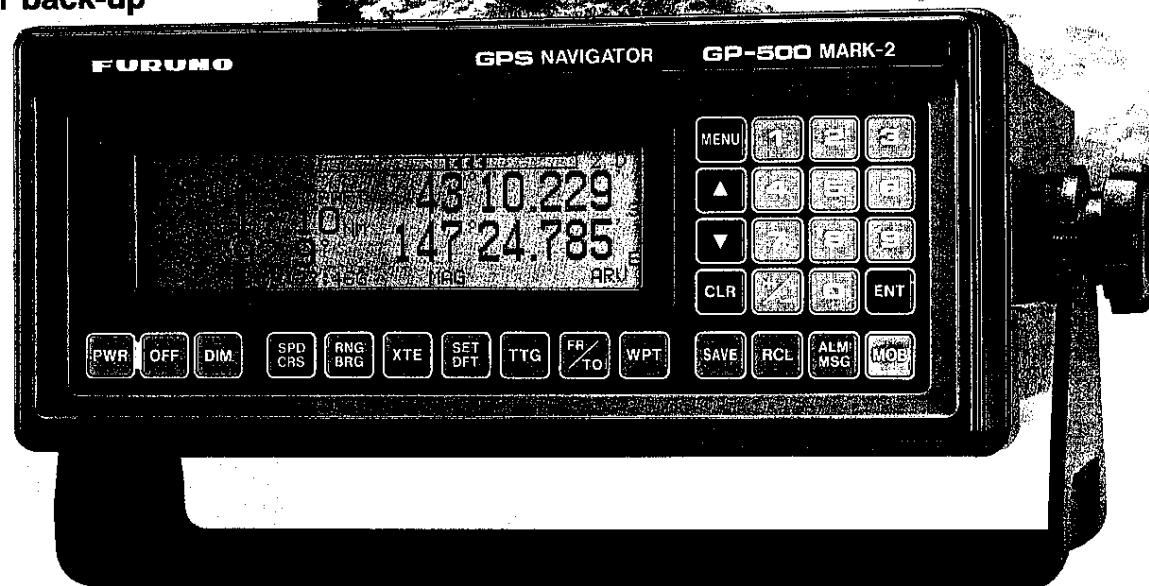


ALL-IN-VIEW, 8-CHANNEL PARALLEL RECEPTION

MARINE GPS NAVIGATOR

Model GP-500 MARK-2

- Acquisition and simultaneous tracking of up to eight satellites
- "All-in-view" algorithm for stable fix and high accuracy
- Accepts Differential GPS (DGPS) data from external receiver
- Instant entry of Man Overboard (MOB) position
- Displays set & drift (gyro, log input required)
- Input port for back-up navigator
- Rhumb-line or Great-circle route navigation



The FURUNO GP-500 MARK-2 is a new GPS navigator, featuring state-of-the-art technology. It adds Differential GPS (DGPS) capability and Man Overboard (MOB) position entry to the features of its popular predecessor, the GP-500.

In addition, the GP-500 MARK-2 offers a high level of accuracy by combining eight-channel parallel reception with an "all-in-view" computing algorithm. This powerful combination eliminates the need for initial position entry

give uninterrupted position fixing. Provision is also made for accepting DGPS data from an external DGPS receiver to further increase overall accuracy.

The GP-500 MARK-2 displays ship's position and a variety of navigation data depending on key selected, including ship's speed/course, set/drift, R/B/ETA/TTG to a waypoint, and cross-track error. The GP-500 MARK-2 can store up to 20 event positions, 200 waypoints and 10 routes (10 waypoints/route). Pressing the [MOB] key in

SPECIFICATIONS OF GP-500 MARK-2

RECEIVER CHARACTERISTICS

1. Receiver Type

Eight discrete channels, parallel tracking of eight satellites, C/A code, all-in-view, Kalman filter

2. Receive Frequency

L1 (1575.42 MHz)

3. Accuracy (HDOP 3, without SA*)

Position: 15 m rms Speed: 0.1 knot rms

4. Time to First Fix

45 seconds typical

5. Tracking Velocity

250 knots

* Accuracy depends on whether SA is on or off.
SA status subject to change in accordance with policy of the U.S. government.

PROCESSOR/DISPLAY CHARACTERISTICS

1. Display

240 x 64 dot matrix super-twist backlit LCD

2. Date and Time

Date, Hours, Minutes, Seconds in UTC or Local time

3. Memory Capacity

- 200 waypoints
- 10 routes (Each of the routes is configured with up to 10 wpts selected by user or calculated on Great Circle)
- 20 event points (L/L, date/time and comment)
- 1 MOB point

4. Data Update

Every second

5. Data Input/Output

Port 1: Output in NMEA 0183

(\$**AAM, \$**APA, \$**APB, \$**BOD, \$**BWC, \$**BWW, \$**GAA, \$**GLL, \$**RMB, \$**RMC, \$**VTG, \$**WCV, \$**WNC, \$**WPL, \$**XTE, \$**ZDA, \$**ZLZ, \$**ZTG) ** : any talker identifier

Port 2: Input in NMEA 0183 (any talker identifier acceptable)

Port 3: Input DGPS data* in RTCM SC104, Output in NMEA0183 or I/O RS-232C

*DGPS receiver should be locally procured by user.

6. Geodetic System

170 datums programmed
(WGS-84, WGS-72, Tokyo, North American 1927, European 1950, Australian Geodetic 1984, etc.)

7. Alarms (aural-visual)

- Cross-track error
- Arrival or Anchor watch
- Speed faster or slower than, or between preset values
- Distance-run over preset value

POWER SUPPLY

10 - 40 VDC, 12 W approx.

110/220 VAC, 50-60 Hz, with optional rectifier PR-62

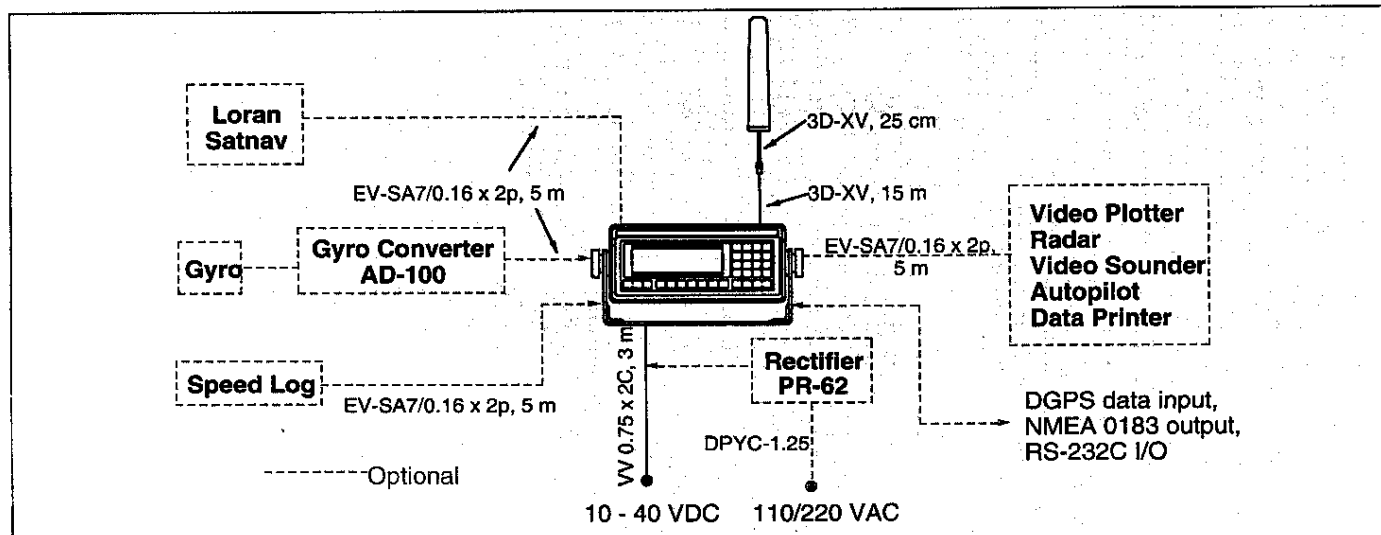
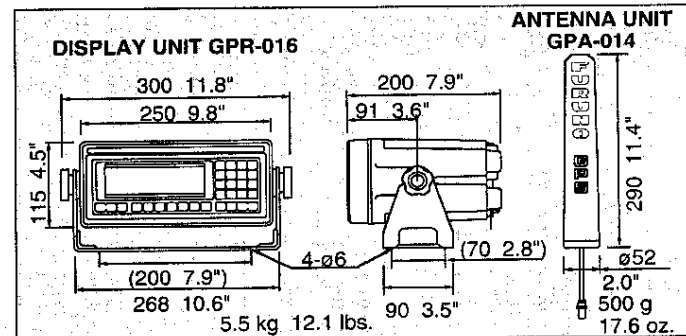
EQUIPMENT LIST

Standard

1. Display Unit GPR-016
2. Antenna Unit GPA-014 with 15 m antenna cable
3. Installation Materials & Spare Parts

Optional

1. Rectifier PR-62 for 110/220 VAC supply
2. Armored Antenna Cable Set CP20-00600 (30 m) or CP20-00610 (50 m)
3. Data Cable EV-SA7/0.16 x 2p (5 m)
4. Flush Mount Kit OP20-1



Specifications subject to change without notice

For further information, please contact

FURUNO

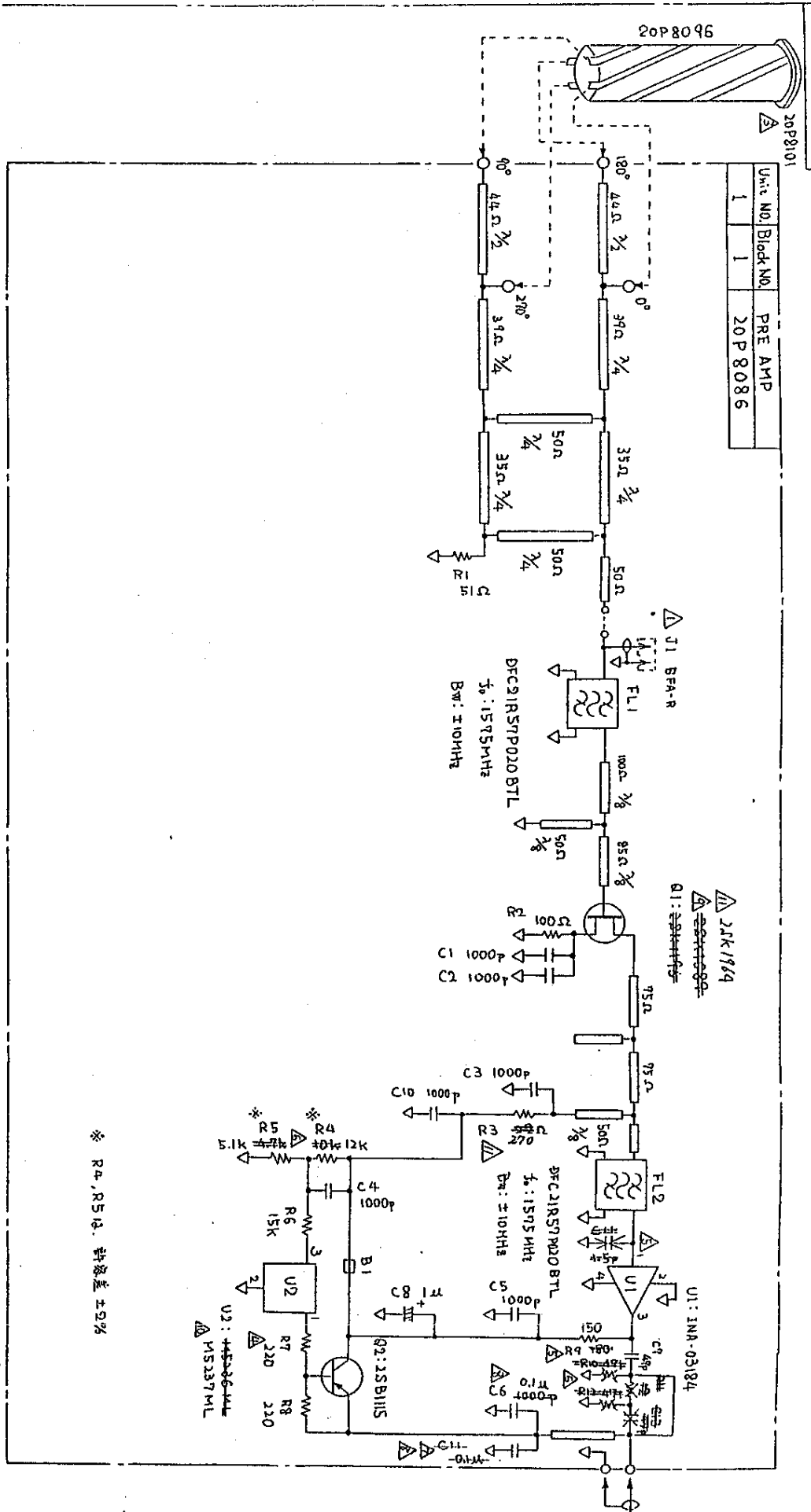
PARTS LIST for MARINE GPS NAVIGATOR MODEL GP-500 MARK-2

This equipment contains complex modules and printed circuit boards in which fault diagnosis and repair down to component level are not practicable. These modules are listed below:

	Functional modules	Section	Module type	Remarks
1	DISPLAY UNIT		GPR-016	
1.1	GPS RECEIVER BOARD (GB-92)	2B1	20P8107	
1.2	NAV PROCESSOR BOARD	2B3	20P8114	
1.3	DATA I/O BOARD	2B4	20P8068	
1.4	POWER SUPPLY BOARD	2B8	20P8072	
1.5	PANEL ASSEMBLY	2B5/6/7		
2	ANTENNA UNIT		GPA-014	
2.1	PREAMPLIFIER	1B1	20P8086	
3	Major discrete parts		Parts type	Remarks
3.1	BATTERY		ER17/33T2, 3.6 V	

GPA-014

Unit NO.	Block NO.	PRE AMP
1	1	20P8086

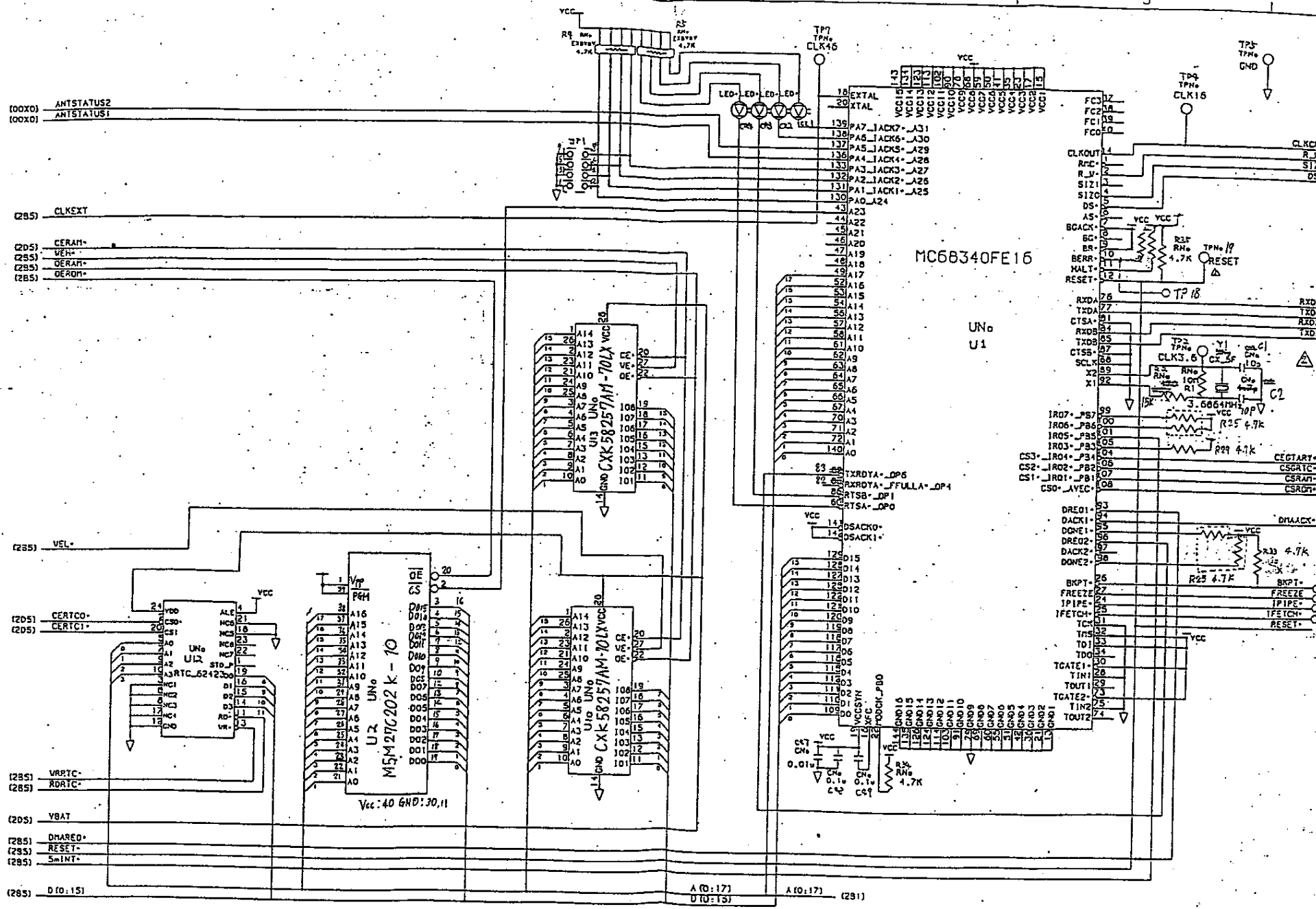


* R4, R5は、許容差 ±5%

20E4-0089	1991.5.7	U1 基板加工(追加)	箱本	20E4-0175	1992.8.28	J4461, 20P809-222194	修正	20E4-0175	修正
20E4-0086	1991.4.23	基板加工(追加)	箱本	20E4-0125	1992.4.15	S3879L, M337ML	修正	20E4-0125	修正
20E4-0082	1991.4.3	20P8101-0 追加	箱本	20E4-0108	1991.10.2	FET入子種入れ	修正	20E4-0108	修正
20E4-0080	1991.3.27	20P8101-0 追加	箱本	20E4-0111	1991.10.1	C6 1000μ-0.1μ, C11 追加	修正	20E4-0111	修正
20E4-0078	1991.3.20	J1追加, 基板加工(追加)	箱本	20E4-0109	1991.9.30	U2 基板加工(追加)	修正	20E4-0109	修正
20E4-0078	1991.3.20	J1追加, 基板加工(追加)	箱本	20E4-0104	1991.8.1	基板加工(追加)	修正	20E4-0104	修正

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PREAMPLIFIER	2.0	005	101
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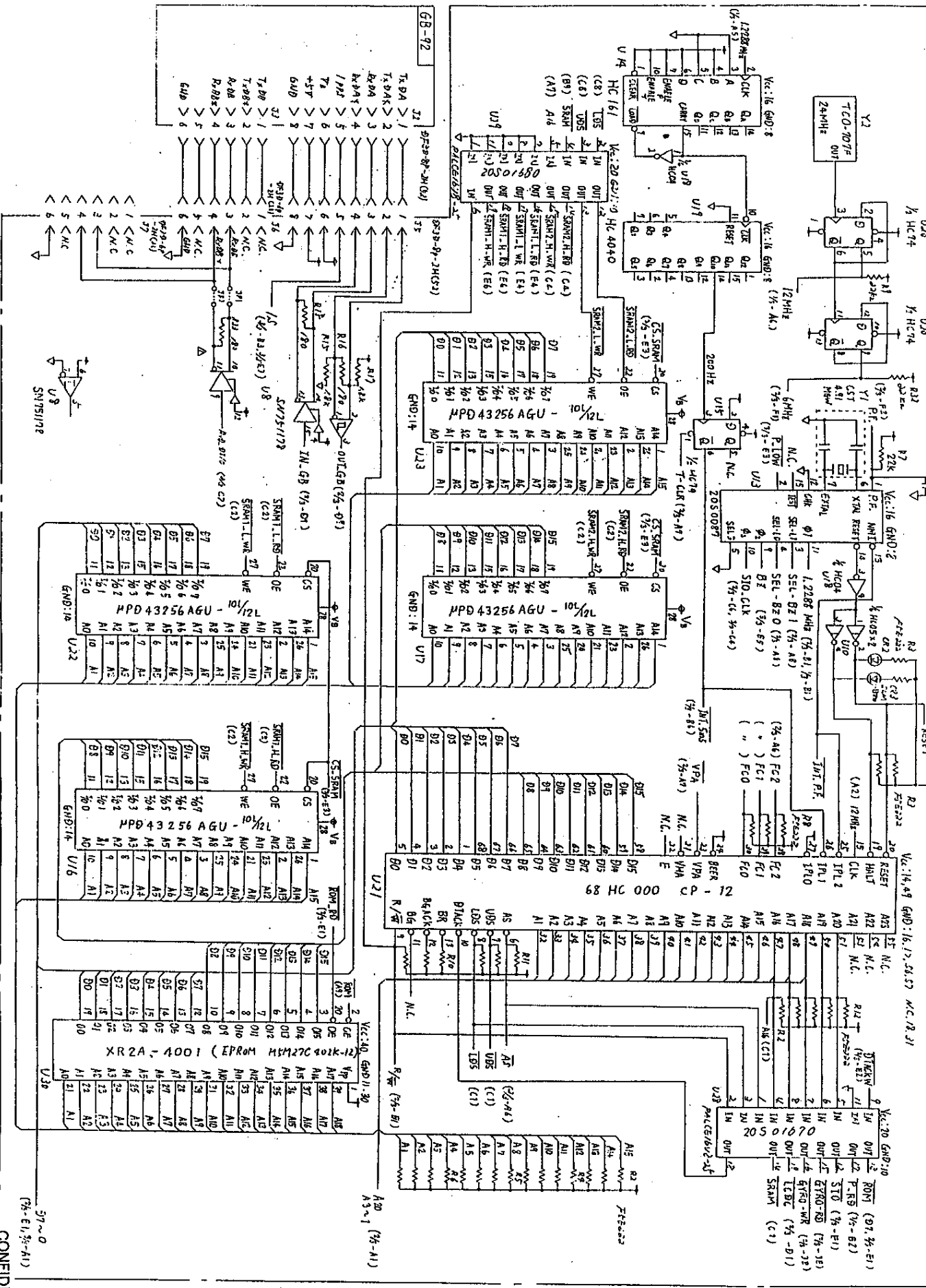


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REV No.	MARK	DATE	REMARKS	RV-BY
14E4-0614	△	H4.9.8	Xtal 7.375MHz	杨林
	△	52.3.2		

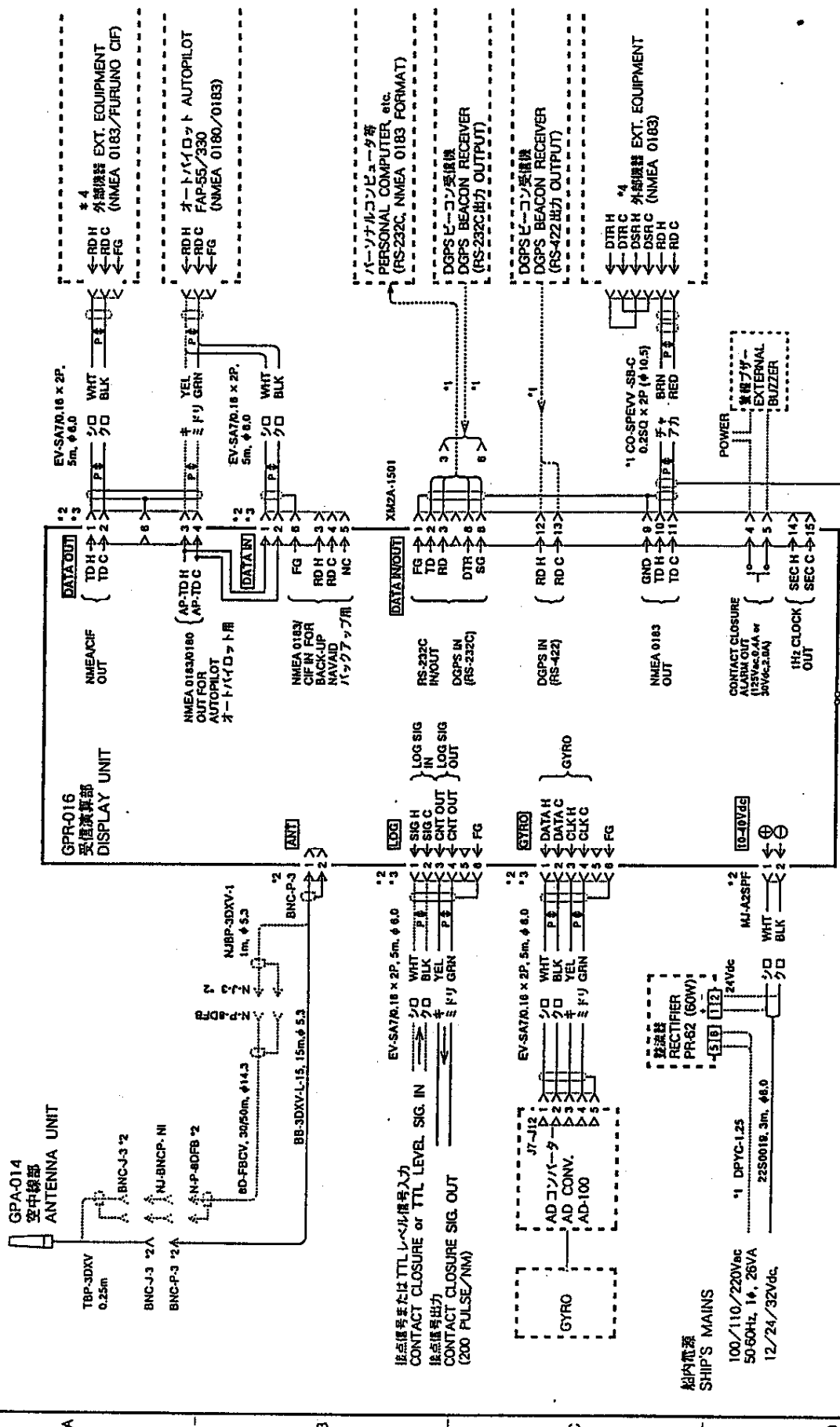
P GB-92		CODE No.		SHEET
		ITEM No.		No.
APPRV	CHKD	DSGNO	DRAWN	TIT
9.03	4.8.3	4.8.1		-LE
DWG.				GPS RECEIVER BOA
				70-005-1055

J83 MAT 20D 8/14
2
3
4
5
6
7
8
9



REV	1	DATE	9/1/98	BY	WJ
REV	2	DATE	10/1/98	BY	WJ
REV	3	DATE	11/1/98	BY	WJ
REV	4	DATE	12/1/98	BY	WJ
REV	5	DATE	1/1/99	BY	WJ
REV	6	DATE	2/1/99	BY	WJ
REV	7	DATE	3/1/99	BY	WJ
REV	8	DATE	4/1/99	BY	WJ
REV	9	DATE	5/1/99	BY	WJ
REV	10	DATE	6/1/99	BY	WJ
REV	11	DATE	7/1/99	BY	WJ
REV	12	DATE	8/1/99	BY	WJ
REV	13	DATE	9/1/99	BY	WJ
REV	14	DATE	10/1/99	BY	WJ
REV	15	DATE	11/1/99	BY	WJ
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REV	26	DATE	10/1/00	BY	WJ
REV	27	DATE	11/1/00	BY	WJ
REV	28	DATE	12/1/00	BY	WJ
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REV	31	DATE	3/1/01	BY	WJ
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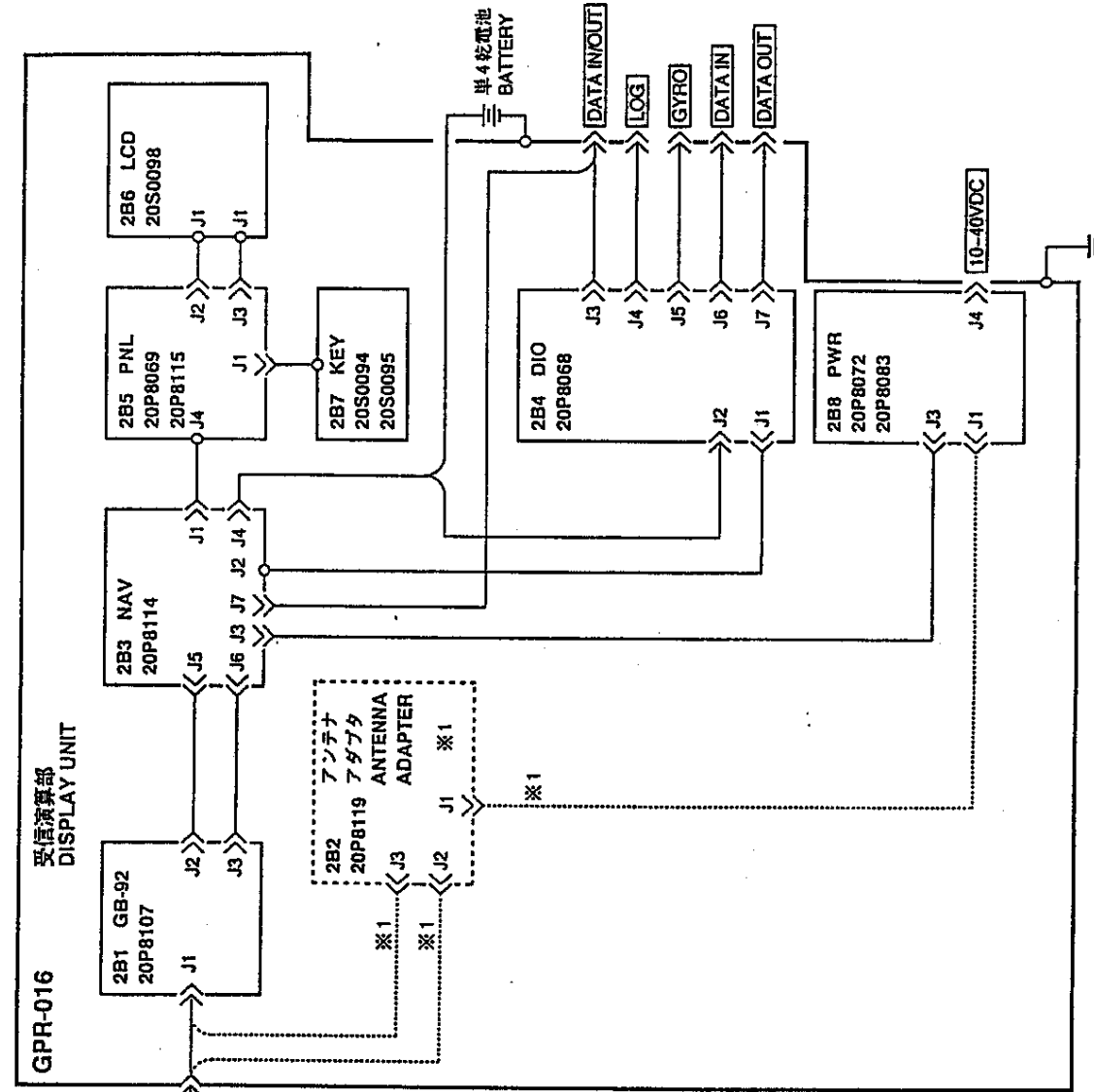


注 1 造船所仕様。
 2 出回線プラグ接続。
 3 プラグは MJ-ASBPF ケーブルの未使用箇所は同時にテーピングする。アースに落とさないこと。
 4 DTR と DSR 端子が働いているときは、DTR と DSR を接続すること。

NOTE 1 SHIPYARD SUPPLY.
 2 FACTORY WIRED.
 3 PLUGS ARE MJ-ASBPF. ISOLATE UNUSED CORE LEADS INDIVIDUALLY. DO NOT GROUND THEM.
 4 JUMP BETWEEN DTR AND DSR IF PROVIDED.

承認 APPROVED	APR 17 '93 M. IKEDA	品名 TITLE	相互接続図 INTERCONNECTING DIAGRAM
検閲 CHECKED	APR 19 '93 TAKAHASHI	図番 DWG.NO	GP-500 MARK-2
製図 DRAWN	APR 19 '93 HIYOSHI	機番 C4355 - C01 - C	

FURUNO ELECTRIC CO., LT



※1: GPA-012用オプション
(GP-500用 空中線部)
(OPTION FOR ANTENNA UNIT
GPA-012 OF GP-500)

承認 APPROVED	品名 ITEM	数量 QTY	材料 MATERIAL	数量 QTY	図番 DWG. NO.	備考 REMARKS
承認 M. KGOA	品名 TITLE					総合回路図 GENERAL SCHEMAT
検図 T. AMANO	角度 THIRD ANGLE					GP-500 MARK-2 DIAGRAM
製図 T. AMANO	尺 SCALE					
	重量 WEIGHT	kg				図番 C4355-K01-A DWG. NO