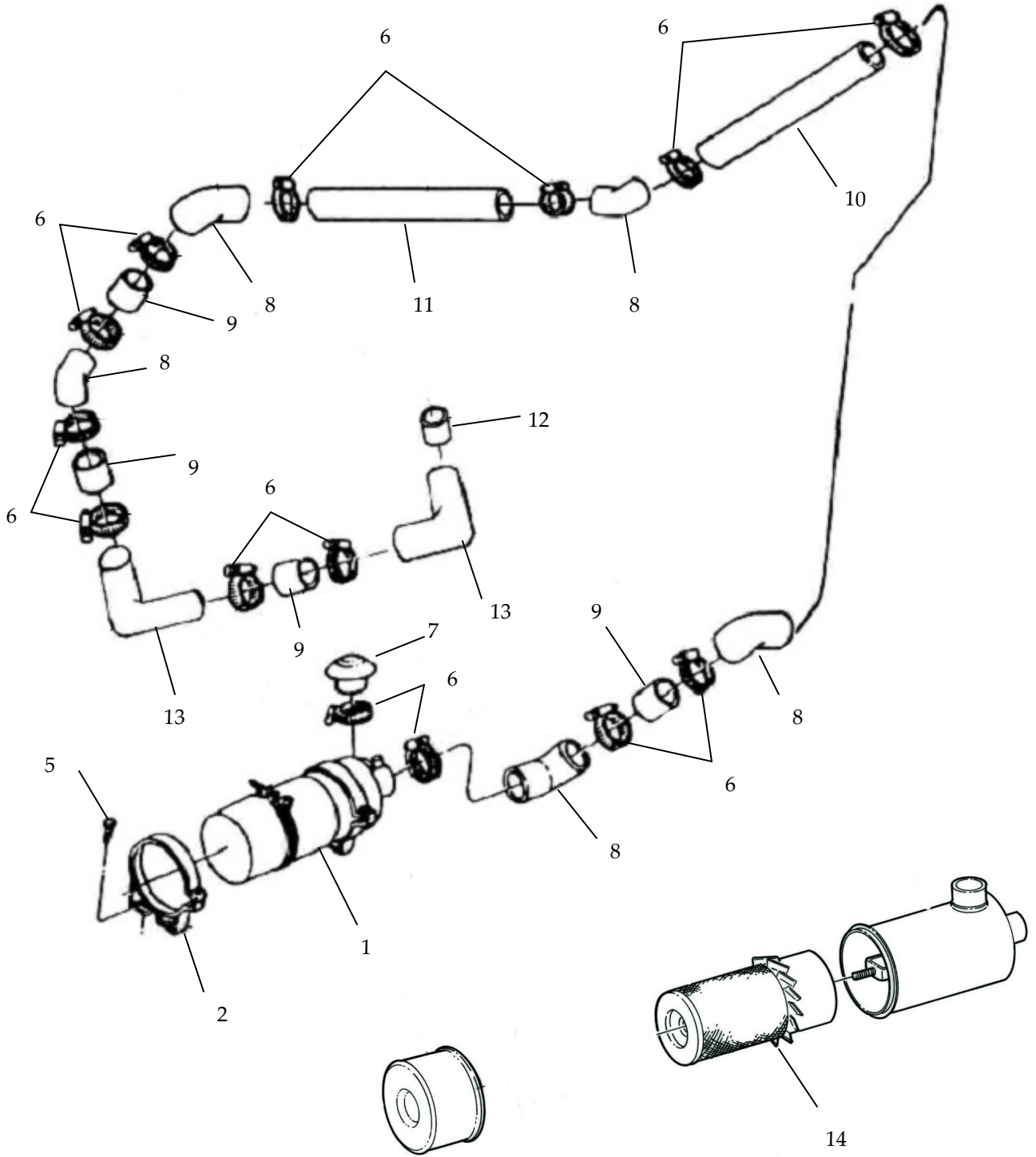
FUEL SYSTEM

FUEL SYSTEM

Item	Part Number	Qty	Description
1	A-TT4-00276-1	1	FUEL SENDING UNIT
2	A-TT4-00271-2	1	FUEL CAP
3	A-TT4-00272	1	NIPPLE 5 1/2 "
4	A-TT4-00273-1	1	FUEL TANK
5	A-TT4-00269-A	1	FUEL HOSE 10"
6	TM27F00240	2	CLAMP, PUMP MOUNTING
7	TM27F00239	1	ISOLATOR, FUEL PUMP
8	TM27F00337	1	FUEL PUMP, ELECTRIC
9	TM27F00338	1	FITTING M10 X SAE J2044
10	A-TT4-00269-H	1	FUEL HOSE 23"
11	X26227	7	FITTING 1/4 NPT X SAE J2044
12	X26230	2	FITTING 3/8 PORT X 1/4 NPT
13	TM27F00341	1	FUEL MANIFOLD PWM SYSTEM INCLUDES ITEMS 14-16
14	TM27F00247	1	FUEL PRESSURE & TEMP SENSOR
15	NPN	2	SPRING LOCK WASHER M6
16	NPN	2	SCREW, M6-1 X 20 LONG
17	A-TT4-00269-I	1	FUEL HOSE 21"
18	A-TT4-00280	1	BULK HEAD FITTING
19	A-TT4-00269-H	1	FUEL HOSE 23'
20	A-TT4-00269-E	1	FUEL HOSE 21"
21	AE-OPT-0131-13	2	STREET ELBOW 90 DEG
22	TM27F00339	1	FUEL FILTER
23	A-TT4-00269-J	1	FUEL HOSE 13.5"
24	X26229	1	FITTING 3/16 PORT X SAE J2044

AIR CLEANER

AIR CLEANER ASSEMBLY



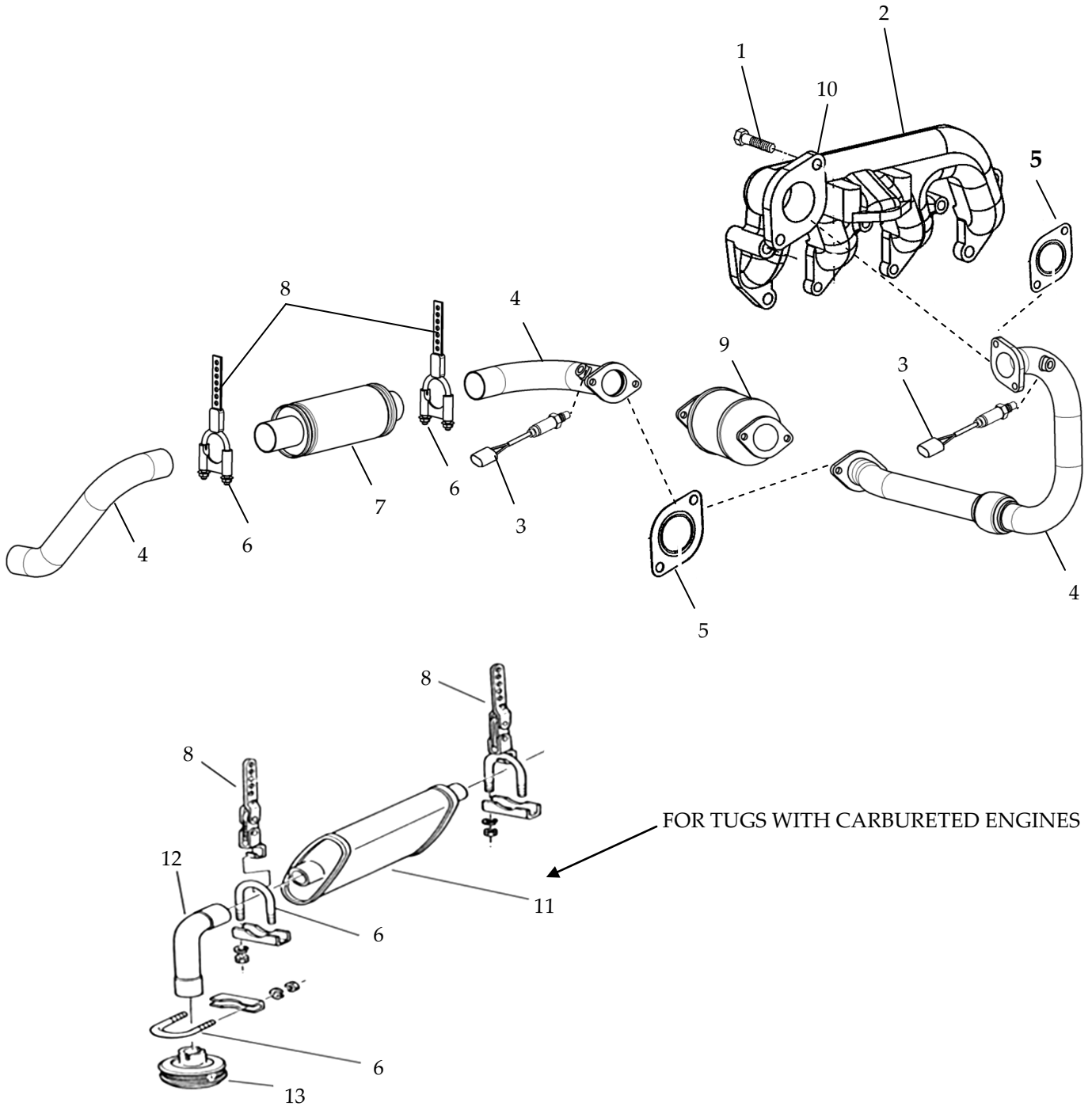
AIR CLEANER

AIR CLEANER ASSEMBLY

Item	Part Number	Qty	Description
1	A-TT4-00091-1	1	AIR CLEANER ASSEMBLY 3"
	A-TT4-00091	1	AIR CLEANER ASSEMBLY 2"
2	A-TT4-00092	2	AIR CLEANER BRACKET
3	NPN	4	NUT-LOCK 3/8-16
4	NPN	4	WASHER-FLAT 3/8
5	NPN	4	SCREW-HEX CAP 3/8-16 X 1 GR.5
6	NPN	10	HOSE CLAMPS
7	A-TT4-00098-1	1	RAIN CAP 3"
8	A-TT4-00094-3	5	45 DEGREE ELBOW 2.5
9	NPN	4	BULK-INTAKE TUBE - 2.5 X 3
10	NPN	1	BULK-INTAKE TUBE - 18.5"
11	NPN	1	BULK-INTAKE TUBE - 7"
12	A-TT4-00096	1	INTAKE TUBE REDUCER 2 TO 2 1/4
13	A-TT4-00097-1	1	90 DEGREE ELBOW 2.5
14	P14-8966	1	AIR CLEANER ELEMENT A-TT4-00091
	P549271	1	AIR CLEANER ELEMENT A-TT4-00091-1

EXHAUST SYSTEM

EXHAUST SYSTEM-TUGS WITH FRONT COOLING



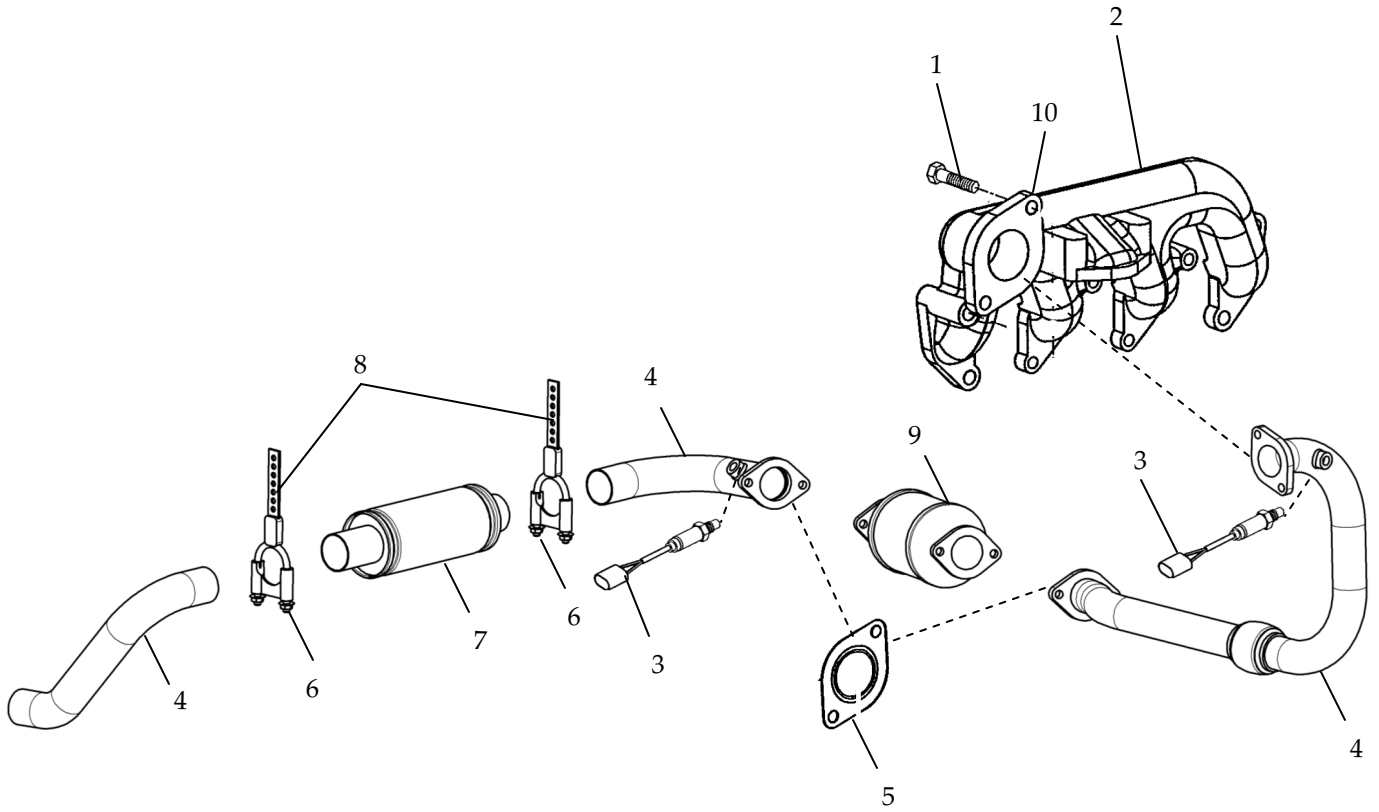
EXHAUST SYSTEM

EXHAUST SYSTEM –TUGS WITH FRONT COOLING

Item	Part Number	Qty	Description
1	XM32042	2	SCREW, M10 X 45 GD 10.9
2	TM27E00600	1	EXHAUST MANIFOLD
3	20120070	2	OXEGYN SENSOR
4	A-TT4W-00253	1	EXHAUST PIPE TIER II TUGS
4	A-TT4W-00253-1	1	3 PIECE EXHAUST PIPE SET TIER III TUGS
5	TM27E00202	2	EXHAUST GASKET
6	A-TT4-00254	2 or 4	EXHAUST CLAMP
7	A-TT10F-00258	1	MUFFLER
8	A-TT4-00260	2	PIPE HANGER
9	TM27E00201	1	CATALYTIC CONVERTOR
10	XM35007	2	LOCK NUT M10
11	A-TT4-00258-1	1	MUFFLER TUG WITH CARBURETED ENGINE
12	A-TT4-00259-1	1	TAIL PIPE TUG CARBURETED ENGINE
13	AE-OPT-0059	1	SPARK ARRESTOR (OPTION)

EXHAUST SYSTEM

EXHAUST SYSTEM-TUGS WITH REAR COOLING



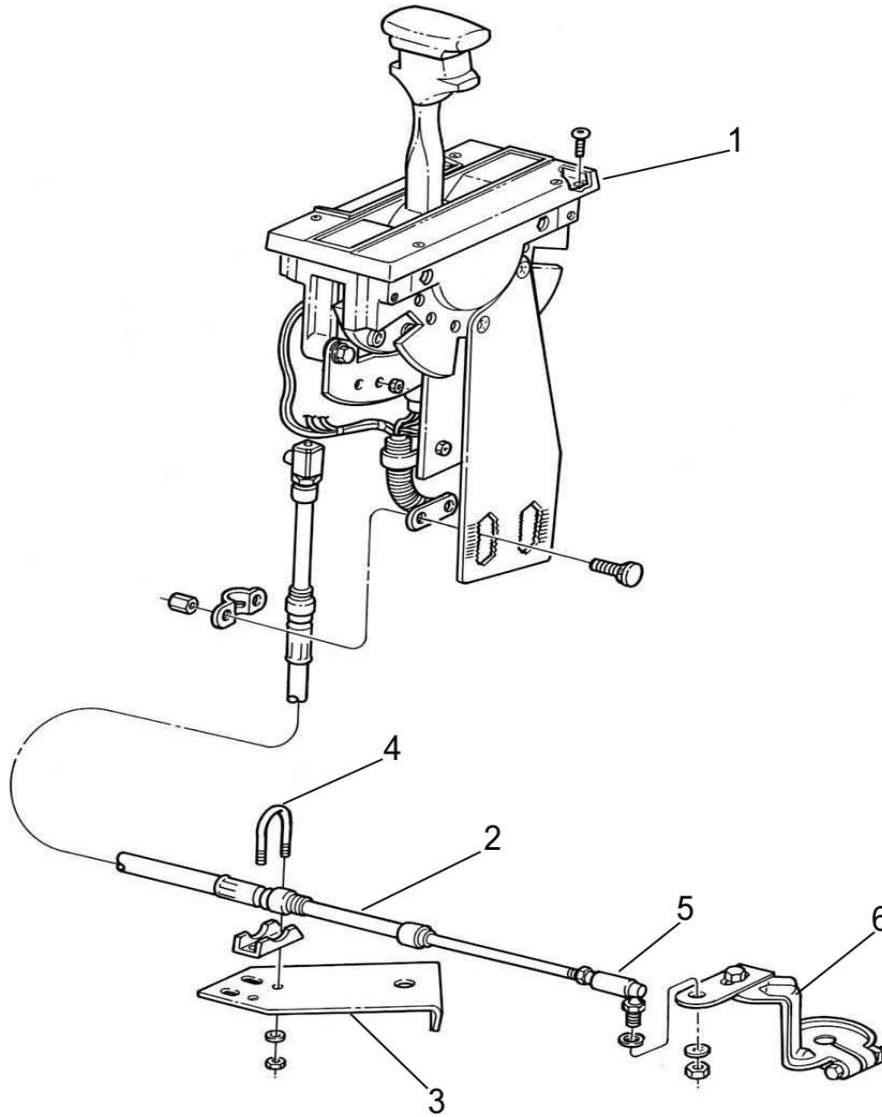
EXHAUST SYSTEM

EXHAUST SYSTEM-TUGS WITH REAR COOLING

Item	Part Number	Qty	Description
1	XM32042	2	SCREW, M10 X 45 GD 10.9
2	TM27E00600	1	EXHAUST MANIFOLD
3	20120070	2	OXEGYN SENSOR
4	A-TT4W-00253-1	1	3 PIECE EXHAUST PIPE SET
5	TM27E00202	2	EXHAUST GASKET
6	A-TT4-00254	2	EXHAUST CLAMP
7	A-TT10F-00258	1	MUFFLER
8	A-TT4-00260	2	PIPE HANGER
9	TM27E00201	1	CATALYTIC CONVERTOR
10	XM35007	2	LOCK NUT M10

OPERATOR COMPARTMENT

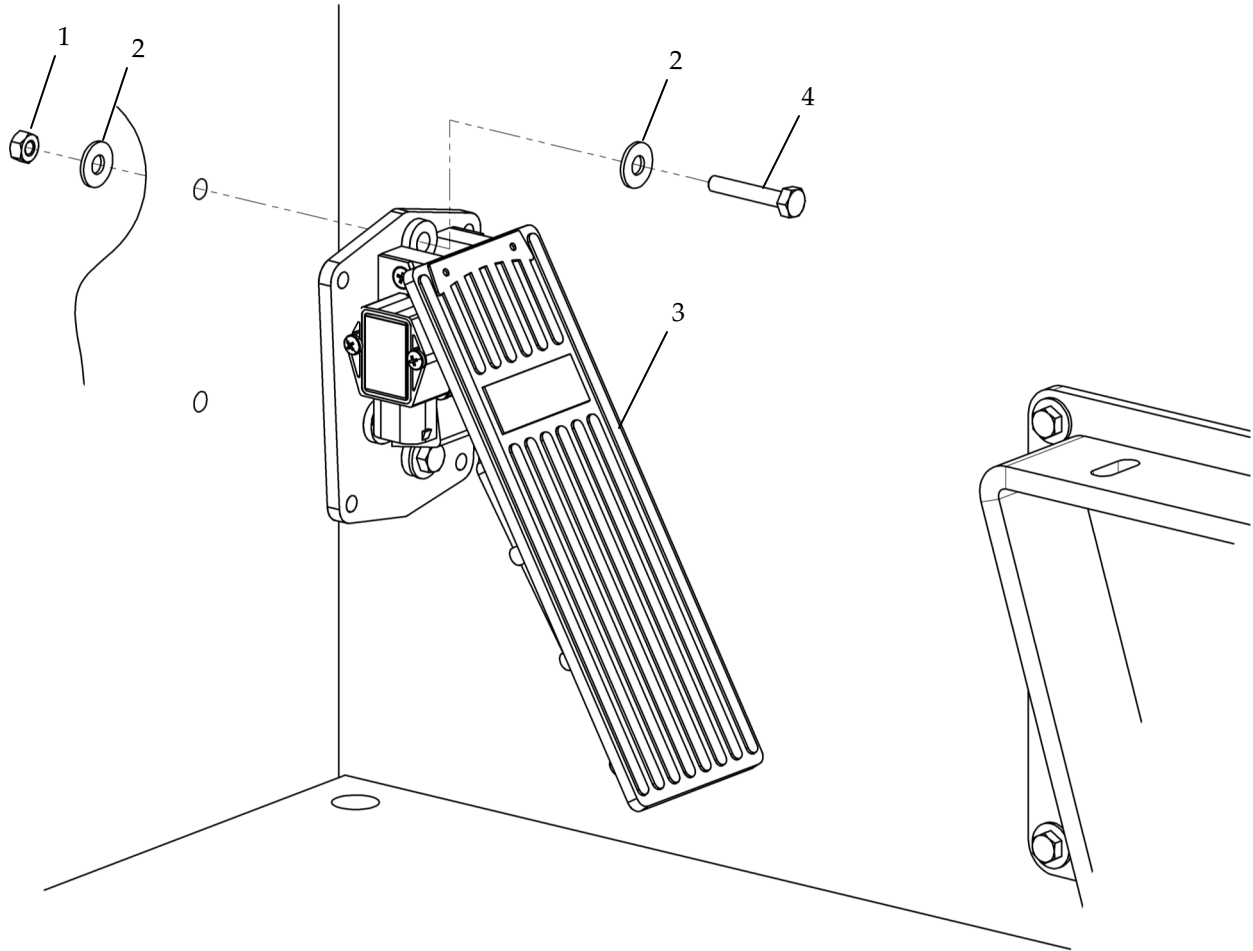
TRANSMISSION CONTROL



Item	Part Number	Qty	Description
1	A-TT4-00245	1	TRANSMISSION SHIFT CONTROL
2	A-TT4-00246	1	TRANSMISSION SHIFT CABLE 120'
3	A-TT4-00248	1	TRANSMISSION CABLE BRACKET ASSEMBLY
4	A-TT4-00247	1	U-BOLT KIT
5	A-TT4-00249	1	BALL JOINT KIT
6	A-TT4-00419	1	TRANSMISSION LEVER
7	302008	1	INDICATOR STRIP REPAIR KIT(NS)
8	302348	1	HANDLE REPAIR KIT(NS)

OPERATOR COMPARTMENT

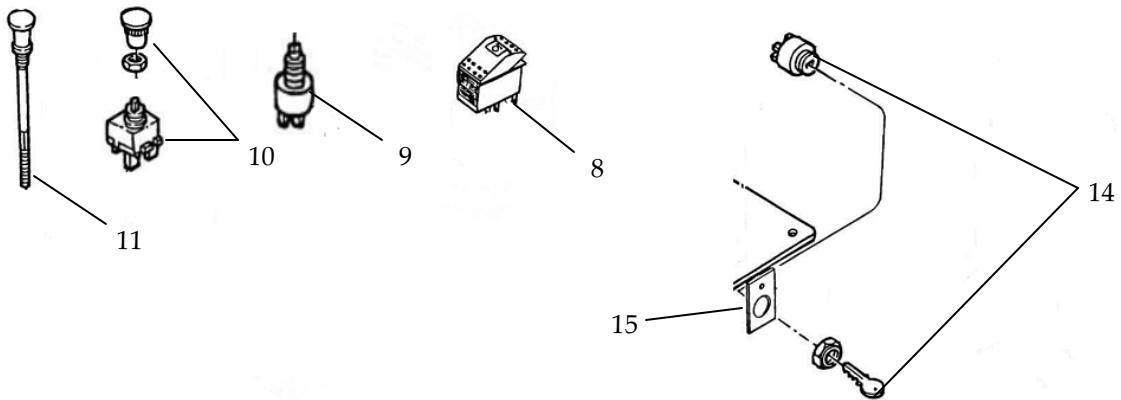
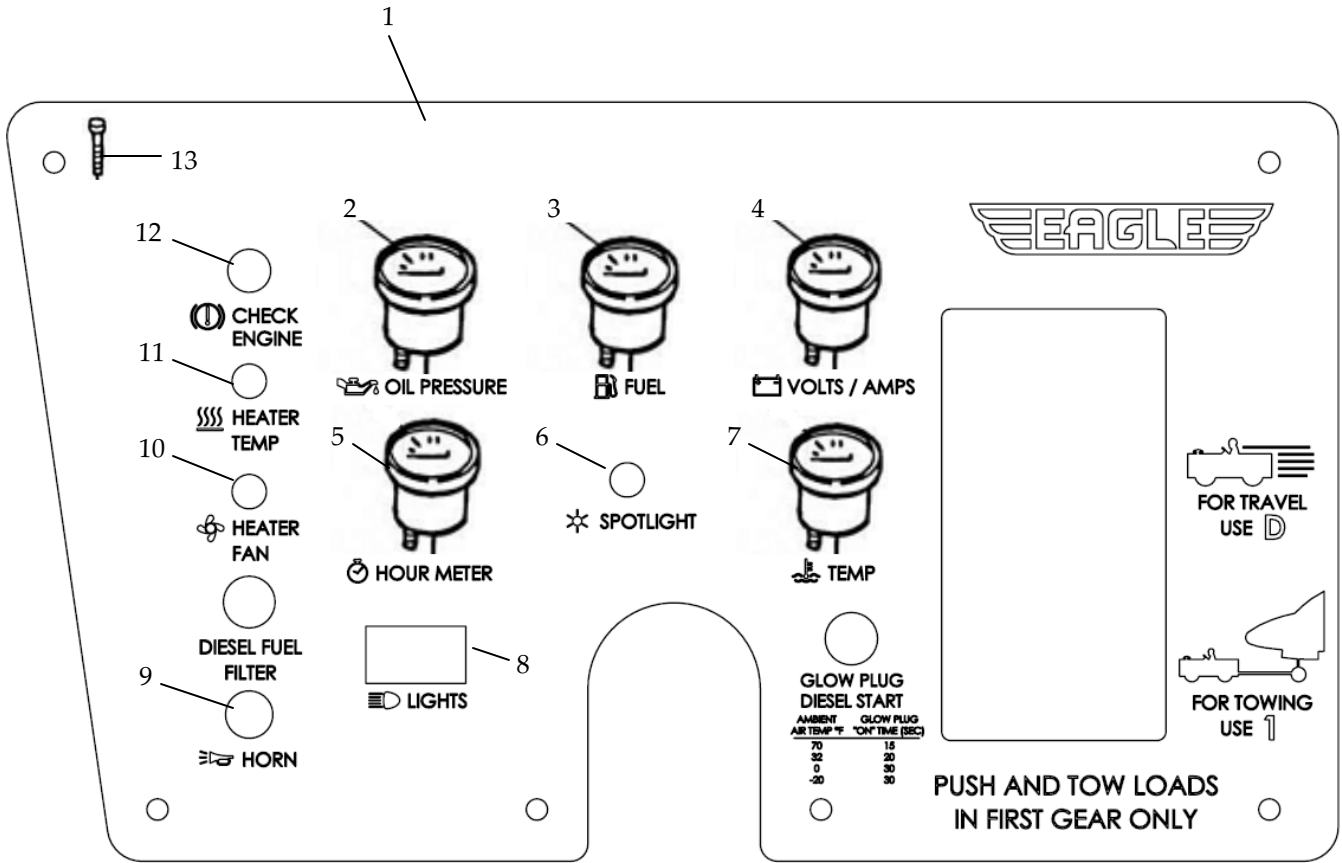
ACCELERATOR PEDAL ASSEMBLY



Item	Part Number	Qty	Description
1	NPN	2	1/2-20 LOCK NUT
2	NPN	4	1/4 FLAT WASHER
3	A-TT4-00289	1	ELECTRONIC FOOT PEDAL ASSY
4	NPN	2	1/4-20 X 1.5 GR5 HCS
5	A-MTT5-0457	1	FOOT PEDAL WIRE HARNESS

OPERATOR COMPARTMENT

INSTRUMENT PANEL



OPERATOR COMPARTMENT

INSTRUMENT PANEL

Item	Part Number	Qty	Description
1	C-TT4-00411	1	DASH PANEL (NO INSTRUMENTS)
2	A-TT4-00412	1	OIL PRESSURE GAUGE
3	A-TT4-00415	1	FUEL GAUGE
4	A-TT4-00416	1	VOLT-AMP GAUGE
5	A-TT4-00418	1	HOUR METER
6	A-TT4-00433-1	1	SPOTLIGGHT SWITCH (OPTIONAL)
7	A-TT4-00417	1	TEMPERATURE GAUGE
8	A-TT4-0423-2	1	HEAD LIGHT SWITCH
9	A-TT4-00428	1	HORN BUTTON
10	A-TT4-00609	1	HEATER FAN SWITCH
11	A-TT4-00608	1	TEMPERATURE CONTROL CABLE (OPTION)
12	1176454	1	CHECK ENGINE LIGHT
13	MS35206-281	8	1/4-20 X 3/4 STAINLESS STEEL BUTTON HEAD SCREW
14	A-TT4-00422-2	1	IGNITION SWITCH (KEYED OPTION)
14	A-TT4-00422-3	1	IGNITION SWITCH (KEYLESS OPTION)
15	A-TT6-0015-1	1	PLATE, MOUNTING IGNITION SWITCH
NS	A-TT4-00434-1	1	WIRE HARNESS (DASH ONLY)
NS	A-TT4-00435-1	1	80 AMP CIRCUIT BREAKER (UNDER DASH)

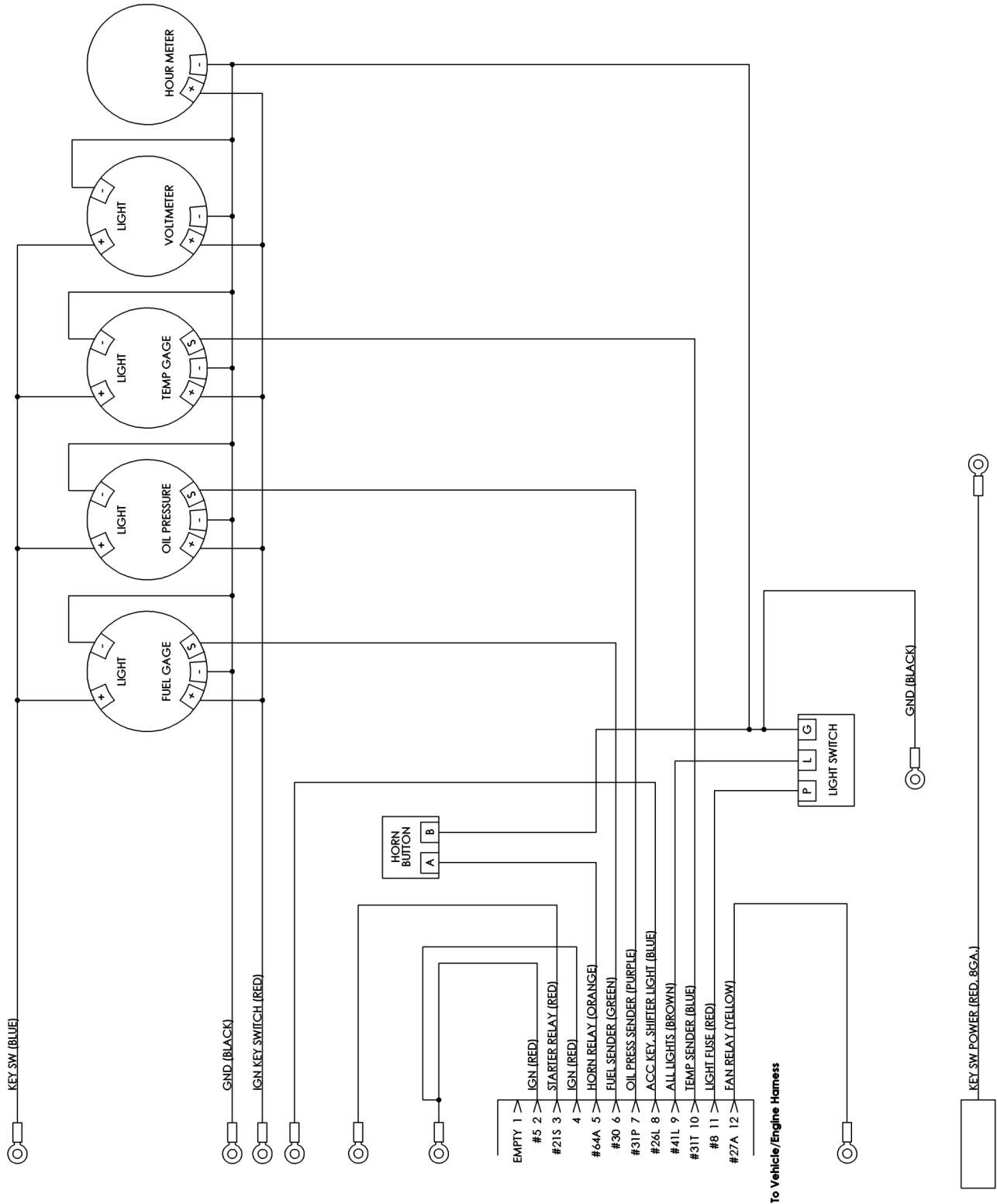
NOTE: SOME ITEMS SHOWN ON DASH PANEL ONLY PERTAIN TO TUGS WITH A DIESEL ENGINE AND ARE NOT APPLICABLE FOR TUGS THAT ARE GASOLINE OR LPG POWERED.

ELECTRICAL SCHEMATICS

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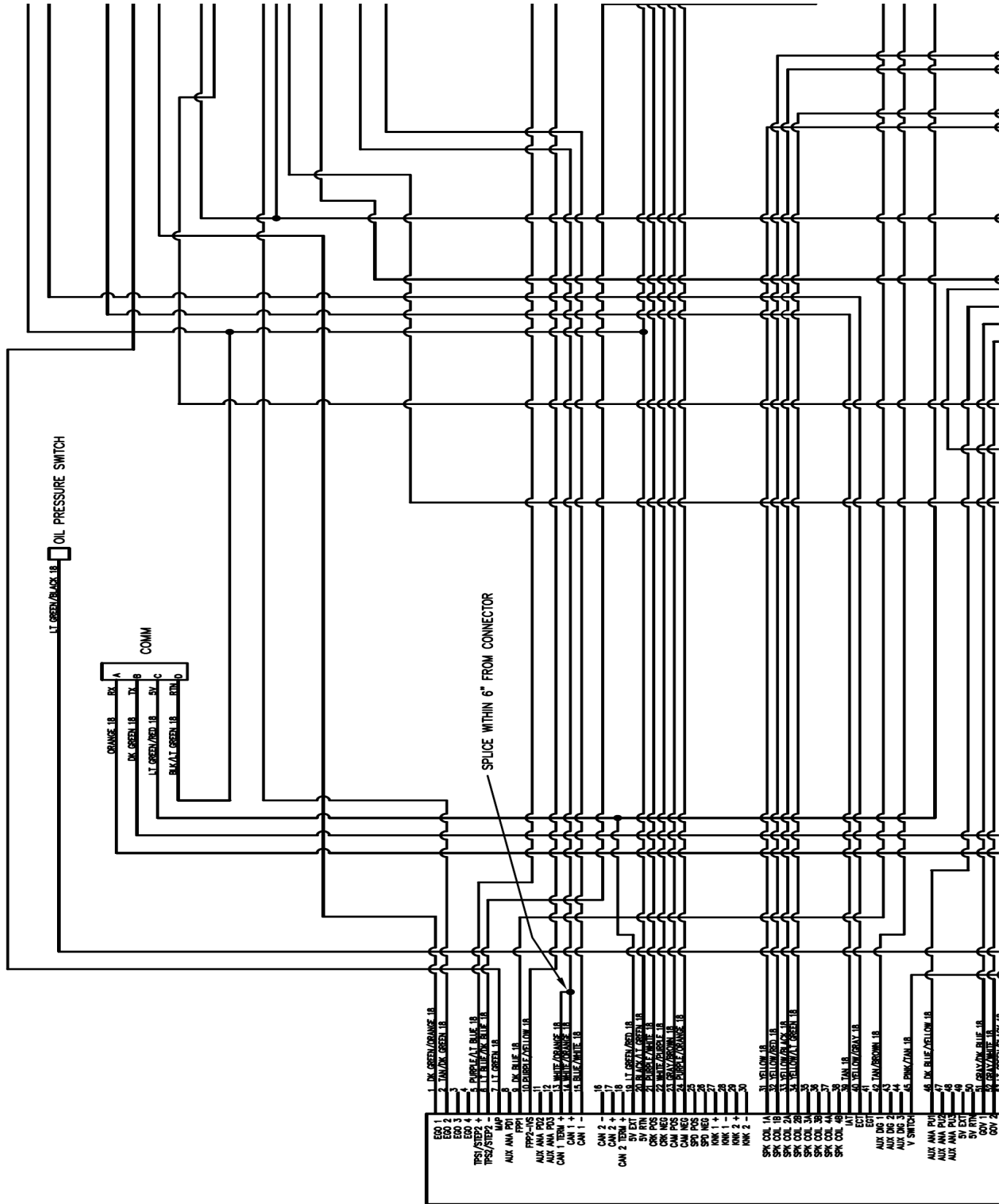
ELECTRICAL SCHEMATICS

DASH WIRING HARNESS



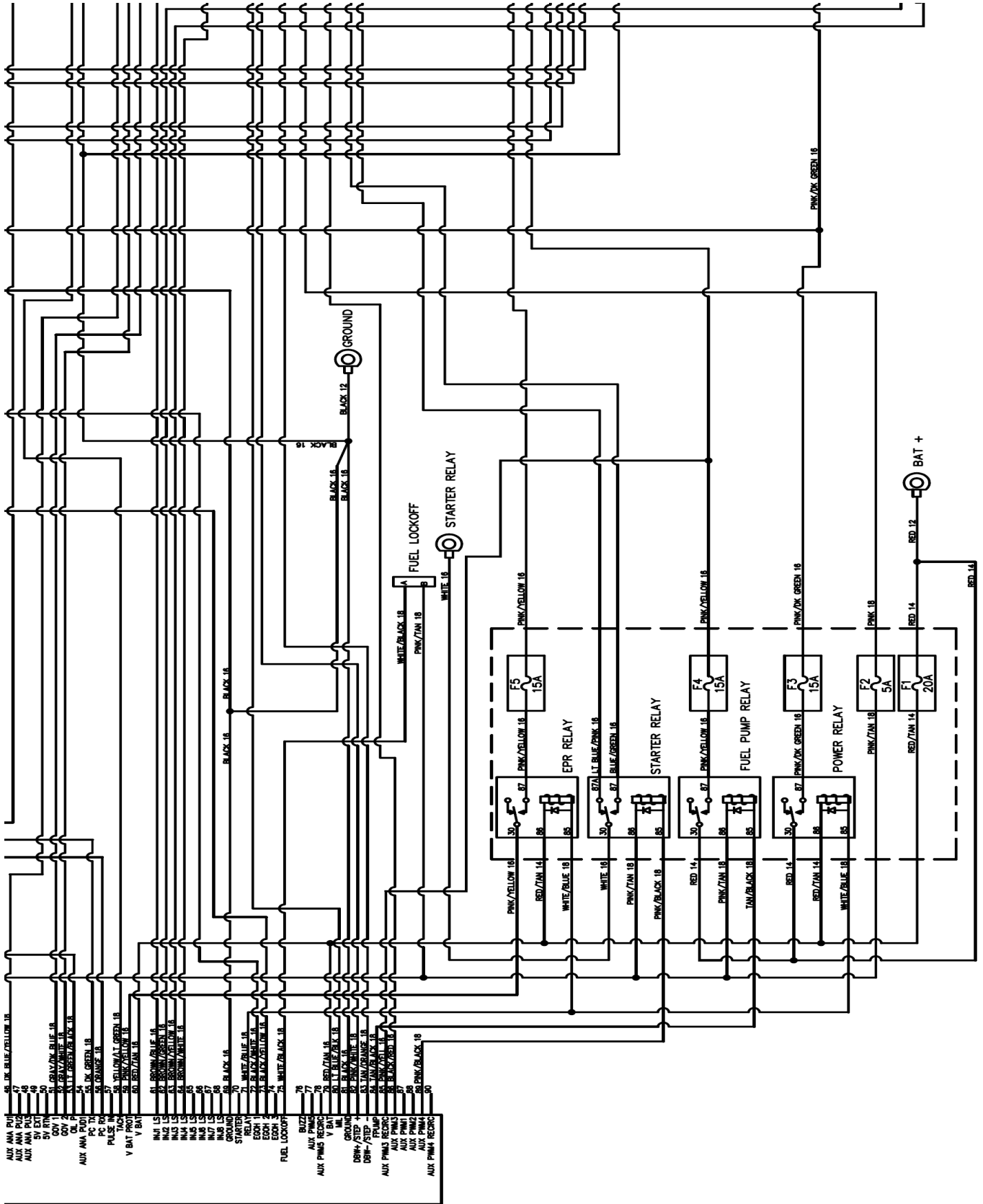
ELECTRICAL SCHEMATICS

WISCON GAS & LPG ENGINE WIRING HARNESS A



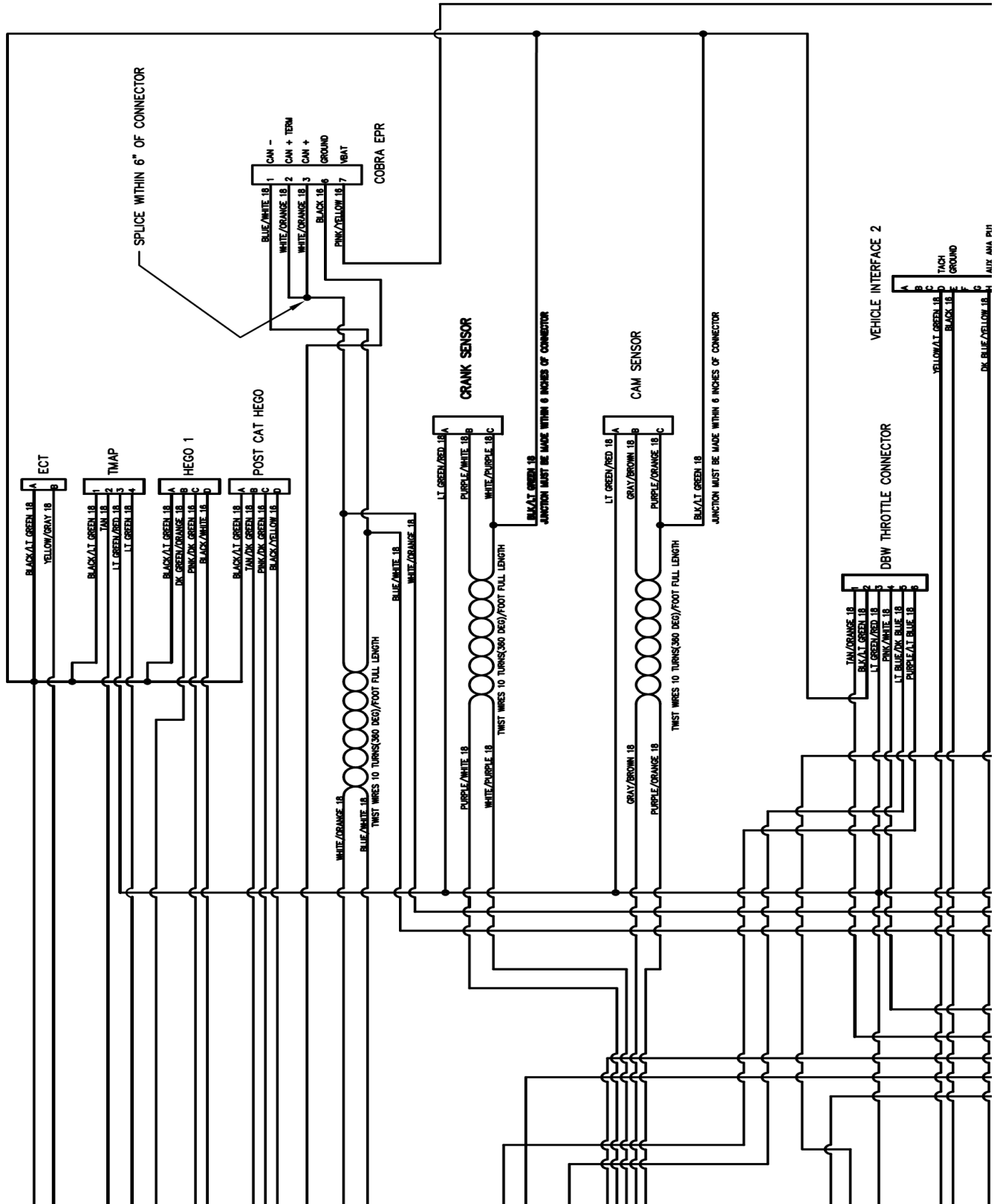
ELECTRICAL SCHEMATICS

WISCON GAS & LPG ENGINE WIRING HARNESS B



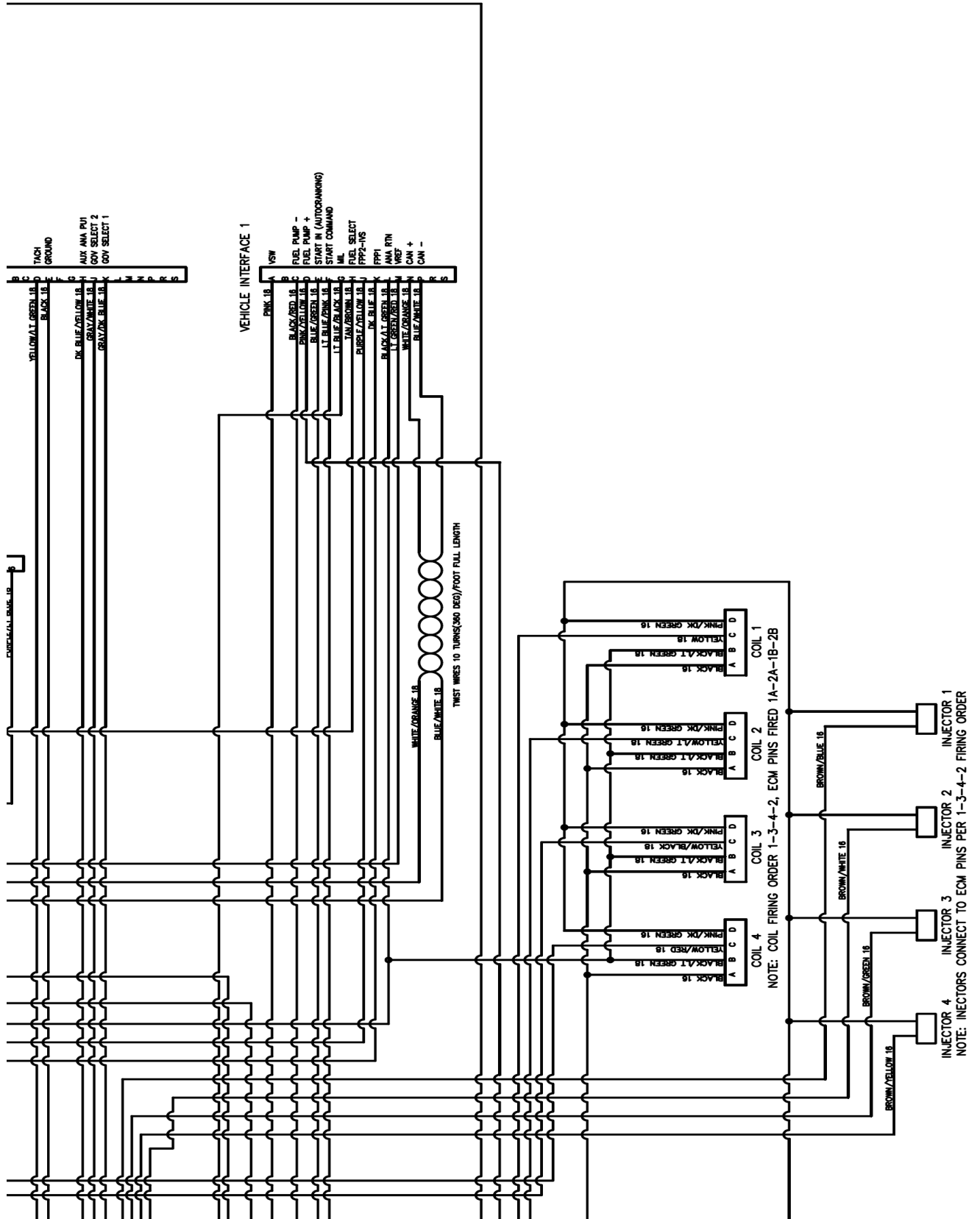
ELECTRICAL SCHEMATICS

WISCON GAS & LPG ENGINE WIRING HARNESS C



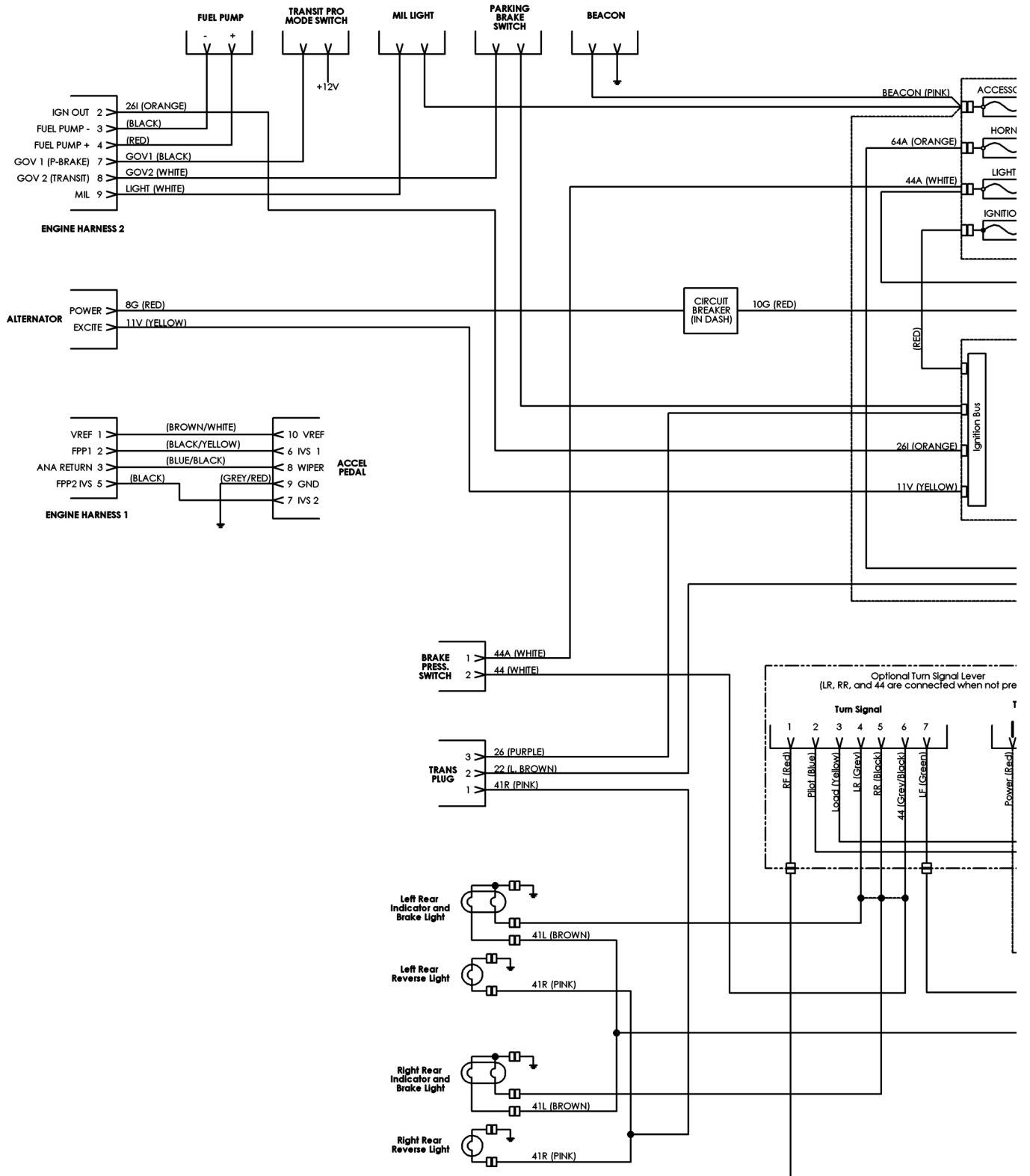
ELECTRICAL SCHEMATICS

WISCON GAS & LPG ENGINE WIRING HARNESS D



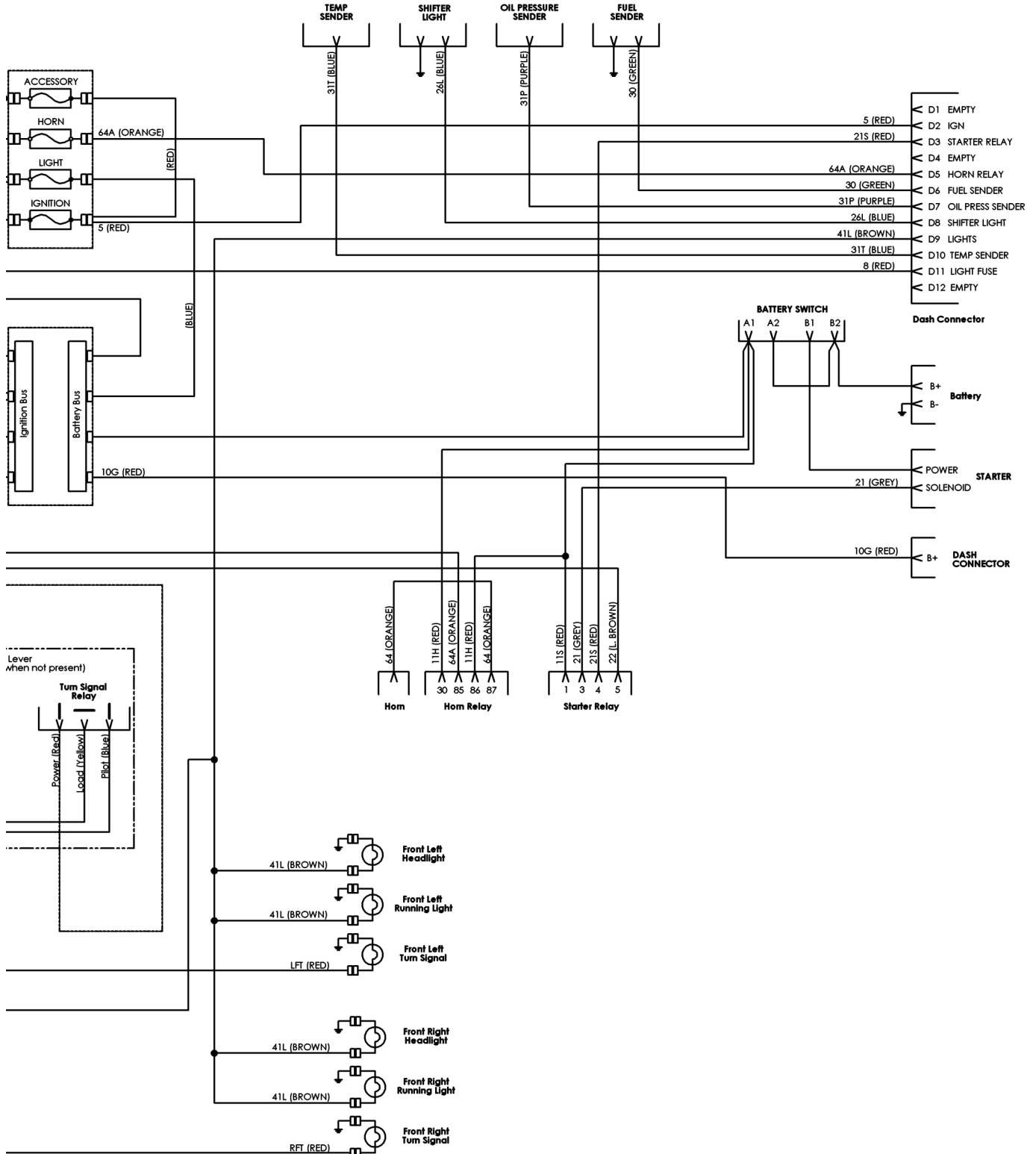
ELECTRICAL SCHEMATICS

VEHICLE WIRING HARNESS



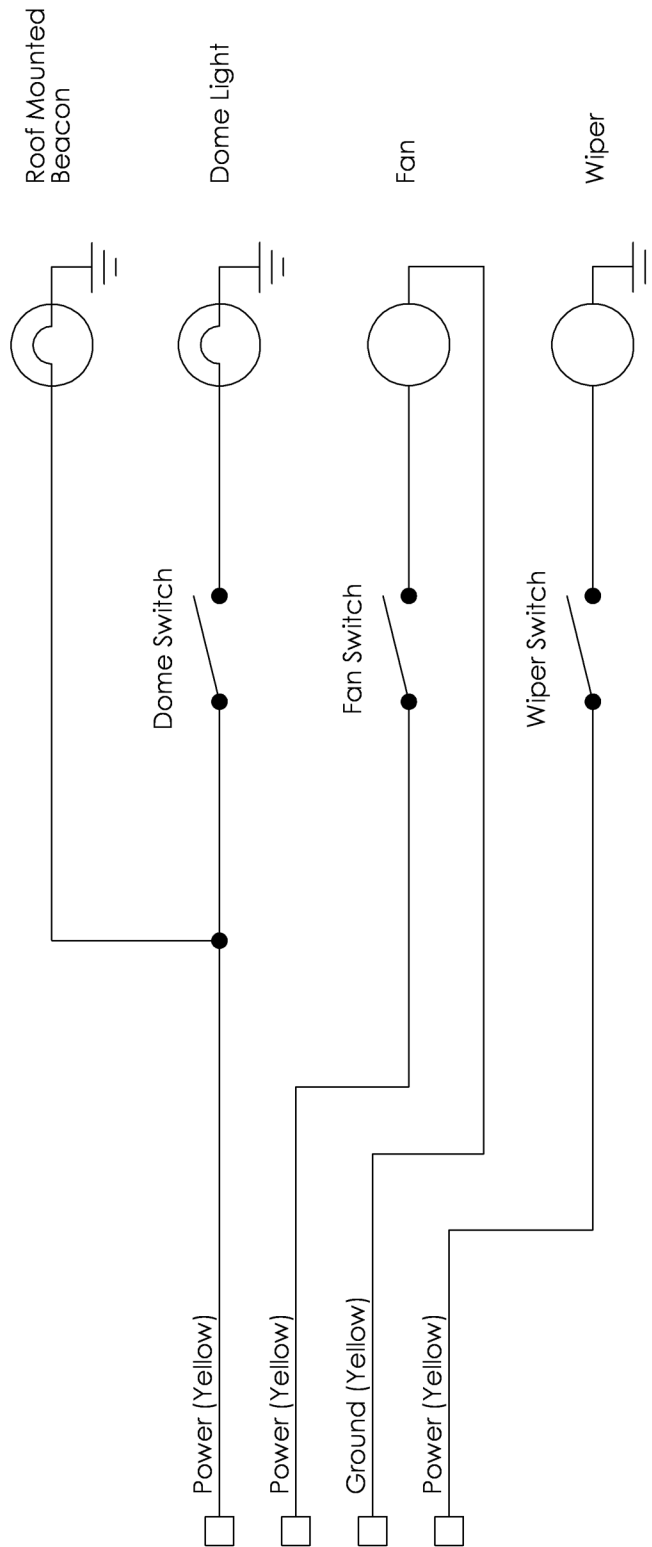
ELECTRICAL SCHEMATICS

VEHICLE WIRING HARNESS



ELECTRICAL SCHEMATICS

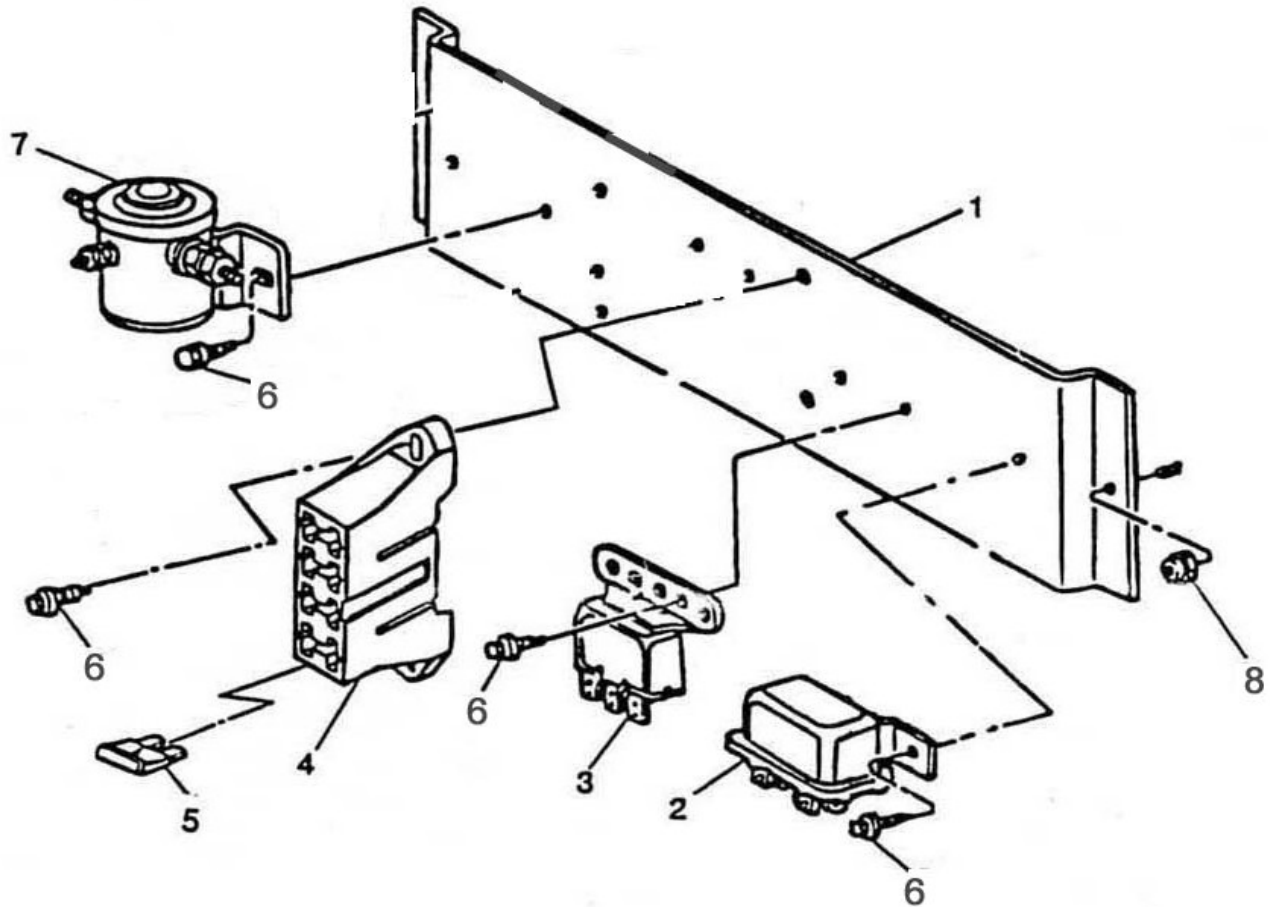
CAB OPTION WIRING DIAGRAM



CAB WIRING DIAGRAM

LIGHTS & ELECTRICAL

ELECTRIC COMPONENT BOARD

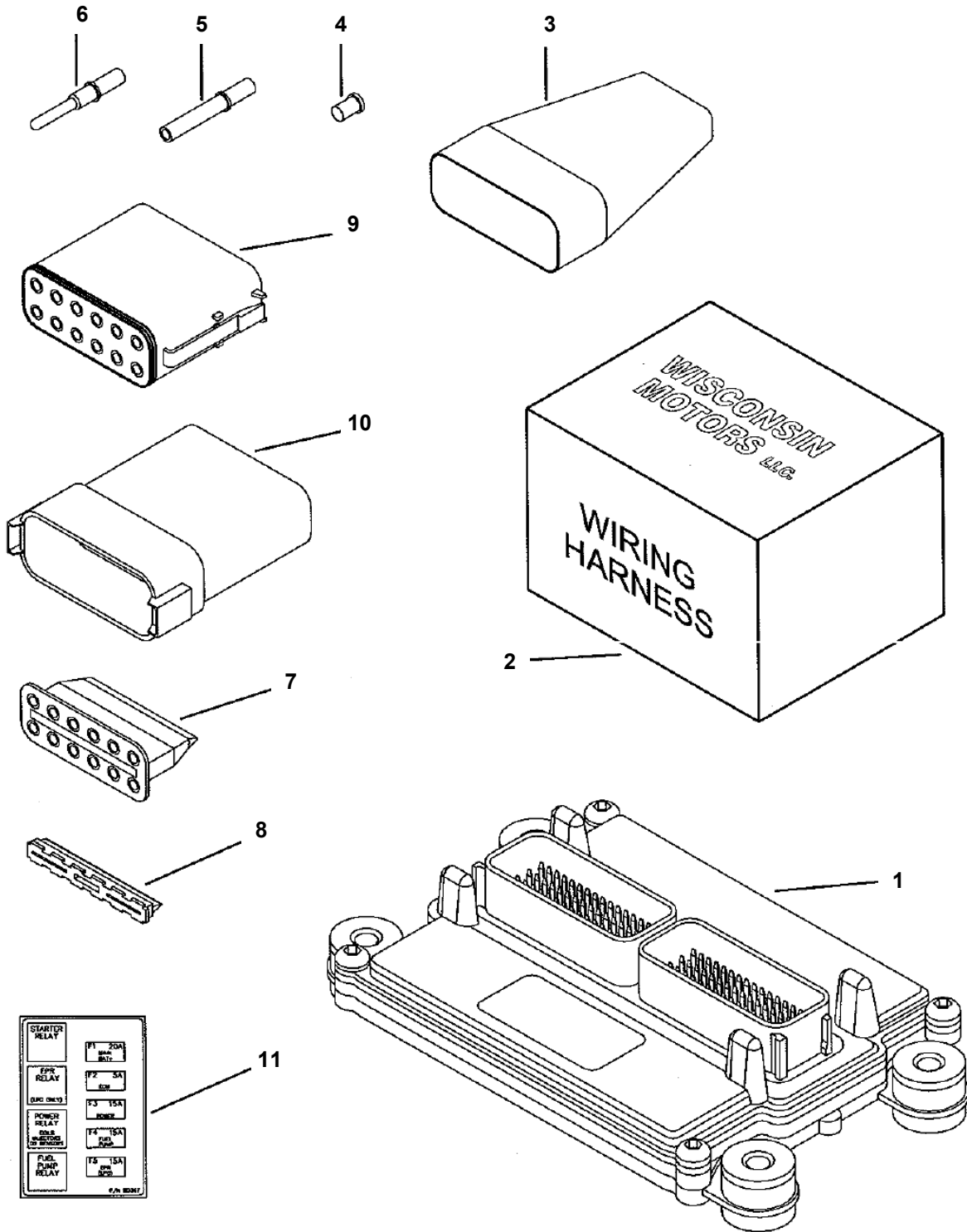


Item	Part Number	Qty	Description
1	B-TT4-00301	1	MOUNTING BRACKET
2	A-TT4-00302	1	STARTER RELAY
3	A-TT4-00303-1	1	HORN RELAY
4	A-TT4-00307*	1	FUSE BLOCK-SPADE TYPE
5	A-TT4-00309	4	FUSE (25 AMP)
6	NPN	10	SELF DRILLING SCREWS
7	A-TT4-00308*	1	RELAY
8	NPN	2	LOCK NUT 10-32

* TUGS WITH FRONT COOLING ONLY

LIGHTS & ELECTRICAL

ECM AND WIRING HARNESS



LIGHTS & ELECTRICAL

ECM AND WIRING HARNESS

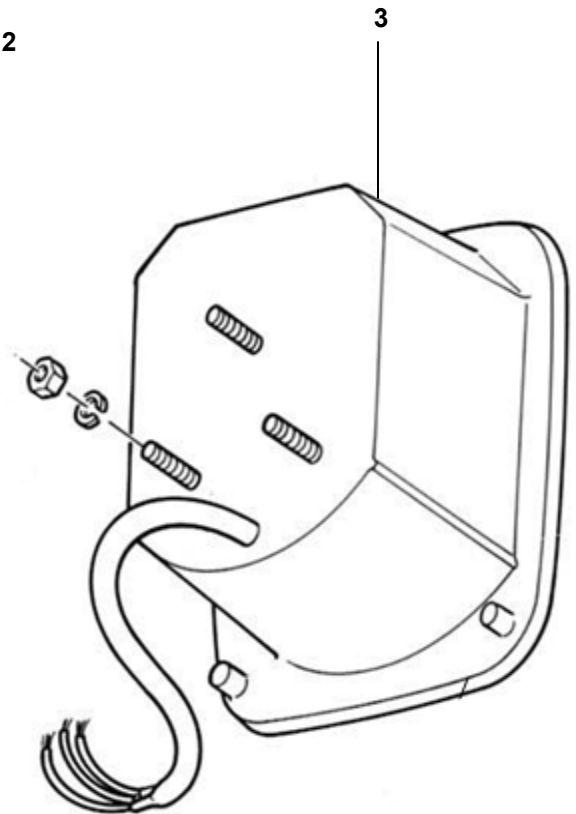
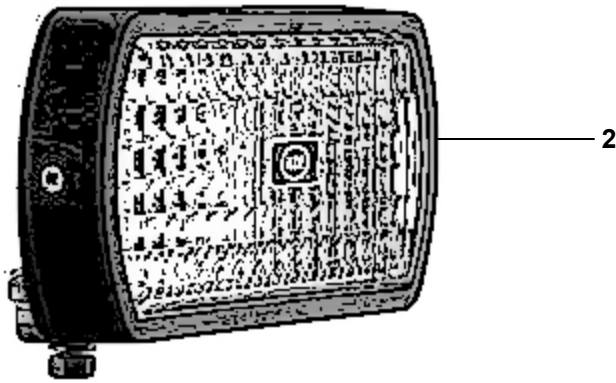
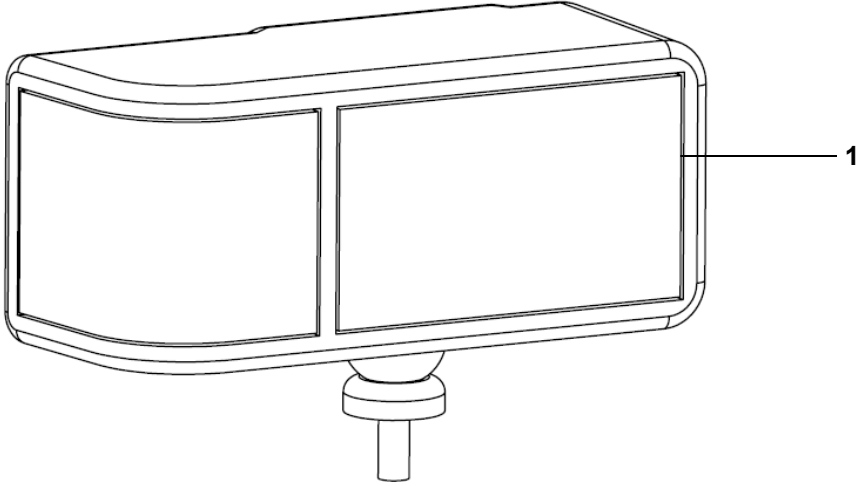
Item	Part Number	Qty	Description
1	TM27M00522	1	ECM (FOR SPECIFICATION TME27 00284PT 285PT,290PT & 294PT)
	TM27M00523		ECM (FOR SPECIFICATION TME27 00295 & 00295PT)
	TM27M00524		ECM (FOR SPECIFICATION TME27 00289PT 00297 & 00297PT)
	TM27M00525		ECM (FOR SPECIFICATION TME27 00292PT)
	TM27M00527		ECM (FOR SPECIFICATION TME27 00286PT)
	TM27M00529		ECM (FOR SPECIFICATION TME27 00296PT & 296PT)
	TM27M00530		ECM (FOR SPECIFICATION TME27 00291PT)
	TM27M00531		ECM (FOR SPECIFICATION TME27 00293PT)
	*TM27M00526	1	ECM (FOR SPECIFICATION TME27 00701PT)
	*TM27M00528	1	ECM (FOR SPECIFICATION TME27 00702)
	*TM27M00533	1	ECM (FOR SPECIFICATION TME27 00703PT)
	*TM27M00534	1	ECM (FOR SPECIFICATION TME27 00704PT)
	*TM27M00353	1	ECM (FOR SPECIFICATION TME27 00705PT)
2	*1012079	1	WIRING HARNESS
3	20120084	2	BOOT
4	20120083	12	SEAL PLUG
5	20120082	12	SOCKET
6	20120081	12	PIN
7	20120080	1	LOCK
8	20120079	1	LOCK
9	20120078	1	PLUG
10	20120077	1	RECEPTACLE
11	SD367	1	LABEL-FUSE AND RELAY BOX

NOTE:

*REFER TO "ENGINE SPECIFICATION NUMBER" WHEN ORDERING PARTS TO DETERMINE CORRECT PART NUMBER

LIGHTS & ELECTRICAL

HEADLIGHT, TAILLIGHT & SPOTLIGHT ASSEMBLY



LIGHTS & ELECTRICAL

HEADLIGHT, TAILLIGHT, SPOT LIGHT ASSEMBLY

Item	Part Number	Qty	Description
1	A-TT4-00291-6	2	HEADLIGHT W/ (OPTIONAL)TURN SIGNAL
2	A-TT4-00291-5	1	REAR FACING SPOT LIGHT (OPTION)
3	A-TT4-00292	2	TAILLIGHT

TAILLIGHT ASSEMBLY

Item	Part Number	Qty	Description
4	73-1912	2	TAIL LENS COVER
5	1157	2	REPLACEMENT BRAKE LIGHT BULB
6	1156	2	REPLACEMENT REVERSE LIGHT BULB

HEADLIGHT & SPOTLIGHT

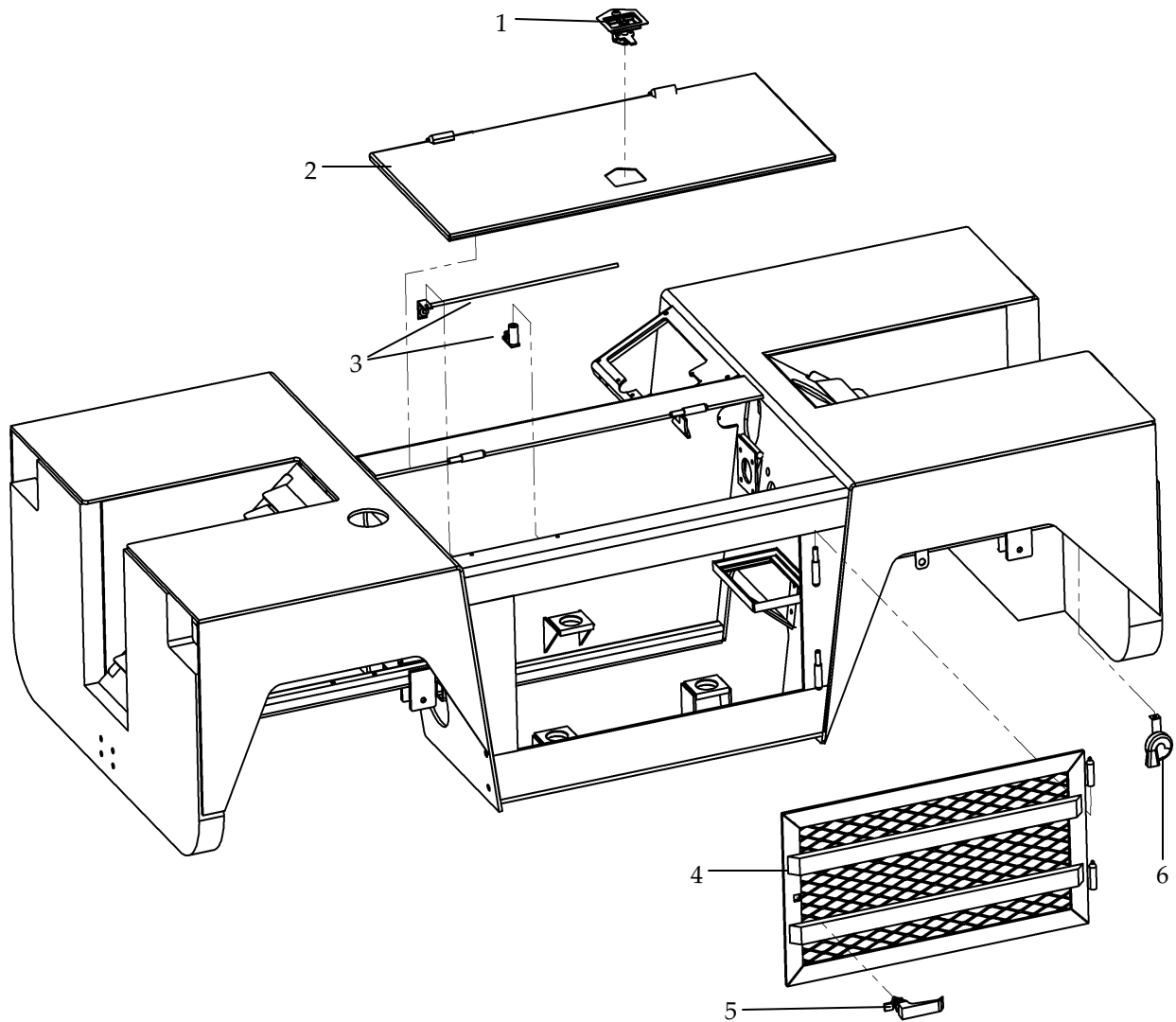
Item	Part Number	Qty	Description
7	H6545	2	REPLACEMENT HEADLIGHT SEALED BEAM
8	1157	2	REPLACEMENT TURN SIGNAL BULB
9	H3	1	REPLACEMENT BULB, SPOTLIGHT

OPTIONS NOT SHOWN

Item	Part Number	Qty	Description
10	AE-OPT-0076	2	ROOF MOUNTED TURN SIGNAL LAMP
11	AE-OPT-0099A	1	MASTER BATTERY DISCONNECT SWITCHPLOCKOUT LEVER KIT (OPTION)
12	AE-OPT-0099	1	MASTER BATTERY DISCONNECT SWITCH
13	A-TT3-0010	4	25 AMP ACG GLASS ROUND FUSE
14	AE-OPT-0089	1	ROOF MOUNTED 6" SPOTLIGHT

OTHER ASSEMBLY

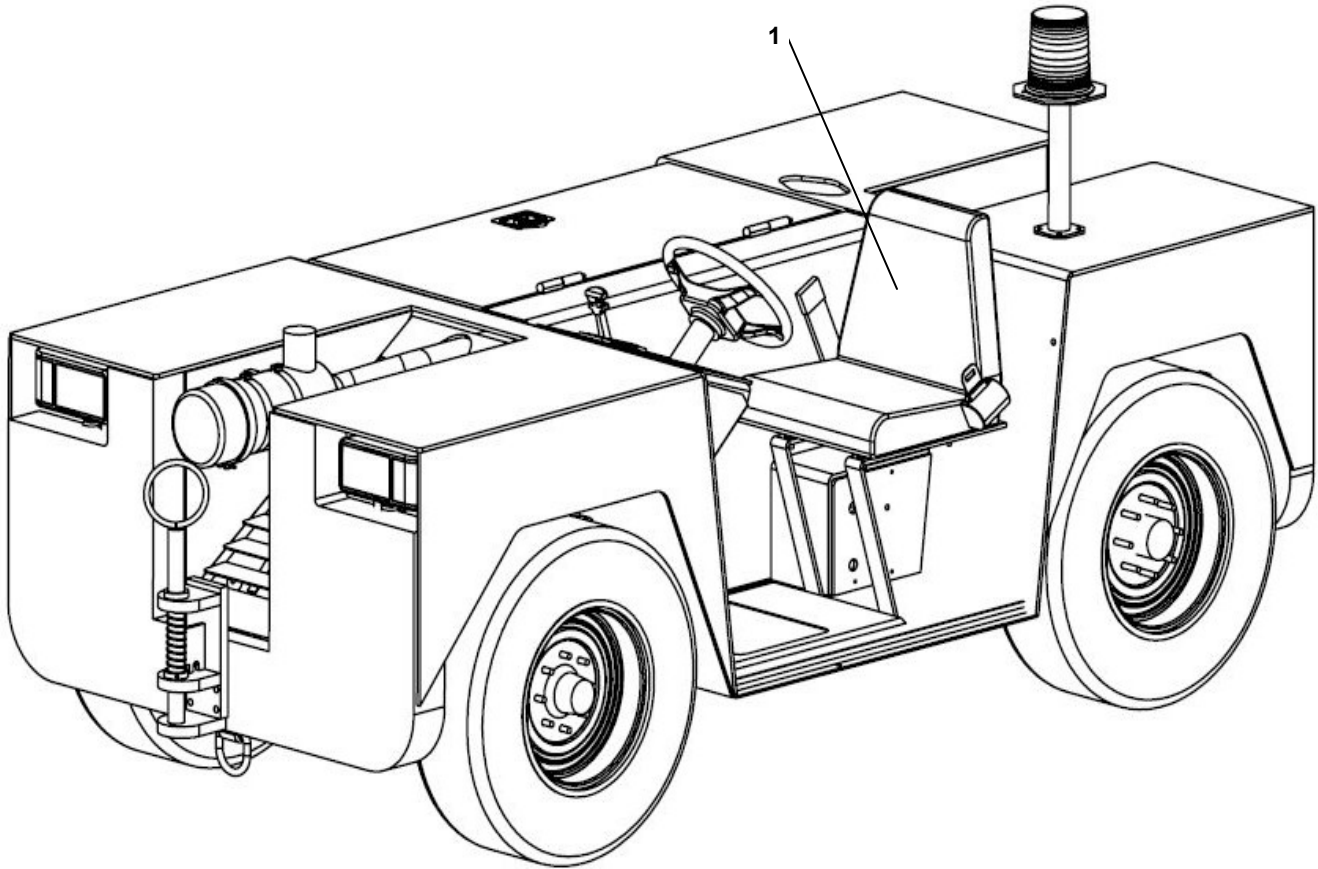
BODY ASSEMBLY



Item	Part Number	Qty	Description
1	C-TT4-0012-3	1	LOCKING T-HANDLE LATCH
2	C-TT4-0012	1	HOOD
3	NPN	1	HOOD PROP ASSEMBLY
4	D-TT4-0009-1	1	GRILL GUARD/ACCESS DOOR
5	62-10-603-20	1	LATCH FOR ACCESS DOOR
6	A-TT4-0052	1	HORN ASSEMBLY

OTHER ASSEMBLY

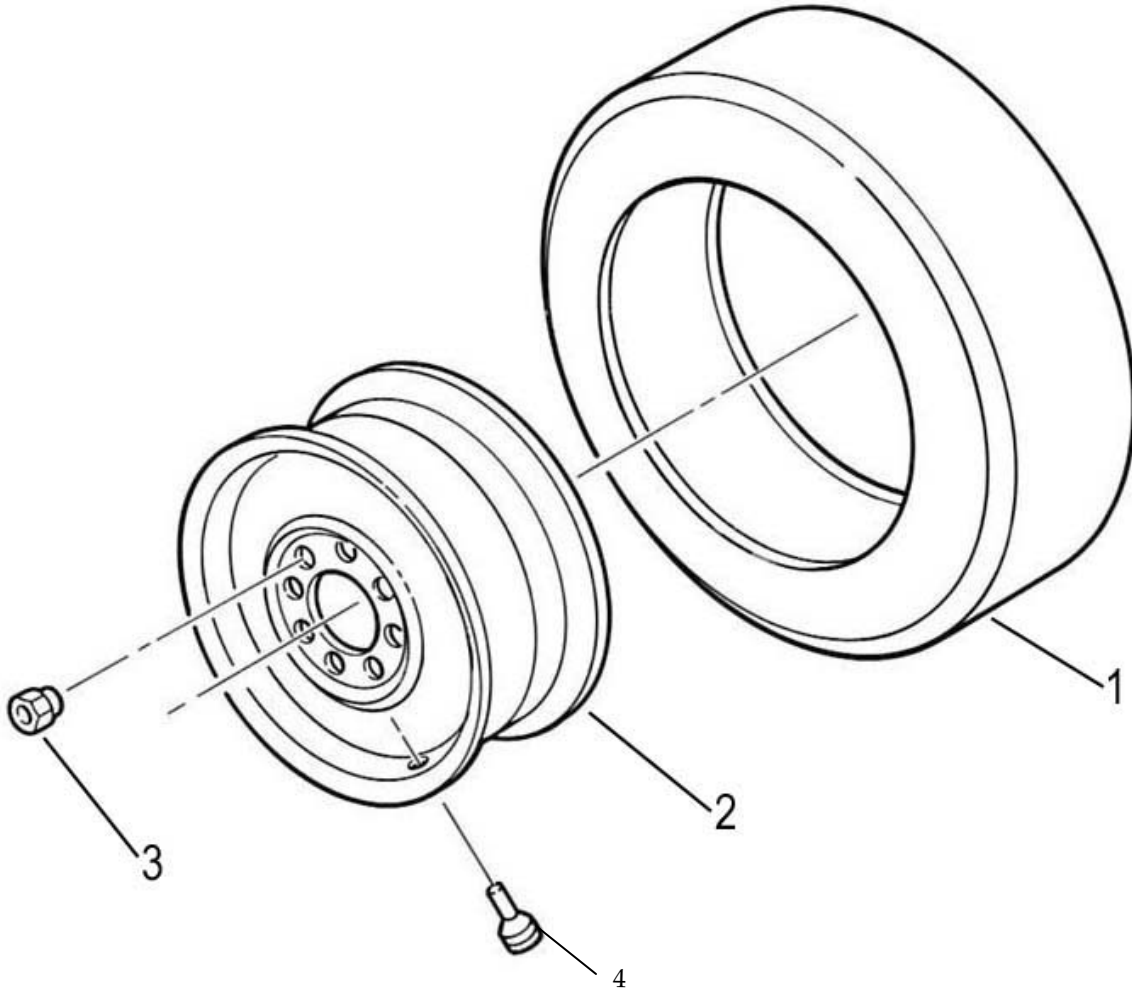
SEAT AND SEAT OPTIONS



Item	Part Number	Qty	Description
1	A-TT4-0048-1	1	STANDARD SEAT
2	AE-OPT-0055-A	1	STANDARD SEAT BOTTOM CUSHION
3	AE-OPT-0090	1	STANDARD SEAT W/ KILL SWITCH(OPTION)
3	A-TT10-00048	1	BENCH SEAT (DUAL REAR WHEEL MODELS)
4	AE-OPT-0055-B	1	BENCH SEAT BACK CUSHION
5	AE-OPT-0055-C	1	BENCH SEAT BOTTOM CUSHION
6	AE-OPT-0183	1	BENCH SEAT W/ KILL SWITCH (OPTION)
7	E10000	1	SEAT BELT

WHEELS & TIRES

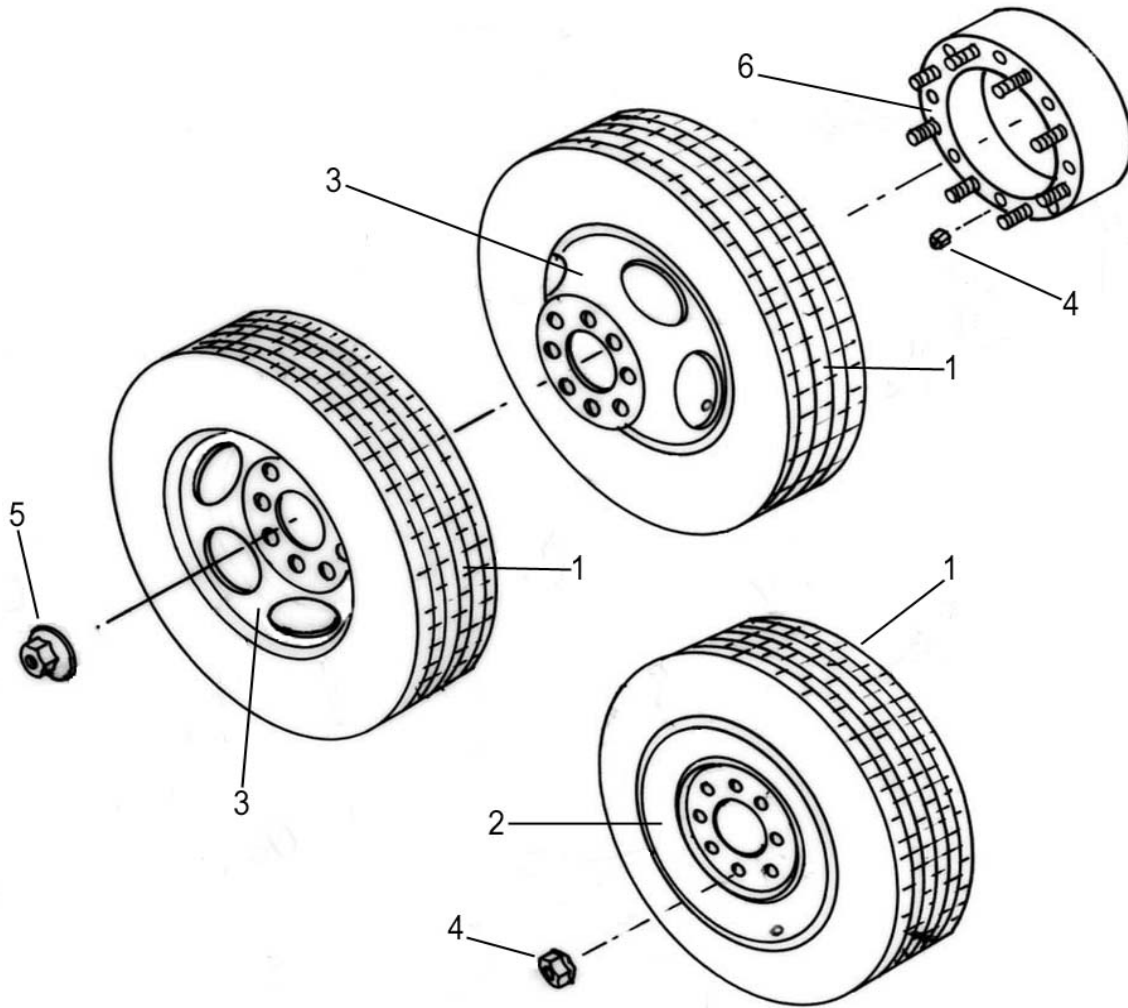
WHEEL & TIRE ASSEMBLY



Item	Part Number	Qty	Description
1	A-TT4-00121	4	STANDARD TIRE 16.5"
2	A-TT4-00122	4	STANDARD RIM
3	A-TT4-00123	32	LUG NUT
4	A-TT4-00124	4	VALVE STEM
5	A-TT8-00121	4	MUD & SNOW TIRE 16" (OPTION)
6	A-TT4-00122-1	4	RIM, MUD & SNOW TIRE 16" (OPTION)
7	AE-OPT-0058	2	SNOW CABLES(OPTION)
8	610286	8	WHEEL STUDS FRONT
9	610348	8	WHEEL STUDS REAR

WHEELS & TIRES

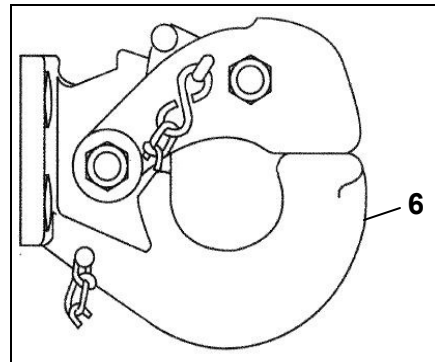
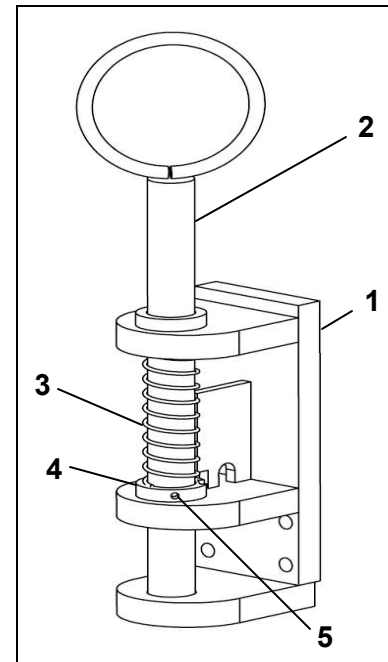
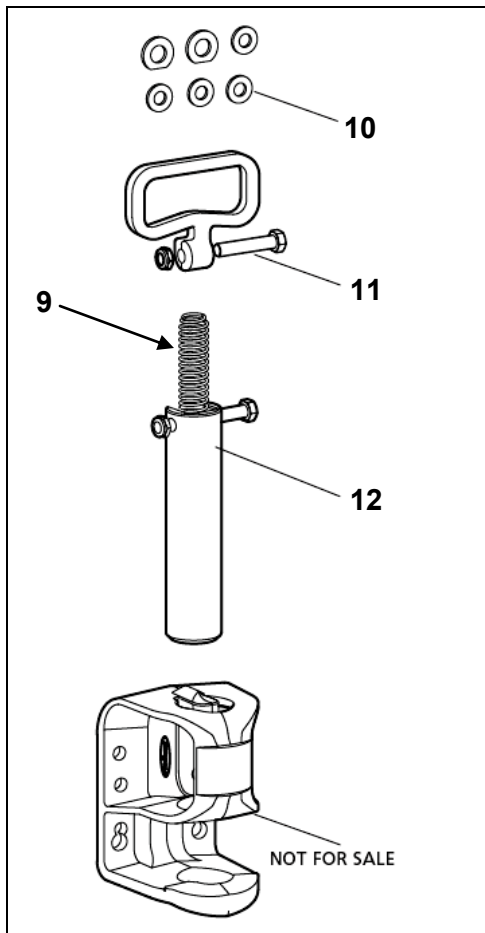
WHEEL & TIRE ASSEMBLY – DUAL REAR WHEEL MODELS



Item	Part Number	Qty	Description
1	A-TT8/2-00121-1	6	STANDARD TIRE 16"
2	A-TT4-00122-1	2	RIM 16"-FRONT
3	A-TT8/2-00126	4	RIM 16"-REAR
4	A-TT4-00123	32	LUG NUT
5	A-TT8/2-00129	16	WHEEL ADAPTER LUG NUT
6	A-TT8/2-00127	2	WHEEL ADAPTER

OPTIONS

HITCH OPTIONS

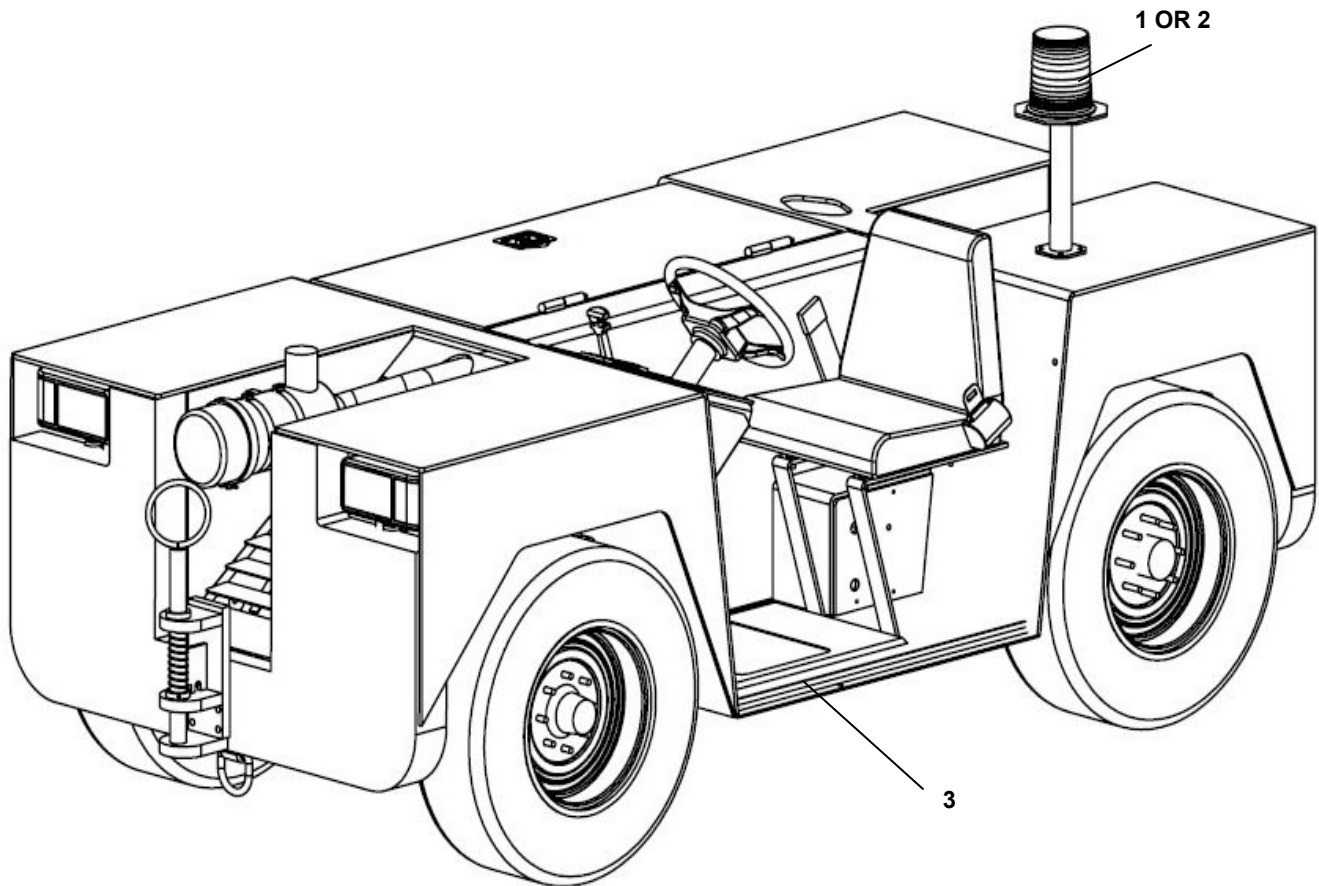


Item	Part Number	Qty	Description
1	AE-OPT-0033	1	E-HITCH 1 1/2 " PIN-COMPLETE ASSEMBLY
2	B-TT3-0008 DET2	1	E-HITCH GUIDE 1 1/2" GUIDE PIN WITH RING
3	B-TT3-0008A	1	E-HITCH SPRING
4	B-TT3-0008 DET5	1	LOCKING COLLAR
5	B-TT3-0008B	1	ROLL PIN
6	AE-OPT-0028	1	PINTLE HOOK
7	AE-OPT-0026	1	AIRLINE HITCH 3" PIN WITH CABLE(NOT SHOWN)
8	AE-OPT-0093	1	AIRLINE HITCH 2 3/8" PIN (NOT SHOWN)
9	AE-OPT-0033-1	1	HOLLAND HITCH
10	RK-11438	1	WASHER SET HOLLAND HITCH
11	RK-11440	1	HANDLE KIT HOLLAND HITCH
12	RK-11439	1	PIN & SPRING KIT HOLLAND HITCH

* The above are standard hitch options. Please call for special hitch options information

OPTIONS

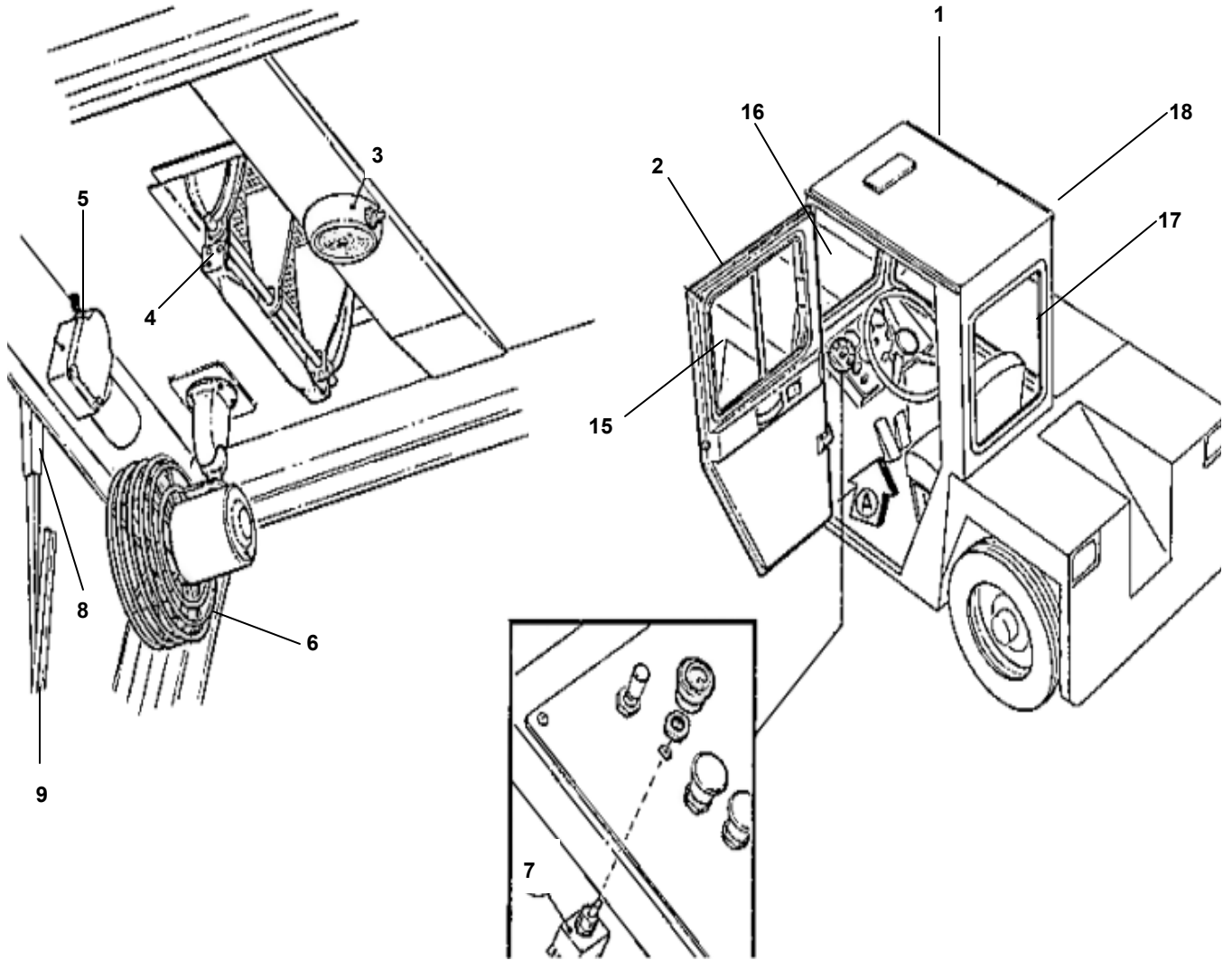
STROBE, BEACON & FLOOR MAT OPTIONS



Item	Part Number	Qty	Description
1	AE-OPT-0002	1	AMBER ROTATING BEACON
1A	R5024BH	1	REPLACEMENT BULB 24VDC
1B	R5012BH	1	REPLACEMENT BULB 12VDC
2	AE-OPT-0007	1	STROBE
2A	129	1	REPLACEMENT BULB FOR STROBE
2B	AE-OPT-0009	1	1/2 COVER FOR STROBE
3	A-TT4-00450	1	BASIC FLOOR MAT(NO SENSOR)
3A	A-TT4-00450-1	1	OPERATOR SWITCH MAT (WITH SENSOR)
3B	A-TT10-00451	1	SWITCHMAT DELAY TIMER NOT SHOWN-LOCATED UNDER DASH

OPTIONS

CAB OPTION



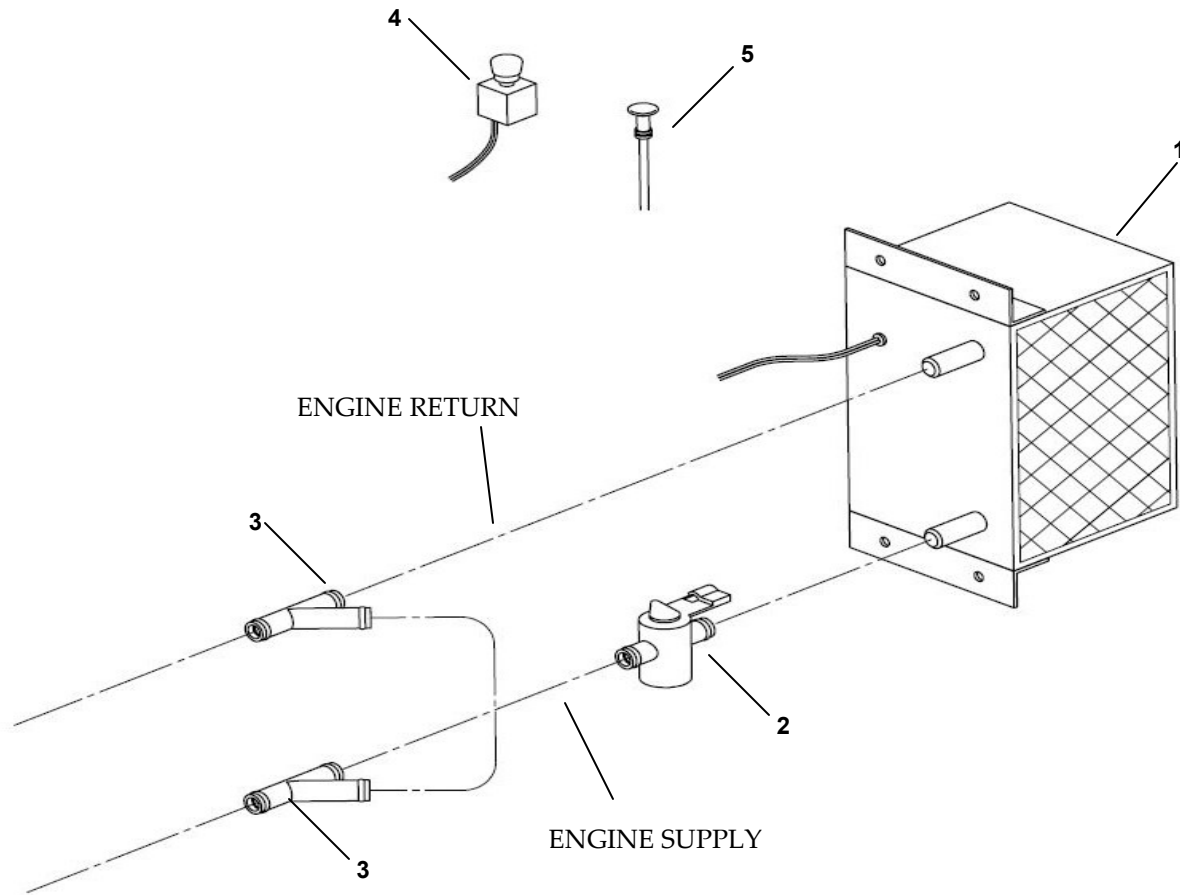
OPTIONS

CAB OPTION

Item	Part Number	Qty	Description
1	AE-OPT-0004	1	CAB ASSEMBLY COMPLETE
1	AE-OPT-0003	1	CAB ASSEMBLY COMPLETE (DUAL REAR WHEEL MODEL)
2	40502	1	DOOR ASSEMBLY COMPLETE
3	A-TT4-00553	1	DOME LITE
4	A-TT4-00554	1	ROOF VENT
5	A-TT4-00555	1	WIPER MOTOR
6	A-TT4-00556	1	DEFROST FAN
7	A-TT4-00609	1	HEATER FAN SWITCH
8	991013	1	WIPER ARM
9	990994	1	WIPER BLADE
10	40516	3	DOOR HINGE(NOT SHOWN)
11	40515	1	STRIKER PLATE(NOT SHOWN)
12	48717	1	OUTSIDE DOOR HANDLE(NOT SHOWN)
13	990237	1	INSIDE DOOR HANDLE(NOT SHOWN)
14	991529	2	DOOR STRAP(NS)
15	992518	1	DOOR WINDOW
16	992424	1	WINDSHEILD
16	992520	1	WINDSHEILD (DUAL REAR WHEEL MODEL)
17	991867	1	REAR WINDOW
17	992521	1	REAR WINDOW (DUAL REAR WHEEL
18	991809	1	SLIDING WINDOW
19	992519	1	FRONT QUARTER WINDOW
20	T1003	1	DOME LITE LIGHT BULB(NOT SHOWN)

OPTIONS

CAB HEATER



Item	Part Number	Qty	Description
1	A-TT4-00601	1	HEATER ASSEMBLY
2	A-TT4-00607D	1	CONTROL VALVE
3	02220200A	2	Y CONNECTOR
4	A-TT4-00609	1	HEATER FAN SWITCH
5	A-TT4-00608	1	TEMPERATURE CONTROL CABLE
6	NPN	2	5/8 HEATER HOSE (NOT SHOWN)

OPTIONS

OTHER OPTIONS LISTED NOT SHOWN

Item	Part Number	Qty	Description
1	AE-OPT-0001	1	BACK UP ALARM
2	AE-OPT-0086	1	INTERCOM JACK
3	AE-OPT-0094	1	12V ACCESSORY OUTLET

MAINTENANCE

DAILY OPERATOR RESPONSIBILITIES

Proper Fluid Checks

Engine Oil

Check engine oil with the unit on a level surface, the key in the "OFF" position, the shifter position in "PARK" and parking brake applied. Open side access door. Remove dipstick from crankcase, wipe it with a cloth. Insert it fully and take out it gently again. Check the oil level by the marks on the dipstick. The oil level must be between the "Max" level and the "Min" level. DO NOT OVERFILL!

Coolant

DO NOT remove recovery tank cap or check coolant level while engine is hot! With engine cool, the key in the "OFF" position, the shifter position in "PARK" and the parking brake applied, open hood, set hood prop and look at left side of recovery tank. The reservoir tank is translucent, so the fluid is readily visible without removing the cap. Fluid level should be at the "Cold fill level".

Transmission Fluid

With unit in park and parking brake set in the "ON" position, start engine. Open side access door. Remove dipstick from transmission case, wipe it with a cloth. Insert it fully and take it out gently again. Check the fluid level by the marks on the dipstick. The transmission fluid level must be between the "Max" level and the "Min" level on the dipstick. DO NOT OVERFILL.

Brake Fluid

Check brake fluid with the unit on a level surface, the key in the "OFF" position, the shifter position in "PARK" and parking brake applied. Open hood, set hood prop and locate master cylinder reservoir. Remove spring clips and take off lid. Brake fluid level should be at the top of reservoir.

Power Steering Fluid

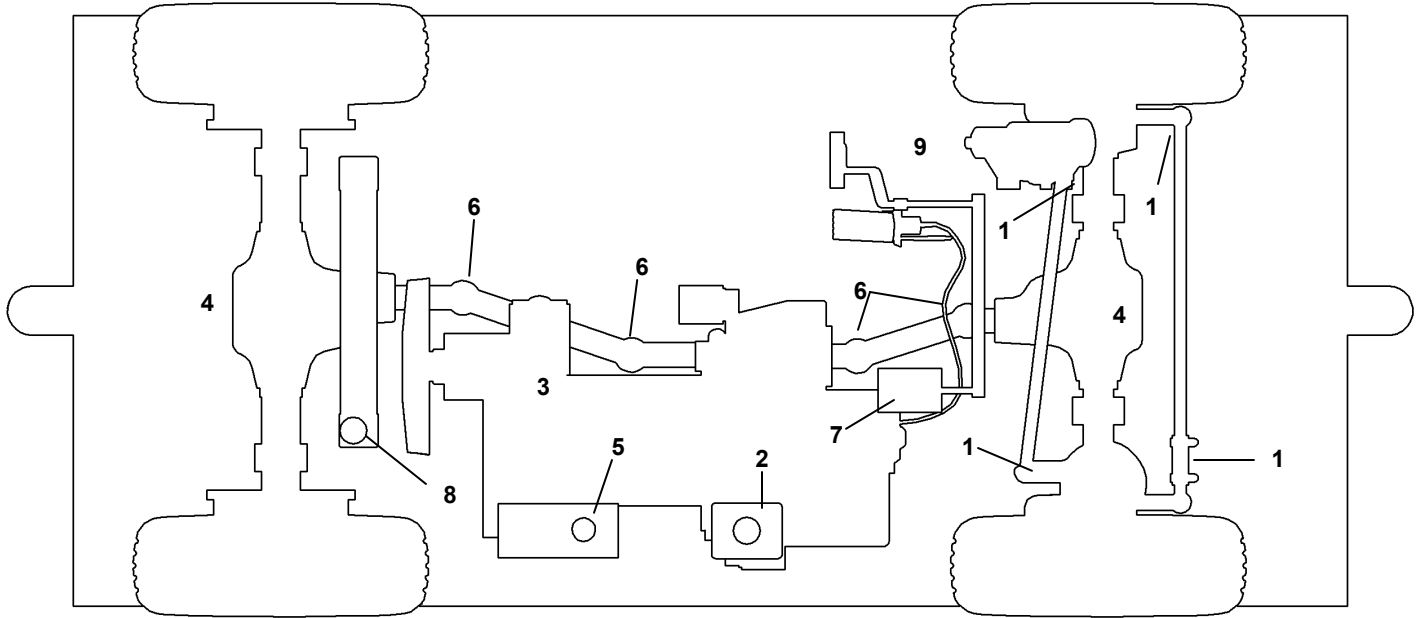
Check power steering fluid with key in "OFF" position, the shifter position in "PARK" and the parking brake applied. Open hood, set hood prop remove cap from power steering reservoir. Fluid level should be between the arrows on the indicator stick. DO NOT OVERFILL.

Recommended Filters:

Engine oil	TM27L00213	Fuel Filter	TM27F00339
Air Cleaner	Donaldson P549271	Transmission Filter	Wix 58705

MAINTENANCE

LUBRICATION CHART



Item	Identification	Service	Lubricant
1	STEERING LINKAGE	LUBE	EP MULTIPURPOSE GREASE
2	TRANSMISSION OIL	CHECK	DEXTRON III TYPE TRANSMISSION FLUID
3	ENGINE OIL	CHANGE	15W40 CD OE/HDO (MIL-L-2104)
4	DRIVE AXLES	CHECK	80-90 GEAR OIL (MIL-L-2105)
5	POWER STEERING PUMP	CHECK	AUTOMOTIVE POWER STEERING FLUID
6	DRIVE SHAFT	LUBE	EP MULTIPURPOSE GREASE
7	BRAKE MASTER CYLINDER	CHECK	DOT 3 BRAKE FLUID
8	ENGINE COOLANT*	CHECK	ETHYLENE GLYCOL/ WATER (50/50 MIX) MIL-A-46153
9	ACCELERATOR & SHIFTER CABLE	LUBE	**SUMMER MONTHS WD40 PENETRATING OIL WINTER MONTHS ANTI FREEZE

*CHECK WHEN ENGINE IS AT OPERATING TEMPERATURE

**IT IS RECOMMENDED BY MANUFACTURER TO PROLONG THE LIFE OF YOUR ACCELERATOR CABLE THAT THE ABOVE LUBRICATION BE FOLLOWED

MAINTENANCE

PREVENTATIVE MAINTENANCE SCHEDULE

Description of Check/Service	Operational Hours									
	Daily	50	250	500	750	1000	1250	1500	2000	
X-Check * Requires Service										
Engine Oil and filter *first 50 and every 100 hours thereafter	X	*	*	*	*	*	*	*	*	*
Transmission Fluid	X									*
Power Steering Fluid	X									
Steering Linkage				X		X		X		X
Coolant Level Check	X									*
Cooling System Flush *every 500 hours				*		*		*		
Coolant Hoses	X									*
Belts	X									X
Fuel System Leak Check	X									X
Fuel Filter *every 500 hours				*		*		*		*
Air Cleaner Element *every 500 hours				*		*		*		*
Engine Rubber Mounts	X									X
Adjust Valve Tappet Clearance *every 500 hours				*		*		*		
Replace Spark Plugs *every 1000 hours						*				
Check PVC Valve *every 500 hours				*		*		*		X
Replace Oxygen Sensors *every 1000 hours						*				
LPG ONLY Drain EPR Assy *every 500 hours				*		*		*		
Electrical Wires and Connections	X									X
Battery Cables	X									
Throttle Controls	X									X
Brake Fluid	X									
Brake Pads (Front)				X		X		X		X
Drum Brake Lining (Rear)				X		X		X		X
Brake Lines and Hoses				X		X		X		X
Suspension U-Bolts 110-120 FT LBS		*								
Drive Axles				*		*		*		
Axle Shaft U-joint				*		*		*		
Driveshaft			*	*	*	*	*	*	*	
Spindle Nuts(500381-3) Retorq to 40 FT LB		*	X	X	X	X	X	X	X	X
Rotate Tires *every 500 hours				*		*		*		

MAINTENANCE

PREVENTATIVE MAINTENANCE SCHEDULE

This section below has been added to for your record keeping convenience.

*Please refer to your Engine Manual for specific maintenance instructions.

Date Service Performed	
Tug Serial Number	
Tug Hours	
Technician	

MAINTENANCE

TT4-8 GASOLINE & LPG SPECIFICATIONS & CAPACITIES

MODEL #	WISCON TME27		
DESCRIPTION:	Gasoline, 2.7 Liter, four cylinder engine		
# OF CYLINDERS	4		
BORE & STROKE INCHES (mm)	3.58 X 4.06 in (91 mm)		
DISPLACEMENT, CUBIC INCHES (L)	164.7 CID (2.7L)		
COMPRESSION RATIO	8.2:1		
FUEL	Gasoline		
ALTERNATOR	See Specific Spec for Eagle Model Type		
ENGINE WEIGHT FULLY DRESSED LB (KG) (PROX)	557 (253)		

BATTERY

Group 65 , 860 Cold Cranking Amps automotive battery

ENGINE CRANKCASE CAPACITIES

ENGINE	U.S. QUARTS	IMPERIAL QUARTS	LITRES
2.7L	7.0	5.83	6.65
OIL TYPE SAE 10W 30 OR 10W 40 *Capacities are totals including filter			

FUEL TANK REFILL CAPACITIES

U.S. GALLONS	IMPERIAL GALLONS	LITERS
13.00	10.82	49.21

MAINTENANCE

TT4-8 GASOLINE & LPG SPECIFICATIONS & CAPACITIES

TRANSMISSION REFILL CAPACITIES

ENGINE	U.S. PINTS	IMPERIAL PINTS	LITRES
2.7 L Gasoline	8.00	6.60	3.80
* USE DEXTRON III TYPE TRANSMISSION FLUID OR EQUIVALENT			
**ADD 9 PINTS, 7.5 IMPERIAL PINTS OR 4.25 LITERS IF TORQUE CONVERTOR HAS BEEN DRAINED			

ENGINE COOLING SYSTEM REFILL CAPACITIES

ENGINE	U.S. QUARTS	IMPERIAL QUARTS	LITRES
2.7 L Gasoline	16.00	13.30	15.10
* A 50/50 MIXTURE OF GLYCOL AND CLEAN WATER			

BRAKE SYSTEM

The brake system is power assisted hydraulic, front disc type and rear drum type. USE DOT 3 BRAKE FLUID.

STEERING SYSTEM

The steering system is power assisted hydrostatic type. Use Either Power Steering Fluid Equivalent Soec For GM 9985010, CHRYSLER MS-5931 OR FORD ESW-M2C128-C and D OR 10W Mineral Oil

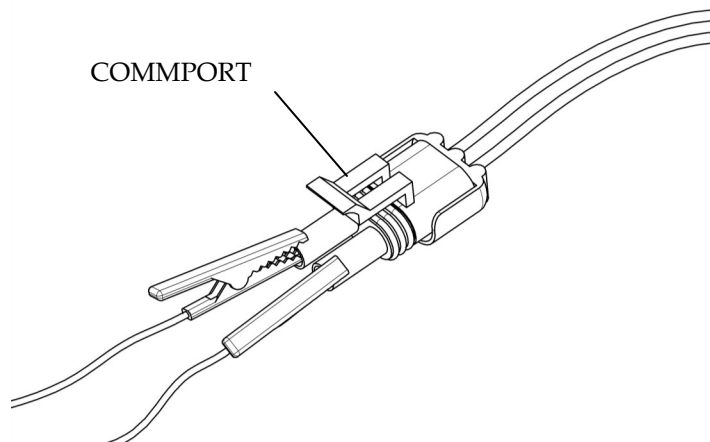
AXLE REFILL CAPACITIES

AXLE	U.S. PINTS	IMPERIAL PINTS	LITRES
FRONT STEER – NON DRIVE	N/A	N/A	N/A
FRONT DRIVE AXLE	5.20	4.37	2.48
REAR DRIVE AXLE	8.50	7.00	3.75
* SERVICE REFILL CAPACITIES ARE DETERMINED BY FILLING TO THE BOTTOM OF THE FILLER HOLE			
**USE 80W90 HYPOID GEAR LUBRICANT			

MAINTENANCE

Obtaining A Diagnostic Code

1. Remove plug cap from COMMPORT (shown below). COMMPORT can be found on the engine inside the engine compartment either through the hood or the side access door.
2. Using a jumper wire connect one end of wire to orange port and the other end to black with light green tracer port.
3. Now that jumper wire is attached, while sitting in driver seat, turn the key switch to the "ON" position, but do not start the tug. Check engine light will begin to blink.
4. Count the number of times the light blinks between each pause. The first 3 consecutive codes will blink 1654 (one blink, six blinks, five blinks, four blinks, then a pause and repeat).
5. After the initial code 1654 any other codes will be fault codes. Refer to the TME27 Fault Code Diagnostics Sheet.



MAINTENANCE

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MAINTENANCE

Typical TME27 Diagnostics

System	Fault Name	Turn On MIL	Shutdown	Never Forget	CL Disable	AL Disable	AL Disable Key-eye	Power Derate 1	Power Derate 2	low Rev Limit	Soft Warning	Hard Warning	Stopped Check	Flash Code	Fault Condition(s)	Latch	Unlatch	Latch / Unlatch Units	
MAP	MAP high pressure	X				X	X							108	MAP press > 16.00 psia and TPS < 10.0 % and RPM > 1800 rpm to unlatch, MAP press must be < 10.00 psia	2.000	4.000	seconds	
	MAP low voltage	X				X	X							107	MAP voltage < 0.050 volts and TPS > 2.0 % and RPM < 7000 rpm to unlatch, MAP voltage must be > 0.500 volts	1.000	2.000	seconds	
ECT/CHT	ECT high voltage	X				X								118	ECT voltage > 4.950 volts	1.000	2.000	seconds	
	ECT low voltage	X				X								117	ECT voltage < 0.050 volts	1.000	2.000	seconds	
	ECT higher than expected 1	X				X	X	X						116	ECT > 210 deg F and RPM > 600 rpm	30.000	15.000	seconds	
IAT	IAT high voltage	X				X								113	IAT voltage > 4.950 volts	1.000	2.000	seconds	
	IAT low voltage	X				X								112	IAT voltage < 0.050 volts	1.000	2.000	seconds	
	IAT higher than expected 1	X				X		X						111	IAT > 200 deg F and RPM > 1000 rpm	60.000	15.000	seconds	
BP	BP high pressure	X				X	X							2229	BP press > 16.00 psia	3.000	2.000	seconds	
	BP low pressure	X				X	X							129	BP press < 8.30 psia	3.000	2.000	seconds	
Battery Voltage	Voltage high	X				X	X							563	Voltage > 18.00 volts	3.000	5.000	seconds	
	Voltage low	X				X	X							562	Voltage < 9.50 volts and RPM > 1500 rpm	5.000	10.000	seconds	
5V External	5VE1 high voltage	X				X								643	5VE1 > 5.40 volts	1.000	2.000	seconds	
	5VE1 low voltage	X				X								642	5VE1 < 4.60 volts	1.000	2.000	seconds	
TPS	TPS1 high voltage	X												123	TPS1 voltage > 4.800 volts	0.500	3.000	seconds	
	TPS1 low voltage	X												122	TPS1 voltage < 0.200 volts	0.500	3.000	seconds	
	TPS2 high voltage	X												223	TPS2 voltage > 4.800 volts	0.500	3.000	seconds	
	TPS2 low voltage	X												222	TPS2 voltage < 0.200 volts	0.500	3.000	seconds	
	TPS1 > than TPS2	X												221	(TPS1% - TPS2%) > 20.0 %	1.000	2.000	seconds	
	TPS1 < than TPS2	X												121	(TPS1% - TPS2%) < -20.0 %	1.000	2.000	seconds	
	Unable to reach > TPS	X												2112	(target TPS - actual TPS) > 20.0 % persistently longer than 200 ms while battery voltage > 9.0 volts and battery voltage < 16.0 volts	1.000	0.500	seconds	
	Unable to reach < TPS	X												2111	(target TPS - actual TPS) < -20.0 % persistently longer than 200 ms while battery voltage > 9.0 volts and battery voltage < 16.0 volts	1.000	0.500	seconds	
	TPS1/2 simultaneous voltages out of range	X		X										2135	Uses same parameters as individual TPS1/2 voltage fault detection above	0.500	3.000	seconds	
	FPP	FPP1 high voltage	X								X				2122	FPP1 voltage > 4.800 volts	0.500	3.000	seconds
		FPP1 low voltage	X								X				2123	FPP1 voltage < 0.200 volts	0.500	3.000	seconds
	Engine Speed	Max govern speed override	X												219	rpm > 3400 rpm	2.000	1.000	seconds
Fuel rev limit		X												1111	rpm > 3600 rpm	0.500	5.000	seconds	
Spark rev limit		X												1112	rpm > 3800 rpm	0.500	5.000	seconds	
Oil Pressure	Oil pressure low	X	X											524	Oil press pulled-up input a threshold voltage of and RPM > 500 rpm and run-time > 30.0 seconds	5.000	3.000	seconds	

MAINTENANCE

Typical TME27 Diagnostics

System	Fault Name	Turn On MIL	Shutdown	Never Forget	CL Disable	AL Disable	AL Disable Key-cyc	Power Derate 1	Power Derate 2	low Rev Limit	Soft Warning	Hard Warning	Stopped Check	Flash Code	Fault Condition(s)	Latch	Unlatch	Latch / Unlatch Units	
Adaptive Learn	AL high gasoline bank 1	■												171	AL_BM > 30.0% and RPM >= 0 rpm and RPM <= 9999 rpm and MAP >= 0.00 psia and MAP <= 99.00 psia	3	3	updates	
	AL low gasoline bank 1	■												172	AL_BM < -30.0% and RPM / MAP conditions above	3	3	updates	
	AL high LPG	■												1161	AL_BM > 30.0% and RPM >= 0 rpm and RPM <= 9999 rpm and MAP >= 0.00 psia and MAP <= 99.00 psia	3	3	updates	
Closed Loop	AL low LPG	■												1162	AL_BM < -30.0% and RPM / MAP conditions above	3	3	updates	
	CL high gasoline bank1	■												1155	CL_BM > 40.0% and RPM >= 0 rpm and RPM <= 9999 rpm and MAP >= 0.00 psia and MAP <= 99.00 psia	5	1	updates	
	CL low gasoline bank1	■												1156	CL_BM < -40.0% and RPM / MAP conditions above	5	1	updates	
Catalyst Monitor	CL high LPG	■												1151	CL_BM > 35.0% and RPM >= 0 rpm and RPM <= 9999 rpm and MAP >= 0.00 psia and MAP <= 99.00 psia	5	1	updates	
	CL low LPG	■												1152	CL_BM < -35.0% and RPM / MAP conditions above	5	1	updates	
	Gasoline cat monitor	■			X	X								420	EGO2 RMS > 0.005 phi and EGO2 RMS > EGO1 RMS * 50.0% and EGO2 RMS > CL waveform RMS * 50.0%	100	5	updates	
	LPG cat monitor	■			X	X								1165	EGO2 RMS > 0.005 phi and EGO2 RMS > EGO1 RMS * 50.0% and EGO2 RMS > CL waveform RMS * 50.0%	100	5	updates	
EGO Sensors	EGO open / lazy pre-cat 1	■			X	X								134	EGO cold persistently > 120.0 seconds	5.000	1.000	seconds	
	EGO open / lazy post-cat 1	■			X	X								154	Same as above	5.000	1.000	seconds	
Injectors	Injector Loop Open or Low-Side Short to Ground	■			X	X	X							261	Injector off-state low-side < 4.0 volts and battery voltage > 9.0 volts	10	5	samples	
														264					
														267					
														270					
														273					
														276					
														279					
														282					
														285					
														288					
		Injector Coil Shorted	■			X	X	X							262	Injector on-state low-side > 4.0 volts and battery voltage < 16.0 volts	10	5	samples
															265				
															268				
														271					
														274					
														277					
														280					
														283					
														286					
														289					
Power Relay Control Coil	Relay control ground short	■										X		686		10	5	samples	
	Relay coil open	■										X		685		10	5	samples	
	Relay coil short to power	■												687		10	5	samples	
Tach Output	Tach output ground short	No								X				2618		10	5	samples	
	Tach output short to power	No								X				2619		10	5	samples	

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Typical TME27 Diagnostics

System	Fault Name	Turn On MIL	Shutdown	Never Forget	CL Disable	AL Disable	AL Disable Key-cyc	Power Derate 1	Power Derate 2	low Rev Limit	Soft Warning	Hard Warning	Stopped Check	Flash Code	Fault Condition(s)	Latch	Unlatch	Latch / Unlatch Units
EPR Diagnostics LPG	EPR delivery pressure > than expected	■				X			X					1171	MJ actual-commanded press > 4.00 in H2O	3.000	0.500	seconds
	EPR delivery pressure < than expected	■				X			X					1172	MJ actual-commanded press < -4.00 in H2O	3.000	0.500	seconds
	EPR comm lost	■				X			X					1173	No MJ packets received within 500 ms	0.500	5.000	seconds
	EPR voltage supply high	■				X			X					1174		5.000	5.000	seconds
	EPR voltage supply low	■				X			X					1175		5.000	5.000	seconds
	EPR internal actuator fault detection	■				X			X					1176				
	EPR internal circuitry fault detection	■				X			X					1177				
	EPR internal comm fault detection	■				X			X					1178				
	Cam Crank Sensors	Cam loss	■				X	X				X			342	No cam pulse in and RPM > 1000 rpm	4.0 cycles	1.000
Crank loss		■								X				337	Cam pulses without crank activity > 6 cam pulses	1.000	N/A	seconds
Cam sync noise		■				X	X			X				341	Number of invalid cam re-syncs within a time window of ≤ 700 ms	1 re-syncs	1.000	10.000 seconds
Crank sync noise		■				X	X			X				336	Number of invalid crank re-syncs within a time window of ≤ 800 ms	1 re-syncs	1.000	10.000 seconds
Never crank synced at start		■									X			16	Cranking revs without sync > and RPM > 90 rpm	4.0 revs	2.000	N/A seconds
Internal Processor Diagnostics	COP failure	■			X		X		X		X			606				
	RTI 1 loss	■			X		X		X		X			1612				
	RTI 2 loss	■			X		X		X		X			1613				
	RTI 3 loss	■			X		X		X		X			1614				
	A/D loss	■			X		X		X		X			1615				
	Invalid interrupt	■			X		X		X		X			1616				
	Flash checksum invalid	■			X		X		X		X			601				
	RAM failure	■			X		X		X		X			604				
	Shutdown Request	■												1625	Number of shutdown requests ≥ 1 requests	N/A	N/A	
J1939 Network	CAN Tx failure	■												1626	Tx error counter > 100 failures	1.000	1.000	seconds
	CAN Rx failure	■												1627	Rx error counter > 100 failures	1.000	1.000	seconds
	CAN address conflict failure	■									X			1628	Address conflict counter > 5 failures	N/A	1.500	seconds
Fuel Temp	Fuel Temp High Voltage	■												183	FT voltage > 4.950 volts			
	Fuel Temp Low Voltage	■												182	FT voltage < 0.050 volts			

Latch: Time conditions have to be met to set a code.
 Unlatch: Time conditions are no longer present before the code goes away.

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Recommended TT 4-12 Tool List

Screwdrivers

- a. Philips #1, #2 4" long
- b. Slotted 1/8 X 4, 3/16 X 4, 1/4 X 6, 5/16 X 8

Torx

- a. T25, T27, T30, T40

Nut Drivers

- a. 1/4", 5/16", 3/8"

Allen Wrench

- a. 7/64, 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8

Adjustable Wrench

- 8" & 10"

6) Metric Combination Wrenches

- a. 8MM, 10MM, 12MM, 13MM, 14MM, 15MM, 16MM, 17MM, 18MM, 19MM, 20MM, 21MM

7) Standard Combination Wrenches

- a. 1/4, 5/16, 11/32, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16,
1 1/8

8) 3/8 Drive Deep Standard Sockets

- a. 3/8, 7/16, 1/2, 9/16

9) 1/2 Drive Deep Standard Sockets

- 9/16, 3/4, 15/16, 1 1/8

10) 3/8 Drive Standard Sockets

- 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4

11) 3/8 Drive Metric Sockets

- 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

12) 1/2 Drive Metric Sockets

- 16, 17, 18, 19, 20, 21, 22, 23, 24

13) 1/2 Drive Standard Sockets

- 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1 1/8

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- 14) Swivel Universal
 - 1/2, 3/8 Drives
- 15) Extension 3/8 Drive
 - 3, 6, 10 inch
- 16) Extension 1/2 Drive
 - 3, 6, 10 inch
- 17) OTC 7157
- 18) OTC 7080
- 19) OTC 1902
- 20) 12 volt test light
- 21) Torque Wrench
 - 25-250 Foot Pounds
- 22) 7 inch diagonal pliers
- 23) 8 inch long nose pliers
- 24) 6 3/4 inch slip joint pliers
- 25) 9 1/2 inch arc joint pliers
- 26) Multimeter
- 27) Pickle Fork
- 28) Snap wring pliers
- 29) Ball Pien Hammer 32 oz
- 30) Oil Filter wrench
 - 2 3/4 inch to 3 3/4 inch in diameter
- 31) Grease gun with 20" flex hose
- 32) Oil pan drain
- 33) Funnel

NOTE:

*Eagle Tugs does not sell tools. Please refer to you local tool supplier to purchase any of the above recommended tools.

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DANA FRONT AXLE MAINTENANCE

Dana 44 Front Axle Disassembly Procedure

Please refer to the steps below for proper adjustment procedure.

Note: Please refer to the attached picture of the Dana 44 axle for number reference.

Disassembly Procedure:

Step 1: Lift the tug so that both of the front tires are off the ground and make sure the unit is secured properly.

Step 2: Remove both front wheels.

Step 3: Remove both front calipers leaving the brake hose intact.

Step 4: Remove both of the hub center caps.

Step 5: Use lock ring pliers to remove both lock rings on the left and right side of the tug. (#62)

Step 6: Remove the Gear (#69), spindle (#70) and spring retainer (#71) on both sides.

Step 7: Use socket #OTC 7157 to remove the locking nut. (#59)

Step 8: Remove the locking ring. (#58)

Step 9: Remove the spindle nut.

Step 10: Slide the rotor & hub assembly off the spindle leaving the bearings inside the hub.

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DANA FRONT AXLE MAINTENANCE

Reassembly Procedure If the Backing Plate & Spindle Were Removed:

Step 1: Install the backing plate with the chamfer facing the spindle. Note: Be sure the backing plate is aligned in the correct position as it was before it was removed.

Step 2: Tighten the 6 new 3/8-24 stover lock nuts to 33ft lbs.

Step 3: Install the rotor & hub assembly making sure the bearing does not fall out.

Step 4: Install the spindle nut with the dowel facing toward you. Tighten to 35ft lbs to seat the bearings while spinning the rotor.

Step 5: Loosen the spindle nut and re-snug.

Step 6: Install the lock ring making sure the hole in the ring lines up with the dowel on the nut. If it does not, rotate the nut so the dowel is aligned.

Step 7: Install the lock nut and torque to 50ft lbs.

Step 8: Install the spring seat with the flat part facing toward you.

Step 9: Install the spring, the gear and the clip.

Step 10: Apply a small amount of RTV sealant to the cap and install.

Step 11: Install the caliper.

Step 12: Install the tires and lug nuts and torque the nuts to 90ft lbs.

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TIPS FOR INCREASED ALL WEATHER TRACTION DURING AIRCRAFT PUSHBACK

- 1.Reduce air pressure in pneumatic tires from 60 PSI to as low as 25 PSI. (**restore air pressure to 60 psi as soon as weather emergency ends).
 - 2.When pushing with All Wheel Drive tractors, make sure the tow bar is level or slightly downhill toward tractor.
 - 3.When towing with Rear Wheel Drive-raise hitch height.
 - 4.When pushing with Rear Wheel Drive-lower hitch height.
- Note: These strategies(2, 3 and 4) maximize all weather traction.
- 5.When pushing aircraft on ice or icy snow with All Wheel Drive, a wheel may loose traction (wheel spin). To stop front wheel spin, apply some service brake gradually with left foot until wheel spin stops and hold, while continuing the pushback. Coordinate the left foot service brake pressure and the right foot accelerator, to maintain a smooth pushback. To stop rear wheel spin, apply parking brake with lever until it stops while continuing the pushback.
 - 6.On ice or snow use chains or cables. If the use of chains is prohibited, there are traction cables that serve the same function as chains but are much easier to mount and are very kind in terms of abrasion to all surfaces.
 - 7.Keep fuel tank full, as much as possible.
 - 8.Consult with Eagle Tugs factory for additional assistance.

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FRONT END ALIGNMENT PROCEDURE

Find center line of tire front and back

Check with tape measure to see difference

The front should be 1/16 inch more than the rear

1/16 inch toe out, if less or greater loosen the two bolts on the tie rod clamp

Turn clamp in or out to achieve desired setting—1/16 in toe out

Retighten two bolts on the tie rod clamp

