2010/5/28

MODEL S-1800

(80kHz／180kHz)

Technical Manual

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[AFTER INSTALLATION]

Check to ensure the voltage between the flange and the battery (negative) is lower than 0.65V.

If the voltage is high, connect the thick wire and make it lower than the regulated value.

The high voltage causes an electrolytic corrosion.

[DAILY MAINTENANCE AND INSPECTION]

For long-term trouble-free service, keep the unit away as much as possible from direct sunlight, moisture, dust, and shocks.

For keeping the equipment in good working order, check the following points regularly.

Is the power supply is compatible with the voltage rating of the equipment?

Model	Input Power supply
S-1800M10	DC10.5～40V
S-1800M15	DC20～30V
S-1800H80/180	DC10.5～30V

Dust or dirt must be removed from the equipment with a soft and dry cloth.
Be sure to use “display cabinet cover” to protect the unit from salt damage.

CAUTION
Do not use chemical cleaners to clean the equipment.

Remove oyster or barnacles attach on the soundome that result in poor sonar performance.

Tighten the screws of the mounting bracket, the flange, and the electrical connections.

The Hoist Gears and Flange Unit require regular lubrication with grease.

[CAUTIONARY NOTES]

Prior to doing any repair work, please check the items listed below.

Is the power supply voltage is normal?

Is the polarity (+, −) of a power supply correct?

Have any fuses blown out?

All the connectors wired correctly?

Securely tighten all connections.

Check to see if the connectors to individual boards are connected.

Check to see if the cable broke.

Check to see if there is any disordered appearance.

When conducting repair work, care should be taken as follows.

Make sure to turn the main power off before repair work and remove the power cable.

Due to the high voltage in the inverter unit, it is very dangerous to touch the peripheral lines.

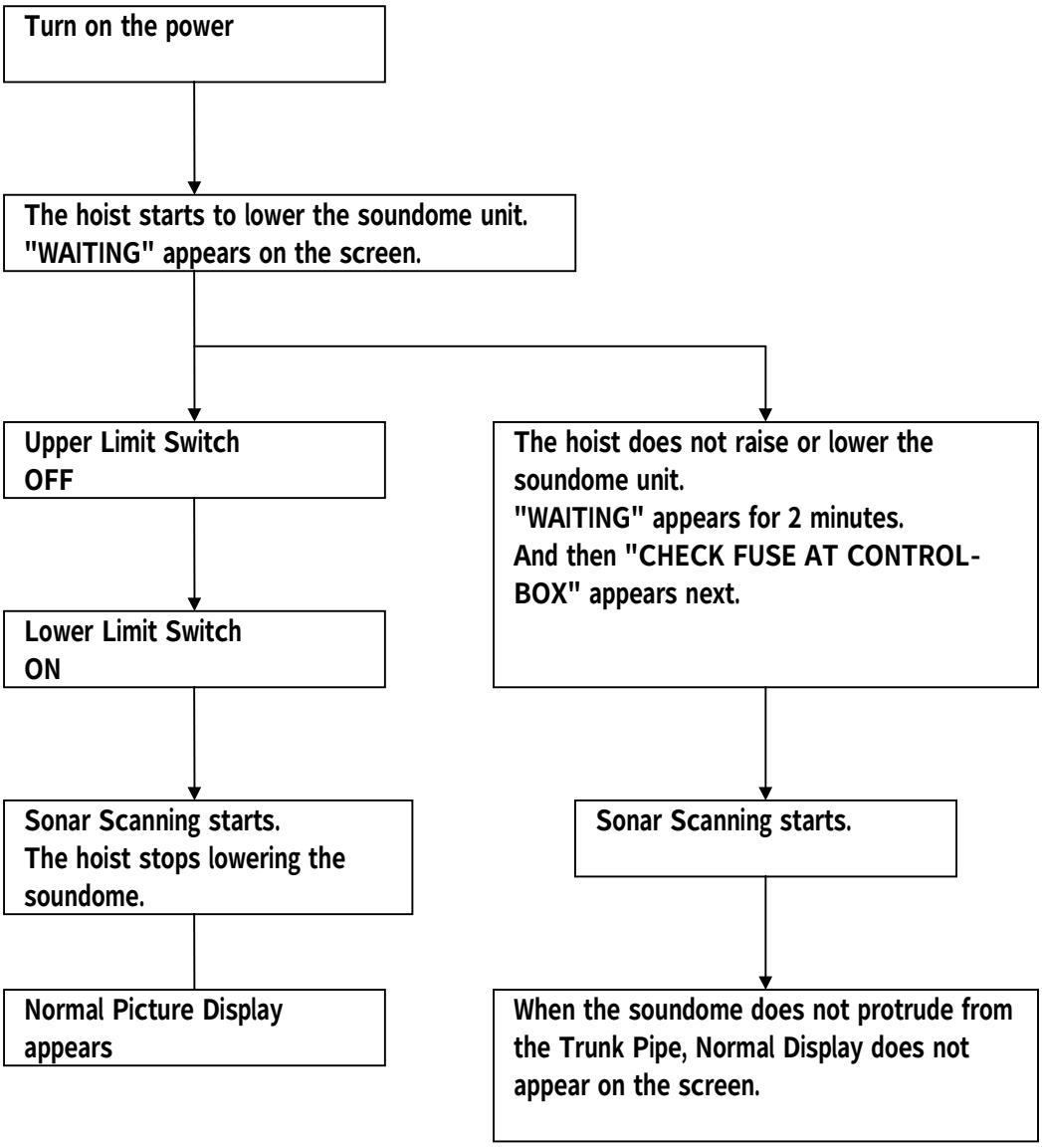
C-MOS･ICs are on the boards. To avoid the damage by static electricity, do not wrap the board in any material that causes static electricity or do not use leaky soldering irons.

Do not place the board on a metal board since the battery is mounted on the board or some electric charge might remain on the condenser.

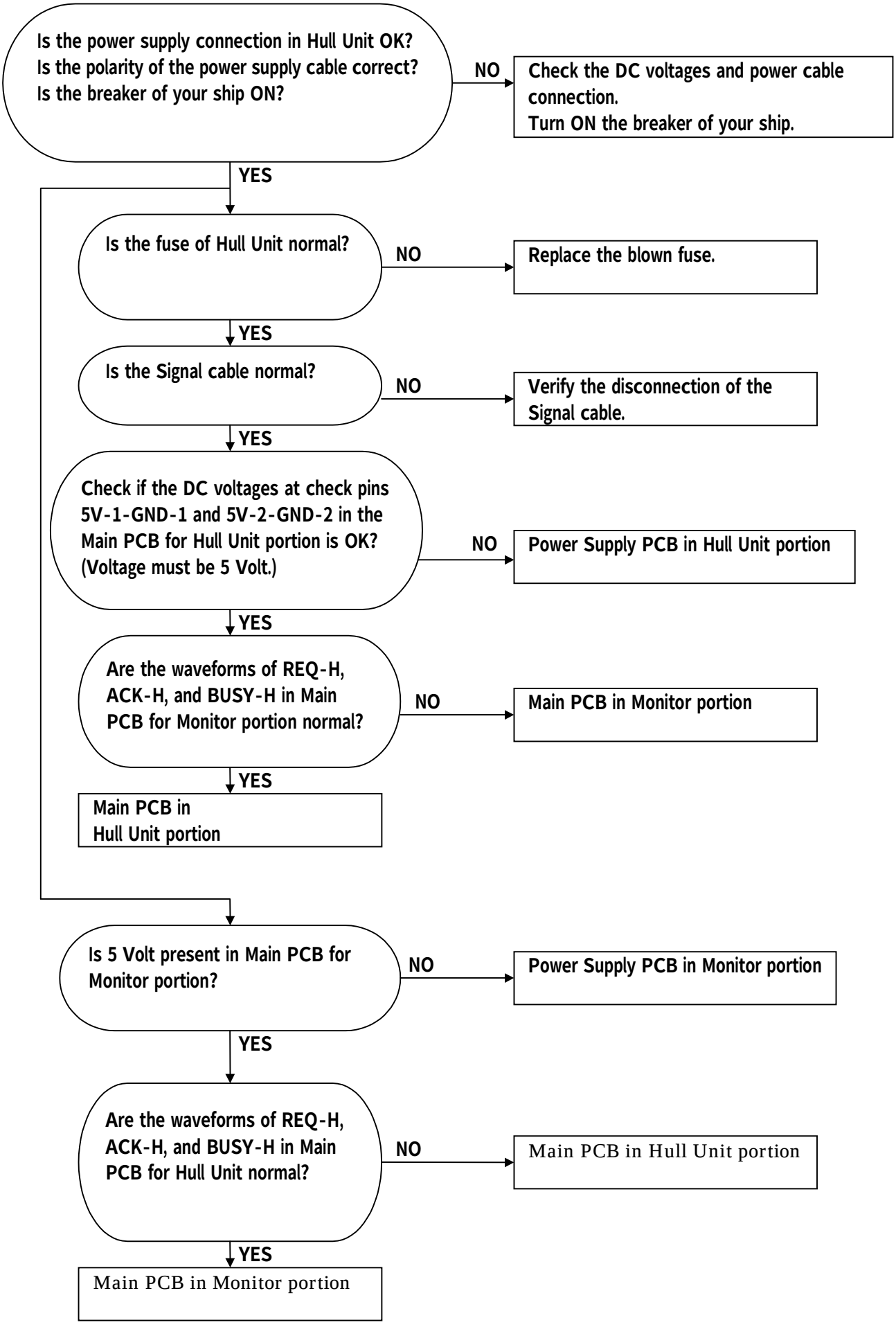
The following cases void its warranty and the high repair charge will be required.

<Changing the chip parts>
<Soldering on the board>
<Abnormal adjustment on the variable resistors>

[FLOWCHART into ECHO DISPLAY]



"WAITING" stays more than 2 minutes
And then "CHECK FUSE AT CONTROL-BOX" appears next.



SELF CHECK SCREEN

* By selecting the mode selection dial to MENU 2, "SELF CHECK" appears on the screen.

SELF CHECK

SELF CHECK

DATA-TX	OK…	Receiving the data between the Monitor unit and the Hull Unit.
DATA-RX	OK…	Transmitting the data between the Monitor and the Hull Unit.
DATA	OK…	Data transferred between the Monitor Unit and the Hull Unit.
HOIST	OK…	Hoist up and down
TILT	OK…	(Not available in this model)
TRAIN	OK…	Bearing direction control on the soundome
ROM-VER	OK…	P-Rom version of Monitor or Hull unit
OTHERS	OK…	(Not available in this model)

DATA-TX NG

Power Supply PCB for Monitor or for Hull unit (5V-2) is faulty.
Main PCB for Monitor or for Hull Unit is faulty. (C. Circuit: BUSY, ACK, REQ)
Signal cable is faulty

DATA-RX NG

Main PCB for Monitor or for Hull Unit is faulty. (C. Circuit: BUSY, ACK, REQ)

DATA NG

Main PCB for Monitor or for Hull unit is faulty. (C. Circuit: DIO 0～DIO 3)
Signal cable is faulty

HOIST NG

Fusing at FUSE 2 for hoist motor
Hoist control circuit in Main PCB for Hull unit is faulty.
Hoist motor cable is faulty.
Limit Switch is faulty.
Hoist Motor is faulty.

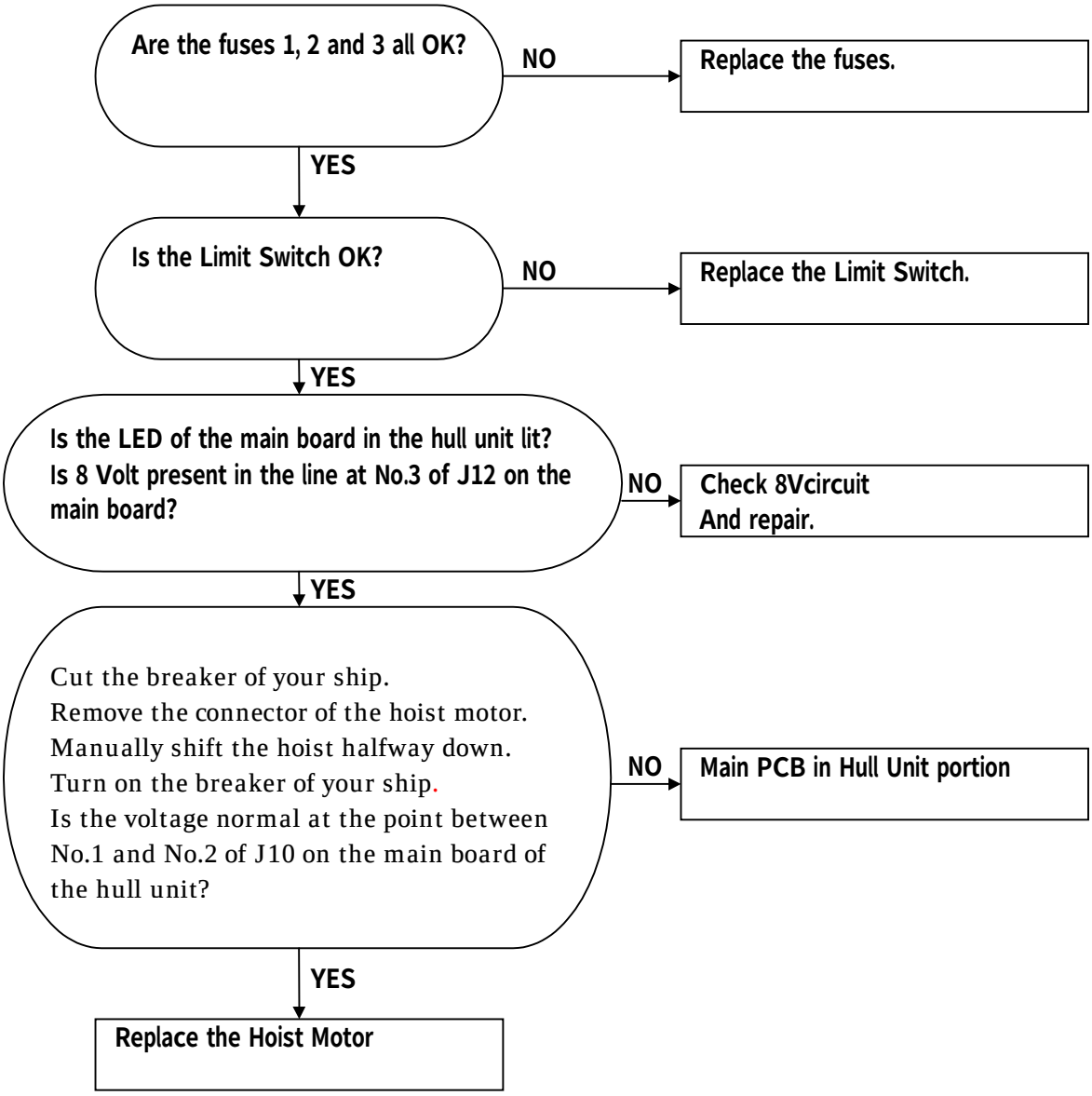
TRAIN NG

Motor Control PCB for Hull Unit is faulty. (Train Control section)
Soundome is faulty.
Soundome cable is faulty.

ROM-VER NG

P-ROM version for Monitor or for Hull Unit is not correct.

The hoist does not raise or lower the soundome.
The hoist stops raising or lowering the soundome on the way.



FUSE

FUSE1	**For the power supply circuit of the control unit.**
FUSE2	**For the Hoist motor**
FUSE3	**For the hoist circuit**

When the fuse 1 blows, the Hoist raised the soundome, but does not lower it.
When the fuse 2 and 3 blow, the Hoist neither raises nor lowers the soundome.
Barnacles or oysters that adhere to the soundome will cause the soundome trouble.
Therefore remove them whenever they are found.
Also remove them when the ropes etc. got twisted round the soundome.
When overloaded, other than the fuse 2 the protect circuit in the monitor unit becomes active to protect the circuits or the hoist motor.
The circuit returns automatically after it is cooled down. For that the power should be kept OFF for a while.
Exchange the fuse 2 if it blows.
Disconnect the power when the Hoist could not raise or lower the soundome.
Otherwise this could damage the motors or Main PCB in Hull Unit.

HOW TO CHECK THE LIMIT SWITCH
THE SYMPTOMS OF FAULTY LIMIT SWITCH

BEFORE MAINTENANCE AND INSPECTION (connected with the limit switch cables: red and black, brown)

Turn the breaker of your ship OFF. Remove FUSE 2.

Move the joint arm into the position between the upper limit switch and the lower limit switch with the crank handle.

UPPER LIMIT SWITCH / LOWER LIMIT SWITCH **(connected with the limit switch cables: yellow and green)**

Check the current flows between the points, "NO"－"COM" with the tester.

The following cases show the normal conditions:

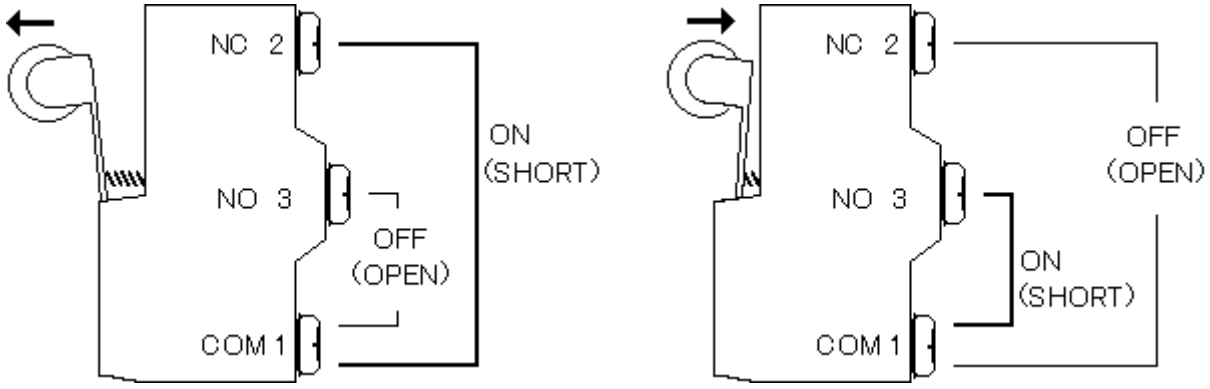
- A short is found when the lever of the limit switch is pressed.
- An open is found when the lever of the limit switch is released.
- The following voltages are detected, with the FUSE 2 removed and the breaker of your ship ON.

※When the plus lead of the tester is connected to "COM" and the minus lead is connected to "NO", if 0V is detected with the limit switch ON and approx.7.3V with the limit switch OFF.

THE SENSOR LAMP FOR THE LIMIT SWITCH (connected with the limit switch cables: white and brown)

It is the ON/OFF switch of the sensor lamp for the monitor.

FIGURES OF LIMIT SWITCH CIRCUIT



THE SYMPTOMS OF FAULTY LIMIT SWITCH

UPPER LIMIT SWITCH CAN NOT BE SET "ON":

The hoist stops after going over the upper limit switch even if the power of the monitor is OFF.

The fuse 2 will blow, because the hoist motor circuit keeps working even if the hoist is stopped.

It damages the hoist motor circuit and hoist motor.

LOWER LIMIT SWITCH CAN NOT BE SET "ON":

When turning the power of the monitor on, the hoist starts to be lowered and reaches the lower damper rubber after going over the lower limit switch and then stops there.

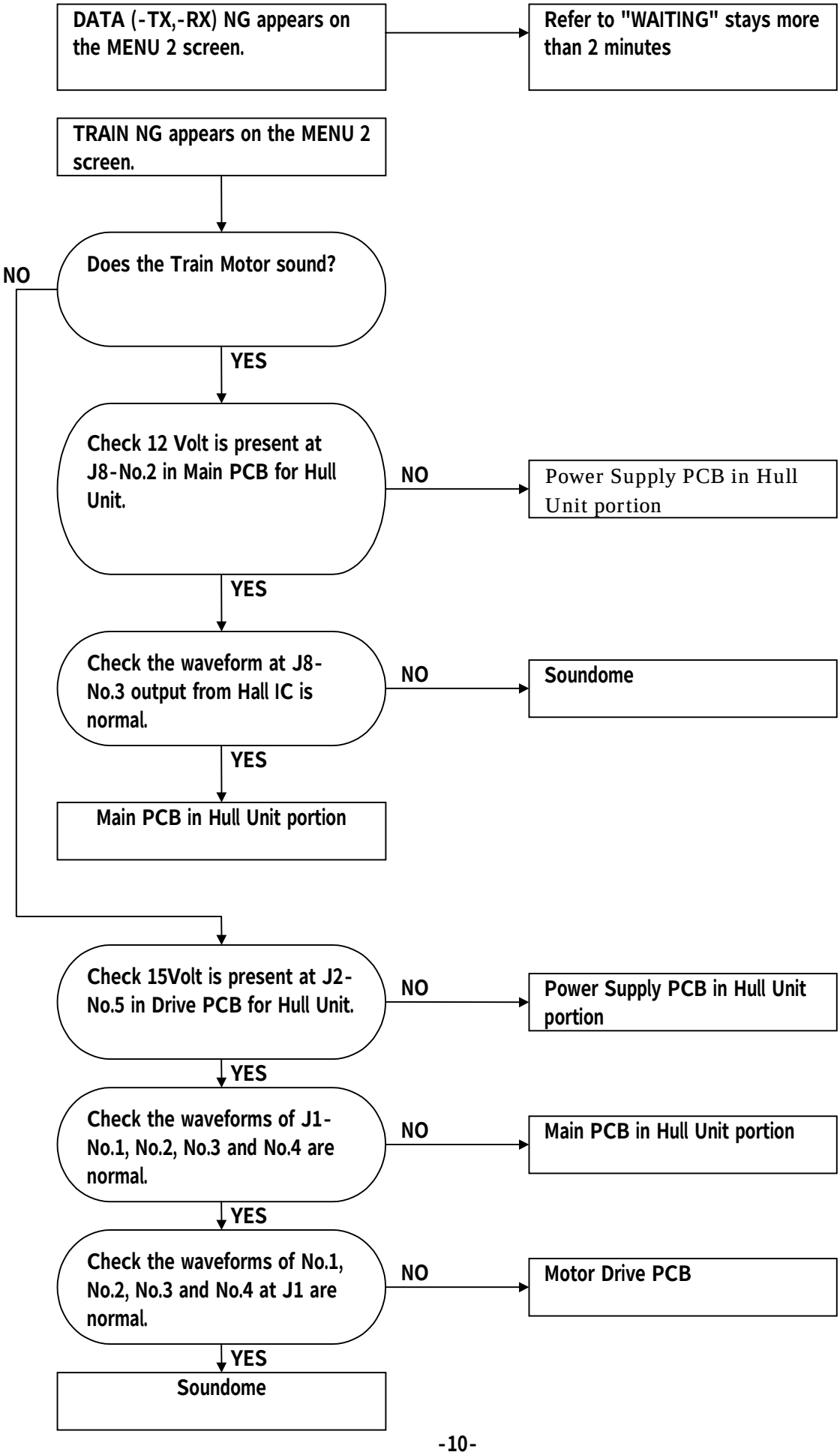
The fuse 2 will blow, because the hoist motor circuit keeps working even if the hoist is stopped.

It damages the hoist motor circuit and hoist motor.

Some dust or dirt attached on the limit switch might be the cause of malfunction.

When the hoist is on the lower position than the upper limit switch, it is always raised after putting FUSE 2 back and turning the breaker of your ship ON. If the hoist stops on the halfway, another cause is suspected.

Sonar Scanning stops intermittently.
Sonar Scanning stops.



"WAITING" stays more than 2 minutes and then "CHECK FUSE AT CONTROL-BOX" appears next.
Normal Display does not appear on the screen even when Sonar Mode is set.
(HOIST NG)

Refer to the Hoist does not raise or lower the soundome.

Scanning stops when Gain Dial/Far Gain Dial is turned.
Scanning stops when a Key is pressed.

Refer to the "WAITING" stays more than 2 minutes.

[Bearing 0°and Scanning]

Bearing does not show 0°after Train starts.
Scanning starts after lowering the hoist and turning the Limit Switch on even if Bearing does not show 0°
"MENU 2" screen shows SELF CHECK -TRAIN NG

0°can not be adjusted while bearing.
Scanning is normal other than stopping temporarily.
"MENU 2" screen shows SELF CHECK -TRAIN NG

0°can not be adjusted and scanning stops occasionally.
"MENU 2" screen shows SELF CHECK -TRAIN NG only when the scanning stops intermittently.

Scanning is normal, though Train is inactive.
"MENU 2" screen shows SELF CHECK -TRAIN NG

[When Signal cable disconnected while operating.]

Hoist raises

Scanning stops

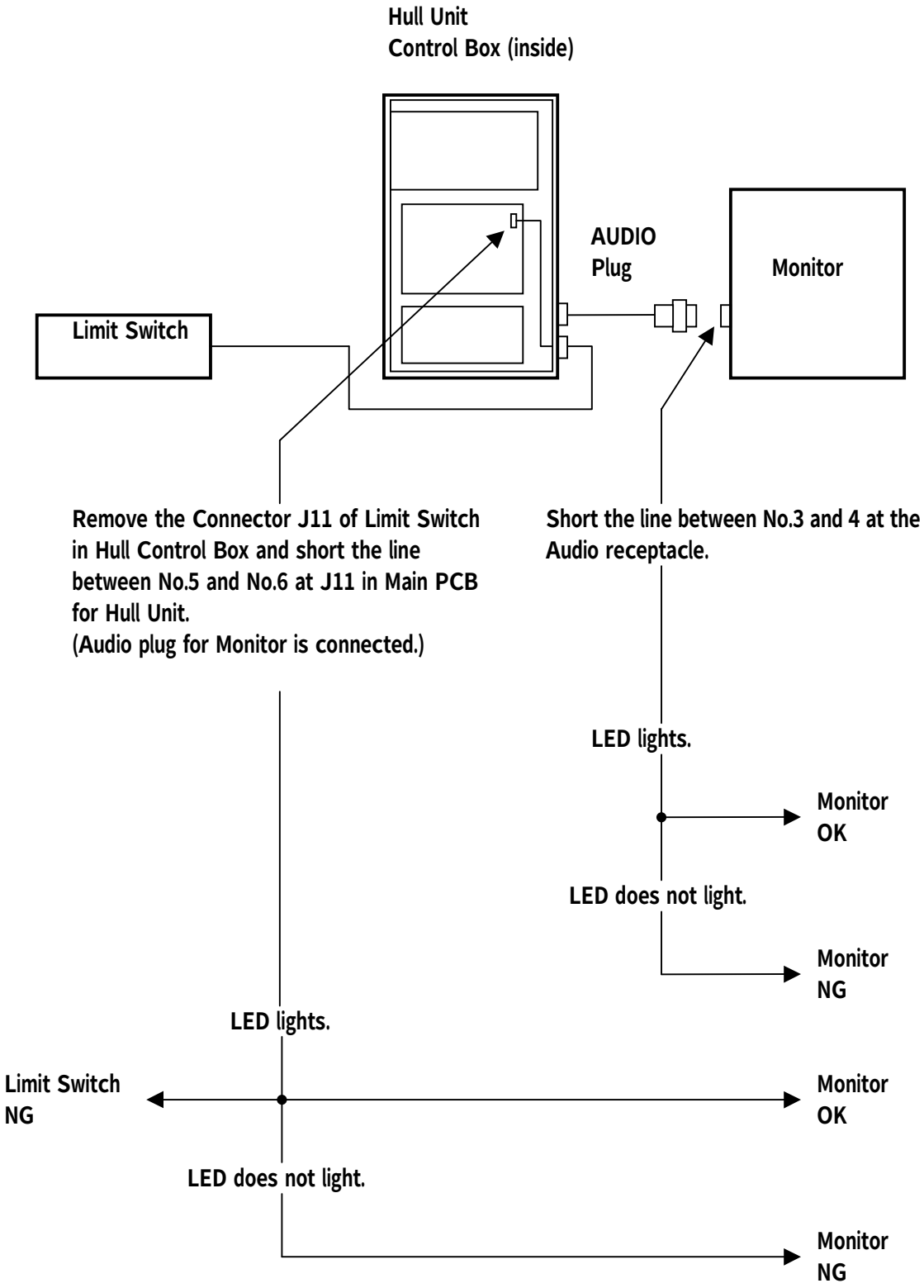
"MENU 2" on the screen shows:

SELF CHECK

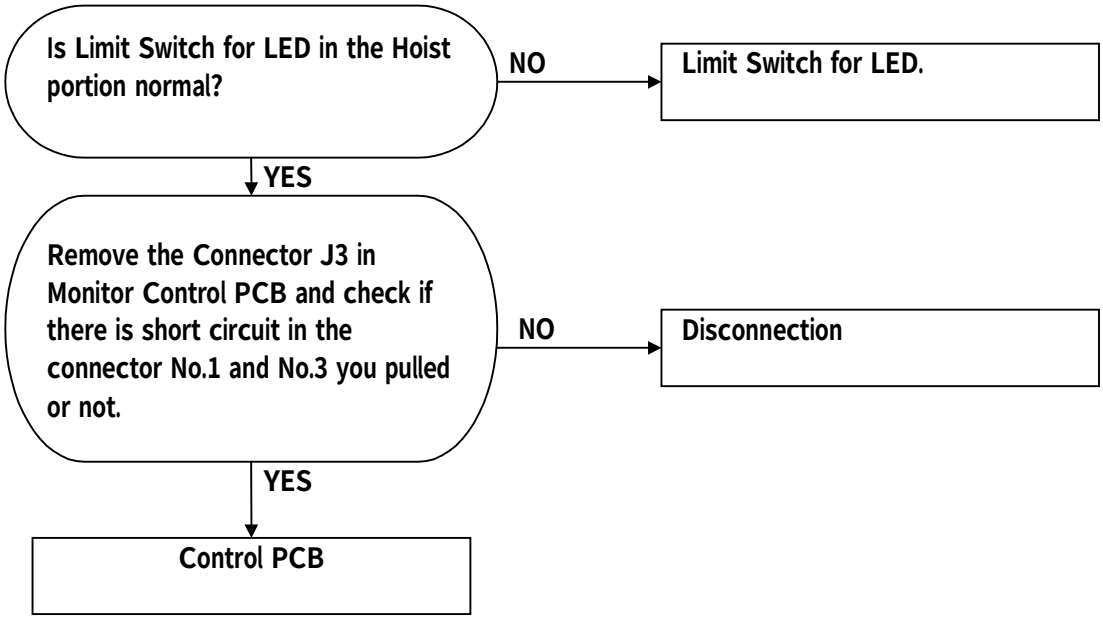
DATA-TX	NG
DATA-RX	NG
DATA	OK
HOIST	OK
TILT	OK
TRAIN	OK
ROM-VER	OK
OTHERS	OK

No lighting of Sensor Lamp (LED)

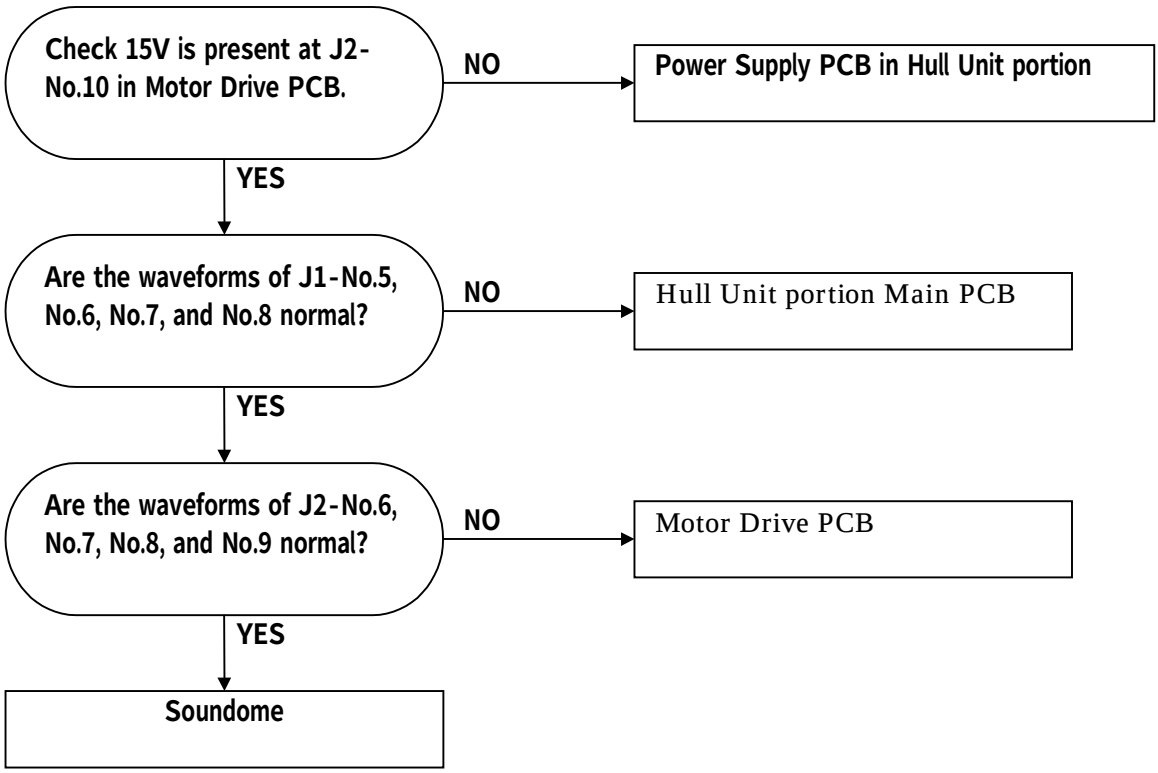
* Turn off power to the Hoist system and keep the Hoist neither being lowered nor raised.



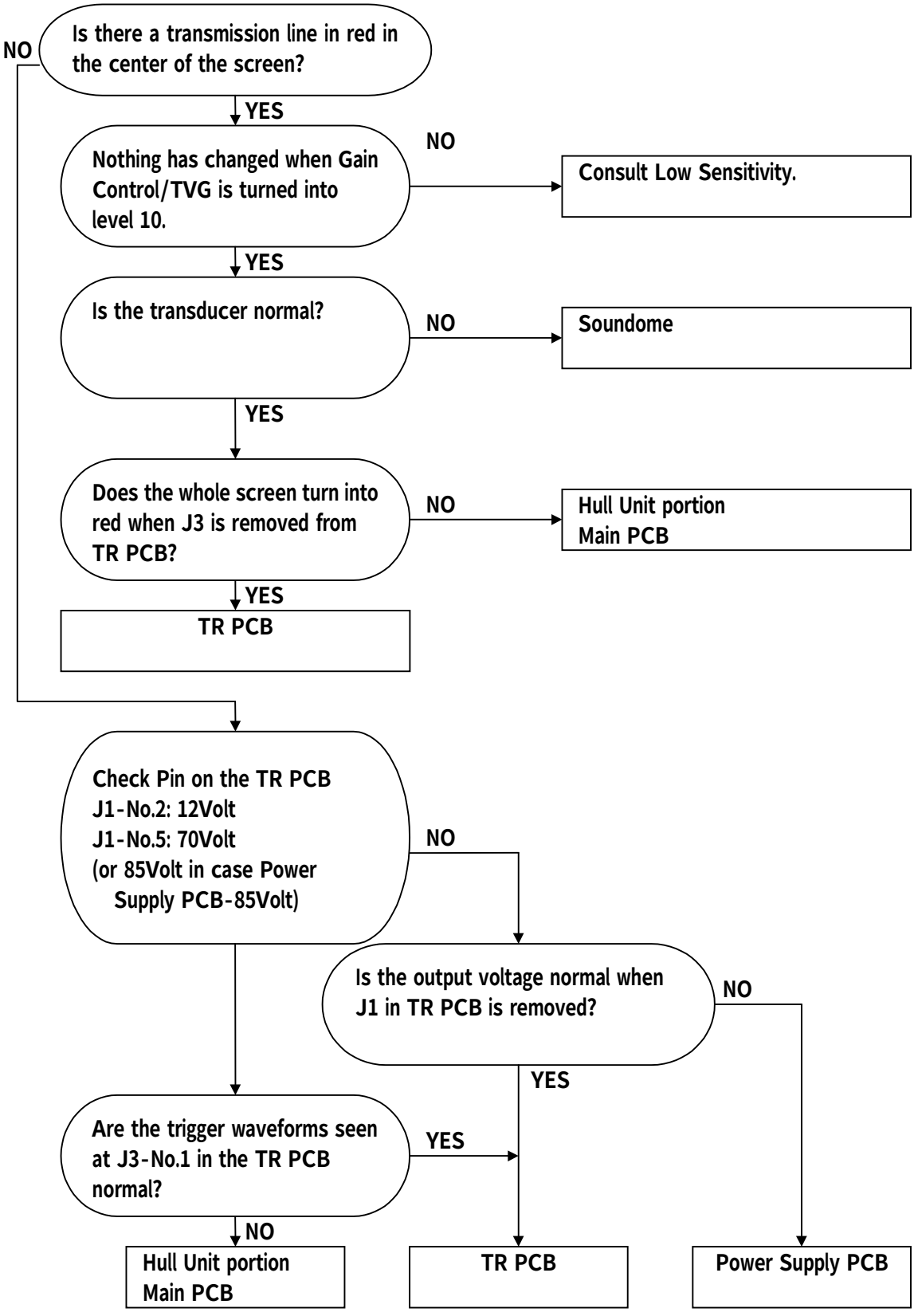
LED does not light even if the Hoist is lowered.



Display does not change even if the tilt has been changed.
The depth readout is abnormal when Bottom Scanning is selected.



No Picture Display on the screen when scanning.



[Transducer Disconnection]

Remove J2 in the TR PCB and set the tester to the 100M ohm or more range between the connector No.1 and No.3.
Connect the red or black lead of the tester alternately.
If it is normal, the indicator will move a little.
If the indicator will not move, the disconnection is suspected.
If there is a resistance value, seawater may invade the Soundome.

Only the surface echo is displayed.
The sensitivity is poor.
The picture does not change even if the Gain or Far Gain Control dial is turned.

Is TX POWER D set?
NO → **Set TX POWER D in FUNCTION SET, MENU2.**
YES

Is TVG CURVE setting changed from the user setting?
NO → **Reset TVG curve setting in FUNCTION SET, MENU2.**
YES

Does Picture Display on the screen change by turning Gain/Far Gain Control dial?
NO → *** To be continued to the next page.**
YES

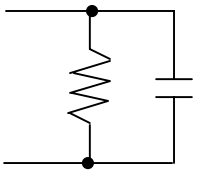
TR PCB J1-No.2: 12V & J1-No.5: 70V
(or 85Volt in case Power Supply PCB-85V)
NO → **Hull Unit portion Power Supply PCB**
YES

Are the output waveforms are normal?
YES → **TR PCB**
NO

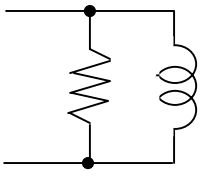
Are the output waveforms normal when replacing Transducer with Dummy? *
NO → **TR PCB**
YES

Soundome

*** DUMMY RESISTANCE**

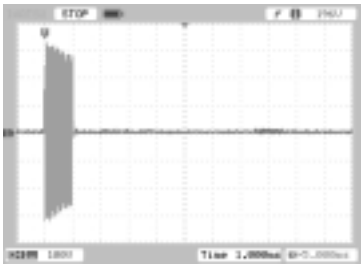


120Ω／0.0057μF
(180kHz)



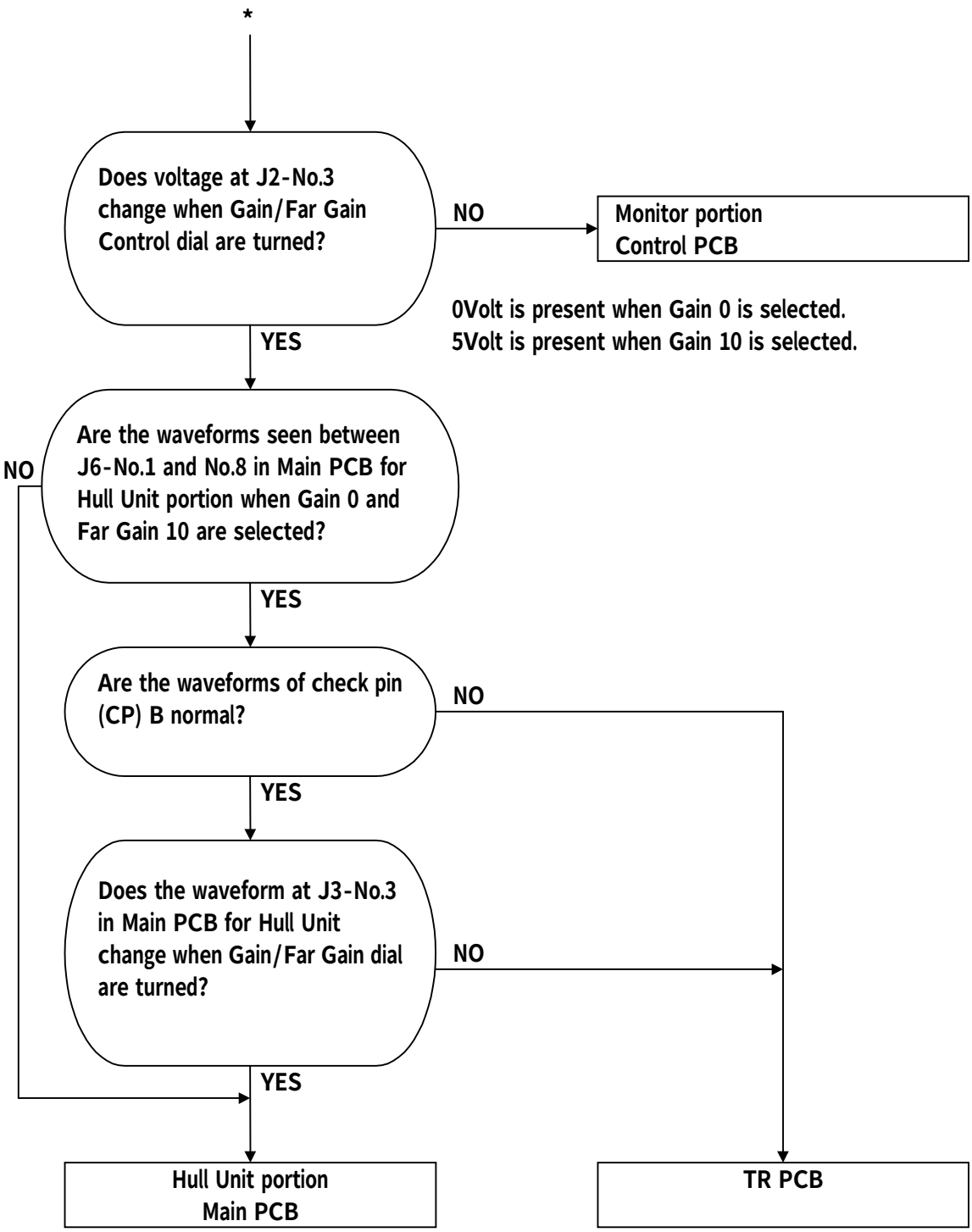
160Ω／375μH
(80kHz)

*** OUTPUT WAVEFORM (Transducer－GND)**

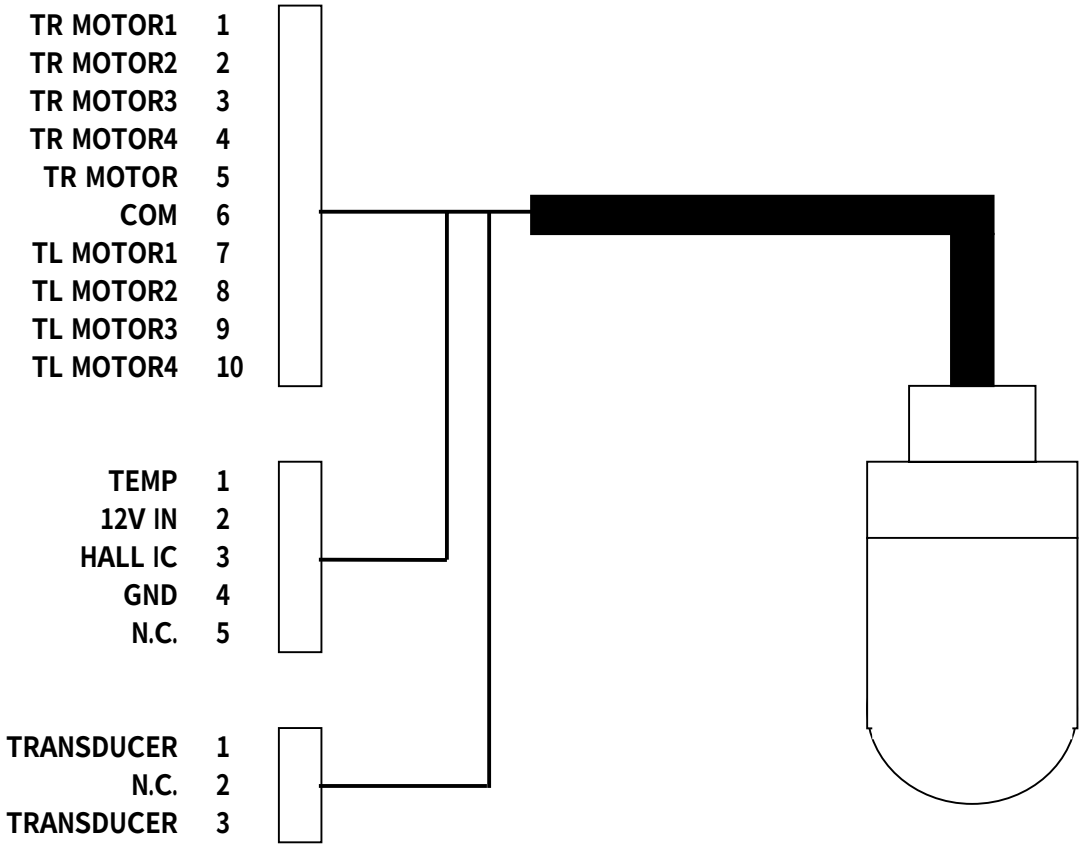


180kHz：500Vp-p
(or 600Vp-p in case Power Supply PCB-85V)
80kHz：535Vp-p
(or 650Vp-p in case Power Supply PCB-85V)

Use the over 10W and 1.5kV pressure-resistant dummy resistance.
Use the dummy resistance just for the confirmation of the output waveform.
Do not flow the current for a long time. Otherwise it will cause fire.


*
Does voltage at J2-No.3 change when Gain/Far Gain Control dial are turned?
NO
Monitor portion Control PCB
0Volt is present when Gain 0 is selected.
5Volt is present when Gain 10 is selected.
YES
Are the waveforms seen between J6-No.1 and No.8 in Main PCB for Hull Unit portion when Gain 0 and Far Gain 10 are selected?
NO
YES
Are the waveforms of check pin (CP) B normal?
NO
YES
Does the waveform at J3-No.3 in Main PCB for Hull Unit change when Gain/Far Gain dial are turned?
NO
YES
Hull Unit portion Main PCB
TR PCB

Alignment for soundome cable connectors



[Soundome Check by using a tester]

The temperature sensor is connected to the No.1 and No.2 pins of XHP-5 (5P connector) and it is normal when the resistance value of a temperature sensor at 25C., 5k ohm is covered.

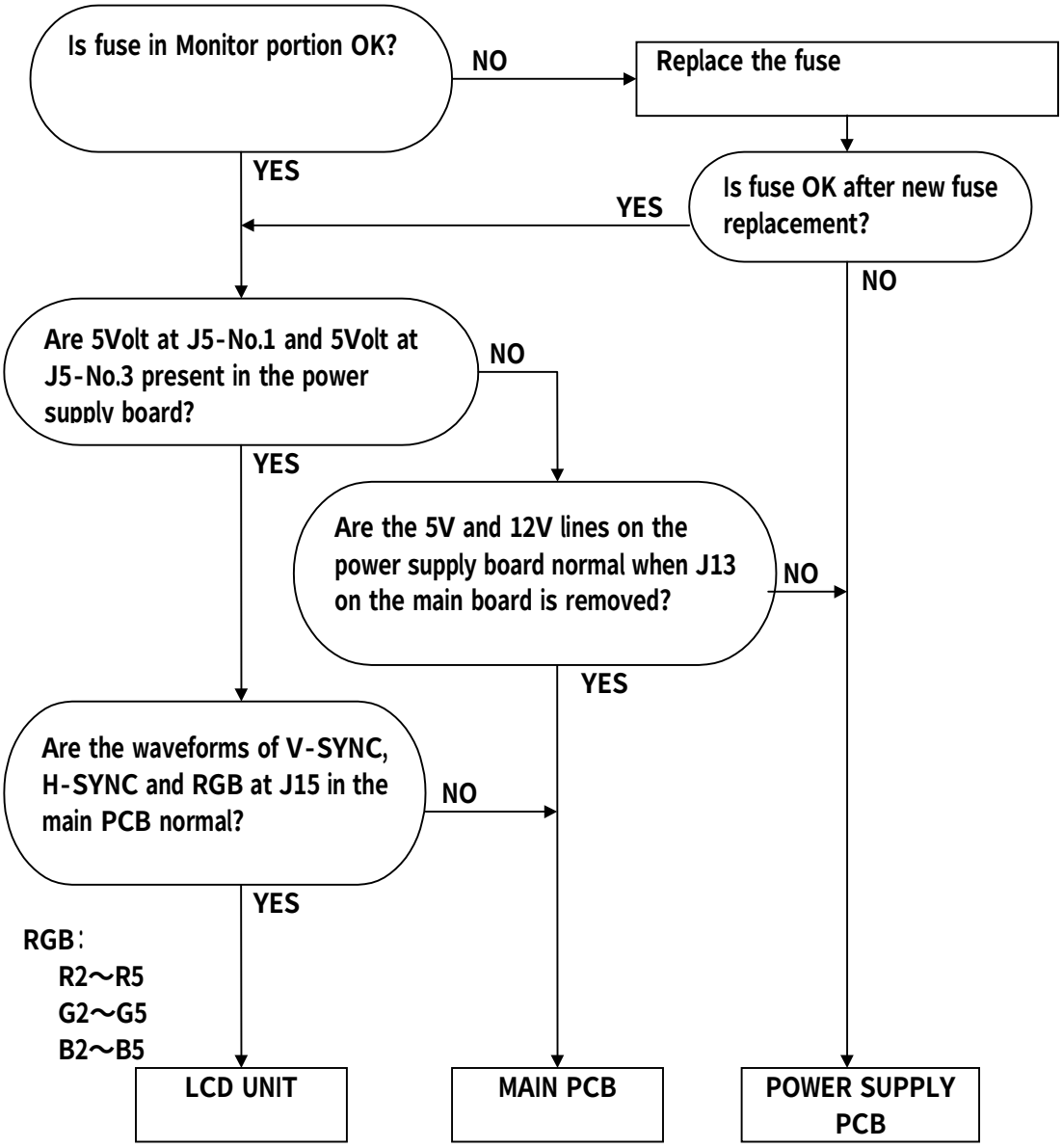
In case of other temperatures

0°C	approx.17k ohm
10°C	approx.10k ohm
20°C	approx.6.3k ohm
30°C	approx.4k ohm

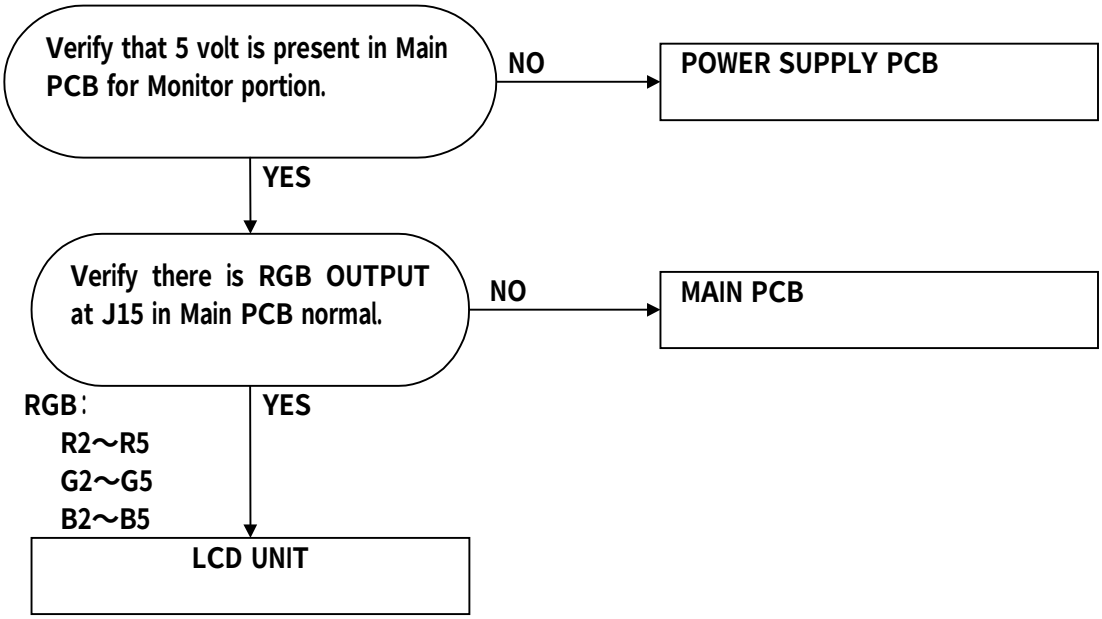
When Train Motor is normal, there is 25 ohm of resistance value between check pins No.1 (or No.2 to No.4) and XHP-10-B (10P connector) - No.5.

When Tilt Motor is normal, there is 21 ohm of resistance value between check pins XHP-10-B (10P connector) - No.10 and No.6 (or No.7 to No.9).

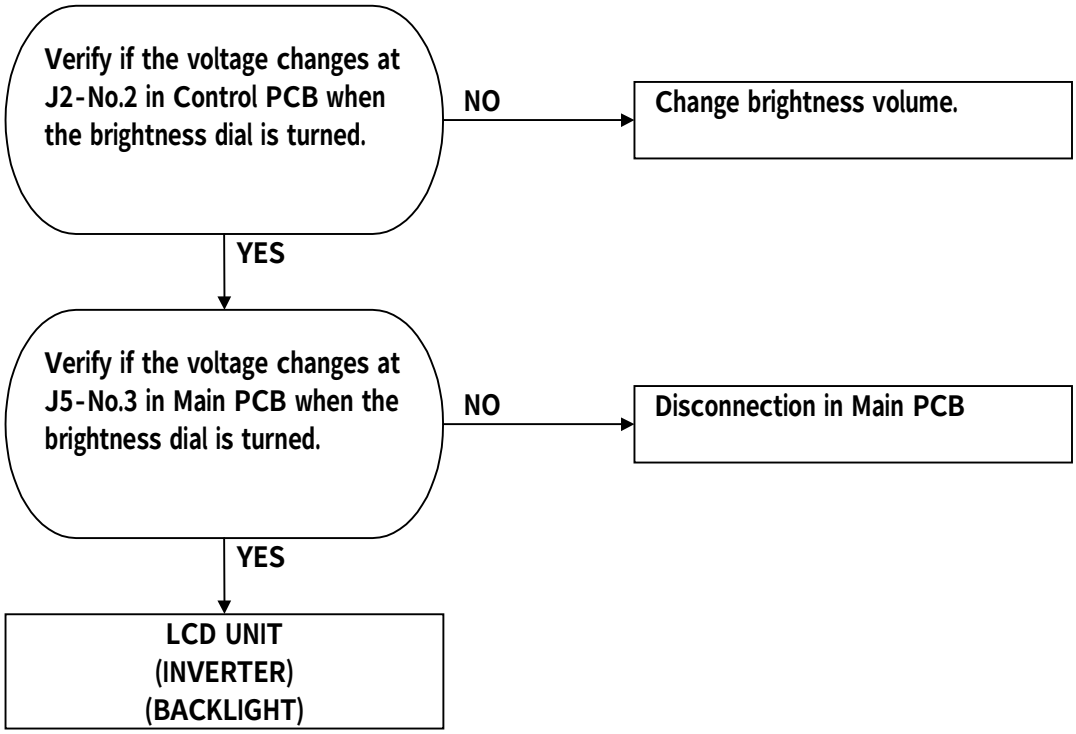
S-1800M10
Nothing appears on the screen when powered.



S-1800M10
Screen gets bright, but nothing appears



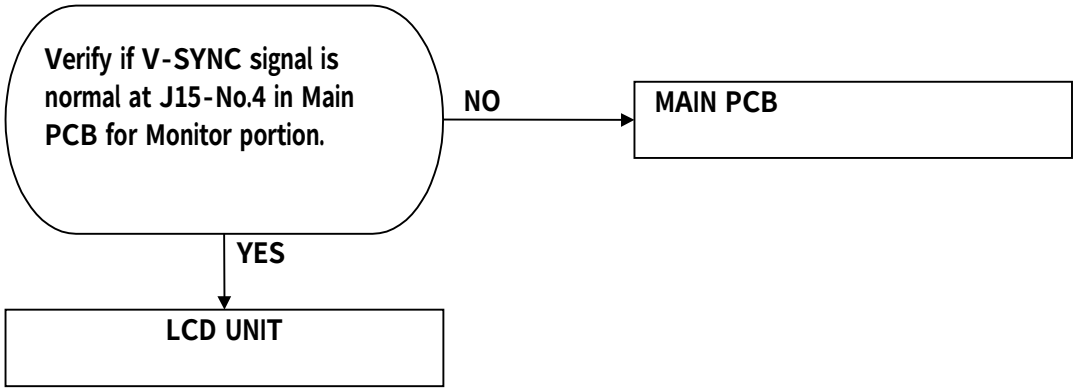
S-1800M10
Screen doesn't change into bright, even if the brightness dial is turned.



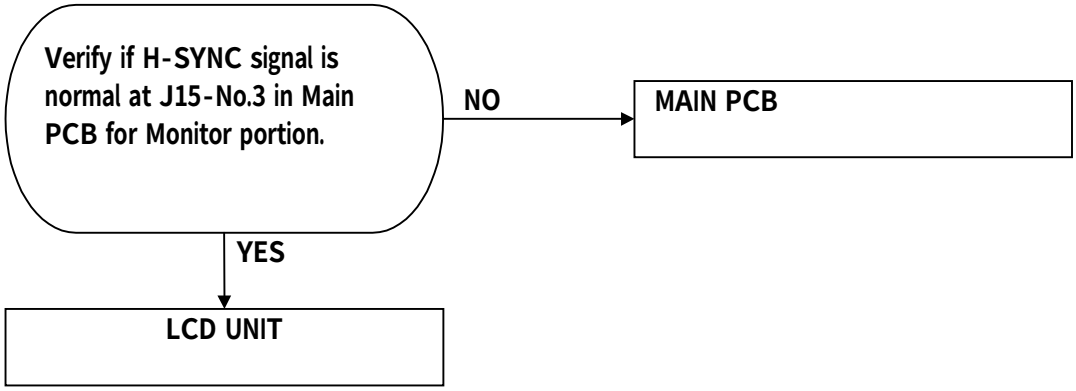
[BACKLIGHT FOR LCD UNIT]

When one side does not light, either the upper part or the lower part gets dark.
When both sides do not light, no picture is seen.
Contact your authorized dealers when replacing the backlights.

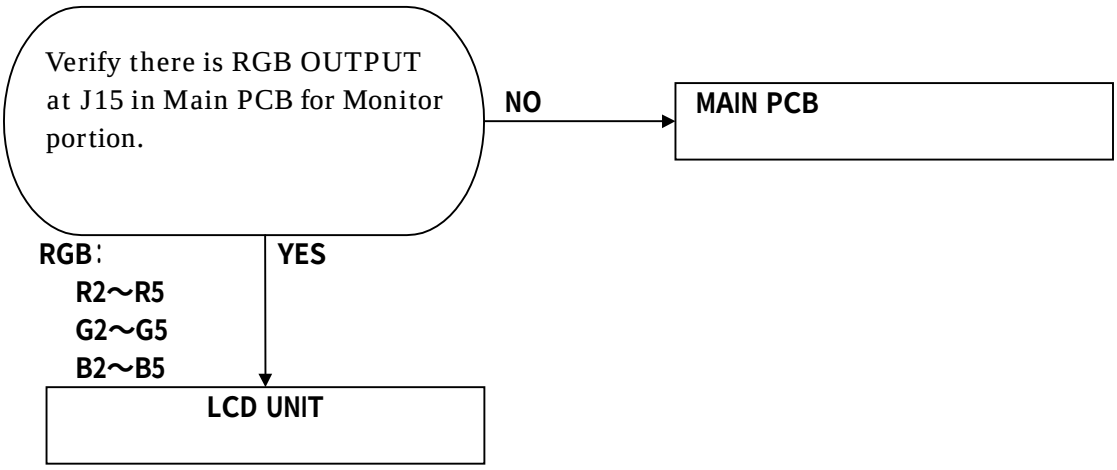
S-1800M10
The picture is unstable and scrolling vertically.



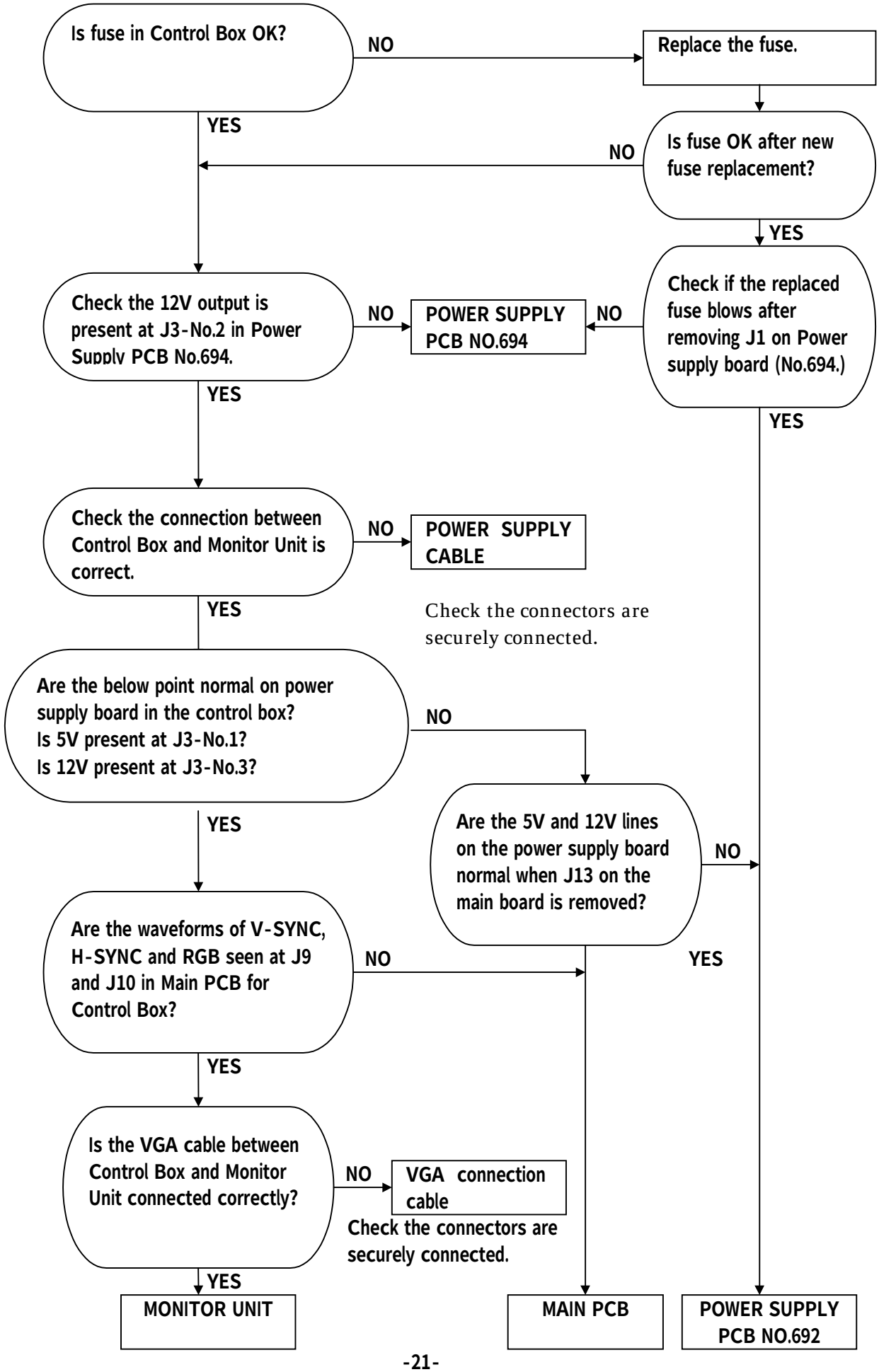
S-1800M10
Stripes appear to the left or right direction on the screen and no normal picture display.



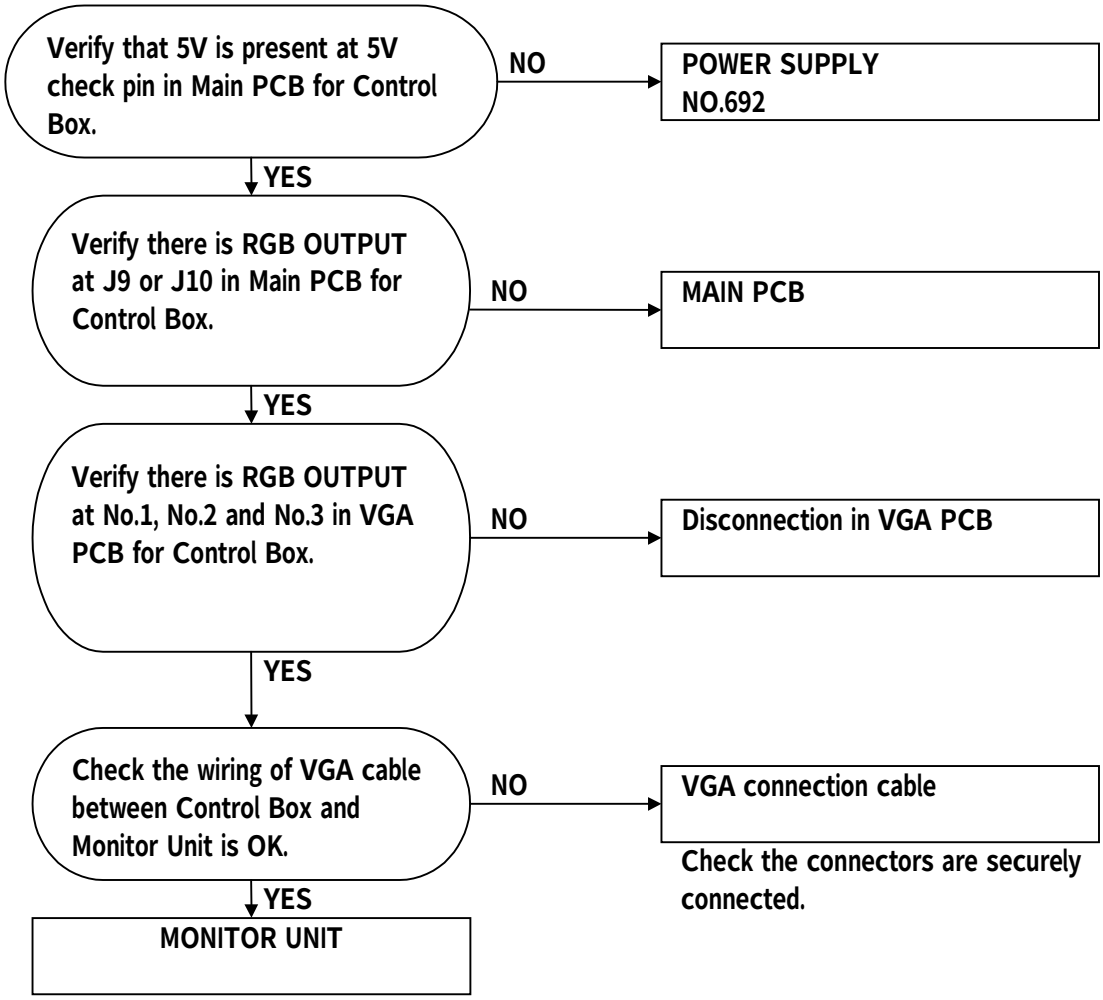
S-1800M10
The specific colors do not appear on the screen.
All screen changes into a specific color.



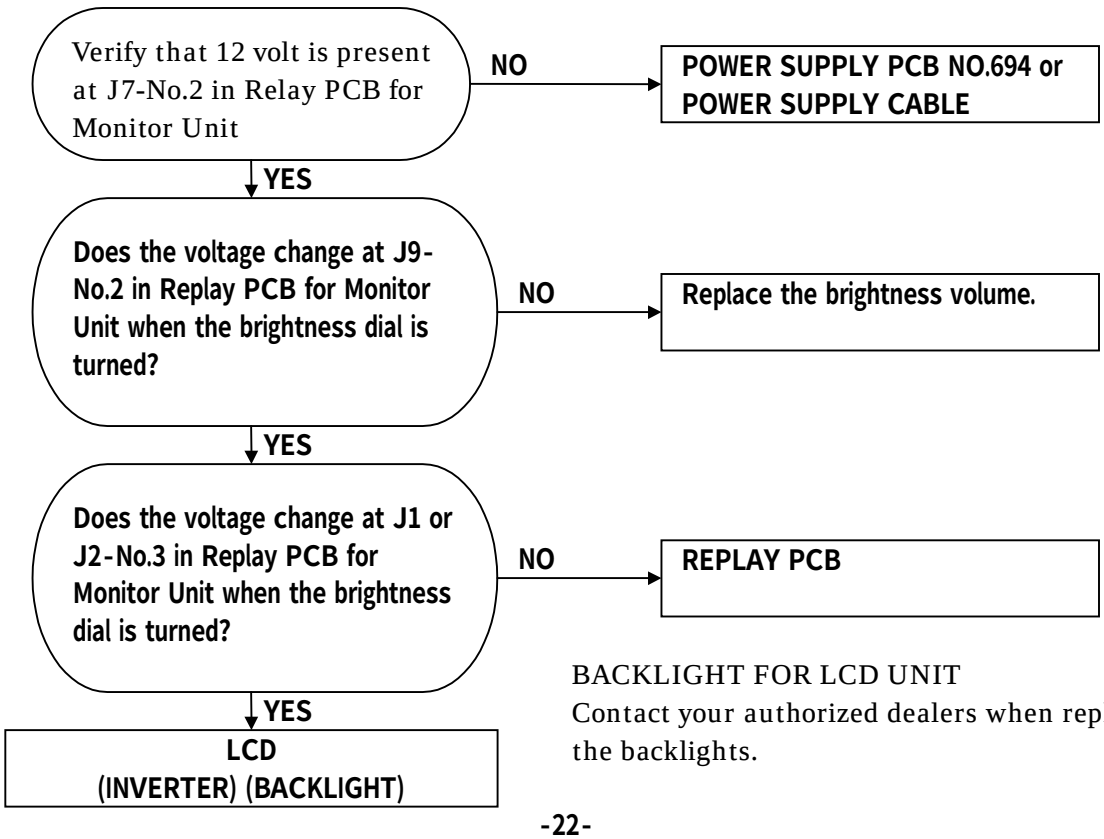
S-1800M15
No picture on display screen when powered.



S-1800M15
Screen gets bright, but nothing appears.

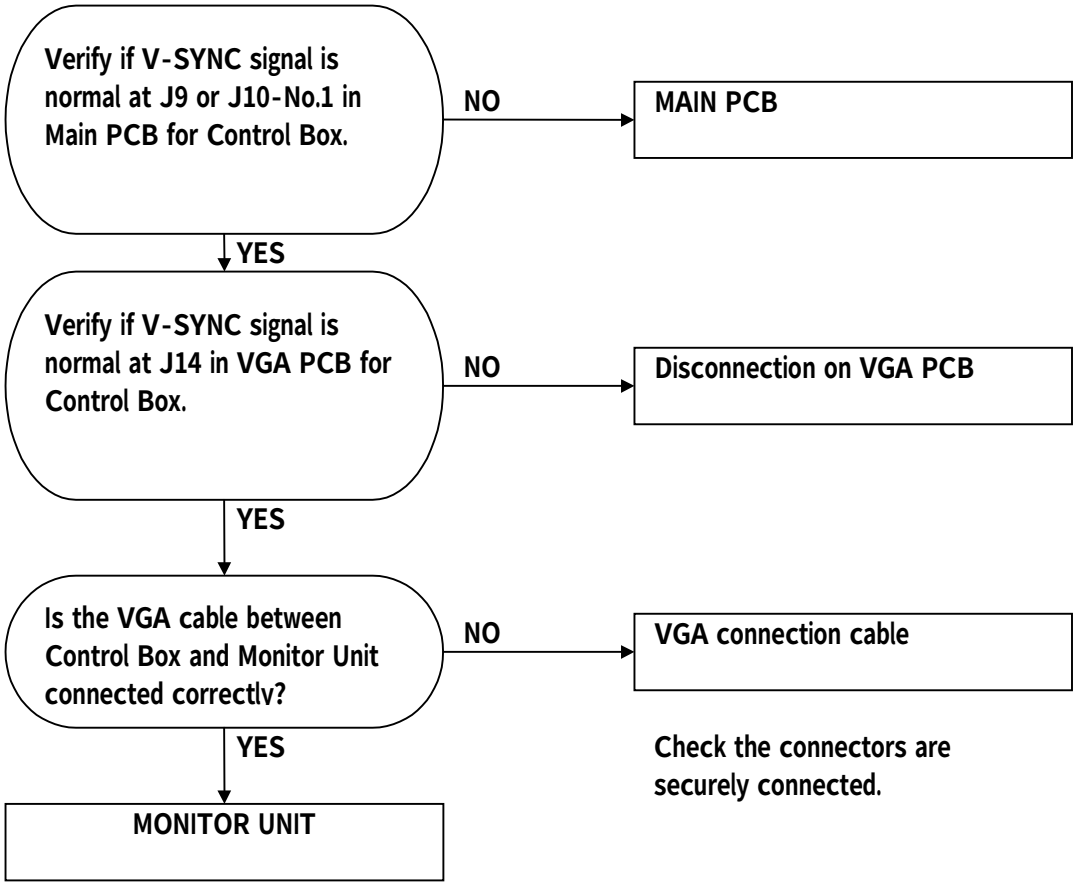


S-1800M15
Screen does not change into bright even if the bright dial is turned.

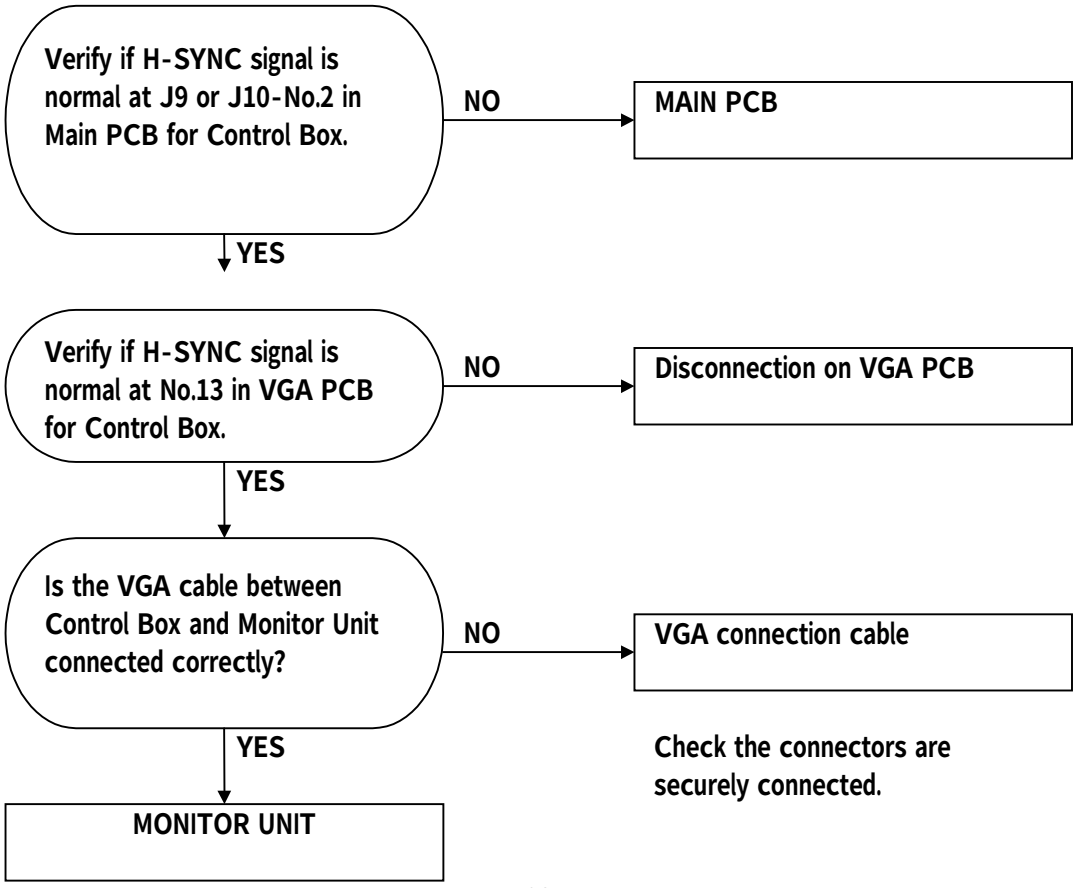


BACKLIGHT FOR LCD UNIT
Contact your authorized dealers when replacing the backlights.

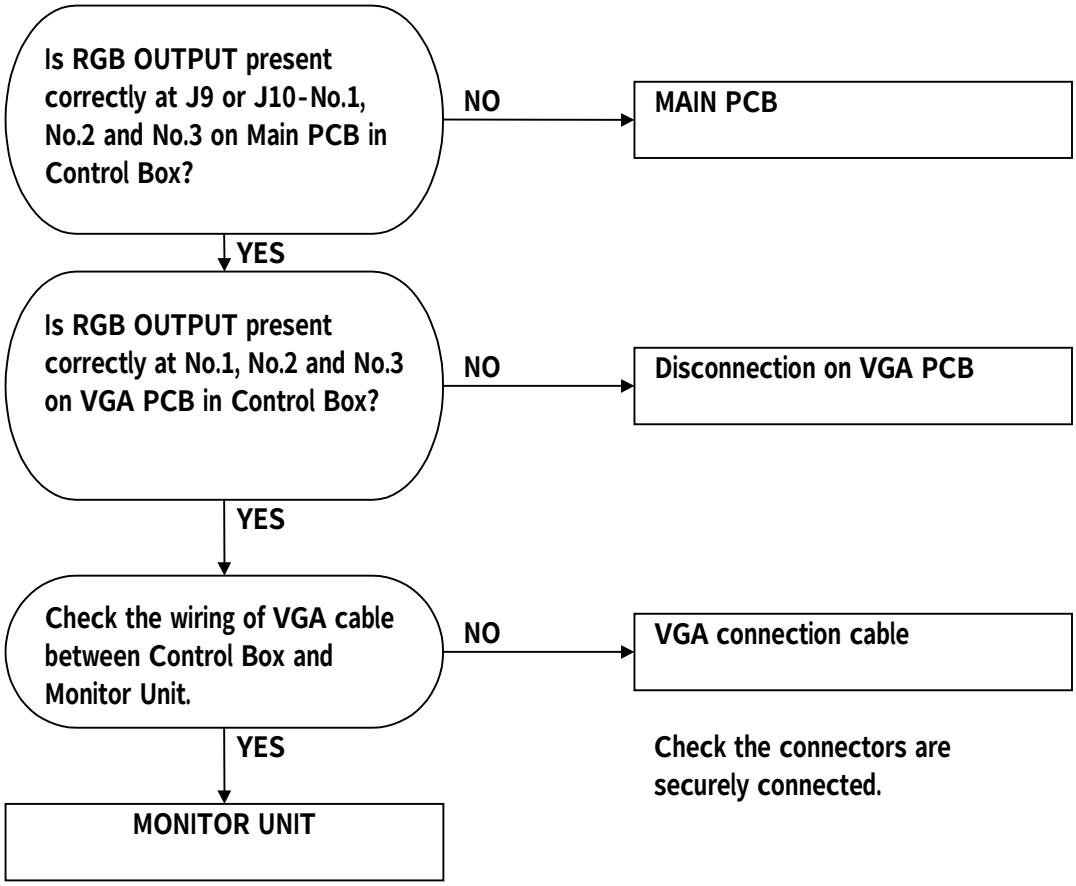
S-1800M15
The picture is unstable and scrolling vertically.



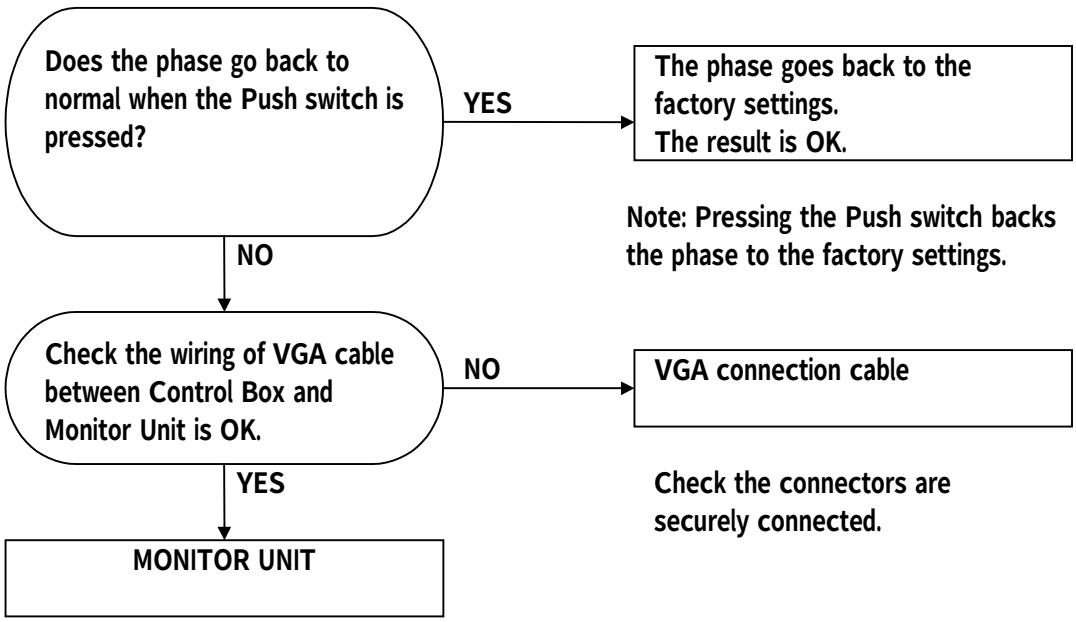
S-1800M15
Stripes appear to the left or right direction on the screen and no normal echo display.



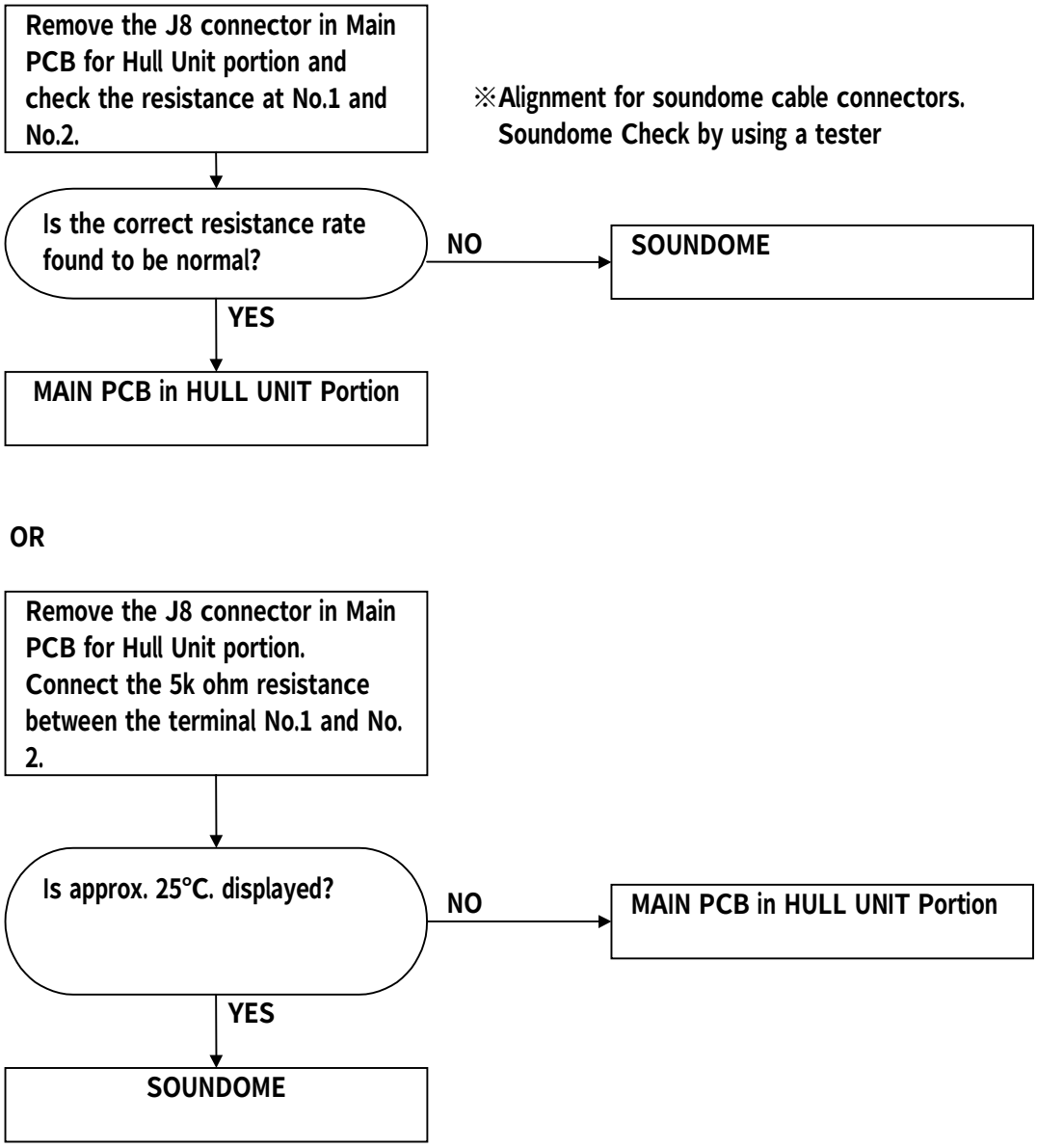
S-1800M15
The specific colors do not appear on the screen
All screen changes into a specific color.



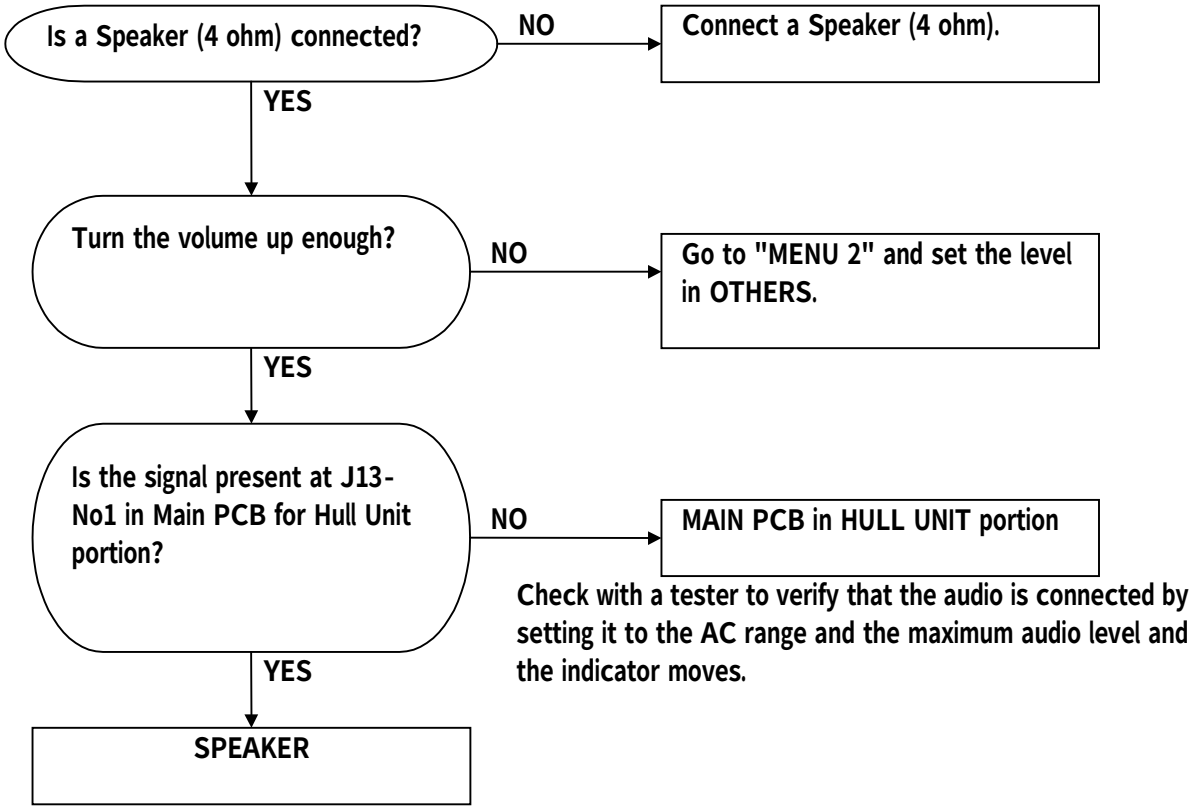
S-1800M15
Vertical phase is in a wrong position.
Horizontal phase is in a wrong position.



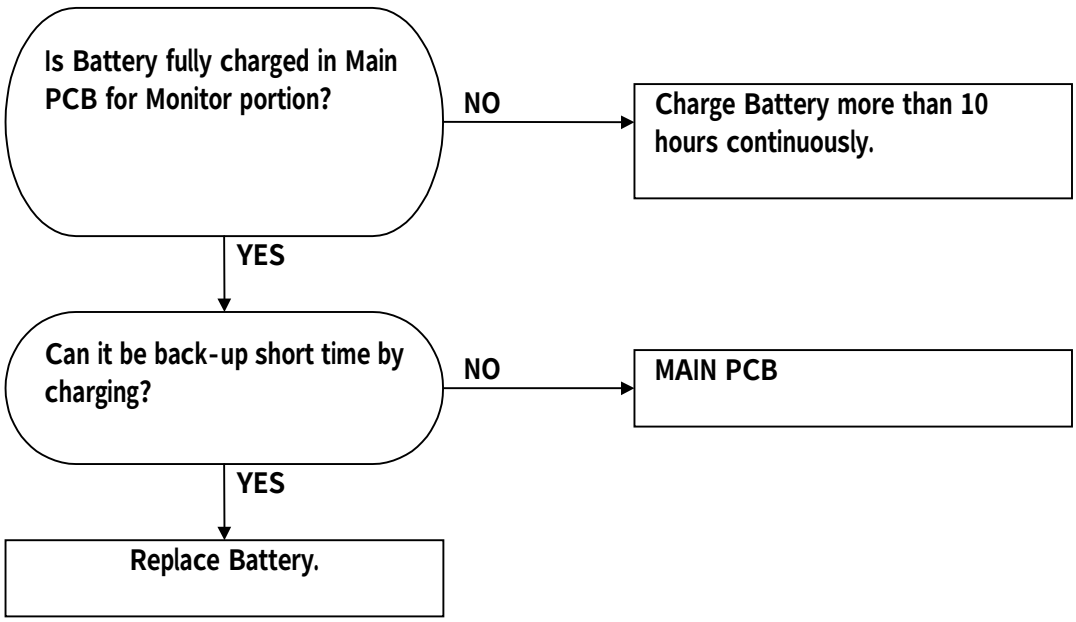
The temperature readout is abnormal.



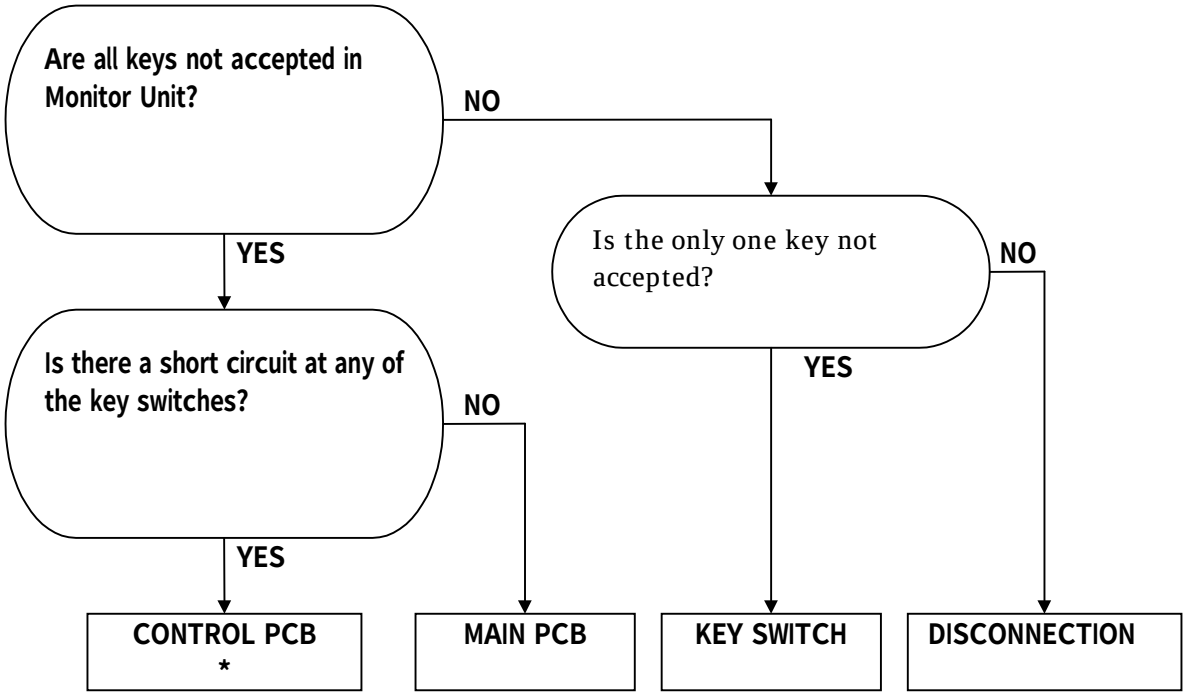
The audio monitor is not audible.



The memory data can not back-up.



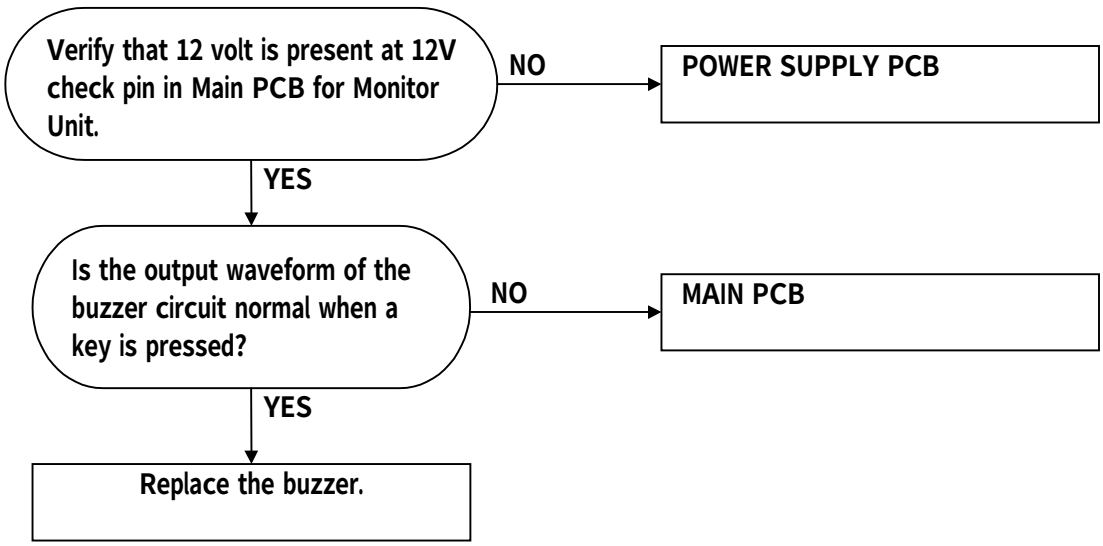
Key operation is not accepted.



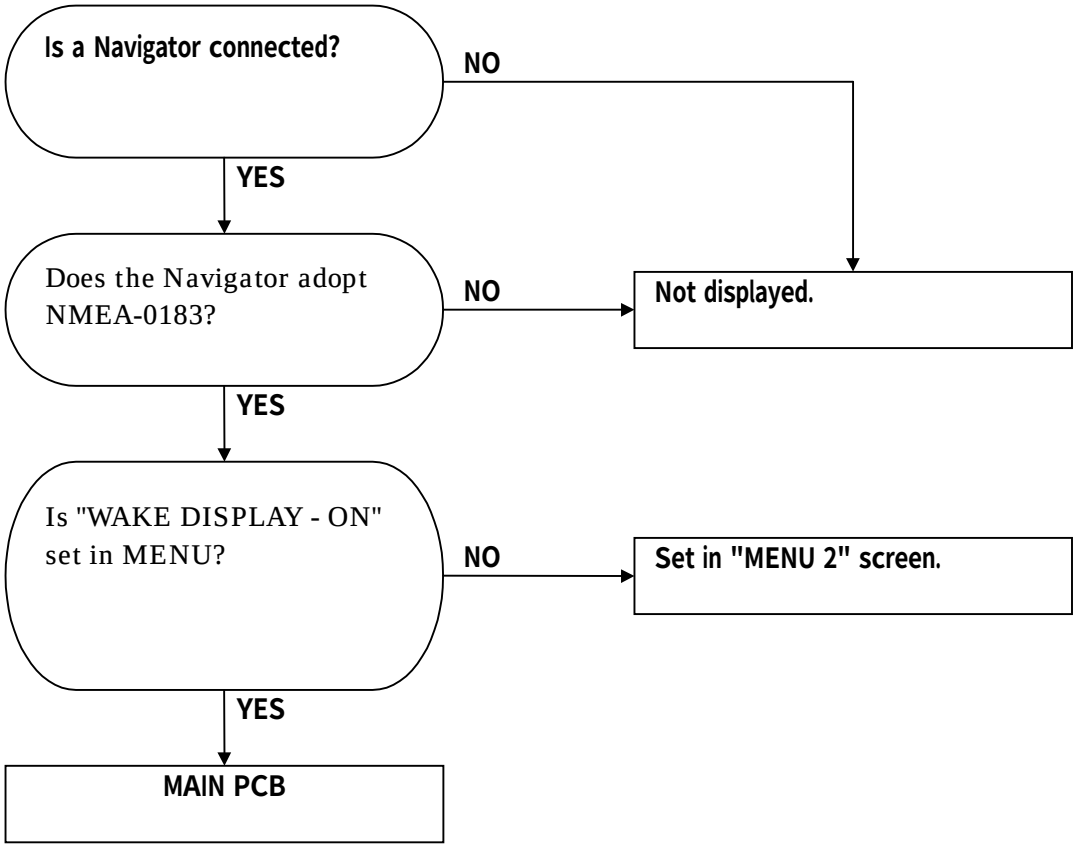
*

Some dust or dirt on the keys leads the switch ON.
Remove some dust or dirt to back to the normal state if key control.

"Beep" is not heard when a key is pressed.



Ship's speed can not be displayed or abnormally displayed.
Navigational display does not appear on the screen.



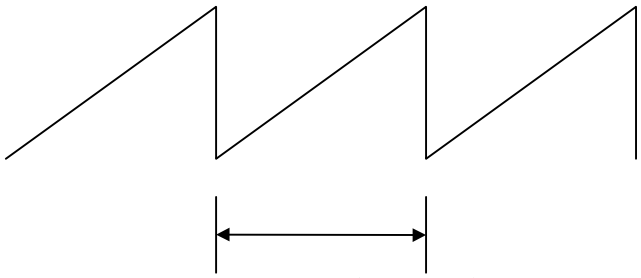
Adjust the Power Supply PCB (No.654) for S-1800M10
(Reckless adjustment may cause serious problem.)

Connect the digital tester to the 12V and GND-1 check pins and adjust VR4 so that the voltage is 12.0V.

Connect the digital tester to the 5V and GND-1 check pins and adjust VR5 so that the voltage is 5.0V.

Connect the oscilloscope to the FRQ and GND-P check pins and adjust the waveforms at VR2 so that the below is shown.

The value of frequency counter is 78.43 kHz.



12.75 μsec (78.43 kHz)

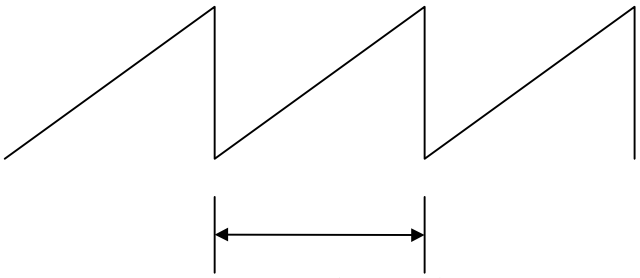
Adjust the Power Supply PCB (No.692) for S-1800M15 (MBB)
(Reckless adjustment may cause serious problem.)

Connect the digital tester to the 5V-S and GND-S check pins and adjust VR3 so that the voltage is 5.0V.

Connect the digital tester to the 12V and GND-S check pins and verify the voltage is 12.0±0.6V.

Connect the oscilloscope to the FRQ and GND-P check pins and adjust the waveforms at VR1 so that the below is shown.

The value of frequency counter is 56.0 kHz.



17.85μsec (56.0 kHz)

Confirming the voltage on the Power Supply PCB (No.694) for S-1800M15 (MBB)

Verify the voltage between +VOUT and -VOUT (GND-S) in the Power Supply PCB No.694 is 12.0.0V, +0.46V, -0.26V.

Adjust the voltage, 85V on the Power Supply PCB (No.703) for S-1800 Hull Unit
(Reckless adjustment may cause serious problem.)

Connect the digital tester to the 15V and GND-1 check pins and adjust VR3 so that the voltage is 15.0V.

Connect the digital tester to the 85V and GND-1 check pins and adjust VR2 so that the voltage is 85.0V, when J3 connector is not connected.

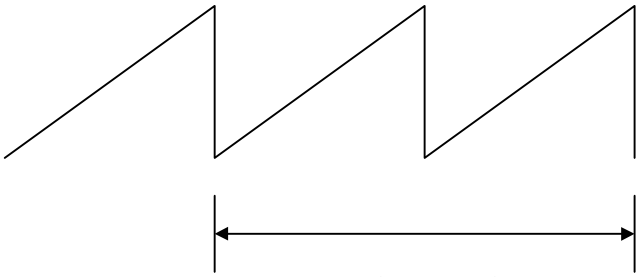
Connect the digital tester to the 12V and GND-1 check pins and verify the voltage is 12.0±0.6V.

Connect the digital tester to the 5V-1 and GND-1 check pins and verify the voltage is 5.0±0.25V.

Connect the digital tester to the 5V-2 and GND-2 check pins and verify the voltage is 5.0±0.25V.

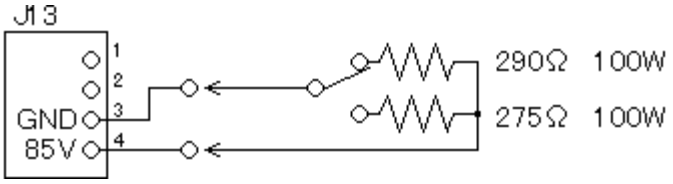
Connect the oscilloscope to the FRQ and GND-P check pins and adjust the waveforms at VR1 so that the below is shown.

The value of frequency counter is 115.0 kHz.



8.69 μsec (115.0 kHz)

Connect the oscilloscope to the 85V and GND-1 check pins and the Dummy Load between the J3-No.4 (85V) and No.3 (GND).
And adjust VR4 voltage rate that starts to degrease at 275Ω and keeps it not to degrease at 290Ω.



※85V on the No.703 is designed to reduce the voltage when overloaded. 85V is output constantly when minimum loading. However carefully measure the changeable voltage on loading.

Verify the voltage by changing Power Reduction Control (TX POWER) as follows.

TX POWER	Voltage (V)
C	61±3.0V
B	38±3.8V
A	22±5.0V

Adjust the voltage, 70V on the Power Supply PCB (No.703) for S-1800 Hull Unit
(Reckless adjustment may cause serious problem.)

Connect the digital tester to the 15V and GND-1 check pins and adjust VR3 so that the voltage is 15.0V.

Connect the digital tester to the 70V and GND-1 check pins and adjust VR2 so that the voltage is 70.0V, when J3 connector is not connected.

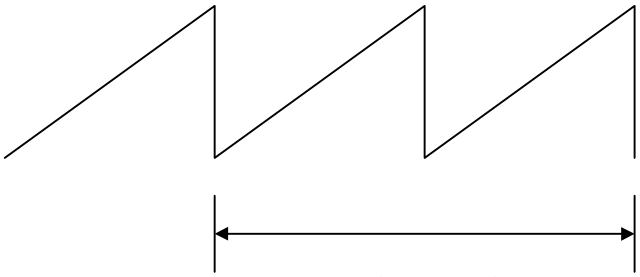
Connect the digital tester to the 12V and GND-1 check pins and verify the voltage is 12.0±0.6V.

Connect the digital tester to the 5V-1 and GND-1 check pins and verify the voltage is 5.0±0.25V.

Connect the digital tester to the 5V-2 and GND-2 check pins and verify the voltage is 5.0±0.25V.

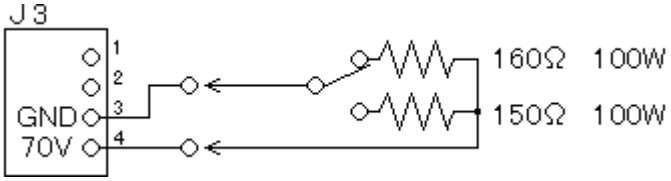
Connect the oscilloscope to the FRQ and GND-P check pins and adjust the waveforms at VR1 so that the below is shown.

The value of frequency counter is 115.0 kHz.



8.69 μsec (115.0 kHz)

Connect the oscilloscope to the 70V and GND-1 check pins and the Dummy Load between the J3-No.4 (70V) and No.3 (GND).
And adjust VR4 voltage rate that starts to degrease at 150Ω and keeps it not to degrease at 160Ω.



Reference: Power Reduction Control (TX POWER)

TX POWER	Voltage (V)
C	50V± 5%（approx.47～53V）
B	31V±10%（approx.28～34V）
A	21V±20%（approx.16～25V）

[MAIN BOARD for MONITOR]

There are two types of the main boards, which are No.681and No.748.

The difference between No.681 and No.748 are circuit and some parts.
No.748 is interchangeable with No.681.
No.748 conforms to RoHS directive.

IMPORTANT NOTE for P-ROM

Ver. 2.1 or previous version of P-ROM works only on No.681 board.
Ver. 3.0 or latest version of P-ROM works on both No.681 and No.748 boards.

S-1800M10	Product label: S/No.0 - 1393	⇒ Main board is No.681.
	Product label: S/No.1394 - up	⇒ Main board is No.748.
S-1800M15	Product label: S/No.0 - 1486	⇒ Main board is No.681.
	Product label: S/No.1487 – up	⇒ Main board is No.748.
S-1800MBB	Product label: S/No.0 - 1349	⇒ Main board is No.681.
	Product label: S/No.1350 – up	⇒ Main board is No.748.

[MAIN BOARD for HULL UNIT]

There are two types of the main boards, which are No.691and No.751.

No.751 conforms to RoHS directive.
No.751 is interchangeable with No. 691. (However, caution should be taken on P-ROM.)

IMPORTANT NOTE for P-ROM

Ver. 2 or previous version of P-ROM works only on No.691 board.
Ver. 3 or latest version of P-ROM works only on No.751 board.

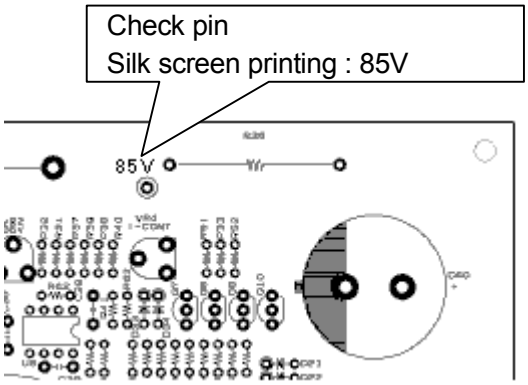
S-1800H80kHz	Product label: S/No.0 - 8075	⇒ Main board is No.691.
	Product label: S/No.8076 - up	⇒ Main board is No.751.
S-1800H180kHz	Product label: S/No.0 - 2222	⇒ Main board is No.691.
	Product label: S/No.2223 - up	⇒ Main board is No.751.

RoHS: The Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (commonly referred to as the Restriction of Hazardous Substances Directive or RoHS) was adopted by the European Union.

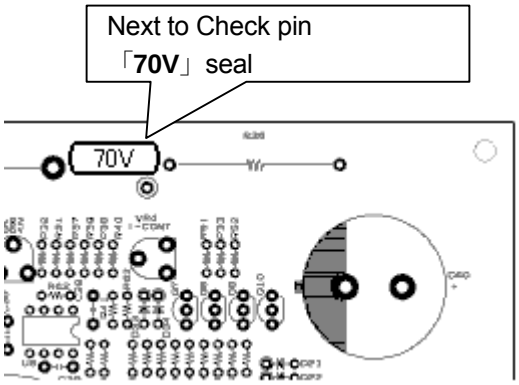
【POWER SUPPLY PCB and TR PCB for HULL UNIT】

POWER SUPPLY PCB: NO.703

OLD

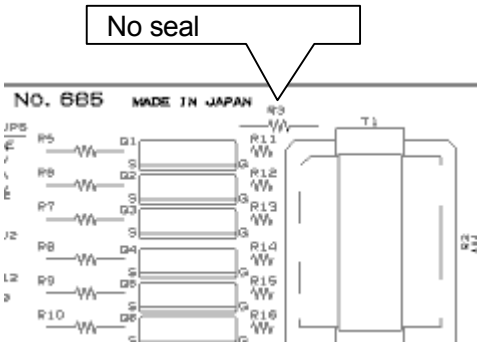


NEW



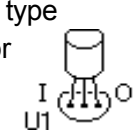
TR PCB: NO.685 -180kHz（In total 3 types, 2 old types and one new type）

OLD



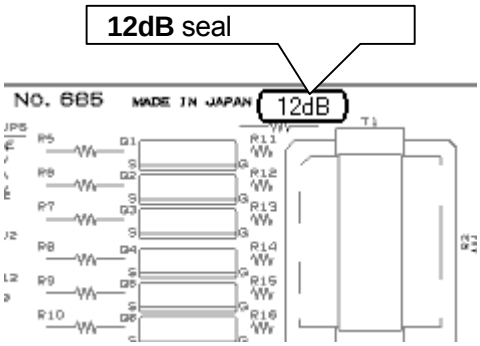
There are 2 kinds on the "No seal" type.

How to distinguish the type
U1: 3-terminalregulator
Circuit Diagram:
180kHz①



How to distinguish the type
U1: Choke Coil
Circuit Diagram:
180kHz②

NEW



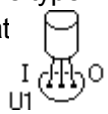
There is one kind on the "**12dB** seal " type.

Circuit Diagram:180kHz②

TR PCB: No.685-80kHz

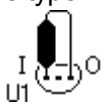
OLD

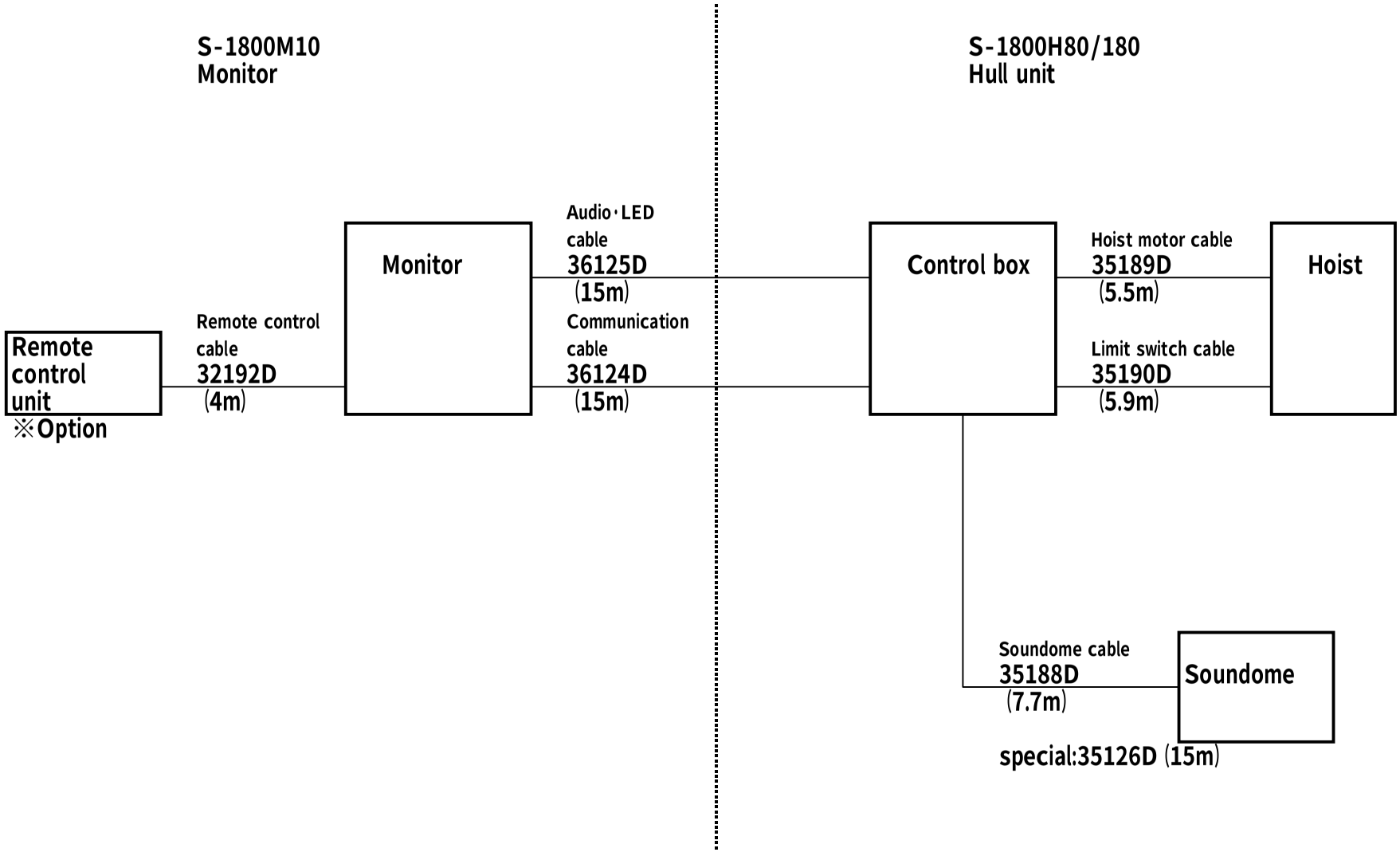
How to distinguish the type
U1: 3-terminalregulat
Circuit Diagram:
80kHz①



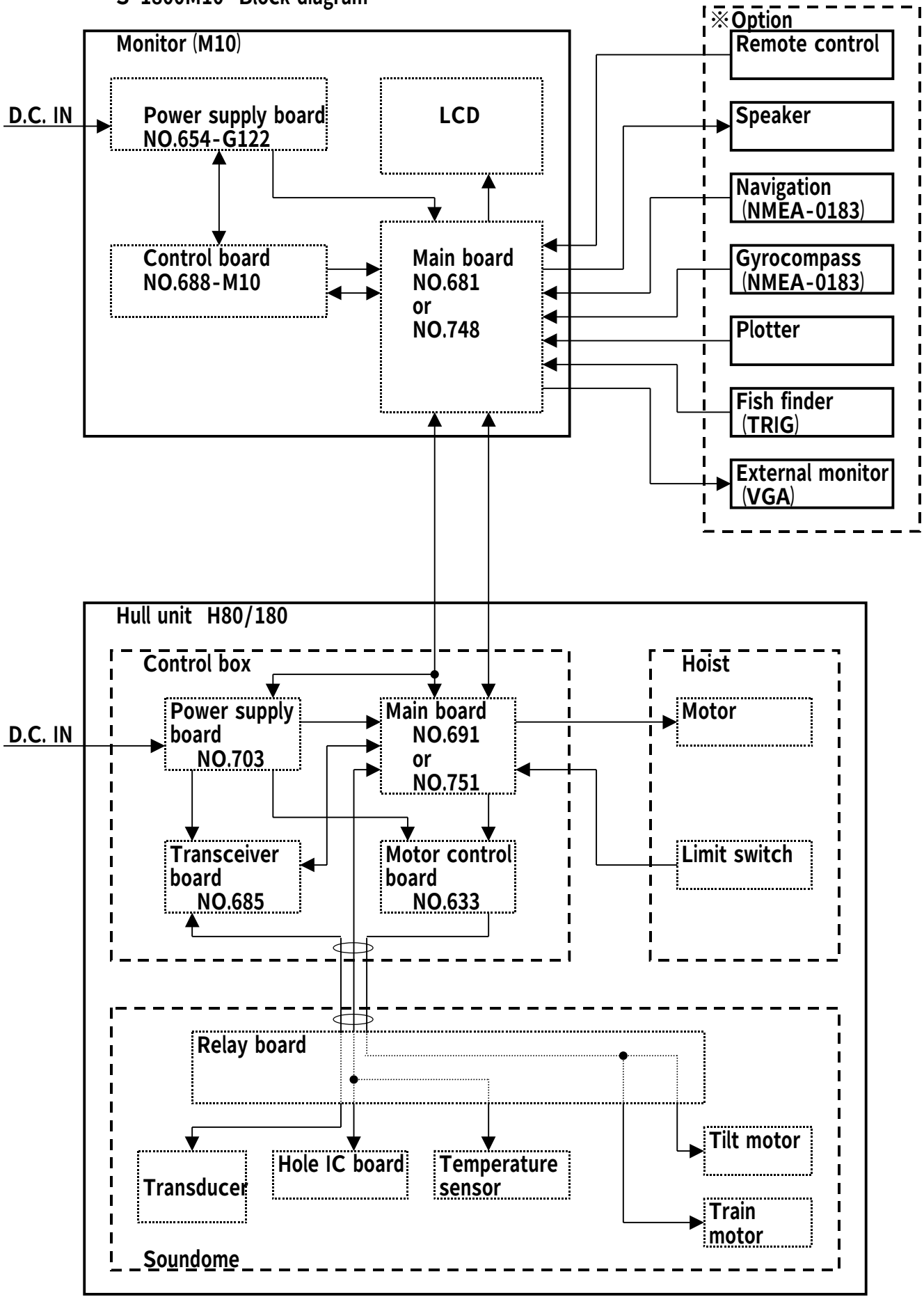
NEW

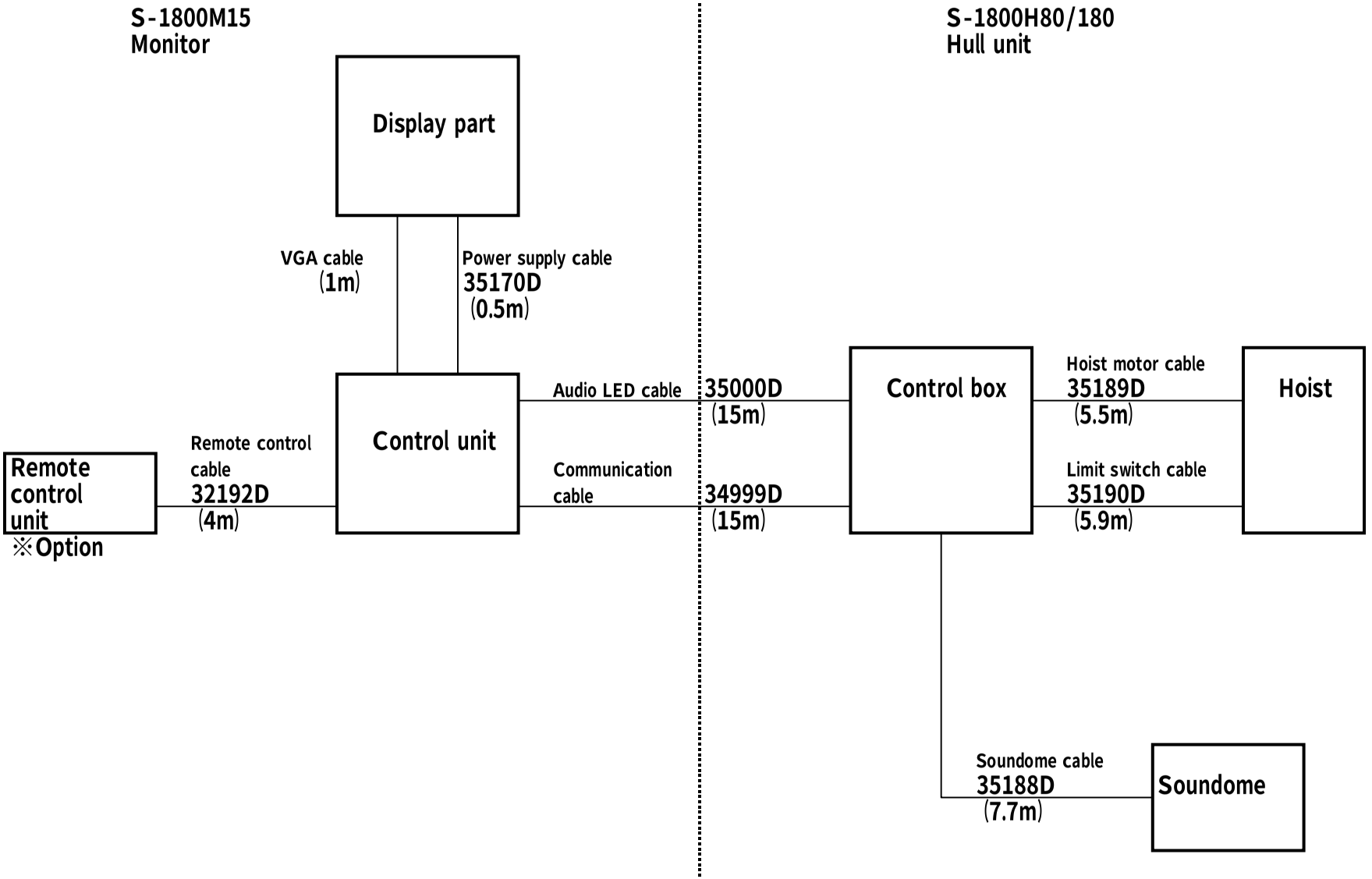
How to distinguish the type
U1: Choke Coil
Circuit Diagram:
80kHz②



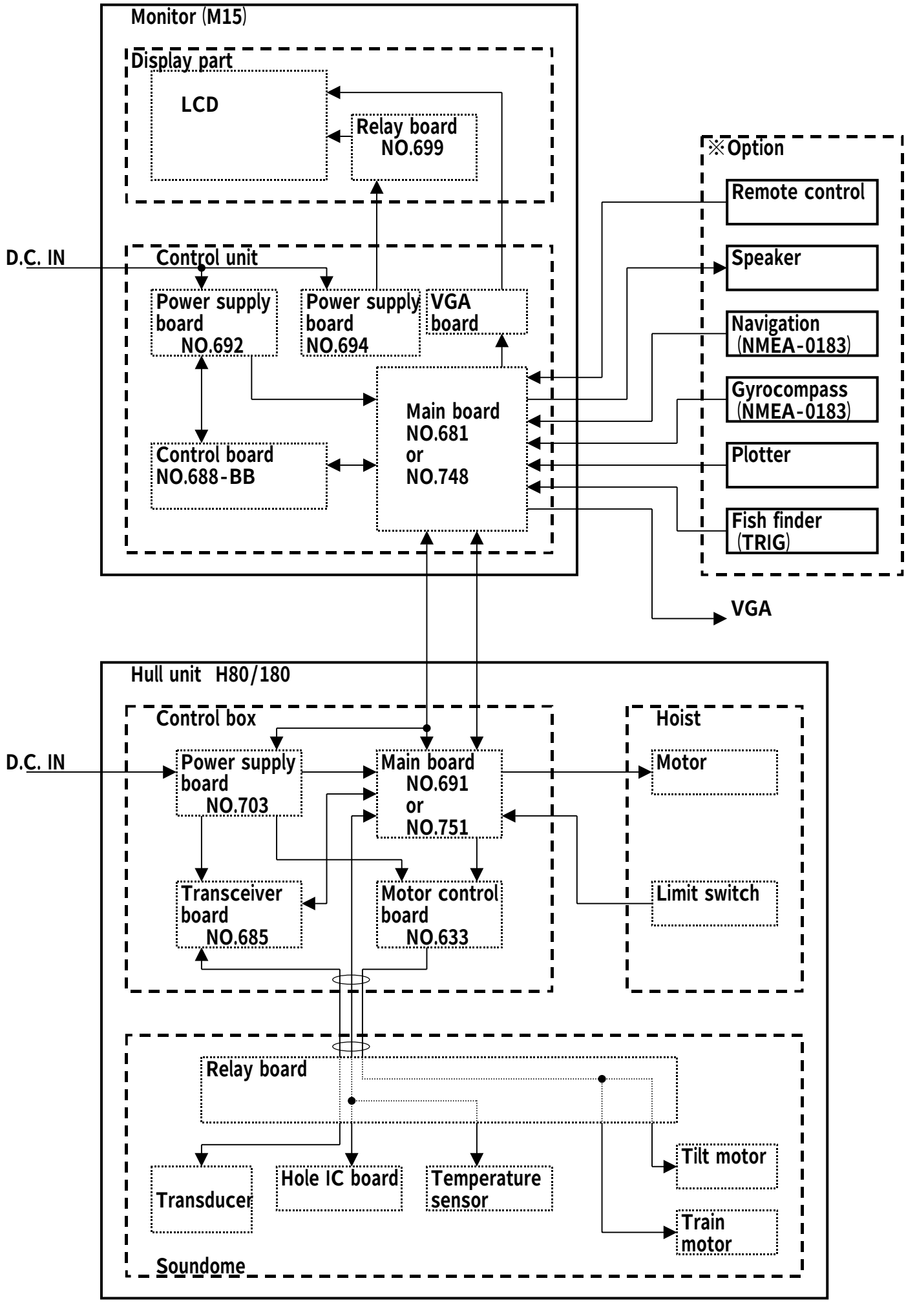

S-1800M10
Monitor
S-1800H80/180
Hull unit
Remote control unit
※Option
Remote control cable
32192D
(4m)
Monitor
Audio･LED cable
36125D
(15m)
Communication cable
36124D
(15m)
Control box
Hoist motor cable
35189D
(5.5m)
Limit switch cable
35190D
(5.9m)
Hoist
Soundome cable
35188D
(7.7m)
Soundome
special:35126D (15m)

S-1800M10 Block diagram




S-1800M15
Monitor
S-1800H80/180
Hull unit
Display part
VGA cable
(1m)
Power supply cable
35170D
(0.5m)
Control unit
Audio LED cable
35000D
(15m)
Control box
Hoist motor cable
35189D
(5.5m)
Hoist
Remote control unit
※Option
Remote control cable
32192D
(4m)
Communication cable
34999D
(15m)
Limit switch cable
35190D
(5.9m)
Soundome cable
35188D
(7.7m)
Soundome

S-1800M15 Block diagram



モニター　M10

・回路図

S/NO.1000 番台は総合配線図が S-1800M10 です。
S/NO.2000 番台は総合配線図が S-1800M10A です。

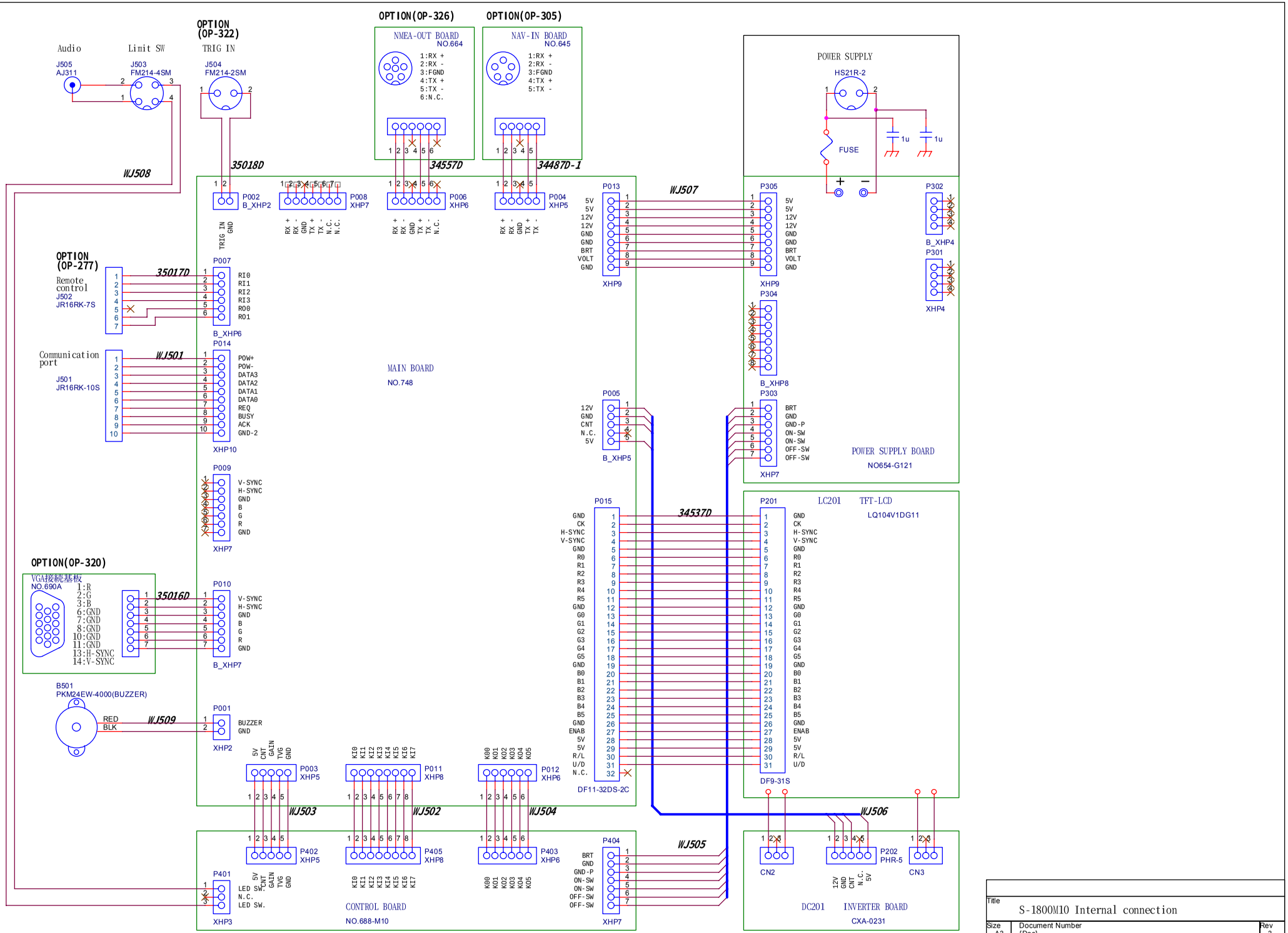
・波形図

MONITOR UNIT (M10)

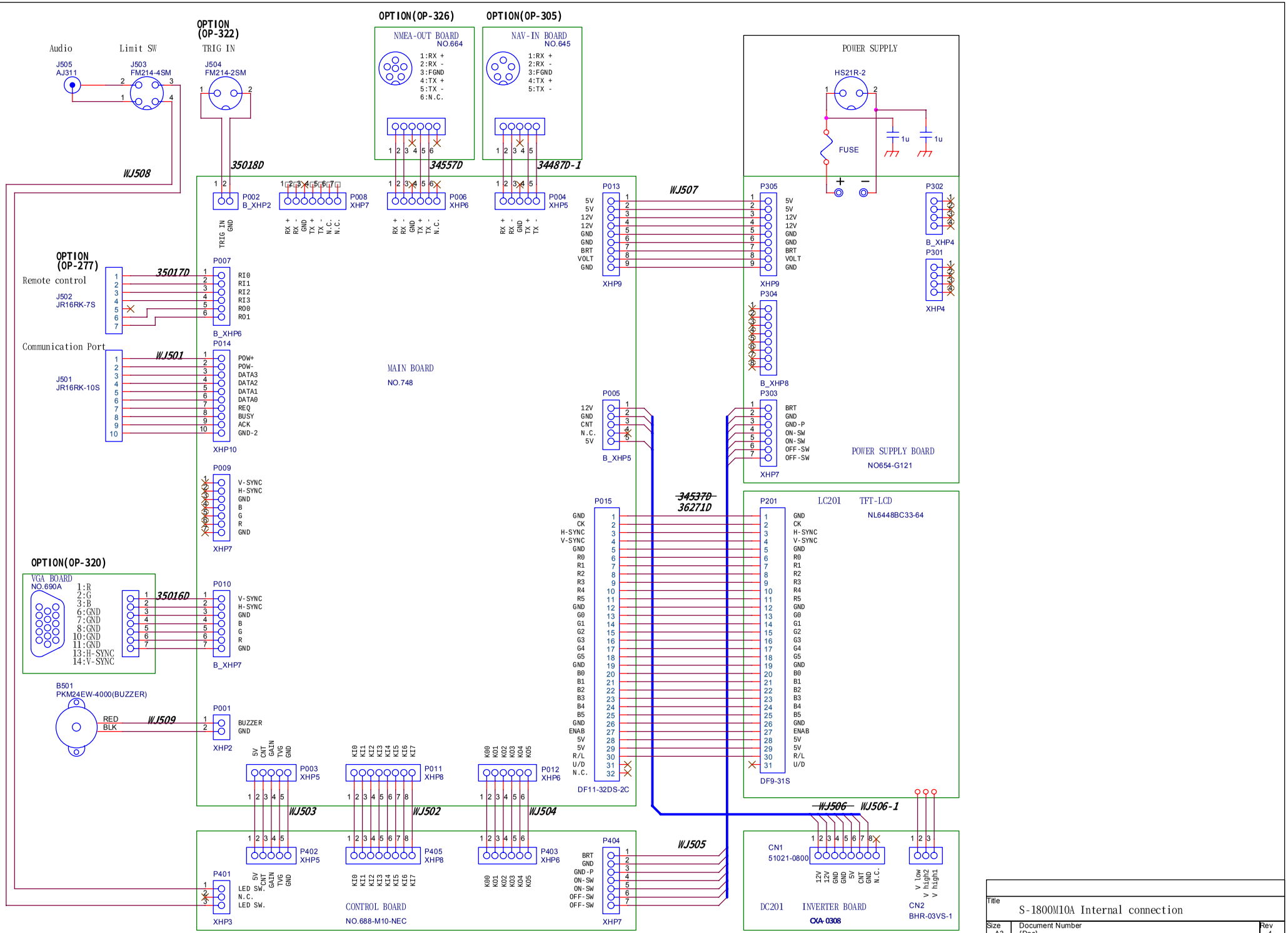
CIRCUIT DIAGRAM

Circuit diagram is different based on the S/No. of S-1800M10.
S/No.1001 - 1999 ⇒ S-1800M10
S/No.2001 - 2999 ⇒ S-1800M10A

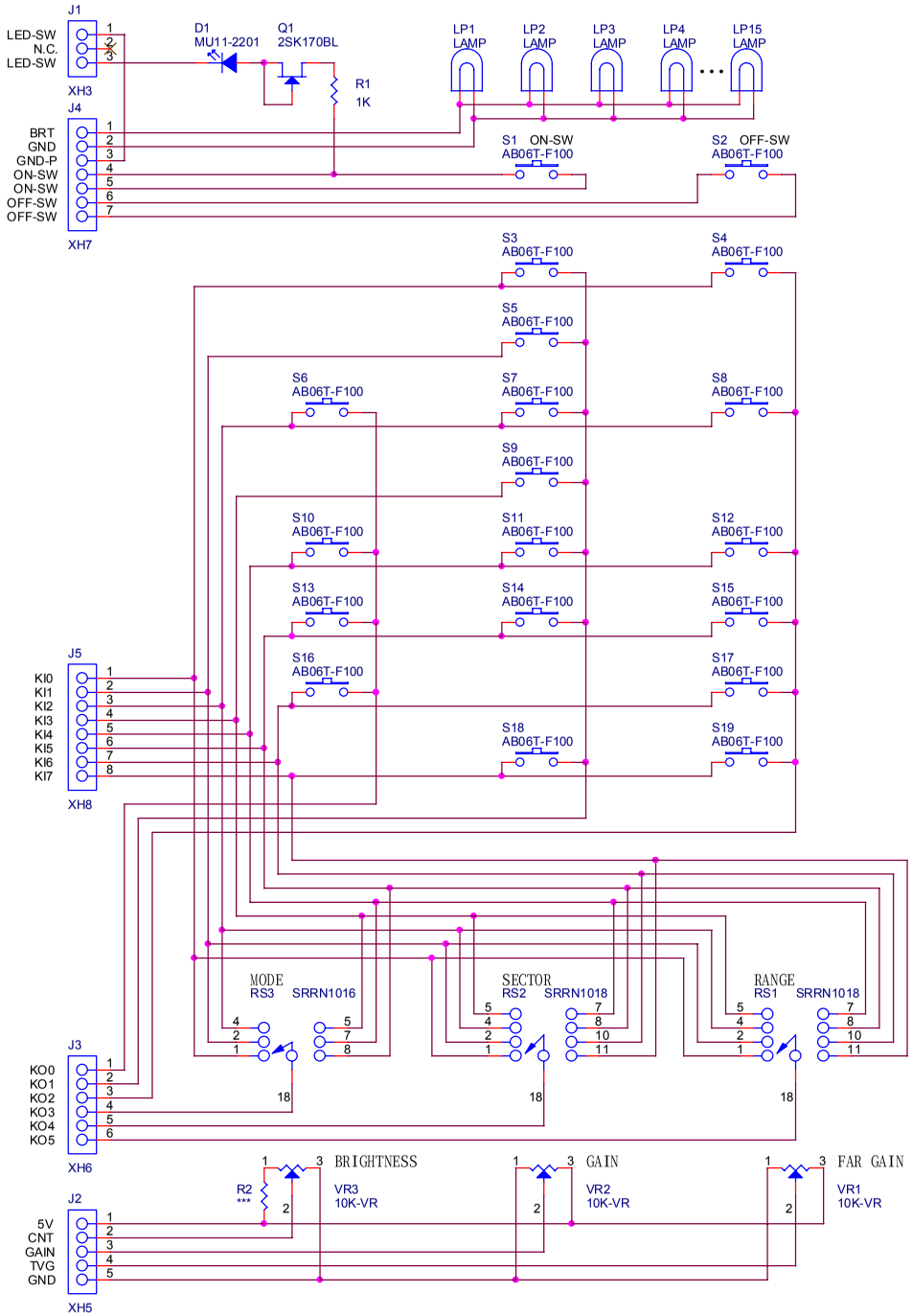
WAVE FORMS



Title	S-1800M10 Internal connection	
Size A3	Document Number {Doc}	Rev 3
Date: Thursday, May 29, 2008	Sheet 1 of 1	



Title	S-1800M10A Internal connection	
Size A3	Document Number {Doc}	Rev 4
Date: Monday, December 07, 2009	Sheet 1 of 1	



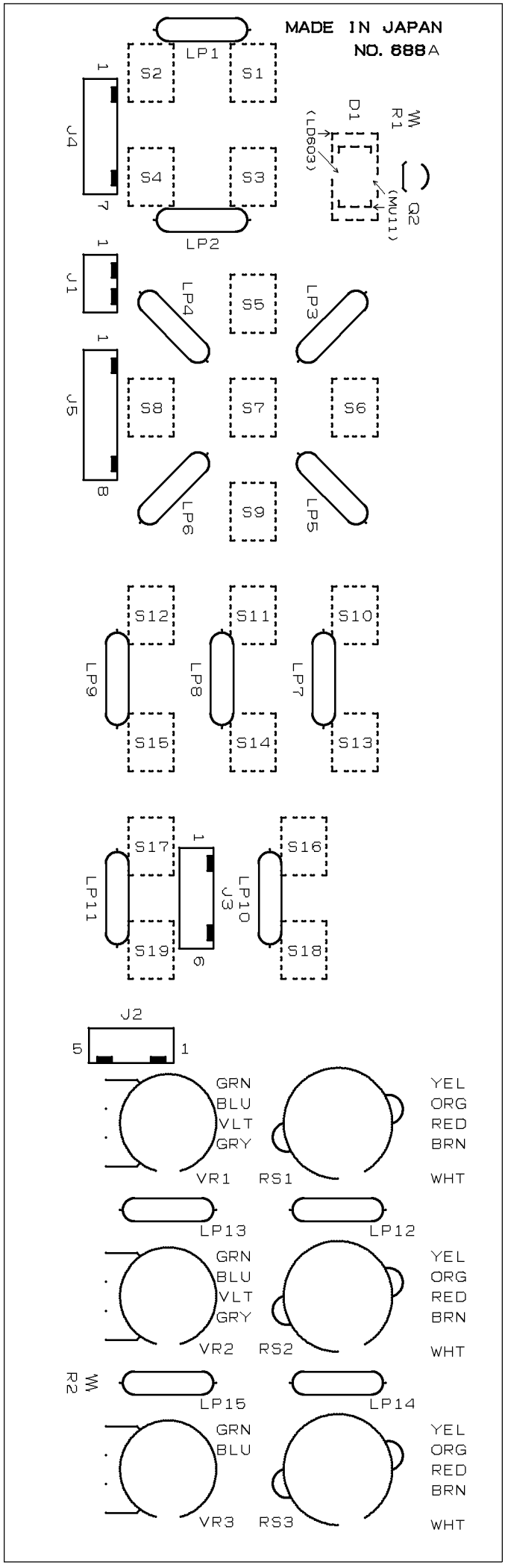
NO.688-BB Unused :VR3

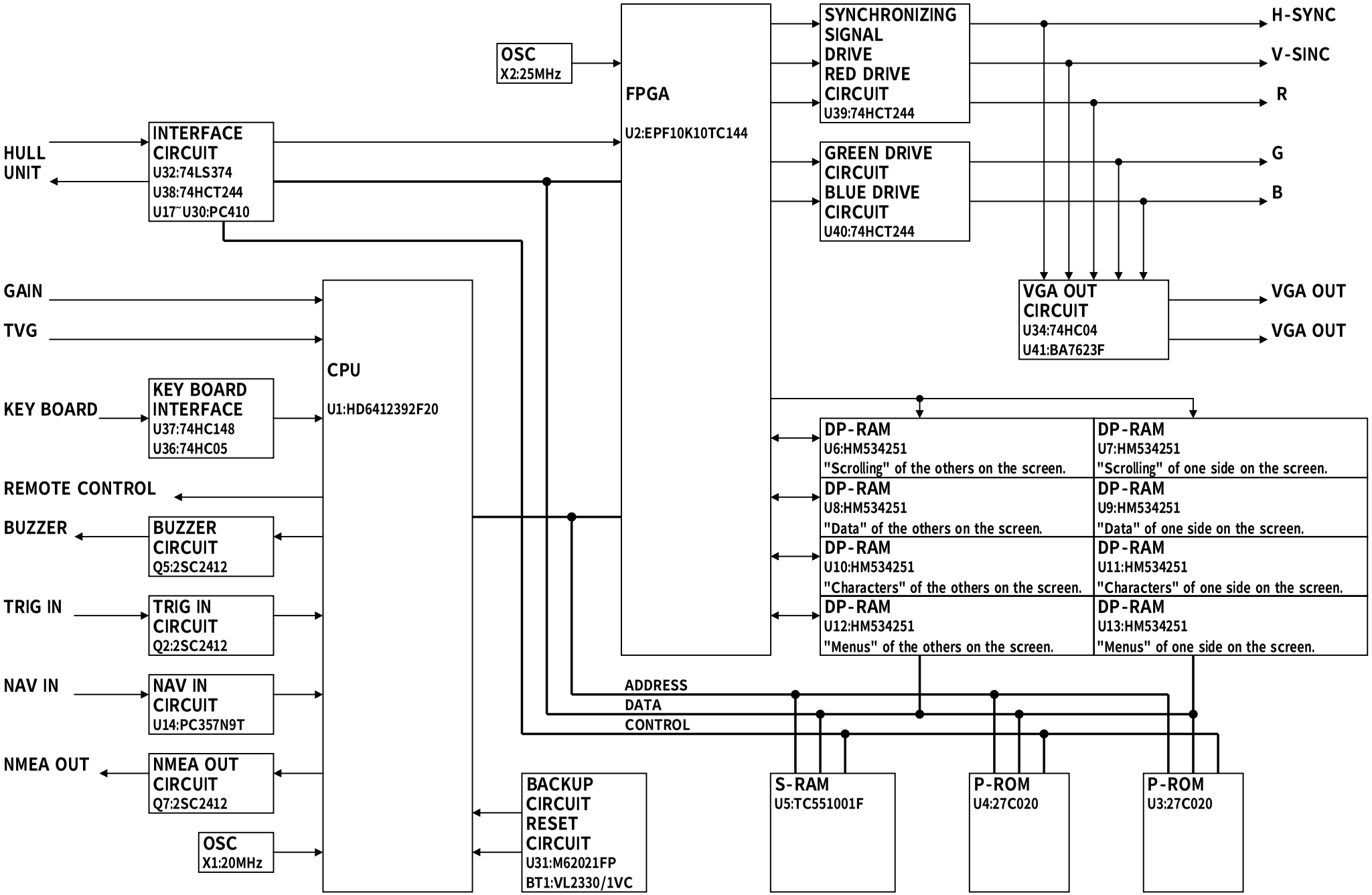
NO.688A-M10,BB：R2 39kΩ

NO.688A-M10-NEC：R2 3kΩ

Title	CONTROL BOARD	
Size B	Document Number NO.688A-M10 / NO.688A-BB	Rev 2
Date: Thursday, March 25, 2010	Sheet 1 of 1	

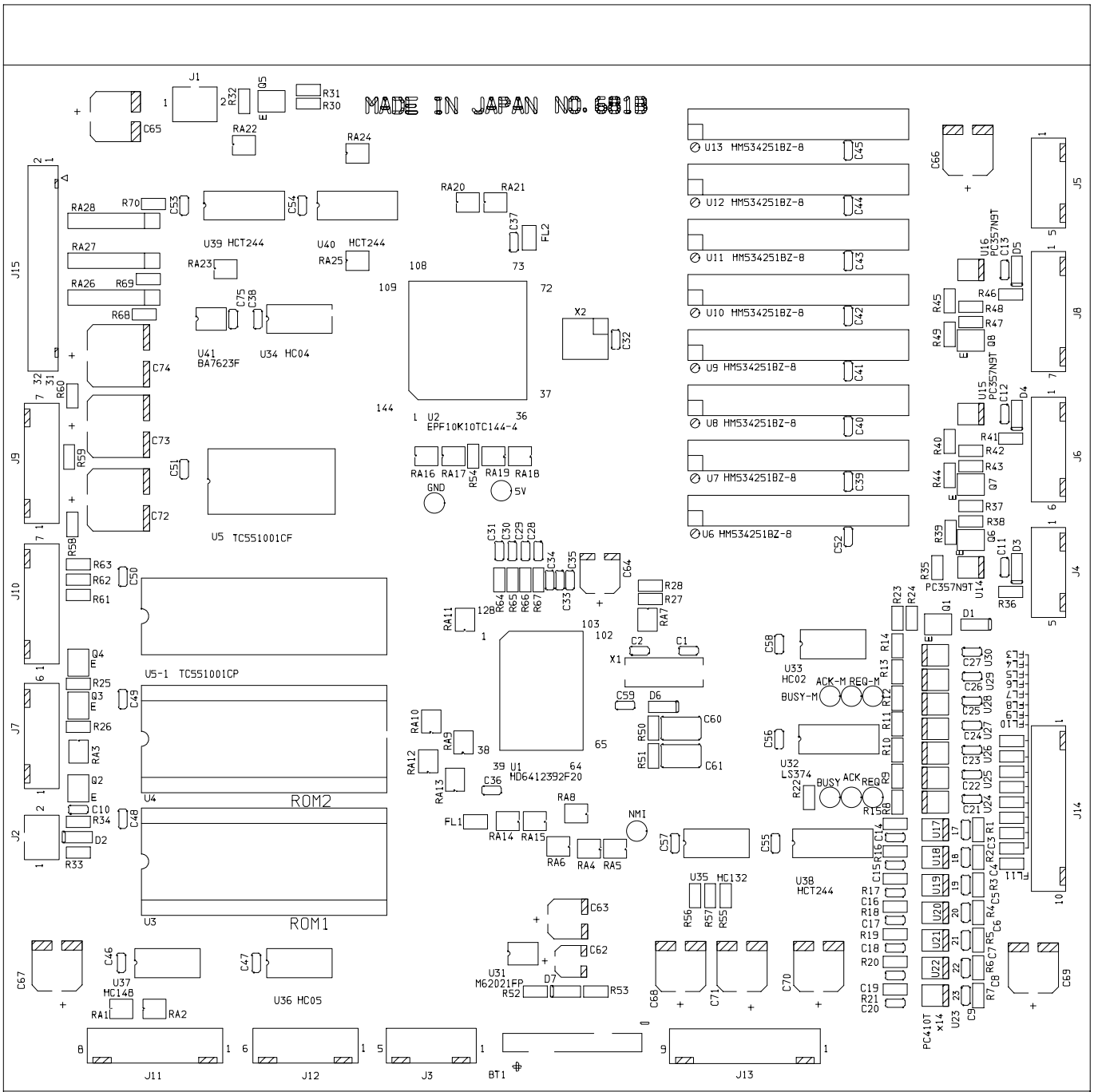
No.688A

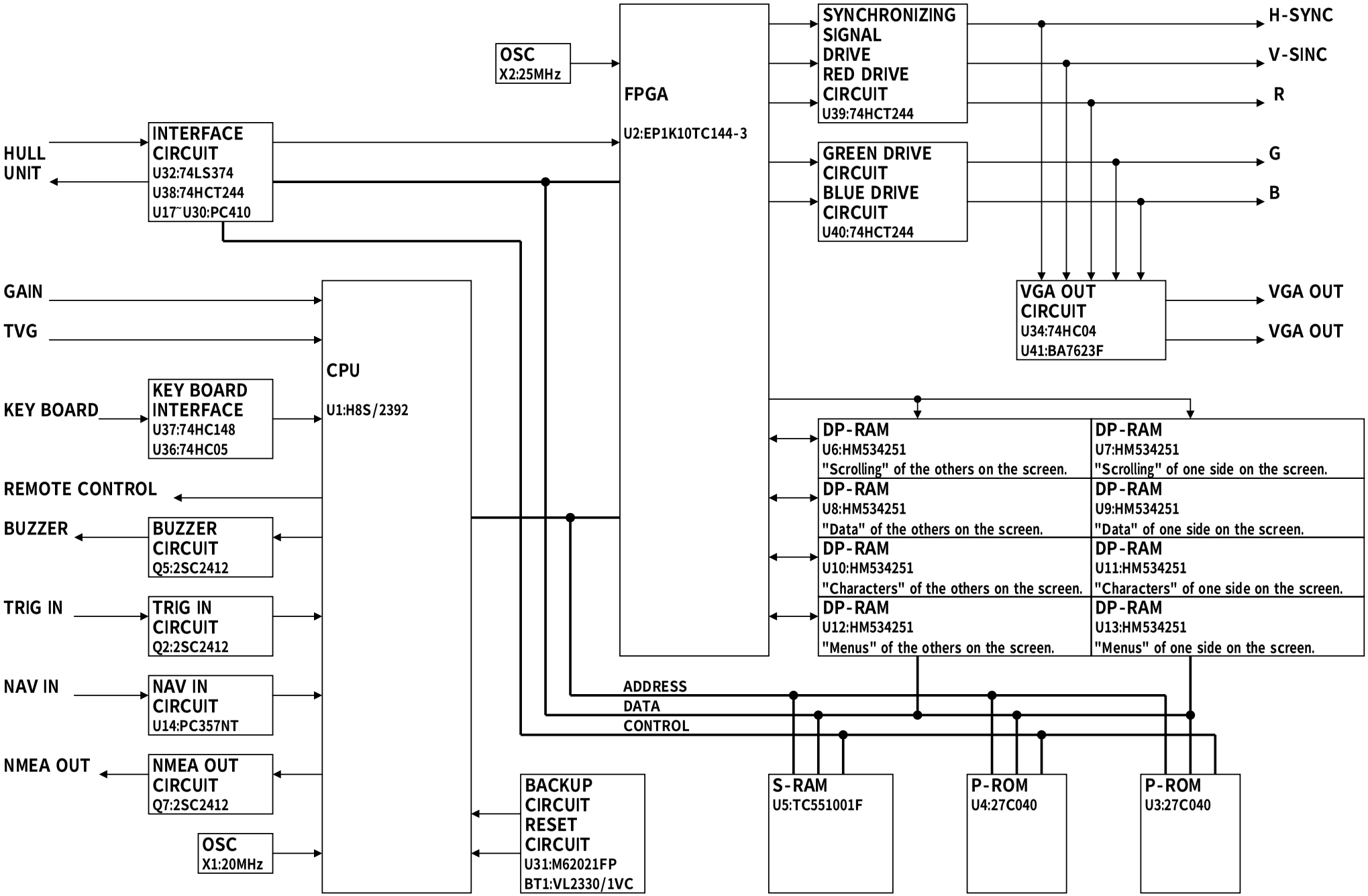

MADE IN JAPAN
NO. 688A
LP1
S2
S1
J4
S4
S3
LP2
D1
(LD603)
(MU11)
R1
Q2
J1
LP4
S5
LP3
J5
S8
S7
S6
LP6
S9
LP5
S12
S11
S10
LP9
LP8
LP7
S15
S14
S13
S17
S16
LP11
J3
LP10
S19
S18
J2
GRN
BLU
VLT
GRY
VR1
RS1
YEL
ORG
RED
BRN
WHT
LP13
LP12
VR2
RS2
R2
LP15
LP14
VR3
RS3



NO.681 BLOCK DIAGRAM

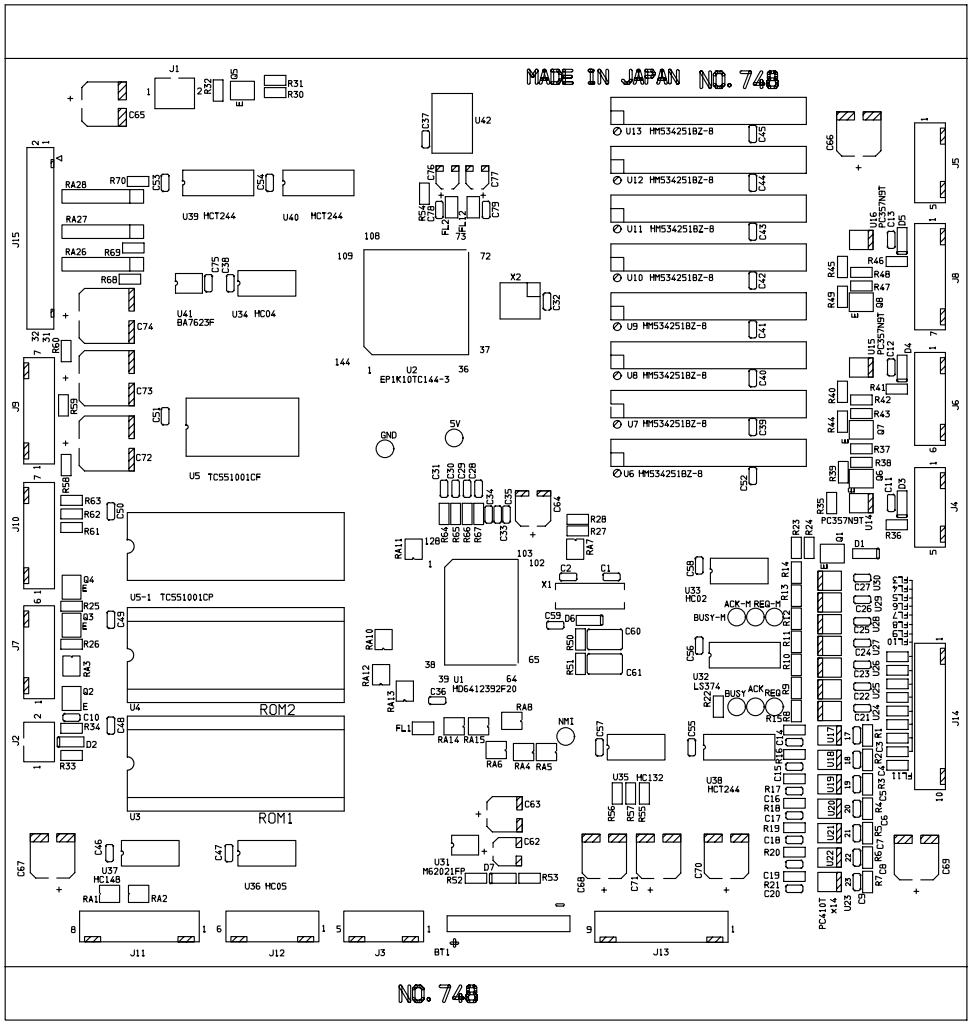
BUHIN-S NO. 681B





NO.748 BLOCK DIAGRAM

BUHIN-S NO. 748



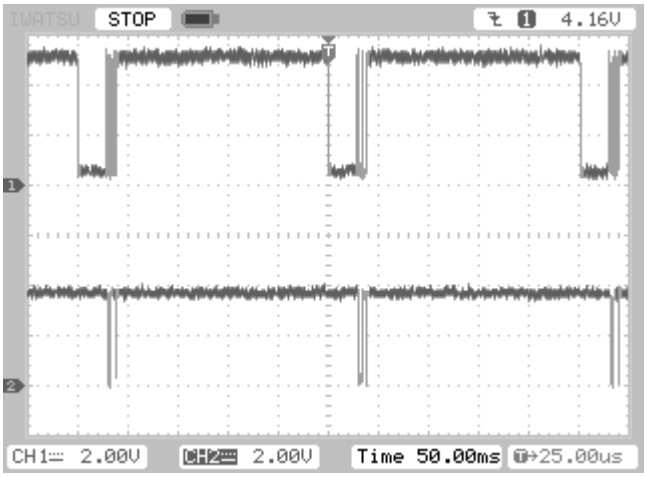
NO. 748

NO.748

BUSY

CH1：「BUSY」 — 「GND」

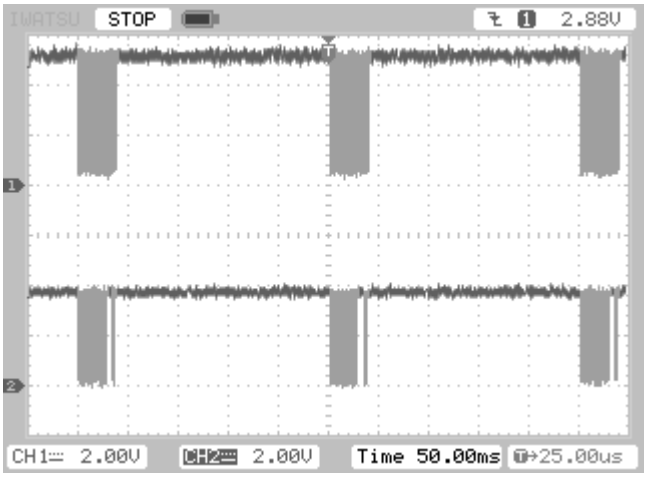
CH2：「BUSY-M」 — 「GND」



REQ

CH1：「REQ」 — 「GND」

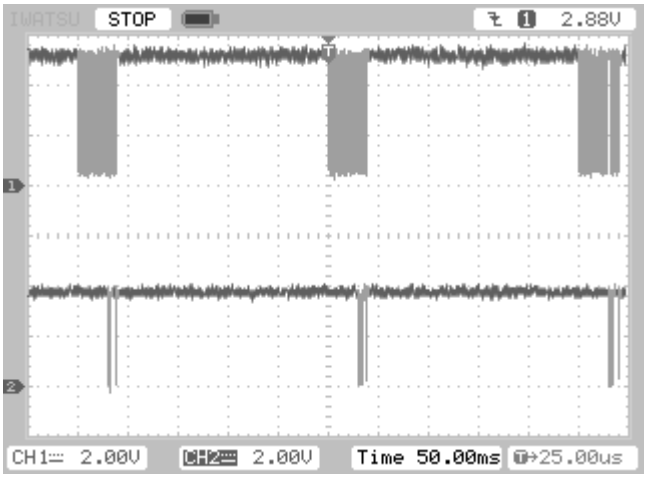
CH2：「REQ-M」 — 「GND」



ACK

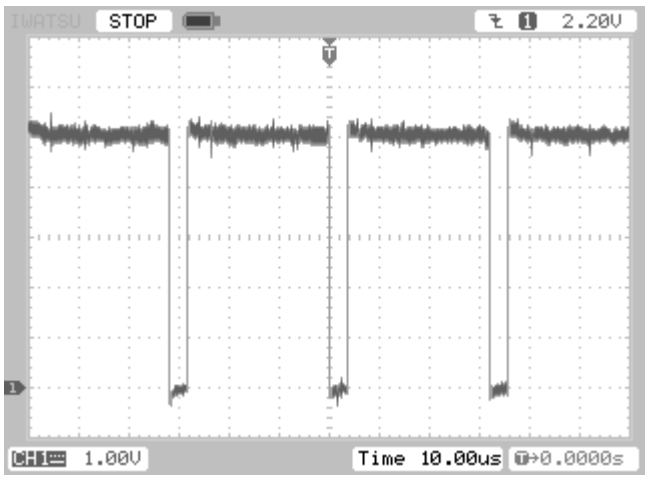
CH1：「ACK」 — 「GND」

CH2：「ACK-M」 — 「GND」



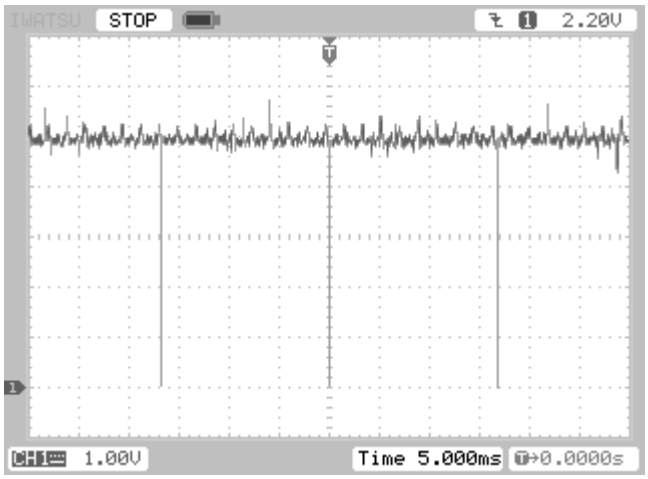
NO.748

H-SYNC

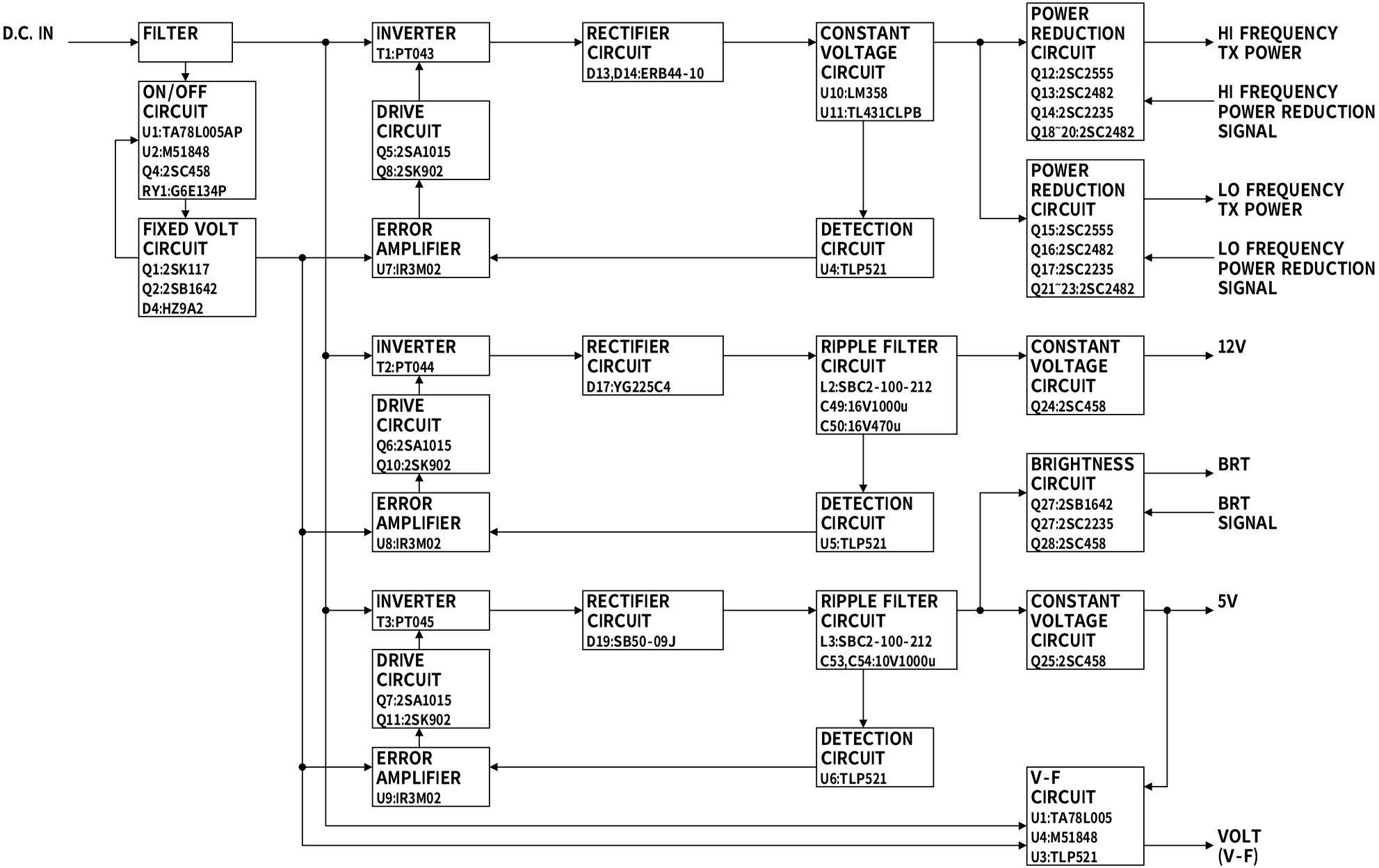


CH1：「J15 3pin」 ― 「GND」

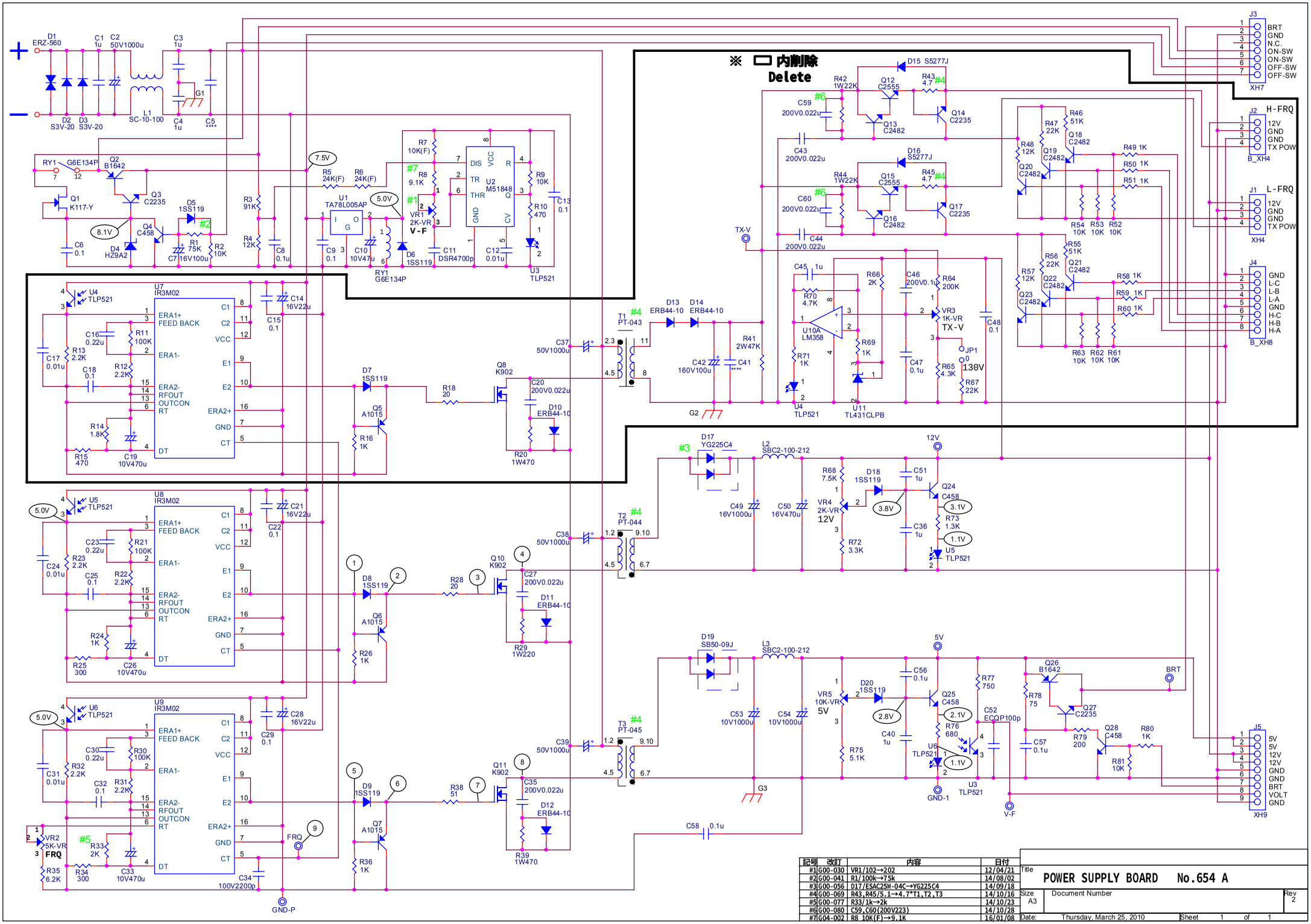
V-SYNC



CH2：「J15 4pin」 ― 「GND」



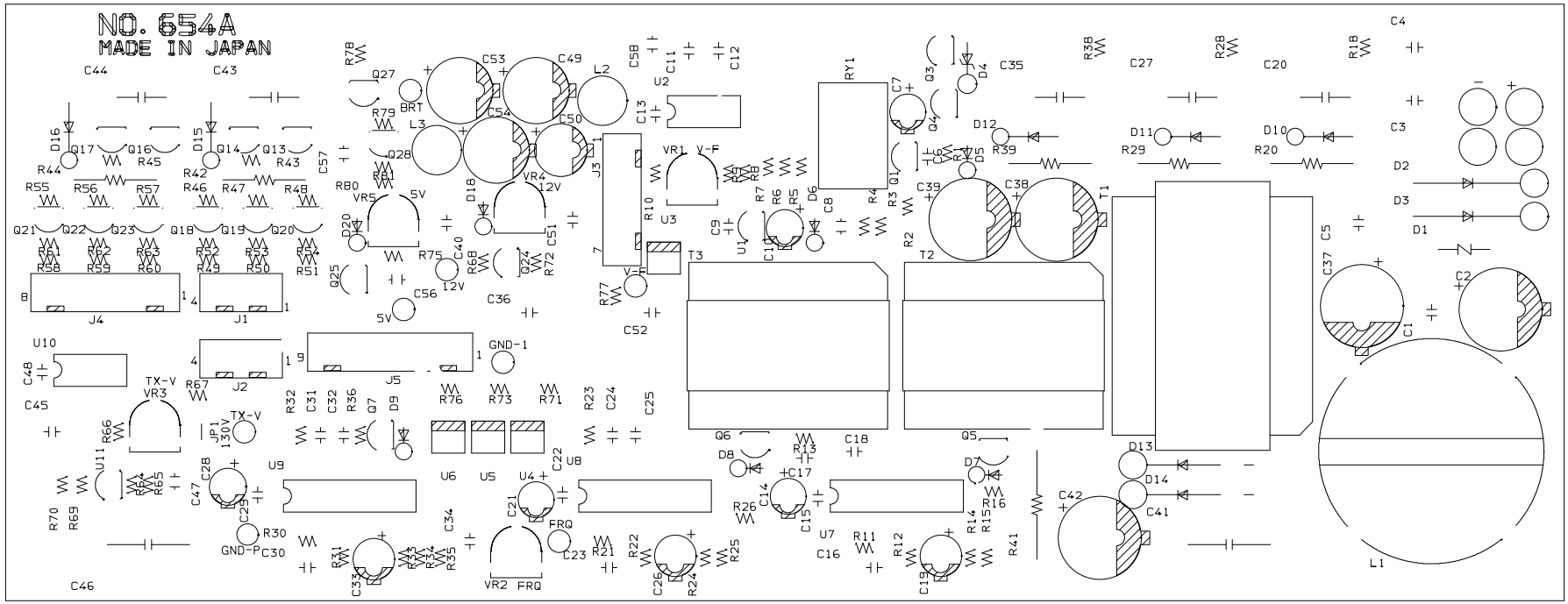
NO.654 POWER SUPPLY BOARD



記号 改訂	内容	日付
#1 G00-030	VR1/102→202	12/04/21
#2 G00-041	R1/100k→75k	14/08/02
#3 G00-056	D17/ESAC25M-04C→YG225C4	14/09/18
#4 G00-069	R43,R45/5.1→4.7*T1,T2,T3	14/10/16
#5 G00-077	R33/1k→2k	14/10/23
#6 G00-080	C59,C60(200V223)	14/10/28
#7 G04-002	R8 10K(F)→9.1K	16/01/08

Title: POWER SUPPLY BOARD No.654 A
Size: A3
Document Number
Rev: 2
Date: Thursday, March 25, 2010
Sheet 1 of 1

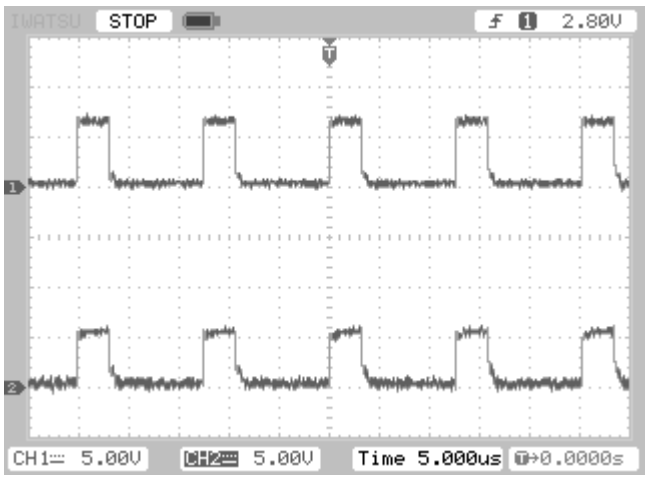
BUHIN-S NO.654A



NO.654
電源入力 24.0V
D.C. IN: 24.0V

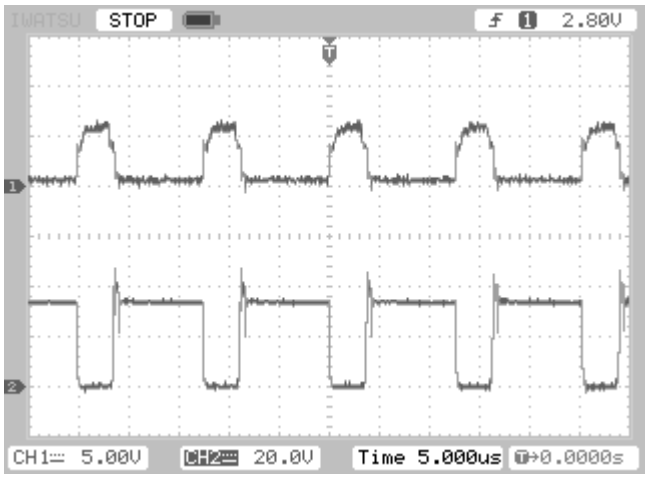
①
CH1:「Q6 base」－「GND-P」

②
CH2:「Q6 emitter」－「GND-P」



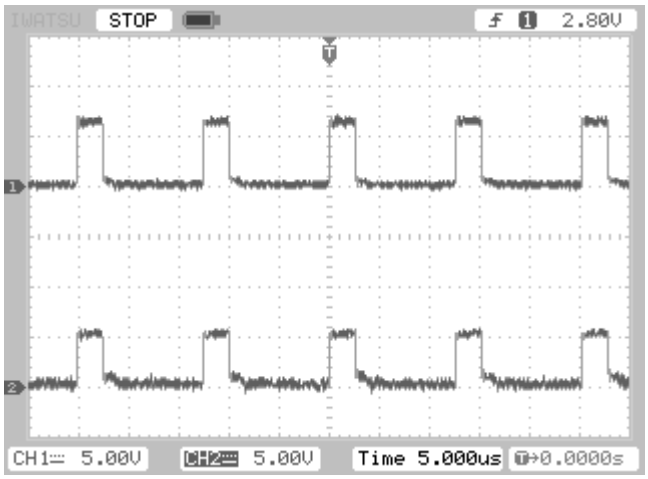
③
CH1:「Q10 gate」－「GND-P」

④
CH2:「Q10 drain」－「GND-P」



⑤
CH1:「Q7 base」－「GND-P」

⑥
CH2:「Q7 emitter」－「GND-P」

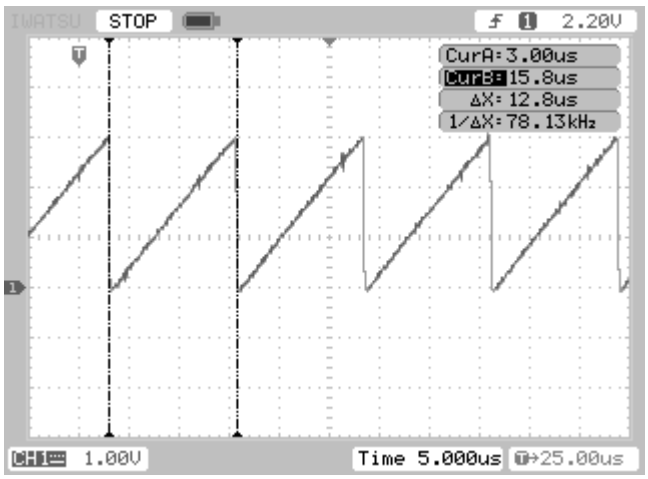


⑦
CH1:「Q11 gate」－「GND-P」

⑧
CH2:「Q11 drain」－「GND-P」

NO.654

FRQ



⑨
CH1：「FRQ」－「GND-P」

モニター　M15

・回路図

M15 は LCD-15 の背面シールの S/NO.により回路図が異なります。
S/NO.1000 番台は LC201 が LCD-A15CE
S/NO.2000 番台は LC201 が LCD-A152GS(A)
S/NO.3000 番台は LC201 が LCD-AD152CWH
S/NO.4000 番台／5000 番台は LC201 が AA150XC03 と SSC-TA01A-SZK

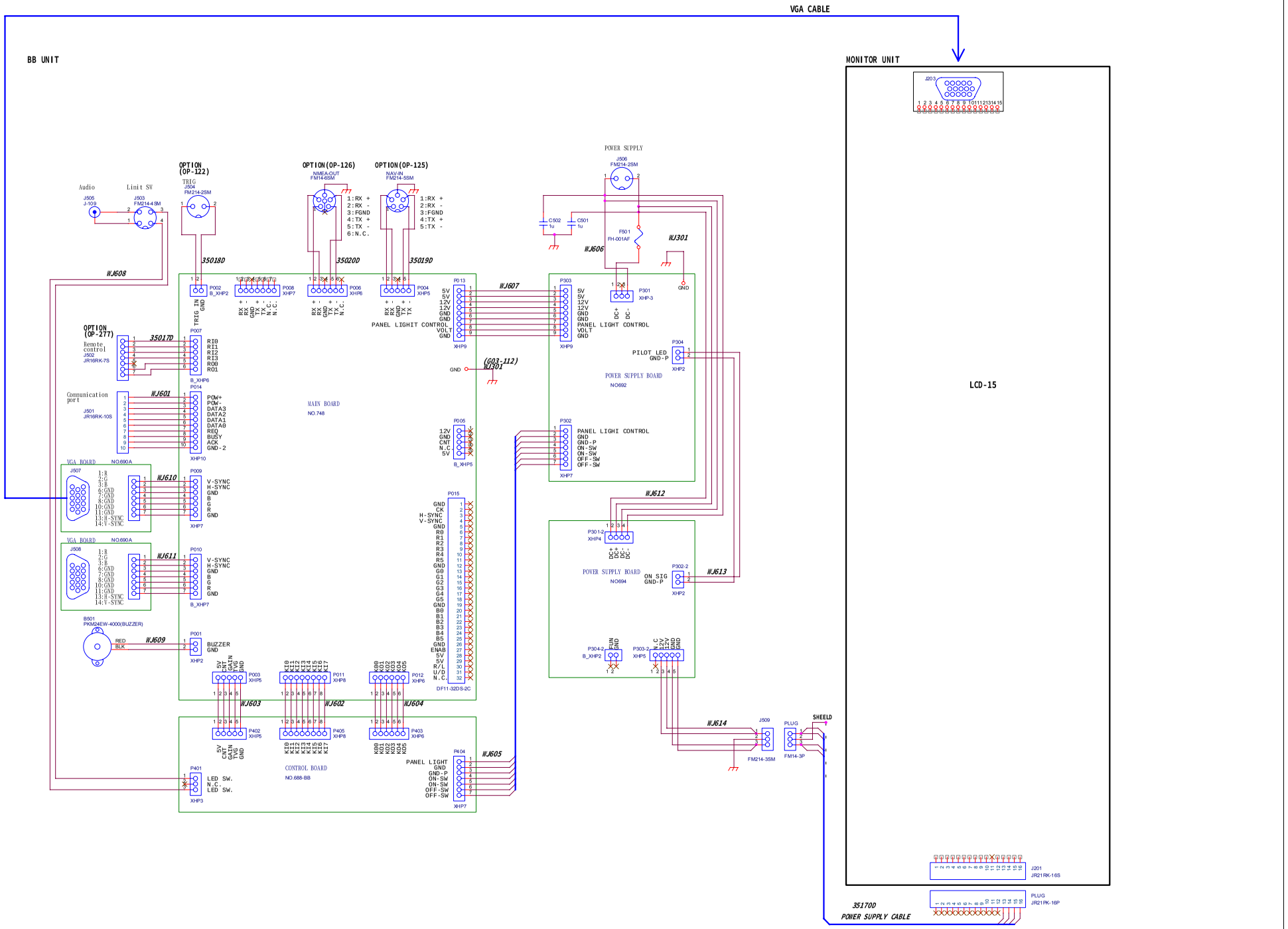
・波形図

MONITOR UNIT (M15)

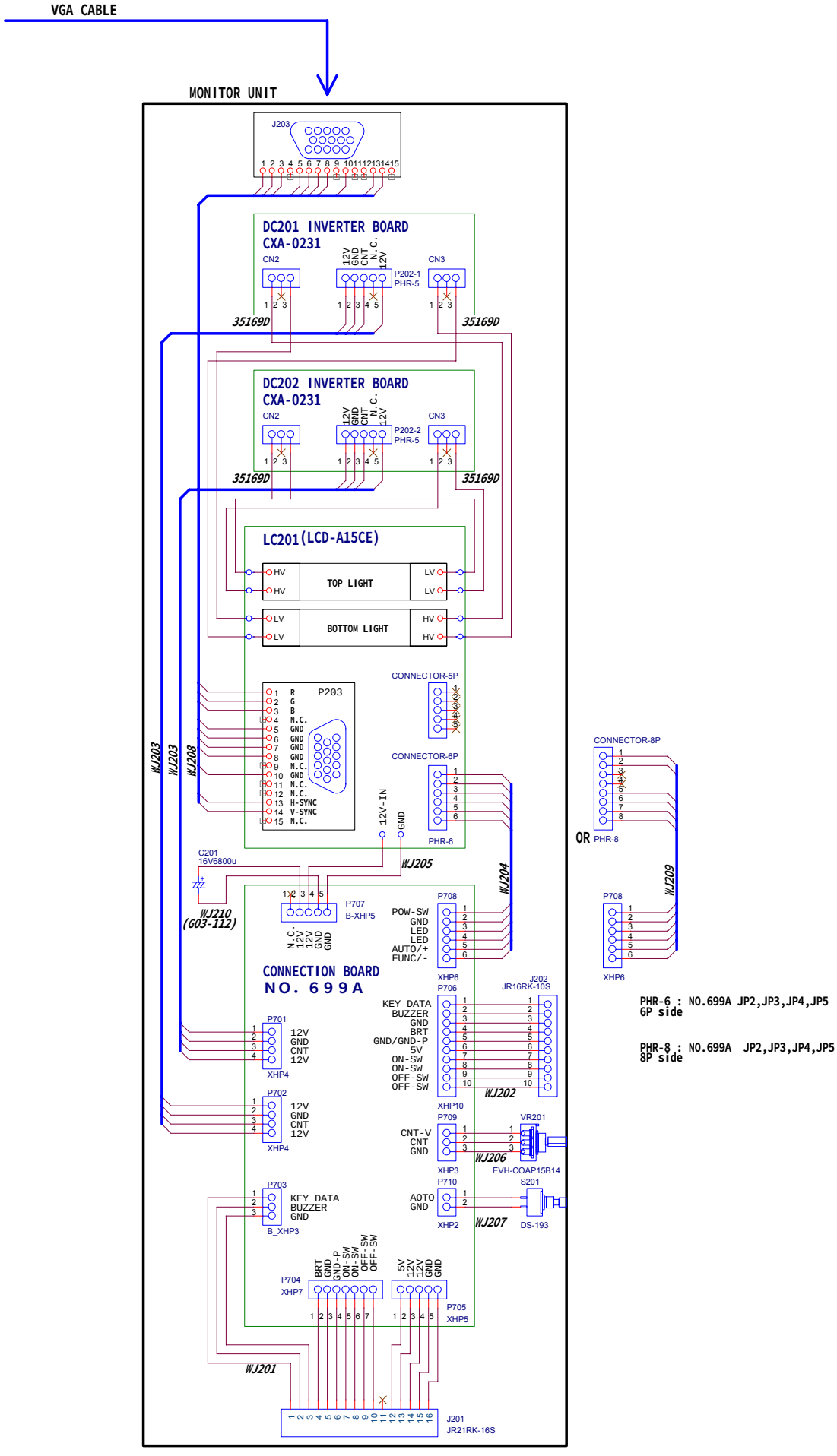
CIRCUIT DIAGRAM

Circuit diagram is different based on the S/No. of LCD-15.
S/No.1001 - 1999 ⇒ LC201 is LCD-A15CE
S/No.2001 - 2999 ⇒ LC201 is LCD-A152GS(A)
S/No.3001 - 3999 ⇒ LC201 is LCD-AD152CWH
S/No.4001 - ⇒ LC201 is AA150XC03 and SSC-TA01A-SZK

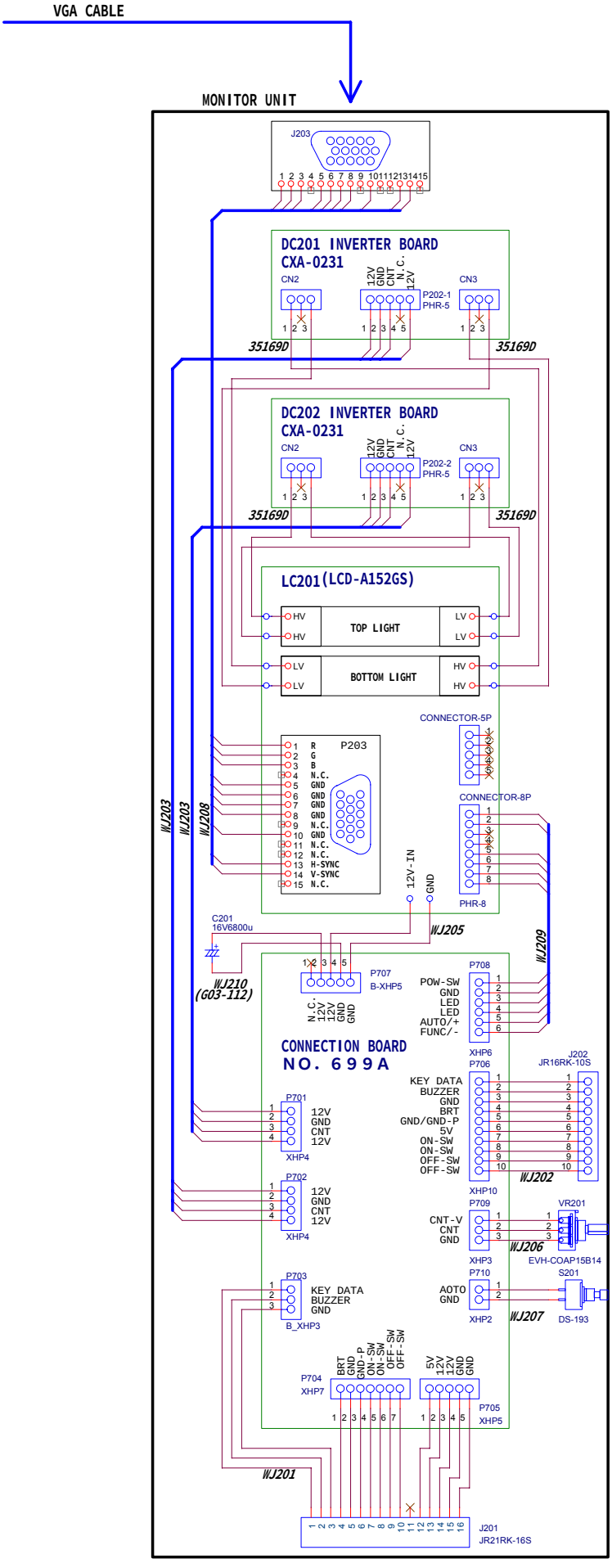
WAVE FORMS



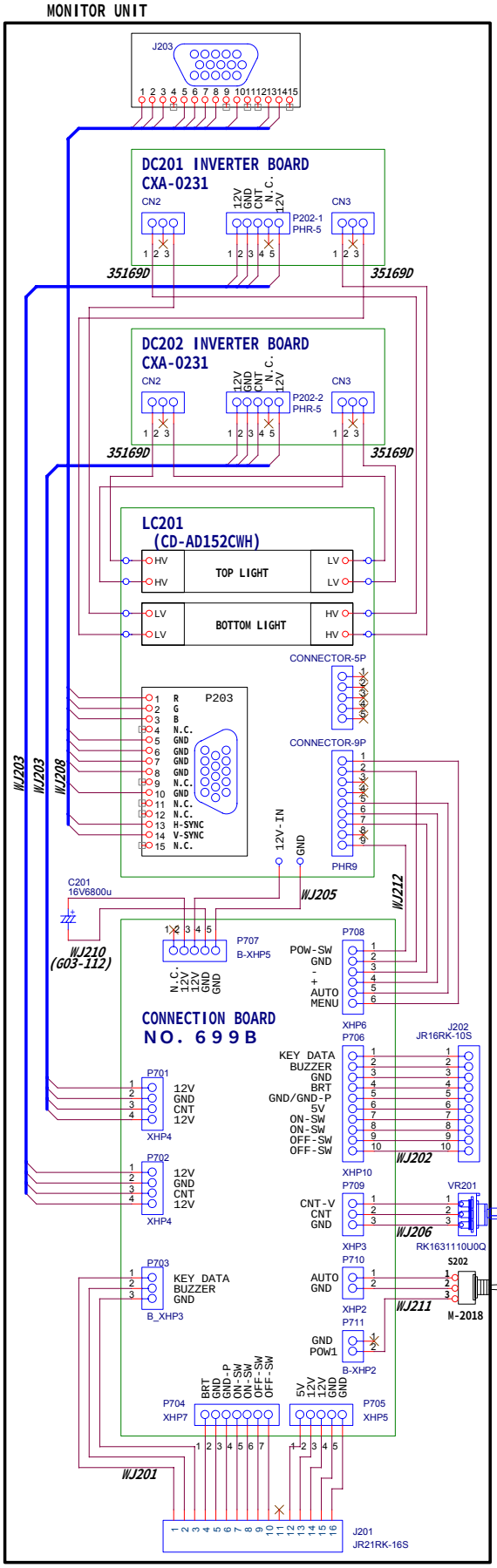
Title	S-1800M15 Internal connection		
Size	Document Number		Rev
Custom(Doc)			1
Date:	Thursday, May 29, 2008	Sheet 1 of 1	



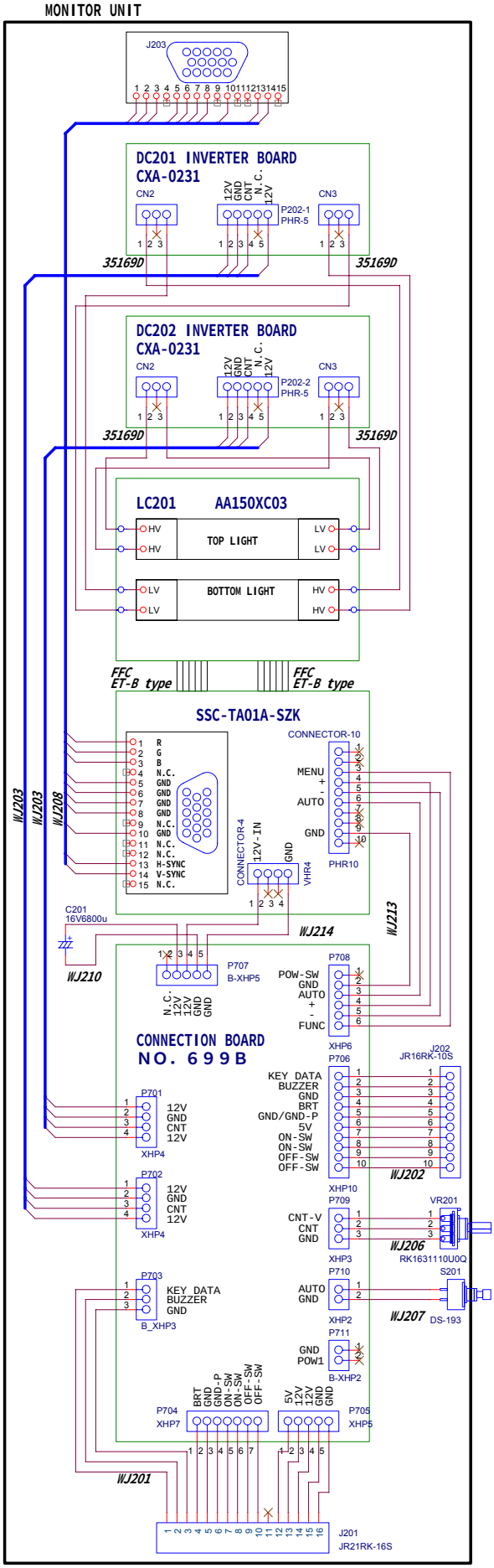
Title	LCD-15 (LCD-A15CE)Internal connection	
Size: Custom{Doc}	Document Number	Rev: 1
Date: Thursday, May 29, 2008	Sheet 1 of 1	



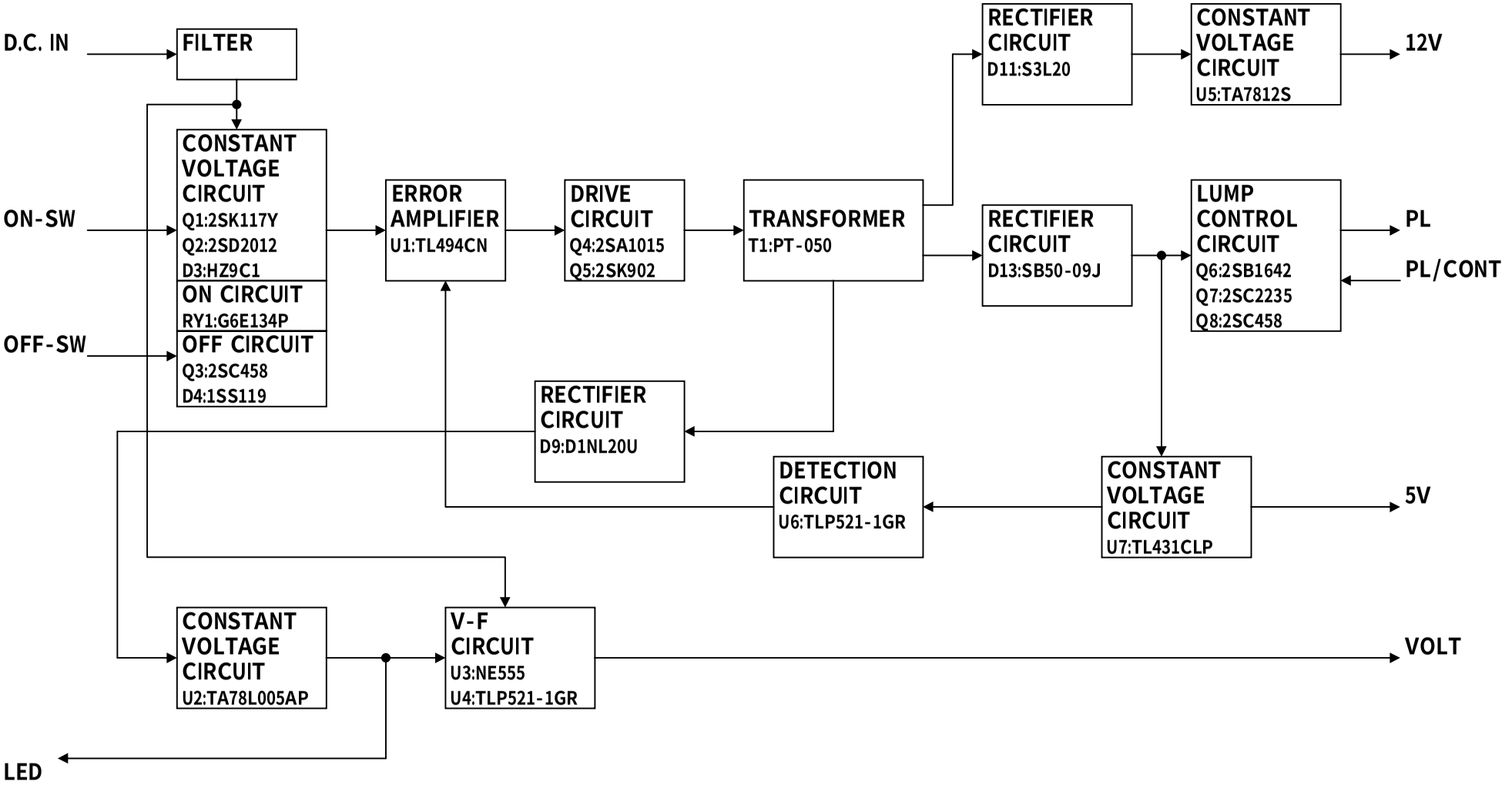
Title	LCD-15 (LCD-A152GS) Internal connection		
Size: Custom{Doc}	Document Number		Rev: 2
Date: Thursday, May 29, 2008	Sheet 1 of 1		



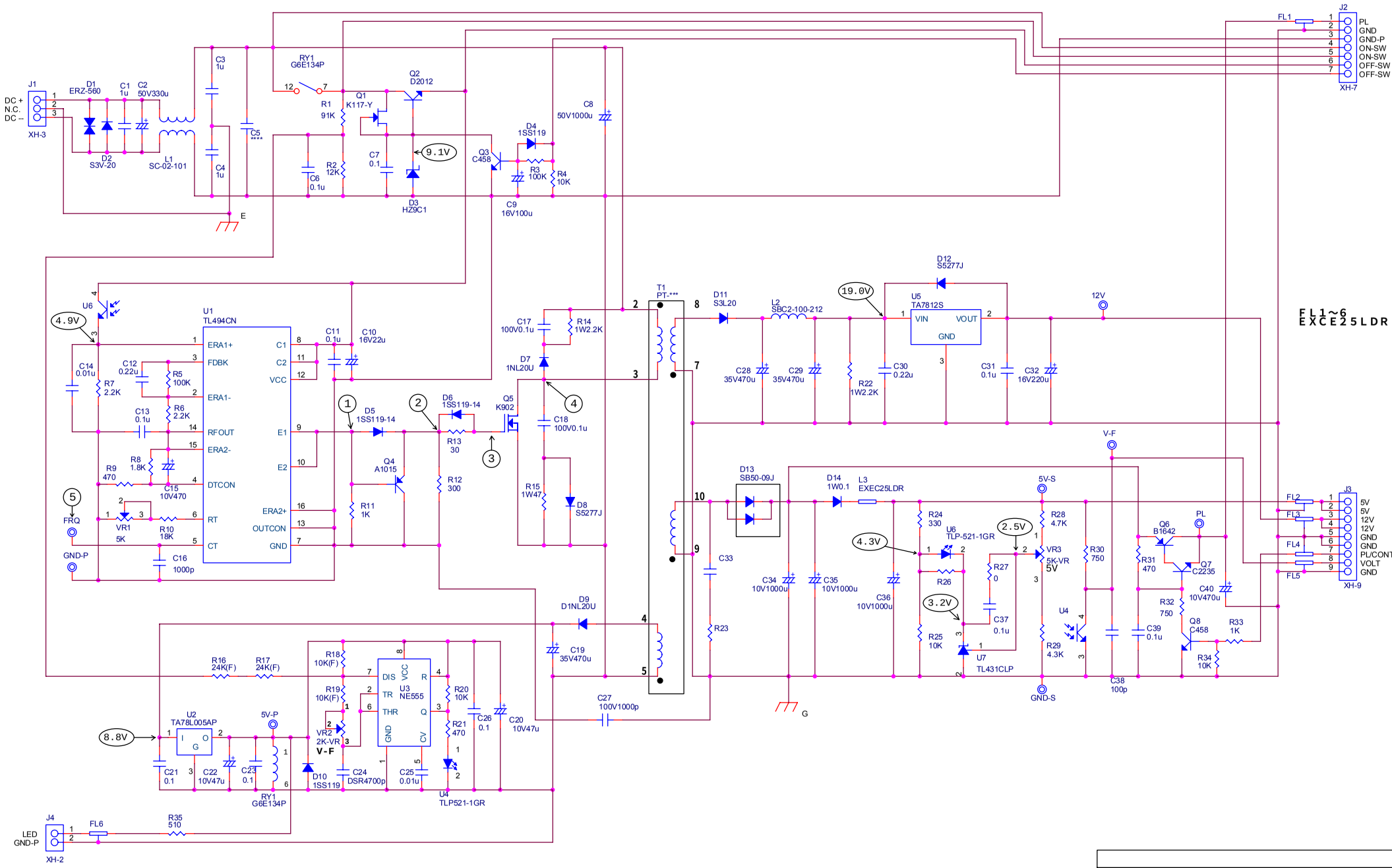
Title	LCD-15 (CD-AD152CWH) Internal connection	
Size: Custom{Doc}	Document Number	Rev: 3
Date: Thursday, May 29, 2008	Sheet 1 of 1	



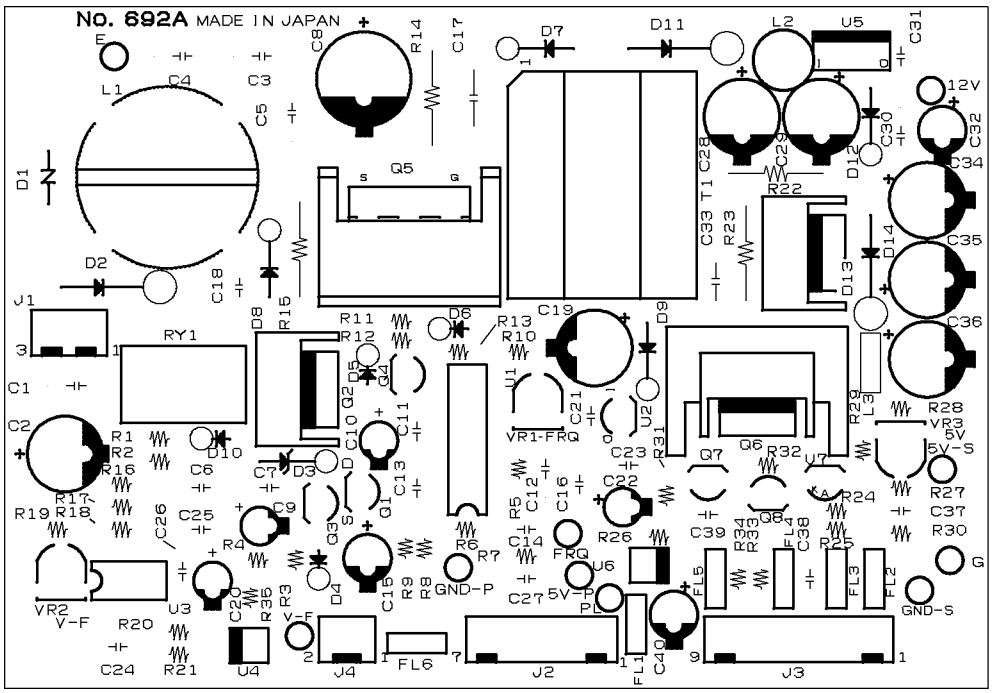
Title	LCD-15 (AA150XC03+SSC-TA01A-SZK) Internal connection		
Size Custom{Doc}	Document Number		Rev 4
Date: Thursday, May 29, 2008	Sheet 1 of 1		



No.692 POWER SUPPLY BOARD

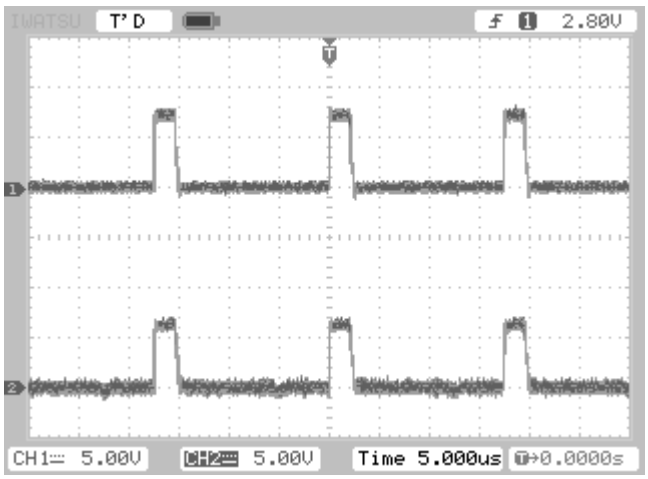


Title	POWER SUPPLY BOARD No.692A		
Size A3	Document Number		Rev 1
Date: Wednesday, May 26, 2004		Sheet 1 of 1	


No. 692A MADE IN JAPAN
E
L1
C4
C3
C5
C8
R14
C17
D7
D11
L2
U5
C31
12V
C32
C34
C35
C36
D1
D2
C18
Q5
s
g
C28
C29
C30
D12
R22
C33
T1
R23
D13
D14
J1
3
1
RY1
C1
C2
R1
R2
R16
R17
R19
R18
C26
C25
C6
D10
C7
D3
D8
R15
R11
R12
D5
Q2
C10
C11
Q4
D6
R13
R10
C19
D9
U1
C21
U2
C23
R31
VR1-FRQ
Q7
Q6
R32
U7
R29
L3
R28
VR3
5V
5V-S
R27
C37
R30
G
R24
C22
R26
C39
R34
R33
Q8
FL4
C38
R25
FL3
FL2
GND-S
R5
C12
C16
C14
C27
FRQ
5V-P
U6
PL
FL5
FL1
C40
R4
C9
Q3
Q1
C13
R6
R7
GND-P
D4
C15
R9
R8
VR2
V-F
R20
C24
R21
U3
C2
R35
R3
V-F
U4
J4
FL6
J2
J3
9
1
7
2

NO.692
電源入力：24.0V
D.C. IN: 24.0V

①
CH1：「Q4 base」－「GND-P」

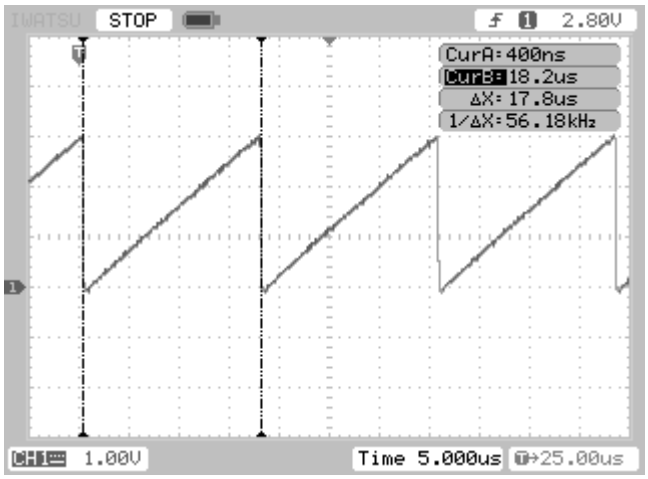


②
CH2：「Q4 emitter」－「GND-P」

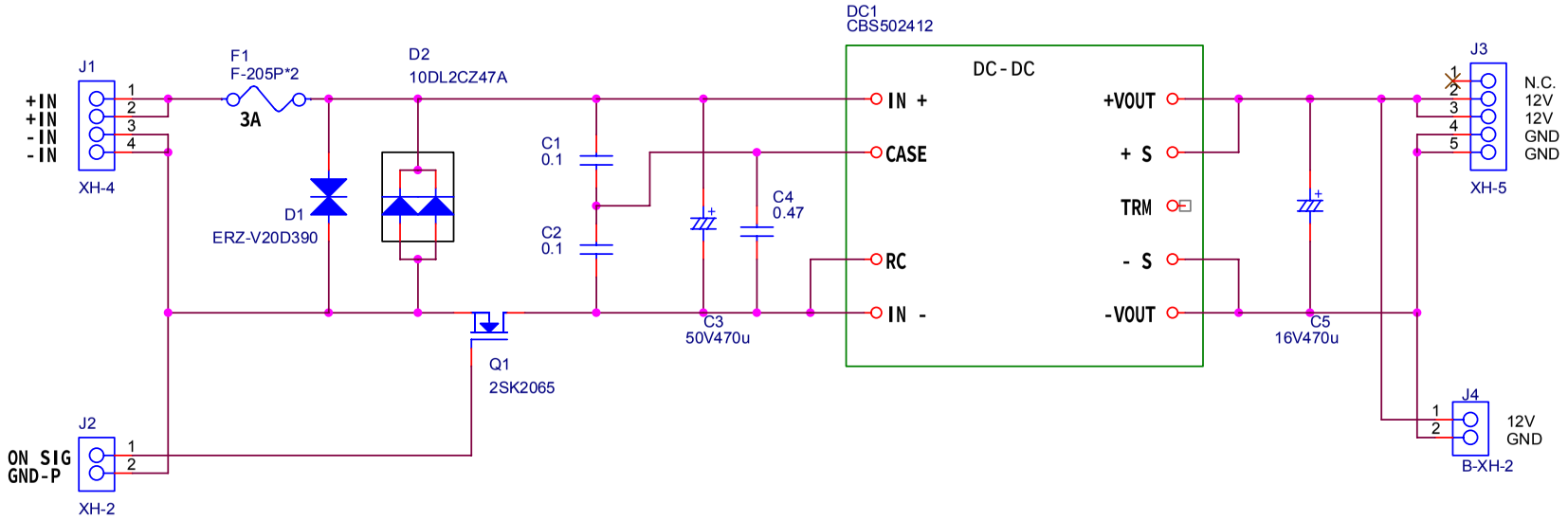
③
CH1：「Q5 gate」－「GND-P」

④
CH2：「Q5 drain」－「GND-P」

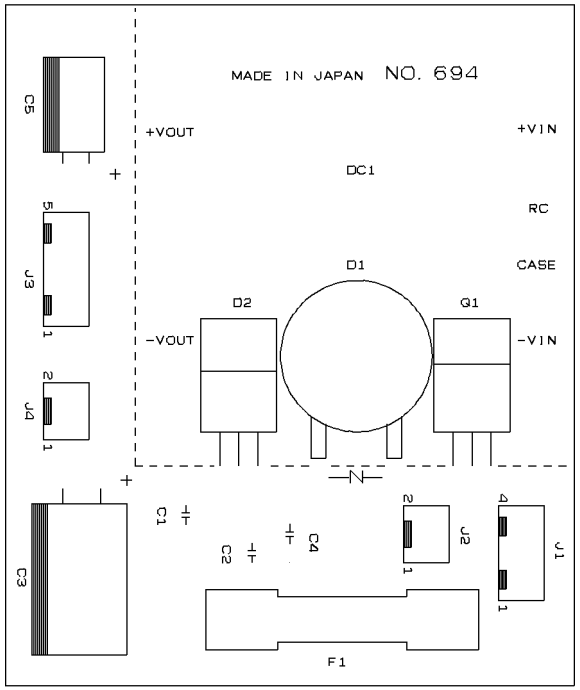
FRQ

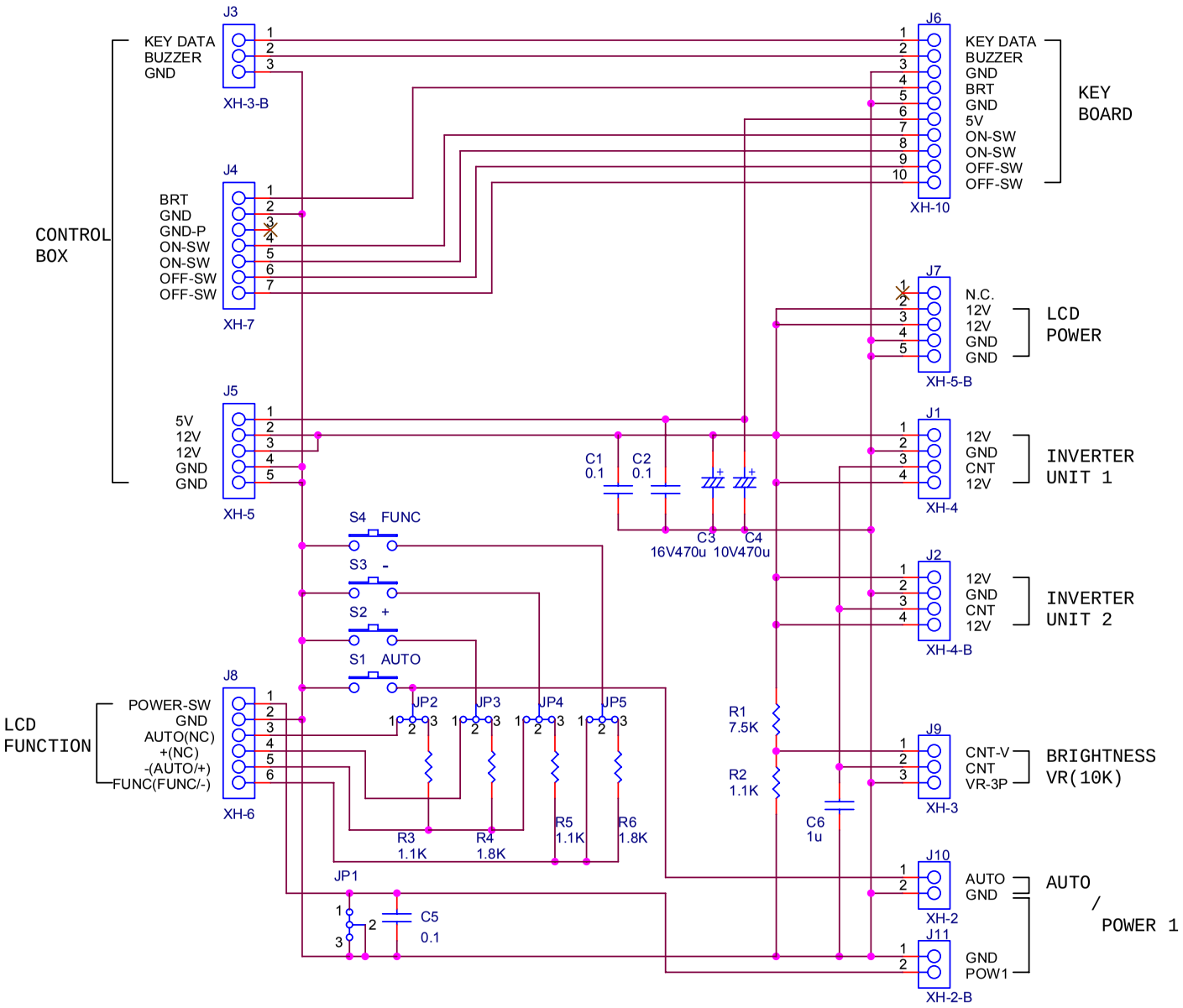


⑤
CH1：「FRQ」－「GND-P」

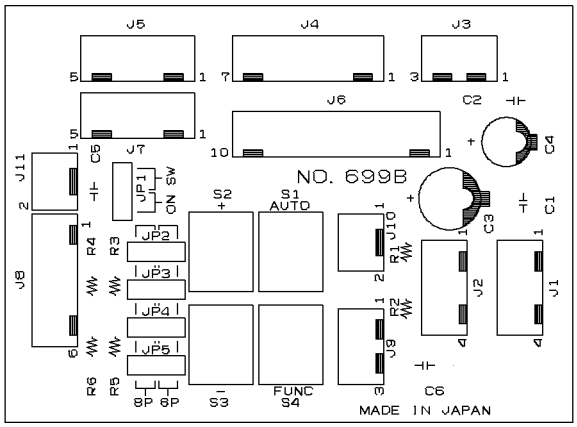


Title	POWER SUPPLY BOARD No.694	
Size A4	Document Number	Rev 0
Date: Wednesday, May 26, 2004	Sheet 1 of 1	


MADE IN JAPAN NO. 694
+VOUT
+VIN
DC1
RC
CASE
D1
D2
G1
-VOUT
-VIN
C5
J3
J4
C1
C2
C3
C4
J2
J1
F1



SUZUKI FISH FINDER CO., LTD.		
Title: CONNECTION BOARD No.699B		
Size: A4	Document Number	Rev: 0
Date: Tuesday, November 23, 2004	Sheet 1 of 1	


J5
J4
J3
J6
J7
J11
J8
J10
J9
J2
J1
C2
C4
C5
C3
C1
C6
NO. 699B
JP1
SW
ON
JP2
JP3
JP4
JP5
R4
R3
R6
R5
R1
R2
8P
6P
S2
S1
AUTO
S3
FUNC
S4
MADE IN JAPAN

ハルユニット

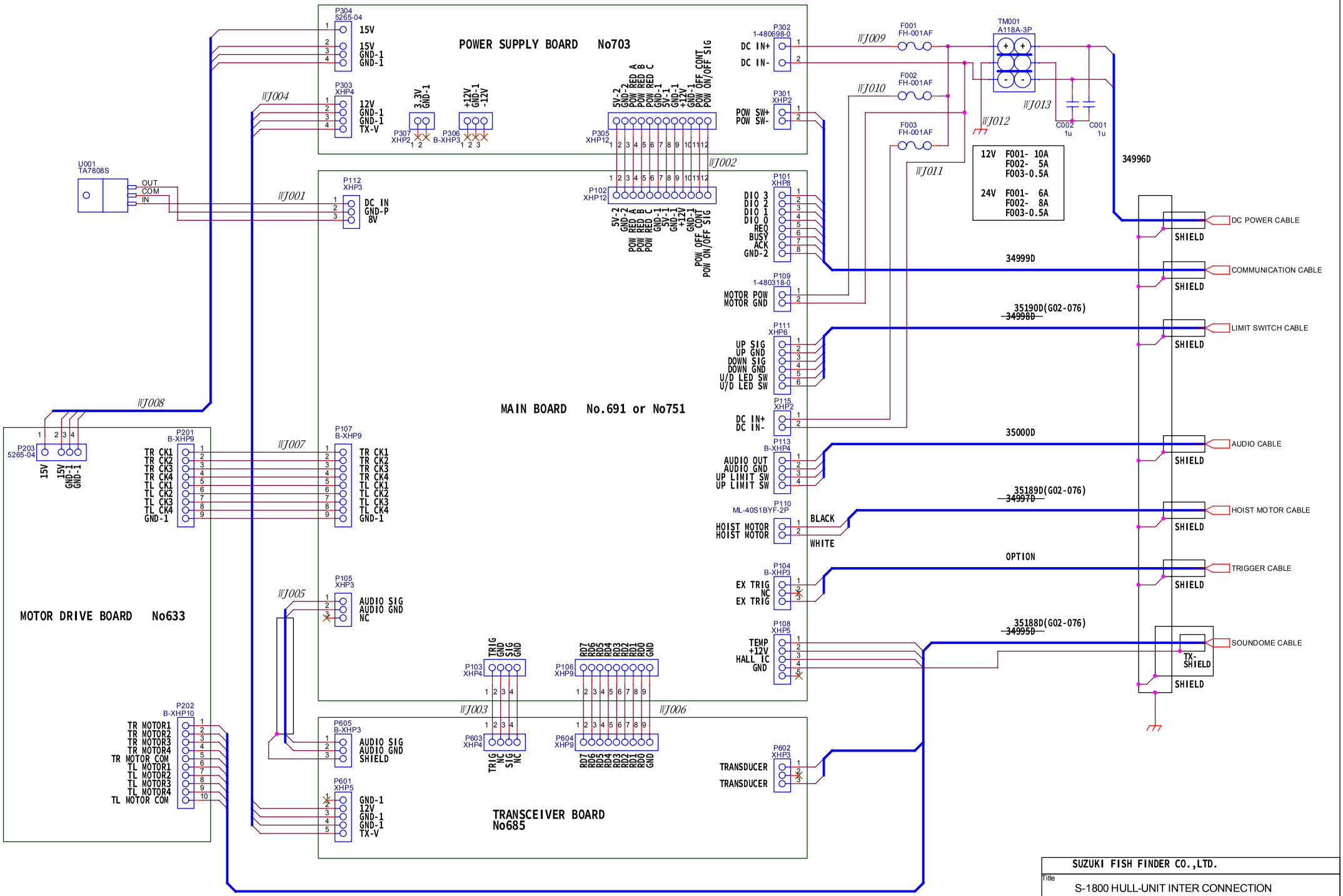
・回路図

・波形図（180kHz）

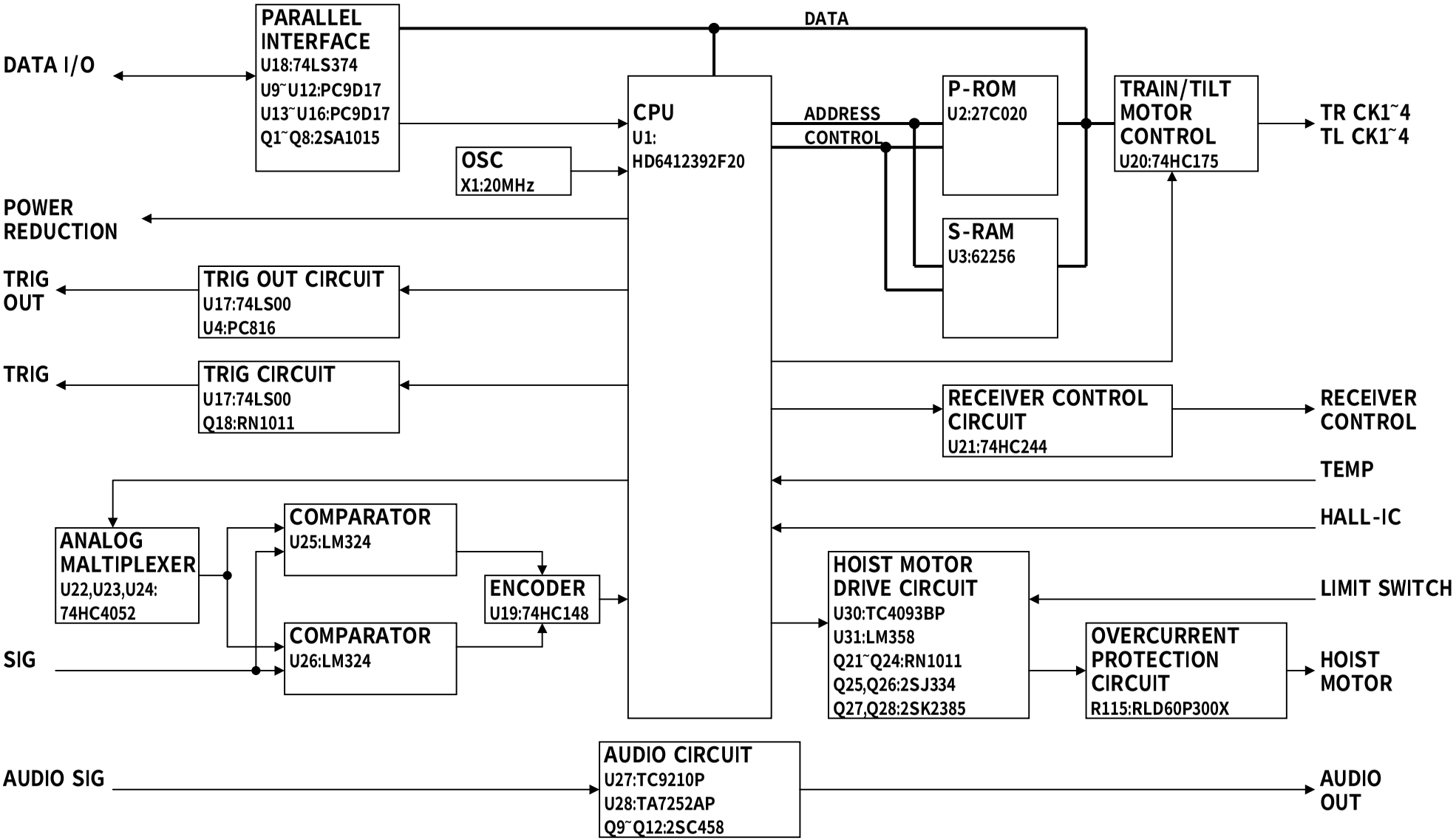
HULL UNIT

CIRCUIT DIAGRAM

WAVE FORMS (180 kHz)

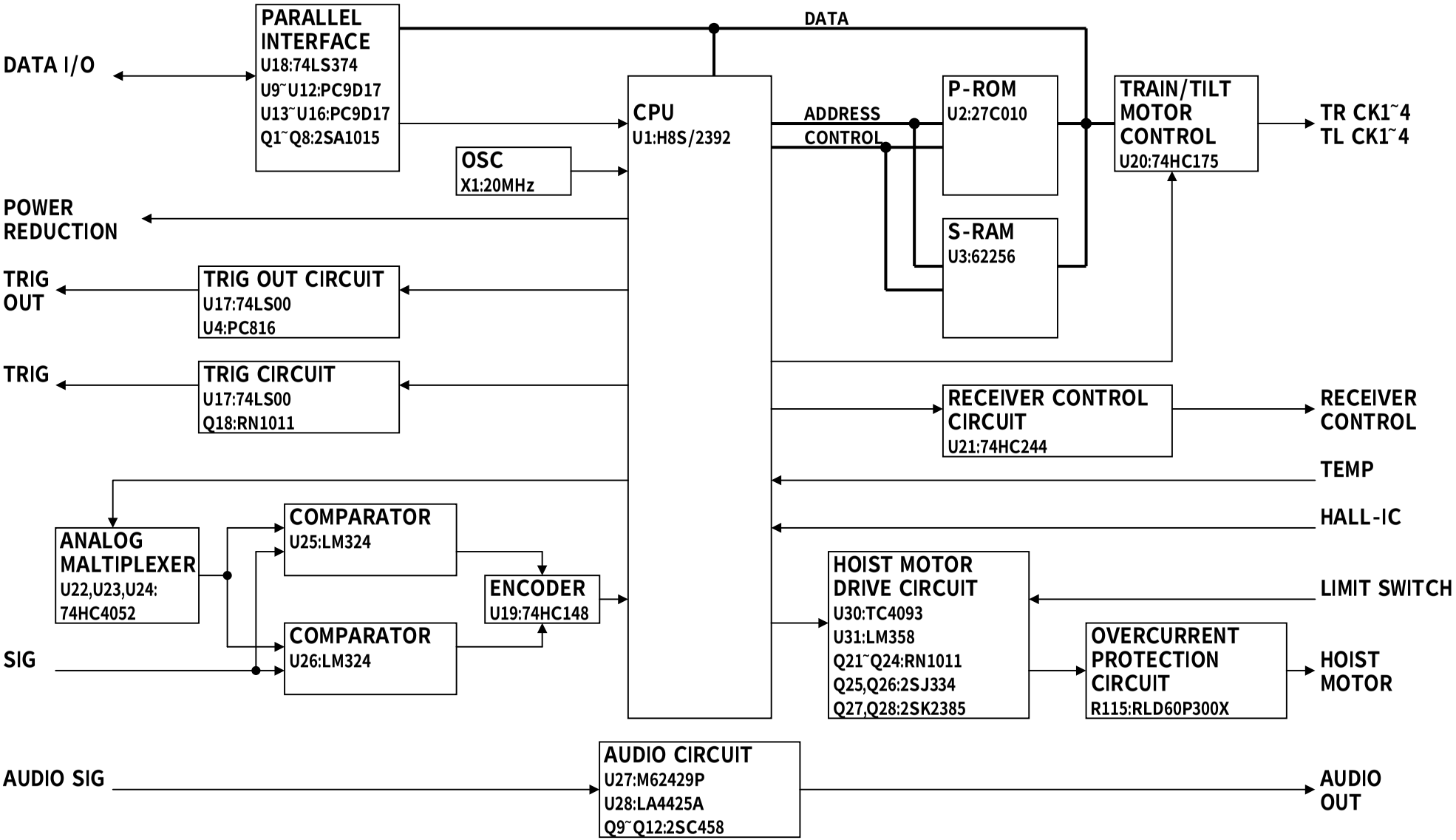


SUZUKI FISH FINDER CO.,LTD.	
Title	S-1800 HULL-UNIT INTER CONNECTION
Size A3	Document Number {Doc} Rev 1
Date: Thursday, April 01, 2010	Sheet 1 of 1



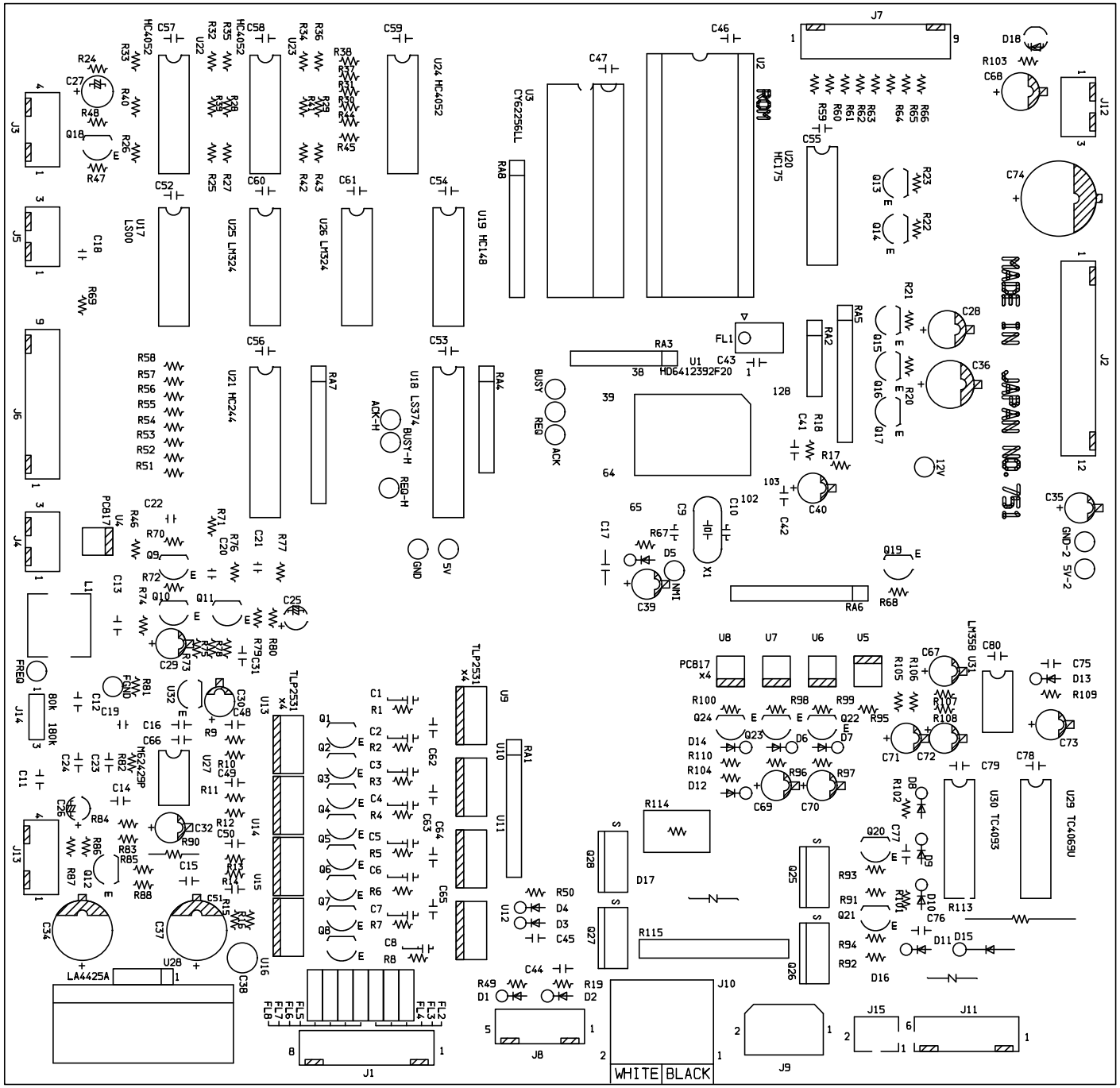
NO.691 MAIN BOARD

BUHIN-S NO.691A



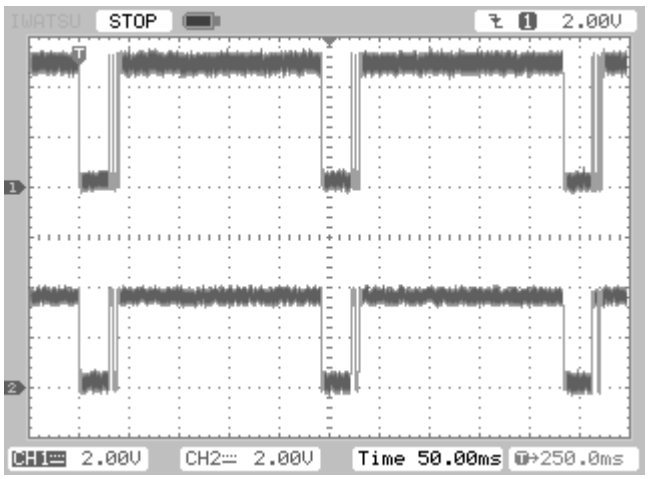
NO.751 MAIN BOARD

BUHIN-S NO. 751



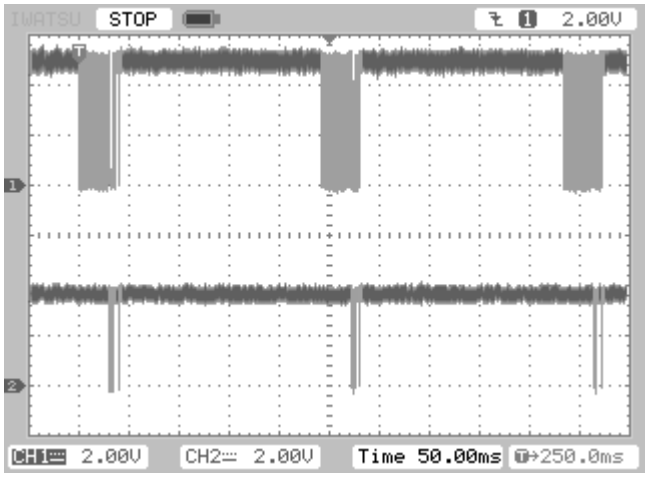
NO.751
設定：レンジ 120m
RANGE: 120m

CH1：「BUSY」 — 「GND」



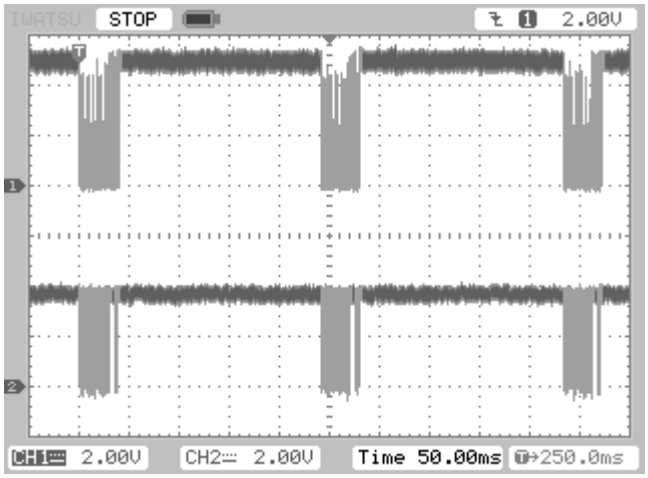
CH2：「BUSY-H」 — 「GND」

CH1：「REQ」 — 「GND」



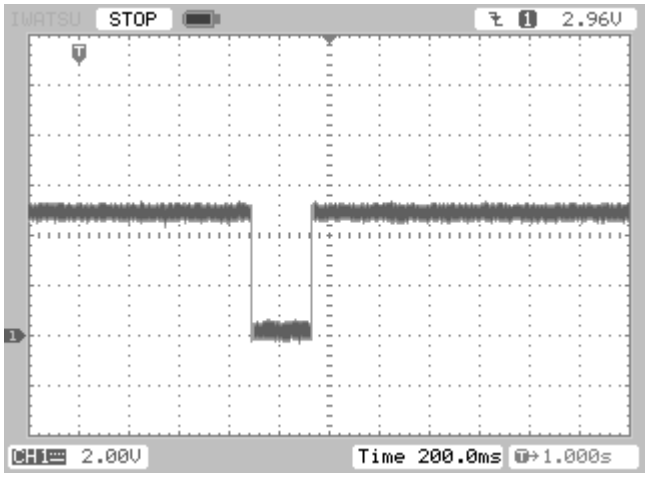
CH2：「REQ-H」 — 「GND」

CH1：「ACK」 — 「GND」

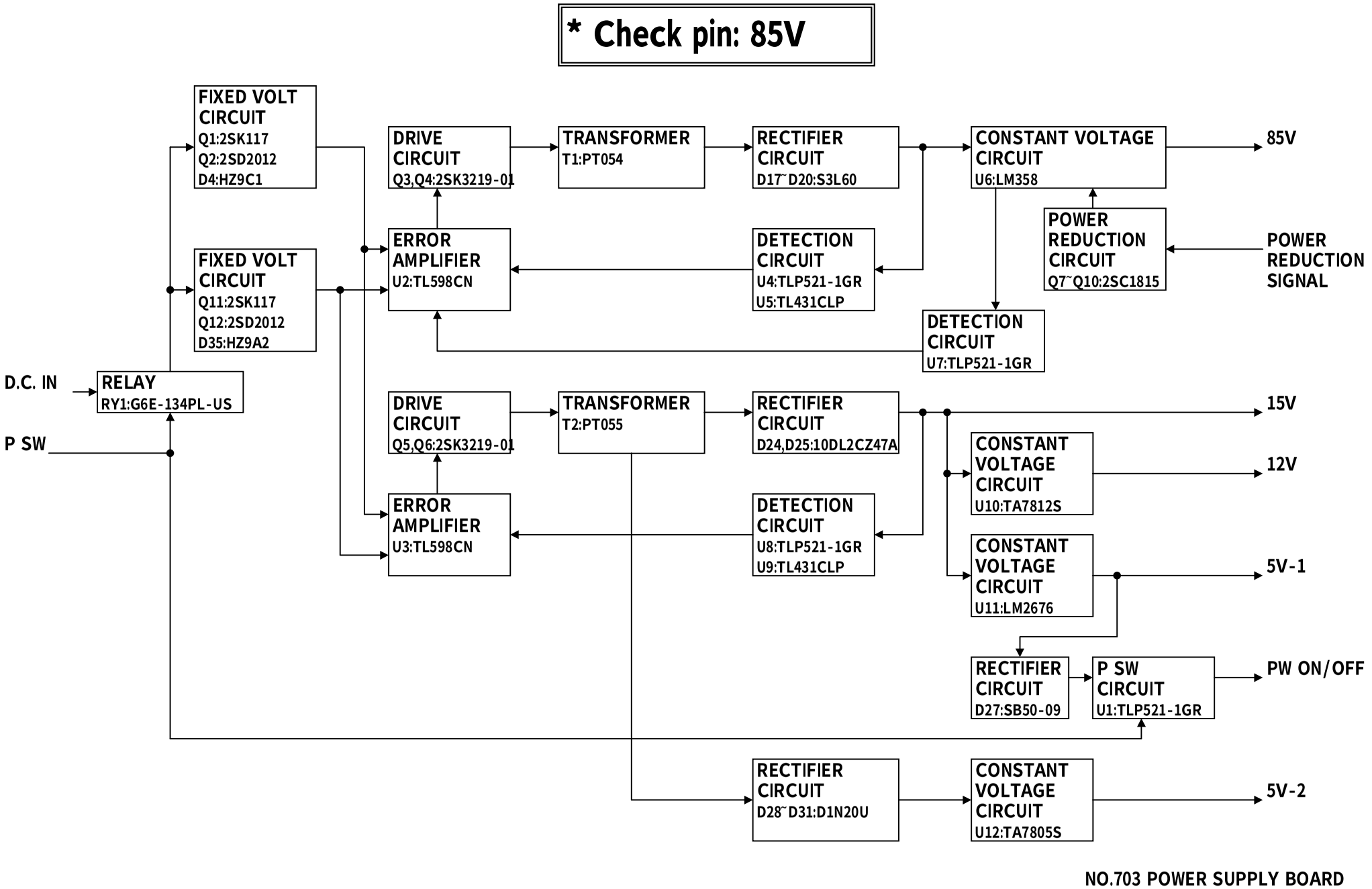


CH2：「ACK-H」 — 「GND」

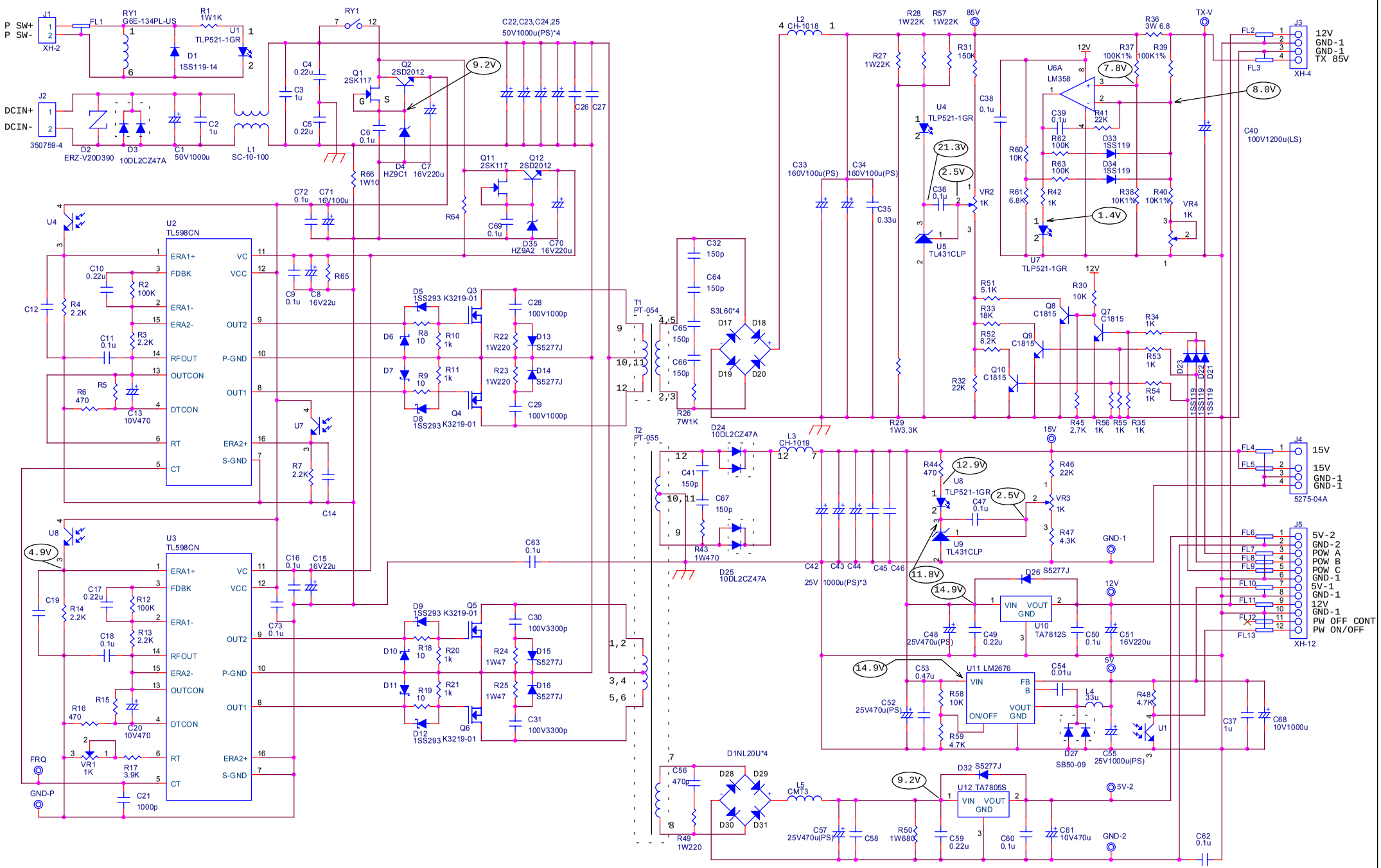
HALL IC



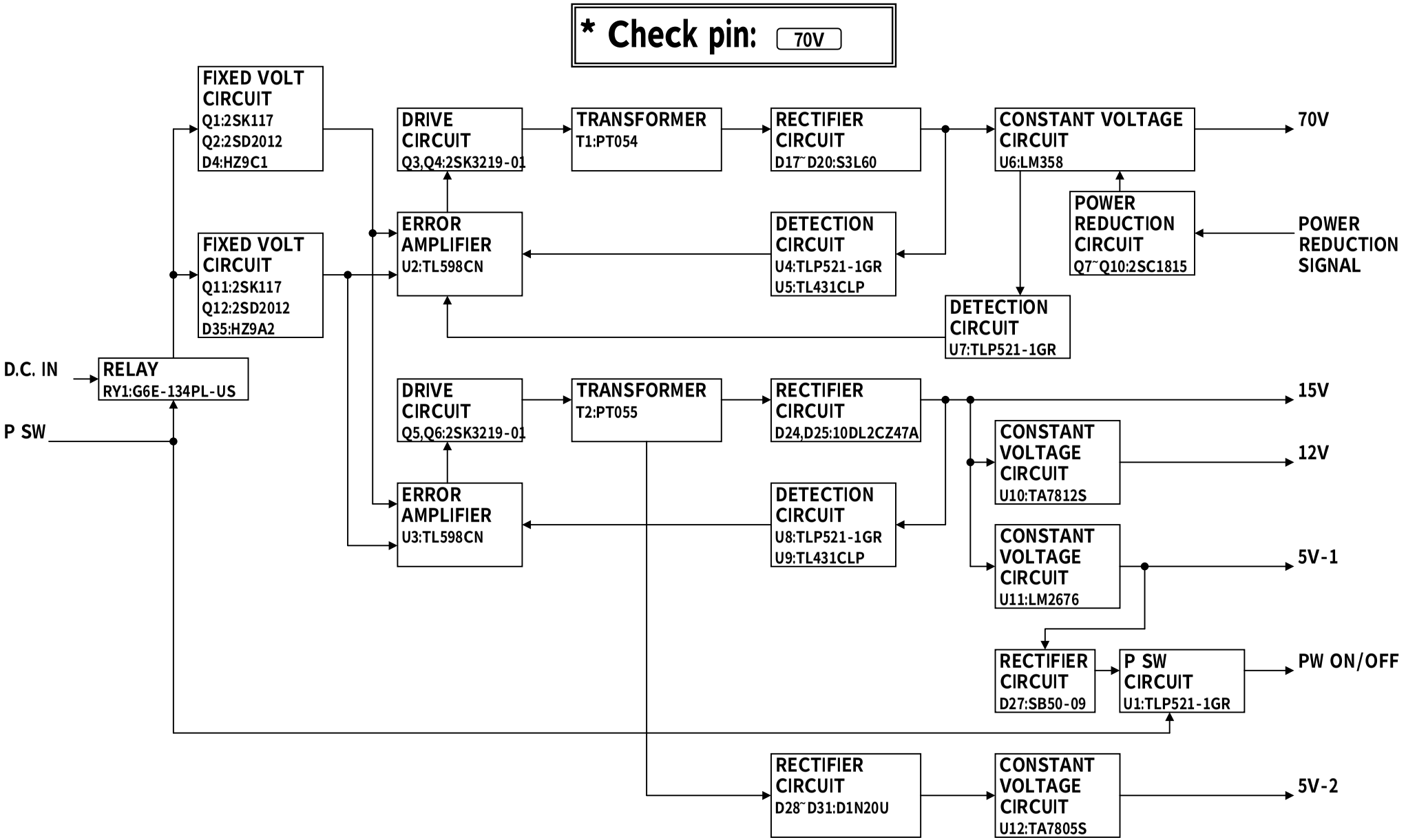
CH1：「J8 3pin」 — 「GND」



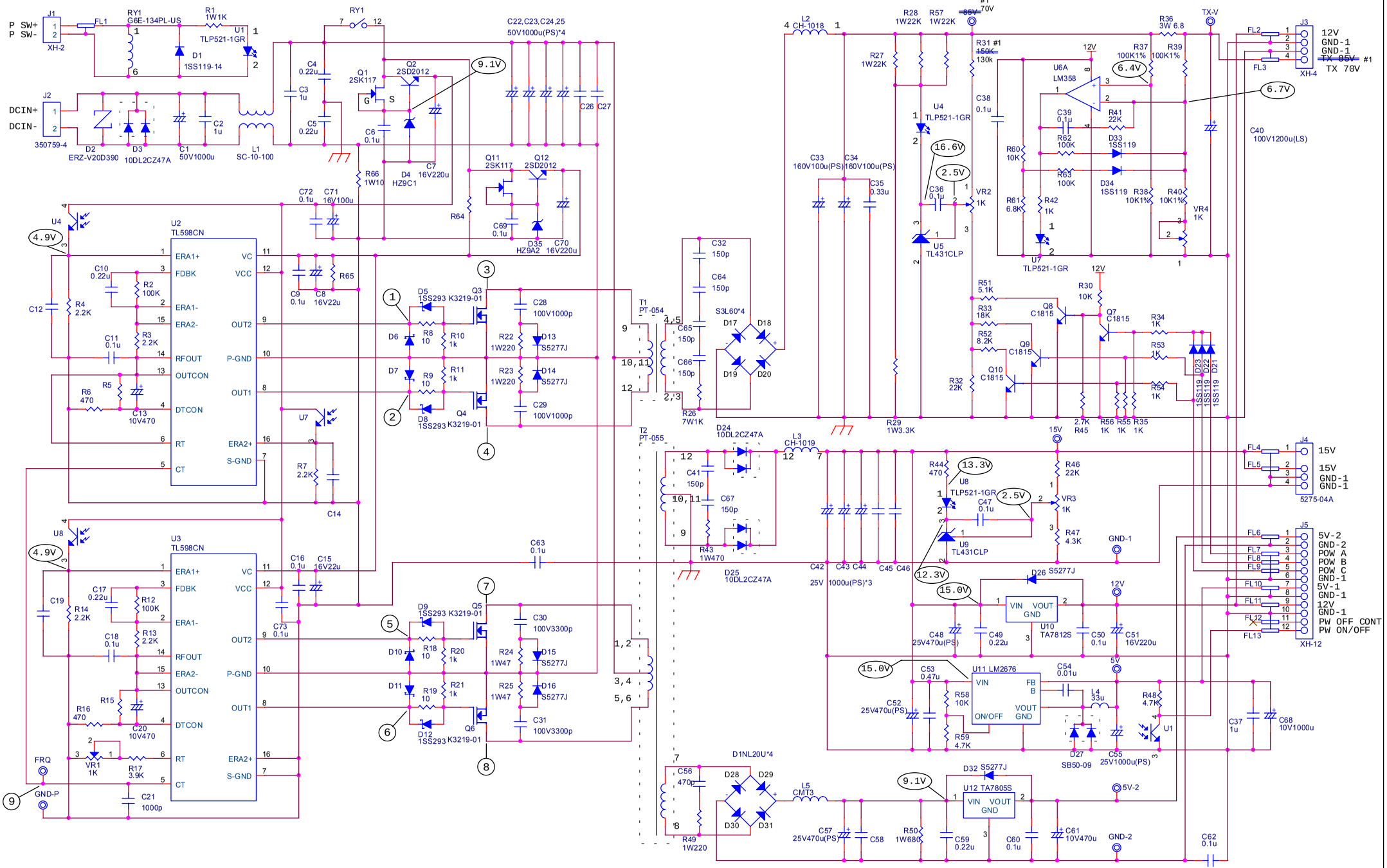
NO.703 POWER SUPPLY BOARD



Title	POWER SUPLLY BOARD NO.703B		
Size A3	Document Number		Rev 2
Date: Wednesday, March 31, 2010		Sheet 1 of 1	



NO.703 POWER SUPPLY BOARD



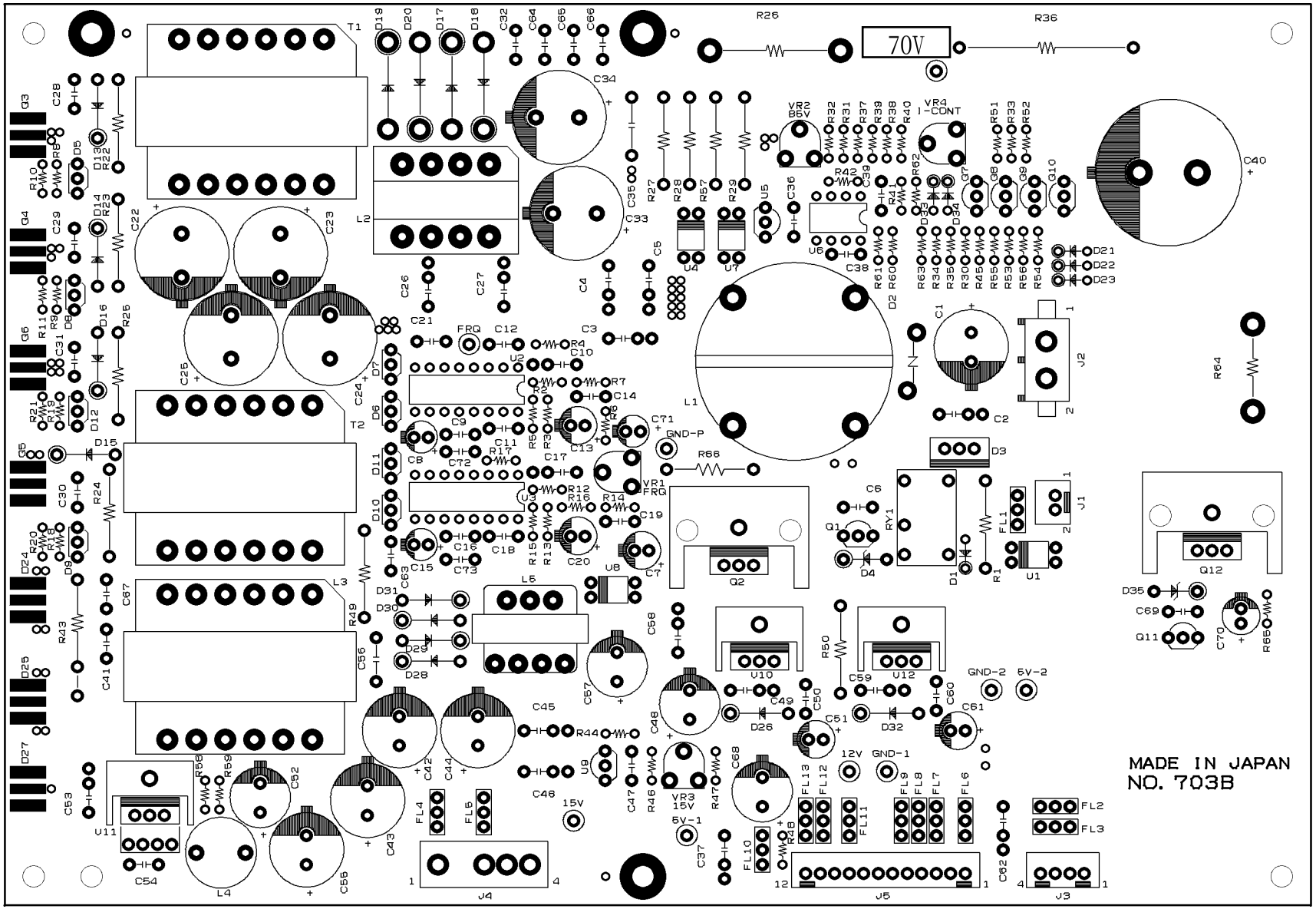
記号	改訂	内容	日付
#1	臨時G09-004	R31 150k→130k	2009/06/16
	G09-062	ADJUST 85V→70V (TX85V→TX70V)	2009/08/25
	G09-036	3-Terminal regulator TA78**S is also NJM78**FA DIODE S5277J is also 1SR139-600	2009/06/17

SUZUKI FISH FINDER CO.,LTD.

Title: S-1800 POWER SUPPLY BOARD NO.703B

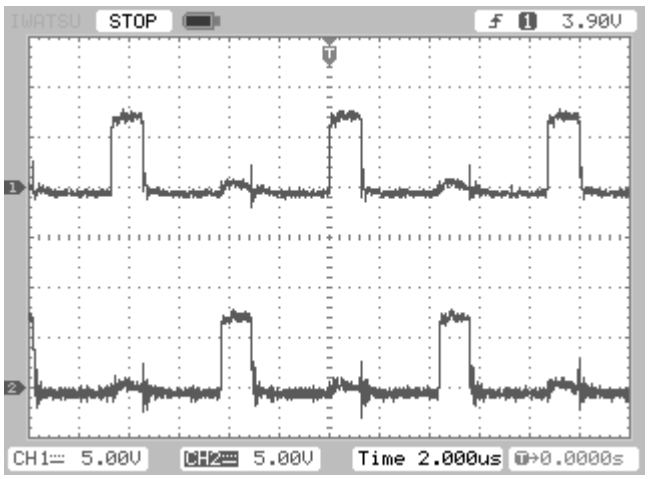
Size: A3 | Document Number: {Doc} | Rev: 3

Date: Wednesday, March 24, 2010 | Sheet 1 of 1


70V
MADE IN JAPAN
NO. 703B

NO.703
電源入力：24.0V
D.C. IN: 24.0V

①
CH1：「U2 9pin OUT2」 ― 「GND-P」

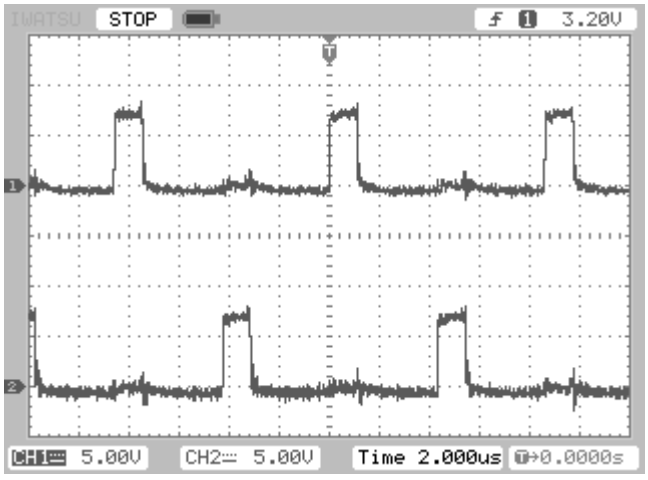


②
CH2：「U2 8pin OUT1」 ― 「GND-P」

③
CH1：「Q3 drain」 ― 「GND-P」

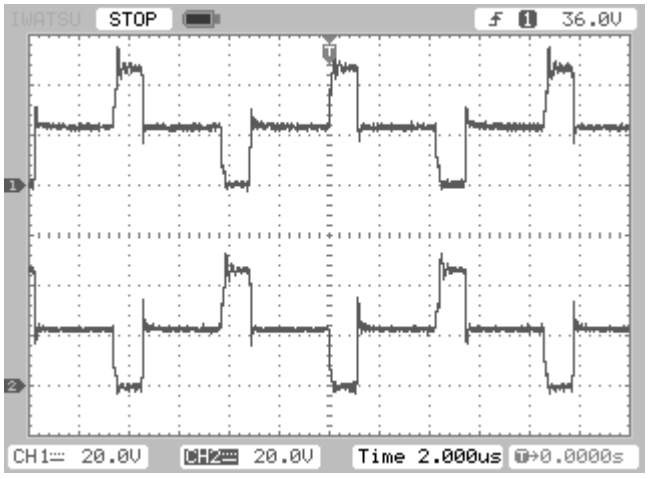
④
CH2：「Q4 drain」 ― 「GND-P」

⑤
CH1：「U3 9pin OUT2」 ― 「GND-P」

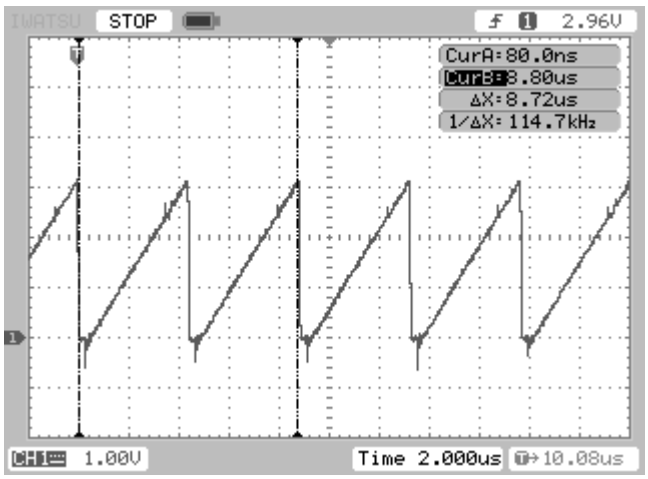


⑥
CH2：「U3 8pin OUT1」 ― 「GND-P」

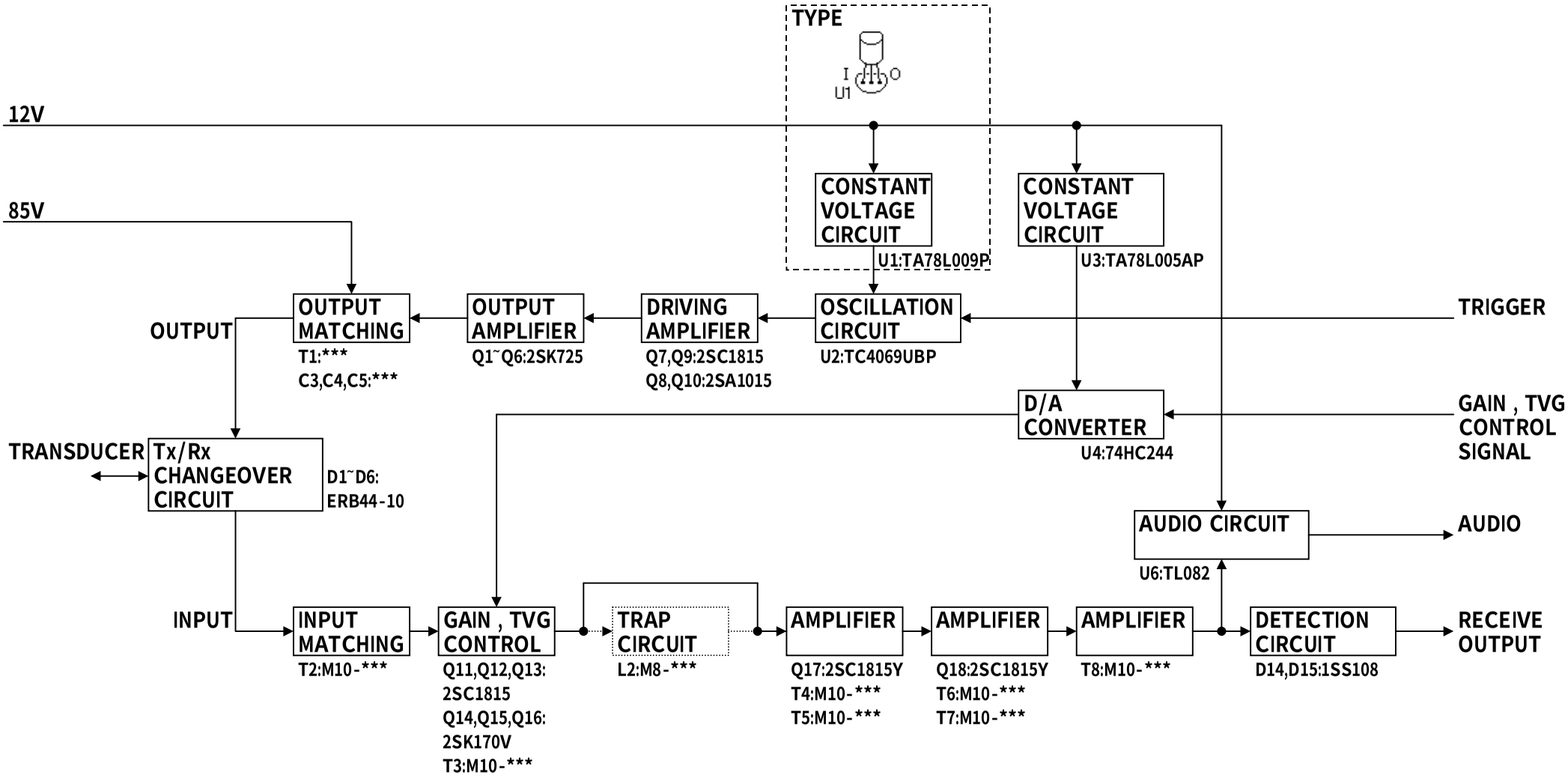
⑦
CH1：「Q5 drain」 ― 「GND-P」



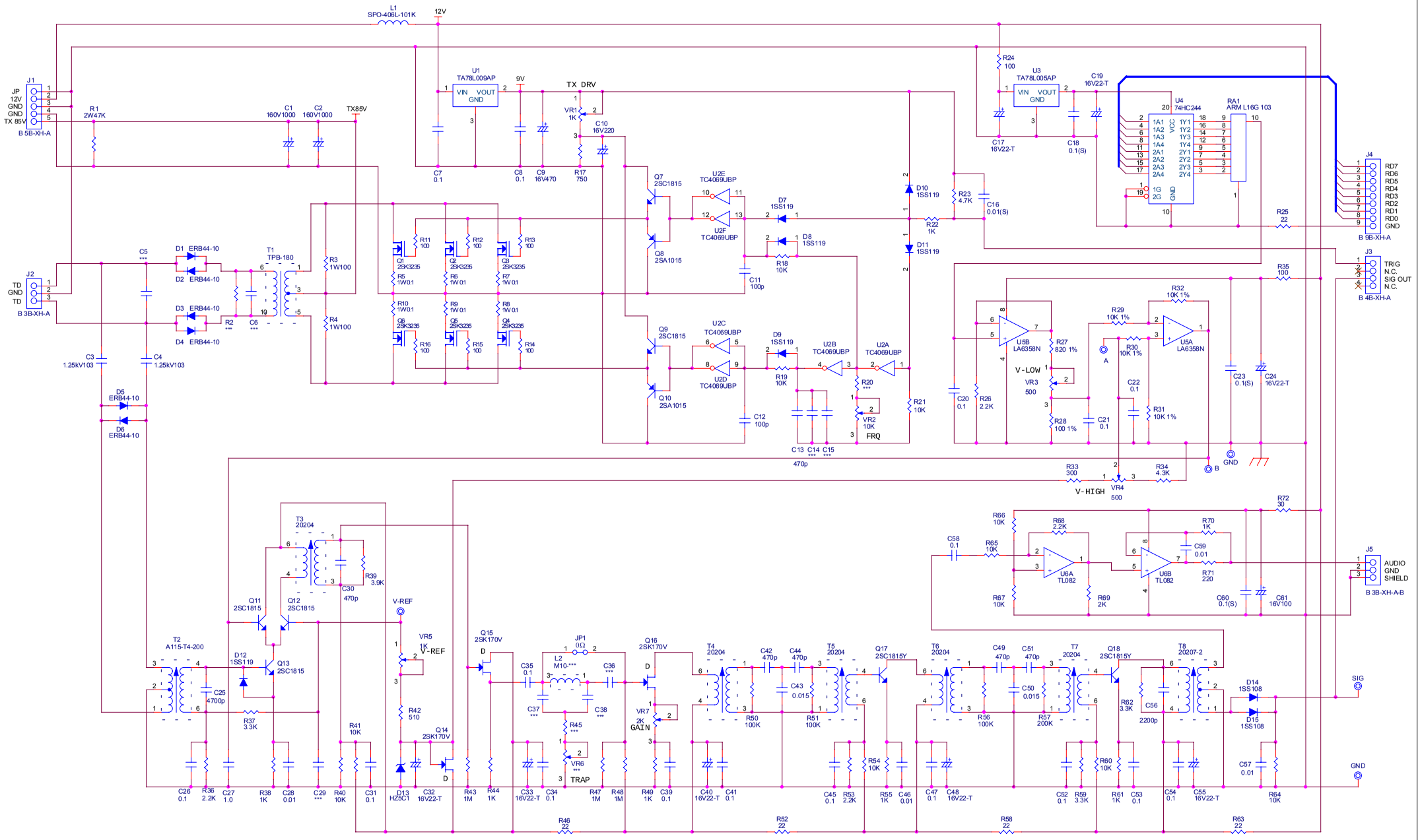
⑧
CH2：「Q6 drain」 ― 「GND-P」



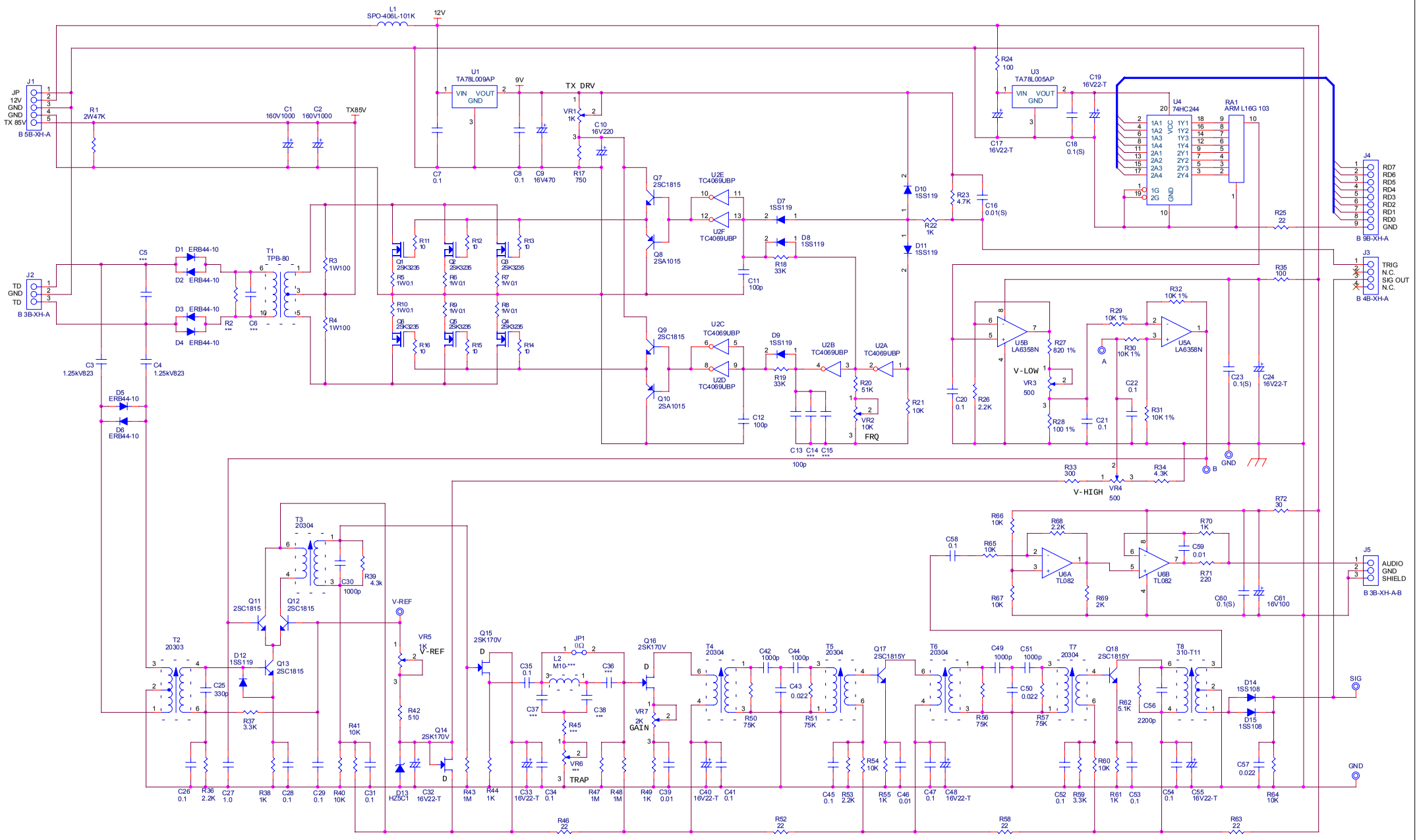
⑨
CH1：「FRQ」 ― 「GND-P」



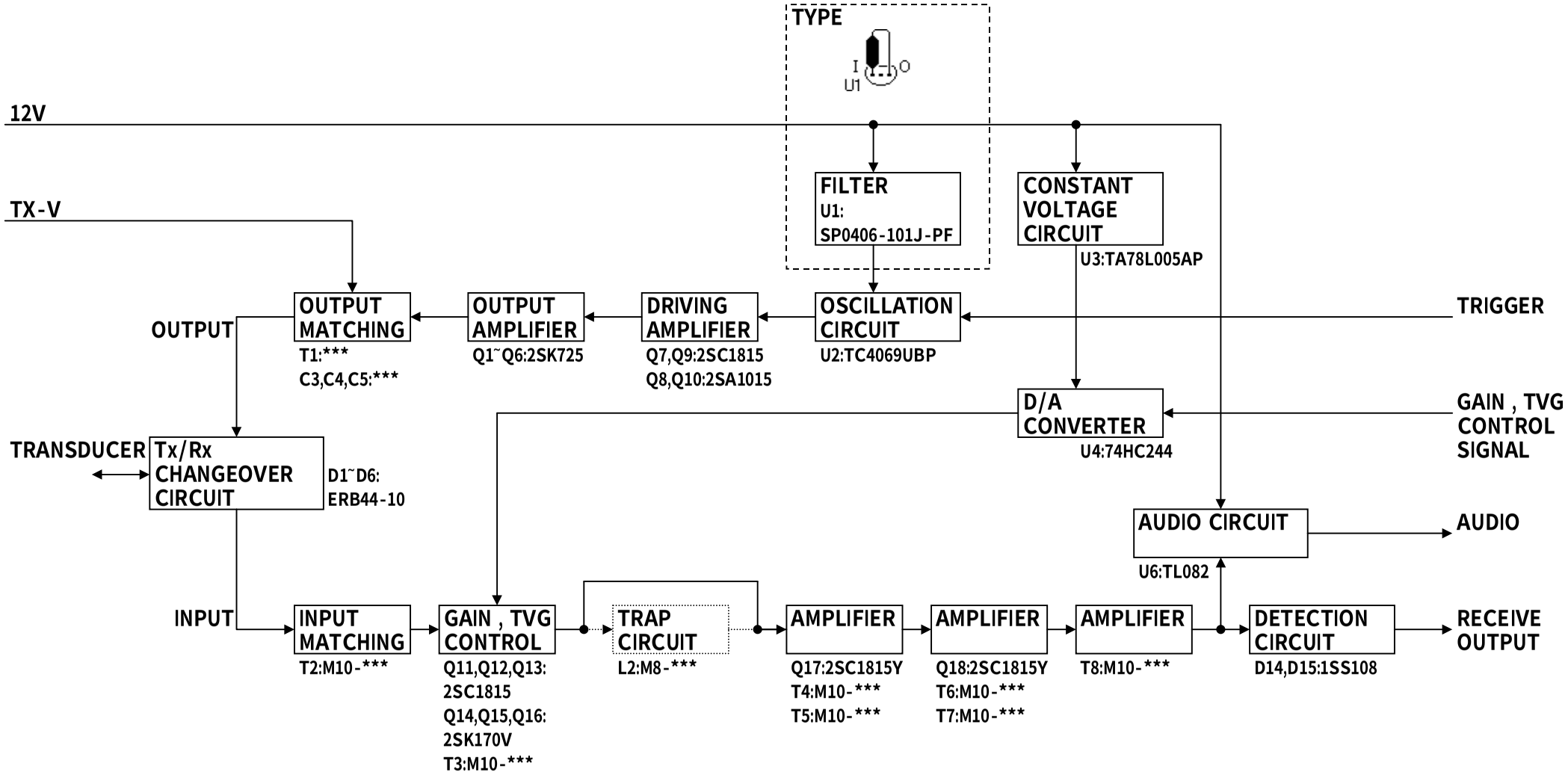
NO.685 TRANSCEIVER BOARD



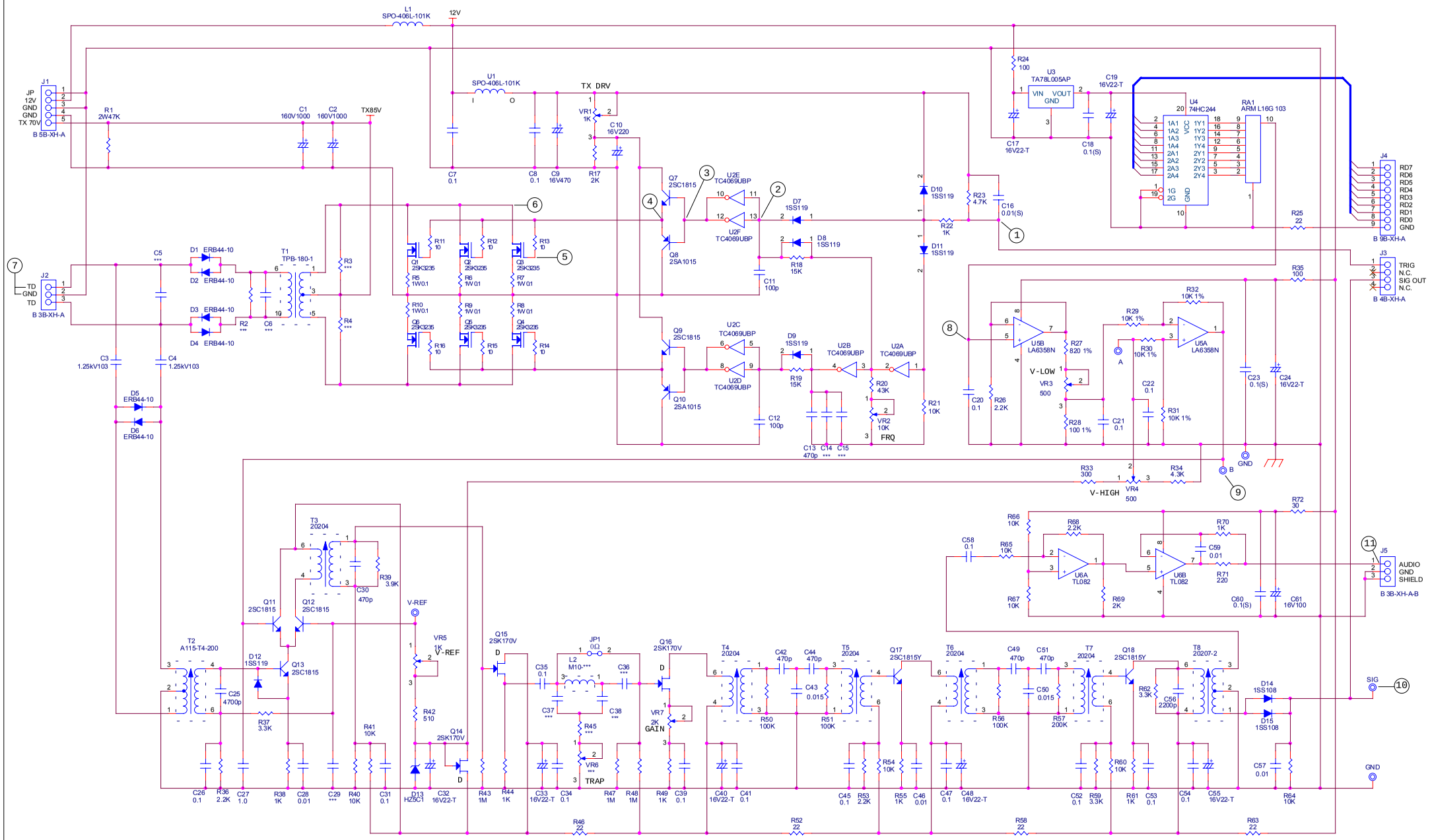
SUZUKI FISH FINDER CO.,LTD		
Title	S-1800 TRANSCEIVER BOARD NO.685 180kHz	1
Size	Document Number	Rev
Date: Wednesday, April 07, 2010	Sheet 1 of 1	



SUZUKI FISH FINDER CO.,LTD		
Title	S-1800 TRANSCEIVER BOARD NO.685 80kHz	1
Size	Document Number	Rev
Date: Wednesday, April 07, 2010	Sheet 1 of 1	



NO.685 TRANSCEIVER BOARD



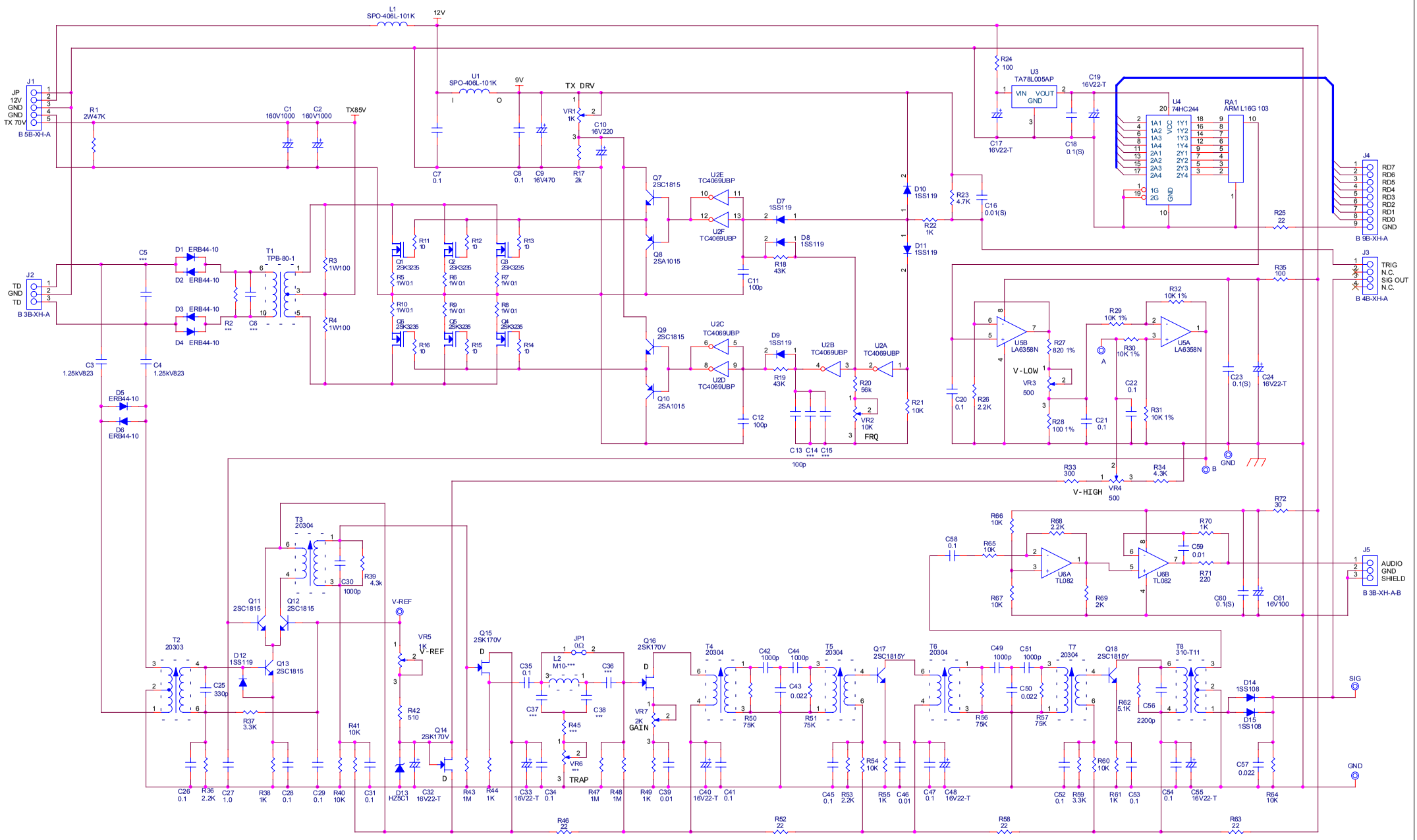
記号	変更内容	改訂番号	日付
	T1／TPB-180→TPB-180-1, U1／TA78L009AP(F)→SPX406-101J-PF, R3・R4／100Ω削除, R11～R16／100Ω→10Ω, R18・R19／10kΩ→15kΩ	G08-016	2008/02/29
	R17／750Ω→2kΩ	G08-021	2008/03/19

SUZUKI FISH FINDER CO.,LTD

Title: S-1800 TRANSCEIVER BOARD NO.685 180kHz (2)

Size | Document Number | Rev 2

Date: Wednesday, April 07, 2010 Sheet 1 of 1



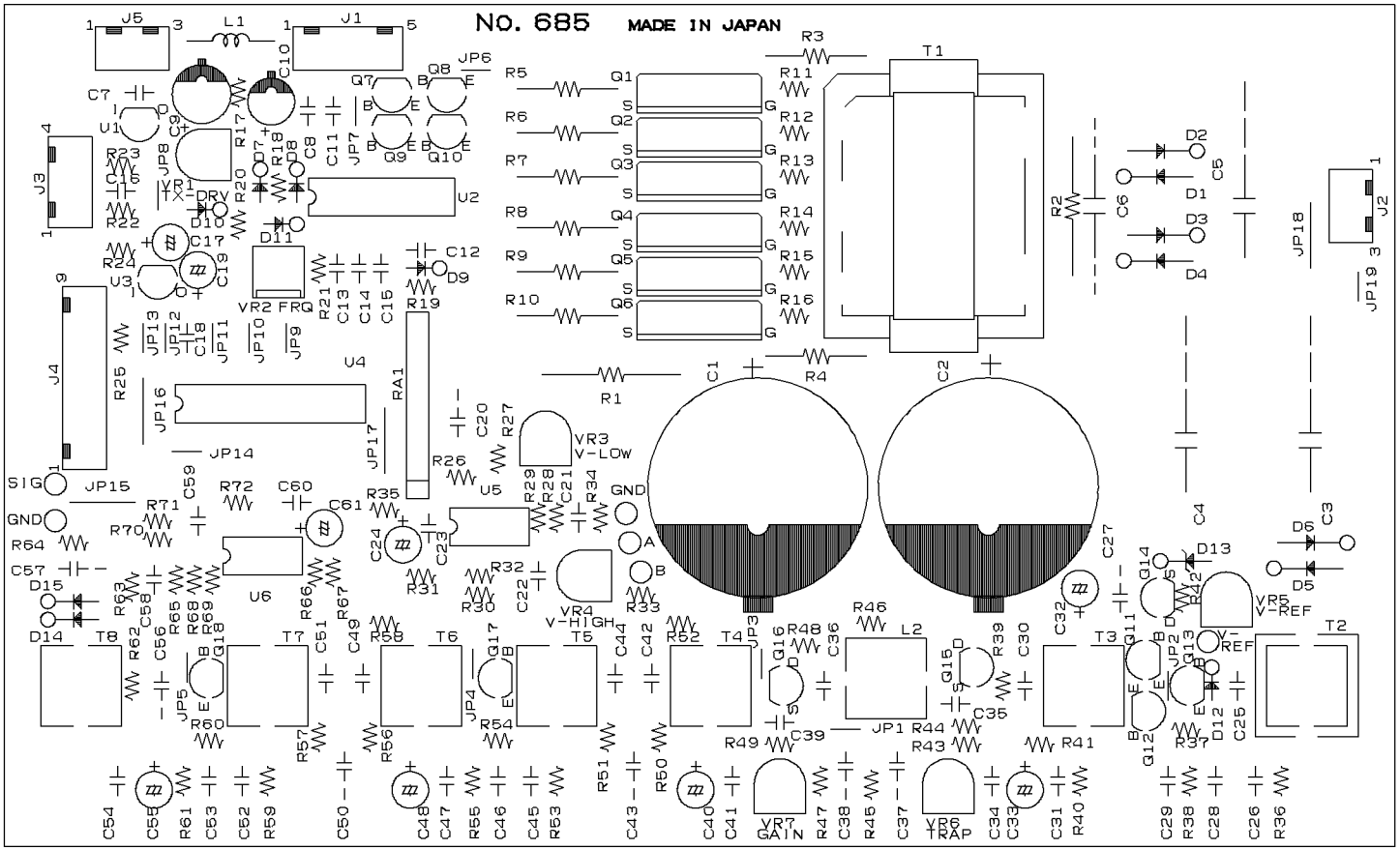
記号	変更内容	改訂番号	日付
	T1／TPB-80→TPB-80-1, U1／TA78L009AP(F)→SPX0406-101J-PF, R17／750Ω→2kΩ, R18・R19／33kΩ→43kΩ, R20／51kΩ→56kΩ	G08-043	2008/05/12

SUZUKI FISH FINDER CO.,LTD

Title: S-1800 TRANSCEIVER BOARD NO.685 80kHz (2)

Size | Document Number | Rev 1

Date: Wednesday, April 07, 2010 Sheet 1 of 1


No. 685
MADE IN JAPAN
SIG
GND
GND
VR1 TX-DRV
VR2 FRQ
VR3 V-LOW
VR4 V-HIGH
VR5 V-REF
VR6 TRAP
VR7 GAIN
T1
T2
T3
T4
T5
T6
T7
T8
L1
L2
U1
U2
U3
U4
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U6
Q1
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Q6
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Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
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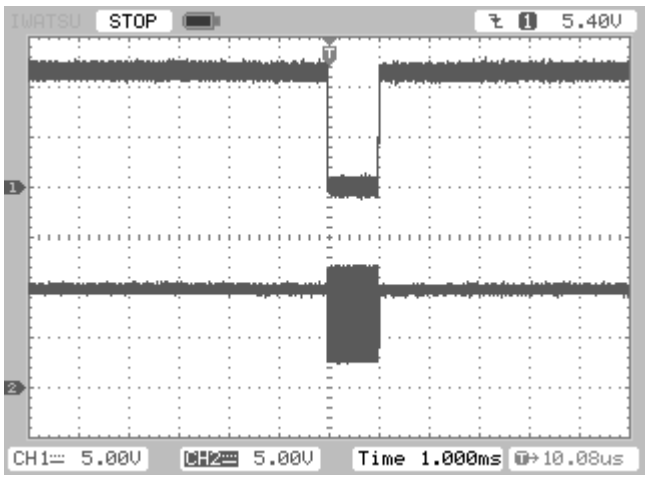
R70
R71
RA1
J1
J2
J3
J4
J5
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
JP9
JP10
JP11
JP12
JP13
JP14
JP15
JP16
JP17
JP18
JP19
A
B
1
3
4
5
9

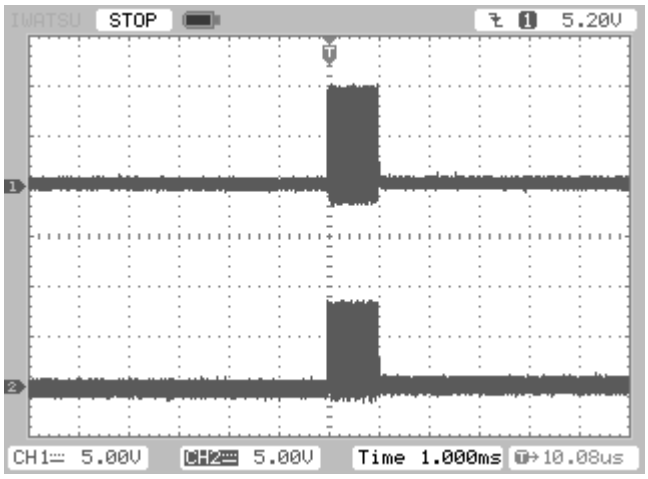
NO.685
設定：レンジ 120m　パルス幅 x1
RANGE: 120m　　PULSE WIDTH: x1

①
CH1：「J3 1pin TRIG」－「GND」



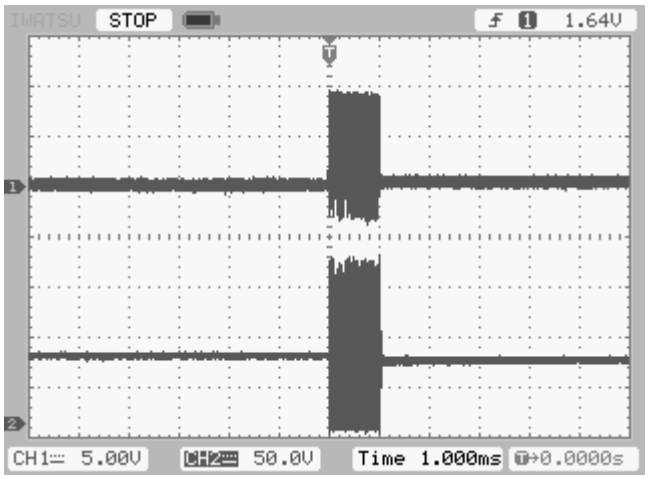
②
CH2：「U2 13pin」－「GND」

③
CH1：「Q7 base」－「GND」



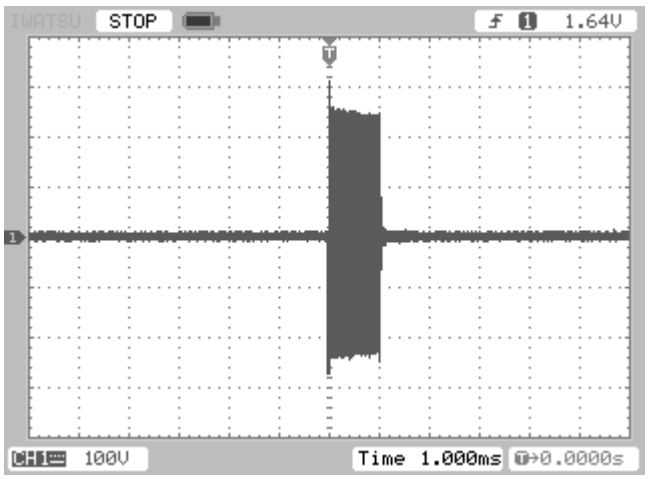
④
CH2：「Q7 emitter」－「GND」

⑤
CH1：「Q3 gate」－「GND」



⑥
CH2：「Q3 drain」－「GND」

⑦
CH1：「J2 TD」－「GND」

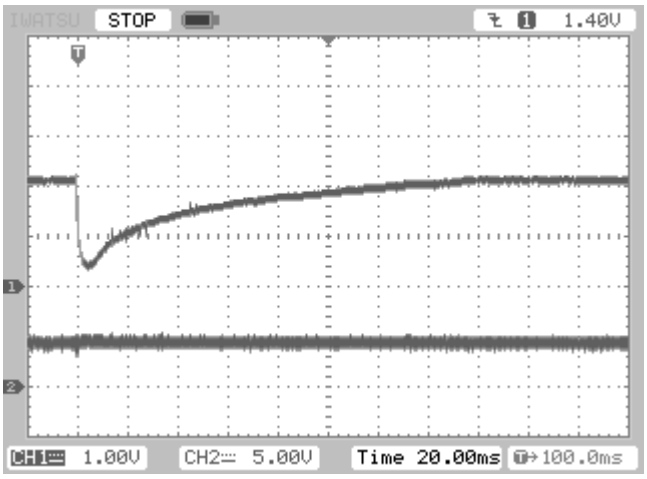


NO.685
設定：レンジ 120m　感度補正 OFF　TVG カーブ 30LOG　パルス幅 x1
RANGE: 120m　　GAIN UP: OFF　TVG CURVE: 30LOG　PULSE WIDTH: x1

ツマミ：感度 0　　GAIN DIAL: 0
　　遠感度 0　FAR GAIN DIAL: 0

⑧
CH1：「U5 5pin」－「GND」

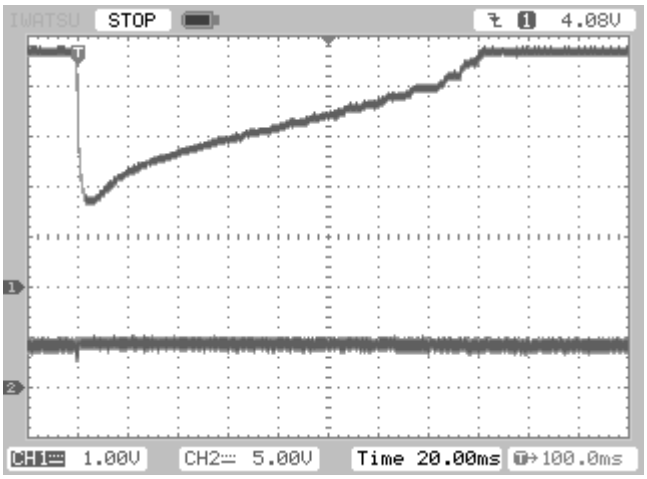
⑨
CH2：「B」－「GND」



ツマミ：感度 10　GAIN DIAL: 0
　　遠感度 10　FAR GAIN DIAL: 0

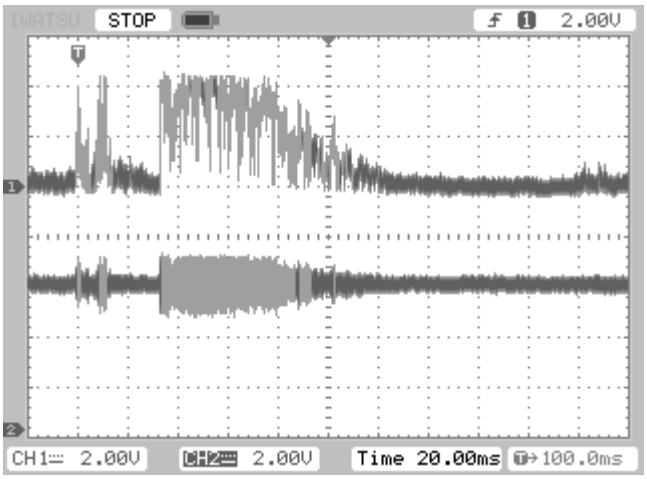
⑧
CH1：「U5 5pin」－「GND」

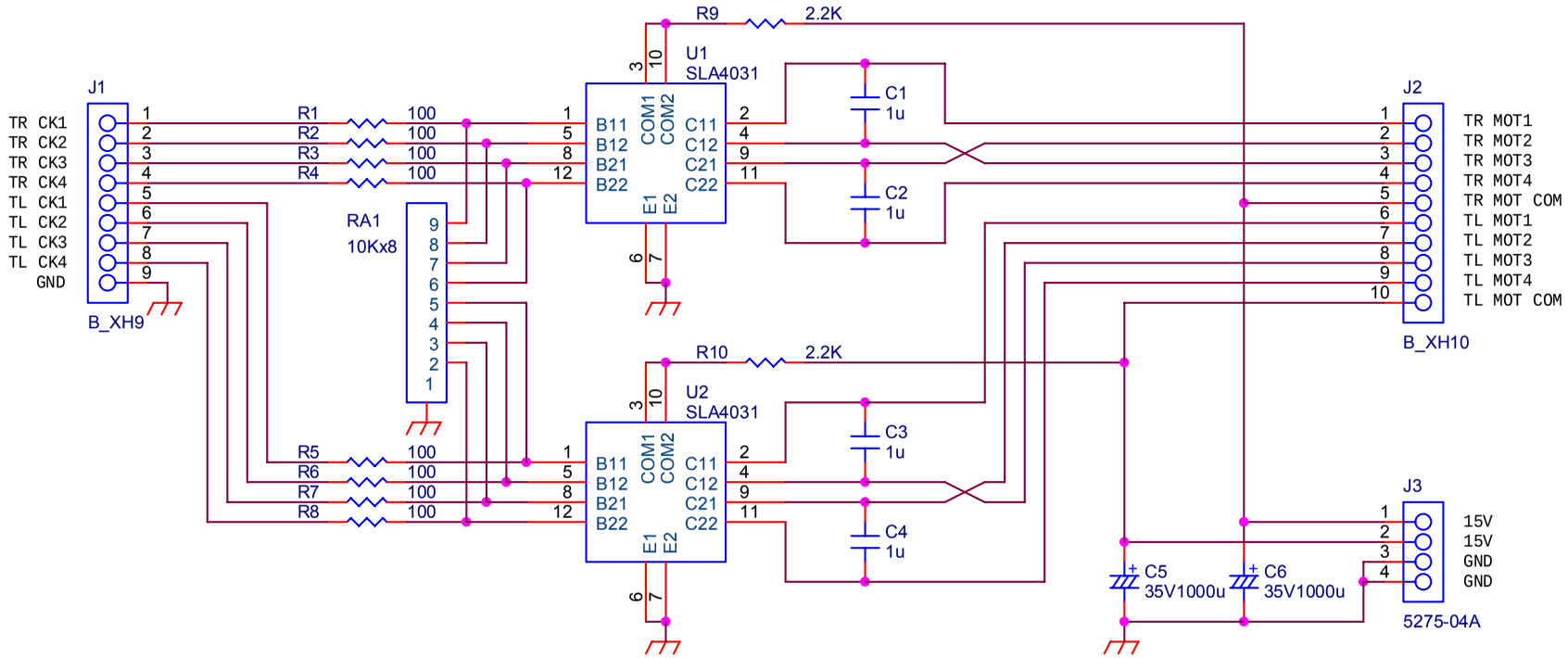
⑨
CH2：「B」－「GND」



⑩
CH1：「SIG」－「GND」

⑪
CH2：「J5 1pin AUDIO」－「GND」





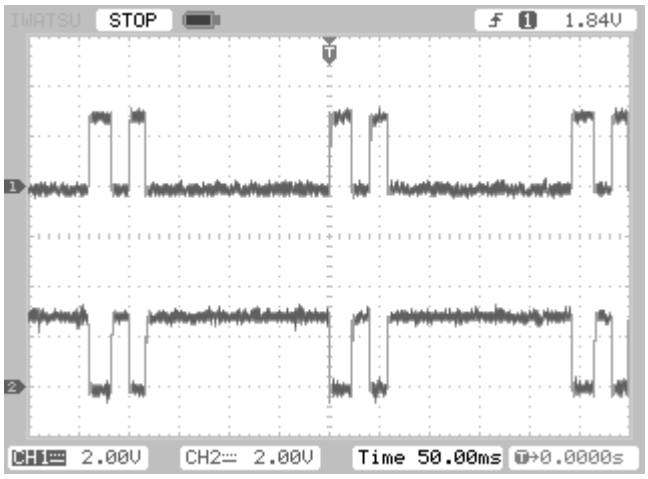
Title: MOTOR DRIVE BOARD		
Size: A	Document Number: NO.633	Rev: 0
Date: Monday, January 22, 2001	Sheet 1 of 1	

NO.633
設定：ソナーモード
MODE DIAL: 360°ROTATION DISPLAY

J1コネクター側

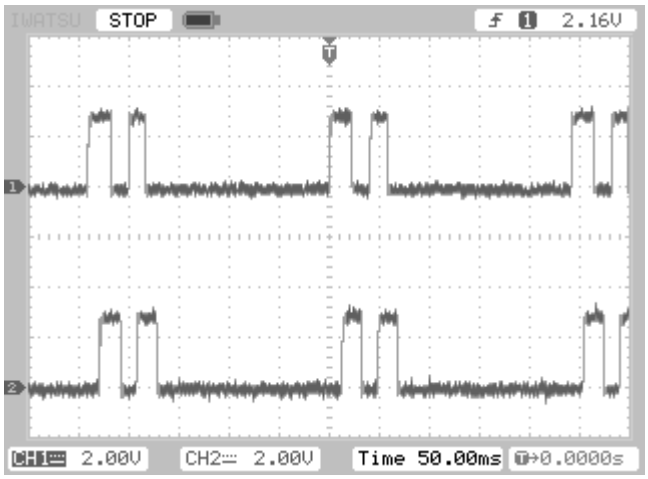
CH1：「J1 1pin TRCK1」－「GND」

CH2：「J1 2pin TRCK2」－「GND」



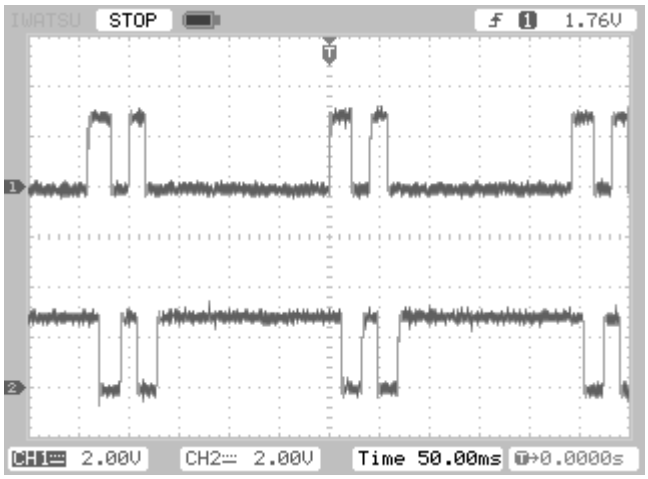
CH1：「J1 1pin TRCK1」－「GND」

CH2：「J1 3pin TRCK3」－「GND」



CH1：「J1 1pin TRCK1」－「GND

CH2：「J1 4pin TRCK4」－「GND」

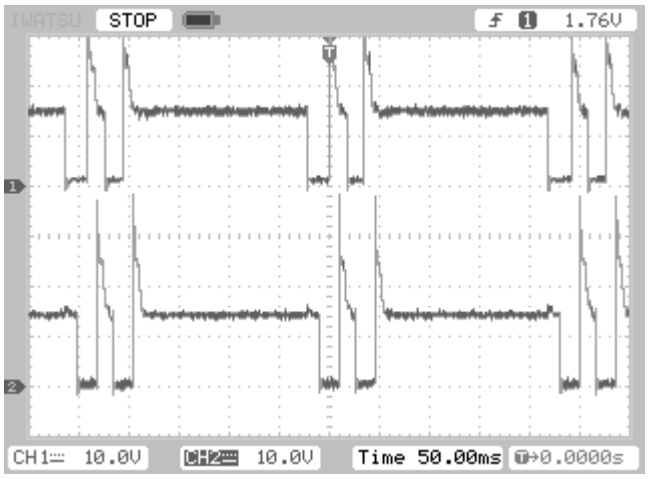


NO.633
設定：ソナーモード
MODE DIAL: 360°ROTATION DISPLAY

J2 コネクター側

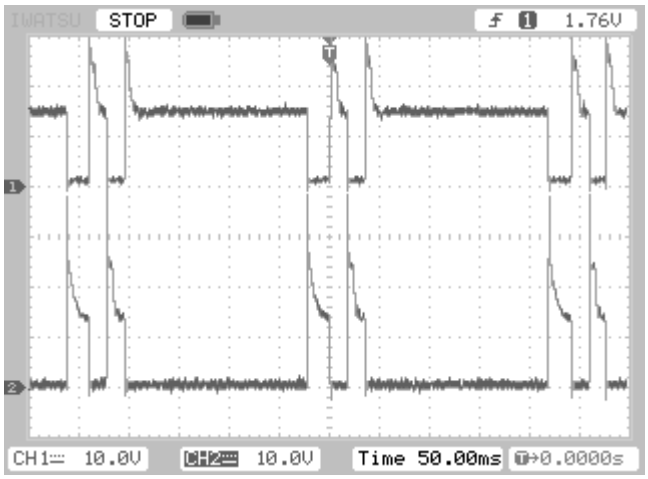
CH1：「J2 1pin TRMOT1」－「GND」

CH2：「J2 2pin TRMOT2」－「GND」



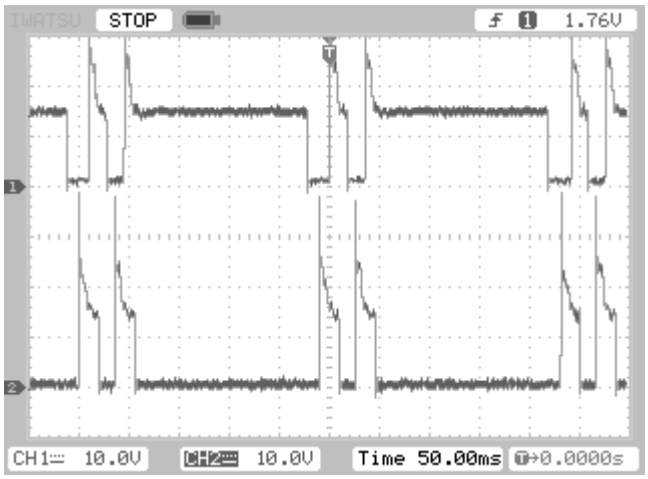
CH1：「J2 1pin TRMOT1」－「GND」

CH2：「J2 3pin TRMOT3」－「GND」



CH1：「J2 1pin TRMOT1」－「GND」

CH2：「J2 4pin TRMOT4」－「GND」

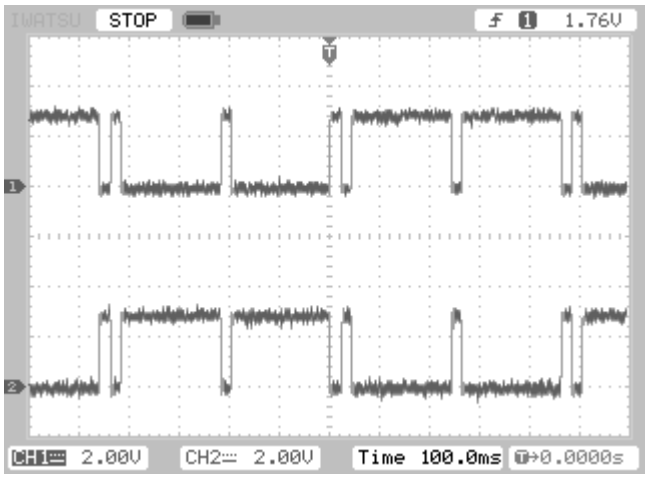


NO.633
設定：サイドスキャンモード
MODE DIAL: BOTTOM-SCAN DISPLAY

J1 コネクター側

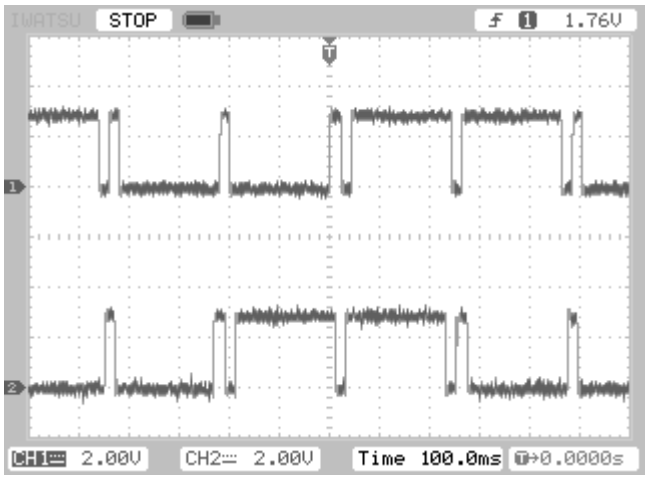
CH1：「J2 5pin TLCK1」－「GND」

CH2：「J1 6pin TLCK2」－「GND」



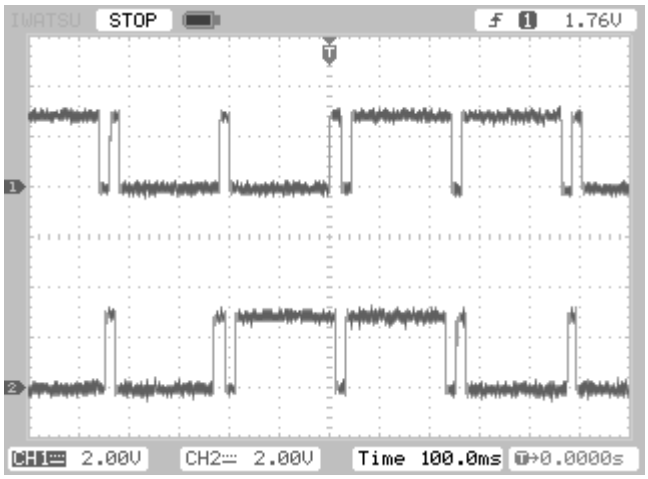
CH1：「J1 5pin TLCK1」－「GND」

CH2：「J1 7pin TLCK3」－「GND」



CH1：「J1 5pin TLCK1」－「GND」

CH2：「J1 8pin TLCK4」－「GND」

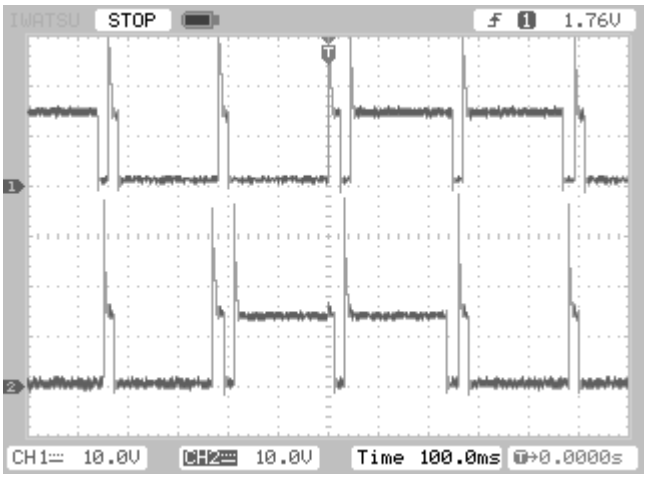


NO.633
設定：サイドスキャンモード
MODE DIAL: BOTTOM-SCAN DISPLAY

J2 コネクター側

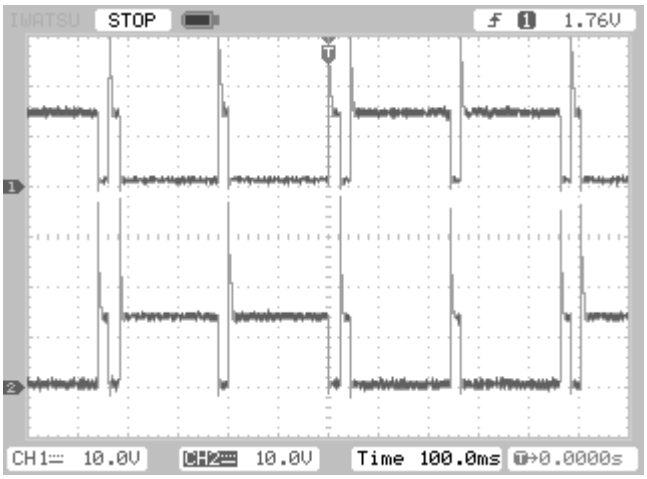
CH1：「J2 6pin TLMOT1」 ― 「GND」

CH2：「J2 7pin TLMOT2」 ― 「GND」



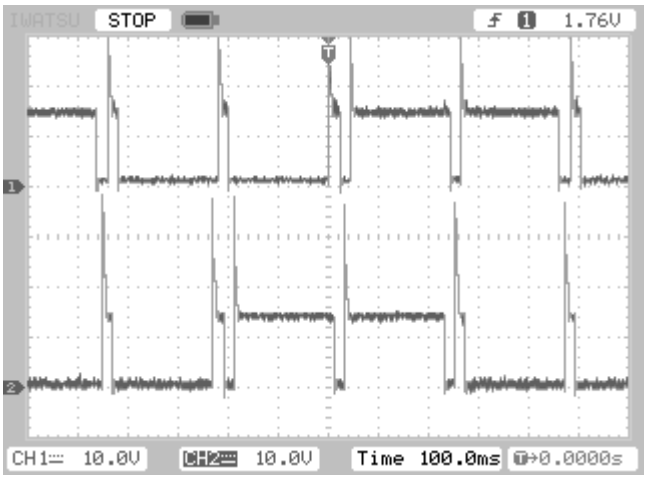
CH1：「J2 6pin TLMOT1」 ― 「GND」

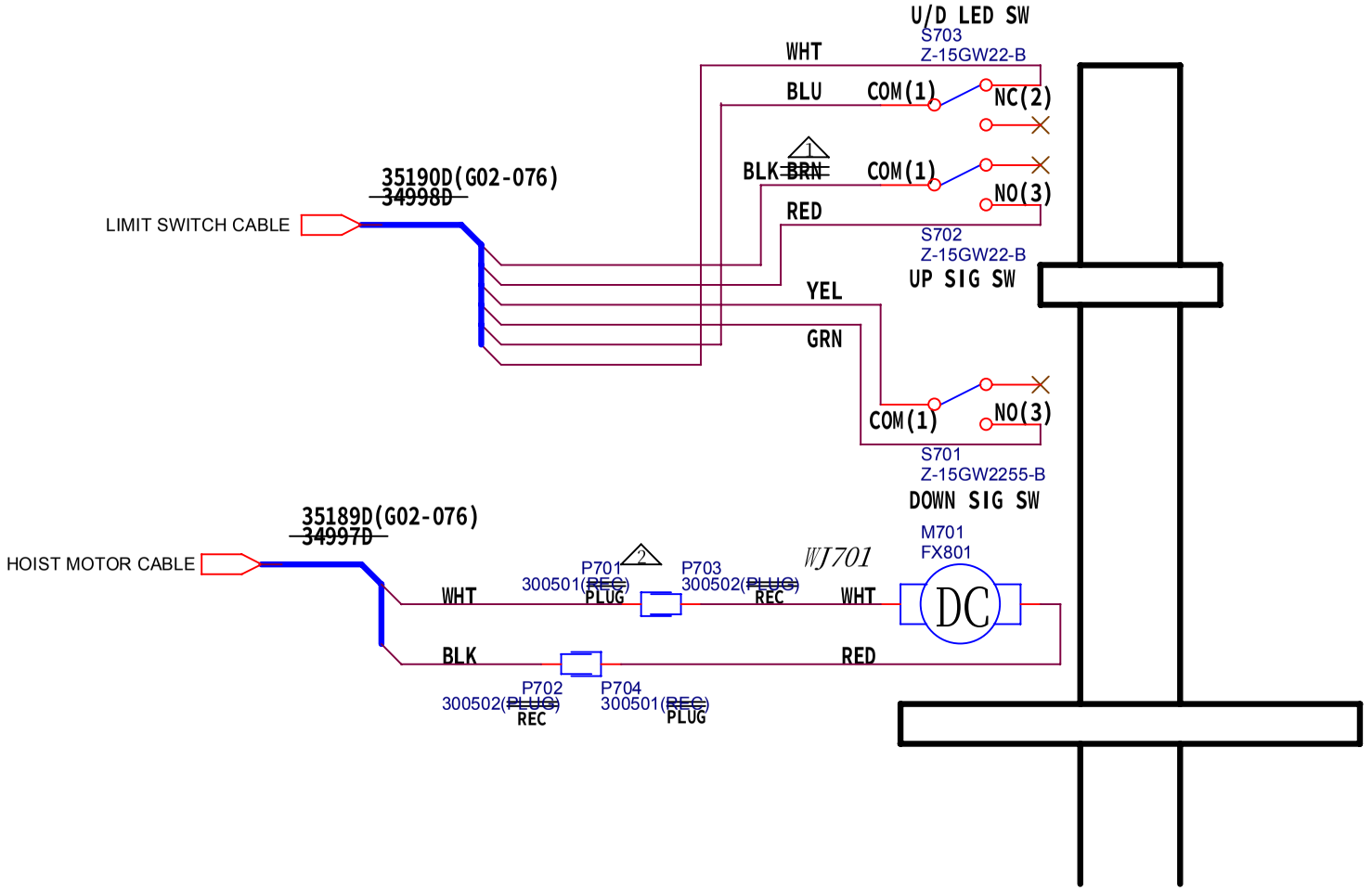
CH2：「J2 8pin TLMOT3」 ― 「GND」



CH1：「J2 6pin TLMOT1」 ― 「GND」

CH2：「J2 9pin TLMOT4」 ― 「GND」





記号	内容	改訂	日付
1	線色：茶→黒、外径：φ6→φ7	G02-039	H14/07/30
-	ｹｰﾌﾞﾙ品番(ｹｰﾌﾞﾙ長)変更	G02-076	H14/10/21
2	300501／REC→PLUG,300502／PLUG→REC	G03-071	H15/07/08

SUZUKI FISH FINDER CO.,LTD.

Title: S-1800 HOIST-UNIT INTER CONNECTION

Size	Document Number	Rev
A	{Doc}	3

Date: Tuesday, April 27, 2004 Sheet 1 of 1

モニター　M10

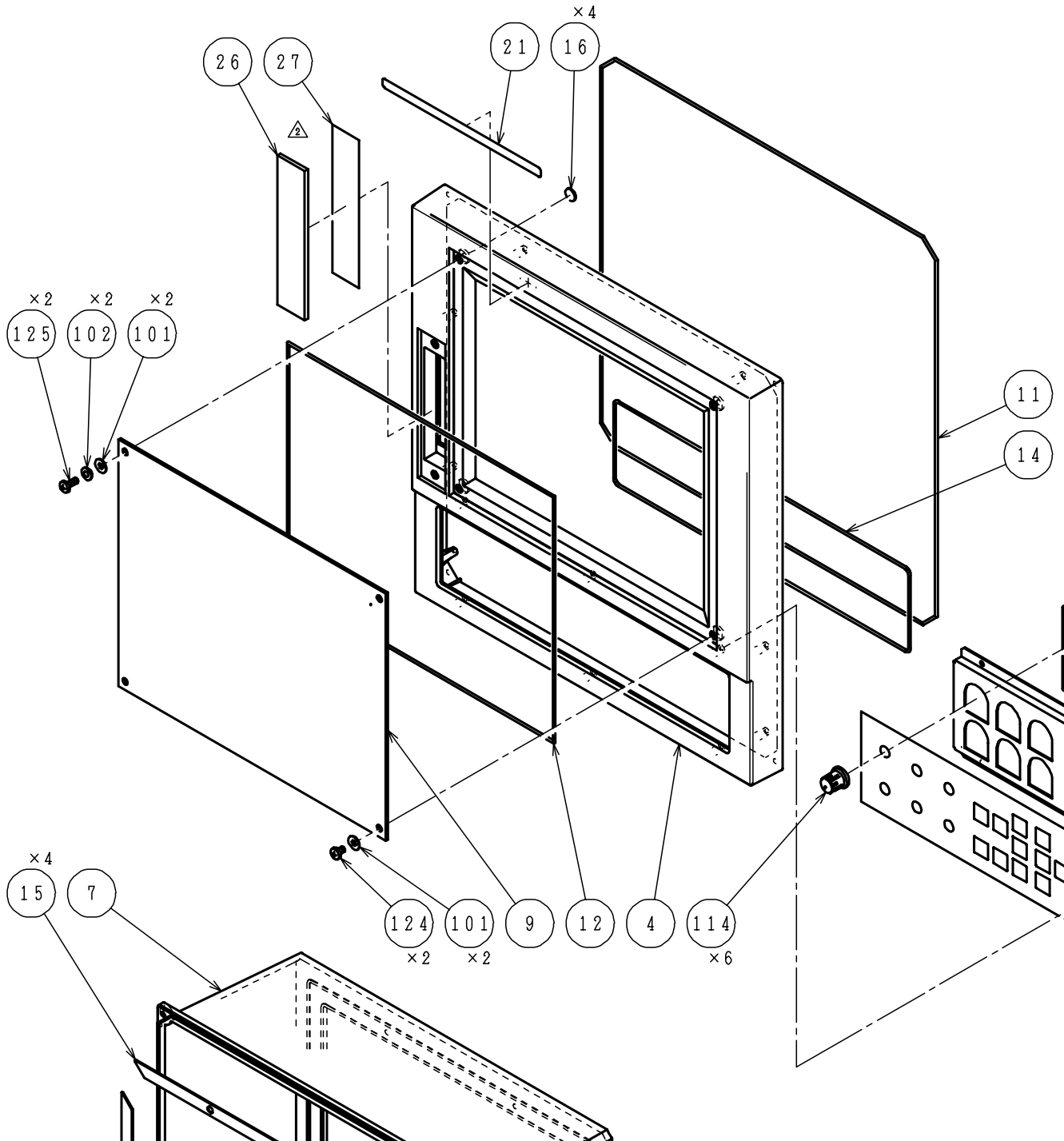
・組立図

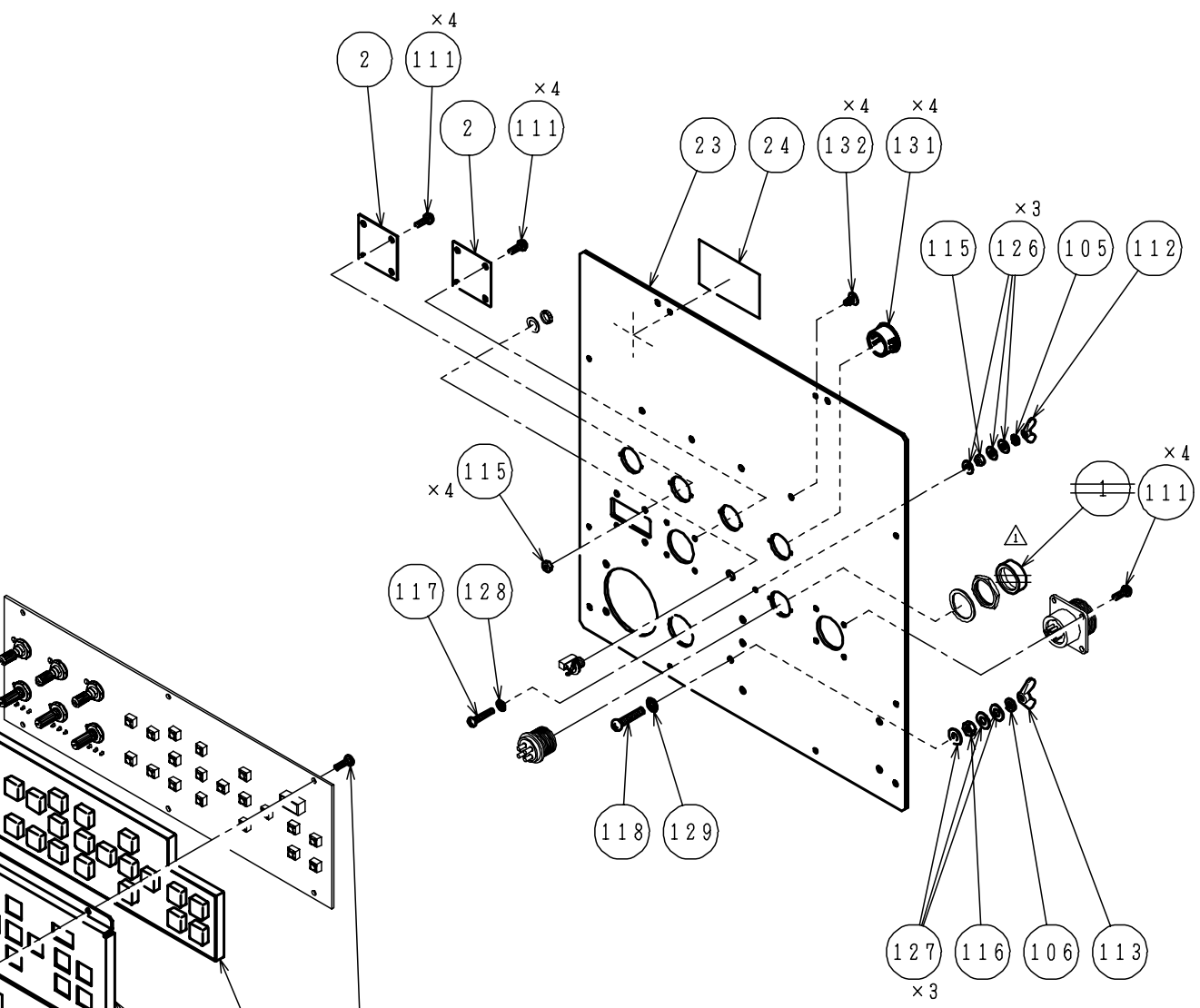
S/NO.1000 番台は S-1800M10 で組立図は「35165C」です。
S/NO.2000 番台は S-1800M10A で組立図は「36323C」です。

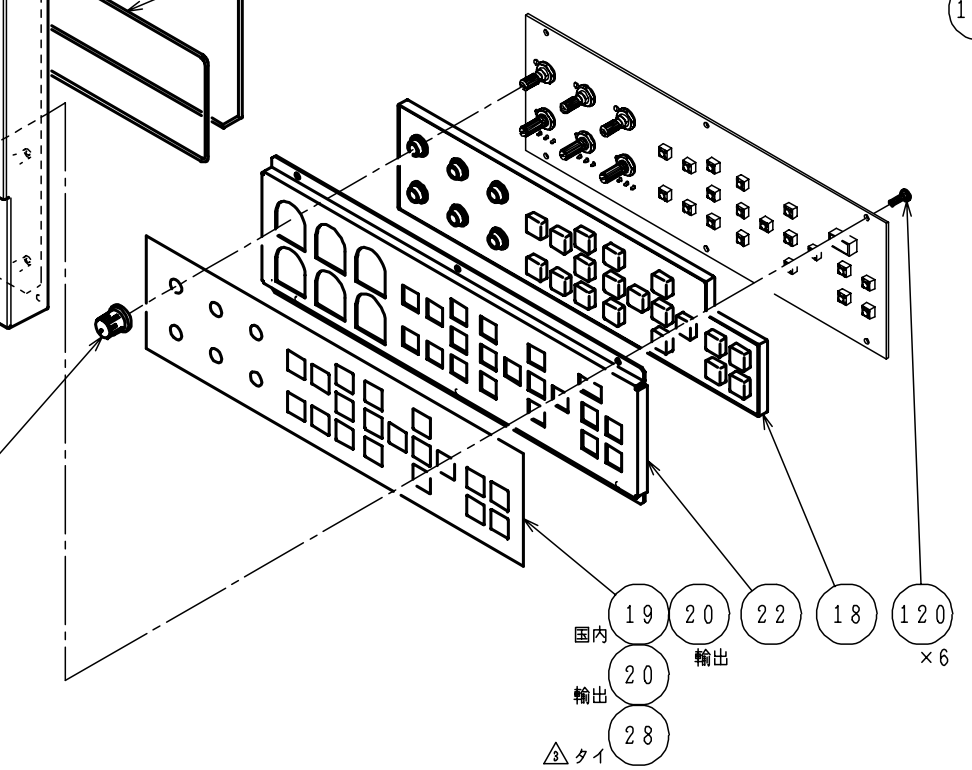
MONITOR UNIT (M10)

ASSEMBLY DRAWING

Assembly drawing is different based on the S/No. of S-1800M10.
S/No.1001 - 1999 ⇒ S-1800M10
S/No.2001 - 2999 ⇒ S-1800M10A





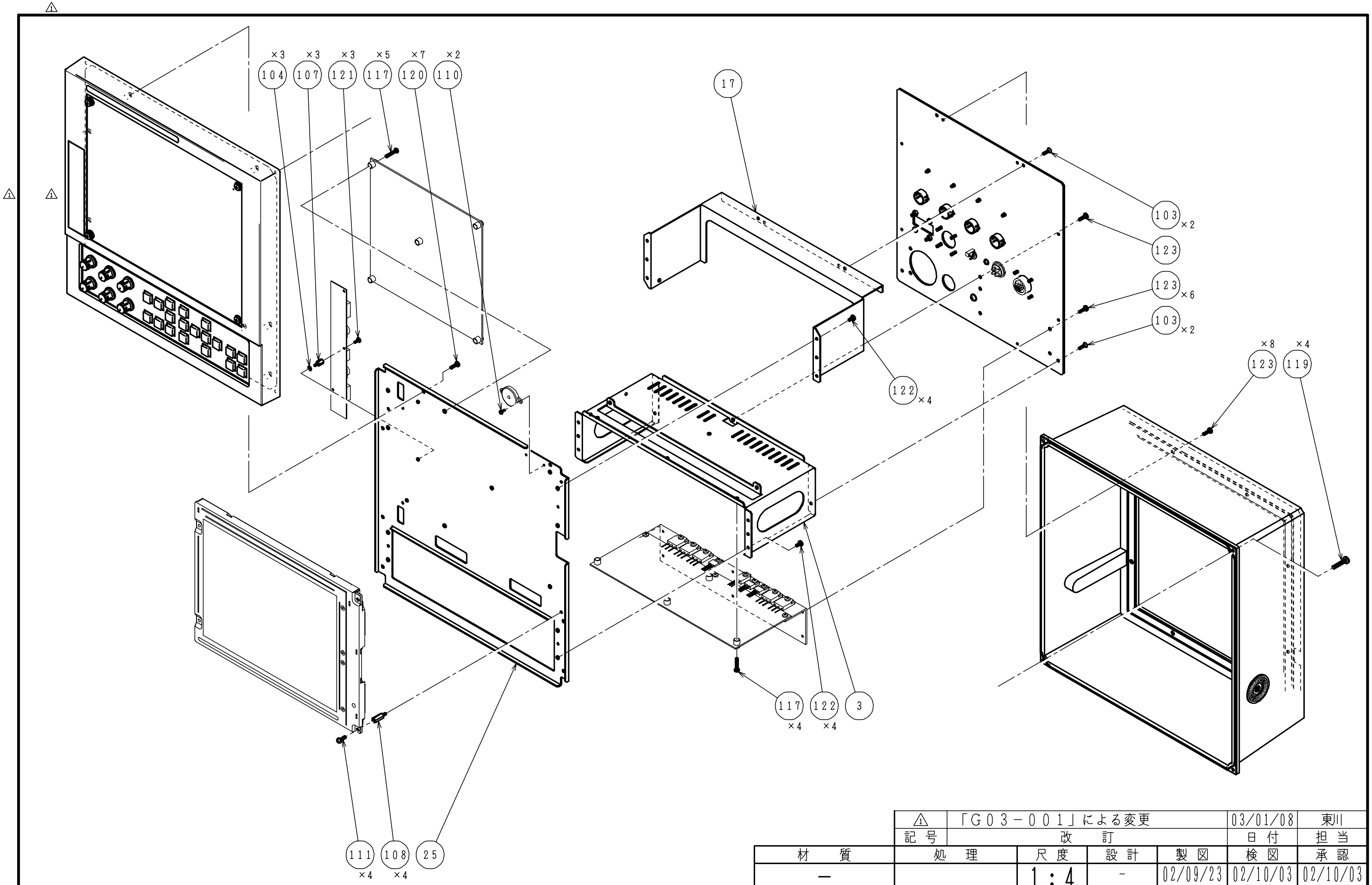


3	「E03－071」による変更		03/08/11	東川
2	「G03－001」による変更		03/01/08	東川
1	「G02－089」による変更		02/11/08	東川
記号	改訂		日付	担当

材質	処理	尺度	設計	製図	検図	承認
－ －	－	1：4 (－)	- －	02/09/23 東川	02/10/03 塩瀬	02/10/03 笹野

機種名	名称	図面番号	品別	葉別
S-1800M10 (F119)	組立図 (－)	35165C	－	1／3

鈴木魚探株式会社



	⚠1	「G03－001」による変更			03/01/08	東川
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
― ―	―	1：4 (―)	- ―	02/09/23 東川	02/10/03 塩瀬	02/10/03 笹野
機種名	名称		図面番号		品別	葉別
S-1800M10 (F119)	組立図 (―)		35165C		―	2／3

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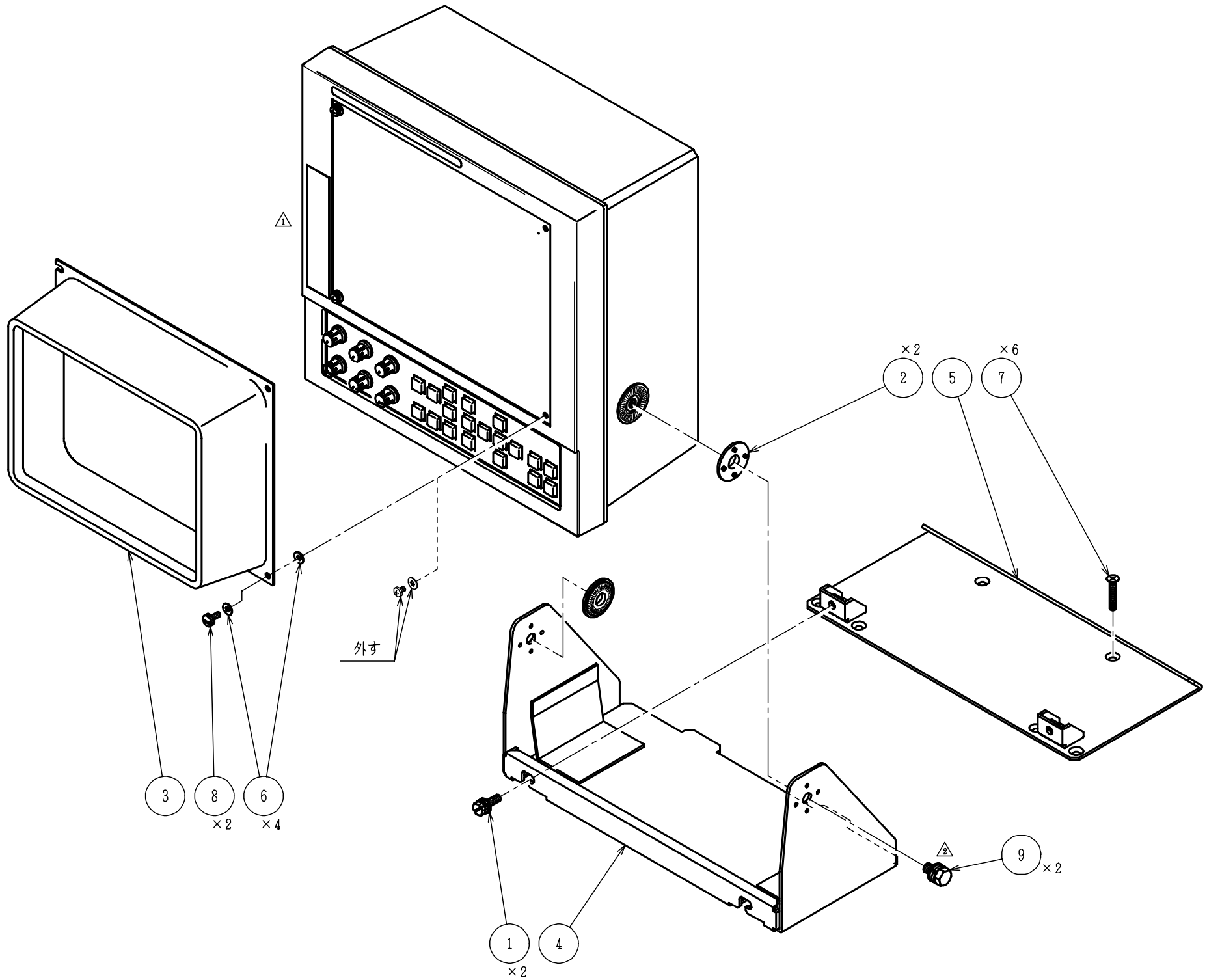
本図面は装備品を示す

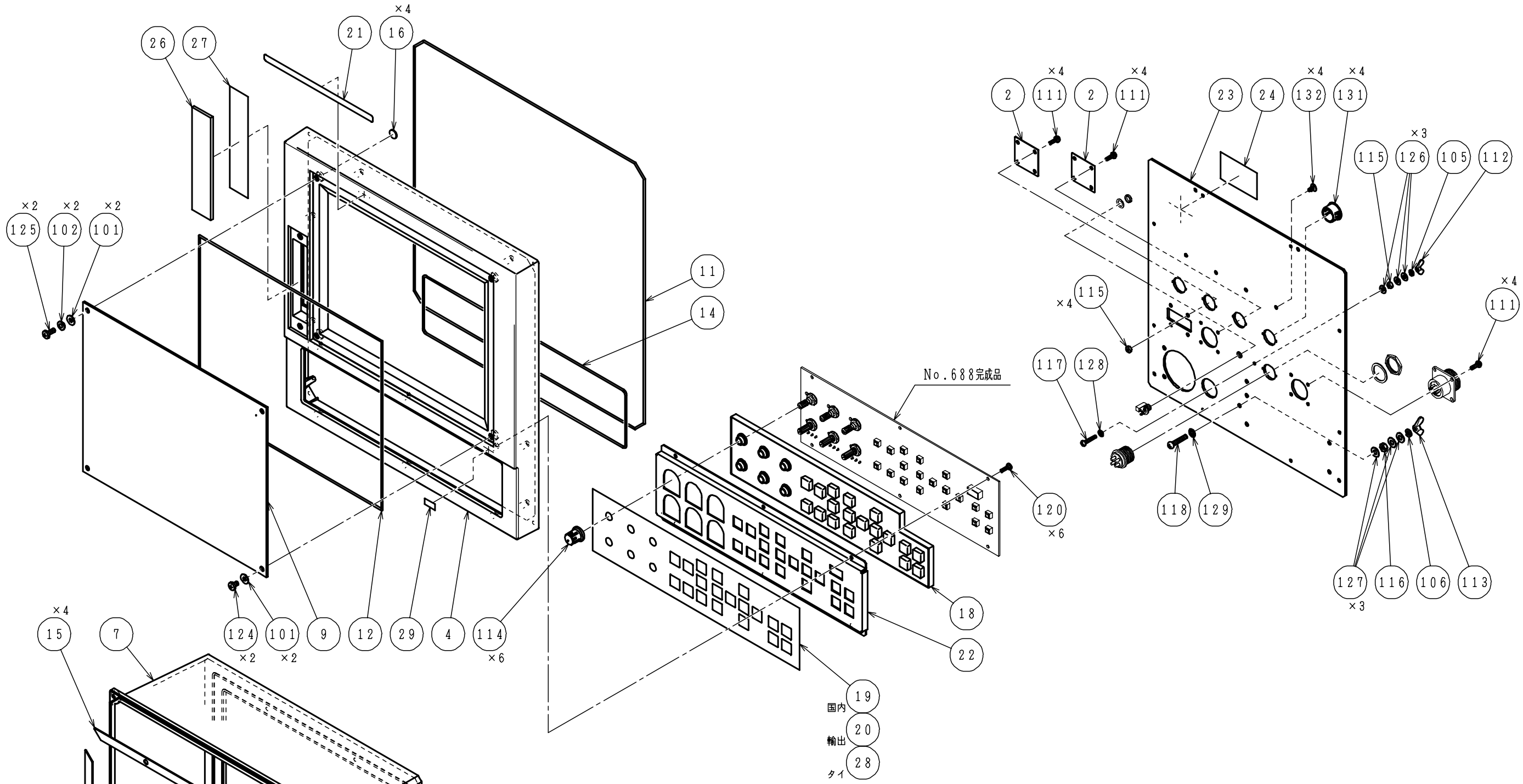


記号	改訂	日付	担当
⚠2	「G03－016」による変更	03/01/27	東川
⚠1	「G03－001」による変更	03/01/08	東川

材質	処理	尺度	設計	製図	検図	承認
ー ー	ー	1：4 (ー)	- ー	02/09/23 東川	02/10/03 塩瀬	02/10/03 笹野

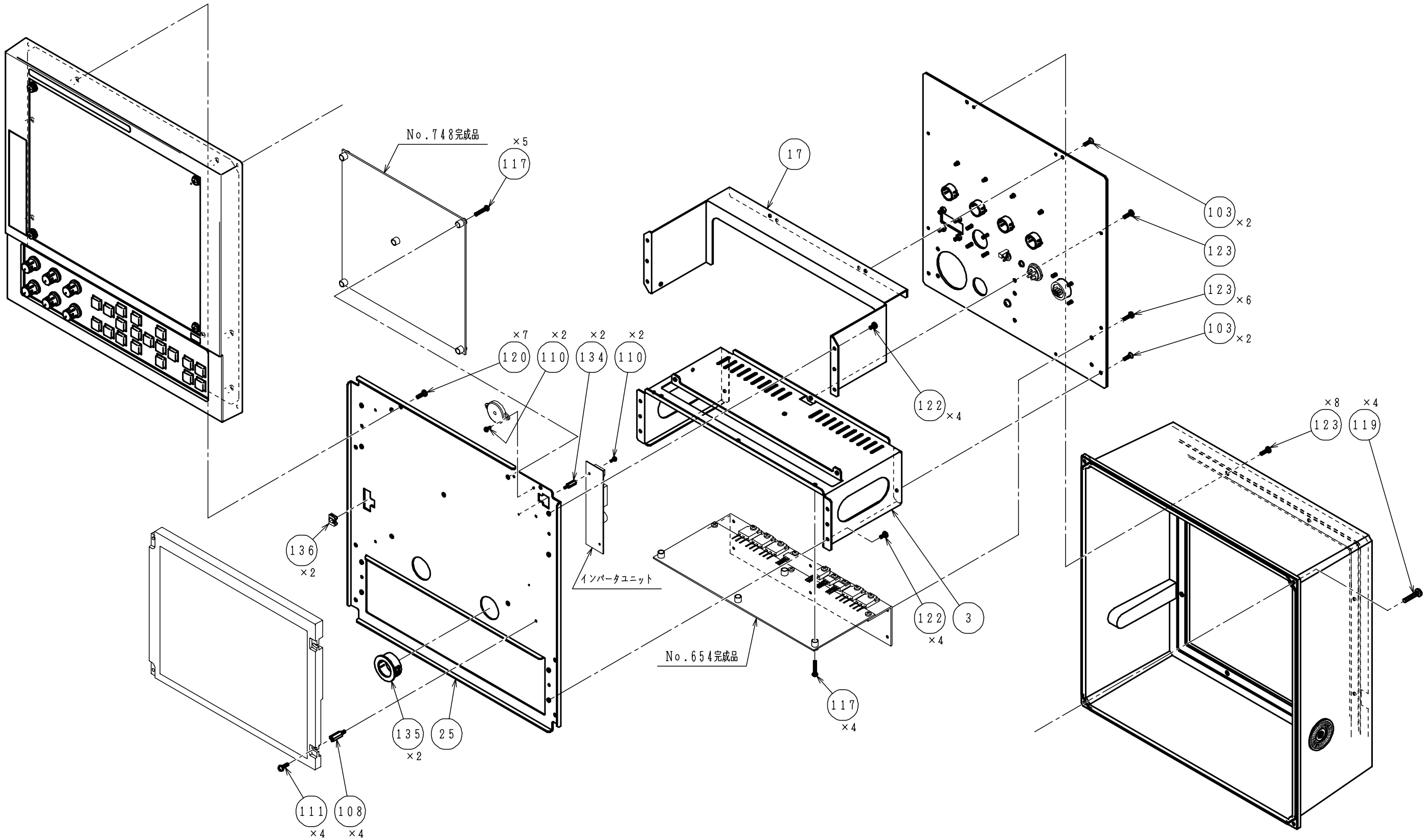
機種名	名称	図面番号	品別	葉別
S-1800M10 (F119)	組立図 (ー)	35165C	ー	3／3

鈴木魚探株式会社



	1	–			–	–
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
– –	–	1：4 (–)	- –	09/07/09 東川	09/07/16 塩瀬	09/07/17 笹野
機種名	名称		図面番号		品別	葉別
S-1800M10A (F119)	組立図 (–)		36323C		–	1／3

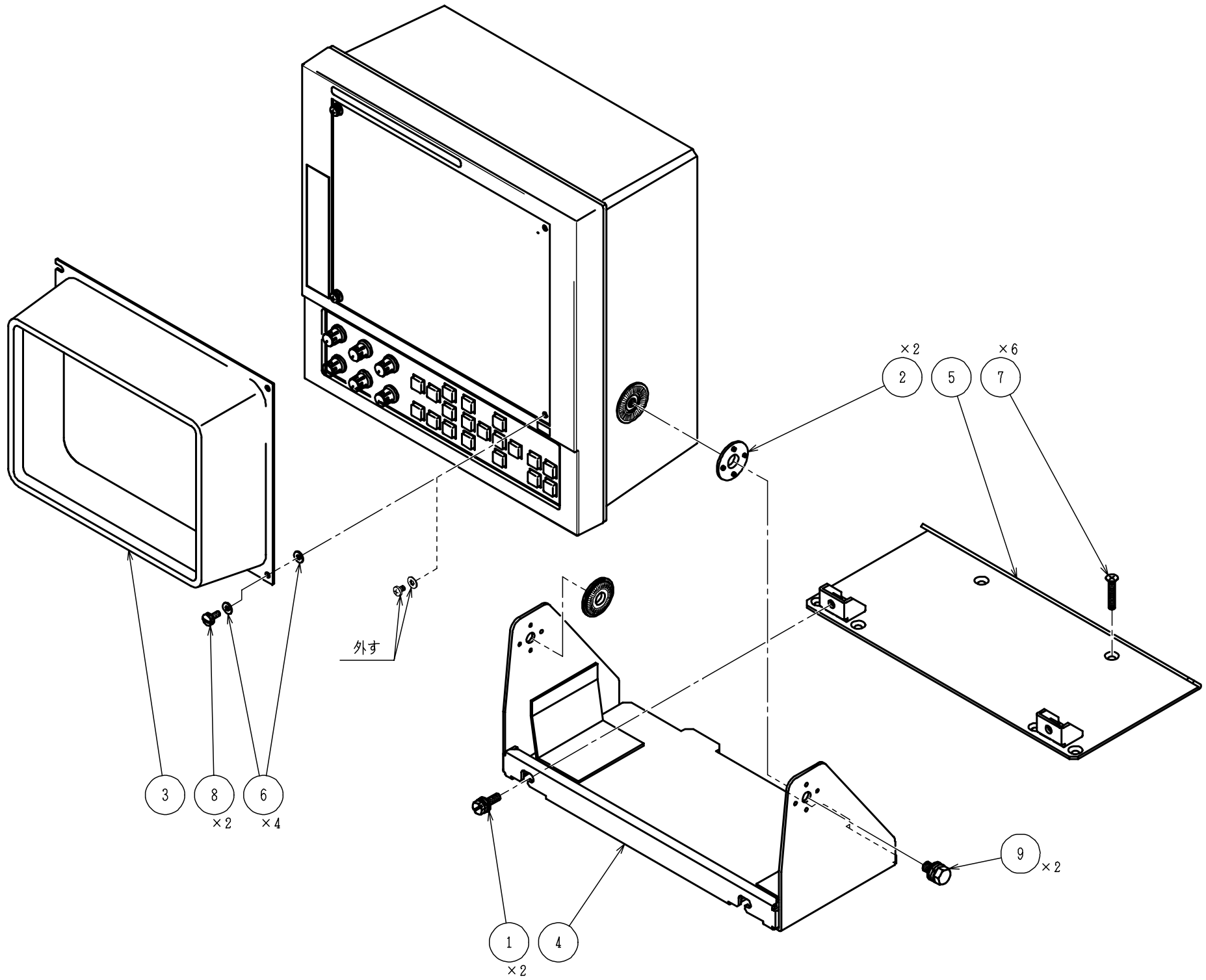
鈴木魚探株式会社



	⚠1	−			−	−
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
− −	−	1:4 (−)	- −	09/07/09 東川	09/07/16 塩瀬	09/07/17 笹野
機種名	名称		図面番号		品別	葉別
S-1800M10A (F119)	組立図 (−)		36323C		−	2／3

鈴木魚探株式会社

本図面は装備品を示す



	⚠1	−			−	−
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
− −	−	1：4 (−)	- −	09/07/09 東川	09/07/16 塩瀬	09/07/17 笹野
機種名	名称		図面番号		品別	葉別
S-1800M10A (F119)	組立図 (−)		36323C		−	3／3

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モニター　M15

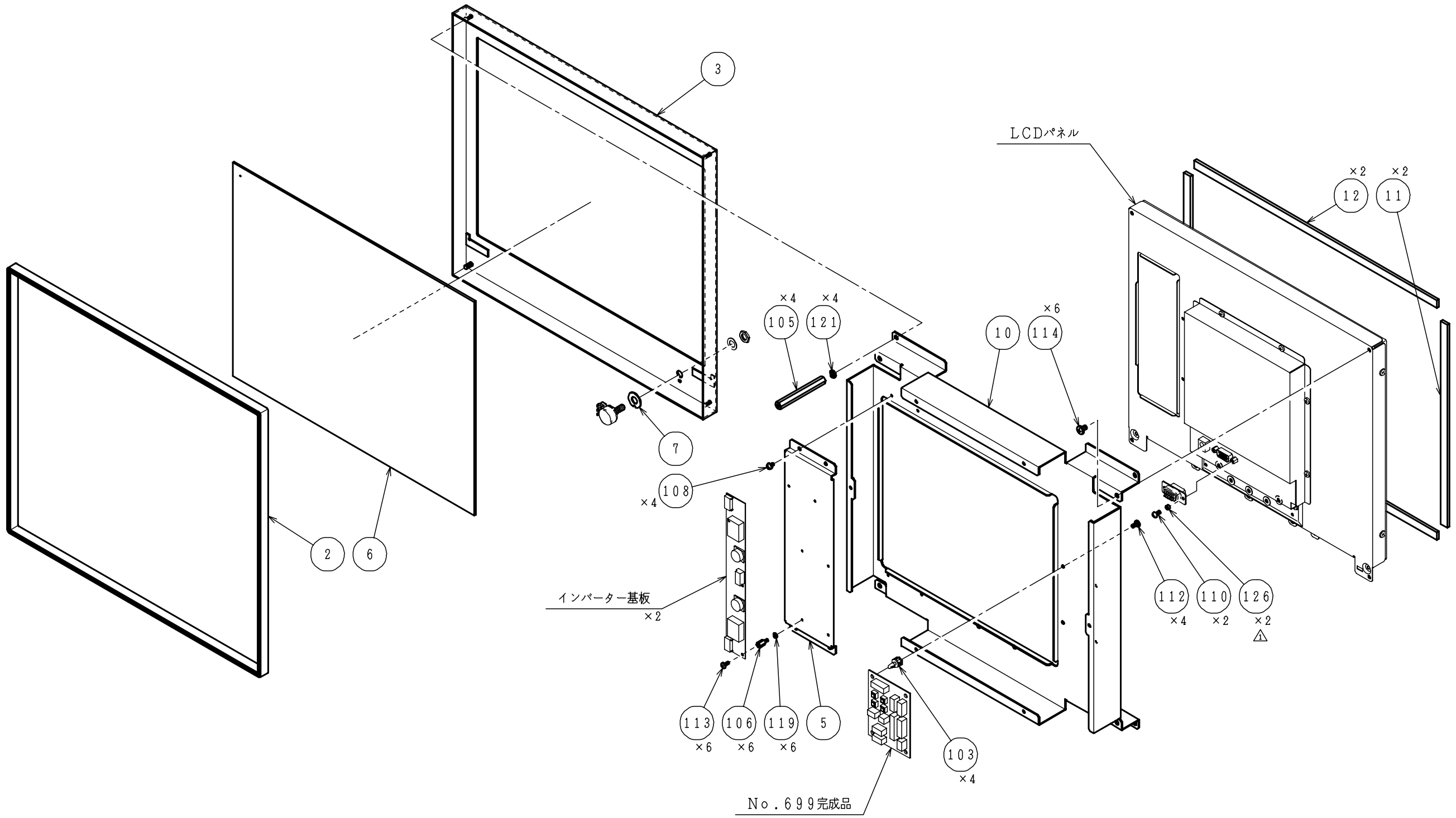
・組立図

M15 は LCD-15 の背面シールの S/NO.により組立図が異なります。
S/NO.1000 番台は「35215C」
S/NO.2000 番台／は「35358C」
S/NO.3000 番台は「35532C」
S/NO.4000 番台／5000 番台は「35358C」 △1 ：SSC-TA01A-SZK

MONITOR UNIT (M15)

ASSEMBLY DRAWING

Assembly drawing is different based on the S/No. of LCD-15.
S/No.1001 - 1999 ⇒ 35215C
S/No.2001 - 2999 ⇒ 35358C
S/No.3001 - 3999 ⇒ 35532C
S/No.4001 - ⇒ 35358C △1 **:SSC-TA01A-SZK**



	⚠1	「G03−095」による変更			03/09/18	東川
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
− −	−	1:4 (−)	- −	02/12/17 東川	02/12/17 岩崎	02/12/17 笹野
機種名	名称		図面番号		品別	葉別
LCD−15 (−)	組立図 (LCD-A15CE)		35215C		−	1/4

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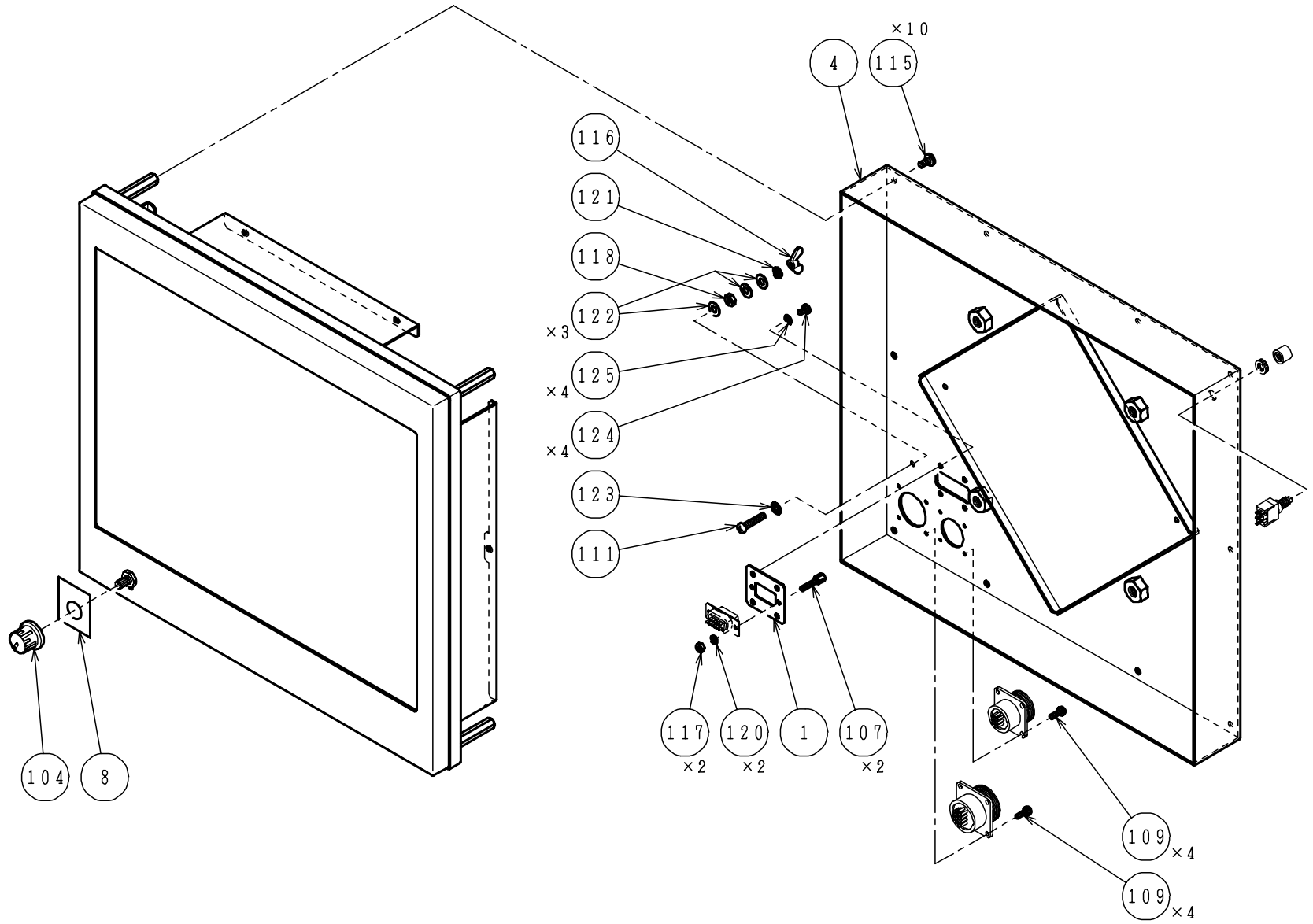

	△1	−			−	−
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
− −	−	1：4 (−)	- −	02/12/17 東川	02/12/17 岩崎	02/12/17 笹野
機種名	名称		図面番号		品別	葉別
LCD−15 (−)	組立図 (LCD-A15CE)		35215C		−	2／4

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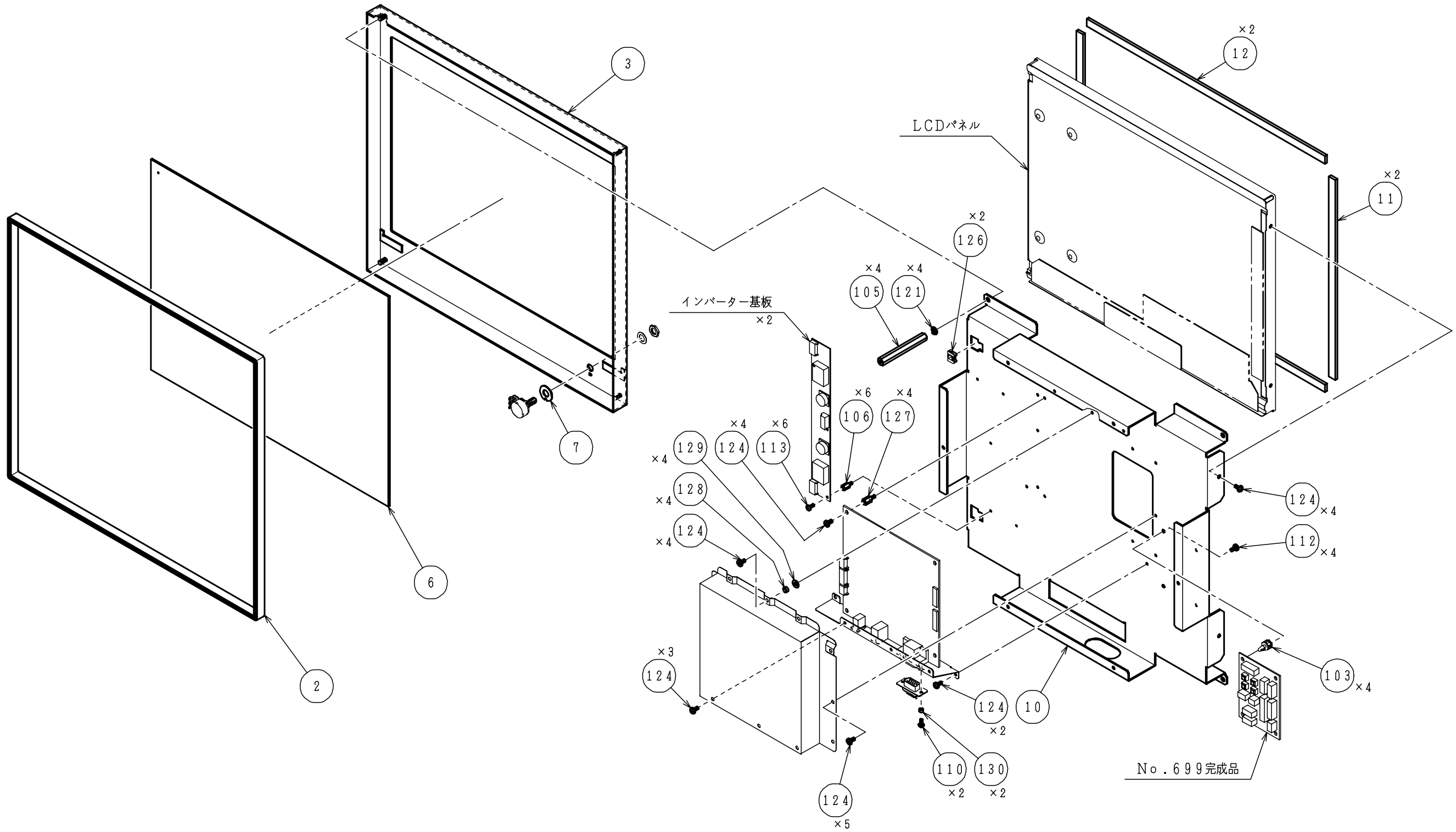

	記号	改訂			日付	担当
	⚠1	−			−	−
材質	処理	尺度	設計	製図	検図	承認
− −	−	1:4 (−)	- −	03/08/29 東川	03/09/15 塩瀬	03/09/15 笹野
機種名	名称		図面番号		品別	葉別
LCD-15 (−)	組立図 (LCD-A152GS(A))		35358C		−	1/4

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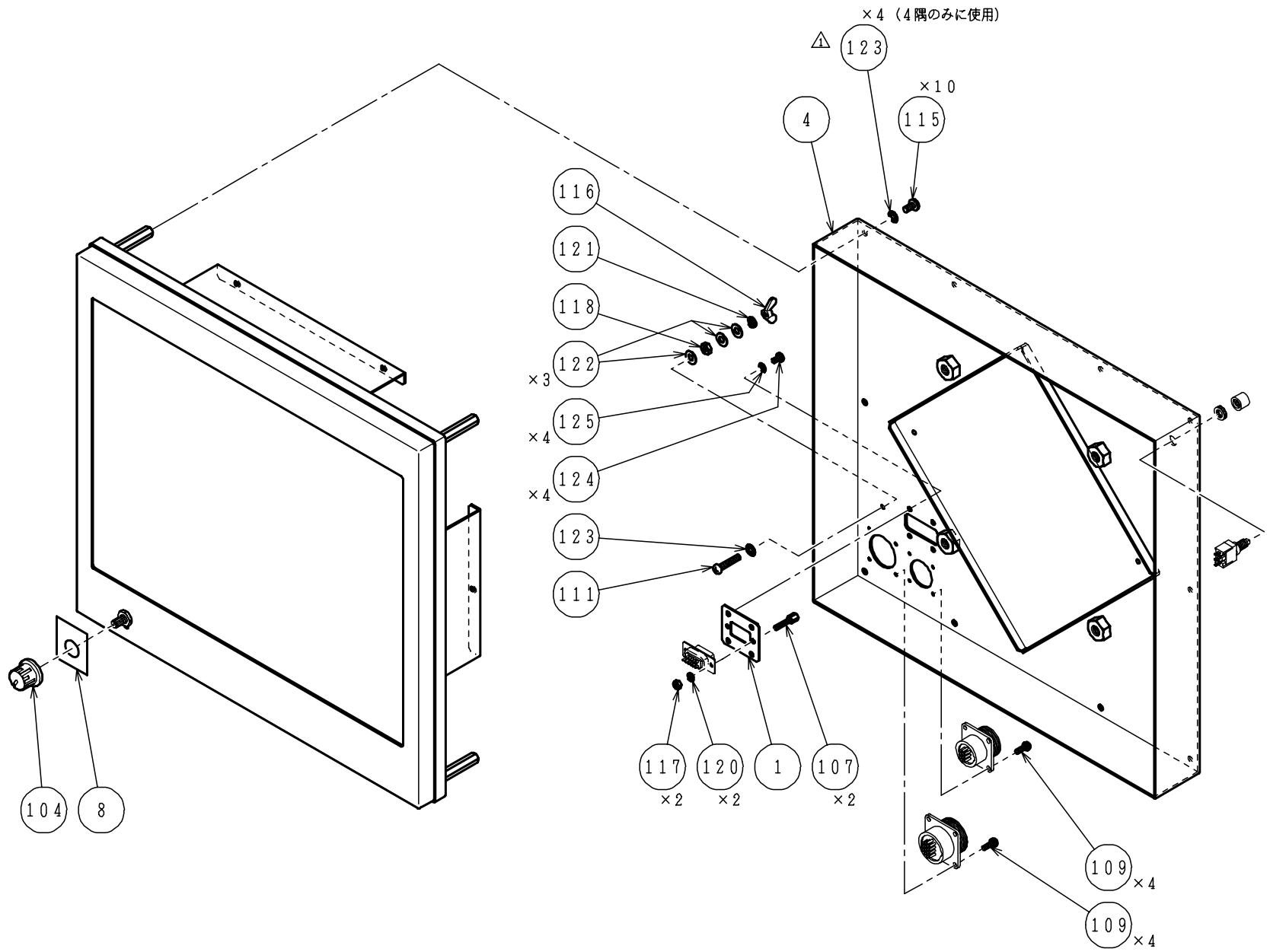

	⚠1	G03－112による変更			03/12/08	東川
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
－ －	－	1：4 (－)	- －	03/08/29 東川	03/09/15 塩瀬	03/09/15 笹野
機種名	名称		図面番号		品別	葉別
LCD-15 (－)	組立図 (LCD-A152GS(A))		35358C		－	2／4

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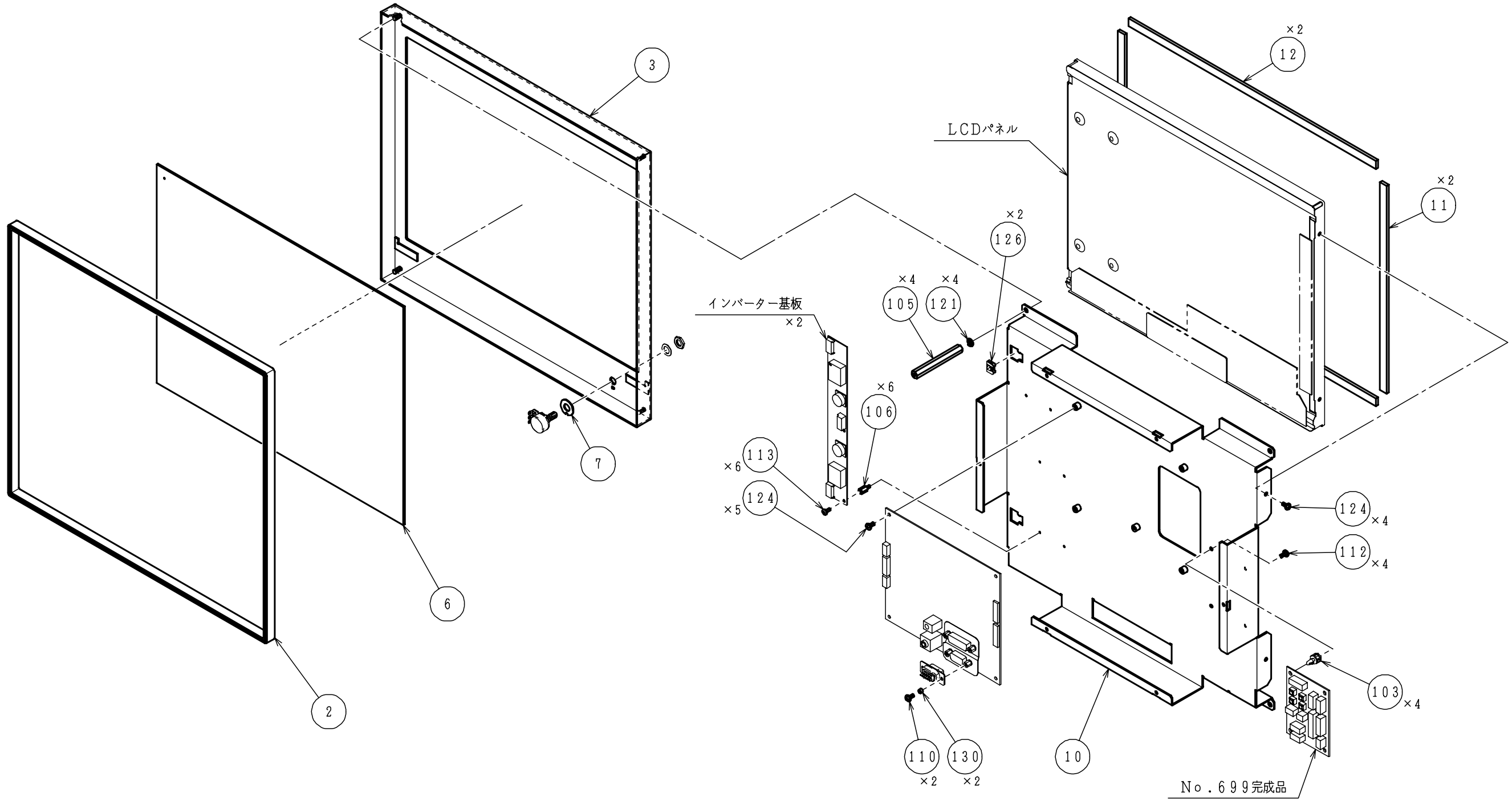

	記号	改訂			日付	担当
	△1	−			−	−

材質	処理	尺度	設計	製図	検図	承認
− −	−	1:4 (−)	- −	04/12/03 東川	04/12/06 塩瀬	04/12/06 笹野

機種名	名称	図面番号	品別	葉別
LCD-15 (−)	組立図 (LCD-AD152CWH)	35532C	−	1/4

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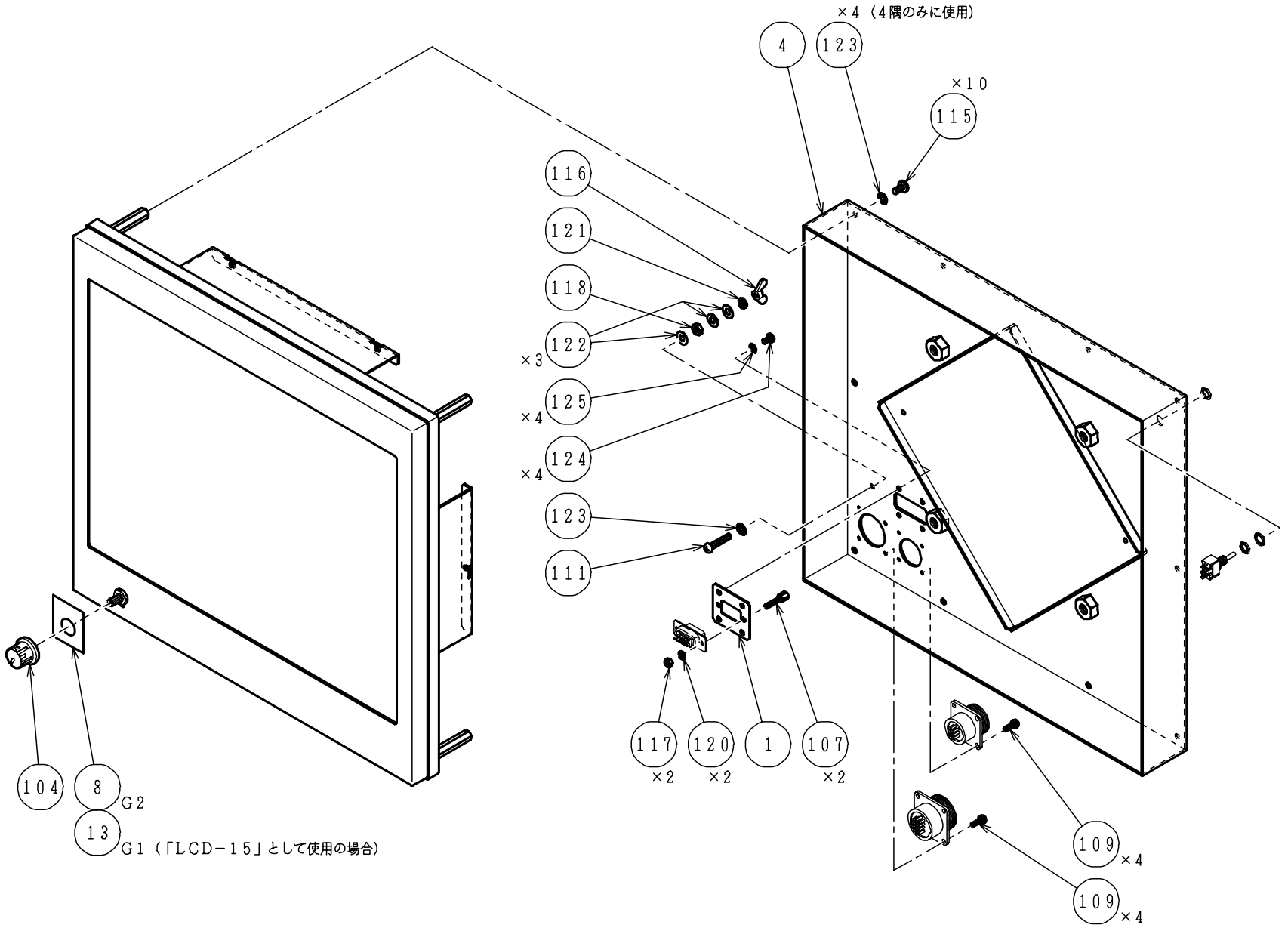

	記号	改訂			日付	担当
	⚠1	−			−	−
材質	処理	尺度	設計	製図	検図	承認
− −	−	1：4 (−)	- −	04/12/03 東川	04/12/06 塩瀬	04/12/06 笹野
機種名	名称		図面番号		品別	葉別
LCD−15 (−)	組立図 (LCD-AD152CWH)		35532C		−	2／4

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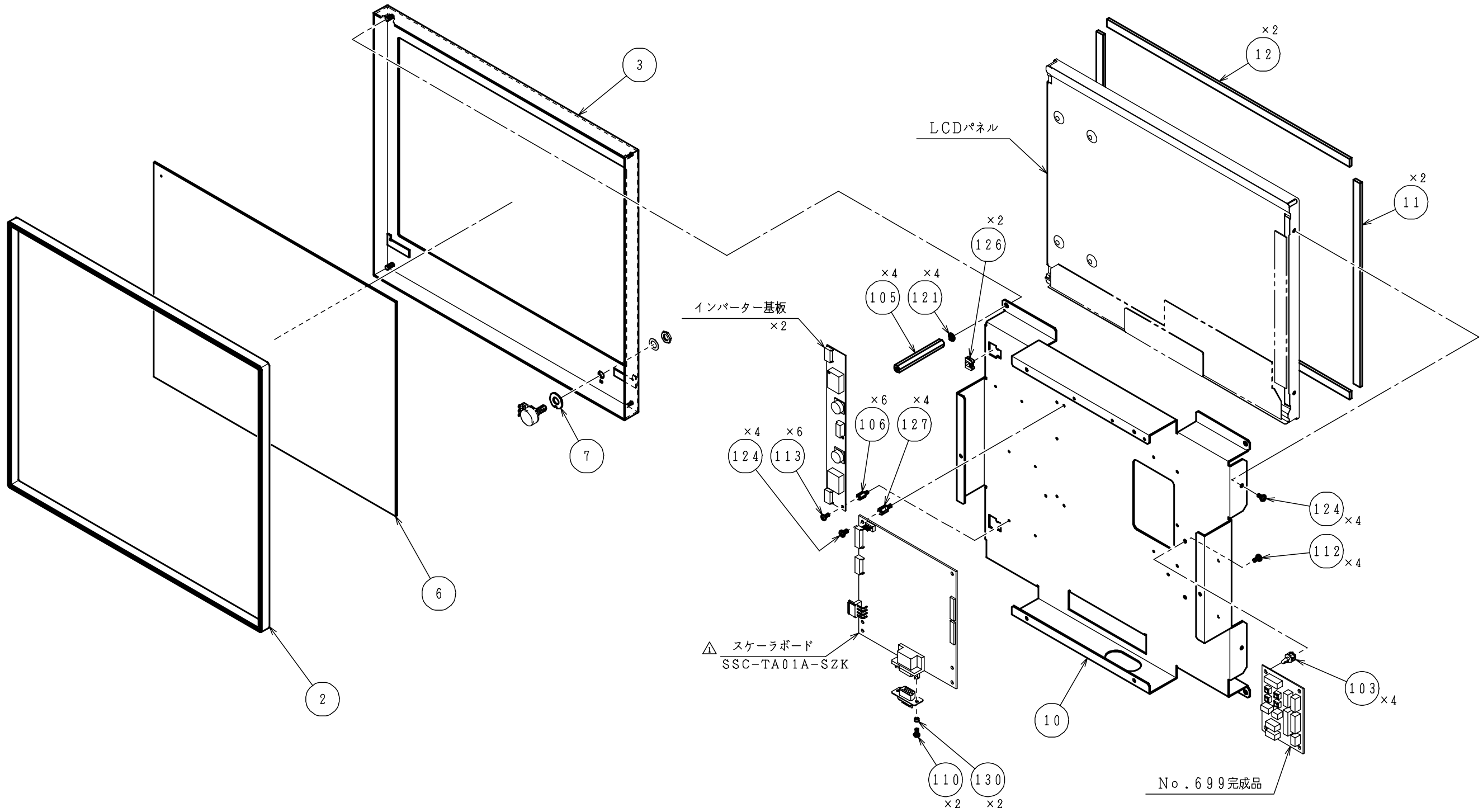

	⚠1	「G06−015」による変更			06/04/12	東川
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
− −	−	1:4 (−)	- −	03/08/29 東川	03/09/15 塩瀬	03/09/15 笹野
機種名	名称		図面番号		品別	葉別
LCD−15 (−)	組立図		35358C		−	1/4

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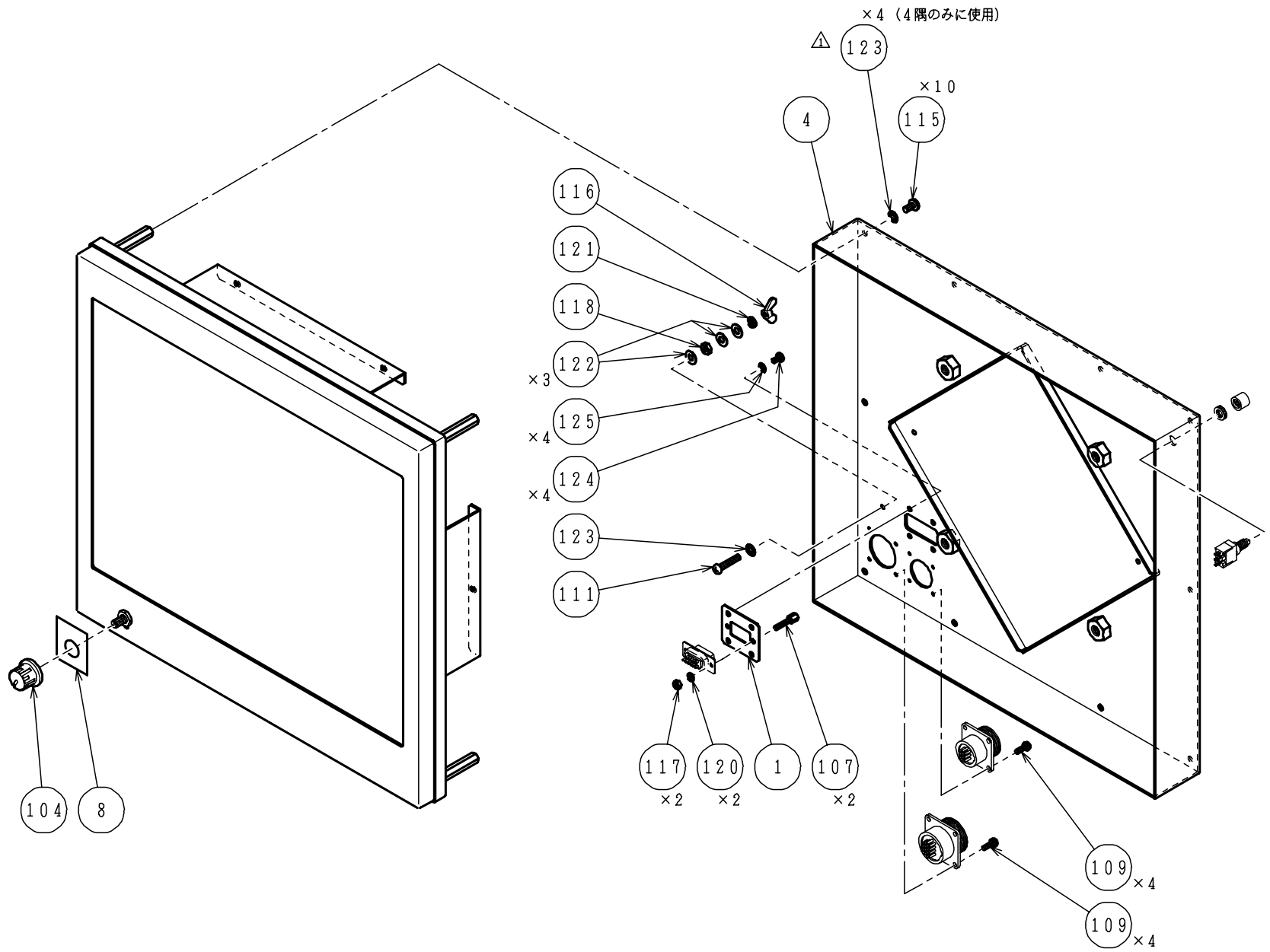

	⚠1	G03－112による変更			03/12/08	東川
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
－ －	－	1：4 (－)	- －	03/08/29 東川	03/09/15 塩瀬	03/09/15 笹野
機種名	名称		図面番号		品別	葉別
LCD-15 (－)	組立図		35358C		－	2／4

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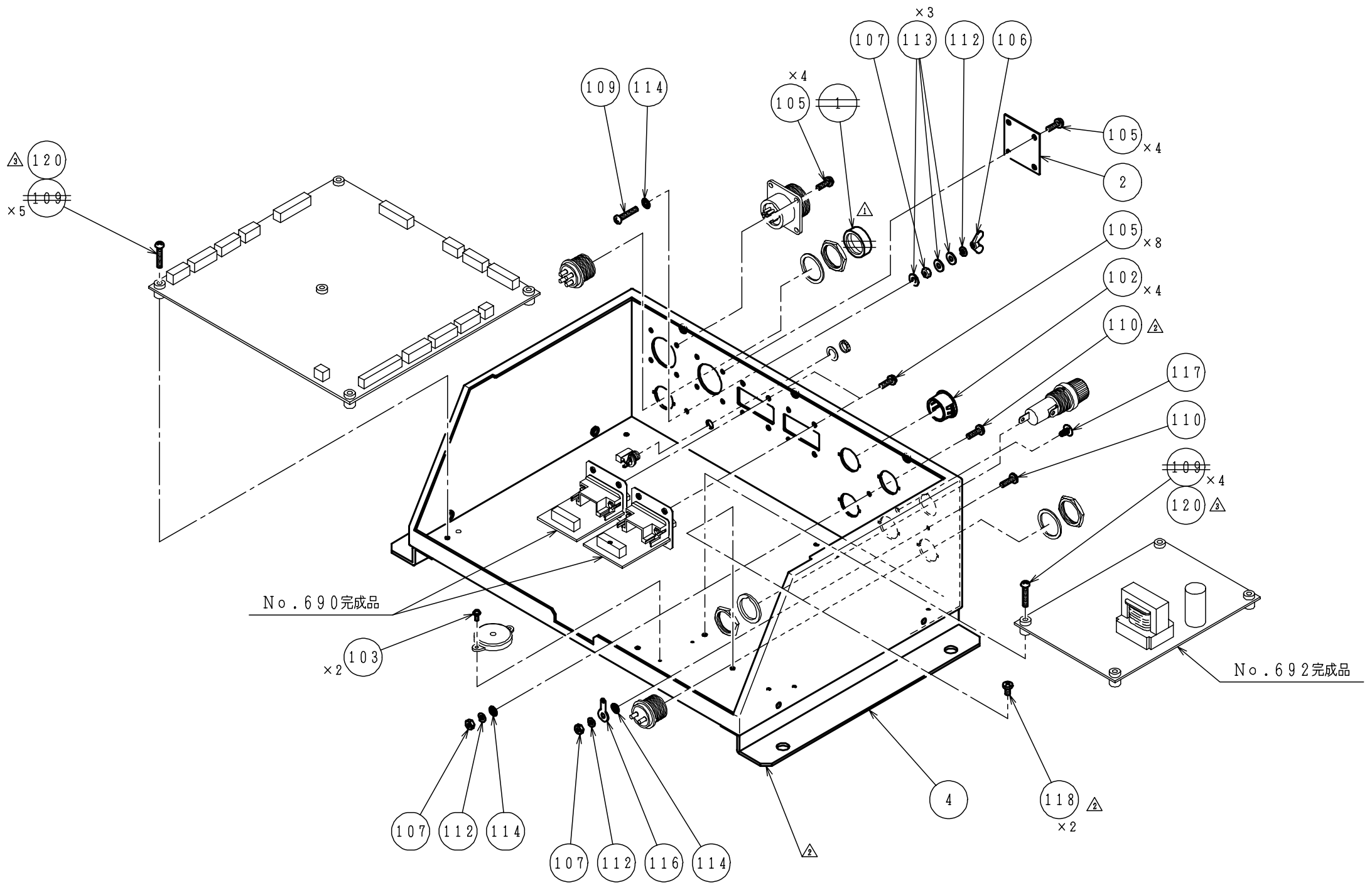

記号	改訂	日付	担当
3	「G03－025」による変更	03/02/13	東川
2	「G02－092，G02－102」による変更	02/12/19	東川
1	「G02－089」による変更	02/11/08	東川

材質	処理	尺度	設計	製図	検図	承認
－ －	－	1：3 (－)	- －	02/10/11 東川	02/10/11 塩瀬	02/10/11 笹野

機種名	名称	図面番号	品別	葉別
S-1800MBB (F116BB)	組立図 (－)	35166C	－	1／3

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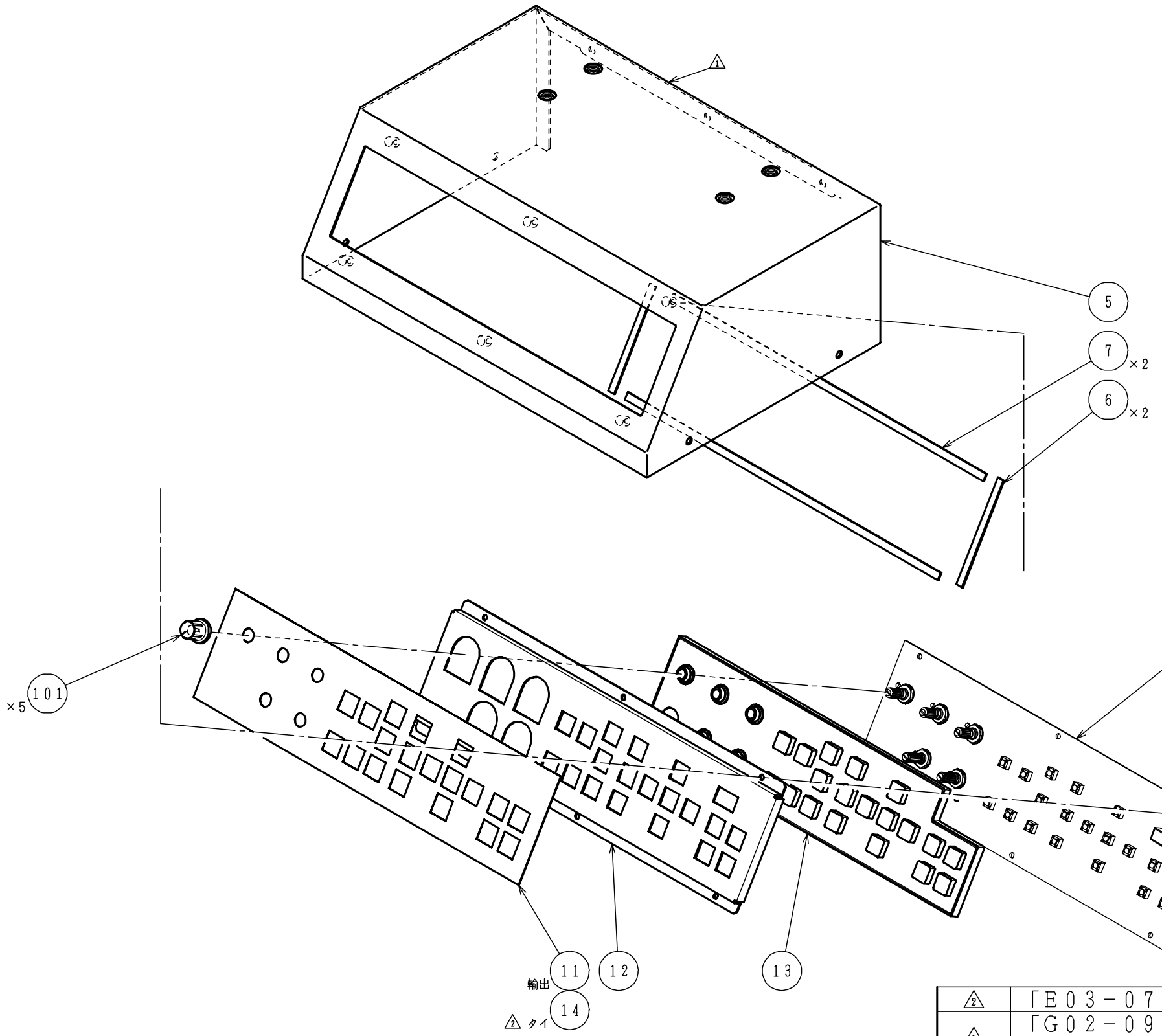

2	「E03－071」による変更	03/08/11	東川
1	「G02－092，G02－102」による変更	02/12/19	東川
記号	改訂	日付	担当

材質	処理	尺度	設計	製図	検図	承認
－ －	－	1：3 (－)	- －	02/10/11 東川	02/10/11 塩瀬	02/10/11 笹野

機種名	名称	図面番号	品別	葉別
S-1800MBB (F116BB)	組立図 (－)	35166C	－	2／3

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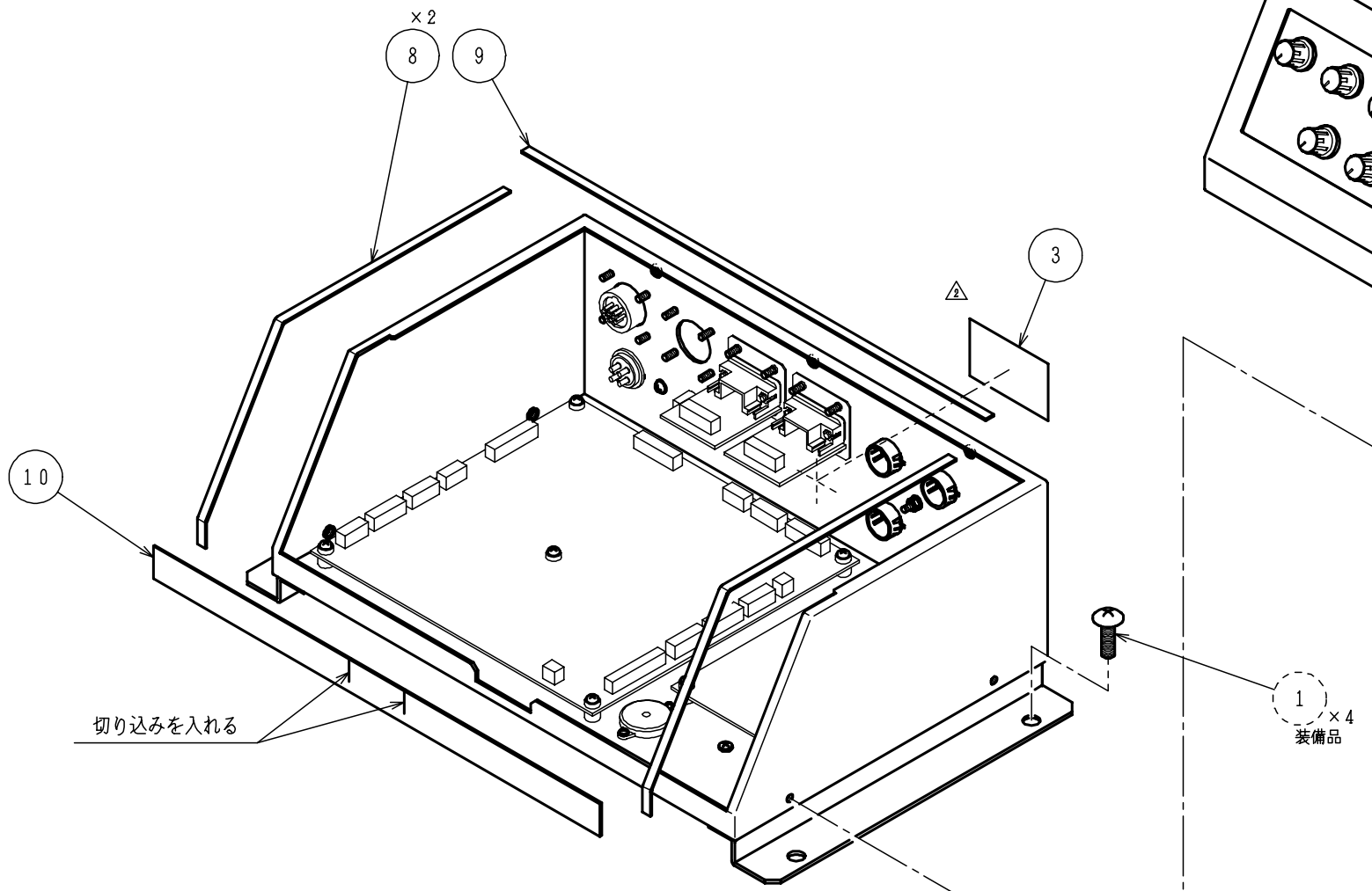

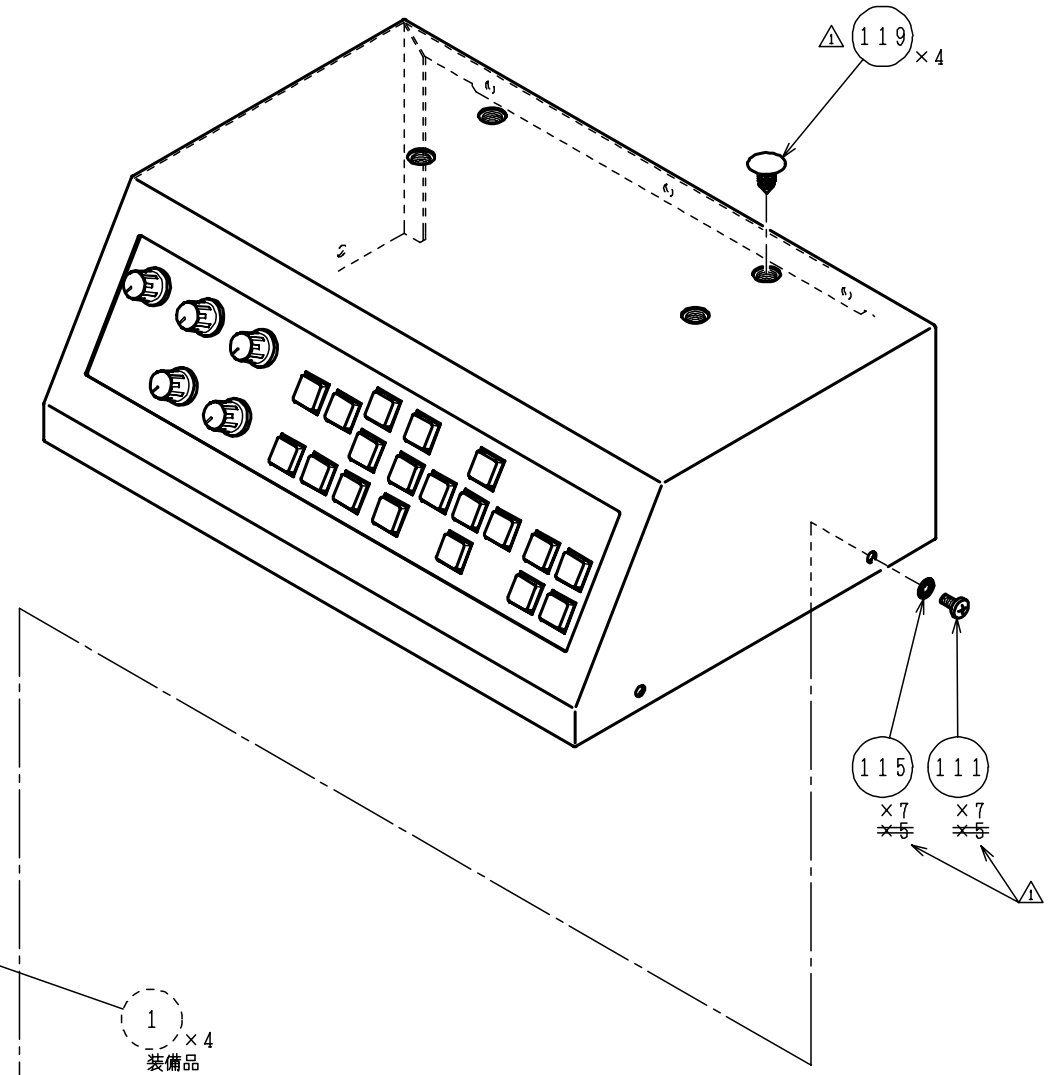

記号	改訂	日付	担当
②	裏銘板位置修正	03/10/02	東川
①	「G02－092，G02－102」による変更	02/12/19	東川

材質	処理	尺度	設計	製図	検図	承認
― ―	―	1：3 (―)	- ―	02/10/11 東川	02/10/11 塩瀬	02/10/11 笹野

機種名	名称	図面番号	品別	葉別
S-1800MBB (F116BB)	組立図 (―)	35166C	―	3／3

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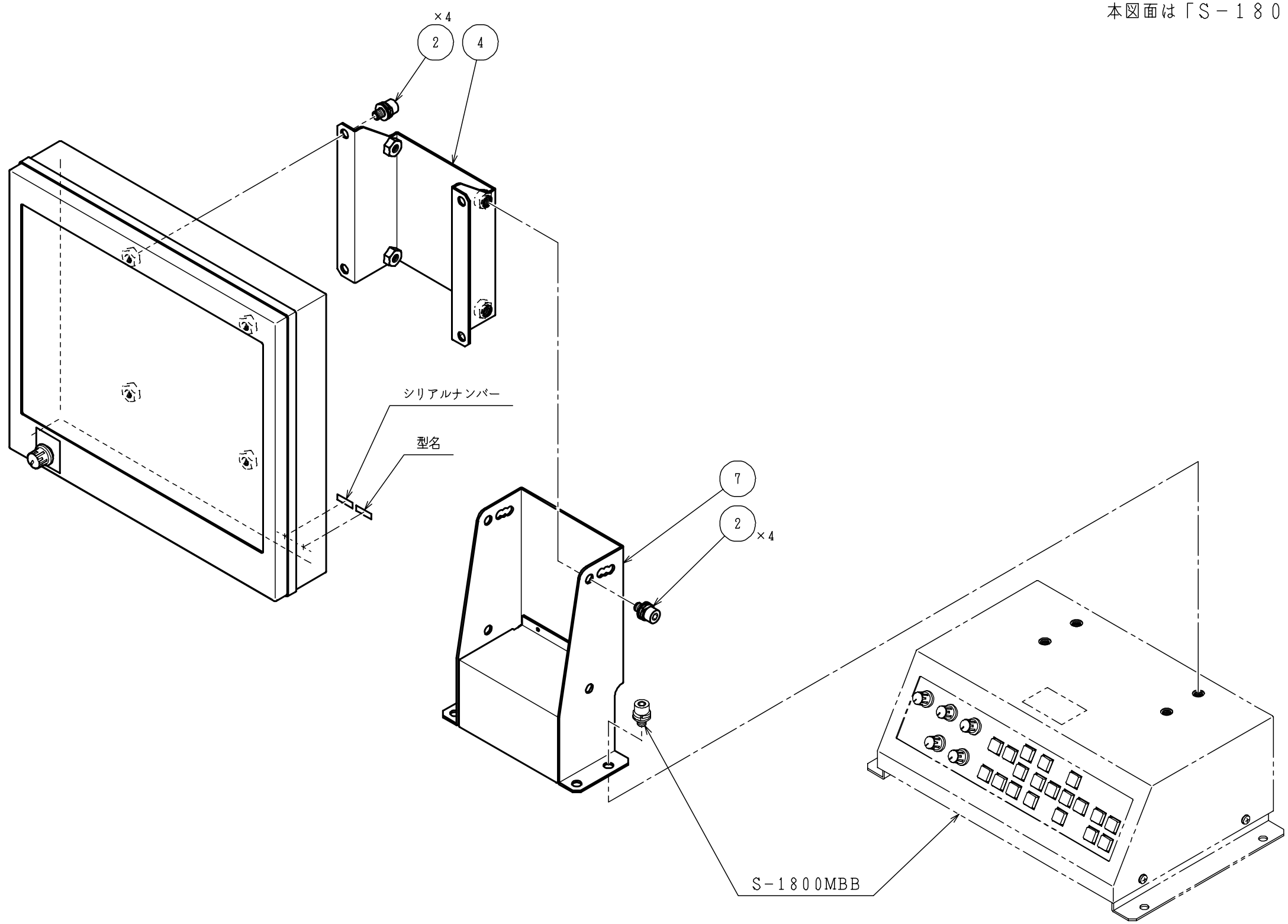
本図面は「S－1800M15」の装備品を示す



	⚠1	－			－	－
	記号	改訂			日付	担当
材質	処理	尺度	設計	製図	検図	承認
－ －	－	1：4 (－)	－ －	03/08/29 東川	03/09/15 塩瀬	03/09/15 笹野
機種名	名称		図面番号		品別	葉別
LCD-15 (－)	組立図		35358C		－	4／4

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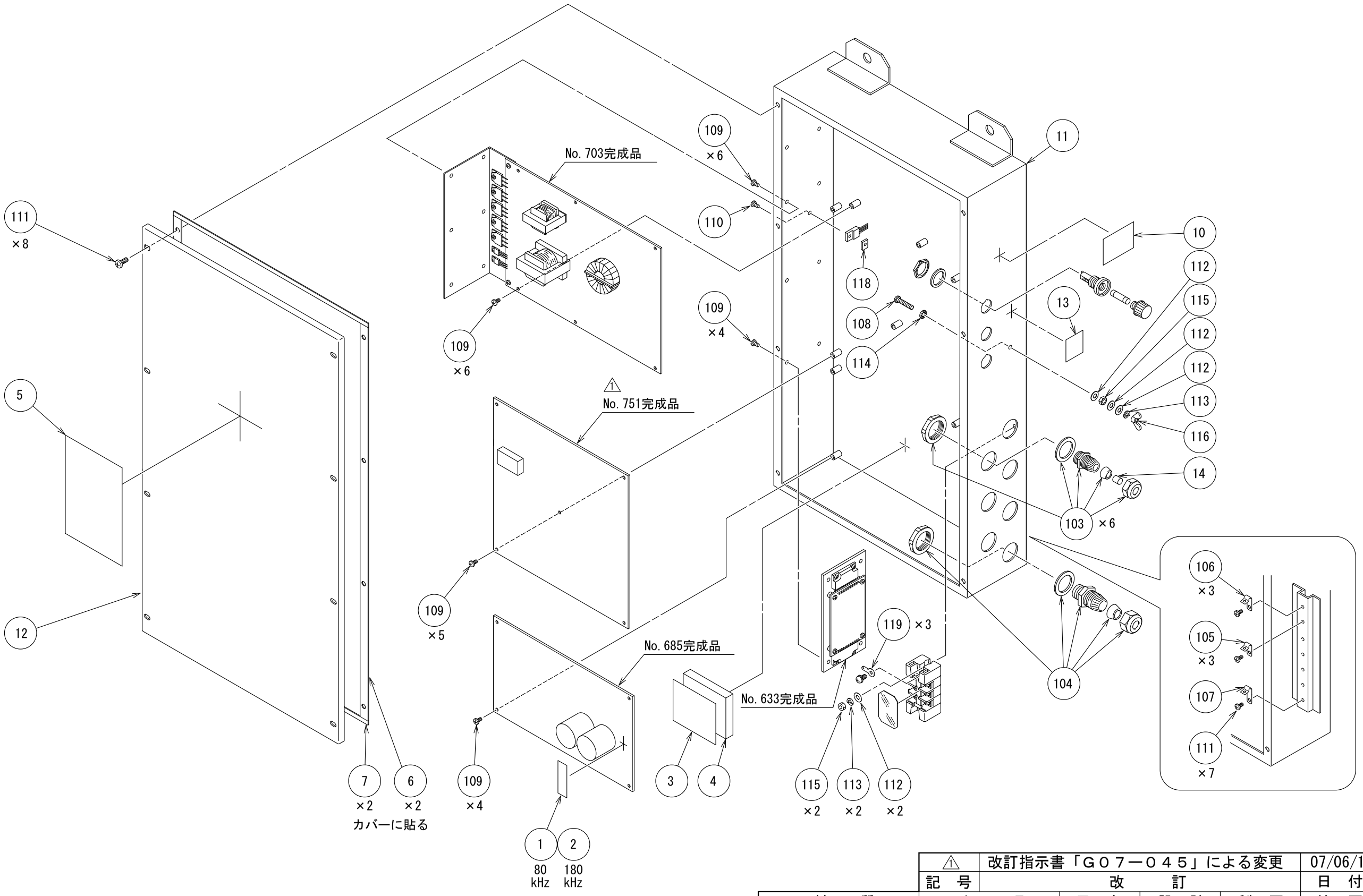
ハルユニット

・組立図

HULL UNIT

ASSEMBLY DRAWING



	⚠1	改訂指示書「Ｇ０７－０４５」による変更			07/06/15	東川
	記　号	改　　訂			日　付	担　当
材　　質	処　　理	尺　度	設　計	製　図	検　図	承　認
				02/06/22 委託	08/03/31 塩瀬	08/04/01 笹野
機　種　名	名　　称		図　面　番　号		品　別	葉　別
S-1800H80,180 (F116B)	組立図 （制御ボックス）		35080C			

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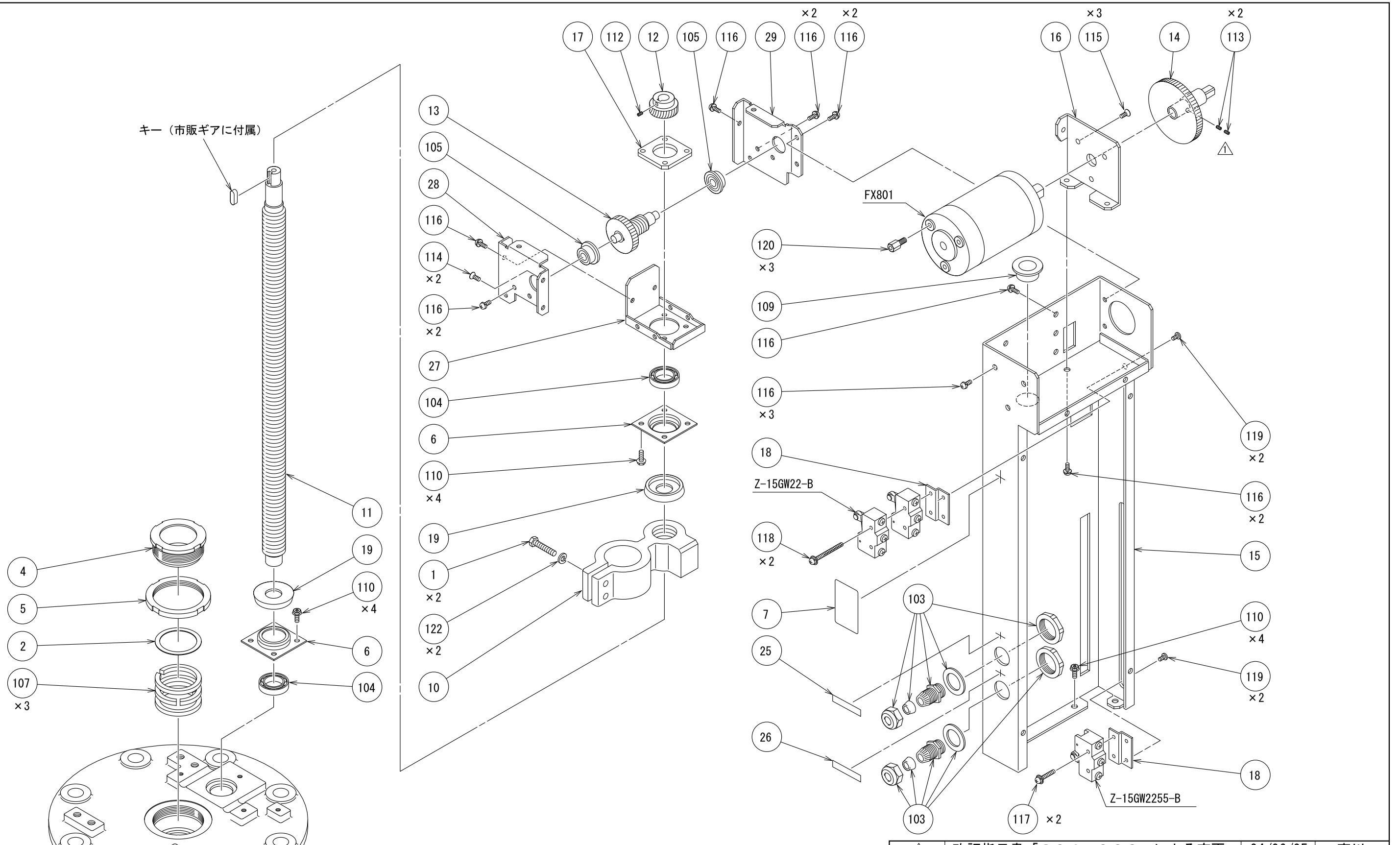

	⚠	改訂指示書「Ｇ０４－００６」による変更			04/06/05	東川
	記　号	改　　訂			日　付	担　当
材　　質	処　　理	尺　度	設　計	製　図	検　図	承　認
				02/06/22 委託	08/03/31 塩瀬	08/04/01 笹野
機　種　名	名　　称		図　面　番　号		品　別	葉　別
S-1800H80,180 (F116H)	組立図 （ホイスト）		35081C			1/3

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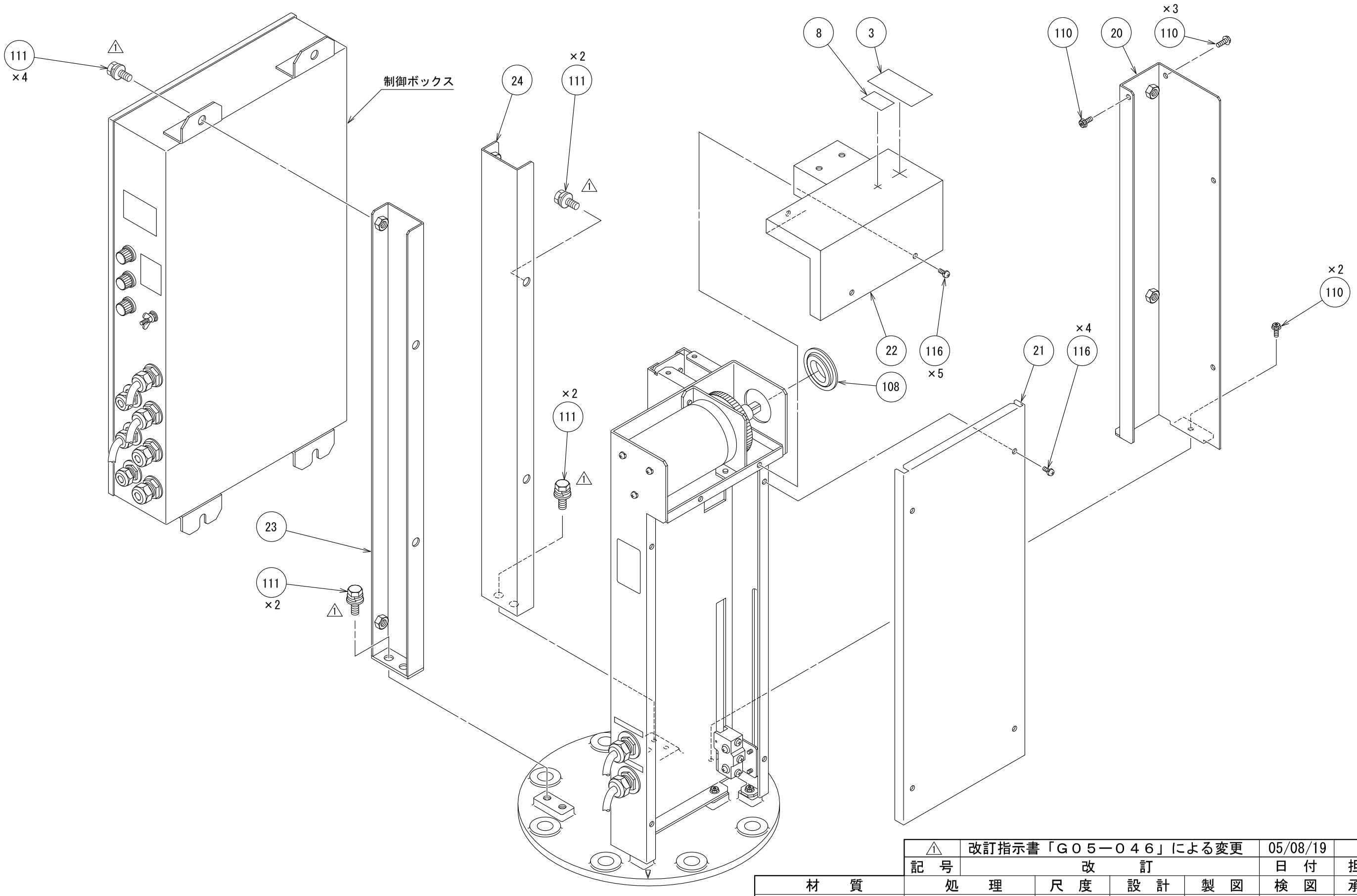

	⚠1	改訂指示書「Ｇ０５－０４６」による変更			05/08/19	東川
	記　号	改　　訂			日　付	担　当
材　　質	処　　理	尺　度	設　計	製　図	検　図	承　認
				02/06/22 委託	08/03/31 塩瀬	08/04/01 笹野
機　種　名	名　　称		図　面　番　号		品　別	葉　別
S-1800H80,180 (F116H)	組立図 （ホイスト）		35081C			2/3

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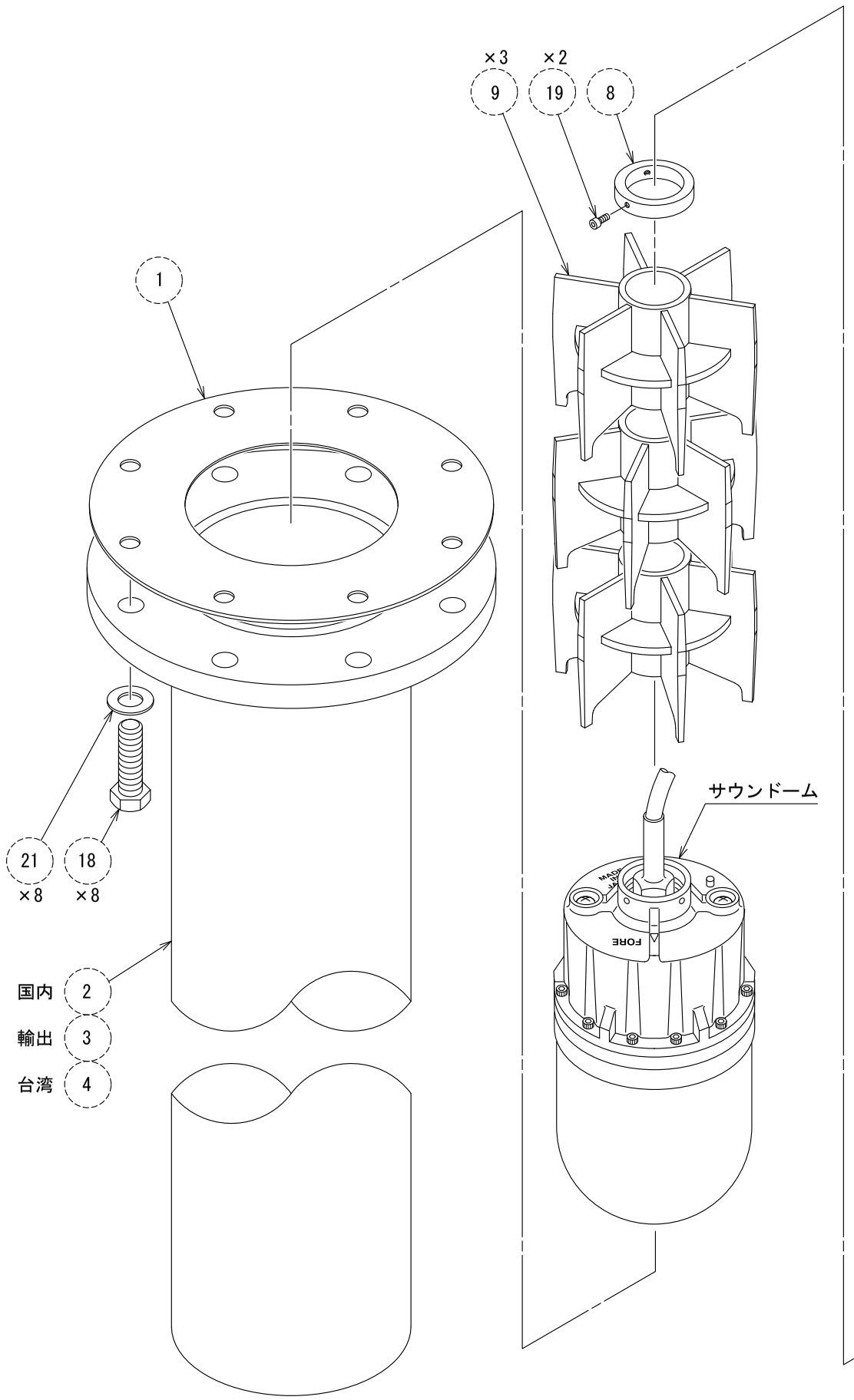

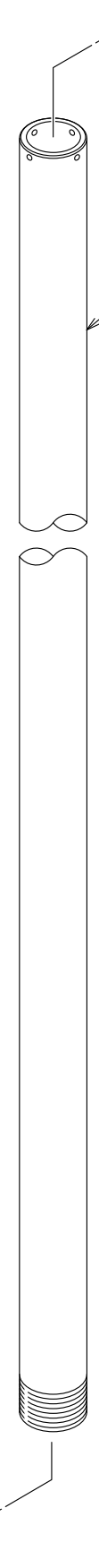

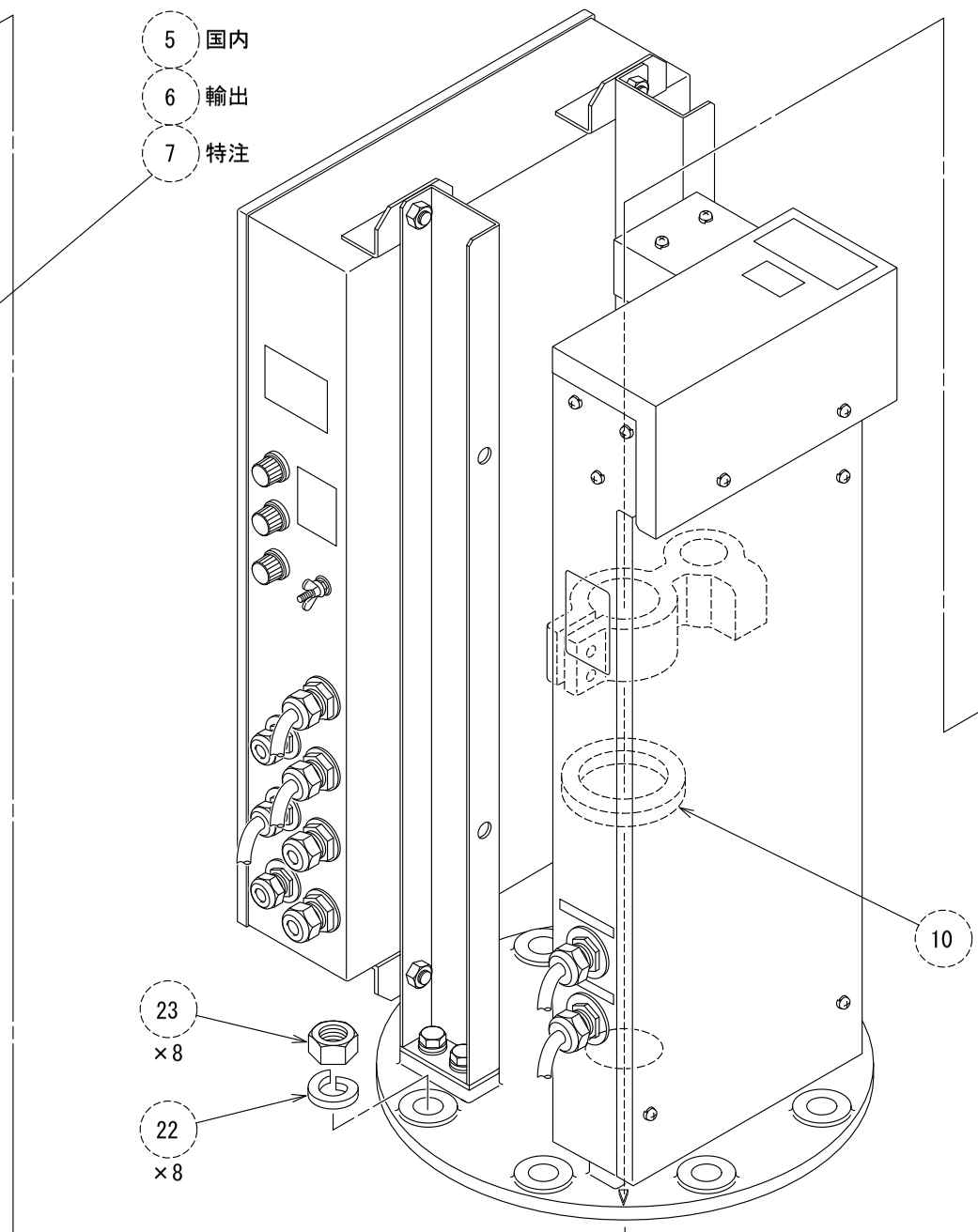

本図面は装備品を示す

	記号	改訂			日付	担当
	⚠					
材質	処理	尺度	設計	製図	検図	承認
				02/06/22 委託	08/03/31 塩瀬	08/04/01 笹野
機種名	名称		図面番号		品別	葉別
S-1800H80,180 (F116H)	組立図 (ホイスト)		35081C			3/3

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