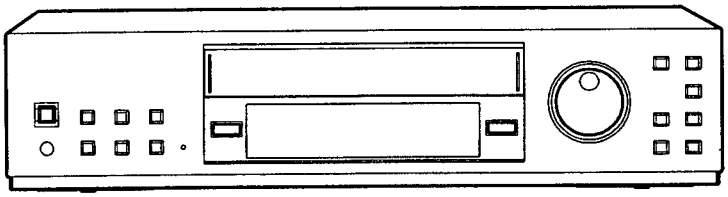
VIDE-V29278
2001

MITSUBISHI

Service Manual

TIME LAPSE VIDEO CASSETTE RECORDER

VHS
PAL



MODEL
HS-1024E
HS-1024E(B)

Only cassettes marked VHS can be used with this video cassette recorder.

SPECIFICATIONS

Tape Format	:	VHS 1/2" high-density video cassette tape
Power Source	:	100 to 230V±10% AC ; 50/60Hz
Power Consumption	:	Approx. 18W
Television System	:	CCIR standard 625lines, 50fields PAL type colour signal
Heads-Video	:	4 rotary heads
Luminance Signal	:	Frequency modulation recording
Colour Signal	:	Low frequency conversion, sub-carrier phase shift recording
Audio Recording System	:	1 full track head, recording system
Erase	:	1 full track head
Audio Track	:	1 track
Fast Forward / Rewind Time	:	Approx. 120sec. with E-180 cassette
Video Input	:	1.0V(p-p), 75Ω unbalanced BNC plug
Audio Input	:	308mV(rms), 50kΩ unbalanced RCA pin plug
Video Output	:	1.0V(p-p), 75Ω unbalanced BNC plug
Audio Output	:	388mV(rms), 1kΩ unbalanced RCA pin plug
Operating Temperature	:	41°F to 104°F
Relative Humidity	:	MAX. 80%
Weight	:	Approx. 9.0 lbs.
Dimensions	:	425(W) × 95(H) × 314(D) mm
Display Position	:	In any position
Timer Programme	:	8 programmes-Daily start and stop time for one week.
Battery Back Up	:	Lasts 31 days
Deck	:	α Deck

Tape Speed and Recording Time (with E-180 cassette)

Mode	Time	Speed (Drive)	Recording Field/sec
3H	3hrs	23.39mm/sec (Continuous)	50 fields
L12H	15hrs	4.68mm/sec (Continuous)	10 fields
L24H	27hrs	2.60mm/sec (Continuous)	5.6 fields

- Weight and dimensions shown are approximate.
- Design and specifications are subject to change without notice.

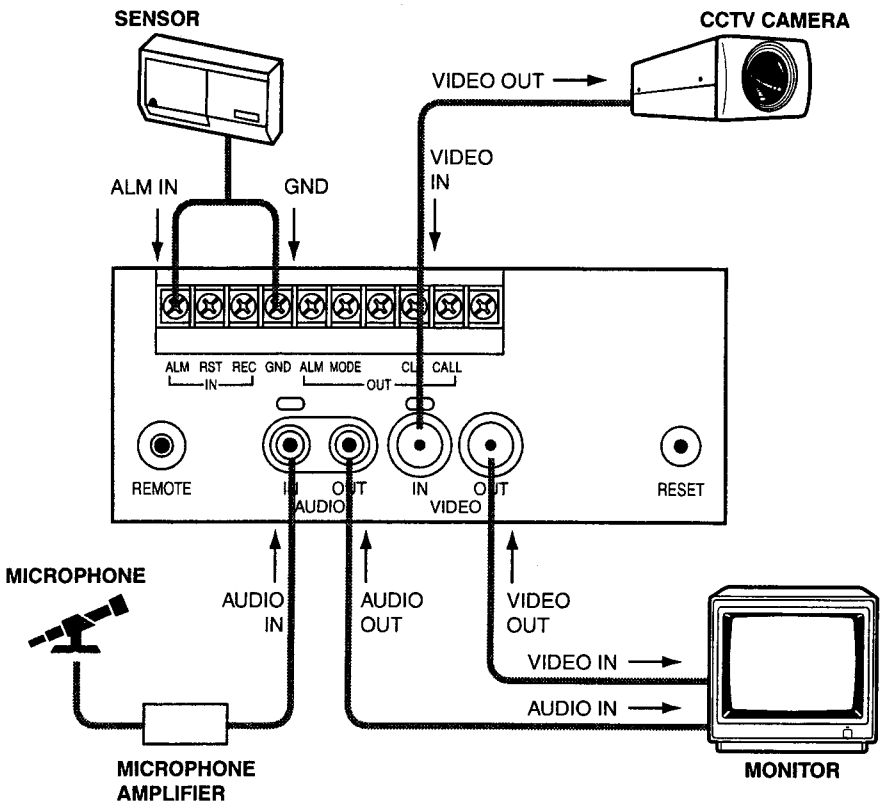
MITSUBISHI ELECTRIC

CONTENTS

CONTENTS

Connections for Various Functions

Connecting with CCTV camera, monitor and sensor



Note

- Monitor to be connected
  - Connecting with a CCTV monitor (for surveillance) is recommended.
  - Connecting with some monitors may cause picture vibration and/or picture distortion at the top or bottom of the image at still picture or normal playback.
  - A television for domestic use may easily cause picture vibration and distortion.
- CCTV camera to be connected
  - Do not connect 'Colour' and 'Black & White' cameras together.

WARNING

Use the specified batteries.
Batteries of wrong type can lead to explosion.
Be sure to replace with batteries of the same type or equivalent batteries. Use the parts specified in the circuit diagram or parts list.
Confirm that the batteries are placed with their positive (+) and negative (-) in the correct position.

CHECK PROCEDURE OF ELAPSED TIME

<MAINTENANCE>
POWER LOSS LIST
ALARM LIST
ALL MENU INITIALISE
POWER LOSS LIST CLEAR
ALARM LIST CLEAR

<REPEAT REC TIMES> 0
<ELAPSED TIME> 0H

1. Press the DISPLAY button to display the "MAIN MENU".
2. Turn the JOG to select the "MAINTENANCE".
3. Turn the SHUTTLE to right.
4. The "<ELAPSED TIME>" is displayed.
5. Press the DISPLAY button.

Note: The "<ELAPSED TIME>" counts up to 89,999 hours.

WARNING INDICATION

Self-Detection Function

This model has a function to detect internal malfunctions.

If any malfunction occurs inside the set, the state of malfunction is displayed on the fluorescent display or the monitor.
Press the COUNTER-RESET button on the front panel for 10 seconds or more to indicate the latest malfunction. The number that indicates the type of the malfunction as well as the warning indication mark "■"are displayed on the fluorescent screen.
Again press the COUNTER-RESET button for 10 seconds or over to cancel the indication.

No.	FLUORESCENT DISPLAY	MONITOR	MALFUNCTION	STATE / REMEDY
1	End	TAPE END	TAPE END DURING RECORDING	Tape stops at the tape end during recording. / Rewind the tape or eject the tape.
3	"no SIg"blinks	NO SIGNAL	LOSS OF VIDEO SIGNAL INPUT	Loss signal continues for 5 seconds or over during recording. / Input the video signal or stop recording. *1
4	"CLOg"blinks	---	Clogging	Clogging at the video head can not be removed. / Remove the clogging or stop recording.
6	blink	CHECK	LOADING MOTOR SYSTEM TROUBLE	Deck is on the wrong position during recording or when recording starts. / Carry out playback, recording, FF, or REW or turn on/off the power.*1
7	blink	CHECK	CAPSTAN MOTOR SYSTEM TROUBLE	Capstan motor does not rotate during recording. / Carry out playback, recording, FF, or REW or turn on/off the power.*1
8	blink	CHECK	DRUM MOTOR SYSTEM TROUBLE	Drum motor does not rotate during recording. / Carry out playback, recording, FF, or REW or turn on/off the power.*1
5,9	blink	CHECK	LOOSE TAPE	Tape is suffered from troubles such as looseness during recording. / Carry out playback, recording, FF, or REW or turn on/off the power.*1
10	blink	---	SHORT CIRCUIT	Power supply (SW5V, SW12V) short-circuit. / Disassemble for repair.
11	blink	---	TAPE CUTTING	Tape cutting / Press input button. *2

*1: If the indication "WARNING" does not disappear even after the appropriate countermeasure, disassemble the set for repair.
*2: Input button : Rec, Play, FF, Rew, Power On.

1. TAPE END

<FIRST TIME SET UP>
The indication appears for the following conditions;
item "TAPE END", on the screen, is set to "STOP",
alarm is input once or more times while set to "ALM PROT", and
timer recording is implemented while it is set to "REWIND".

3. LOSS OF VIDEO SIGNAL INPUT

When the video signal is turned off during recording for 5 seconds or more, the "NO SIGNAL" appears on the monitor.

4. CLOGGING

When the clogging at the video head can not be removed during the intermittent recording for more than L'2H at the SP mode by operating the cleaning 4 times.

6. LOADING MOTOR SYSTEM TROUBLE

When wrong loading system is detected, the intended mode is selected after returning the tape to the "CASSETTE-IN" position and loading it again. If the problem is not eliminated after this operation is repeated twice, the indication "CHECK" Appears on the monitor.

5, 9. LOOSE TAPE

When looseness or transfer error is detected, the following operation is made after the tape is returned to the "CASSETTE-IN" position and loaded again;

- When SP mode is selected for recording, the original mode is selected after recording at 3H mode for 5 seconds.

If the problem is not eliminated after this operation is repeated two times, the indication "CHECK" appears on the monitor.

CONTROL INPUT/OUTPUT SIGNAL

No.	SIGNAL	Terminal	USAGE
1	ALARM INPUT	ALARM IN	Start alarm recording
2	RESET INPUT	RST IN	Finish alarm recording / Adjusting the time on the screen
3	RECORD INPUT	REC IN	Start/stop recording or series recording
4	ALARM OUTPUT	ALM OUT	Output while alarm recording is under way
5	MODE OUTPUT	MODE OUT	Indication of VCR selected mode
6	CLOCK OUTPUT	CLK OUT	Command camera switching
7	CALL OUTPUT	CALL OUT	External warning device or for series recording

Clock output cycle during recording (CLK OUT)

The clock output cycle during recording is variable according to the specified value of " CLOCK OUT " in REAR TERMINAL of MAIN MENU. Refer to the below table.

When setup of "CLOCK OUT" is "REC".

Mode		Specified value of CLOCK OUT in REAR TERMINAL of MAIN MENU												
		1	2	3	4	5	10	15	20	25	30	50	60	F
Record	3H	(Drum - FF cycle) × (Setting value)												(Drum - FF cycle) × (1/2)
	L12H/L24H	(Recording interval)★ × (Setting value)												(Recording interval)★
Except Record		Fix to H level												

When setup of "CLOCK OUT" is "T/L-REC".

Mode		Specified value of CLOCK OUT in REAR TERMINAL of MAIN MENU												
		1	2	3	4	5	10	15	20	25	30	50	60	F
Record	3H	Fix to H level												
	L12H/L24H	(Recording interval)★ × (Setting value)												(Recording interval)★
Except Record		Fix to H level												

★ The recording interval in each REC/PLAY mode are as follows.

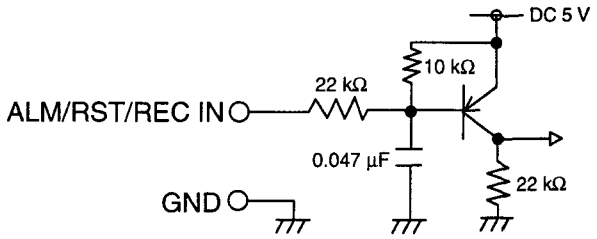
When playback a tape that is record in SP mode,it can playback in 3H mode only.

REC mode	Recording time	Recording interval
3H	3 hours	1 field
L12H	15 hours	5 field
L24H	27 hours	9 fields

Control Input/Output Signals and Circuit

ALM/RST/REC IN terminals (screw)

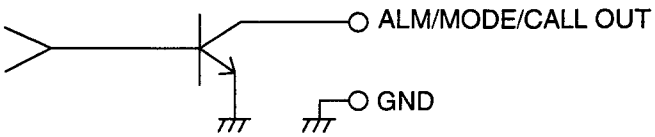
Active : When input terminals are short-circuited to GND or "L" level voltage (0 to + 1.6 V) applied.
Time for active : 0.1 sec. or over.
Non active : Open the input.



<Interface circuit inside the VCR>

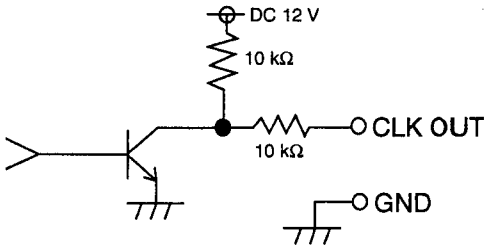
ALM/MODE/CALL OUT terminals (screw)

Active : "L" level voltage (0 to + 0.4 V) output; max. drive current 50 mA (+5 V DC)/10 mA (+24 V DC)
Non active : Open; max. voltage +24 V DC



<Interface circuit inside the VCR>

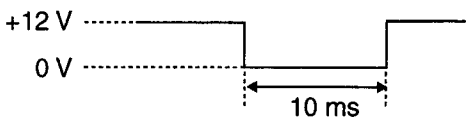
CLK OUT terminals (screw)



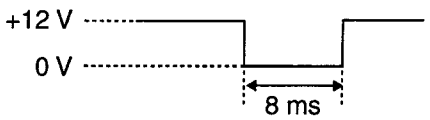
<Interface circuit inside the VCR>

CLK OUT signal

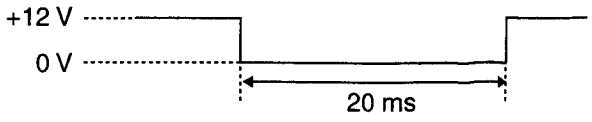
- When F is selected in CLOCK OUT of REAR TERMINAL menu (at 3H mode).



- During recording in L12H or L24H mode.

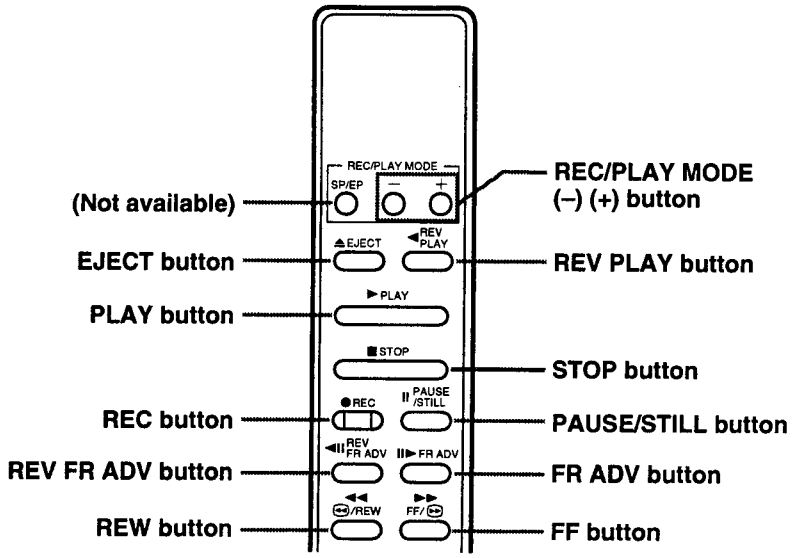


- When REC-1 to REC-60 is selected in CLOCK OUT of REAR TERMINAL menu (at 3H mode).



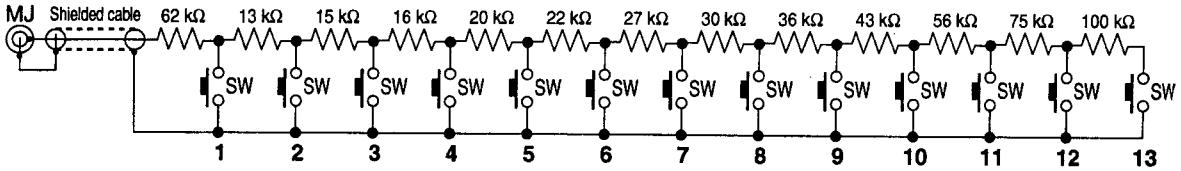
Remote Controller (Optional)

The optional remote controller (R-9100) provides remote operation of the VCR. Connect to the REMOTE terminal at the VCR's rear panel before use.



Remote Jack

■ Circuit



1) Resistor : Metal film resistor 1/4 W, resistance tolerance ± 1%
Temperature factor ± 100 PPM/°C
2) Button switch : Momentary
3) Connector MJ : Miniature jack, 2.5 mm in diameter, comply with JISC6560

■ Operational conditions

1) Isolation resistor : 200 MΩ or over (in connector MJ)
2) Floating capacity : 0.1 µF or under (in connector MJ)
3) Environmental temperature : 5-40 °C (common with VCR)
4) Relative temperature : Max. 80 % (common with VCR)

■ Remote control switch functions

Position	Function	Position	Function
1	EJECT	9	FORWARD FRAME SHIFT
2	STOP	10	REVERSE FRAME SHIFT
3	RECORDING	11	(+) REC/PLAY MODE
4	PAUSE	12	(–) REC/PLAY MODE
5	PLAYBACK	13	(Not available)
6	REVERSE PLAYBACK		
7	FAST FORWARD		
8	REWIND		

MAINTENANCE GUIDE

[○ : CLEANING ● : CHECK & ADJUSTMENT ◎ : REPLACEMENT □ : GREASING]

SPECIFICATION	EXCHANGE TIME	HOUR											
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	...	ONE YEAR
TAPE PATH POLES (★1)	—	○	○	○	○	○	○	○	○	○	○		○
CAPSTAN SHAFT (★1)		○	○	○	○	○	○	○	○	○	○		○
VIDEO HEAD (★2)	1,000HOURS	○	◎	○	◎	○	◎	○	◎	○	◎		◎
BRUSH (★2)			◎		◎		◎		◎		◎		◎
LOWER DRUM ASSY (★3)	ONE YEAR	○	○	○	○	○	○	○	○	○	○		◎
A/C HEAD UNIT		○	○	○	○	○	○	○	○	○	○		◎
FE HEAD		○	○	○	○	○	○	○	○	○	○		◎
REEL BELT	4,000HOURS								◎				◎
PINCH ASSY									◎				◎
PULLEY GEAR ASSY									◎				◎
SLIP GEAR									◎				◎
IDLER UNIT									◎				◎
BRAKE BELT (SP)									◎				◎
BRAKE BELT (TU)									◎				◎
REEL DISK									◎				◎
CAPSTAN BRAKE ASSY									◎				◎
CAPSTAN MOTER									◎				◎
FELT RING									◎				◎
SERVO CIRCUIT (★4)	—								●				●
Interchangeability Adjustment of the Mechanism									●				●
LOADING MOTOR ASSY	ONE YEAR												◎
DRUM MOTOR (★3)													◎
LOADING MECHANISM	—												□

★1 Refer to 1. Cleaning the DECK of MECHANICAL ADJUSTMENT AND REPLACEMENT.
★2 Included in the UPPER DRUM ASSY of the ASSY DRUM.
★3 Included in the ASSY DRUM.
★4 Included in the PCB-MAIN.

Note : 1. Check tape running functions and performance such as picture and sound concerning each mode at inspection.
2. Disassembly for repair is required when the operating time exceeds approx. one year.
3. ◎ :Replace with new part at 4,000hrs or three years.
4. The exchange every 4,000hrs is recommended only over 24Hr mode used.

DISASSEMBLY

1. Removal of Top Cover

1. Remove the four Top Cover fastening screws (ⓐ) shown in Fig. 1 and remove the Top Cover in the direction shown by arrow.

2. Removal of Front Panel

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Unfasten the seven catches (ⓑ) shown in Fig. 1 and remove the Front Panel in the direction shown by arrows.
3. Disconnect the Connector JA shown in Fig. 1.

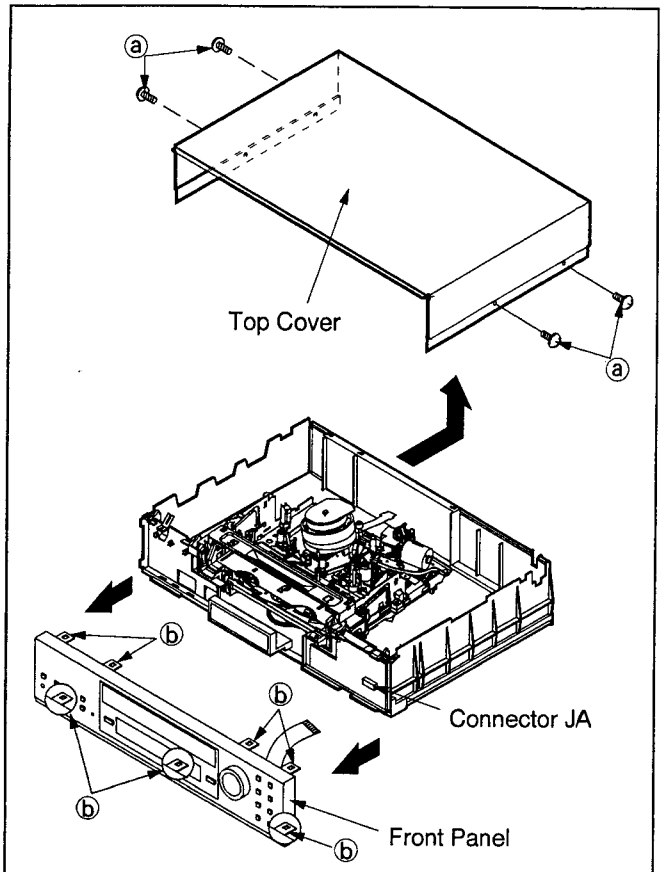


Fig. 1

3. Removal of Top Stay

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Unfasten the two Top Stay fastening screws (ⓐ) shown in Fig. 2 and remove the Top Cover.

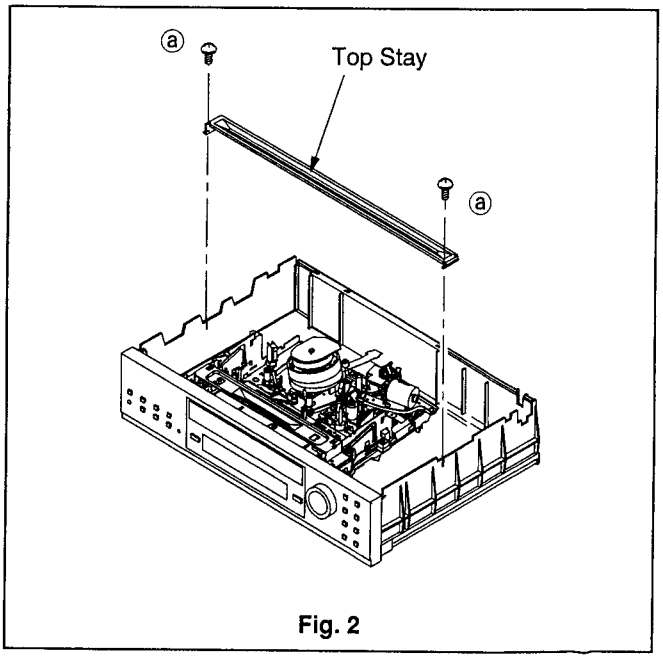


Fig. 2

4. Removal of Bottom Panel

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the two fastening screws (ⓐ) shown in Fig. 3.
3. Turn the set upside down as shown in Fig. 4.
4. Unfasten the two RS Cover fastening screws (ⓑ) shown in Fig. 4 and remove the RS Cover.
5. Unfasten the one Bottom Panel fastening screws (ⓒ) shown in Fig. 4

Note) Be sure to reattach the identical screw (ⓒ) that you removed.
Do not confuse the screws to prevent attaching other screws instead of the screw (ⓒ).

6. Push the one hook (ⓓ) toward inside. Slide the Bottom Panel backward to remove it, with taking care of the seven catches (ⓔ).

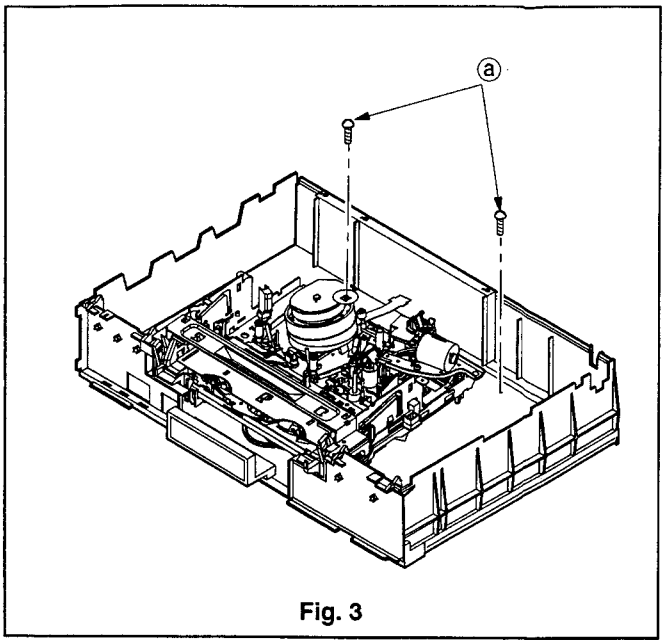


Fig. 3

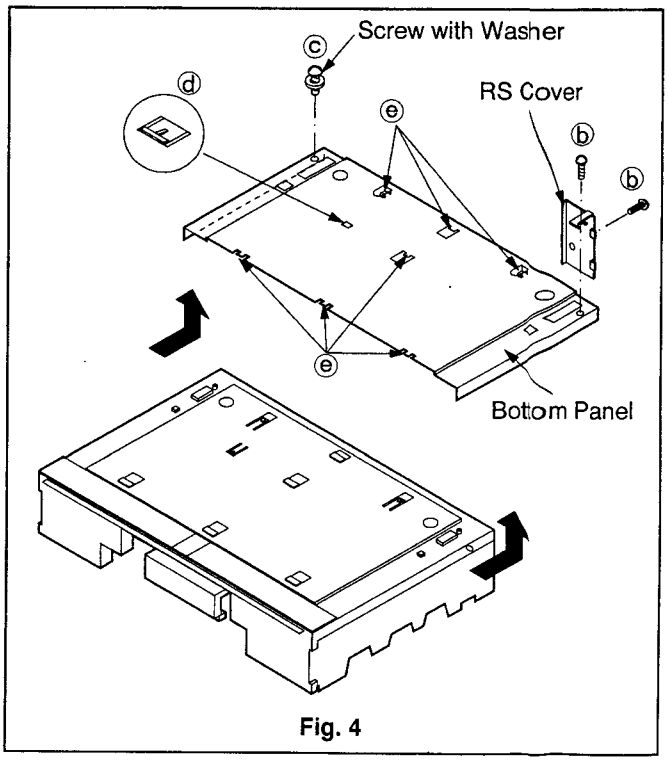


Fig. 4

5. Removal of DECK ASSY

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Remove the Top Stay.
   (Refer to Para. 3 of the DISASSEMBLY.)
4. Remove the two screws (ⓐ) shown in Fig. 5 and raise the Shield Cover to remove it.
5. Remove the four screws (ⓑ) shown in Fig. 6.
6. Disconnect the Connectors MA, MD, MH and ML.
7. Release the two catches (ⓒ) shown in Fig.6 and raise the DECK ASSY to remove it.

Note1: Remove the DECK ASSY paying attention to the Connectors MC and MF under it.

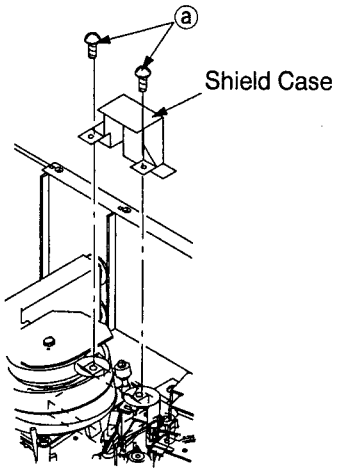


Fig. 5

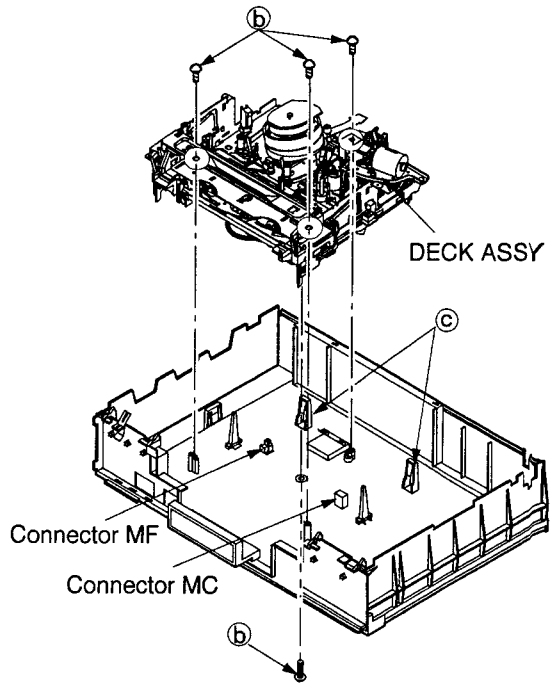


Fig. 6

HOW TO EXECUTE CIRCUIT BOARD SERVICE

CAUTION: BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE A.C. SOURCE.

LOCATION OF PRINT CIRCUIT BOARDS

Note :

- Take caution when removing flat cables to prevent any contact problem.
- Connect and disconnect the flat cables at right angles to the connector and make sure that it is completely secured.
- After servicing the PCB, restore the flat cable and leads to their former state.

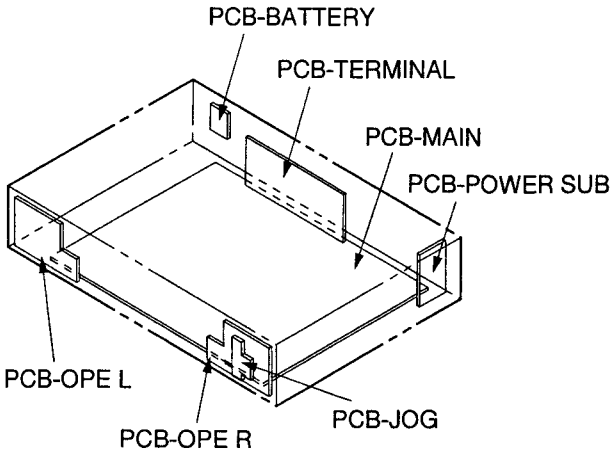


Fig. 7

1. PCB-OPE L

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Remove the Connector JS.
4. Unfasten the two catchs (ⓐ) shown in Fig. 8 and rotate the PCB-OPE L in the direction shown by arrow (ⓑ) and remove it in the direction shown by arrow (ⓒ).

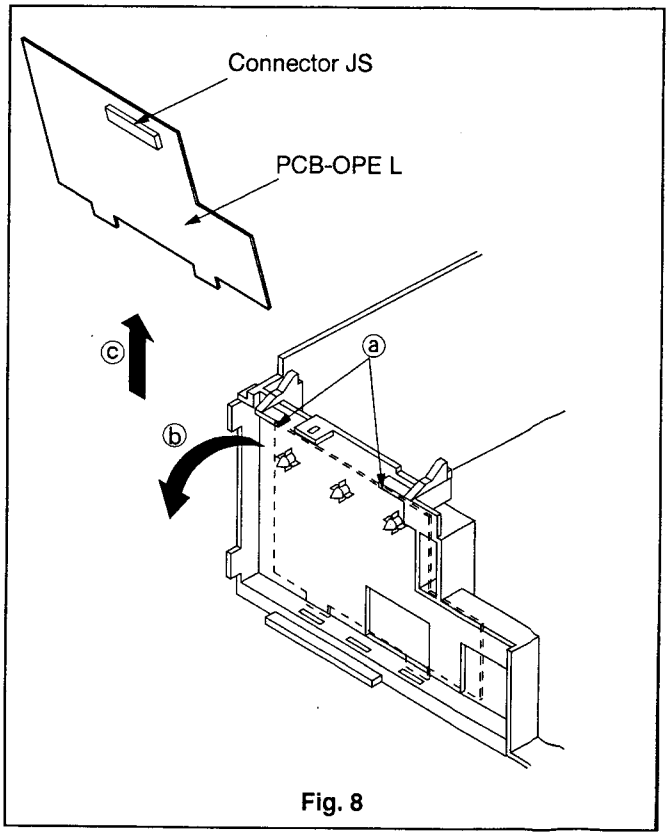


Fig. 8

2. PCB-OPE R

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Remove the Connector JN.
4. Unfasten the two catchs (ⓐ) shown in Fig. 9 and rotate the PCB-OPE R in the direction shown by arrow (ⓑ) and remove it in the direction shown by arrow (ⓒ).

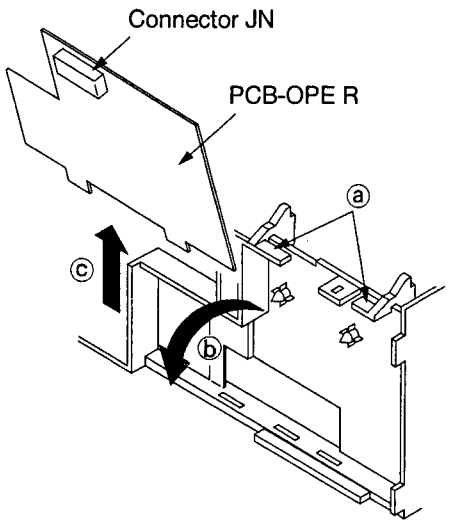


Fig. 9

3. PCB-JOG

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Front Panel.
   (Refer to Para. 2 of the DISASSEMBLY.)
3. Unfasten the three screws (ⓐ) shown in Fig. 10 and remove the PCB-JOG.

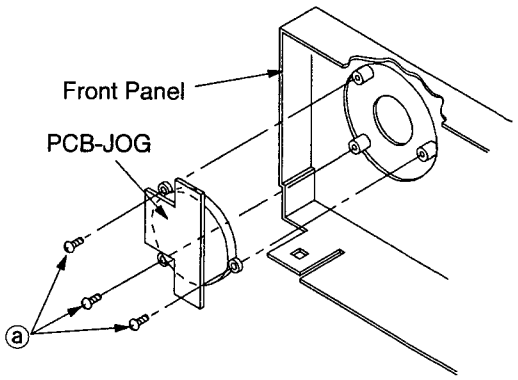


Fig. 10

4. PCB-POWER SUB

1. Remove the Top Cover.
   (Refer to Para. 1 of the DISASSEMBLY.)
2. Remove the Connector MB.
3. Unfasten the two screws (ⓐ) shown in Fig. 11.
4. Unfasten the screws (ⓑ) shown in Fig. 11. (for HS-1024E(B))
5. Remove the PCB-POWER SUB shown in Fig. 11.

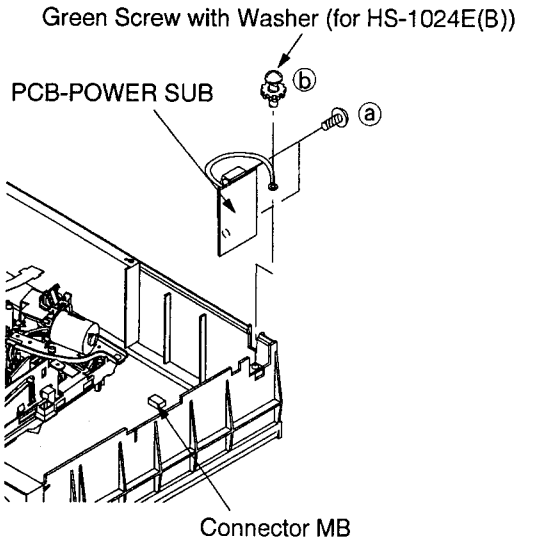


Fig. 11

5. PCB-BATTERY

1. Remove the Battery Cover shown in Fig. 12.
2. Unfasten the one catch (ⓐ) shown in Fig. 12. and remove the PCB-BATTERY.
3. Remove the Connector VP.

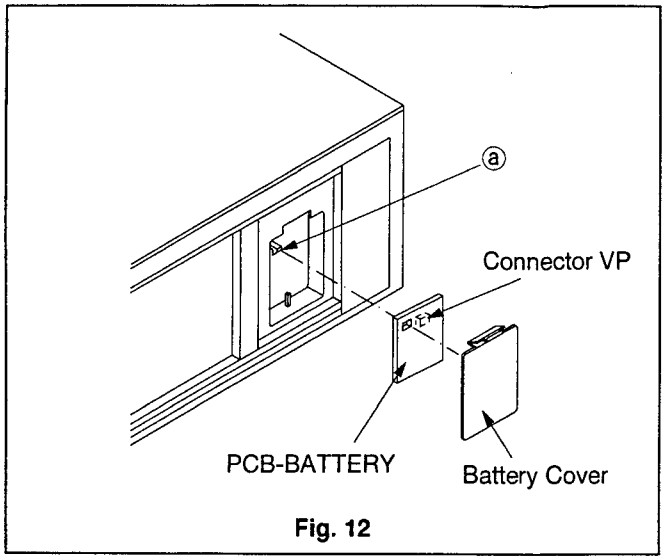


Fig. 12

6. PCB-MAIN

1. Remove the Bottom Panel.
   (Refer to Para. 4 of the DISASSEMBLY.)
2. Remove the DECK ASSY.
   (Refer to Para. 5 of the DISASSEMBLY.)
3. Remove the two screws (ⓐ) shown in Fig. 13.
4. Remove the Connector MB.
5. Remove the PCB-OPE L and PCB-OPE R.
   (Refer to Para. 1 and 2 of the HOW TO EXECUTE CIRCUIT BOARD SERVICE.)
6. Release the two fastening catches (ⓑ) shown in Fig. 13. Raise the PCB-MAIN to remove it.
7. Release the six screws (ⓒ) shown in Fig. 14 and remove the Terminal Cover.
8. Remove the PCB-TERMINAL shown in Fig. 14.

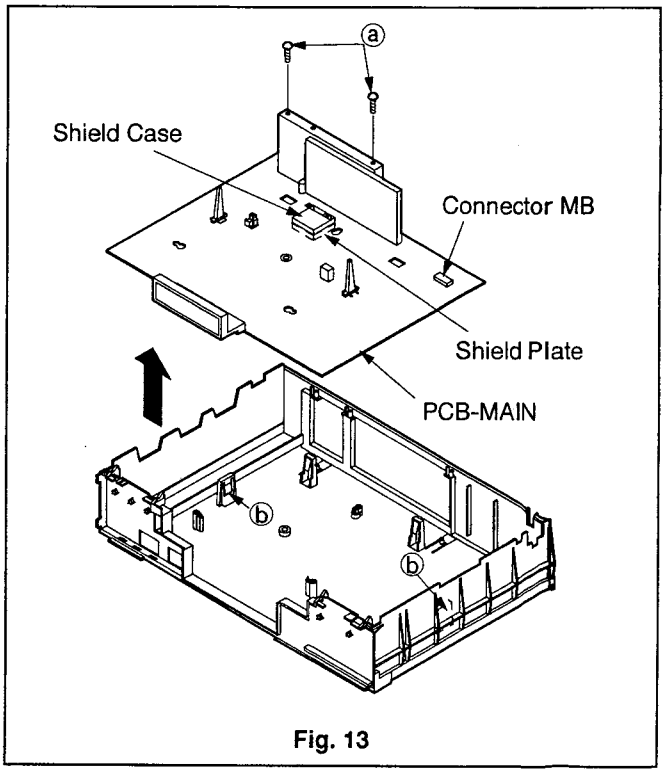


Fig. 13

◪ Service of Head Amp block

1. Unsolder the four soldered points of the Shield Case shown in Fig. 13 and remove it.
2. Unsolder the three soldered points of the Shield Plate shown in Fig. 13 and remove it.

Note: Before checking the operation, mount the Shield Case and the Shield Plate in their original position. If not connected, beat or picture malfunction may appear.

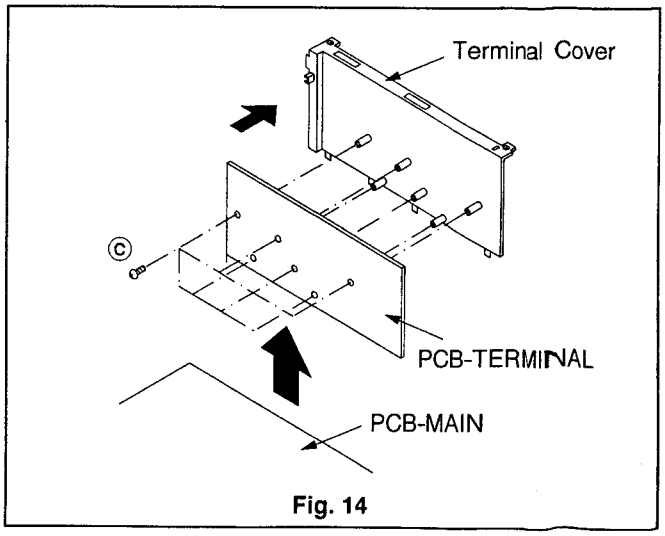
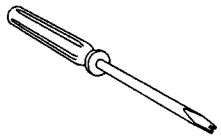
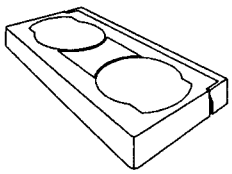
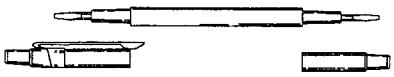
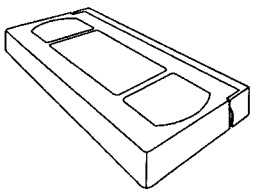


Fig. 14

MECHANICAL ADJUSTMENT TOOLS

	PURPOSE	METHOD
Adjustment Driver (859C259O80) 	For adjustment of guide rollers.	Carefully insert and adjust guide rollers.
Back Tension Gauge (859C345O80) 	The back tension gauge is used for measuring the tension of the tape on the supply side.	Load this gauge in the cassette housing and run in the play mode. Read the gauge indicator.
Cotton gloves	For changing, cleaning and handling of drum, heads and guides.	Use when handling all parts in the tape path.
Grease **MULTEMP PG-641 (859D055O30)** **MULTEMP** **MOLYLOTE G PASTE (859D055O50)** **MULTEMP AC-DM (859D055O90)**	Lubrication of various parts.	To be applied as specified.
Oil **FLOIL (859D154O20)**	Lubrication of various parts.	To be applied as specified.
Silicon compound **SC102 (859D164O10)**	Fix of various parts.	To be applied as specified.

ELECTRICAL ADJUSTMENT TOOLS

	PURPOSE	METHOD
Adjustment Driver (859C338O00) **767-M** 	The adjustment driver is intended to adjust variable resistors, trimmers, transformers etc. in the circuitry.	Select a tip suitable for the particular head of the component concerned and adjust.
Alignment Tape **(PS2 : 859C339O10)** **(PM6KH3 : 859C339O30)** **(PMX : 859C568O70)** 	Standard signals (VHS Standard) are recorded on the alignment tape and reproduced when required in the adjustment of Servo circuit and interchangeability alignment.	Install and run in the play mode, the same as for an ordinary tape.

SERVICE CAN BE EXECUTED WITH THE EE PICTURE DISPLAYED

1. Turn off and unplug the VCR.
2. Remove the DECK ASSY.
3. Short TP5X and TP5Y shown in Fig.1

[Note] Short TP5X and TP5Y before turning on the power.

4. Put the AC plug into the outlet, and turn on the VCR.

PCB-MAIN (Component side)

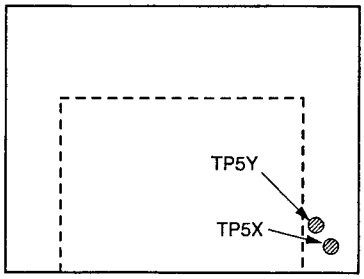


Fig.1

DECK OPERATION CHECK

Operation of the deck position and tape running systems can be checked according to the following method.

1. Short TP5T and TP5X shown in Fig.1
2. Press the RESET button on the rear panel.
3. For fast forward operation check, press the POSITION/VERTICAL ADJUST (+) button to make the CAPSTAN MOTOR rotate in the forward direction. For rewind operation check, press the POSITION/VERTICAL ADJUST (-) button to make the CAPSTAN MOTOR rotate in the reverse direction.
   (+) button : Forward rotation is implemented.
   (-) button : Reverse rotation is implemented.
4. Press the TRACKING (+) and (-) buttons to check the deck position.
   TRACKING (+) button : Operation in the loading direction.
   TRACKING (-) button : Operation in the unloading direction.
5. Open TP5T and TP5X shown in Fig.1
6. Press the RESET button on the rear panel.

PCB-MAIN (Component side)

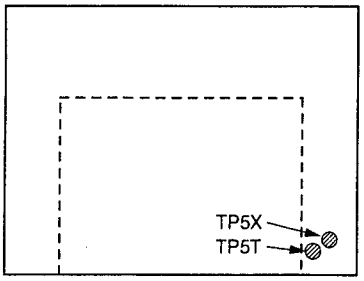


Fig.2

ELECTRICAL ADJUSTMENTS

Perform only the alignments required. If proper equipment is not available, do not attempt an alignment.

❑PRE-ADJUSTMENT SETTINGS

* If otherwise specified, make adjustments under the following conditions.

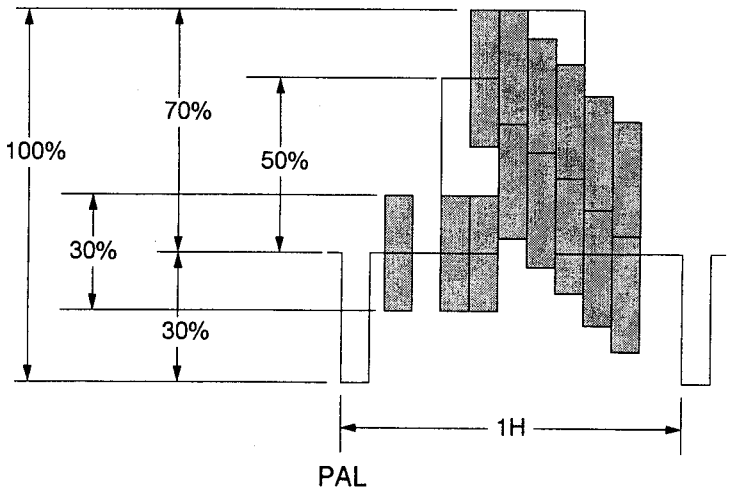
• A-TAPE	VHS TAPE (E-180) on the market.
• VIDEO	Colour position.
• PICTURE VR (VR831)	Centre click stop position.
• LOCK button	OFF position.
• Display mode	Non-characters display mode. (DISPLAY MODE 3 or 4)

❑MEASURING EQUIPMENT

- Oscilloscope (10:1 probe unless 1:1 specified.)
- Signal generator
- Audio tester
- Frequency counter
- Direct current voltmeter
- Miscellaneous electrical tools
- Carrier checker

❑TEST SIGNAL

Colour bar signal
In this manual, unless otherwise specified in particular, use the colour bar signal specified below.

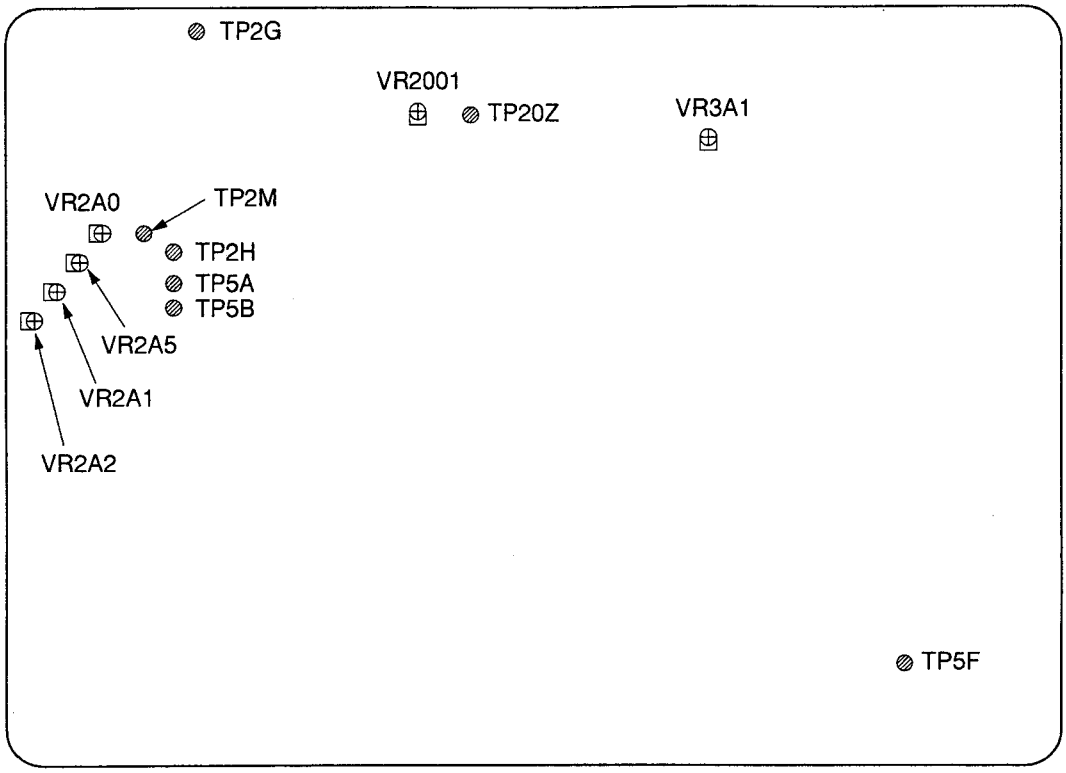


colour bar (with 100% window)

LOCATIONS

PCB-MAIN (Component side)

REAR

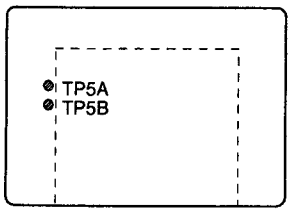


[Servo circuit] 1. Playback Switching Point	**Adjustment purpose**	Video switch over timing during playback.
	Symptom when incorrectly adjusted	Switching noise or jitter in the playback picture.

Measuring instrument and condition		**VCR set up condition**	
Oscilloscope		**Input signal**	– – –
Test point	– – –	**Using tape**	Alignment Tape (PS2, stair step)
EXT trigger	– – –	**VCR condition**	3H Playback
Measurement range	– – –	**Using Jig**	– – –

1. Set the VCR to 3H PLAY mode.
2. Play an Alignment Tape. (PS2, stair step)
3. Short TP5A to TP5B.
4. Push the TRACKING (+) and (-)buttons at the same time.
5. Confirm that the values 55 to 75 are displayed on the fluorescent display after approx 6 seconds.
6. Open TP5A to TP5B.

PCB-MAIN (Component side)

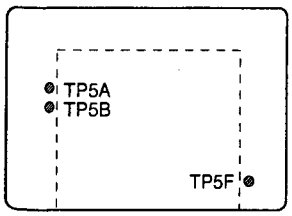


[Timer circuit] 2. Clock Frequency Correction	**Adjustment purpose**	To set the accuracy of the clock.
	Symptom when incorrectly adjusted	Poor clock accuracy.

Measuring instrument and condition		**VCR set up condition**	
Frequency Counter		**Input signal**	– – –
Test point	TP5F	**Using tape**	– – –
EXT trigger	– – –	**VCR condition**	Power off
Measurement range	– – –	**Using Jig**	– – –

1. Set the VCR to POWER off.
   (With the tape ejected from the VCR.)
2. Short TP5A to TP5B.
   (Confirm that the " REC " is displayed in fluorescent display.)
3. Observe the frequency at TP5F.
4. Be certain that the frequency is between 374.9374 ~ 375.0626kHz.
5. Use the Jog dial and Shuttle ring to enter the last four digits of the frequency counter reading (374.ⓐⓑⓒⓓkHz).
   Transfer to next subordinate figure's position, turn the shuttle-ring to clockwise direction and enter the digits in ⓐⓑⓒⓓ sequence.
6. Push the REC button on the VCR.
   (Confirm that the " REC " is displayed in fluorescent display.)
7. Open TP5A to TP5B.

PCB-MAIN (Component side)

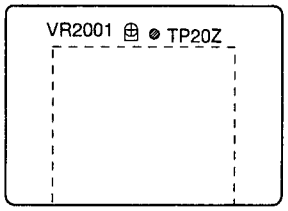


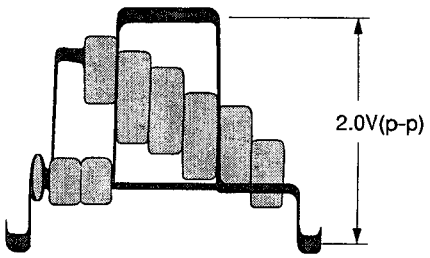
[Y/C signal circuit] 3. CG-AGC	**Adjustment purpose**	Setting output level of the CG circuit.
	Symptom when incorrectly adjusted	Too bright or too dark picture.

Measuring instrument and condition		**VCR set up condition**	
Oscilloscope		**Input signal**	Video signal (Color bar)
Test point	TP-20Z	**Using tape**	– – –
EXT trigger	– – –	**VCR condition**	STOP
Measurement range	DIV 50mV TIM 10μs	**Using Jig**	– – –

1. Supply a video signal (Colour bar).
2. Observe the waveform at TP-20Z.
   (The probe must be grounded to TP2G.)
3. Adjust VR2001 so that the amplitude of waveform is 2.0V(p-p).

PCB-MAIN (Component side)



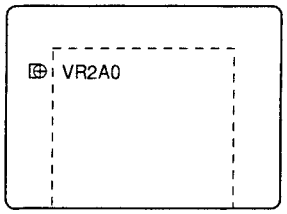


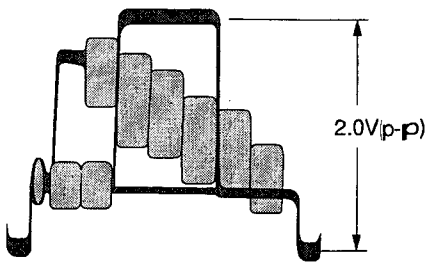
[Y/C signal circuit] 4. EE Out put Level	**Adjustment purpose**	To set output level of video signal at STOP mode.
	Symptom when incorrectly adjusted	Too bright or too dark image : incorrect color.

Measuring instrument and condition		**VCR set up condition**	
Oscilloscope		**Input signal**	Video signal (colour ber)
Test point	VIDEO OUT terminal	**Using tape**	– – –
EXT trigger	– – –	**VCR condition**	STOP
Measurement range	DIV 20mV TIM 50μs	**Using Jig**	– – –

1. Supply a video signal (colour ber).
2. Be certain that nothing is connected to the VIDEO OUT terminal.
3. Observe the waveform at VIDEO OUT terminal.
4. Adjust VR2A0 so that the amplitude of waveform is 2.0V(p-p).

PCB-Y/C (Component side)



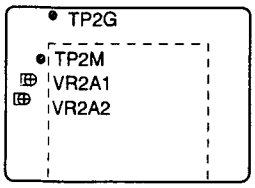


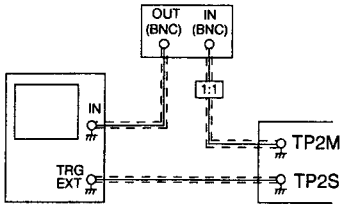
[Y/C signal circuit] 5. Carrier set, Deviation	**Adjustment purpose**	FM carrier frequency and deviation.
	Symptom when incorrectly adjusted	Too bright or too dark picture. Horizontal noise or loss of sync.

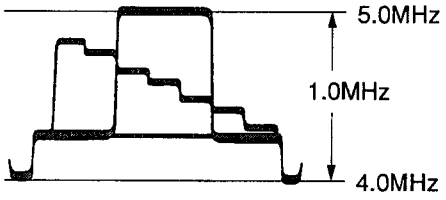
Measuring instrument and condition		**VCR set up condition**	
Oscilloscope (Probe 1:1)		**Input signal**	Video signal (Colour bar)
Test point	TP2M	**Using tape**	A tape
EXT trigger	TP2S	**VCR condition**	3H REC
Measurement range	DIV 0.2V TIM 10µs	**Using Jig**	Carrier Checker

1. Supply a video signal (Colour bar).
2. Set the VCR to 3H REC mode.
3. Observe the waveform at TP2M using a carrier checker.
   (The probe must be grounded to TP2G.)
4. Adjust VR2A1 so that the sync tip is at 4.0MHz.
5. Adjust VR2A2 so that the peak white is at 5.0MHz.

PCB-Y/C (Component side)





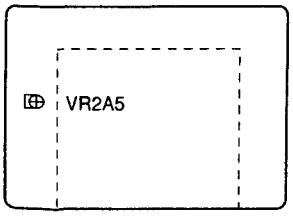


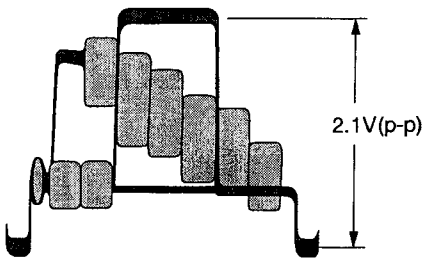
[Y/C signal circuit] 6. Playback Demodulation Sensitivity	**Adjustment purpose**	Setting each output level to the same when playing a tape recorded in VHS.
	Symptom when incorrectly adjusted	Both Y signal and color signal will be played back incorrectly

Measuring instrument and condition		**VCR set up condition**	
Oscilloscope		**Input signal**	– – –
Test point	VIDEO OUT terminal	**Using tape**	Alignment Tape (PS2, Colour bar)
EXT trigger	– – –	**VCR condition**	3H Playback
Measurement range	DIV 50mV TIM 10µs	**Using Jig**	– – –

1. Set the VCR to 3H PLAY mode.
2. Be certain that nothing is connected to the VIDEO OUT terminal.
3. Play an alignment tape (PS2, Colour bar).
4. Observe the waveform at VIDEO OUT terminal.
   (The probe must be grounded to TP2G.)
5. Adjust VR2A5 so that the amplitude of waveform is 2.1V(p-p).

PCB-Y/C (Component side)



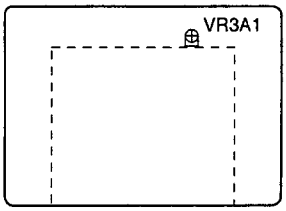


[Audio circuit] 7. Playback Audio Level	**Adjustment purpose**	Audio level during playback.
	Symptom when incorrectly adjusted	Too loud or too low audio level during playback.

Measuring instrument and condition		**VCR set up condition**	
Audio tester		**Input signal**	– – –
Test point	AUDIO OUT terminal	**Using tape**	Alignment Tape (PS2, Colour bar)
EXT trigger	– – –	**VCR condition**	3H Playback
Measurement range	– – –	**Using Jig**	– – –

1. Set the VCR to 3H PLAY mode.
2. Play an alignment tape (PS2, Colour bar).
3. Observe the audio level at AUDIO OUT terminal.
4. Adjust VR3A1 so that the audio output level is 388mV(rms) (-6dBs).
   Note: Check that the level fluctuation is less than ±1dB.if level fluctuation is over ±1dB then check the A/C HEAD slant adjustment.

PCB-MAIN (Component side)



MECHANICAL ADJUSTMENT AND REPLACEMENT

1. DECK Cleaning

The following Parts require cleaning whenever serviced in order to maintain satisfactory performance.

1-1. VIDEO HEAD

1. Clean the VIDEO HEAD according to the following method. Dust and other foreign objects on the VIDEO HEAD disturb the normal PLAYBACK picture. To clean the VIDEO HEAD, hold a VIDEO HEAD cleaning cloth dampened with alcohol against the DRUM and slowly turn the DRUM counter-clockwise.

Note: Do not directly touch the HEADS installed to the UPPER DRUM ASSY. The HEADS are very hard but brittle to shock (especially to shock in the vertical direction) and easily breakable. Never apply force to it in the vertical direction.

2. Allow the residual alcohol to dry thoroughly before running a tape. The residual alcohol on the HEADs may damage the tape if not dried completely.

UPPER DRUM ASSY cleaning

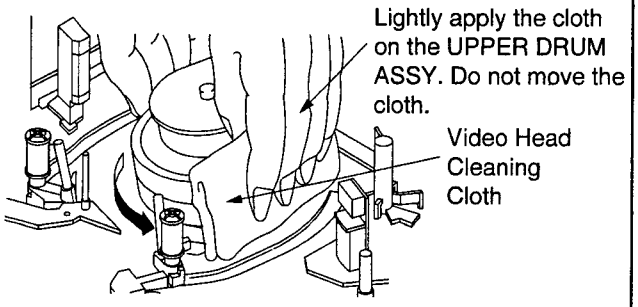


Fig. 1-1

1-2. Tape Running System

Clean the following Parts of the Tape Running System.

1. TENSION PIN
2. F/E HEAD
3. SLANT POLE (SP)
4. SLANT POLE (TU)
5. A/C HEAD
6. GUIDE POLE (TU)
7. PINCH ROLLER
8. GUIDE PIN (TU)
9. GUIDE ROLLER (SP)
10. UPPER / LOWER DRUM ASSY
11. GUIDE ROLLER (TU)
12. CAPSTAN SHAFT

1. Clean the Tape Running System, using a piece of gauze dampened with alcohol, except for the GUIDE ROLLER (SP), GUIDE ROLLER (TU), and PINCH ROLLER which require to be cleaned with a piece of dry gauze.
2. Allow the residual alcohol to dry thoroughly before running the tape. The residual alcohol on the SYSTEM may damage the tape if not dried completely.

1-3. REEL DISK Drive System

1. Clean the BRAKE side and REEL BELT of the REEL DISK Drive System.
2. Clean the REEL DISK Drive System, using a piece of gauze dampened with alcohol, except for the REEL BELT which requires cleaning with a piece of dry gauze.
3. Allow the residual alcohol to dry thoroughly before operation.

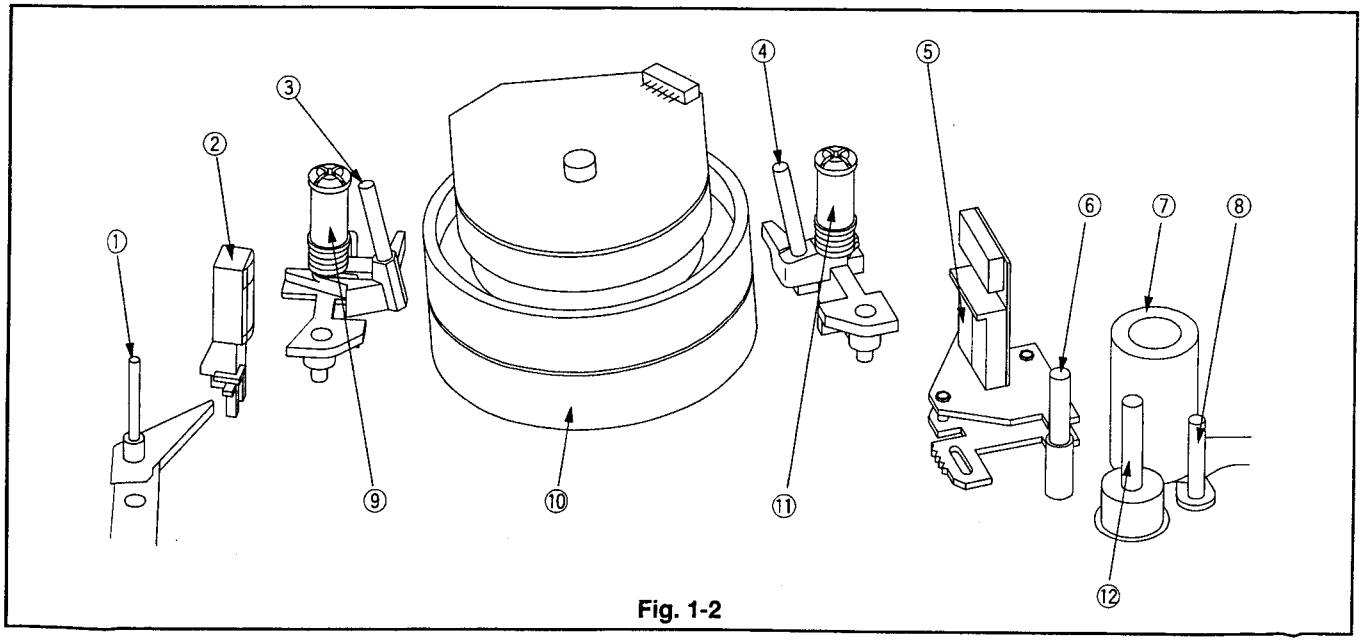


Fig. 1-2

2. Replacement of Major Parts

2-1. CLEANING ARM, FELT RING

SET POSITION : Normal

(Removal)

1. Release the two catches (ⓐ) of the CLEANING ARM shown in the Fig. 2-1 to remove the CLEANING ARM.
2. Release the two catches (ⓑ) of the CLEANING ARM shown in the Fig. 2-1 to remove the FELT RING.

(Installation)

1. Install the FELT RING shown in the Fig. 2-1 to the CLEANING ARM.
2. Install the CLEANING ARM shown in the Fig. 2-1.

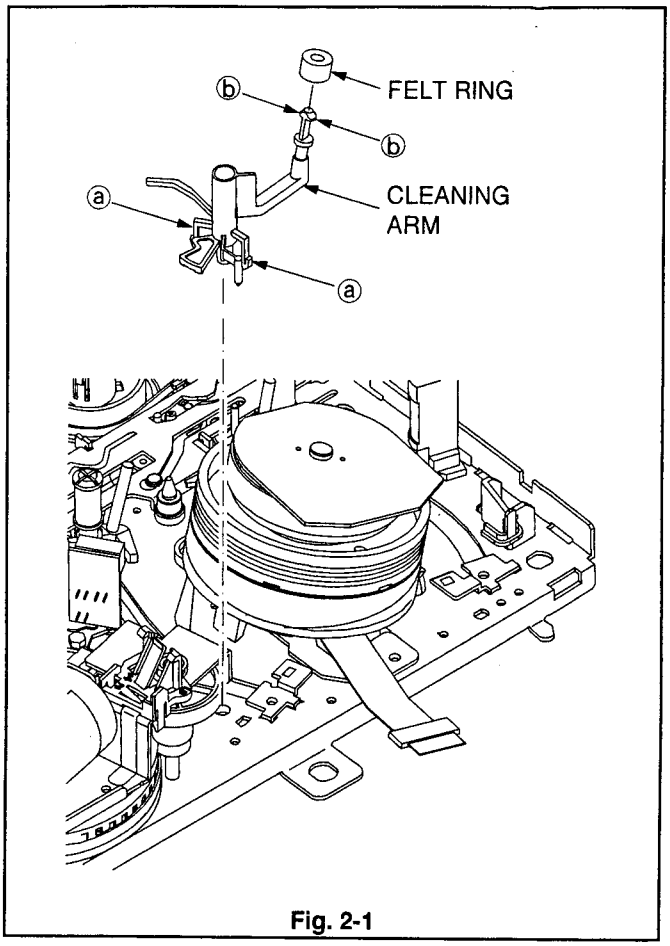


Fig. 2-1

2-2. STAY PLATE

SET POSITION : Normal

(Removal)

1. Remove the two screws (ⓐ) fastening the STAY PLATE shown in the Fig. 2-2 to remove the STAY PLATE.

(Installation)

1. Install the STAY PLATE shown in the Fig. 2-2.

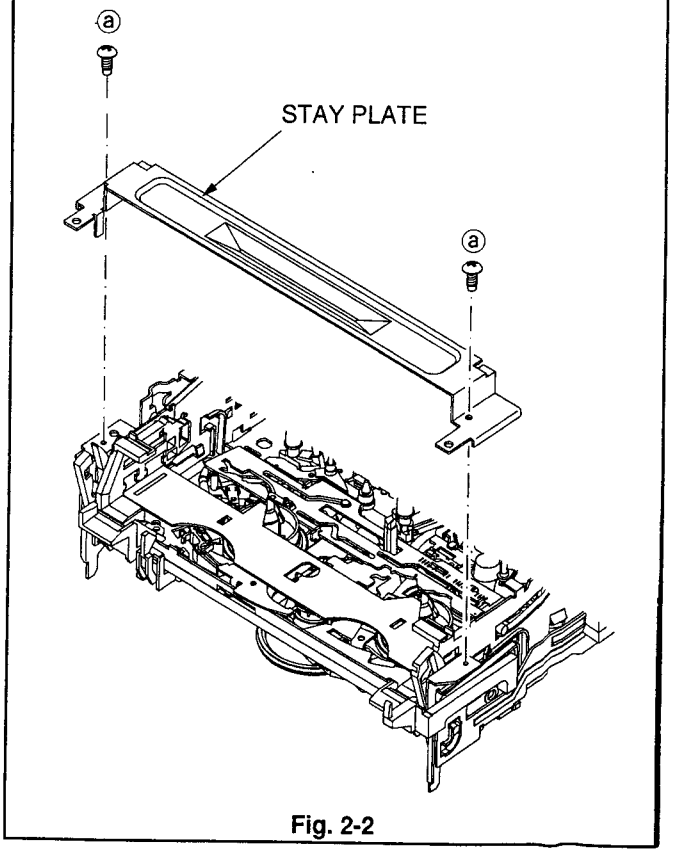


Fig. 2-2

2-3. BOTTOM ASSY

SET POSITION : Normal

Remove the following part before replacing the BOTTOM ASSY. Refer to the corresponding item to install it.

- STAY PLATE (Item 2-2)

(Removal)

1. Move the WORM WHEEL in the Fig. 2-3-1 in the direction shown by the arrow Ⓐ. And match the Boss ⓐ of the BOTTOM ASSY with the Hole in the MAIN PLATE ASSY.
2. Lift the BOTTOM ASSY in the Fig. 2-3-1 in the direction shown by the arrow Ⓑ and pull it out in the direction shown by the arrow Ⓒ.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Grooves of the MAIN PLATE ASSY shown in the Fig. 2-3-2.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Bosses of the BOTTOM ASSY shown in the Fig. 2-3-2.
3. Rotate the WORM WHEEL shown in the Fig. 2-3-1 so that the ARM (SP) stands vertically.
4. Insert the Boss ⓑ of the BOTTOM ASSY shown in the Fig. 2-3-2 in the Upper Groove of the MAIN PLATE and the Boss ⓒ in the Lower Groove.
5. Insert the Boss ⓓ of the BOTTOM ASSY to the Upper Groove through the Hole in the MAIN PLATE ASSY shown in the Fig. 2-3-1 and the Boss ⓔ to the Lower Groove through the slot in the ARM (SP).

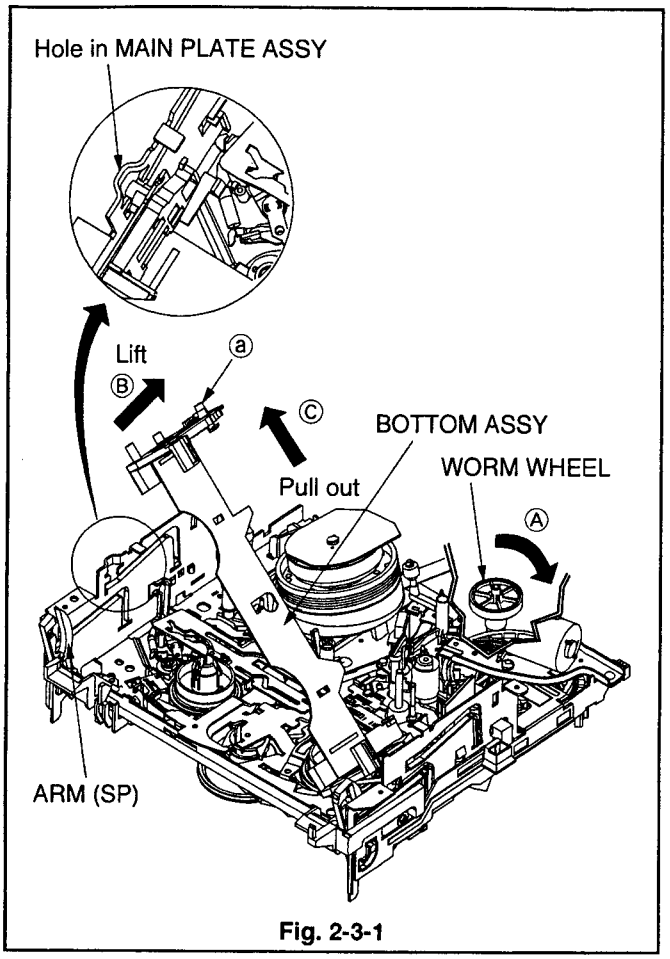


Fig. 2-3-1

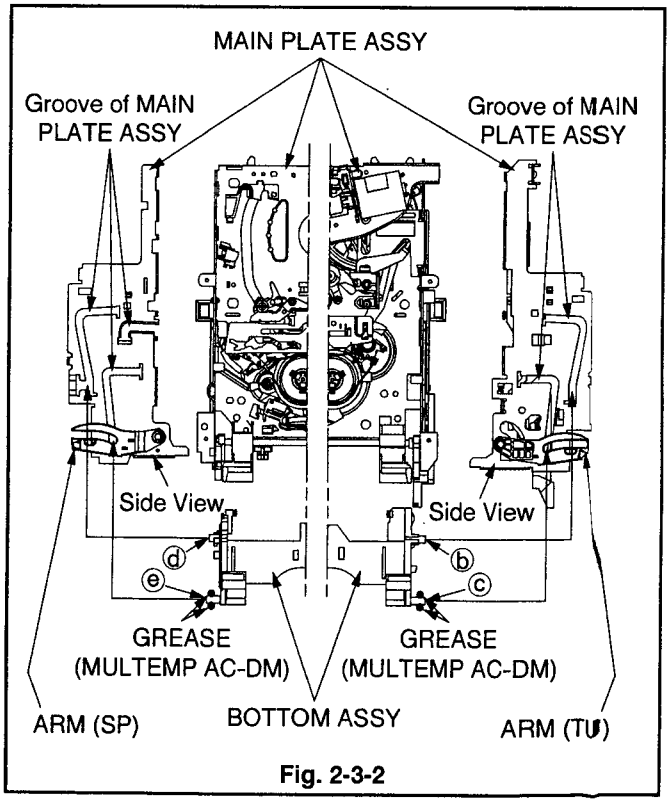


Fig. 2-3-2

2-4. INSERT GUIDE (TU)

SET POSITION : Normal

Remove the following parts before replacing the INSERT GUIDE (TU). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Remove the screw (ⓐ) fastening the INSERT GUIDE (TU) shown in the Fig. 2-4 to remove the INSERT GUIDE (TU).

(Installation)

1. Install the INSERT GUIDE (TU) shown in the Fig. 2-4.

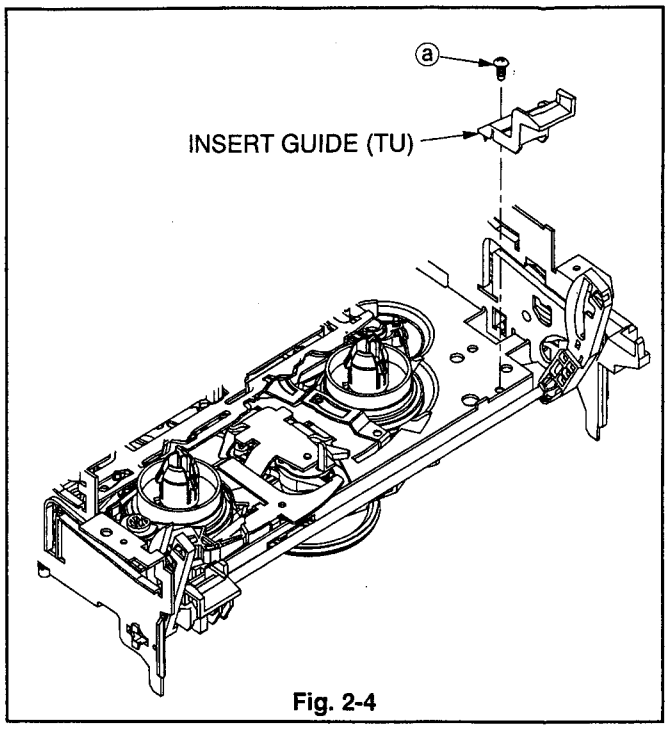


Fig. 2-4

2-5. INSERT GUIDE (SP)

SET POSITION : Normal

Remove the following parts before replacing the INSERT GUIDE (SP). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Remove the screw (ⓐ) fastening the INSERT GUIDE (SP) shown in the Fig. 2-5 to remove the INSERT GUIDE (SP).

(Installation)

1. Install the INSERT GUIDE (SP) shown in the Fig. 2-5.

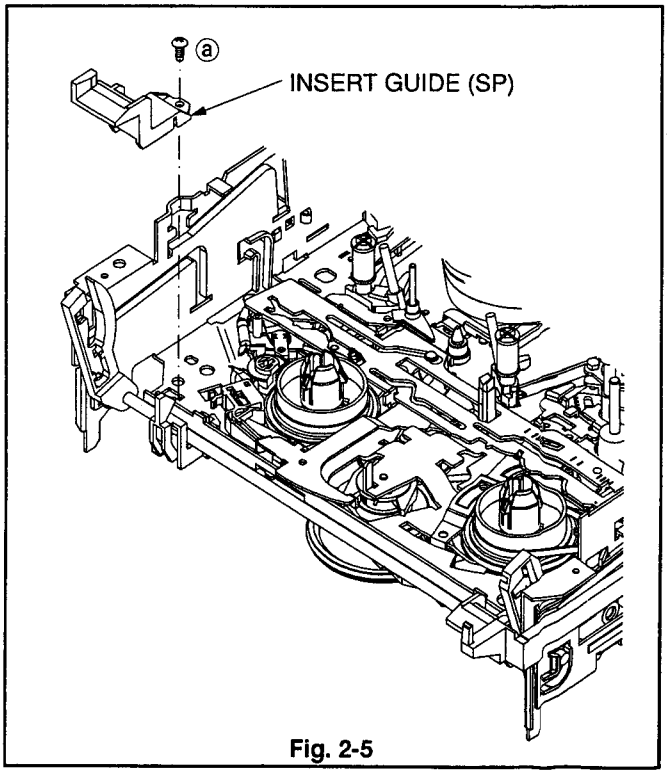


Fig. 2-5

2-6. REC HOLDER, REC LEVER, REC SPRING

SET POSITION : Upside down

(Removal)

1. Remove the screw (ⓐ) fastening the REC HOLDER shown in the Fig. 2-6 to remove the REC HOLDER.
2. Release the REC SPRING shown in the Fig. 2-6 from the catch (ⓑ) of the REC HOLDER to remove the REC LEVER.
3. Release the two catches (ⓒ) of the REC LEVER shown in the Fig. 2-6 to remove the REC SPRING.

(Installation)

1. Install the REC SPRING shown in the Fig. 2-6 to the REC LEVER and hook the REC SPRING to the catches (ⓒ).
2. Install the REC LEVER shown in the Fig. 2-6 to the REC HOLDER.
3. Hook the REC SPRING shown in the Fig. 2-6 to the catch (ⓑ).
4. Install the REC HOLDER shown in the Fig. 2-6.

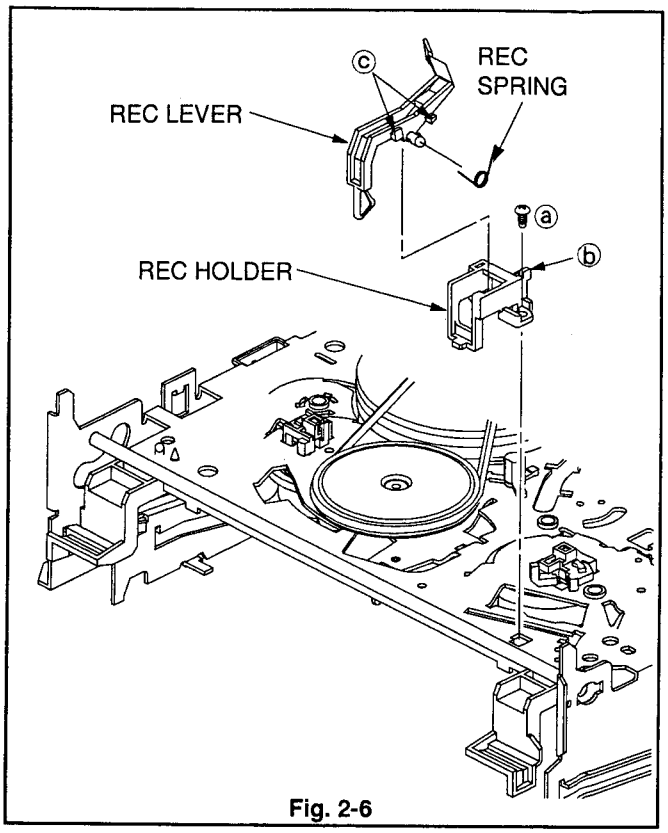


Fig. 2-6

2-7. F/L ARM ASSY, F/L BEARING

SET POSITION : Normal

Remove the following parts before replacing the F/L ARM ASSY, F/L BEARING. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- INSERT GUIDE (TU) (Item 2-4)
- INSERT GUIDE (SP) (Item 2-5)
- REC HOLDER (Item 2-5)

(Removal)

1. Release the catch (ⓐ) of the F/L BEARING shown in the Fig. 2-7 and pull out the F/L ARM ASSY in the direction shown by the arrow Ⓐ.

Note : Do not pull the F/L ARM by force because it may break the catch (ⓐ) of the F/L BEARING.

2. Release the catch (ⓑ) of the F/L BEARING shown in the Fig. 2-7 and rotate the F/L BEARING by 90 degrees to remove it.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Groove of the MAIN PLATE ASSY shown in the Fig. 2-7.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Boss and the Arm of the ARM (SP) shown in the Fig. 2-7.
3. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the Bosses and the Arm of the ARM (TU) shown in the Fig. 2-7.
4. Install the F/L BEARING shown in the Fig. 2-7.
5. Insert the Boss ⓒ of the F/L ARM ASSY shown in the Fig. 2-7 into the Groove ⓓ of the MAIN PLATE ASSY to install the F/L ARM ASSY.

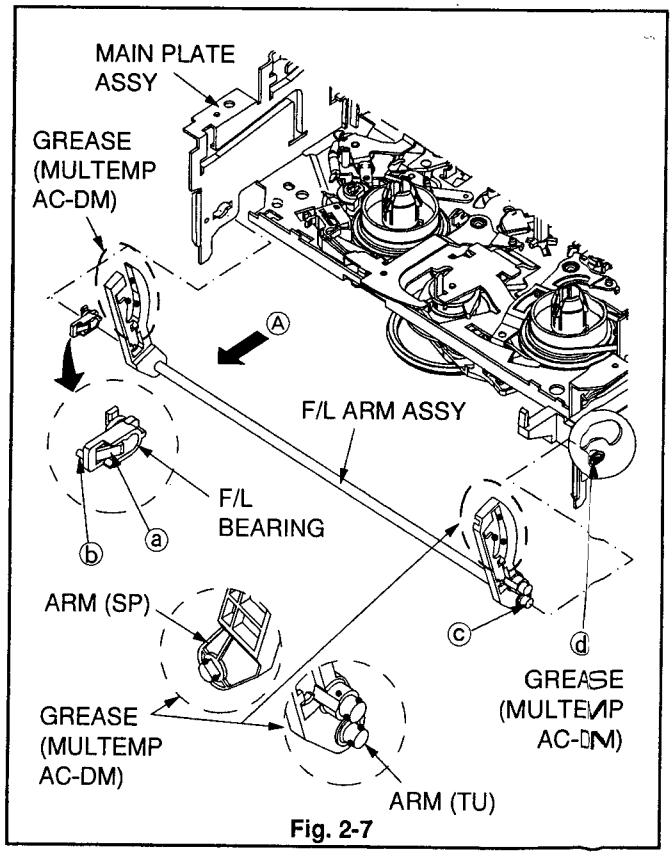


Fig. 2-7

2-8. A/C HEAD UNIT

SET POSITION : Normal

(Removal)

1. Remove the LEAD CONNECTOR of the A/C HEAD UNIT shown in the Fig. 2-8.
2. Remove the two screws (ⓐ) fastening the A/C HEAD UNIT shown in the Fig. 2-8 to remove the A/C HEAD UNIT.

(Installation)

1. Install the A/C HEAD UNIT shown in the Fig. 2-8.

Note : Never touch the Head of the A/C HEAD UNIT shown in the Fig. 2-8. Clean the dirt on the Head with alcohol if necessary.

2. Install the LEAD CONNECTOR of the A/C HEAD UNIT shown in the Fig. 2-8.
3. Perform the Item 3-3. "A/C HEAD Adjustment" and Item 3-4. "Phase Adjustment" of the "Interchangeability Adjustment of the Mechanism".

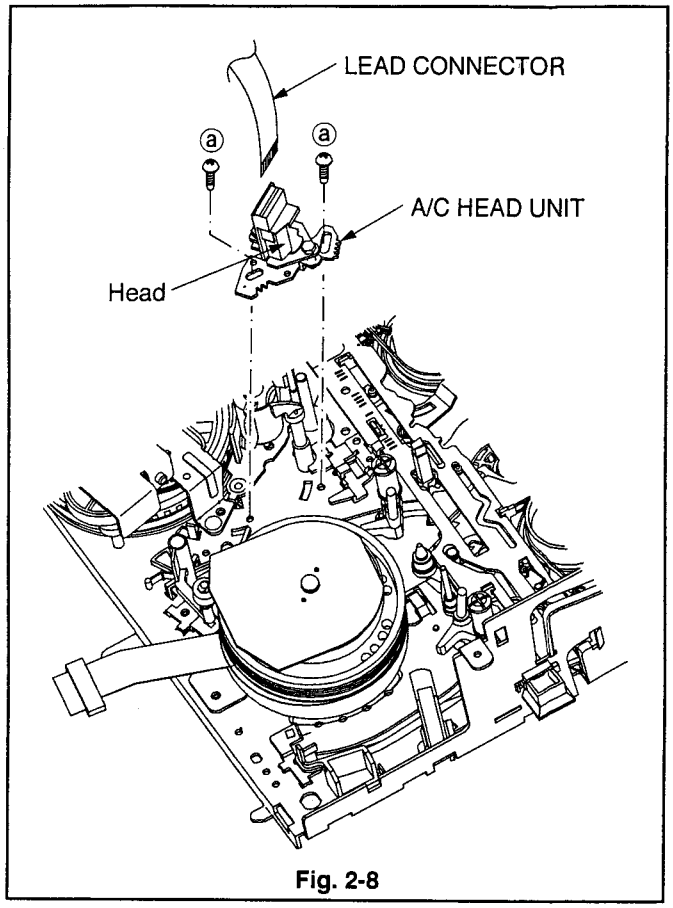


Fig. 2-8

2-9. F/E HEAD

SET POSITION : Normal

(Removal)

1. Lift the F/E HEAD shown in the Fig. 2-9-1 in the direction by the arrow Ⓐ to remove it.

Note : Be sure to replace the removed F/E HEAD with a new one.

(Installation)

1. Install the F/E HEAD shown in the Fig. 2-9-1.

Note : Never touch the Head shown in the Fig. 2-9-2. Clean it with alcohol if necessary.

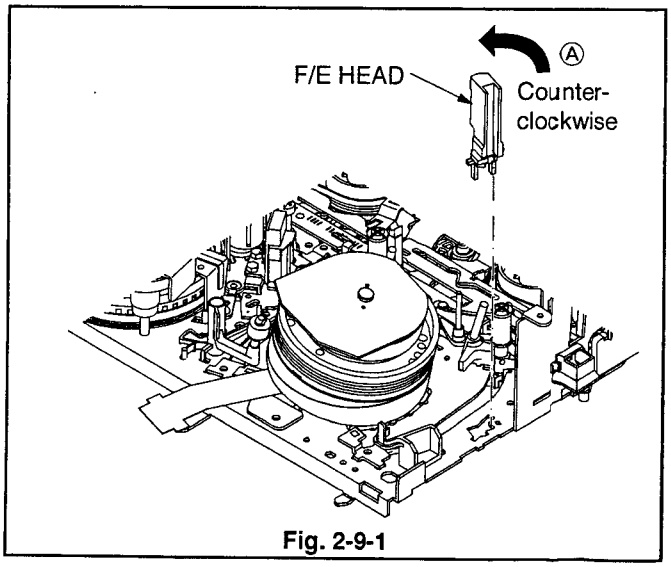


Fig. 2-9-1

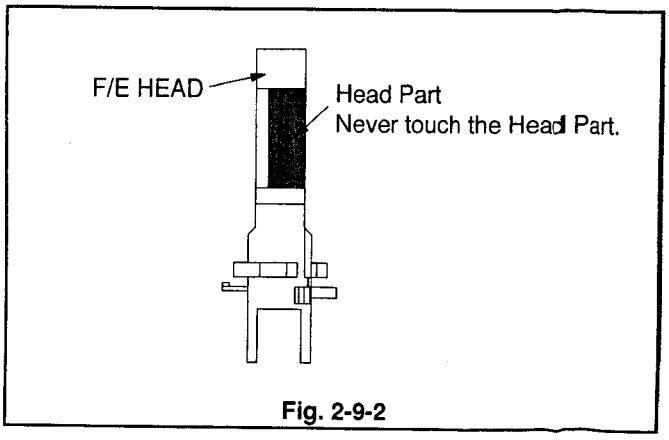


Fig. 2-9-2

2-10. SENSOR COVER (TU)

SET POSITION : Normal

(Removal)

1. Release the catch (ⓐ) of the SENSOR COVER (TU) shown in the Fig. 2-10 to remove the SENSOR COVER (TU).

(Installation)

1. Install the SENSOR COVER (TU) shown in the Fig. 2-10.

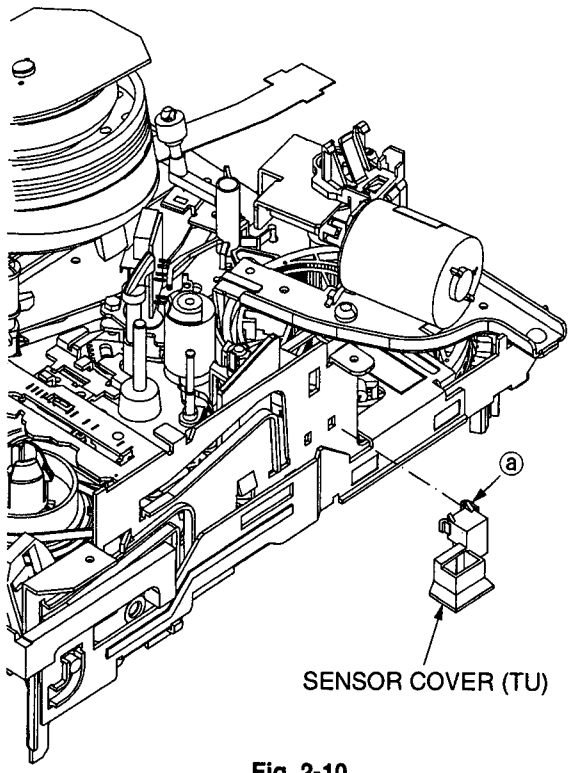


Fig. 2-10

2-11. SENSOR COVER (SP)

SET POSITION : Normal

(Removal)

1. Remove the catch (ⓐ) of the SENSOR COVER (SP) shown in the Fig. 2-11 to remove the SENSOR COVER (SP).

(Installation)

1. Install the SENSOR COVER (SP) shown in the Fig. 2-11.

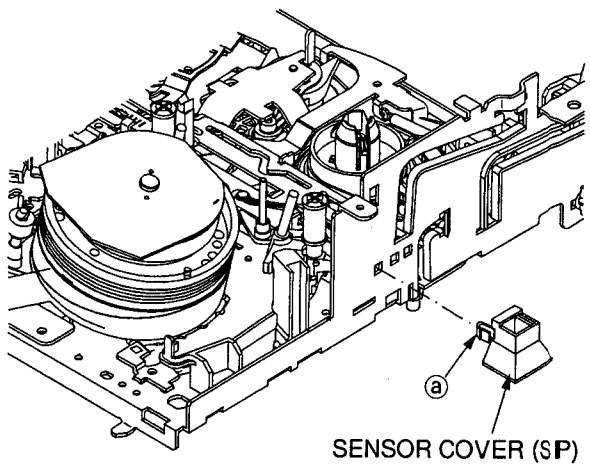


Fig. 2-11

2-12. REVERSE UNIT (TU), REVERSE UNIT (SP)

SET POSITION : Upside down

(Removal)

1. Release the two catches (ⓐ) of the REVERSE UNIT (TU) shown in the Fig. 2-12 to remove the REVERSE UNIT (TU).
2. Release the two catches (ⓑ) of the REVERSE UNIT (SP) shown in the Fig. 2-12 to remove the REVERSE UNIT (SP).

(Installation)

1. Clean the dirt on the transparent part of the REVERSE UNIT (TU) with a VIDEO HEAD cleaning cloth.

Note : Never use solvent such as alcohol to clean the REVERSE UNIT (TU).

2. Install the REVERSE UNIT (TU) shown in the Fig. 2-12.
3. Clean the dirt on the transparent part of the REVERSE UNIT (SP) with a VIDEO HEAD cleaning cloth.

Note : Never use solvent such as alcohol to clean the REVERSE UNIT (SP).

4. Install the REVERSE UNIT (SP) shown in the Fig. 2-12.

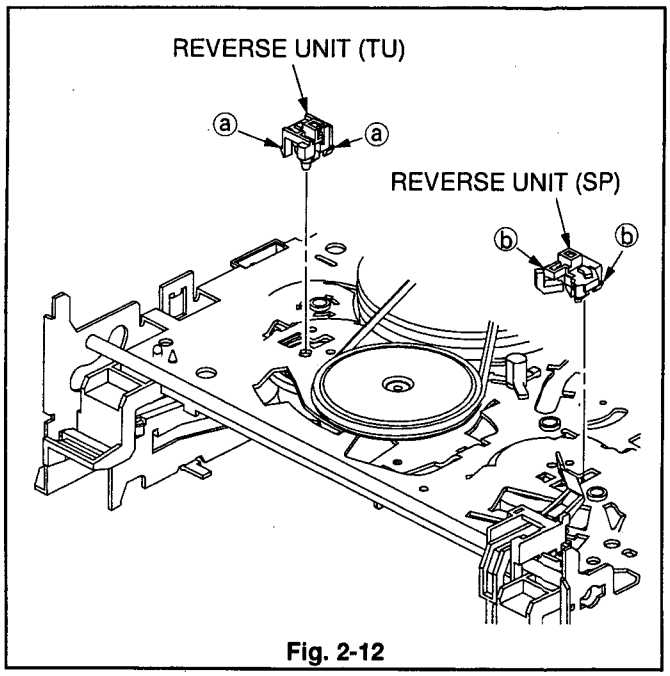


Fig. 2-12

2-13. MODE POSITION UNIT

SET POSITION: Upside down

(Removal)

1. Release the two catches (ⓐ, ⓑ) of the MODE POSITION UNIT shown in the Fig. 2-13 to remove the MODE POSITION UNIT.

(Installation)

1. Install the catch (ⓑ) of the MODE POSITION UNIT shown in the Fig. 2-13.
2. Install the catch (ⓐ) of the MODE POSITION UNIT shown in the Fig. 2-13.

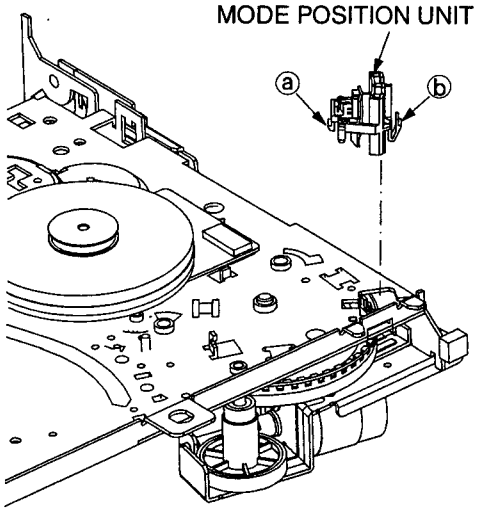


Fig. 2-13

2-14. REEL BELT, PULLEY BUSH, THRUST WASHER, BELT PULLEY, SHIFT SLIDER, PULLEY GEAR ASSY, SLIP GEAR, SLIP SPRING, SLIP WASHER, THRUST WASHER, SLIP ADJUSTER, IDLER UNIT

SET POSITION : Upside down

(Removal)

1. Remove the REEL BELT shown in the Fig. 2-14-1.
2. Move the SHIFT SLIDER in the Fig. 2-14-1 in the direction shown of the arrow Ⓐ to remove the SHIFT SLIDER from the SHIFT LEVER.
3. Release the two catches (ⓐ) of the PULLEY BUSH shown in the Fig. 2-14-1 to remove the PULLEY BUSH.

Note : Be sure to replace the removed PULLEY BUSH with a new one.

4. Remove the units from the THRUST WASHER to IDLER UNIT shown in the Fig. 2-14-1.

(Installation)

Note : Be careful so that GREASE and OIL does not adhere on the Felt Side of the PULLEY GEAR ASSY or the Grooved Side of the SLIP GEAR shown in the Fig. 2-14-4.

1. Apply OIL (FLOIL 948P) [859D154O20] to the SHAFT for the IDLER UNIT shown in the Fig. 2-14-1.
2. Apply GREASE (PG-641) [859D055O30] to the parts on the IDLER UNIT specified in the Fig. 2-14-1.
3. Apply GREASE (MULTEMP AC-DM) [859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-14-1.
4. Apply GREASE (PG-641) [859D055O30] to the parts on the new SHIFT SLIDER specified in the Fig. 2-14-2.
5. Apply GREASE (PG-641) [859D055O30] to the parts on the new SLIP ADJUSTER specified in the Fig. 2-14-2.
6. Apply GREASE (PG-641) [859D055O30] to the parts on the new BELT PULLEY specified in the Fig. 2-14-3.
7. Install the IDLER UNIT shown in the Fig. 2-14-1.
8. Install the SLIP ADJUSTER shown in the Fig. 2-14-3, matching the Lug of the SLIP ADJUSTER with the Centre Notch of the IDLER UNIT.

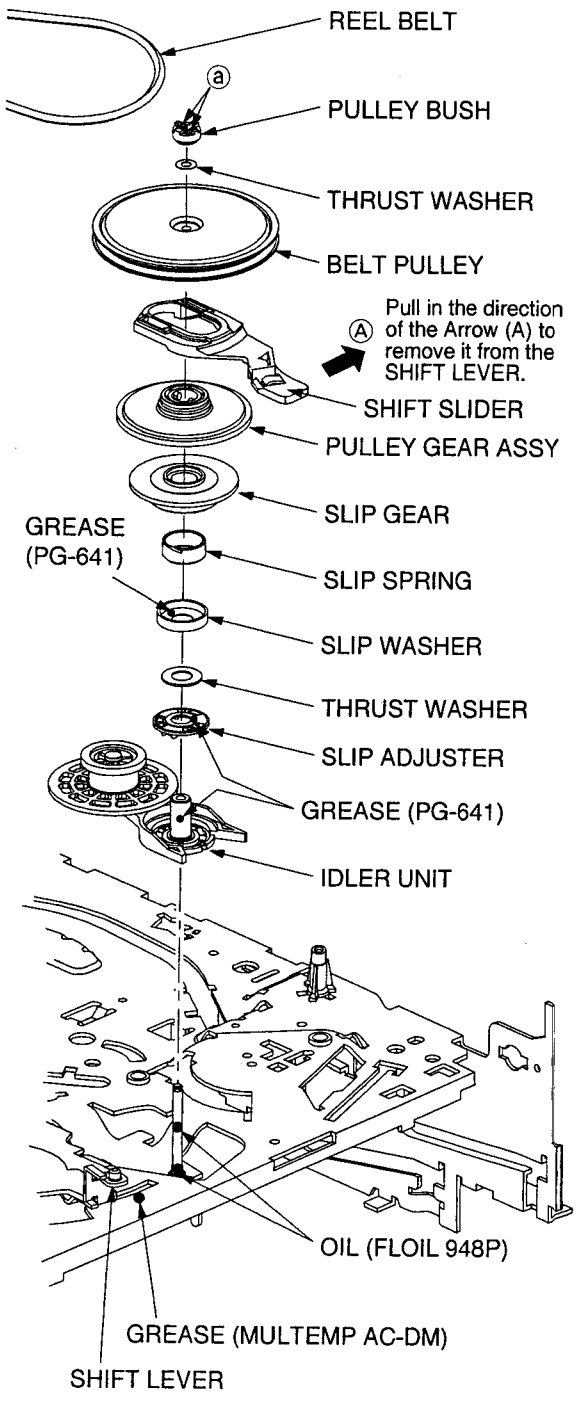
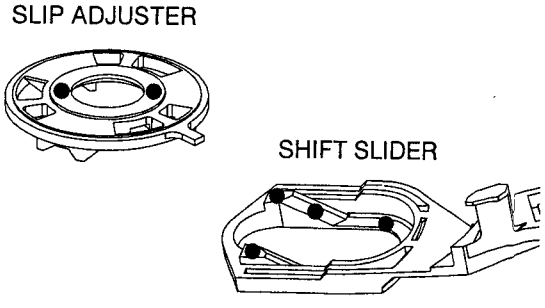


Fig. 2-14-1



Apply GREASE (PG-641) to the parts ●.

Fig. 2-14-2

9. Install the units from the SLIP WASHER to REEL BELT shown in the Fig. 2-14-1.

Note1 : Be sure to replace the removed PULLEY BUSH with a new one.

Note2 : Attach the SLIP SPRING with its straight end facing the SLIP GEAR side.

Note3 : Attach the SLIP WASHER with its position set as shown in the Fig. 2-14-5.

Note4 : Apply GREASE (PG-641) [859D055O30] to the part on the SLIP WASHER specified in the Fig. 2-14-5.

10. Install the SHIFT SLIDER to the SHIFT LEVER shown in the Fig. 2-14-1.

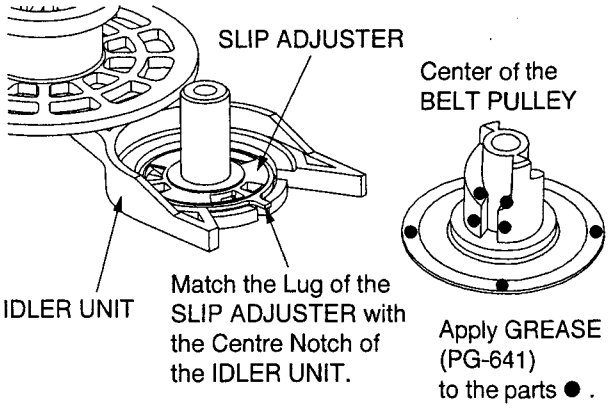


Fig. 2-14-3

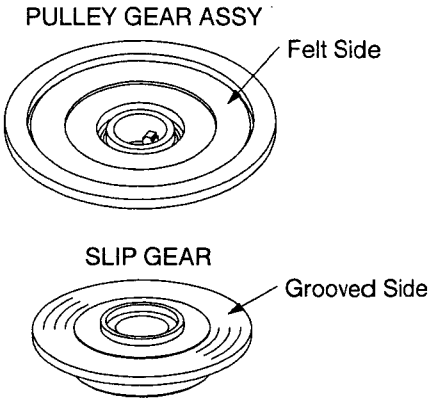
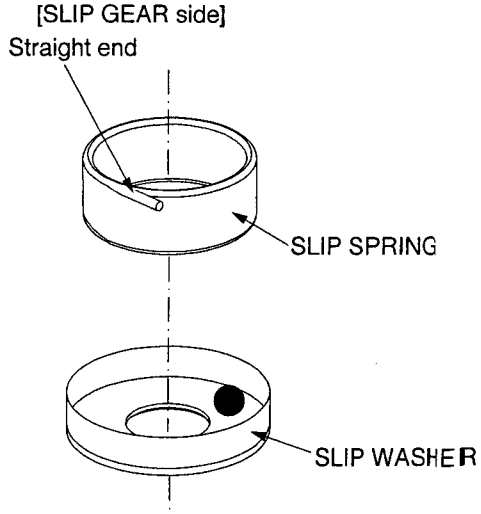


Fig. 2-14-4



Apply GREASE (PG-641) to the parts ● .

Fig. 2-14-5

2-15. BCP UNIT

SET POSITION : Upside down

(Removal)

1. Remove the screw (ⓐ) of the BCP UNIT shown in the Fig. 2-15 to remove the BCP UNIT.

(Installation)

1. Install the BCP UNIT shown in the Fig. 2-15.

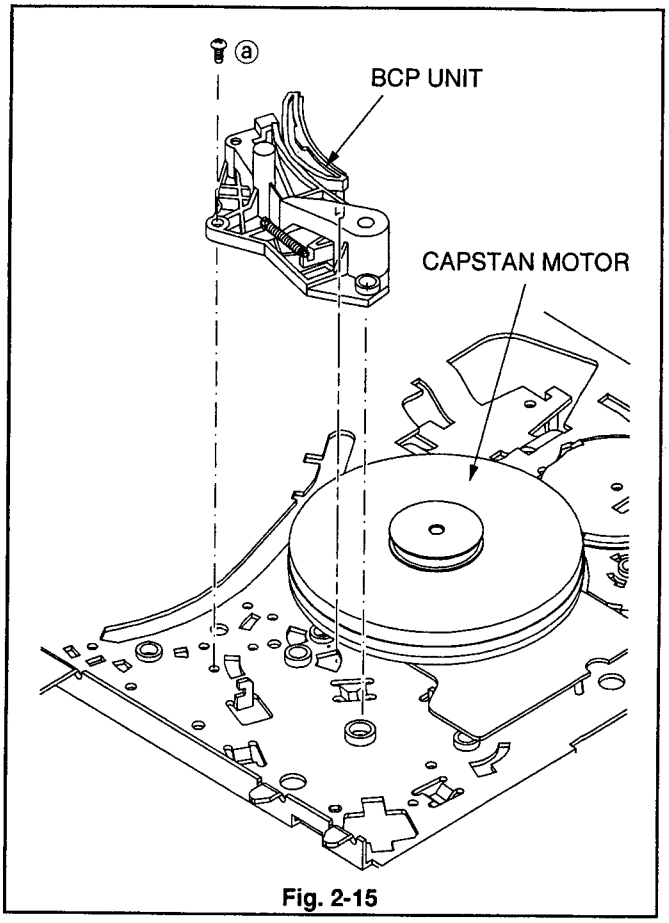


Fig. 2-15

2-16. FC HOLDER, MOTOR HOLDER, LOADING WORM, LOADING MOTOR ASSY, WORM WHEEL

SET POSITION : Normal

(Removal)

1. Release the two catches (ⓐ) of the FC HOLDER shown in the Fig. 2-16-1 to remove the FC HOLDER.
2. Remove the two screws (ⓑ) fastening the MOTOR HOLDER shown in the Fig. 2-16-1 to remove the MOTOR HOLDER.
3. Remove the two screws (ⓒ) fastening the LOADING MOTOR ASSY shown in the Fig. 2-16-1 to remove the LOADING MOTOR ASSY and LOADING WORM.
4. Remove the WORM WHEEL.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the LOADING WORM shown in the Fig. 2-16-2.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the WORM WHEEL shown in the Fig. 2-16-2.
3. Install the WORM WHEEL.
4. Install the LOADING WORM, LOADING MOTOR ASSY to the MOTOR HOLDER.

Note : Tighten the screw (ⓒ) shown in the Fig. 2-16-1 after putting the LUG TERMINAL on the screw.

5. Install the MOTOR HOLDER.
6. Install the FC HOLDER.

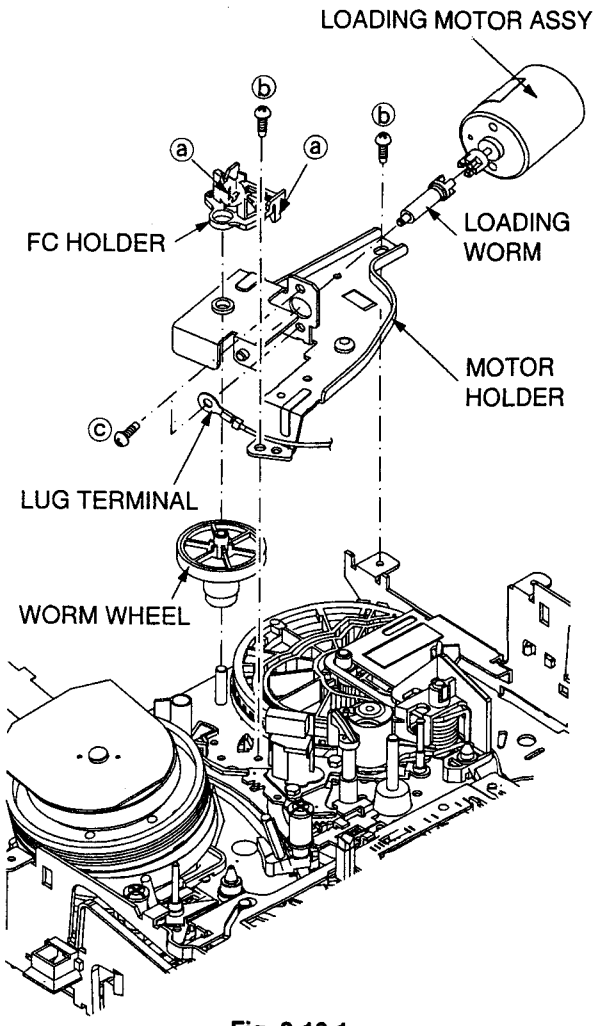
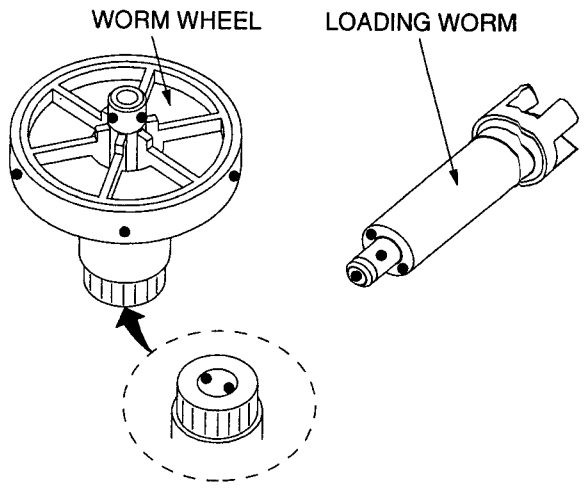


Fig. 2-16-1



Apply GREASE (MULTEMP AC-DM) to the parts ● .

Fig. 2-16-2

2-17. PINCH ARM CAP, PINCH ASSY

SET POSITION : Normal

(Removal)

1. Release the two catches (ⓐ) of the PINCH ARM CAP shown in the Fig. 2-17 to remove the PINCH ARM CAP.
2. Remove the PINCH ASSY shown in the Fig. 2-17.

(Installation)

1. Insert Part Ⓐ of the PINCH ASSY shown in the Fig. 2-17 in the most external groove of the MAIN CAM.
2. Install the PINCH ARM CAP matching the Part Ⓑ of the PINCH ARM CAP with the Rib of the MAIN PLATE ASSY.

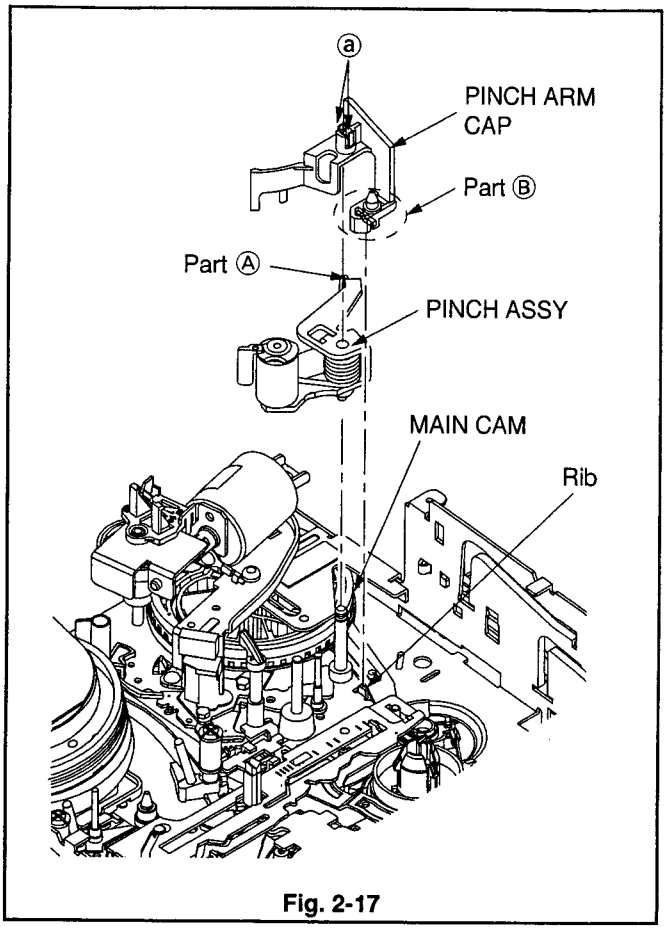


Fig. 2-17

2-18. F/L PLATE, DOOR ARM

SET POSITION : Normal

Remove the following parts before replacing the F/L PLATE, DOOR ARM. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- SENSOR COVER (TU) (Item 2-10)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)

(Removal)

1. Slightly lift the back of the F/L PLATE (MAIN CAM side) shown in the Fig. 2-18-1 to remove the F/L PLATE.
2. Remove the DOOR ARM.

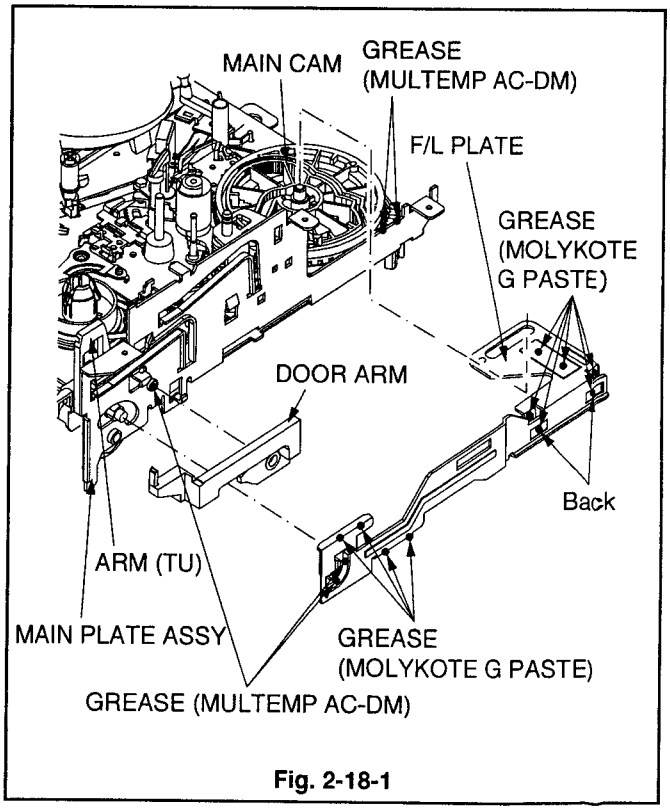


Fig. 2-18-1

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the new F/L PLATE specified in the Fig. 2-18-1.
2. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the points on the new F/L PLATE specified in the Fig. 2-18-1.
3. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the MAIN PLATE ASSY specified in the Fig. 2-18-1.
4. Install the DOOR ARM.
5. Match the Hole in the MAIN CAM with the Hole in the MAIN PLATE ASSY shown in the Fig. 2-18-2.
6. Install the F/L PLATE shown in the Fig. 2-18-1 from the front side (ARM (TU) side).
7. Insert the Boss of the F/L PLATE shown in the Fig. 2-18-2 into the Groove of the MAIN CAM.

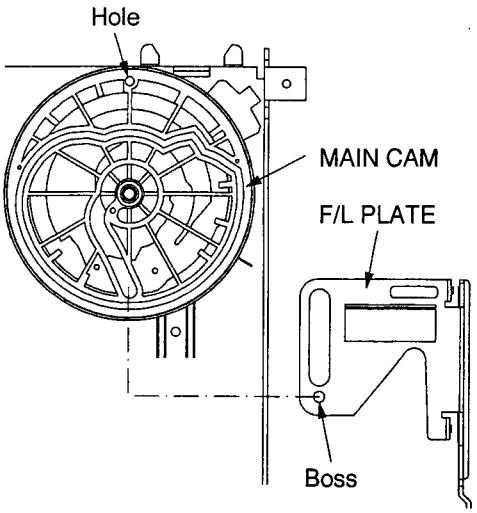


Fig. 2-18-2

2-19. BRAKE CAM PLATE

SET POSITION : Normal

Remove the following parts before replacing the BRAKE CAM PLATE. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)

(Removal)

1. Rotate the MAIN CAM in the Fig. 2-19-1 in the direction shown by the arrow Ⓐ. And move the BRAKE CAM PLATE so that the three catches (ⓐ) of the MAIN PLATE ASSY can be released.
2. Remove the BRAKE CAM PLATE.

(Installation)

1. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the points on the BRAKE CAM PLATE specified in the Fig. 2-19-2.
2. Hook the BRAKE SPRING shown in the Fig. 2-19-3 to the catch of the BRAKE (TU).
3. Install the BRAKE CAM PLATE, inserting the six Guide Pins (ⓑ) shown in the Fig. 2-19-1 into the slits of the BRAKE CAM PLATE.
4. Move the BRAKE SPRING in the Fig. 2-19-3 in the direction of the arrow Ⓒ to release the Catch of the BRAKE (TU) and insert the BRAKE SPRING under the Catch.
5. Rotate the MAIN CAM shown in the Fig. 2-19-1 in the direction shown of the arrow Ⓑ. And move the BRAKE CAM PLATE to hook it to the three catches (ⓐ) of the MAIN PLATE ASSY.

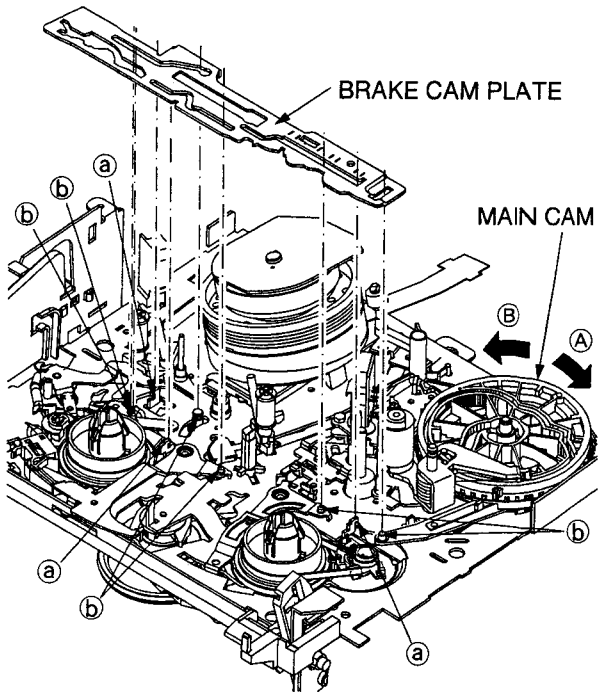
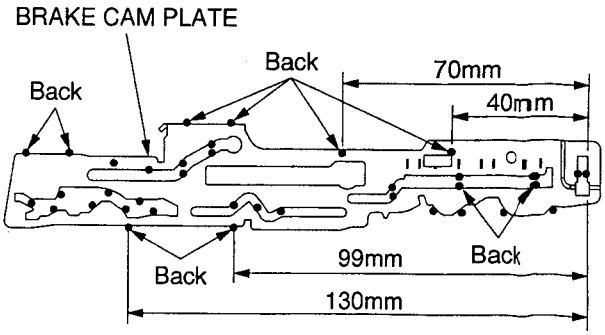


Fig. 2-19-1



Apply GREASE (MOLYKOTE G PASTE) to the points ●.

Fig. 2-19-2

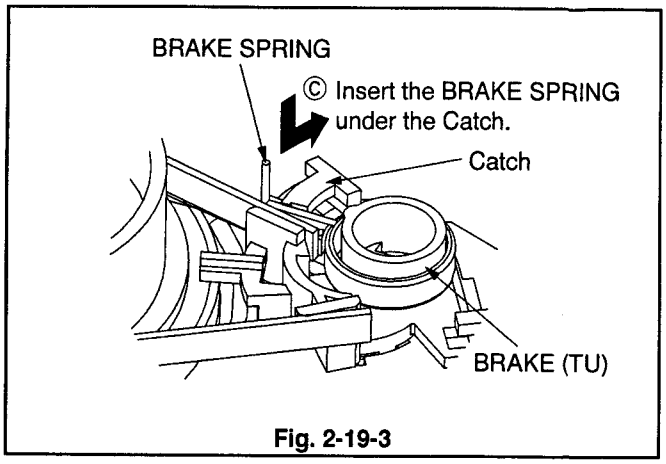


Fig. 2-19-3

2-20. GUIDE LAMP

SET POSITION : Normal

Remove the following parts before replacing the GUIDE LAMP. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Release the catch (ⓐ) of the GUIDE LAMP shown in the Fig. 2-20.
2. Rotate the GUIDE LAMP in the direction shown by the arrow Ⓐ (counterclockwise, when viewed from the bottom) to match the longest slit (ⓒ) of the MAIN PLATE ASSY with the longest arm (ⓑ) of the GUIDE LAMP shown in the Fig. 2-20. Pull it out downward to remove it.

(Installation)

1. Clean the dirt on the GUIDE LAMP with a VIDEO HEAD cleaning cloth.

Note: Never use solvent such as alcohol to clean the GUIDE LAMP.

2. Insert the GUIDE LAMP in the Fig. 2-20, matching the longest arm (ⓑ) of the GUIDE LAMP with the longest slit (ⓒ) of the MAIN PLATE ASSY.
3. Rotate the GUIDE LAMP in the direction shown by the arrow Ⓑ (clockwise, when viewed from the bottom) to match the arm (ⓐ) of the GUIDE LAMP shown in the Fig. 2-20 with the longest slit (ⓒ) of the MAIN PLATE ASSY.

Note: Clean the dirt on the GUIDE LAMP with a VIDEO HEAD cleaning cloth if necessary.

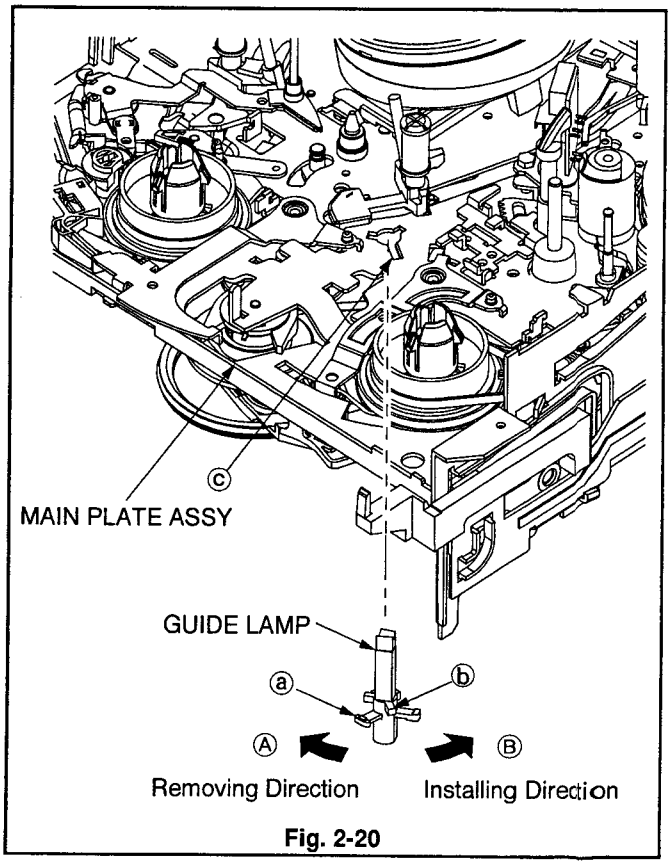


Fig. 2-20

2-21. MAIN CAM, GUIDE ARM (TU), BRAKE LEVER, LB PIN

SET POSITION : Normal

Remove the following parts before replacing the MAIN CAM, GUIDE ARM (TU), BRAKE LEVER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- SENSOR COVER (TU) (Item 2-10)
- MOTOR HOLDER (Item 2-16)
- WORM WHEEL (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- F/L PLATE (Item 2-18)

(Removal)

1. Remove the MAIN CAM shown in the Fig. 2-21-1.
2. Remove the GUIDE ARM (TU) shown in the Fig. 2-21-1.
3. Move the BRAKE LEVER in the Fig. 2-21-1 in the direction shown by the arrow Ⓐ and release the catch (ⓐ) to remove the BRAKE LEVER.
4. Remove the LB PIN shown in the Fig. 2-21-1.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the new GUIDE ARM (TU) specified in the Fig. 2-21-1.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the MAIN PLATE ASSY specified in the Fig. 2-21-1.
3. Install the GUIDE ARM (TU), matching the Hole in the GUIDE ARM (TU) shown in the Fig. 2-21-2 with the Hole in the MAIN PLATE ASSY.

Note : Install the GUIDE ARM (TU) so that the Part specified with the Oblique Lines of the GUIDE ARM (TU) will be under the SHAFT FLANGE of the PINCH ASSY.

4. Install the BRAKE LEVER shown in the Fig. 2-21-2 so that the Hole in the BRAKE LEVER overlaps the Hole in the MAIN PLATE ASSY.
5. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the points on the new MAIN CAM specified in the Fig. 2-21-3.
6. Install the MAIN CAM so that the Hole in the MAIN CAM shown in the Fig. 2-21-2 overlaps with the Hole in the MAIN PLATE ASSY.

Note : Install the MAIN CAM inserting the Pins of the BCP UNIT, GUIDE ARM (TU), BRAKE LEVER into the Grooves on the back of the MAIN CAM for sure.

Set the Main Cam while pulling the Guide Pin (on the BCP UNIT) in the direction indicated by the arrow Ⓑ (toward the deck front) using tweezers as shown in Fig. 2-21-1.

Be careful that GREASE does not adhere on the Wall when applying GREASE to the most external circle on the back of the MAIN CAM (4 parts) shown in the Fig. 2-21-3.

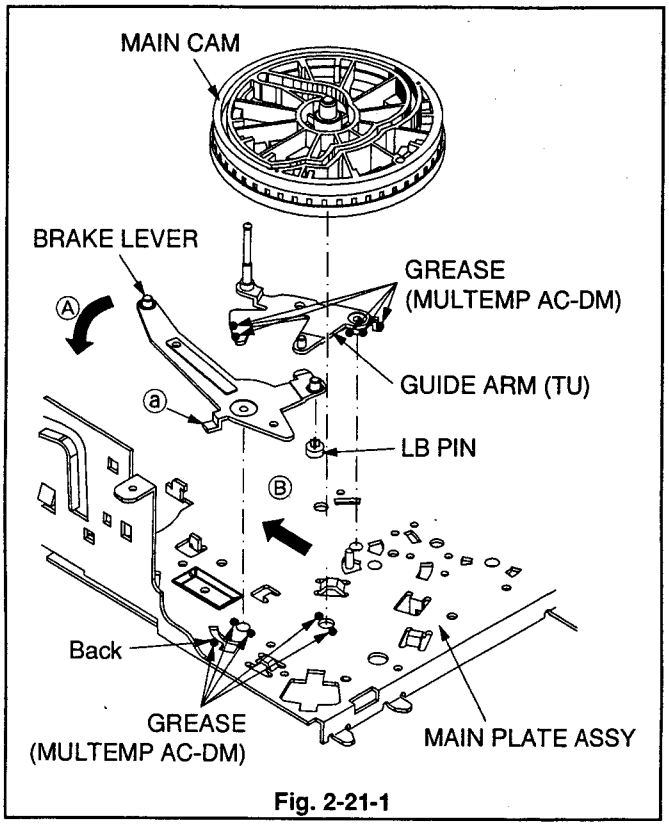


Fig. 2-21-1

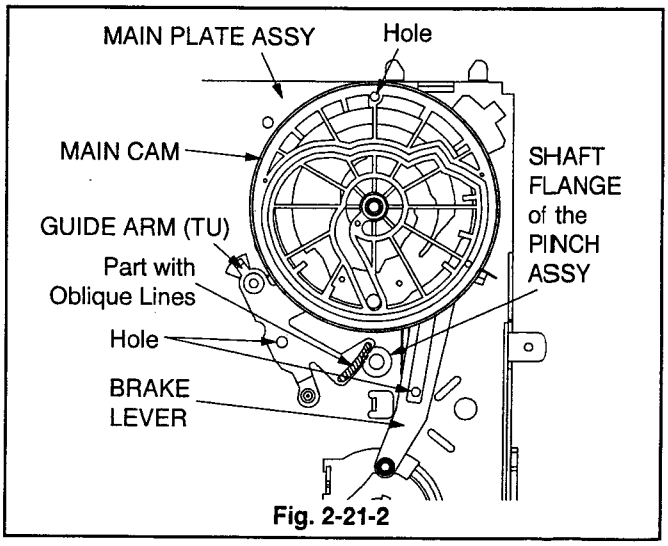
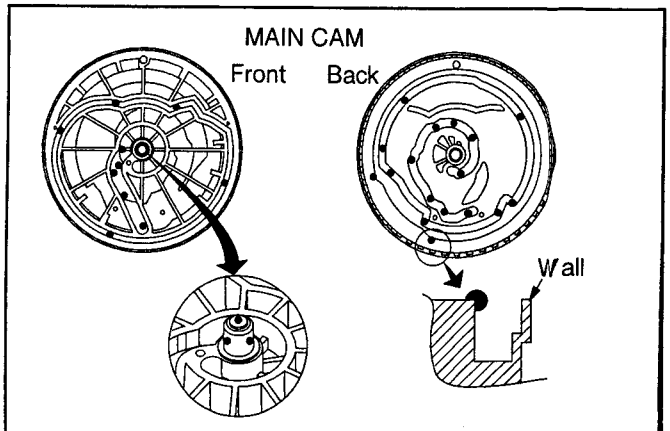


Fig. 2-21-2



Apply GREASE (MULTEMP AC-DM) to the parts ●.

Fig. 2-21-3

2-22. L/D LOCK LEVER

SET POSITION : Normal

Remove the following parts before replacing the L/D LOCK LEVER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Remove the L/D LOCK LEVER shown in the Fig. 2-22.

(Installation)

1. Install the L/D LOCK LEVER shown in Fig. 2-22.

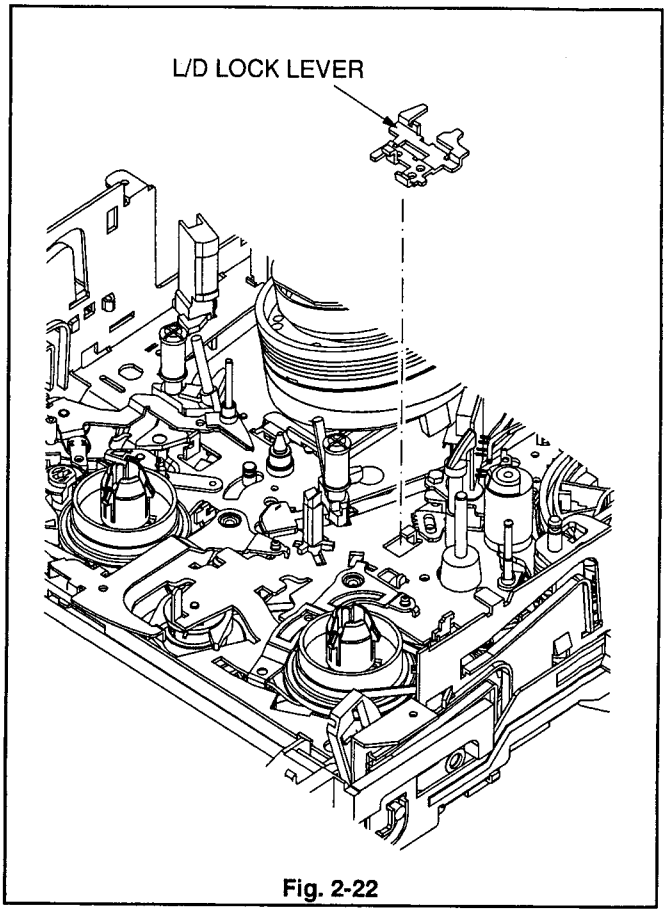


Fig. 2-22

2-23. BRAKE BELT (SP), BELT HOLDER

SET POSITION : Normal

Remove the following parts before replacing the BRAKE BELT (SP), BELT HOLDER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Lift the BRAKE BELT (SP) shown in the Fig. 2-23 to remove it from the REEL DISK (SP side).
2. Release the BRAKE BELT (SP) from the catch (ⓐ) of the BELT LEVER shown in the Fig. 2-23.
3. Release the two catches (ⓑ) of the BELT HOLDER shown in the Fig. 2-23 and separate the BELT HOLDER from the BRAKE BELT (SP).
4. Release the catch (ⓒ) of the BELT HOLDER shown in the Fig. 2-23 to remove the BRAKE BELT (SP).

(Installation)

Note: Install the BRAKE BELT (SP) so that its Felt Side touches the REEL DISK (SP side). GREASE applied to the BRAKE CAM PLATE and MAIN PLATE ASSY should not adhere on the Felt Side of the BRAKE BELT (SP).

1. Install the BRAKE BELT (SP) shown in the Fig. 2-23 to the catch (ⓒ) of the BELT HOLDER.
2. Install the BELT HOLDER shown in the Fig. 2-23.
3. Install the BRAKE BELT (SP) shown in the Fig. 2-23 to the catch (ⓐ) of the BELT LEVER.
4. Hook the BRAKE BELT (SP) shown in the Fig. 2-23 to the REEL DISK (SP side).

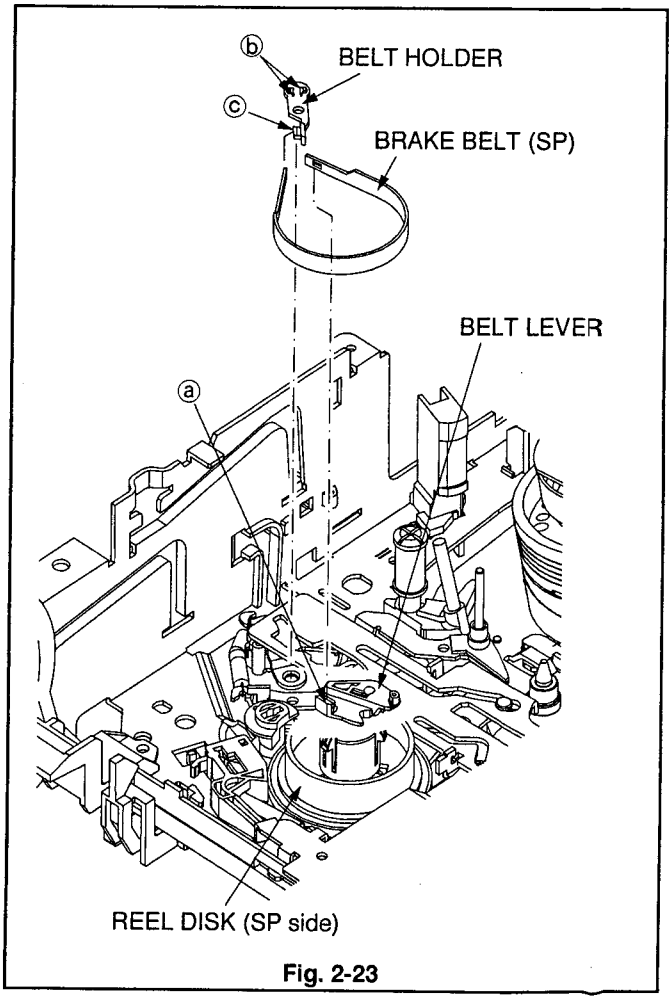


Fig. 2-23

2-24. BELT LEVER, BELT ADJUSTER

SET POSITION : Normal

Remove the following parts before replacing the BELT LEVER, BELT ADJUSTER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE BELT (SP) (Item 2-23)
- BELT HOLDER (Item 2-23)

(Removal)

1. Release the catch (ⓐ) of the BELT LEVER shown in the Fig. 2-24 to remove the BELT LEVER.
2. Remove the BELT ADJUSTER shown in the Fig. 2-24.

(Installation)

1. Install the BELT ADJUSTER shown in the Fig. 2-24.
2. Install the BELT LEVER shown in the Fig. 2-24.

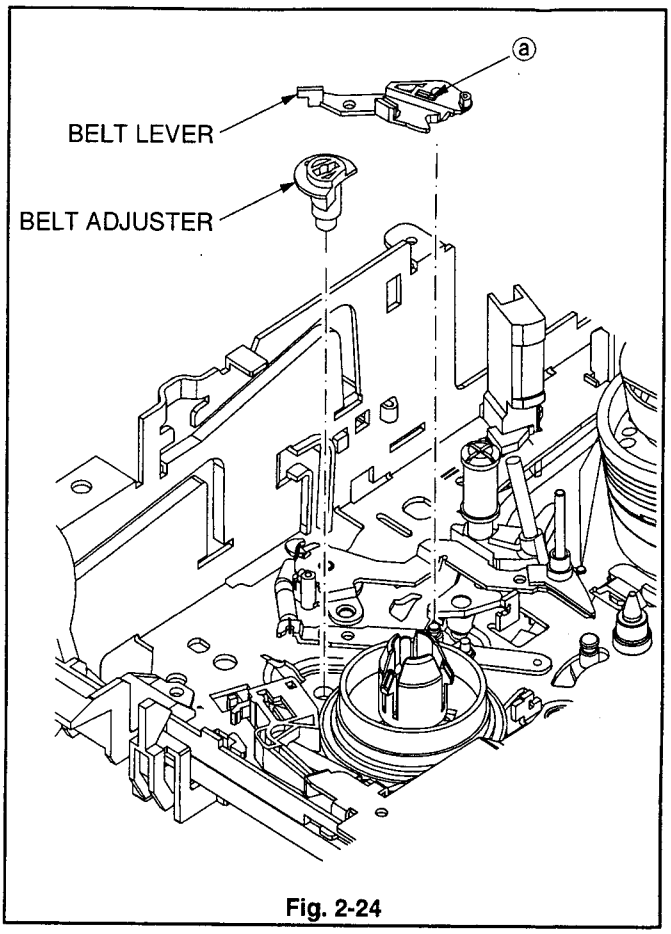


Fig. 2-24

2-25 TENSION ARM, TENSION LEVER, TENSION SPRING, TENS AXIS HOLDER, REEL DISK (SP side)

SET POSITION : Normal

Remove the following parts before performing this Item. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE BELT (SP) (Item 2-23)
- BELT HOLDER (Item 2-23)
- BELT LEVER (Item 2-24)

(Removal)

1. Remove the TENSION SPRING shown in the Fig. 2-25.
2. Release the catch (ⓐ) of the TENS AXIS HOLDER shown in the Fig. 2-25 to remove the TENSION ARM.
3. Remove the TENSION LEVER shown in the Fig. 2-25.
4. Release the catch (ⓑ) of the TENS AXIS HOLDER shown in the Fig. 2-25. Move the TENS AXIS HOLDER in the direction shown by the arrow Ⓐ to remove it.
5. Remove the REEL DISK (SP side).

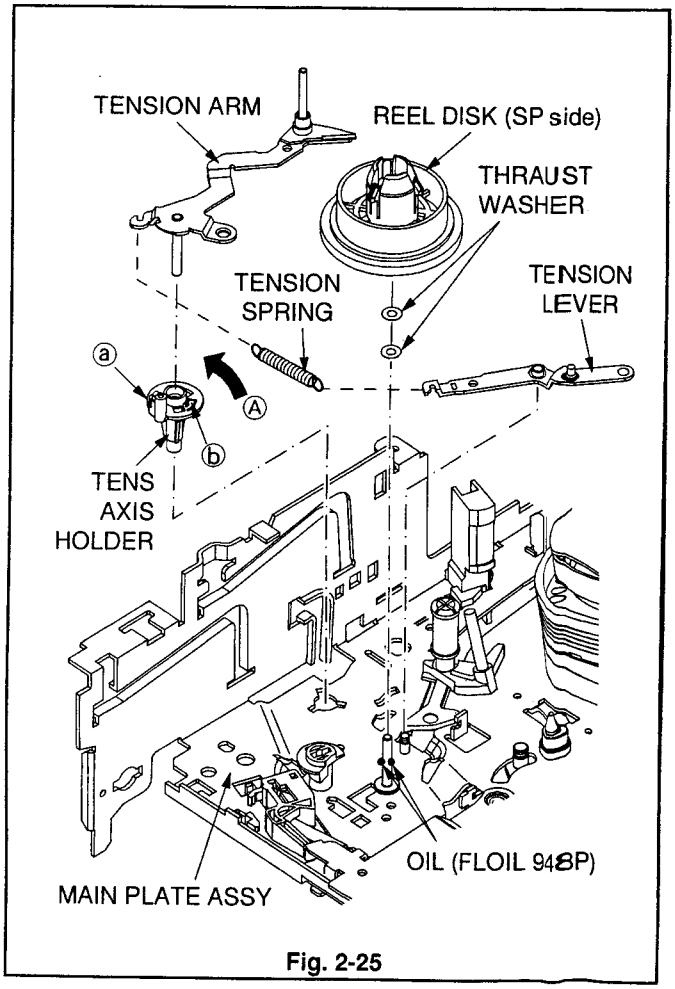


Fig. 2-25

(Installation)

1. Apply OIL (FLOIL 948P) [859D154O20] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-25.
2. Install the REEL DISK (SP side).
3. Install the TENS AXIS HOLDER.

Note : Install the TENS AXIS HOLDER so that the catch (ⓐ) for the TENSION ARM will be positioned on the front (F/L ARM ASSY side).

4. Install the TENSION LEVER.
5. Install the TENSION ARM.
6. Install the TENSION SPRING.

Note : Install the longer hook of the TENSION SPRING to the TENSION ARM.

2-26. BRAKE BELT (TU)

SET POSITION : Normal

Remove the following parts before replacing the BRAKE BELT. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)

(Removal)

1. Lift the BRAKE BELT (TU) shown in the Fig. 2-26 to remove it from the REEL DISK (TU side).
2. Release the two catches (ⓐ) of the BRAKE (TU) shown in the Fig. 2-26 to remove the BRAKE BELT (TU).

(Installation)

1. Install the BRAKE BELT (TU) shown in the Fig. 2-26 to the BRAKE (TU).
2. Hook the BRAKE BELT (TU) shown in the Fig. 2-26 to the REEL DISK (TU side).

Note : Install the BRAKE BELT (TU) so that its Felt Side touches the REEL DISK (TU side).

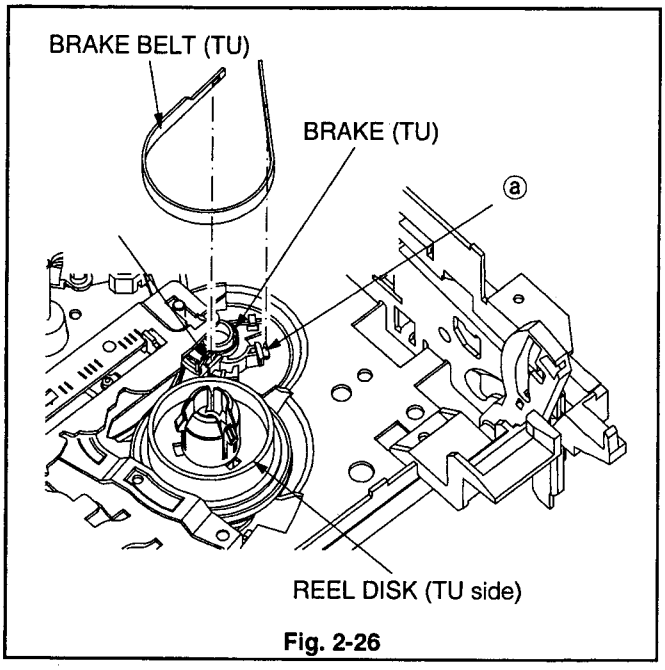


Fig. 2-26

2-27. BRAKE (TU), REEL DISK (TU side)

SET POSITION : Normal

Remove the following parts before replacing the BRAKE (TU), REEL DISK (TU side). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Move the BRAKE (TU) in the Fig. 2-27 in the direction shown by the arrow Ⓐ to remove it.
2. Remove the BRAKE BELT (TU) from the BRAKE (TU).
3. Remove the REEL DISK (TU).

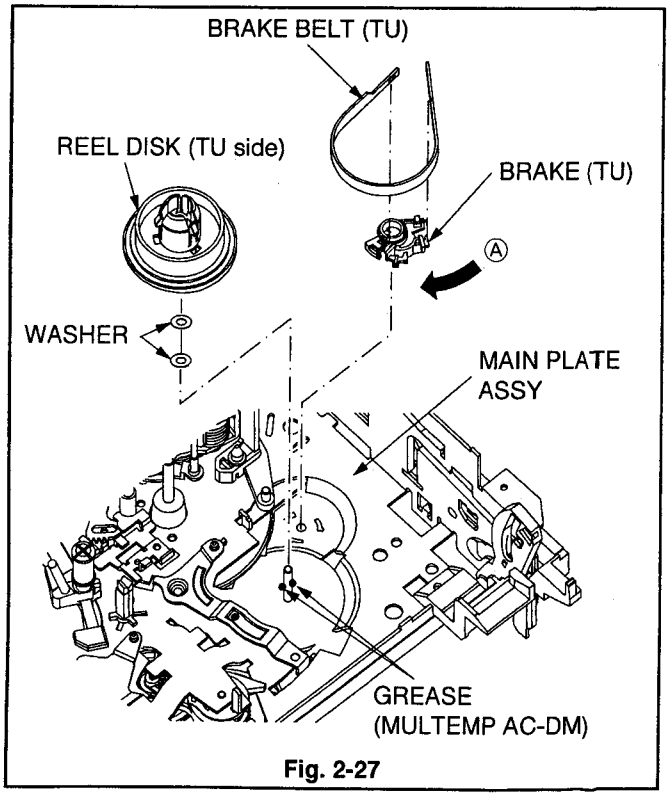


Fig. 2-27

(Installation)

Note : Install the BRAKE BELT (TU) so that its Felt Side touches the REEL DISK (TU side).
The GREASE applied to the BRAKE CAM PLATE and the MAIN PLATE ASSY should not adhere on the Felt Side of the BRAKE BELT (SP).

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-27.
2. Install the REEL DISK (TU side).
3. Install the BRAKE BELT (TU) to the BRAKE (TU).
4. Install the BRAKE (TU).
5. Hook the BRAKE BELT (TU) to the REEL DISK (TU side).

2-28. SHIFT LEVER

SET POSITION : Normal

Remove the following parts before replacing the SHIFT LEVER. Refer to the corresponding items to install them.

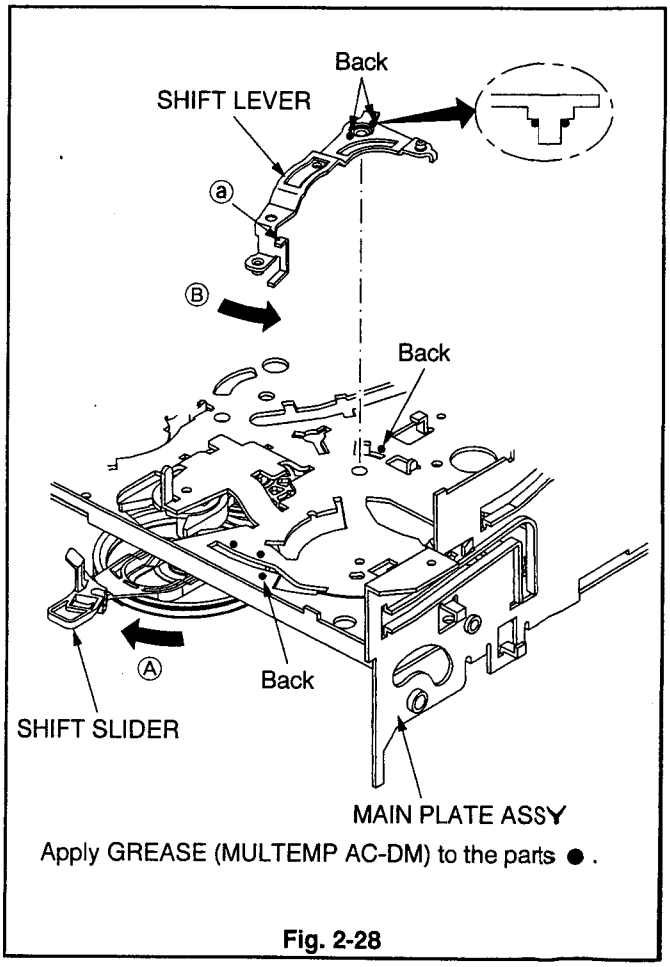
- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE (TU) (Item 2-27)
- REEL DISK (TU side) (Item 2-27)

(Removal)

1. Move the SHIFT SLIDER in the Fig. 2-28 in the direction shown by the arrow Ⓐ to release it from the SHIFT LEVER.
2. Move the SHIFT LEVER in the Fig. 2-28 in the direction shown by the arrow Ⓑ to remove it.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the new SHIFT LEVER specified in the Fig. 2-28.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-28.
3. Install the SHIFT LEVER so that its Part (ⓐ) shown in the Fig. 2-28 will be positioned under the MAIN PLATE ASSY.
4. Install the SHIFT SLIDER to the SHIFT LEVER.



Apply GREASE (MULTEMP AC-DM) to the parts ● .

Fig. 2-28

2-29. CHARGE SPRING, SWING LEVER, CHARGE ASSY

SET POSITION : Normal

Remove the following parts before replacing the CHARGE SPRING, SWING LEVER, CHARGE ASSY. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)

(Removal)

1. Remove the CHARGE SPRING shown in the Fig. 2-29 from the SWING LEVER.
2. Remove the SWING LEVER shown in the Fig. 2-29.
3. Release the Part ⓐ of the CHARGE ASSY shown in the Fig. 2-29 from the Part ⓑ of the MAIN PLATE ASSY to remove the CHARGE ASSY.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-29.
2. Install the CHARGE ASSY.
3. Install the SWING LEVER inserting the Part ⓒ of the SWING LEVER in the Fig. 2-29 into the groove in the MAIN PLATE ASSY.
4. Install the CHARGE SPRING to the SWING LEVER.

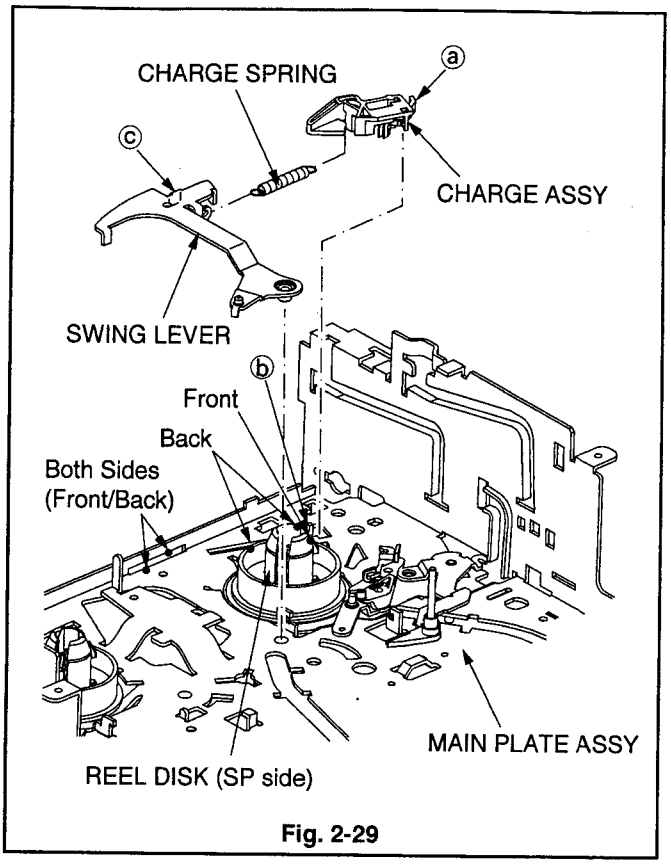


Fig. 2-29

2-30. SPACER PLATE, LOADING ARM ASSY (SP), LOADING ARM ASSY (TU)

SET POSITION : Upside down

(Removal)

1. Release the catch (ⓐ) of the LOADING ARM ASSY (SP) shown in the Fig. 2-30-1 to remove the LOADING ARM ASSY (SP).

Note : Be sure to replace the removed LOADING ARM ASSY (SP) with a new one.

2. Remove the screw (ⓑ) fastening the SPACER PLATE shown in the Fig. 2-30-1 to remove the SPACER PLATE.
3. Remove the LOADING ARM ASSY (TU) shown in the Fig. 2-30-1.

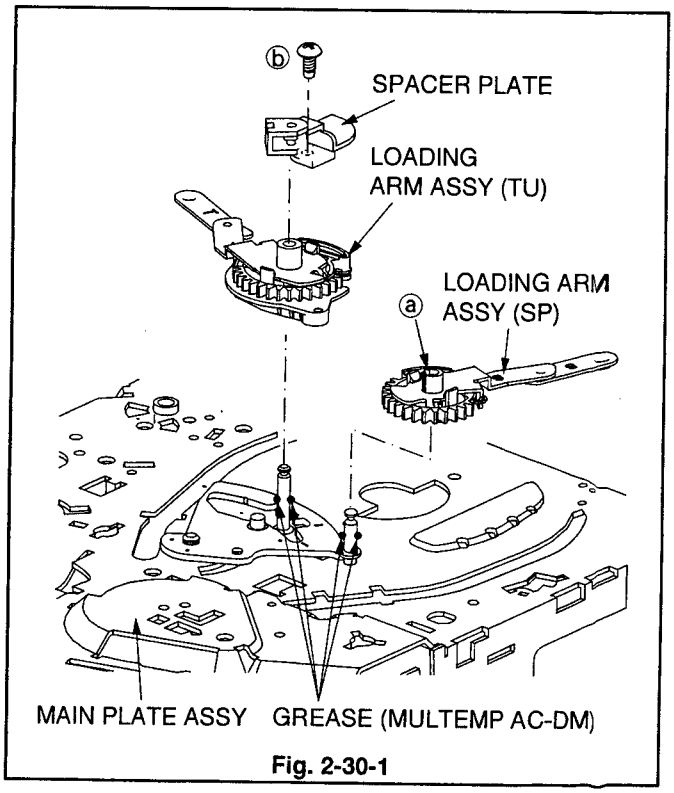


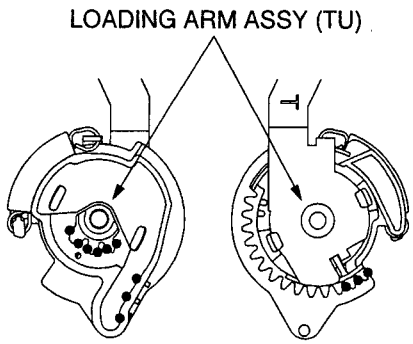
Fig. 2-30-1

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-30-1.
2. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the LOADING ARM ASSY (TU) specified in the Fig. 2-30-2.
3. Install the LOADING ARM ASSY (SP) and LOADING ARM ASSY (TU) so that the Marks on the both UNITs face each other, as shown in the Fig. 2-30-3.

Note : Be sure to replace the removed LOADING ARM ASSY (SP) with a new one.

4. Install the SPACER PLATE shown in the Fig. 2-30-1.



Apply GREASE (MULTEMP AC-DM) to the parts ●.

Fig. 2-30-2

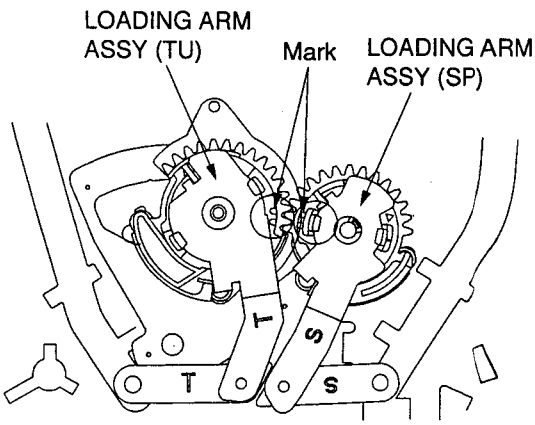


Fig. 2-30-3

2-31. A/L LEVER

SET POSITION: Upside down

Remove the following parts before replacing the A/L LEVER. Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- LOADING ARM ASSY (SP) (Item 2-30)
- LOADING ARM ASSY (TU) (Item 2-30)

(Removal)

1. Remove the CUT WASHER and WASHER shown in the Fig. 2-31-1. Then, remove the A/L LEVER.

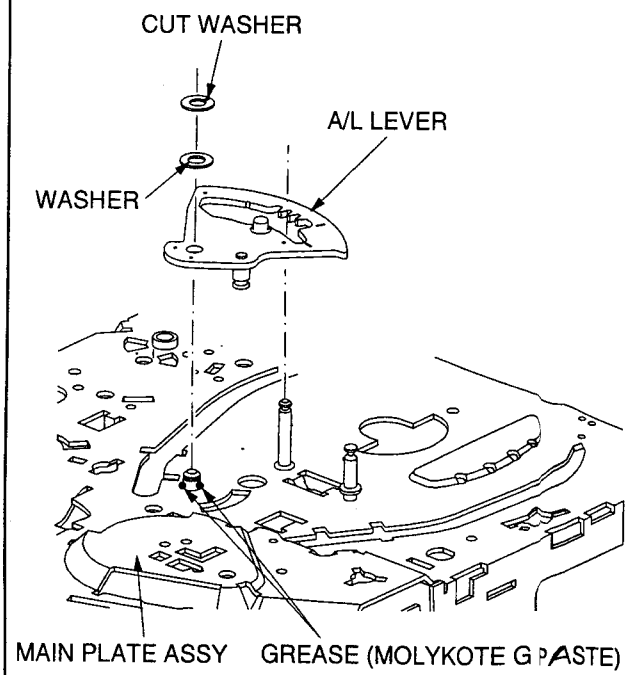


Fig. 2-31-1

(Installation)

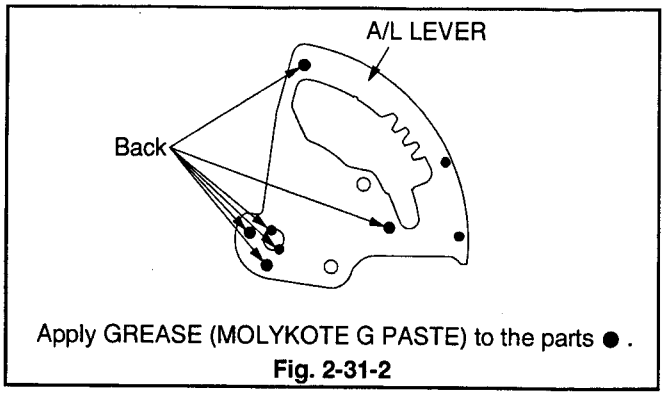
Note : Install the LOADING ARM ASSY (TU) and LOADING ARM ASSY (SP), according to the following procedure, after installing the A/L LEVER.

1. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-31-1.
2. Apply GREASE (MOLYKOTE G PASTE) [859D055O50] to the parts on the A/L LEVER specified in the Fig. 2-31-2.
3. Install the A/L LEVER so that the Mark on the A/L LEVER faces to the FLANGE of the LOADING ARM ASSY (SP), as shown in the Fig. 2-31-3.

Note : The Part specified with Oblique Lines on the A/L LEVER should be under the FLANGE of the LOADING ARM ASSY (SP).

4. Install the LOADING ARM ASSY (TU) so that the Marks on the LOADING ARM ASSY (TU) and on the A/L LEVER will face each other, as shown in the Fig. 2-31-4.
5. Install the LOADING ARM ASSY (SP) so that the ▲ mark on the LOADING ARM ASSY (SP) and the Reinforcement Rib of the LOADING ARM ASSY (TU) will face each other, as shown in the Fig. 2-31-4.

Note : Be sure to replace the removed LOADING ARM ASSY (SP) with a new one.



Apply GREASE (MOLYKOTE G PASTE) to the parts ● .

Fig. 2-31-2

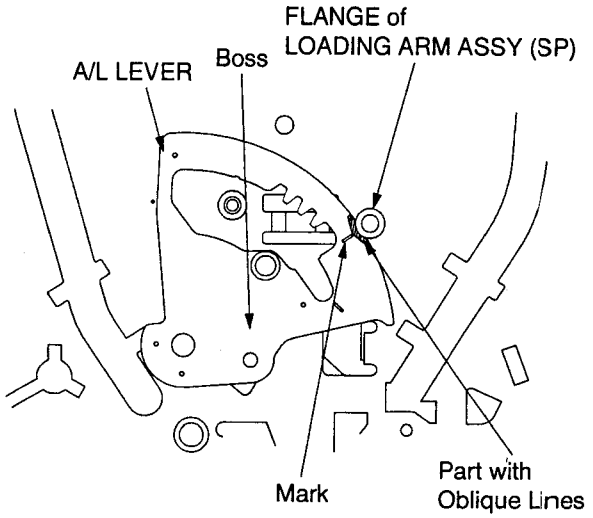


Fig. 2-31-3

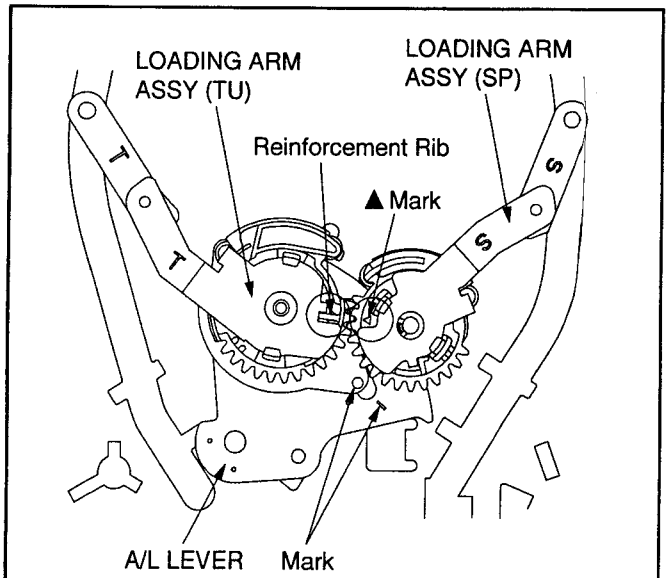


Fig. 2-31-4

2-32. TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)

SET POSITION : Normal

Remove the following parts before replacing the TAPE GUIDE ASSY (SP), (TU). Refer to the corresponding items to install them.

- STAY PLATE (Item 2-2)
- BOTTOM ASSY (Item 2-3)
- MOTOR HOLDER (Item 2-16)
- PINCH ARM CAP (Item 2-17)
- PINCH ASSY (Item 2-17)
- BRAKE CAM PLATE (Item 2-19)
- BRAKE BELT (SP) (Item 2-23)
- BELT HOLDER (Item 2-23)
- BELT LEVER (Item 2-24)
- TENSION ARM (Item 2-25)

(Removal)

1. Loosen the TAPE GUIDE ASSY (SP) shown in the Fig. 2-32-1 (turn it fully in the Unloading direction) to remove it.
2. Loosen the TAPE GUIDE ASSY (TU) shown in the Fig. 2-32-1 (turn it fully in the Unloading direction) to remove it.

(Installation)

1. Apply GREASE (MULTEMP AC-DM)[859D055O90] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-32-2.
2. Install the TAPE GUIDE ASSY (SP) shown in the Fig. 2-32-1.
3. Install the TAPE GUIDE ASSY (TU) shown in the Fig. 2-32-1.
4. Perform the Item 3-2-1. "GUIDE ROLLER Check" to the Item 3-2-5. "Flatness Check of FM Waveform" of the "Interchangeability Adjustment of the Mechanism".

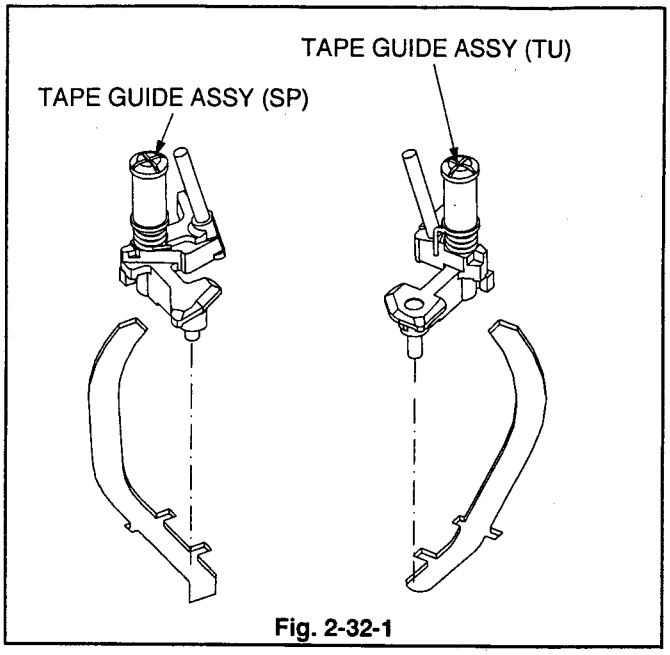
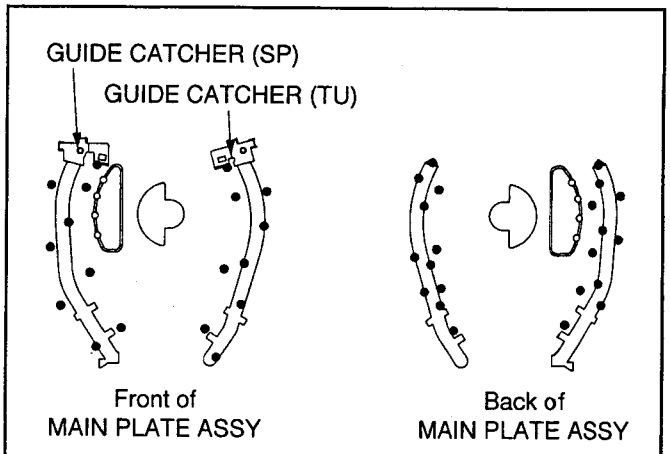


Fig. 2-32-1



Apply GREASE (MULTEMP AC-DM) to the parts ●.

Fig. 2-32-2

2-33. GUIDE ARM (SP)

SET POSITION : Normal

(Removal)

1. Release the catch (ⓐ) of the GUIDE ARM (SP) shown in the Fig. 2-33 to remove the GUIDE ARM (SP).

(Installation)

1. Install the GUIDE ARM (SP) shown in the Fig. 2-33.

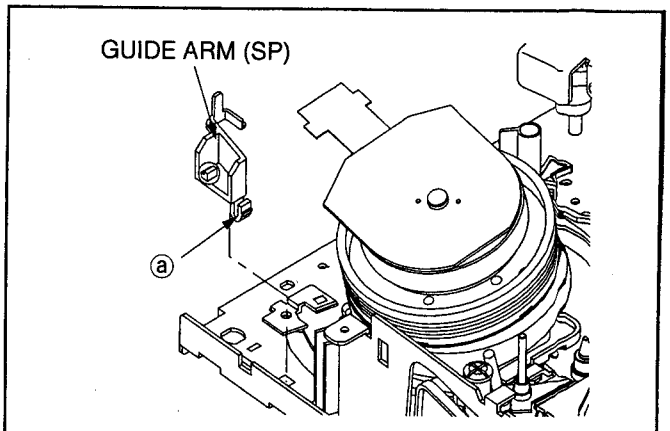


Fig. 2-33

2-34. DRUM CLAMPER, DRUM ASSY

SET POSITION : Normal

(Removal)

1. Disconnect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-34-1.
2. Remove the two screws (ⓐ, ⓑ) fastening the DRUM CLAMPER shown in the Fig. 2-34-1 to remove the DRUM ASSY with the DRUM CLAMPER.
3. Rotate the DRUM CLAMPER in the Fig. 2-34-2 in the direction shown by the arrow Ⓐ to remove it from the DRUM ASSY.

(Installation)

1. Install the DRUM CLAMPER in the Fig. 2-34-2 to the DRUM ASSY by rotating it in the direction shown of the arrow Ⓑ.
2. Hook the Catch of the DRUM CLAMPER shown in the Fig. 2-34-3 to the Reference Pin.
3. Fasten the screw (ⓑ) while pushing the Part Ⓐ in the direction shown by the arrow Ⓒ (clockwise when viewed from the top) as shown in the Fig. 2-34-3.

Note : Confirm at this time that the Catch of the DRUM CLAMPER touches the side of the Reference Pin.

4. Fasten the screw (ⓐ) shown in the Fig. 2-34-3.

Note : Confirm at this time that the Catch of the DRUM CLAMPER touches the side of the Reference Pin.

5. Connect the LEAD CONNECTOR of the DRUM ASSY with the DRUM CLAMPER shown in the Fig. 2-34-1.
6. Connect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-34-1.
7. Perform the Item "PLAYBACK Switching Point" of the "Circuit Adjustment" in this service manual.
8. Perform the Item "Interchangeability Adjustment of the Mechanism".
9. Clean the DRUM ASSY shown in the Fig. 2-34-1 with alcohol.

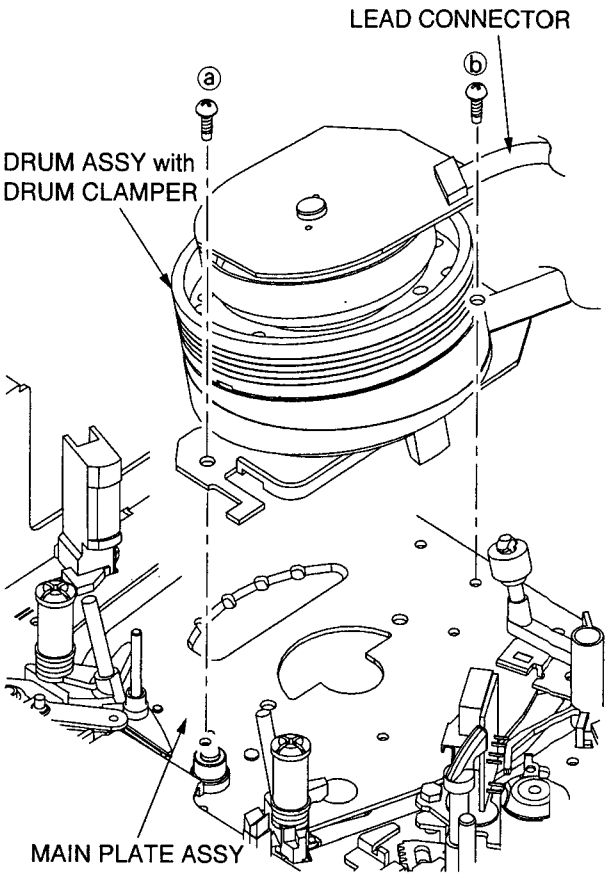


Fig. 2-34-1

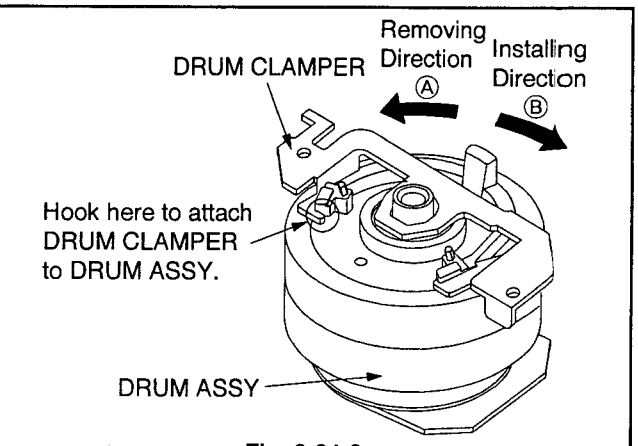


Fig. 2-34-2

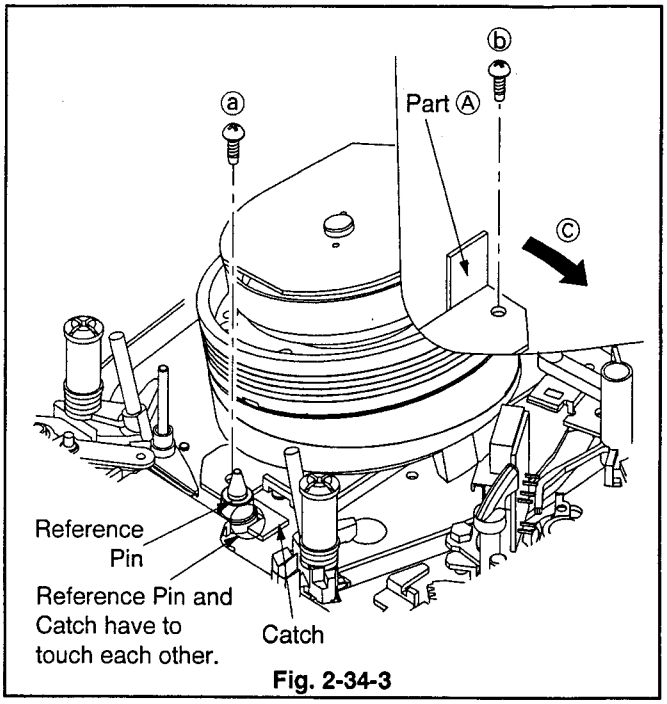


Fig. 2-34-3

2-35. DRUM MOTOR STATOR, BRUSH SPRING, SPACER, ROTOR CASE, END RING, BRUSH, UPPER DRUM ASSY

SET POSITION : Normal

(Removal)

1. Disconnect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-35-1.
2. Remove the two screws (ⓐ) fastening the DRUM MOTOR STATOR shown in the Fig. 2-35-1 to remove the DRUM MOTOR STATOR.
3. Remove the two screws (ⓑ) fastening the ROTOR CASE shown in the Fig. 2-35-1 to remove the ROTOR CASE.

Note : Mark on the END RING and UPPER DRUM ASSY shown in the Fig. 2-35-1 using a pen, etc. for convenience in installing them.

4. Loosen the hexagon screw (ⓒ) fastening the END RING shown in the Fig. 2-35-1 to remove the END RING.
5. Remove the BRUSH SPRING shown in the Fig. 2-35-1.
6. Remove the BRUSH shown in the Fig. 2-35-1.
7. Remove the UPPER DRUM ASSY shown in the Fig. 2-35-1.
8. Remove the SPACER shown in the Fig. 2-35-1.

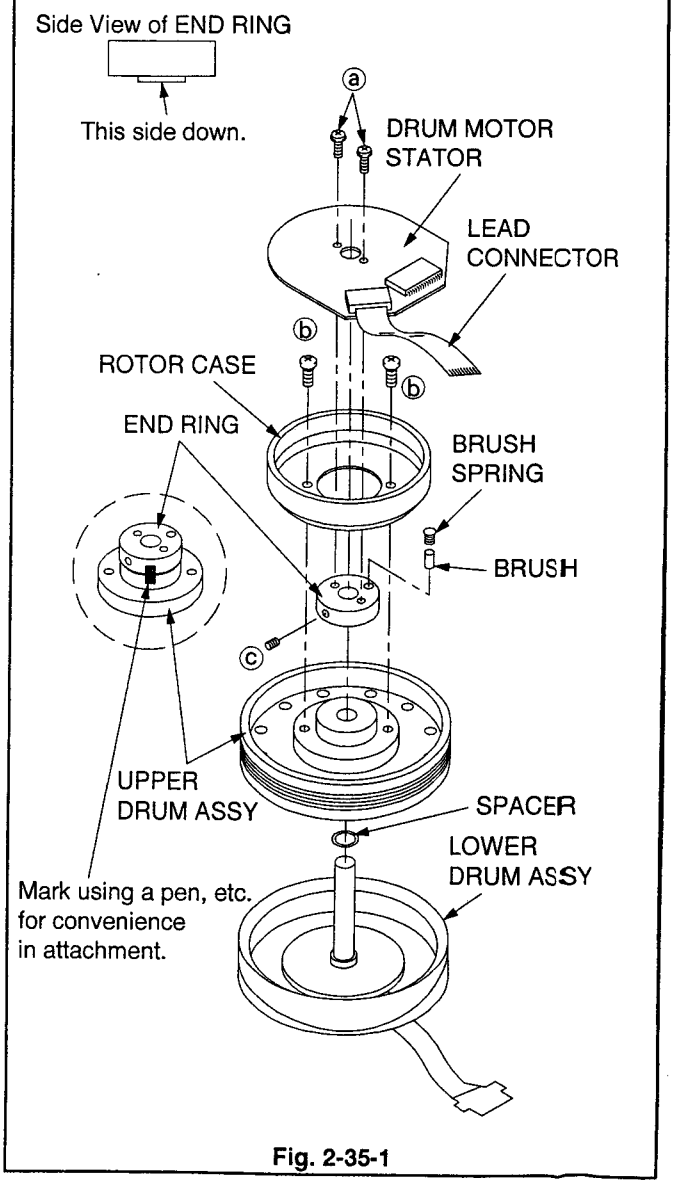


Fig. 2-35-1

(Installation)

1. Install the SPACER shown in the Fig. 2-35-1.

Note : Be sure to use the new SPACER packed with the new UPPER DRUM ASSY.

2. Install the UPPER DRUM ASSY shown in the Fig. 2-35-1.
3. Install the END RING so that the reference hole (Ⓐ) of the END RING shown in the Fig. 2-35-2 will be placed in parallel with the Rear Line of the MAIN PLATE ASSY. (The reference hole (Ⓐ) should be on the right when viewed from the bottom.)
4. Apply the screw-sealing agent to the hexagon screw (Ⓒ) fastening the END RING shown in the Fig. 2-35-1.
5. Install the ROTOR CASE shown in the Fig. 2-35-3, matching its Holes with the three reference holes (Ⓑ) of the UPPER DRUM ASSY.
6. Install the BRUSH shown in the Fig. 2-35-1.
7. Install the BRUSH SPRING shown in the Fig. 2-35-1.
8. Install the DRUM MOTOR STATOR shown in the Fig. 2-35-1.
9. Connect the LEAD CONNECTOR of the DRUM ASSY shown in the Fig. 2-35-1.
10. Perform the Item "PLAYBACK Switching Point" adjustment.
11. Perform the Item "Interchangeability Adjustment of the Mechanism".
12. Clean the DRUM ASSY with alcohol.

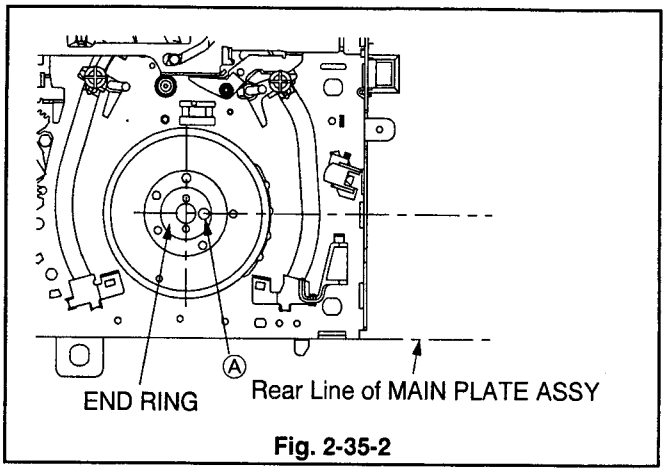


Fig. 2-35-2

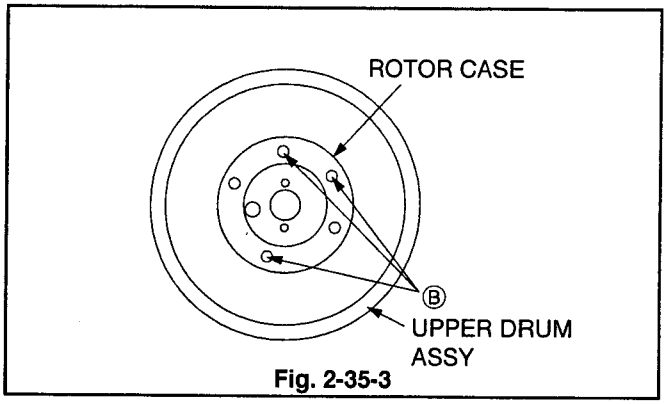


Fig. 2-35-3

2-36. CAPSTAN MOTOR

SET POSITION : Normal

Remove the following part before replacing the CAPSTAN MOTOR. Refer to the corresponding item to install it.

- REEL BELT (Item 2-14.)

(Removal)

1. Rotate the WORM WHEEL in the Fig. 2-36-1 in the direction shown by the arrow Ⓐ to release the Hooks of the BOTTOM ASSY from the Locks of the STAY PLATE.
2. Rotate the WORM WHEEL in the Fig. 2-36-2 in the direction shown by the arrow Ⓐ so that the GUIDE ARM (TU) moves in the direction of arrow Ⓑ and expose the three screws (ⓐ) fastening the CAPSTAN MOTOR.
3. Remove the three screws (ⓐ) fastening the CAPSTAN MOTOR shown in the Fig. 2-36-2 to remove the CAPSTAN MOTOR.

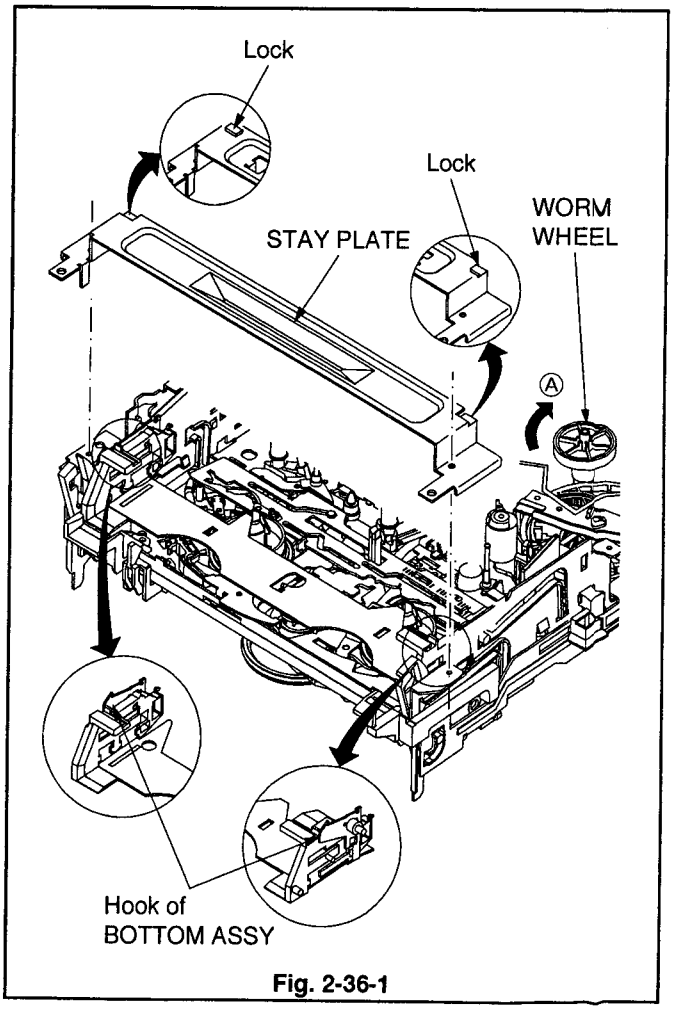


Fig. 2-36-1

(Installation)

1. Apply SILICON COMPOUND (SC102) [859D164O10] to the parts on the MAIN PLATE ASSY specified in the Fig. 2-36-3.
2. Install the CAPSTAN MOTOR.

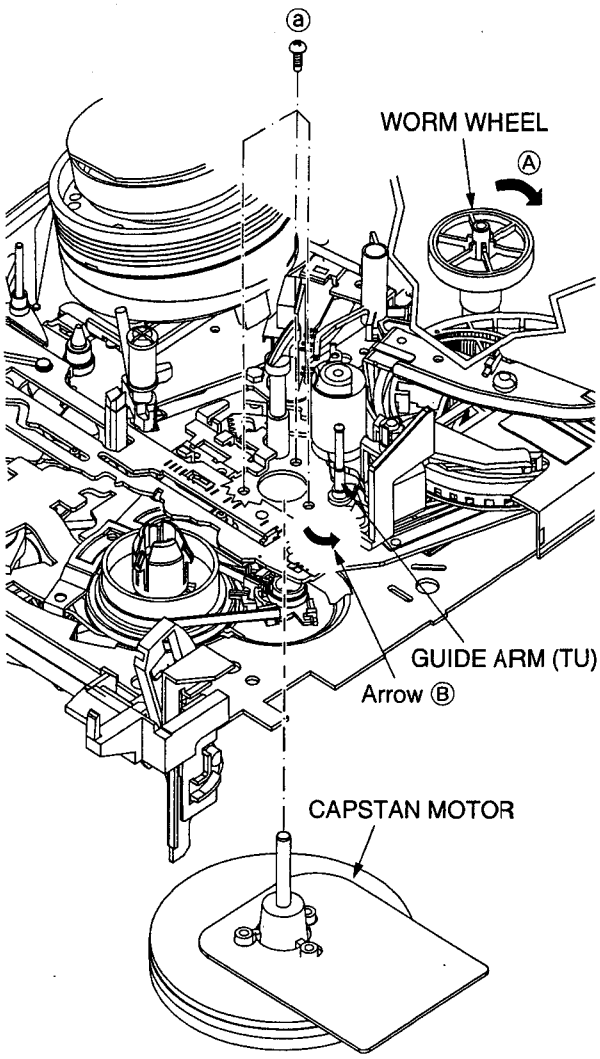


Fig. 2-36-2

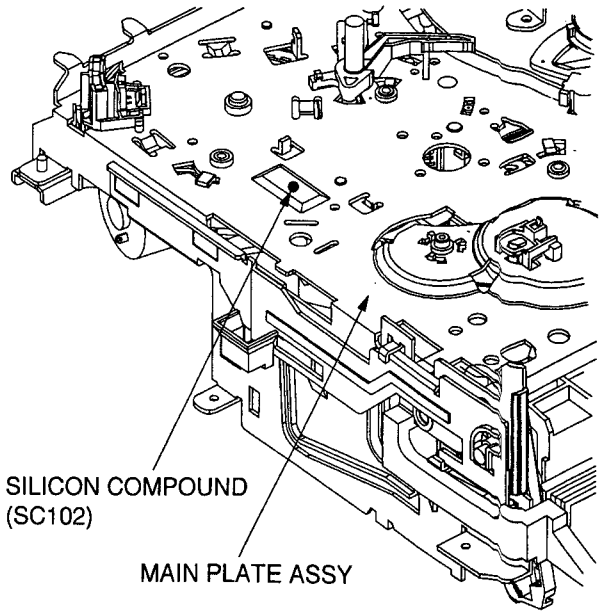


Fig. 2-36-3

3. Interchangeability Adjustment of the Mechanism

Note 1 : Tracking may need to be preset during interchangeability adjustment of the mechanism. Digital tracking is preset by short circuiting TP5A and TP5B on the PCB-MAIN.

Note 2 : The adjustments are performed in the PLAYBACK mode, using the staircase signal of an alignment tape,unless otherwise specified.Connect an oscilloscope to TP2A and externally trigger from TP2H.

3-1. Adjustment of BACK TENSION and TENSION POLE's Position

Run a Blank Tape for several minutes to break in the REEL DISKs and the Tape Running System before the adjustment.

1. Play back a dummy Tape.
2. Confirm that "A", the distance between the Holes in the TENSION ARM and the MAIN PLATE ASSY shown in the Fig. 3-1-1, is 0.6 ± 0.5mm.
3. If "A" is not 0.6 ± 0.5mm, move the Hole in the BELT ADJUSTER in the Fig. 3-1-2 within the range shown by the arrow Ⓐ to set "A" at 0.6 ± 0.5mm.
4. Set the BACK TENSION measuring jig (Code: 859C345O80) and play-back the tape.
5. Confirm that "A" shown in the Fig. 3-1-1 is 0.0 ± 0.5mm.
6. If "A" is not 0.0 ± 0.5mm at step 5, repeat the adjustment from step 1.
7. Confirm that the indicated value of the BACK TENSION measuring jig is within 5.5 ± 6 g/cm.

Note 1 : Check the indicated value of the BACK TENSION measuring jig when the tape running condition becomes steady.

Note 2 : Replace the TENSION SPRING if the indicated value exceeds the specified value.

8. While the tape is running steadily, check visually that the vibration range of the TENSION POLE is 1mm or less. If the vibration range exceeds 1mm, replace the REEL DISK.

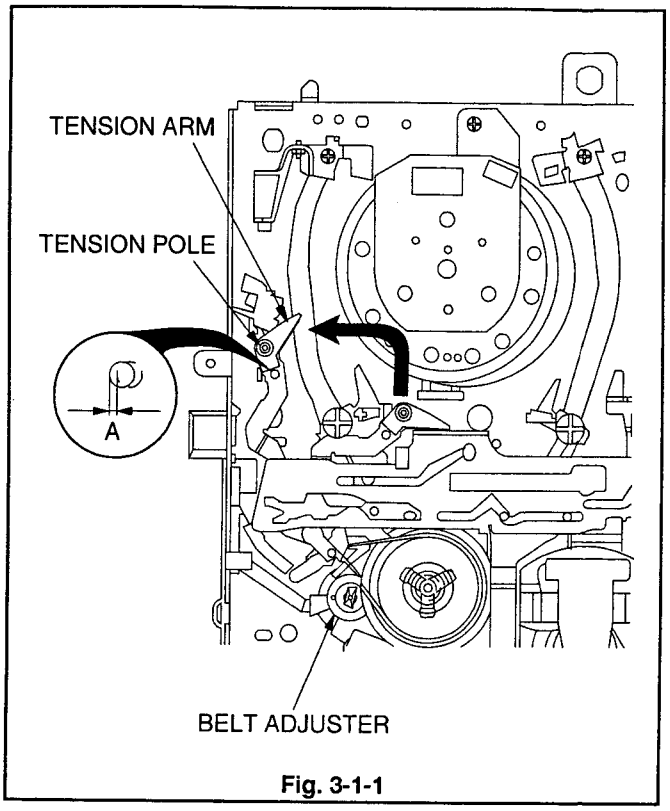


Fig. 3-1-1

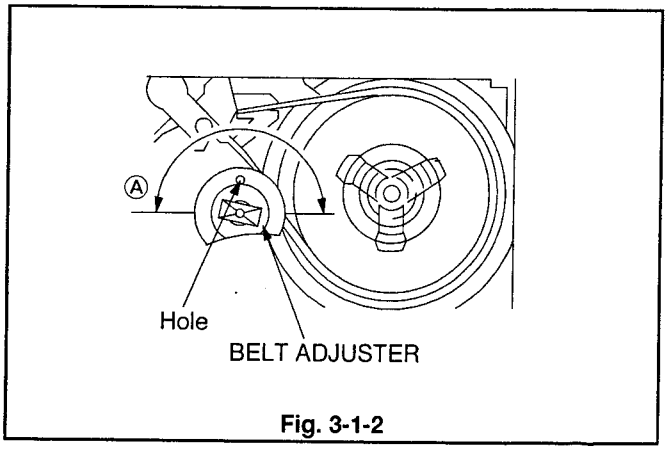


Fig. 3-1-2

3-2. Check and Adjustment of the FM Envelope

3-2-1. GUIDE ROLLER Adjustment check

1. Play back an alignment tape (PM6KH3 : 859C339O30).
2. Preset the tracking.
3. Confirm that the FM Waveform is flat such as in (A).
4. Perform the Item 3-2-2. "Height Adjustment of GUIDE ROLLER (SP) " if the leading edge (the DRUM entry side) of the FM Waveform is not flat (Waveform (B) or (C)). Perform the Item 3-2-3. "Height Adjustment of GUIDE ROLLER (TU)" if the trailing edge (the DRUM exit side) is not flat (Waveform (D) or (E)).

3-2-2. Height Adjustment of GUIDE ROLLER (SP)

1. Loosen the height adjustment screw at the top of the GUIDE ROLLER (SP) so that the GUIDE ROLLER (SP) will rotate smoothly.
2. Observe the leading edge (DRUM entry side) of the FM Waveform. If it looks like (B), the GUIDE ROLLER may be set too low. If it looks like (C), the GUIDE ROLLER may be set too high. To adjust it, turn the height adjustment screw at the top of the GUIDE ROLLER (SP) so that the FM Waveform becomes flat such as in (A).
   - Turn the screw counter-clockwise if the position of the GUIDE ROLLER is lower than specified.
   - Turn the screw clockwise if the position of the GUIDE ROLLER is higher than specified.
3. Perform the Item 3-2-4. "Coarse Adjustment of Phase".

3-2-3. Height Adjustment of GUIDE ROLLER (TU)

1. Loosen the height adjustment screw at the top of the GUIDE ROLLER (TU) so that the GUIDE ROLLER (TU) will rotate smoothly.
2. Observe the trailing edge (DRUM exit side) of the FM Waveform. If it looks like (D), the GUIDE ROLLER may be set too low. If it looks like (E), the GUIDE ROLLER may be set too high. To adjust it, turn the height adjustment screw at the top of the GUIDE ROLLER (TU) so that the FM Waveform becomes flat as in (A).
   - Turn the screw counter-clockwise if the position of the GUIDE ROLLER is too low.
   - Turn the screw clockwise if the position of the GUIDE ROLLER is too high.
3. Perform the Item 3-2-4. "Coarse Adjustment of Phase".

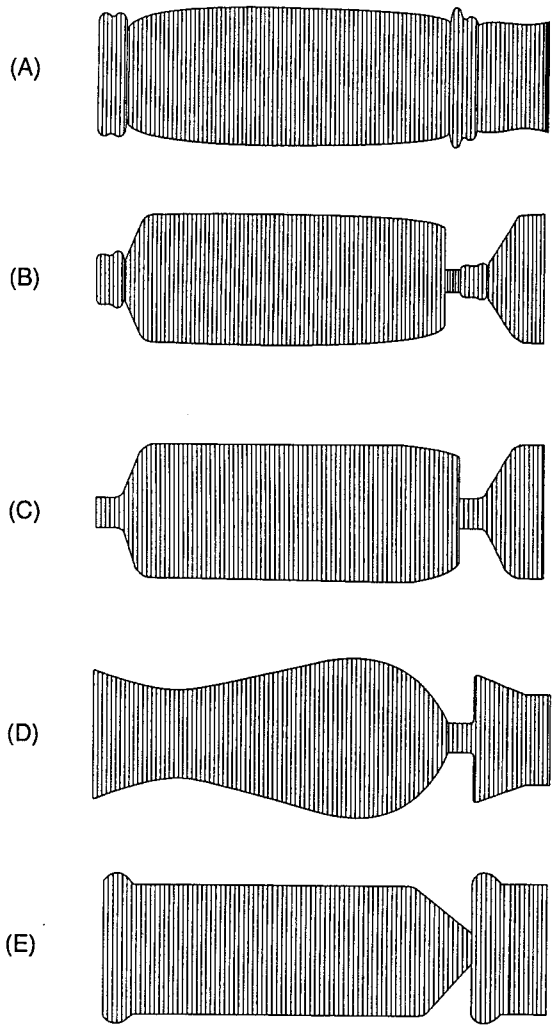


Fig. 3-2-1

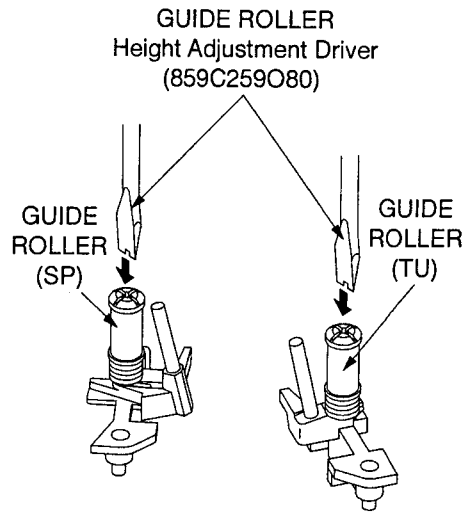


Fig. 3-2-2

3-2-4. Coarse Adjustment of Phase

1. Play back an alignment tape (PM6KH3 : 859C339O30).
2. Preset the tracking.
3. Observe the FM Waveform after performing Item 3-2-1. "GUIDE ROLLER Check".
4. If the amplitude level of the FM Waveform is low as in (F) in Fig. 3-2-4, set it at the maximum level as in (G), according to the following procedure. Loosen the Screws D and E and insert a screw driver (+) into the Hole in the MAIN PLATE ASSY (Part Ⓐ). Then, move the A/C PLATE to the right and left to set the amplitude level to maximum.
5. Tighten the Screws D and E.

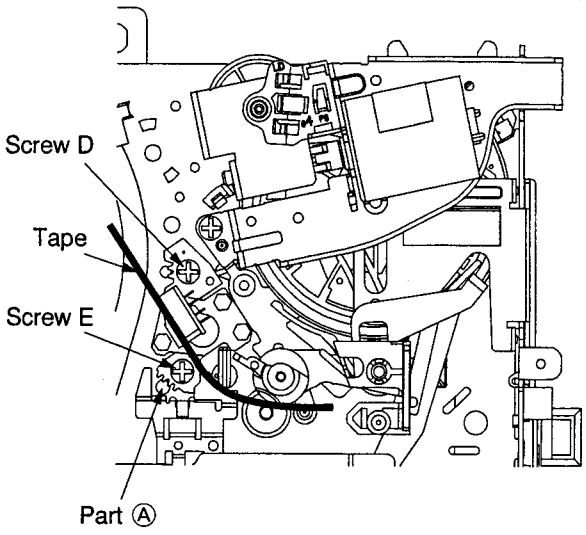


Fig. 3-2-3

3-2-5. Flatness Check of FM Waveform

1. Play back an alignment tape (PM6KH3 : 859C339O30).
2. Adjust the tracking and confirm that the amplitude of the FM signal remains flat.

Note : Press the tracing (+)and (–) button during play back to adjust tracking.

3. Adjust the tracking so that the amplitude level of the FM Waveform will be at the maximum. Set the oscilloscope so that the amplitude level of the FM Waveform is 5 divisions on the oscilloscope.
4. Adjust the tracking so that the peak of the FM Output Waveform is 4 divisions. Confirm that the FM Waveforms (B), (C), (D) and (E) are within the range of the specified values in the Fig. 3-2-5.
5. If the Waveforms are out of the specified values in step 4, repeat the Item 3-2. "Check and Adjustment of FM Envelope" from the beginning.

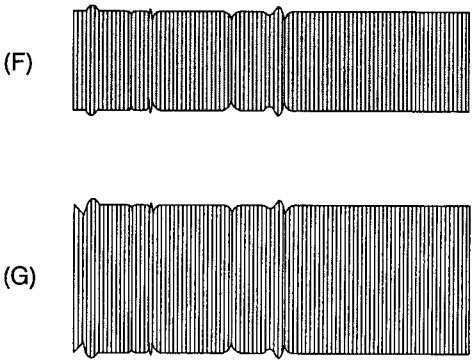
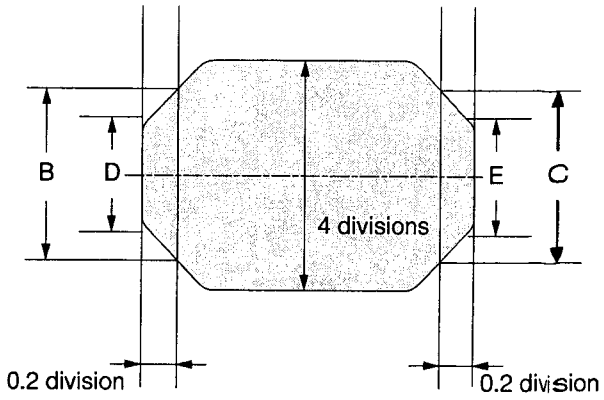


Fig. 3-2-4



	In VHS mode
B, C	2.5 divisions or more
D, E	1.0 division or more

Fig. 3-2-5

3-2-6. Tape Running Condition at the GUIDE ROLLERs (Check 1)

1. Play back an Alignment Tape. (PM6KH3 : 859C339O30)
2. Confirm visually that there is a space between the Tape and the Lower FLANGE of the GUIDE ROLLER (SP) and the GUIDE ROLLER (TU).
3. If there is no space in step 2, replace the TAPE GUIDE ASSY (SP) and TAPE GUIDE ASSY (TU), according to the Item 2-32. "TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)".
4. Alternately load and unload the tape several times and confirm that the FM Waveform remains flat.
5. If the flatness is affected, check the position of the A/C HEAD. If it is installed incorrectly, correct it according to the Item 2-8. "A/C HEAD UNIT" and repeat Item 3-2-4. "Coarse Adjustment of Phase".

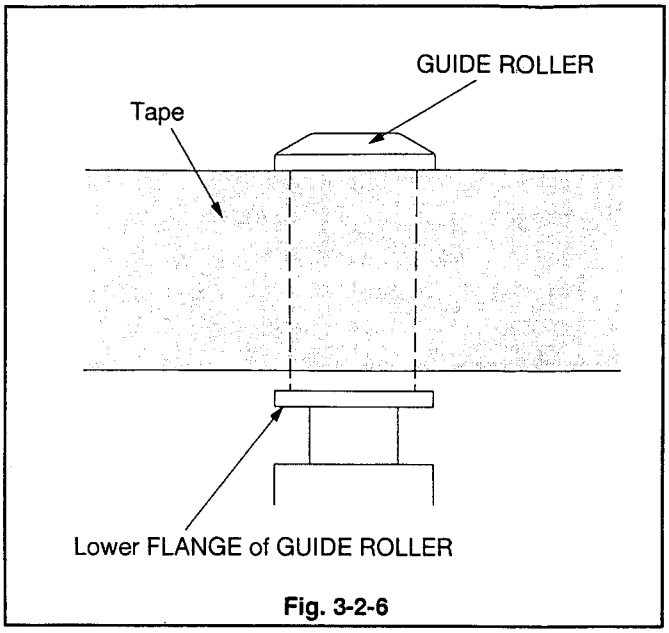


Fig. 3-2-6

3-2-7. Tape Running Condition at the GUIDE ROLLERs (Check 2)

1. Play back an alignment tape (PM6KH3 : 859C339O30).
2. Check that the FM Waveform is quickly restored to the previous level, after lightly pressing and releasing the tops of the GUIDE ROLLER (SP) and GUIDE ROLLER (TU).
3. If the FM Waveform is not restored immediately, replace the TAPE GUIDE ASSY (SP) and TAPE GUIDE ASSY (TU) according to the Item 2-32. "TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)".

3-3. A/C HEAD Adjustment

3-3-1. Slant Adjustment of A/C HEAD

1. Play back a blank tape.
2. Slowly turn the slant adjustment Screw C shown in the Fig. 3-3-1 counter-clockwise to slightly crease the bottom of the tape at the Lower FLANGE of the GUIDE POLE (TU).
3. Slowly return the slant adjustment Screw C to remove the crease.
4. Slowly turn the slant adjustment Screw C counter-clockwise again and stop just before the tape is creased.

3-3-2. Azimuth and Height Adjustment of A/C HEAD

1. If the height of the CONTROL HEAD is shifted from the specified value in the Fig. 3-3-2, adjust it with the Height Adjustment Screws A, B and C shown in the Fig. 3-3-1.
2. After adjustment with the Screws A, B or C, repeat the Item 3-3-1. "Slant Adjustment of A/C HEAD".
3. Connect the oscilloscope to the audio output terminal.
4. Play back an alignment tape (PM6KH3 : 859C339O30).
5. Turn the Azimuth Adjustment Screw B in the Fig. 3-3-1 to set the audio output level in the Fig. 3-3-3 at the maximum. After the adjustment, remove the screw driver and confirm that the audio output level is 4.6 divisions or more when the maximum audio output level is set to 5. If the audio output level is less than 4.6, repeat steps 1 ~ 5.
6. Push the A/C HEAD to the right and left (in the direction of A-A' in the Fig. 3-3-1) and release it. And confirm that the audio output level does not change. (Do not push the A/C HEAD until the audio output level is reduced to 3/4 or less of its maximum level.)
7. Confirm that changes in the audio output level are 2dB or less in the PLAYBACK mode.
8. If the change in the audio output level exceeds 2dB, repeat the Item 3-3-1. "Slant Adjustment of A/C HEAD".
9. If the above procedure steps 1 ~ 8 proves to be unsatisfactory, replace the TAPE GUIDE ASSY (SP) and the TAPE GUIDE ASSY (TU), according to the Item 2-32. "TAPE GUIDE ASSY (SP), TAPE GUIDE ASSY (TU)".

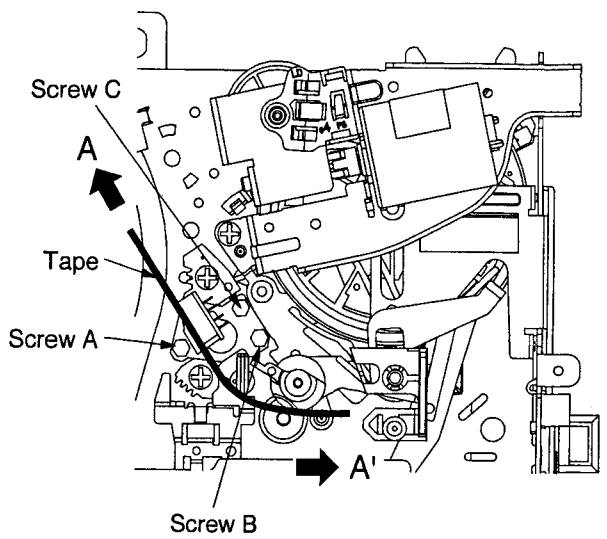


Fig. 3-3-1

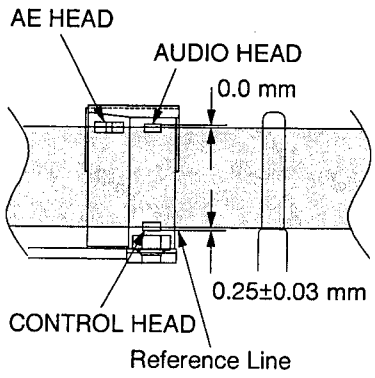


Fig. 3-3-2

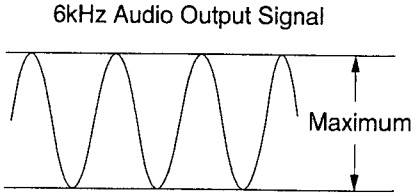


Fig. 3-3-3

3-4. Phase Adjustment

1. Play back an alignment tape (PM6KH3 : 859C339O30).
2. Preset the tracking.
3. Trigger at TP2H.
4. Loosen the Screws D and E shown in the Fig. 3-4-1. Insert a screw driver (+) into the Hole in the MAIN PLATE ASSY (Part Ⓐ) and move the A/C PLATE to the right and left to set the amplitude level of the FM Waveform to maximum.(Adjust the FM Waveform to be the maximum when the waveform at TP2H is High.)
5. Tighten the Screws D and E.
6. Play back an alignment tape [PMX : 859C568O70].
7. Confirm the Missing Portions of the FM Waveform and Audio Waveform are as shown in the Fig. 3-4-2.
8. If the Missing Portions differ from the Fig. 3-4-2, repeat the procedure 3.
9. Adjust the tracking so that the amplitude level of the FM Waveform will be at the maximum. And set the oscilloscope so that the Waveform will be 5 divisions of the oscilloscope.
10. Preset the tracking.
11. Confirm that the FM Waveform on the oscilloscope is 4.8 divisions or more.
12. If the FM Waveform is below 4.8 divisions, preset the tracking and repeat steps 3~10.
13. Push the A/C HEAD to the right and left (in the direction of A-A' in the Fig. 3-4-1) and release it. Confirm that the amplitude of the FM Waveform does not change, compared to before the A/C HEAD was shifted.
14. If the amplitude level of the FM Waveform changes, check the set position of the A/C HEAD. If the A/C HEAD is installed incorrectly, correct the position according to the Item 2-8. "A/C HEAD UNIT" and 3-3. "A/C HEAD Adjustment", and then repeat this item from the beginning.
15. Alternately load and unload the tape several times. Confirm that the amplitude of the FM Waveform does not change.

3-5. Tape wrinkle check

1. Confirm that there is no wrinkle at the lower edge of GUIDE POLE (TU) in PB/FS mode with E-240 tape beginning and ending.
2. Confirm that there is no wrinkle at the upper edge of GUIDE PIN (TU) in RS mode with E-240 tape beginning and ending.

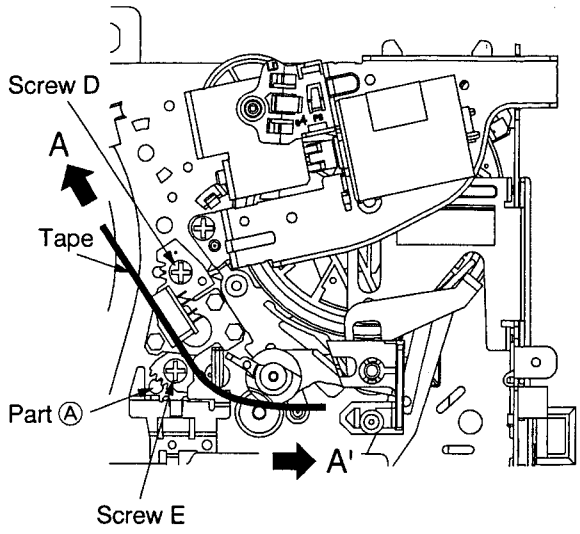


Fig. 3-4-1

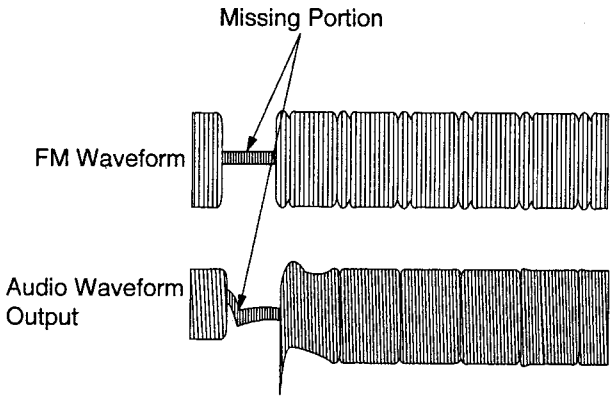


Fig. 3-4-2

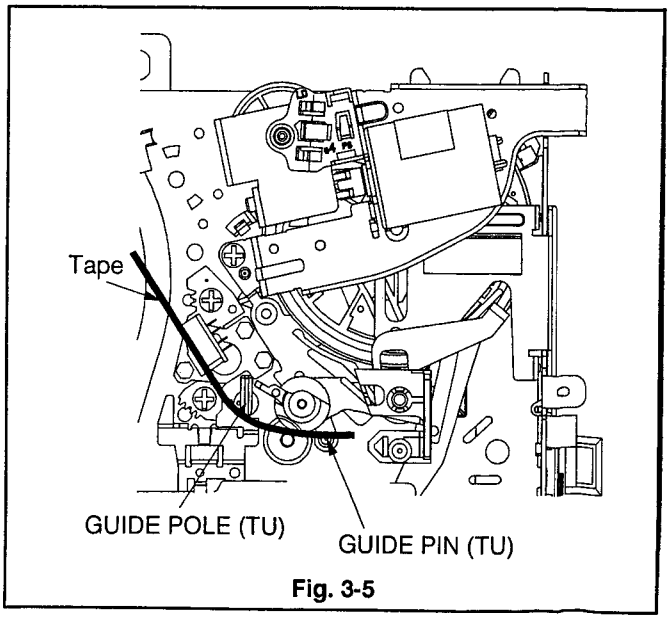


Fig. 3-5

4. Servicing for Tape Jam during the Loading Process

1. Remove the tape if the mechanism part is locked due tangled tape.
2. Rotate the WORM WHEEL of the LOADING MOTOR ASSY shown in the Fig. 4 in the direction of the arrow Ⓐ to eject the cassette tape.

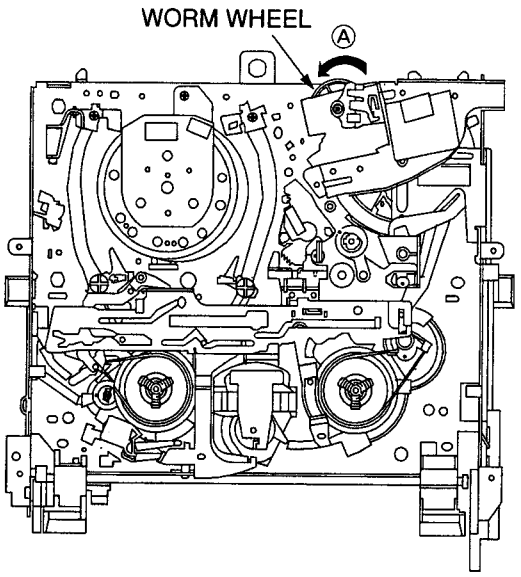


Fig. 4

GLOSSARY OF ABBREVIATIONS

A/C : Audio/Control
A-PB : Audio Play Back
A-REC : Audio Recording
AE : Audio Erase
AENV : Audio Envelope
AFC : Automatic Frequency Control
AFF : Audio Flip Flop
AFTV : Auto Fine Tuning Voltage
ALC : Automatic Level Control
AMODE : Audio Mode
AMPC : Amplifier Alternating Current Ground
APC : Automatic Phase Control
ATFN : Auto Fine
ATT : Attenuator

BLMUTE : Blue Back Mute

C/N : Carrier/Noise Ratio
CCD : Charge Coupled Device
CG-CS : Character Generator-Chip Slect
CHSW : Channel Switch
CLKSEL : Clock Select
CNTR : Counter
COM : Comparator
CONV SW : Converter Switch
CP-FG : Capstan-Frequency Generator
CP-REV : Capstan-Reverse
CPMOTORV : Capstan Motor Voltage
CROT : Chroma Rotation
CSYNC : Composite Synchronizing Signal
CTL : Control

D.E. : Detail Enhancer
D-FF : Drum Flip Flop
DEMOD : Demodulator
DET : Detector
DLY : Delay
DOC : Drop Out Compensator
DOCSTOP : Drop Out Control Stop
DR-FG : Drum-Frequency Generator
DR-OUT : Drum Control Out
DR-PG : Drum-Phase Generator

EE : Electronic-Electronic
EMPH : Emphasis
EP : Extended Play
EQ : Equalizer
ES : End Sensor

FBC : Feed Back Clamp
FE : Full Erase
FF : Fast Forward
FG : Frequency Generator
FLDCS : Fluorescent Tube Driver Chip Slect
FM : Frequency Modulation
FS : Forward Search
FSC : Frequency of Color Subcarrier

G : Ground

HASW : Head Amplifier Switch
HFR400 : Hi-Fast Forward/Reverse Speed Search 400
HFRSS : Hi-Fast Forward/Reverse Speed Search
HSYNC : Horizontal Synchronizing Signal

I-LIMIT : I(Current)-Limitter

JSTCLK : Just Clock

LIN-IN : Linear Audio In
LIN-OUT : Linear Audio Out
LMUTE : Linear Mute
LP : Long Play

MOD : Modulator
MOTORV : Motor Voltage

NL : Non Linear

OSC : Oscillator

PB : Play Back
PC : Position Control
PCB : Printed Circuit Board
PG : Pulse Generator
PLL : Phase Locked Loop
PRT : Protect
PSAVE : Power Save
PSLED : Power Save Light Emitting Diode
PSYNC : Pretened Vartical Synchronizing Signal
PWSV : Power Save
PWV : ON/OFF Command to supply B + Power

QH : Cue Horizontal Signal
QV : Cue Vertical Signal

REC : Recording
REC2 : Record Command for the PB/REC Control Circuit
RECPBC : Record/Play Back Chroma Signal
RES : Reset
RESPCM : Reset Pulse Code Modulation
REW : Rewind
RIS : Record Inhibit Switch
RMSDET : Root Mean Square Detector
RS : Reverse Search
RXD : Read X Data

SAPIND : SAP carrier detect Indicator
SCLK : Serial Clock
SCR : Scramble
SI : Serial control data Input
SLD : Side Lock Detector
SP : Standard Play
SS : Start Sensor
SSVSYNC : Speed Search Vertical Synchronizing Signal
STRB : Strobe
SU-SENS : Supply Reel Sensor

TSREC : Tape Simulate Recording
TSSW : Tape Simulator Switch
TU-SENS : Take Up Reel Sensor

V-REF : Voltage Referrence
VBUSY : VSET Busy
VCA : Voltage Control Amplifier
VCO : Voltage Controlled Oscillator
VENV : Video Envelope
VSETCLK : VSET Clock
VSETCS : VSET Chip Select

YNR : Y(Luminance) Signal Noise Reduction

CHIP PARTS REPLACEMENT

CHIP PARTS REPLACEMENT

Some resistors, shorting jumpers (0Ω resistor), ceramic capacitors, transistors and diodes are chip parts.
When replacing these parts, note the following cautions.

Cautions :

A. Use fine tipped, well insulated soldering pencil (iron), about 30 watts, and tweezers.
B. Melt the solder and remove the Chip Parts carefully not to tear off the copper foil of the printed circuit board.
C. Discard removed chips ; do not reuse them.
D. Do not apply heat for more than 3 seconds to new Chip Parts.
E. Avoid using a rubbing stroke when soldering.
F. Take care not to scratch, or damage the Chip Parts when soldering.
G. Supplementary cementing is not required.

1. Removal of Chip Parts (Resistors, capacitors, etc.)

A. Grasp the part with tweezers. Melt the solder at both sides alternately, remove one side of the part with a twisting motion.
B. Melt the solder at the other side and remove the part.

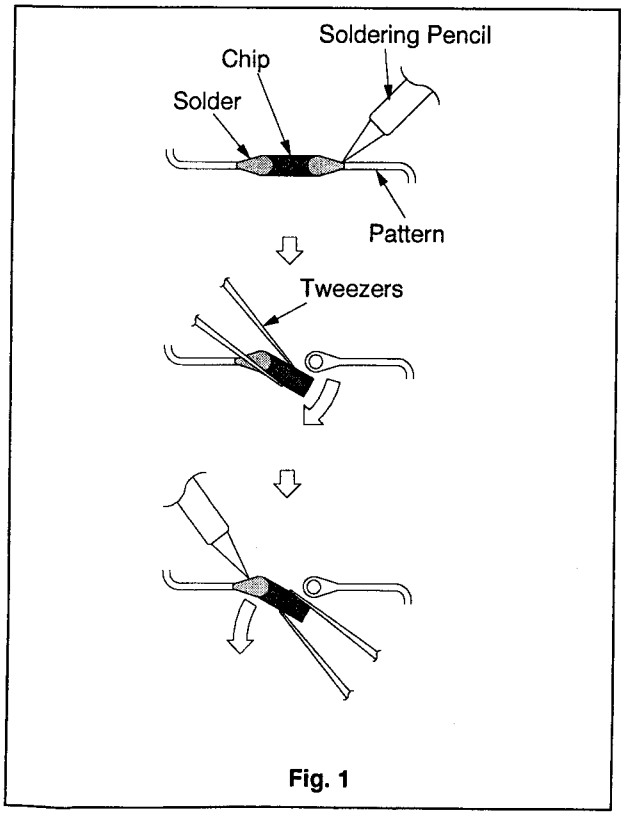


Fig. 1

2. Removal of Chip Parts (Transistors)

A. Melt the solder of one lead. Lift the side of that lead upward.
B. Simultaneously melt the solder of the two remaining leads and lift the part from the PCB.

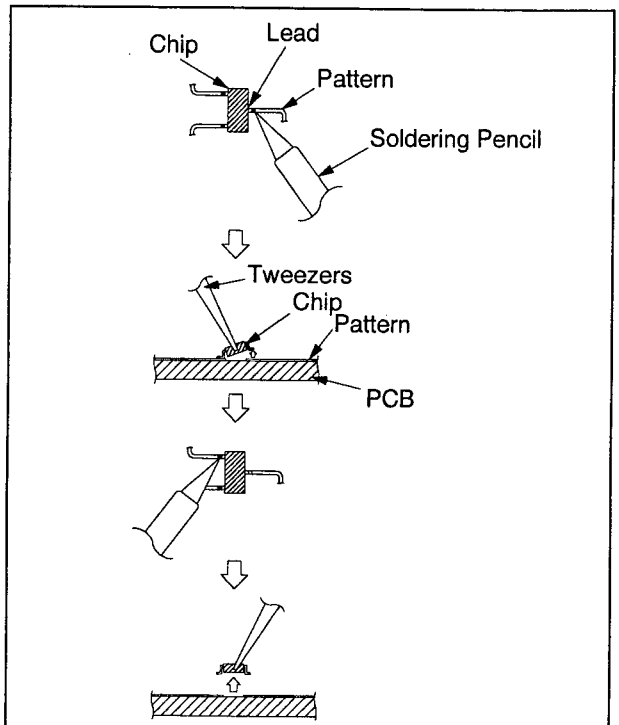


Fig. 2

3. Replacement

A. Presolder the contact points of the circuit pattern.
B. Press the part downward with tweezers and apply the soldering pencil as shown in Fig. 3.

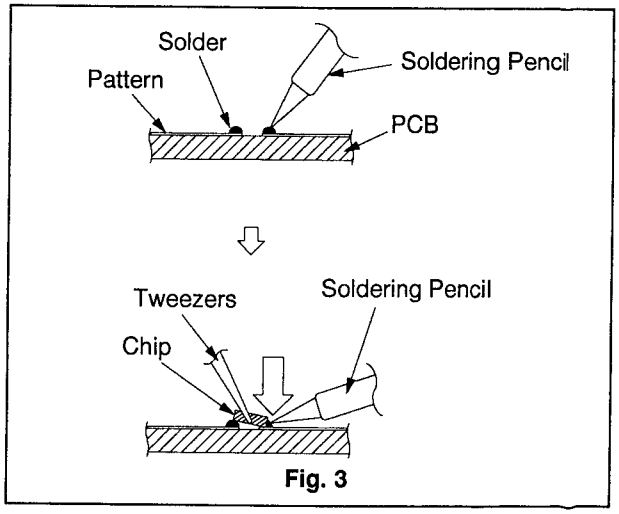
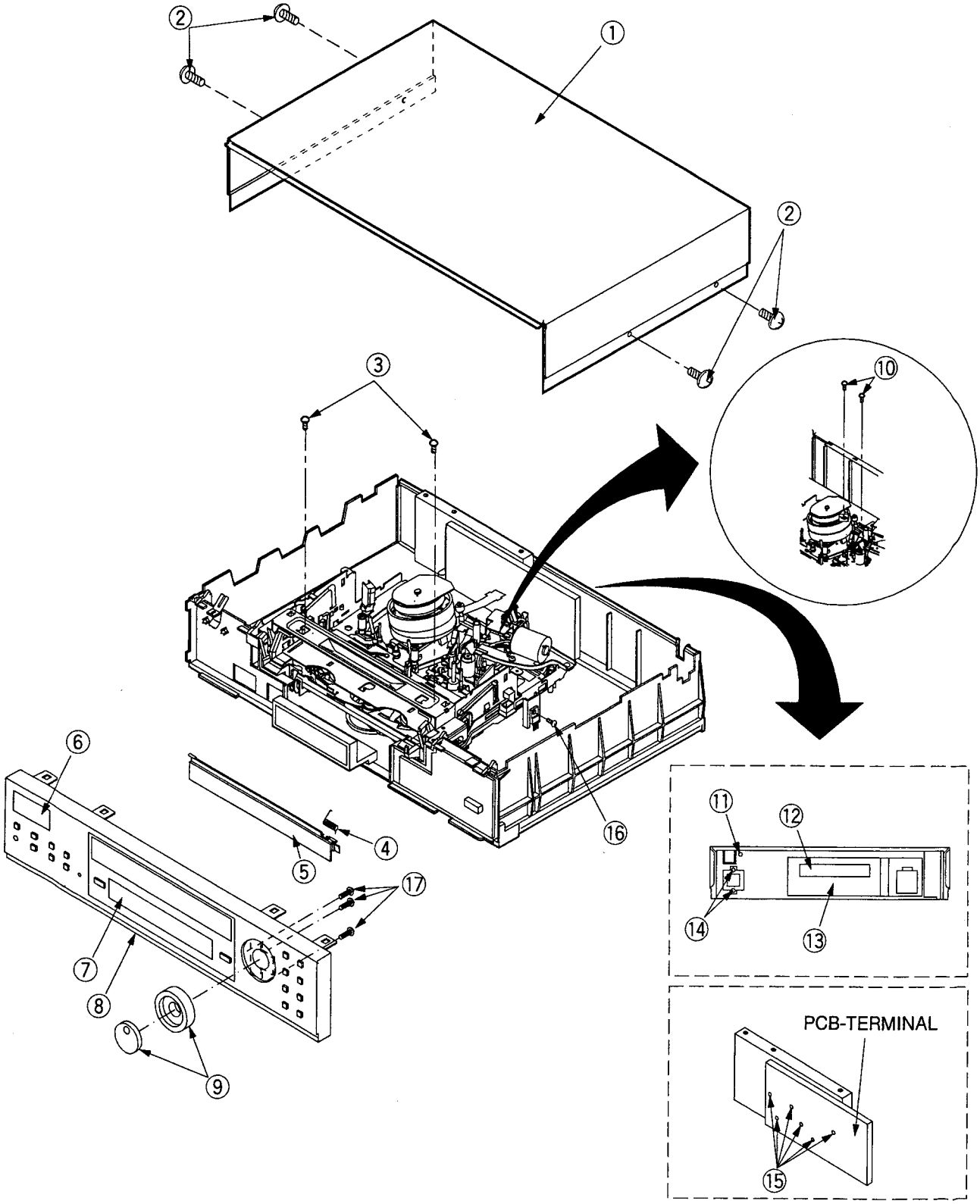


Fig. 3

[MEMO]

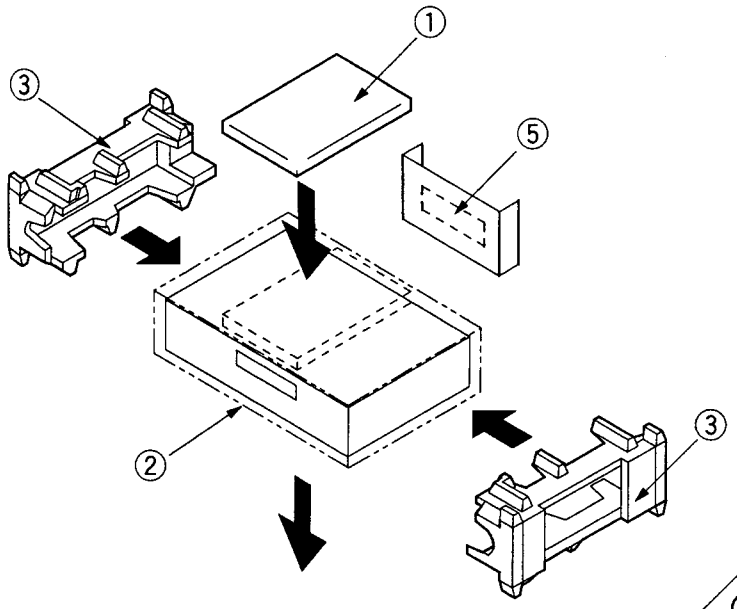
PARTS LIST

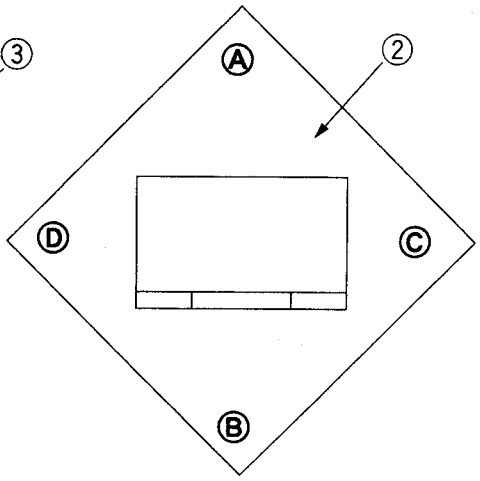
1. CABINET ASSEMBLY

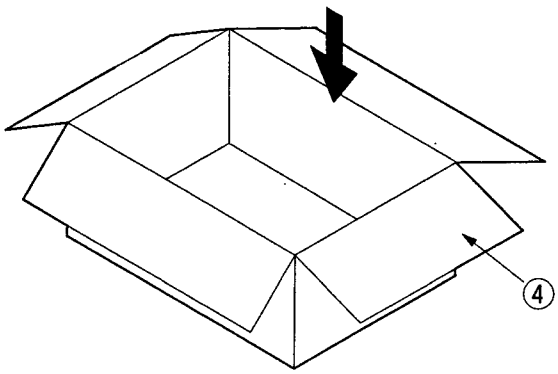


ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
		CABINET ASSEMBLY	
1	968C050O02	TOP COVER ASSY	
2	669D501O30	SCREW	3 × 10
3	669D221O40	SCREW	4 × 12 46LA005
4	572D385O10	F/L SPRING	
5	752C668O10	CASSETTE DOOR ASSY	
6	706B010O70	EMBLEM	
7	752C667O30	TIMER PLATE	
8	701B434O10	FRONT UNIT	
9	705D042O20	JOG/SHUTTLE UNIT	
10	669D229O90	SCREW	M3 × 4 46LA005
11	669D564O30	SCREW	M3 × 10
12	440B128O10	TERMINAL BOARD	(J 7A1)
13	761B362O10	TERMINAL COVER	
14	669D488O30	SCREW	3 × 12
15	669D500O30	SCREW	3 × 10
16	669D222O90	SCREW	3 × 10
17	669D531O10	SCREW	2.6 × 8

2. PACKING PARTS



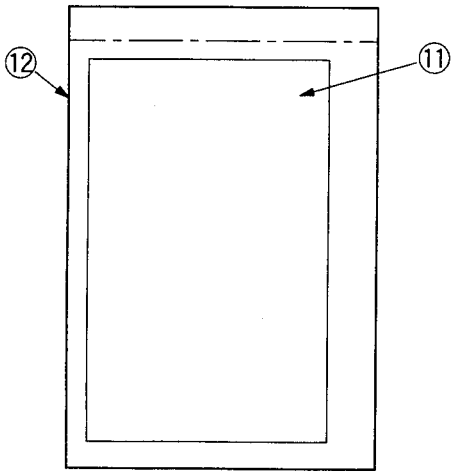




How to pack product

Pack with gloss side out.
Fold the corners Ⓐ, Ⓑ, Ⓒ, and Ⓓ in order.

ACCESSORY



ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
		PACKING PARTS	
1	----------	ACCESSORY	
2	831D190O30	PACKING SHEET	
3	803A560O10	CUSHION	
4	802B760O10	PACKING CASE	
5	242C209O80	AC POWER CORD	[E]
5	246C221O30	AC POWER CORD	[E(B)]
		ACCESSORY	
11	872C197O70	INSTRUCTION BOOK	[E]
11	872C197O80	INSTRUCTION BOOK	[E(B)]
12	831D337O10	PACKING BAG	(FOR ACCESSORY)

3. ELECTRICAL PARTS

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
		INTEGRATED CIRCUITS	
O IC201	270P823O10	IC	AN3364SB
O IC202	272P072O10	IC	NJM2930L05B
O IC2A0	270P850O10	IC	LA7195
IC2A1	270P505O10	IC	LC89977MK
O IC2001	275P558O10	MOS IC	M35053-056FP
IC2002	272P635O10	IC	AN3916-(LF)
O IC2003	272P072O10	IC	NJM2930L05B
IC3A0	272P234O10	IC	LA7295
IC4A0	272P235O10	IC	TA7291S
IC4A1	272P204O10	IC	LM2904M
O IC501	275P345O20	IC	PT6312LQ/UPD16312GB
O IC5A0	275P554O40	MOS IC	M37777MAH407GP
O IC5A1	270P070O50	IC	AT93C56-10PC/CAT93C56P
O IC5A2	270P528O40	IC	PST7027MT
IC901	267P152O10	IC	STR-G6651
IC902	272P500O20	IC	HA17431PA
O IC904	270P580O30	IC	SI-3120F
O IC905	270P540O50	IC	SI-3050FA
		TRANSISTORS	
Q 210	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 211	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 212	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 213	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 214	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 215	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2A0	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 2A1	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 2A2	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2A3	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2A6	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2A7	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2A8	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2A9	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2B0	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2B1	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2B2	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2B3	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2B4	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2B5	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2B7	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 2B8	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2B9	260P562O40	TRANSISTOR	2SA952-K
Q 2C0	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C1	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C2	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2C3	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C4	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C5	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C6	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C7	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2C8	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 2D4	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2D5	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2D6	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2D7	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2D8	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2D9	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2E0	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2E1	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2E2	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 2E3	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 2001	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2002	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2004	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2005	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2006	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2007	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 2008	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2009	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2010	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2011	260P804O30	CHIP TRANSISTOR	2SC3052-G
Q 2501	260P255O40	TRANSISTOR	2SA950-Y
Q 3A0	260P629O60	TRANSISTOR	2SC3331-S
Q 3A1	260P559O30	TRANSISTOR	2SC1740S-S
Q 3A2	260P559O30	TRANSISTOR	2SC1740S-S
Q 3A3	261P067O30	CHIP TRANSISTOR	DTC124EKA
Q 3A4	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 3A5	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q 4A1	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q 4A2	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q 4A3	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q 5A1	260P802O20	CHIP TRANSISTOR	2SA1235-F
Q 5A2	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q 5A3	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q 5A4	261P065O30	CHIP TRANSISTOR	DTA124EKA
Q 5B3	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q 5B4	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q 5B5	261P066O10	CHIP TRANSISTOR	2SA1037AK
Q 5B6	260P559O30	TRANSISTOR	2SC1740S-S
Q 5B7	260P559O30	TRANSISTOR	2SC1740S-S
Q 5B8	260P559O30	TRANSISTOR	2SC1740S-S
Q 5B9	260P559O30	TRANSISTOR	2SC1740S-S
Q 5C0	260P818O30	CHIP TRANSISTOR	2SC2412K-S
Q 921	260C628O10	TRANSISTOR	2SA1619A-Q
Q 922	261P067O30	CHIP TRANSISTOR	DTC124EKA
		DIODES	
D 201	264P390O10	CHIP DIODE	1SS123
D 2A0	264P808O10	CHIP DIODE	DAN202K
D 2A1	264P808O10	CHIP DIODE	DAN202K
O D 3A0	264P568O30	DIODE	1SS254
D 3A1	264P808O10	CHIP DIODE	DAN202K
D 4A1	264P500O20	DIODE	EM01Z
O D 4A2	262P038O10	DIODE	RB721Q-40T-72
O D 510	264P568O30	DIODE	1SS254
O D 511	264P568O30	DIODE	1SS254
O D 5A1	264P568O30	DIODE	1SS254
O D 5A2	264P568O30	DIODE	1SS254
O D 5A3	264P568O30	DIODE	1SS254
D 5A4	264P342O70	DIODE	HZ4C2

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
D 5A5	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D 5A6	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D 5A7	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
D 5A8	264P795O20	LIGHT EMITTING DIODE	SID1050CMMTP5
O D 801	264P568O30	DIODE	1SS254
O D 802	264P568O30	DIODE	1SS254
O D 803	264P568O30	DIODE	1SS254
O D 804	264P568O30	DIODE	1SS254
O D 805	264P568O30	DIODE	1SS254
O D 806	264P568O30	DIODE	1SS254
D 837	264P621O10	LIGHT EMITTING DIODE	SEL2210R TP2
O D 851	264P568O30	DIODE	1SS254
O D 852	264P568O30	DIODE	1SS254
O D 853	264P568O30	DIODE	1SS254
O D 854	264P568O30	DIODE	1SS254
O D 855	264P568O30	DIODE	1SS254
O D 856	264P568O30	DIODE	1SS254
O D 857	264P568O30	DIODE	1SS254
O D 858	264P568O30	DIODE	1SS254
O D 859	264P568O30	DIODE	1SS254
O D 860	264P568O30	DIODE	1SS254
D 901	264P508O40	DIODE	S1WB(A)60
D 903	264P687O10	DIODE	AG01Z
D 904	264P687O10	DIODE	AG01Z
O D 905	264P568O30	DIODE	1SS254
D 906	264P527O30	DIODE	D1NS4/AK04
O D 908	264P568O30	DIODE	1SS254
D 921	264P527O30	DIODE	D1NS4/AK04
O D 922	264P771O80	DIODE	MTZJ2.4A
D 923	264P663O10	DIODE	D1NL20U
O D 924	264P781O40	DIODE	MTZJ20D
D 925	264P657O10	DIODE	EK14V
D 926	264P695O60	DIODE	RK36
D 927	264P663O10	DIODE	D1NL20U
O D 928	262P037O10	DIODE	ST02D-170
	FILTERS		
L 5A1	409P777O30	CHIP EMI FILTER	BLM21A10
L 5A2	409P777O30	CHIP EMI FILTER	BLM21A10
L 5A3	409P777O30	CHIP EMI FILTER	BLM21A10
L 5A4	409P777O30	CHIP EMI FILTER	BLM21A10
L 5A5	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A2	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A3	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A4	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A5	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A6	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A7	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A8	409P777O30	CHIP EMI FILTER	BLM21A10
L 7A9	409P777O30	CHIP EMI FILTER	BLM21A10
O L 901	351P193O40	LINE FILTER	SS11V-04350
O R 201	409P777O60	EMI FILTER	BLM21A121F2012
O R 202	409P777O60	EMI FILTER	BLM21A121F2012
O R 203	409P777O60	EMI FILTER	BLM21A121F2012
O R 204	409P777O60	EMI FILTER	BLM21A121F2012
O R 2S4	409P923O50	EMI FILTER	BLM21B222SD
O R 2S5	409P923O50	EMI FILTER	BLM21B222SD

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
	COILS		
L 201	325C112O50	PEAKING COIL	100µH-K
O L 2A0	325C472O50	PEAKING COIL	100µH-J
O L 2A1	325C471O90	PEAKING COIL	33µH-J
L 2A2	325C167O40	PEAKING COIL	82µH-J
O L 2A3	325C472O50	PEAKING COIL	100µH-J
L 2A4	325C166O70	PEAKING COIL	22µH-J
L 2A5	325C166O80	PEAKING COIL	27µH-J
L 2A6	325C112O50	PEAKING COIL	100µH-K
O L 2A7	325C471O70	PEAKING COIL	22µH-J
O L 2A8	325C472O50	PEAKING COIL	100µH-J
L 2A9	325C168O00	PEAKING COIL	270µH-J
O L 2B1	325C472O50	PEAKING COIL	100µH-J
L 2B2	321C112O50	RF COIL	100µH-K
O L 2B3	325C472O50	PEAKING COIL	100µH-J
O L 2B4	325C471O90	PEAKING COIL	33µH-J
L 2B5	325C112O50	PEAKING COIL	100µH-K
O L 2B6	325C472O50	PEAKING COIL	100µH-J
O L 2B7	325C472O50	PEAKING COIL	100µH-J
O L 2B8	325C471O10	PEAKING COIL	6.8µH-J
O L 2B9	325C472O20	PEAKING COIL	56µH-J
O L 2C0	325C473O30	PEAKING COIL	470µH-J
O L 2C1	325C471O30	PEAKING COIL	10µH-J
O L 2C2	325C471O50	PEAKING COIL	15µH-J
O L 2C3	325C471O50	PEAKING COIL	15µH-J
O L 2C4	325C472O50	PEAKING COIL	100µH-J
O L 2C6	325C473O10	PEAKING COIL	330µH-J
O L 2C9	325C472O20	PEAKING COIL	56µH-J
L 2D0	325C166O80	PEAKING COIL	27µH-J
O L 2D2	325C472O50	PEAKING COIL	100µH-J
O L 2D4	325C471O90	PEAKING COIL	33µH-J
L 2E1	325C167O40	PEAKING COIL	82µH-J
O L 2E2	325C472O50	PEAKING COIL	100µH-J
L 2S1	411P011O10	FERRITE BEADS	ZBF-503S-P
L 2S2	411P011O10	FERRITE BEADS	ZBF-503S-P
L 2S3	411P011O10	FERRITE BEADS	ZBF-503S-P
L 2S6	411P011O10	FERRITE BEADS	ZBF-503S-P
L 2S7	411P011O10	FERRITE BEADS	ZBF-503S-P
L 2S8	325C121O30	PEAKING COIL	10µH-K
O L 2002	325C472O50	PEAKING COIL	100µH-J
O L 2003	325C472O50	PEAKING COIL	100µH-J
O L 2004	325C472O50	PEAKING COIL	100µH-J
O L 2005	325C472O50	PEAKING COIL	100µH-J
L 2006	325C167O40	PEAKING COIL	82µH-J
O L 2007	325C472O50	PEAKING COIL	100µH-J
L 2501	325C112O50	PEAKING COIL	100µH-K
L 3A0	321C113O70	RF COIL	1000µH-K
L 3A1	321C114O80	RF COIL	8200µH-J
L 501	325C112O50	PEAKING COIL	100µH-K
L 904	411P011O10	FERRITE BEADS	ZBF-503S-P
L 921	321C141O30	RF COIL	10µH-K
L 922	321C141O30	RF COIL	10µH-K
T 3A0	409P852O30	BIAS OSCILLATOR COIL	P852A10/P852A20

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION	
		TRANSFORMERS		
O	409P848O10	ROTARY TRANSFORMER		[1024E]
O	409P848O20	ROTARY TRANSFORMER		[1024E]
O T 901	350P770O10	POWER TRANSFORMER	FAL28RZ	
		VARIABLE RESISTORS		
R 902	109C010O10	SOLID RESISTOR	1/2W 1MΩ-K	
O VR2A0	127C520O90	SEMIFIXED RESISTOR	1/5W B20KΩ +-25%	
VR2A1	127C390O90	SEMIFIXED RESISTOR	1/5W B20kΩ-M	
O VR2A2	127C520O80	SEMIFIXED RESISTOR	1/5W B10KΩ +-25%	
O VR2A5	127C520O90	SEMIFIXED RESISTOR	1/5W B20KΩ +-25%	
O VR2001	127C521O10	SEMIFIXED RESISTOR	1/5W B50K +-25%	
VR3A1	127C380O80	SEMIFIXED RESISTOR	1/5W B10kΩ-M	
O VR831	129D184O10	PCB VR	1/20W B5kΩ-35TM	
		RESISTORS		
C 2J9	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)	
R 212	103P402O10	CHIP RESISTOR	1/10W 470Ω-J	
R 213	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J	
R 214	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J	
R 215	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 216	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 218	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 220	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 221	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 222	103P475O30	CHIP RESISTOR	1/10W 15kΩ-F	
R 223	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J	
R 226	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J	
R 2A0	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 2A1	103P473O90	CHIP RESISTOR	1/10W 3.9kΩ-F	
R 2A2	103P473O50	CHIP RESISTOR	1/10W 2.7kΩ-F	
R 2A3	103P472O10	CHIP RESISTOR	1/10W 680Ω-F	
R 2A5	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J	
R 2A6	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J	
R 2A7	103P406O10	CHIP RESISTOR	1/10W 1MΩ-J	
R 2A8	103P403O60	CHIP RESISTOR	1/10W 8.2kΩ-J	
R 2B0	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J	
R 2B1	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J	
R 2B2	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J	
R 2B3	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J	
R 2B4	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2B5	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 2B6	103P471O80	CHIP RESISTOR	1/10W 510Ω-F	
R 2B7	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J	
R 2B8	103P401O30	CHIP RESISTOR	1/10W 100Ω-J	
R 2B9	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 2C0	103P472O10	CHIP RESISTOR	1/10W 680Ω-F	
R 2C1	103P401O80	CHIP RESISTOR	1/10W 270Ω-J	
R 2C2	103P401O80	CHIP RESISTOR	1/10W 270Ω-J	
R 2C5	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)	
R 2C7	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 2C8	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F	
R 2D0	103P471O70	CHIP RESISTOR	1/10W 470Ω-F	
R 2D1	103P474O70	CHIP RESISTOR	1/10W 8.2kΩ-F	
R 2D2	103P471O90	CHIP RESISTOR	1/10W 560Ω-F	
R 2D3	103P471O30	CHIP RESISTOR	1/10W 330Ω-F	
R 2D4	103P472O10	CHIP RESISTOR	1/10W 680Ω-F	
R 2D6	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F	
R 2D7	103P472O60	CHIP RESISTOR	1/10W 1.1kΩ-F	
R 2D8	103P471O70	CHIP RESISTOR	1/10W 470Ω-F	
R 2D9	103P475O30	CHIP RESISTOR	1/10W 15kΩ-F	
R 2E0	103P475O50	CHIP RESISTOR	1/10W 18kΩ-F	
R 2E1	103P401O30	CHIP RESISTOR	1/10W 100Ω-J	
R 2E3	103P472O40	CHIP RESISTOR	1/10W 910Ω-F	
R 2E4	103P472O80	CHIP RESISTOR	1/10W 1.3kΩ-F	
R 2E5	103P471O90	CHIP RESISTOR	1/10W 560Ω-F	
R 2E6	103P401O70	CHIP RESISTOR	1/10W 220Ω-J	
R 2E7	103P402O20	CHIP RESISTOR	1/10W 560Ω-J	
R 2E8	103P402O30	CHIP RESISTOR	1/10W 680Ω-J	
R 2E9	103P474O10	CHIP RESISTOR	1/10W 4.7kΩ-F	
R 2F0	103P473O30	CHIP RESISTOR	1/10W 2.2kΩ-F	
R 2F1	103P401O30	CHIP RESISTOR	1/10W 100Ω-J	
R 2F2	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J	
R 2F3	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J	
R 2F5	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2F6	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J	
R 2F7	103P403O60	CHIP RESISTOR	1/10W 8.2kΩ-J	
R 2F8	103P401O30	CHIP RESISTOR	1/10W 100Ω-J	
R 2G2	103P403O80	CHIP RESISTOR	1/10W 12kΩ-J	
R 2G3	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J	
R 2G4	103P403O80	CHIP RESISTOR	1/10W 12kΩ-J	
R 2G5	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)	
R 2G6	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J	
R 2G7	103P473O30	CHIP RESISTOR	1/10W 2.2kΩ-F	
R 2G8	103P472O90	CHIP RESISTOR	1/10W 1.5kΩ-F	
R 2G9	103P473O80	CHIP RESISTOR	1/10W 3.6kΩ-F	
R 2H0	103P402O40	CHIP RESISTOR	1/10W 820Ω-J	
R 2H1	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J	
R 2H2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2H3	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J	
R 2H4	103P403O80	CHIP RESISTOR	1/10W 12kΩ-J	
R 2H5	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J	
R 2H6	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J	
R 2H7	103P402O10	CHIP RESISTOR	1/10W 470Ω-J	
R 2H8	103P402O10	CHIP RESISTOR	1/10W 470Ω-J	
R 2H9	103P402O10	CHIP RESISTOR	1/10W 470Ω-J	
R 2J1	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F	
R 2J2	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J	
R 2J3	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2J4	103P471O30	CHIP RESISTOR	1/10W 330Ω-F	
R 2J6	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2J7	103P402O40	CHIP RESISTOR	1/10W 820Ω-J	
R 2J8	103P401O30	CHIP RESISTOR	1/10W 100Ω-J	
R 2J9	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2K1	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J	
R 2K2	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J	
R 2K3	103P401O70	CHIP RESISTOR	1/10W 220Ω-J	
R 2K4	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2K5	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J	
R 2K8	103P401O80	CHIP RESISTOR	1/10W 270Ω-J	
R 2K9	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J	
R 2L0	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)	

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R 2L1	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2L8	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R 2L9	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R 2M0	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2M1	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2M2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2M3	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R 2M4	103P472O20	CHIP RESISTOR	1/10W 750Ω-F
R 2M6	103P402O40	CHIP RESISTOR	1/10W 820Ω-J
R 2M7	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R 2M8	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2N0	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R 2N2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2N3	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2N4	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R 2N5	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2N6	103P470O70	CHIP RESISTOR	1/10W 180Ω-F
R 2N7	103P403O20	CHIP RESISTOR	1/10W 3.9kΩ-J
R 2N8	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 2R8	103P401O00	CHIP RESISTOR	1/10W 56Ω-J
R 2S2	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 2001	103P472O90	CHIP RESISTOR	1/10W 1.5kΩ-F
R 2002	103P402O20	CHIP RESISTOR	1/10W 560Ω-J
R 2003	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2004	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2005	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 2006	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 2007	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2008	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2009	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 2013	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 2014	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R 2015	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 2017	103P403O50	CHIP RESISTOR	1/10W 6.8kΩ-J
R 2018	103P402O80	CHIP RESISTOR	1/10W 1.8kΩ-J
R 2019	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 2020	103P405O30	CHIP RESISTOR	1/10W 220kΩ-J
R 2021	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R 2022	103P475O30	CHIP RESISTOR	1/10W 15kΩ-F
R 2023	103P474O90	CHIP RESISTOR	1/10W 10kΩ-F
R 2024	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 2025	103P478O10	CHIP RESISTOR	1/10W 220kΩ-F
R 2026	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 2027	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R 2029	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J
R 2030	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R 2031	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 2032	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R 2033	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R 2034	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J
R 2035	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J
R 2036	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R 2037	103P405O70	CHIP RESISTOR	1/10W 470kΩ-J
R 2501	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 2502	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 2503	103P409O90	CHIP RESISTOR	1/10W 75Ω-J
R 2504	103P409O90	CHIP RESISTOR	1/10W 75Ω-J

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R 311	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 3A0	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 3A1	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 3A2	103P404O20	CHIP RESISTOR	1/10W 27kΩ-J
R 3A3	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 3A4	103P401O60	CHIP RESISTOR	1/10W 180Ω-J
R 3A6	103P403O60	CHIP RESISTOR	1/10W 8.2kΩ-J
R 3A7	103P401O40	CHIP RESISTOR	1/10W 120Ω-J
R 3A8	103P400O10	CHIP RESISTOR	1/10W10Ω-J
R 3B0	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R 3B1	103P403O40	CHIP RESISTOR	1/10W 5.6kΩ-J
R 3B2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 3B3	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 3B4	103P406O10	CHIP RESISTOR	1/10W 1MΩ-J
R 3B6	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 3B8	103P403O60	CHIP RESISTOR	1/10W 8.2kΩ-J
R 3D0	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R 3D2	103P404O60	CHIP RESISTOR	1/10W 56kΩ-J
R 3E5	103P404O00	CHIP RESISTOR	1/10W 18kΩ-J
R 3E6	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 3G0	103P401O00	CHIP RESISTOR	1/10W 56Ω-J
R 3G9	103P401O30	CHIP RESISTOR	1/10W 100Ω-J
R 3H0	103P401O60	CHIP RESISTOR	1/10W 180Ω-J
R 3H2	103P403O10	CHIP RESISTOR	1/10W 3.3kΩ-J
R 3H6	103P404O00	CHIP RESISTOR	1/10W 18kΩ-J
R 4A5	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 4A6	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 4B0	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R 4B6	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R 4B8	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R 4B9	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R 4C0	103P473O70	CHIP RESISTOR	1/10W 3.3kΩ-F
R 4C1	103P473O30	CHIP RESISTOR	1/10W 2.2kΩ-F
R 4C2	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 4C4	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R 4C5	103P403O80	CHIP RESISTOR	1/10W 12kΩ-J
R 4C6	103P474O90	CHIP RESISTOR	1/10W 10kΩ-F
R 4C7	103P474O50	CHIP RESISTOR	1/10W 6.8kΩ-F
R 4C8	103P477O50	CHIP RESISTOR	1/10W 120kΩ-F
R 4C9	103P477O10	CHIP RESISTOR	1/10W 82kΩ-F
R 4D0	103P402O70	CHIP RESISTOR	1/10W 1.5kΩ-J
R 4D1	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 4D2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 501	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 502	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 503	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 504	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 505	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 506	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 507	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 508	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R 509	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R 510	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R 511	103P404O30	CHIP RESISTOR	1/10W 33kΩ-J
R 512	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 521	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 522	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R 523	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 524	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 525	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 526	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 527	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 528	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 529	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 530	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 531	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 532	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 533	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 534	103P404O50	CHIP RESISTOR	1/10W 47kΩ-J
R 5A2	103P405O70	CHIP RESISTOR	1/10W 470kΩ-J
R 5A3	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 5A5	103P406O10	CHIP RESISTOR	1/10W 1MΩ-J
R 5A6	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 5A7	103P406O90	CHIP METAL RESISTOR	1/10W 4.7MΩ-K
R 5A8	103P406O90	CHIP METAL RESISTOR	1/10W 4.7MΩ-K
R 5B3	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R 5B5	103P402O60	CHIP RESISTOR	1/10W 1.2kΩ-J
R 5B6	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5B7	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5B8	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5C1	103P403O30	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5C2	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R 5C3	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 5C4	103P401O70	CHIP RESISTOR	1/10W 220Ω-J
R 5C5	103P402O10	CHIP RESISTOR	1/10W 470Ω-J
R 5C6	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R 5C7	103P403O00	CHIP RESISTOR	1/10W 2.7kΩ-J
R 5C8	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5D0	103P405O30	CHIP RESISTOR	1/10W 220kΩ-J
R 5D6	103P405O00	CHIP RESISTOR	1/10W 120kΩ-J
R 5D7	103P405O00	CHIP RESISTOR	1/10W 120kΩ-J
R 5E4	103P401O50	CHIP RESISTOR	1/10W 150Ω-J
R 5E6	103P404O00	CHIP RESISTOR	1/10W 18kΩ-J
R 5F0	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5F1	103P471O50	CHIP RESISTOR	1/10W 390Ω-F
R 5F2	103P470O70	CHIP RESISTOR	1/10W 180Ω-F
R 5F3	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5F7	103P404O90	CHIP RESISTOR	1/10W 100kΩ-J
R 5F8	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5F9	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 5G0	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5G1	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 5G2	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5G3	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 5G4	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5G5	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 5G6	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5G7	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 5G8	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5G9	103P404O10	CHIP RESISTOR	1/10W 22kΩ-J
R 5H0	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5H1	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5H2	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
R 5H3	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5H4	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5H5	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5H6	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5H7	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5H9	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5J0	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5J1	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5J2	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 5J3	103P403O90	CHIP RESISTOR	1/10W 15kΩ-J
R 5J4	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R 5J8	103P402O90	CHIP RESISTOR	1/10W 2.2kΩ-J
R 5K2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
O R 5K3	103P477O80	CHIP RESISTOR	1/10W 160kΩ-F
R 5K6	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 5L0	103P471O50	CHIP RESISTOR	1/10W 390Ω-F
R 5L1	103P403O70	CHIP RESISTOR	1/10W 10kΩ-J
R 5L2	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 5L3	103P402O50	CHIP RESISTOR	1/10W 1kΩ-J
R 5L4	103P470O70	CHIP RESISTOR	1/10W 180Ω-F
R 901	109D036O40	COMPOSITION RESISTOR	1/2W 8.2MΩ-K
R 924	103P751O30	FUSE RESISTOR	1/4W 100Ω-J
R 925	103P472O50	CHIP RESISTOR	1/10W 1kΩ-F
R 926	103P470O90	CHIP RESISTOR	1/10W 220Ω-F
R 927	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
R 928	103P470O10	CHIP RESISTOR	1/10W 100Ω-F
R 929	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F
R 930	103P472O70	CHIP RESISTOR	1/10W 1.2kΩ-F
R 931	103P400O50	CHIP RESISTOR	1/10W 22Ω-J
R 932	103P472O90	CHIP RESISTOR	1/10W 1.5kΩ-F
R 936	103P401O90	CHIP RESISTOR	1/10W 330Ω-J
RJ 01	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 02	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 04	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 05	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 06	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 07	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 08	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 09	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 10	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 11	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 12	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 13	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 14	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 15	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 16	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 17	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 18	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 20	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 21	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 22	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 23	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 24	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 29	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 30	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 31	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 32	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
RJ 33	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 34	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 35	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 36	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 37	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 38	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 39	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 40	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 41	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 42	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 43	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 44	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 45	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 46	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 47	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 48	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 49	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 50	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 51	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 52	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 53	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 54	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 55	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 56	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 57	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 58	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 59	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 60	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 61	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 62	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 63	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 64	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 65	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 66	103P409O50	CHIP RESISTOR	0.1W 0Ω (2125)
	CAPACITORS AND TRIMMERS		
C 201	141P139O90	CHIP CAPACITOR	B16V 0.47μF-K
C 204	141P139O90	CHIP CAPACITOR	B16V 0.47μF-K
C 205	141P139O90	CHIP CAPACITOR	B16V 0.47μF-K
C 208	141P139O90	CHIP CAPACITOR	B16V 0.47μF-K
C 211	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 212	154P326O00	CHIP CAPACITOR	SL50V 1000pF-J
C 213	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
C 214	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 215	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 216	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 217	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
C 218	141P135O80	CHIP CAPACITOR	F25V 0.1μF-Z
C 219	141P135O80	CHIP CAPACITOR	F25V 0.1μF-Z
C 222	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
C 223	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 224	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2A0	154P322O60	CHIP CAPACITOR	SL50V 39pF-J
C 2A1	154P323O00	CHIP CAPACITOR	SL50V 56pF-J
C 2A2	154P324O40	CHIP CAPACITOR	SL50V 220pF-J
C 2A4	154P325O00	CHIP CAPACITOR	SL50V 390pF-J
C 2A5	154P321O60	CHIP CAPACITOR	SL50V 15pF-J
C 2A7	154P320O70	CHIP CAPACITOR	SL50V 5pF-C
C 2A8	154P323O40	CHIP CAPACITOR	SL50V 82pF-J
C 2B0	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2B1	141P137O40	CHIP CAPACITOR	B25V 0.022μF-K
C 2B3	141P137O80	CHIP CAPACITOR	B25V 0.047μF-K
C 2B5	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 2B7	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2B8	154P321O60	CHIP CAPACITOR	SL50V 15pF-J
C 2B9	154P323O20	CHIP CAPACITOR	SL50V 68pF-J
C 2C0	154P322O00	CHIP CAPACITOR	SL50V 22pF-J
C 2C1	154P322O80	CHIP CAPACITOR	SL50V 47pF-J
C 2C3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2C4	154P332O30	CHIP CAPACITOR	CH50V 33pF-J
C 2C5	154P332O10	CHIP CAPACITOR	CH50V 27pF-J
C 2C6	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2C8	141P132O00	CHIP CAPACITOR	B50V 8200pF-K
C 2C9	141P132O00	CHIP CAPACITOR	B50V 8200pF-K
C 2D3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2D5	141P135O80	CHIP CAPACITOR	F25V 0.1μF-Z
C 2D8	141P135O80	CHIP CAPACITOR	F25V 0.1μF-Z
C 2D9	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2E0	154P321O60	CHIP CAPACITOR	SL50V 15pF-J
C 2E1	154P324O40	CHIP CAPACITOR	SL50V 220pF-J
C 2E2	154P322O20	CHIP CAPACITOR	SL50V 27pF-J
C 2E3	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2E4	154P324O60	CHIP CAPACITOR	SL50V 270pF-J
C 2E6	154P324O00	CHIP CAPACITOR	SL50V 150pF-J
C 2E7	154P324O20	CHIP CAPACITOR	SL50V 180pF-J
C 2E8	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2E9	154P322O20	CHIP CAPACITOR	SL50V 27pF-J
C 2F0	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2F4	141P137O40	CHIP CAPACITOR	B25V 0.022μF-K
C 2F5	141P137O80	CHIP CAPACITOR	B25V 0.047μF-K
C 2F6	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2F8	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2F9	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2G1	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2G3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2G5	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2G9	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2H0	154P321O00	CHIP CAPACITOR	SL50V 8pF-C
C 2H3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2H4	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2H5	154P322O20	CHIP CAPACITOR	SL50V 27pF-J
C 2H7	154P322O40	CHIP CAPACITOR	SL50V 33pF-J
C 2H8	154P323O20	CHIP CAPACITOR	SL50V 68pF-J
C 2H9	154P322O40	CHIP CAPACITOR	SL50V 33pF-J
C 2J0	154P323O00	CHIP CAPACITOR	SL50V 56pF-J
C 2J1	154P322O80	CHIP CAPACITOR	SL50V 47pF-J
C 2J2	141P132O00	CHIP CAPACITOR	B50V 8200pF-K
C 2J4	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
O C 2J6	154P336O80	CHIP CAPACITOR	CH50/25V 820pF-J
C 2J7	154P324O00	CHIP CAPACITOR	SL50V 150pF-J
C 2J8	154P324O00	CHIP CAPACITOR	SL50V 150pF-J
C 2K0	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2K9	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z

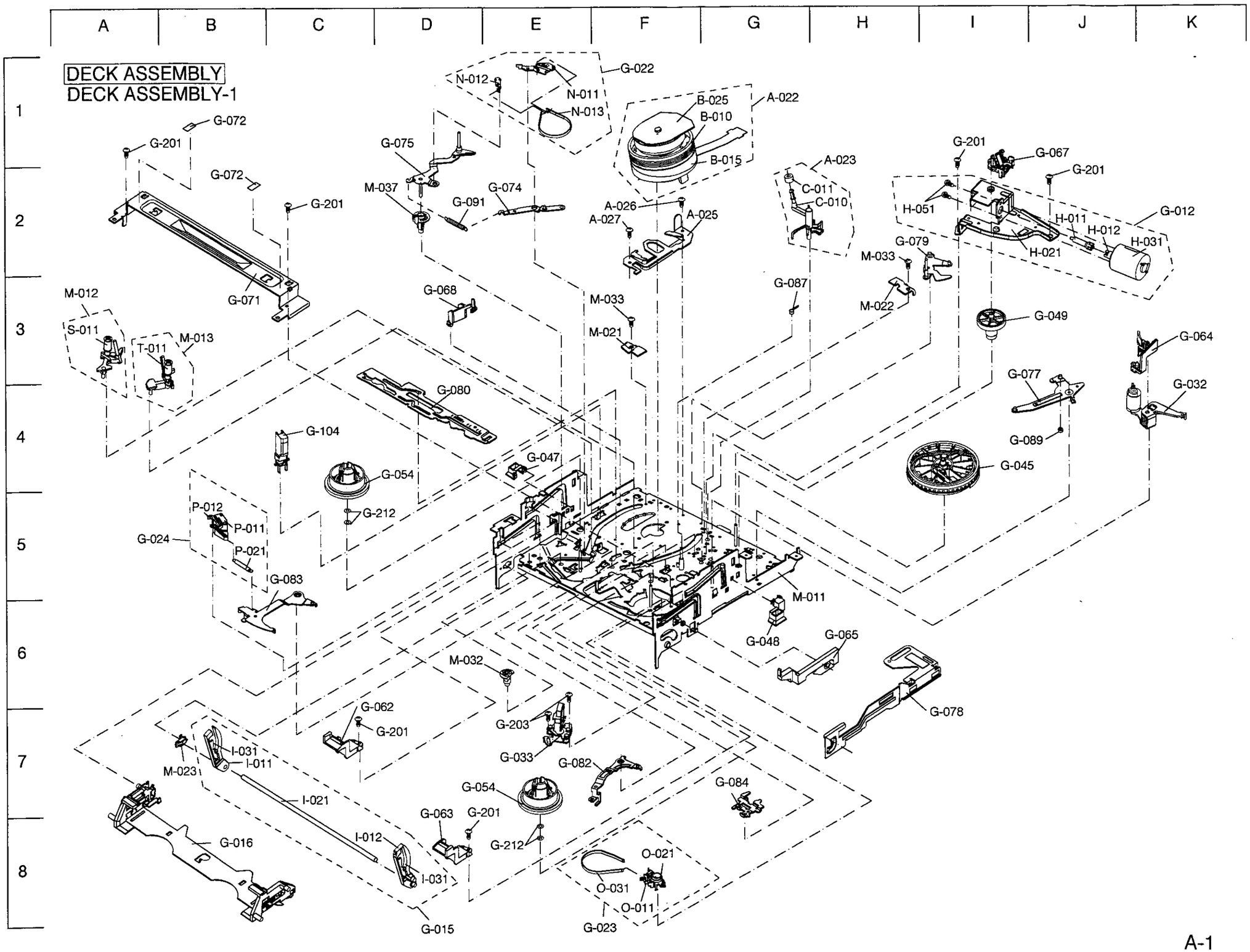
SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
C 2L0	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2L1	154P322O20	CHIP CAPACITOR	SL50V 27pF-J
C 2L2	154P321O60	CHIP CAPACITOR	SL50V 15pF-J
C 2L4	154P322O00	CHIP CAPACITOR	SL50V 22pF-J
C 2L6	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2L9	154P322O60	CHIP CAPACITOR	SL50V 39pF-J
C 2M1	154P323O00	CHIP CAPACITOR	SL50V 56pF-J
C 2Q4	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2S1	154P322O00	CHIP CAPACITOR	SL50V 22pF-J
C 2S2	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2S3	154P322O00	CHIP CAPACITOR	SL50V 22pF-J
C 2001	154P325O20	CHIP CAPACITOR	SL50V 470pF-J
C 2002	141P139O70	CHIP CAPACITOR	B16V 0.22μF-K
C 2003	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2005	154P322O60	CHIP CAPACITOR	SL50V 39pF-J
C 2006	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2007	154P322O80	CHIP CAPACITOR	SL50V 47pF-J
C 2008	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2011	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2013	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2015	154P325O20	CHIP CAPACITOR	SL50V 470pF-J
C 2016	141P131O50	CHIP CAPACITOR	B50V 3300pF-K
C 2018	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2023	154P322O00	CHIP CAPACITOR	SL50V 22pF-J
C 2024	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2029	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2031	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
C 2036	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 2040	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 2041	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
O C 2501	181P210O60	ELECTROLYTIC CAPACITOR	04W 6.3V 330μF-M
O C 2502	181P210O60	ELECTROLYTIC CAPACITOR	04W 6.3V 330μF-M
O C 2503	181P212O70	ELECTROLYTIC CAPACITOR	04W 16V 100μF-M
O C 302	154P337O60	CHIP CAPACITOR	CH50V 3900pF-J
O C 303	181P216O50	ELECTROLYTIC CAPACITOR	50V 10μF-M
O C 3A0	181P219O80	ELECTROLYTIC CAPACITOR	50V 2.2μF-M
C 3A1	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 3A2	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C 3A3	141P130O60	CHIP CAPACITOR	B50V 560pF-K
O C 3A5	181P213O80	ELECTROLYTIC CAPACITOR	25V 22μF-M
O C 3A6	181P214O00	ELECTROLYTIC CAPACITOR	25V 47μF-M
C 3A8	141P131O30	CHIP CAPACITOR	B50V 2200pF-K
O C 3A9	181P219O70	ELECTROLYTIC CAPACITOR	50V 1μF-M
O C 3B4	181P212O60	ELECTROLYTIC CAPACITOR	04W 16V 47μF-M
O C 3B7	181P219O70	ELECTROLYTIC CAPACITOR	50V 1μF-M
O C 3B8	181P213O80	ELECTROLYTIC CAPACITOR	25V 22μF-M
O C 3D1	181P212O50	ELECTROLYTIC CAPACITOR	16V 33μF-M
C 3D2	141P130O60	CHIP CAPACITOR	B50V 560pF-K
C 3D3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 3D4	141P139O10	CHIP CAPACITOR	B25V 0.068μF-K
C 3D5	141P137O30	CHIP CAPACITOR	B50V 0.018μF-K
O C 3E6	181P212O60	ELECTROLYTIC CAPACITOR	04W 16V 47μF-M
C 3E7	141P130O10	CHIP CAPACITOR	B50V 220pF-K
C 4A1	141P130O60	CHIP CAPACITOR	B50V 560pF-K
C 4A2	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C 4A3	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C 4A7	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
C 4A9	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 4B1	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 4B3	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C 4C1	141P139O00	CHIP CAPACITOR	B25V 0.056μF-K
C 4C2	141P139O00	CHIP CAPACITOR	B25V 0.056μF-K
C 4C3	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C 4C4	141P131O70	CHIP CAPACITOR	B50V 4700pF-K
C 501	154P322O80	CHIP CAPACITOR	SL50V 47pF-J
C 503	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 505	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 507	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 508	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 509	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 510	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 5A1	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 5A4	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 5A5	154P331O90	CHIP CAPACITOR	CH50V 22pF-J
C 5A6	154P331O50	CHIP CAPACITOR	CH50V 15pF-J
C 5A7	154P331O90	CHIP CAPACITOR	CH50V 22pF-J
C 5A8	154P331O70	CHIP CAPACITOR	CH50V 18pF-J
C 5A9	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 5B0	141P131O90	CHIP CAPACITOR	B50V 6800pF-K
C 5B1	141P131O90	CHIP CAPACITOR	B50V 6800pF-K
C 5B2	141P131O90	CHIP CAPACITOR	B50V 6800pF-K
C 5B3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5B4	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5B5	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 5B6	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5B9	141P133O90	CHIP CAPACITOR	F50V 0.022μF-Z
C 5C0	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5C1	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5C2	141P137O80	CHIP CAPACITOR	B25V 0.047μF-K
C 5C3	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5C4	141P137O80	CHIP CAPACITOR	B25V 0.047μF-K
C 5C5	141P133O80	CHIP CAPACITOR	F50V 0.01μF-Z
C 5C6	141P137O80	CHIP CAPACITOR	B25V 0.047μF-K
C 5C9	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
C 5D0	141P130O90	CHIP CAPACITOR	B50V 1000pF-K
C 5D3	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 5D5	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 5D6	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 901	189P183O40	C-M-P-AC	125V/250V0.1μF-M
C 902	189P183O40	C-M-P-AC	125V/250V0.1μF-M
C 907	189P188O30	AC CERAMIC CAPACITOR	AC250V E4700pF-M
C 915	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
O C 921	181P551O20	ELECTROLYTIC CAPACITOR	04W 10V 100μF-M
C 922	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
C 925	141P132O10	CHIP CAPACITOR	B50V 0.01μF-K
O C 928	181P353O60	ELECTROLYTIC CAPACITOR	04W 25V 330μF-M
O C 930	181P351O70	ELECTROLYTIC CAPACITOR	10V 470μF-M
C 931	181P351O40	ELECTROLYTIC CAPACITOR	CE04W 10V 100μF-M
C 932	181P352O40	ELECTROLYTIC CAPACITOR	04W 16V 100μF-M
C 933	141P139O30	CHIP CAPACITOR	B25V 0.1μF-K
	SWITCHES		
O S 7A1	432P203O30	KEY BOARD SWITCH	RESET

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION	
O S 831	432P203O30	KEY BOARD SWITCH	E-TRACING(+)	
O S 832	432P203O30	KEY BOARD SWITCH	E-TRACING(-)	
O S 833	432P203O30	KEY BOARD SWITCH	E-MODE(+)	
O S 834	432P203O30	KEY BOARD SWITCH	E-MODE(-)	
O S 835	432P203O30	KEY BOARD SWITCH	E-POWER	
O S 836	432P203O30	KEY BOARD SWITCH	E-EJECT	
O S 837	432P203O30	KEY BOARD SWITCH	E-POSITION/STILL ADJ(+)	
O S 838	432P203O30	KEY BOARD SWITCH	E-POSITION/STILL ADJ(-)	
O S 839	432P203O30	KEY BOARD SWITCH	E-LOCK	
O S 881	432P203O30	KEY BOARD SWITCH	E-REC	
O S 882	432P203O30	KEY BOARD SWITCH	E-COUNTER RESET	
O S 883	432P203O30	KEY BOARD SWITCH	E-SKIP/INDEX MEMRY	
O S 884	432P203O30	KEY BOARD SWITCH	E-MENU	
O S 885	432P203O30	KEY BOARD SWITCH	E-TIMER REC	
O S 886	432P203O30	KEY BOARD SWITCH	E-PAUSE	
O S 887	432P203O30	KEY BOARD SWITCH	E-STOP	
O S 888	432P203O30	KEY BOARD SWITCH	E-PB	
S 8A1	439P041O10	JOG SWITCH	JOG/SHUTTLE	
	MISCELLANEOUS			
O JE KA	243C155O30	CARD LEAD WIRE	9P L=120(MA-OA)	
	243C193O50	CARD LEAD WIRE	7PIN L=160(MA-DA)	
	243C193O30	CARD LEAD WIRE	7PIN L=120(MD-DD)	
	243C157O20	CARD LEAD WIRE	13P L=100(MN-JN)	
	243C159O20	CARD LEAD WIRE	17P L=100(MS-JS)	
O B 5A1	286P014O10	BUZZER	PKM22EPP-4005	
O F 901	283D107O50	FUSE	T2AH 250V	
O J 3A1	451C194O20	RCA PIN JACK	2P	
J 7A2	451C111O10	JACK		
J 901	451C210O10	POWER JACK	3P	[1024E(B)]
J 902	451C209O10	POWER JACK	2P	[1024E]
PC901	268P079O10	PHOTO COUPLER	PC123FY	
PC902	268P079O10	PHOTO COUPLER	PC123FY	
O Q 5A5	268P092O10	PHOTO TRANSISTOR	PT492FK1	
O Q 5A6	268P092O10	PHOTO TRANSISTOR	PT492FK1	
Q 5A7	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T	
Q 5A8	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T	
Q 5A9	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T	
Q 5B0	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T	
Q 5B1	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T	
Q 5B2	268P076O20	PHOTO TRANSISTOR	SPS-1119C-BC-T	
O R 921	299P193O10	PROTECTOR	FUSE	
RV901	299P220O20	SURGE SUPPRESSOR	DSS-302M	[1024E(B)]
SA901	299P198O10	SURGE ABSORBER	ERZV07D471	
SA902	265P100O40	VARISTOR	ERZV10D471CS	[1024E(B)]
O V 5A0	253D045O30	FLUOR DISPLAY TUBE		
X 2A0	285P083O10	CRYSTAL RESONATOR	4.43362MHz	
O X 5A1	285P368O40	CRYSTAL RESONATOR	12.000MHz	
O X 5A2	285P054O40	CRYSTAL RESONATOR	32.768kHz	
	PRINTED CIRCUIT BOARD ASSY'S			
O	925B123O03	MAIN PCB ASSY		[1024E]
O	925B123O16	MAIN PCB ASSY		[1024E(B)]
O	928D494O02	OPE PCB ASSY	LEFT	
O	928D495O02	OPE PCB ASSY	RIGHT	
O	928D492O02	POWER SUB PCB ASSY		[1024E]
O	928D493O01	POWER SUB PCB ASSY	3P	[1024E(B)]

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
O	928D491O02	TERMINAL PCB ASSY	

[MEMO]

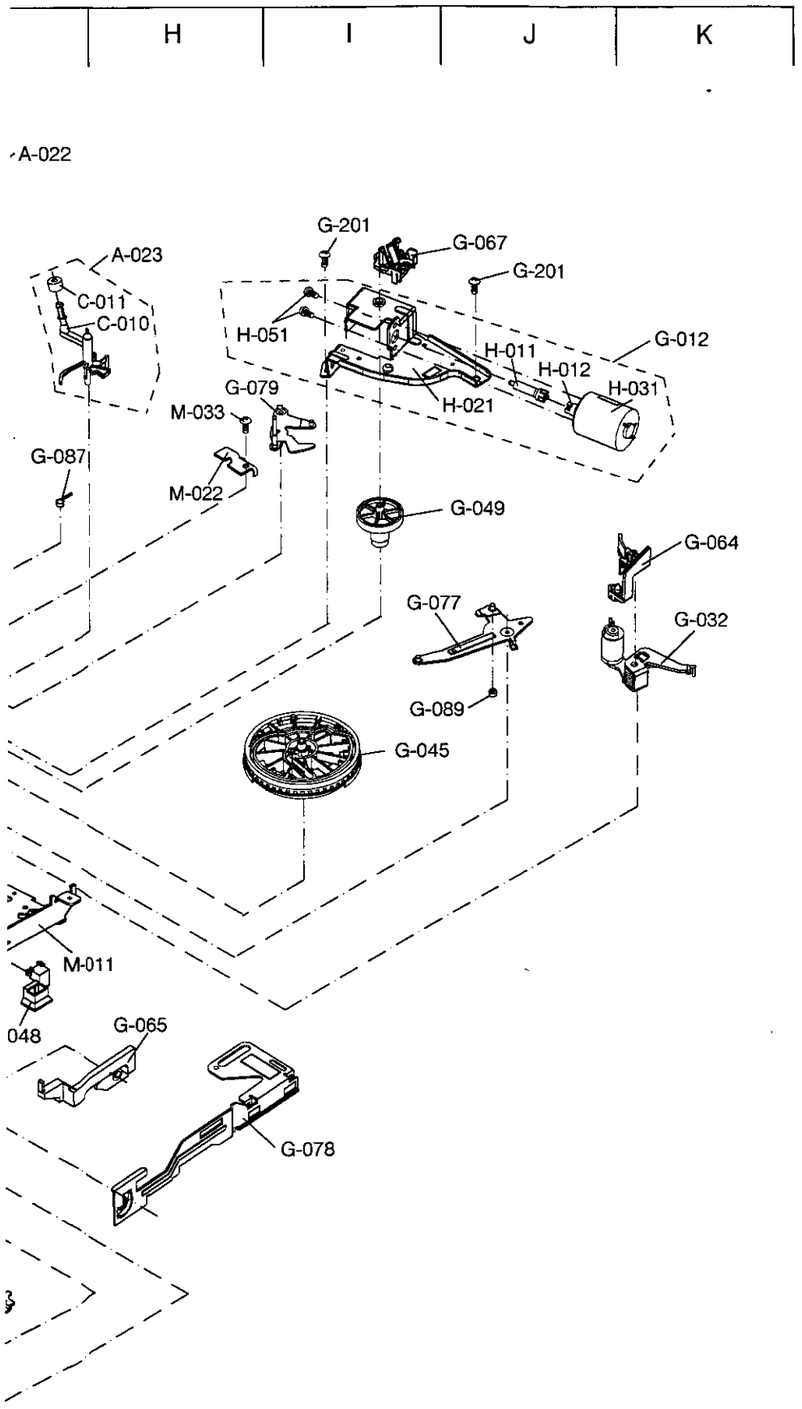
DECK ASSEMBLY
DECK ASSEMBLY-1



A-1

* Settled Service Parts

ITEM	PARTS NO.	*	A
A-022	948B392O07		G
A-023	927D027O01		H
A-025	592B552O10		F
A-026	669D556O10	○	F
B-010	925B027O14	○	G
B-015	927B961O05	○	G
B-025	288P158O30	○	G
C-010	641B903O10	○	G
C-011	554D104O20	○	H
G-012	928D472O11	○	K
G-015	948D088O03		D
G-016	948B406O02	○	E
G-022	948D095O02		F
G-023	948D096O01		F
G-024	948D097O02	○	A
G-032	594C260O20	○	K
G-033	460C007O10	○	E
G-045	621C769O20	○	I
G-047	621C783O10	○	E
G-048	621C784O10	○	G
G-049	621C794O10	○	J
G-054	640C181O20	○	D
G-062	621C789O10	○	C
G-063	621C790O10	○	D
G-064	641B902O10	○	K
G-065	641B908O10	○	H
G-067	621C804O10		J
G-068	621C805O10		D
G-071	592B549O10	○	E
G-072	640D852O20		E
G-074	594C217O10	○	E
G-075	594C218O10	○	D
G-077	594C222O10	○	I
G-078	594C223O10	○	I
G-079	594C224O10	○	H
G-080	594C225O30	○	D
G-082	594C229O10	○	E
G-083	594C230O10	○	C
G-084	597D866O10	○	G
G-087	622D820O10	○	G
G-089	622D829O10		I
G-091	572D974O10	○	D
G-104	460D018O10	○	C
G-201	669D224O90	○	A D J
G-203	669D476O30	○	E
G-212	552C017O30		C
H-011	621C758O10	○	J
H-012	622D788O10		J
H-021	594C216O10		J
H-031	288P090O10		J
H-051	669D173O30	○	H
I-011	641B913O10	○	E
I-012	641B911O20	○	C



* Settled Service Parts

ITEM	PARTS NO.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
A-022	948B392O07		G-1		DRUM ASSY		1
A-023	927D027O01		H-2		CLEANER ASSY		1
A-025	592B552O10		F-2		DRUM CLAMPER		1
A-026	669D556O10	○	F-2		SCREW	2.6 × 4	1
B-010	925B027O14	○	G-1		UPPER DRUM ASSY		1
B-015	927B961O05	○	G-1		LOWER DRUM ASSY		1
B-025	288P158O30	○	G-1		DRUM MOTOR		1
C-010	641B903O10	○	G-2		CLEANING ARM		1
C-011	554D104O20	○	H-2		FELT RING		1
G-012	928D472O11	○	K-2		LOADING MOTOR ASSY		1
G-015	948D088O03		D-8		F/L ARM ASSY		1
G-016	948B406O02	○	B-8		F/L BOTTOM ASSY		1
G-022	948D095O02		F-1		TENSION BELT ASSY		1
G-023	948D096O01		F-8		BRAKE ASSY (TU)		1
G-024	948D097O02	○	A-5		CHARGE ASSY		1
G-032	594C260O20	○	K-4		PINCH UNIT		1
G-033	460C007O10	○	E-7		A/C HEAD UNIT		1
G-045	621C769O20	○	I-4		MAIN CAM		1
G-047	621C783O10	○	E-4		SENSER COVER (SP)	SUPPLY	1
G-048	621C784O10	○	G-6		SENSER COVER (TU)	TAKE UP	1
G-049	621C794O10	○	J-3		WROM WHEEL		1
G-054	640C181O20	○	D-4	D-7	REEL DISK		2
G-062	621C789O10	○	C-6		INSERT GUIDE (SP)	SUPPLY	1
G-063	621C790O10	○	D-7		INSERT GUIDE (TU)	TAKE UP	1
G-064	641B902O10	○	K-3		PINCH ARM CAP		1
G-065	641B908O10	○	H-6		DOOR ARM		1
G-067	621C804O10		J-1		FC HOLDER		1
G-068	621C805O10		D-3		GUIDE ARM (SP)		1
G-071	592B549O10	○	B-3		STAY PLATE		1
G-072	640D852O20		B-1	B-2	SPACER		2
G-074	594C217O10	○	E-2		TENSION LEVER		1
G-075	594C218O10	○	D-1		TENSION ARM		1
G-077	594C222O10	○	I-3		BRAKE LEVER		1
G-078	594C223O10	○	I-6		F/L PLATE		1
G-079	594C224O10	○	H-2		GUIDE ARM (TU)		1
G-080	594C225O30	○	D-4		BRAKE CAM PLATE		1
G-082	594C229O10	○	E-7		SHIFT LEVER		1
G-083	594C230O10	○	C-5		SWING LEVER		1
G-084	597D866O10	○	G-7		L/D LOCK LEVER		1
G-087	622D820O10	○	G-3		GUIDE PIN COVER		1
G-089	622D829O10		I-4		LB PIN		1
G-091	572D974O10	○	D-2		TENSION SPRING		1
G-104	460D018O10	○	C-4		F/E HEAD		1
G-201	669D224O90	○	A-1	C-2	SCREW	2.6×5	6
			D-7	I-1			
			J-2				
G-203	669D476O30	○	E-7		SCREW	2.6×6	2
G-212	552C017O30		C-5	E-8	THRUST WASHER	2.5×6×0.13	4
H-011	621C758O10	○	J-2		LOADING WORM		1
H-012	622D788O10		J-2		COUPLING WORM		1
H-021	594C216O10		J-2		MOTOR HOLDER		1
H-031	288P090O10		J-2		LOADING MOTOR		1
H-051	669D173O80	○	H-2		SCREW	M3×0.5-4	2
I-011	641B913O10	○	B-7		ARM (SP)		1
I-012	641B911O20	○	C-8		ARM (TU)		1

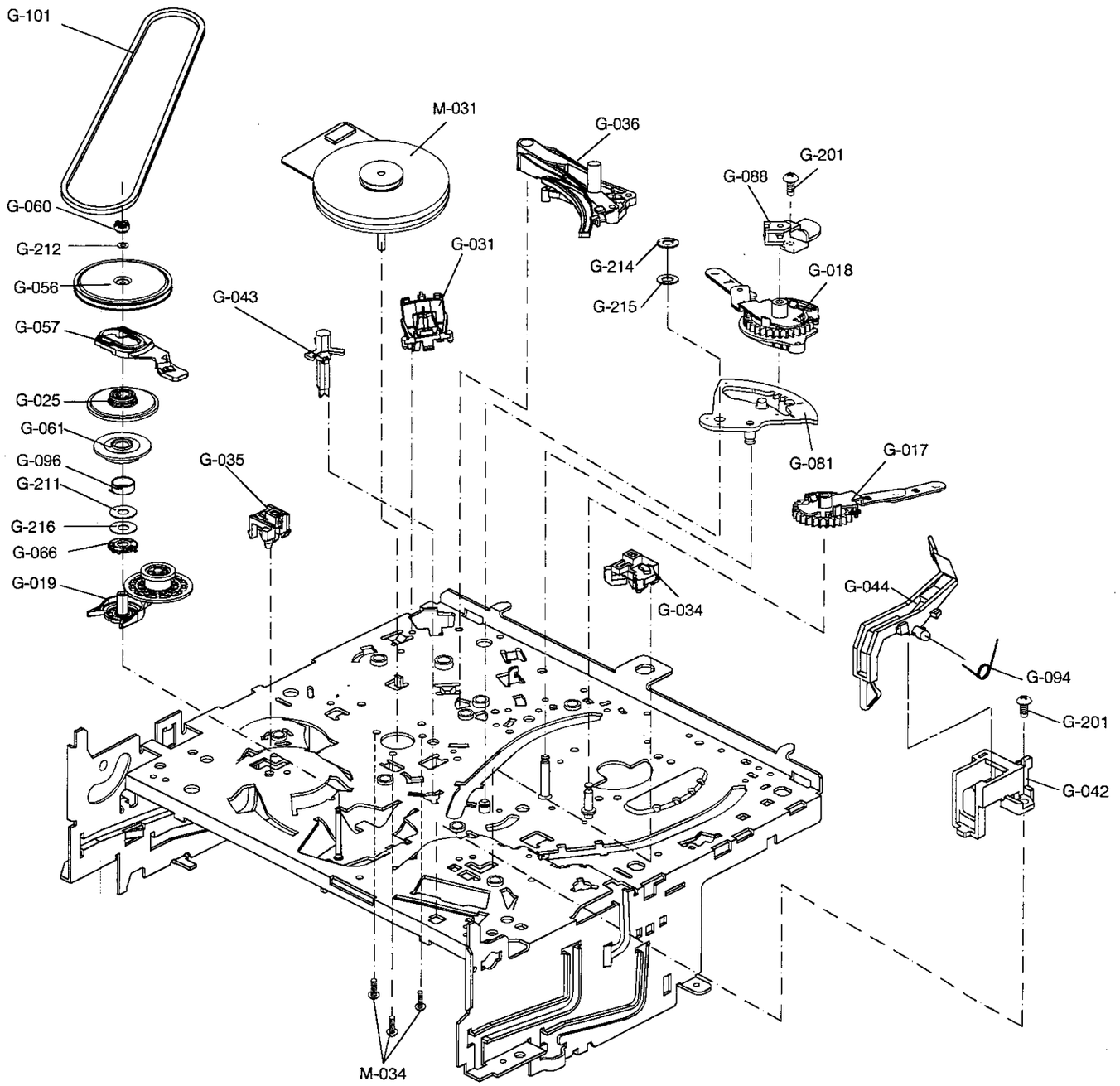
* Settled Service Parts

ITEM	PARTS NO.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
I-021	631D823O10	○	C-7		F/L SHAFT		1
I-031	573D004O10		B-7	D-8	ARM SPRING		2
M-011	948B403O01		G-5		MAIN PLATE ASSY		1
M-012	948D084O01	○	A-3		TAPE GUIDE ASSY (SP)	SUPPLY	1
M-013	948D086O01	○	B-3		TAPE GUIDE ASSY (TU)	TAKE UP	1
M-021	594C258O01		F-3		GUIDE CATCHER (SP)	SUPPLY	1
M-022	594C259O01		H-3		GUIDE CATCHER (TU)	TAKE UP	1
M-023	622D799O10	○	B-7		F/L BEARING		1
M-032	622D791O10	○	D-6		BELT ADJUSTER		1
M-033	669D224O90	○	F-3	H-2	SCREW	2.6×5	2
M-037	622D792O10	○	C-2		TENS AXIS HOLDER		1
S-011	522B061O10	○	A-3		GUIDE ROLLER (SP)	SUPPLY	1
T-011	522B061O10	○	B-3		GUIDE ROLLER (TU)	TAKE UP	1
N-011	621C759O10	○	E-1		BELT LEVER		1
N-012	622D790O10	○	D-1		BELT HOLDER		1
N-013	554D109O10	○	E-1		BRAKE BELT (SP)		1
O-011	621C760O10	○	F-8		BRAKE (TU)		1
O-021	572D975O10	○	F-8		BRAKE SPRING		1
O-031	554D103O10	○	F-8		BRAKE BELT (TU)		1
P-011	640C187O10		B-5		CHARGE BASE		1
P-012	640C188O20		B-5		CHARGE TIP		1
P-021	572D983O10		B-5		CHARGE SPRING		1

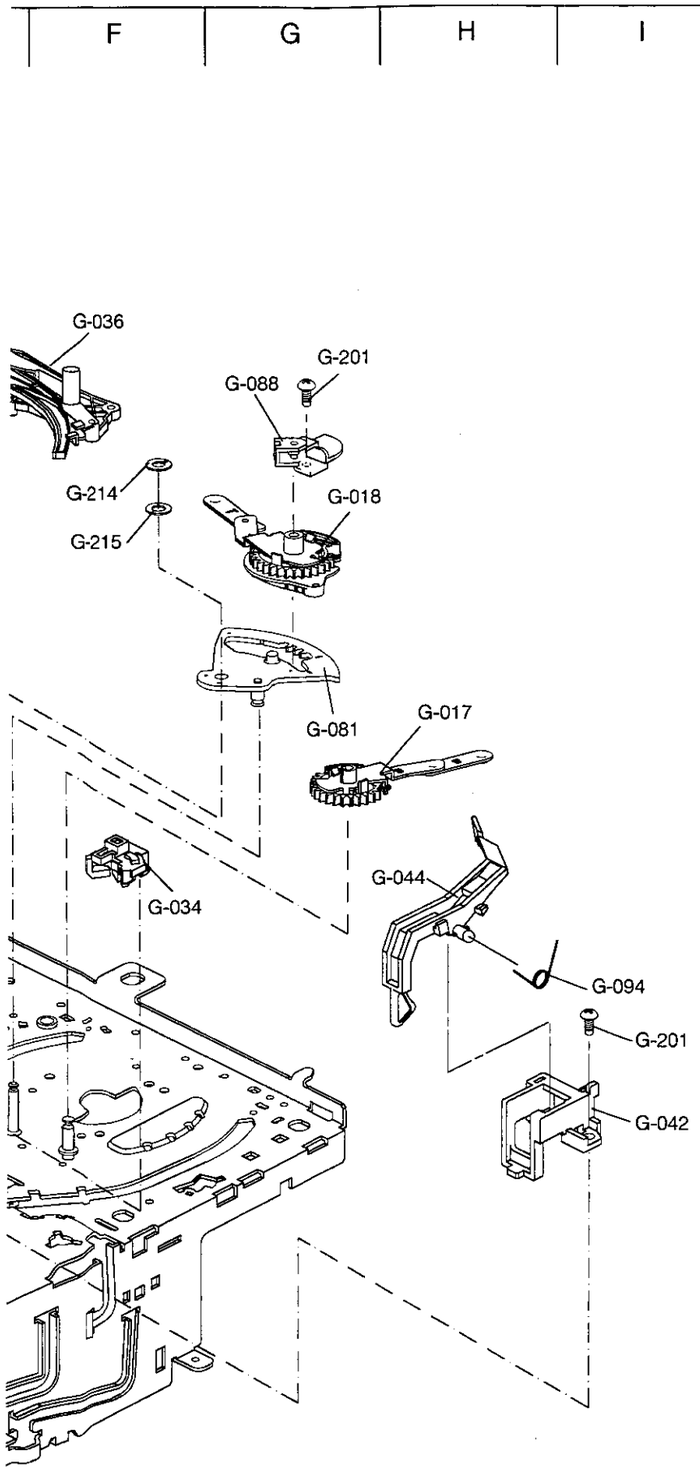
A	B	C	D	E	F	G	H	I

1 2 3 4 5 6 7 8

DECK ASSEMBLY
DECK ASSEMBLY-2



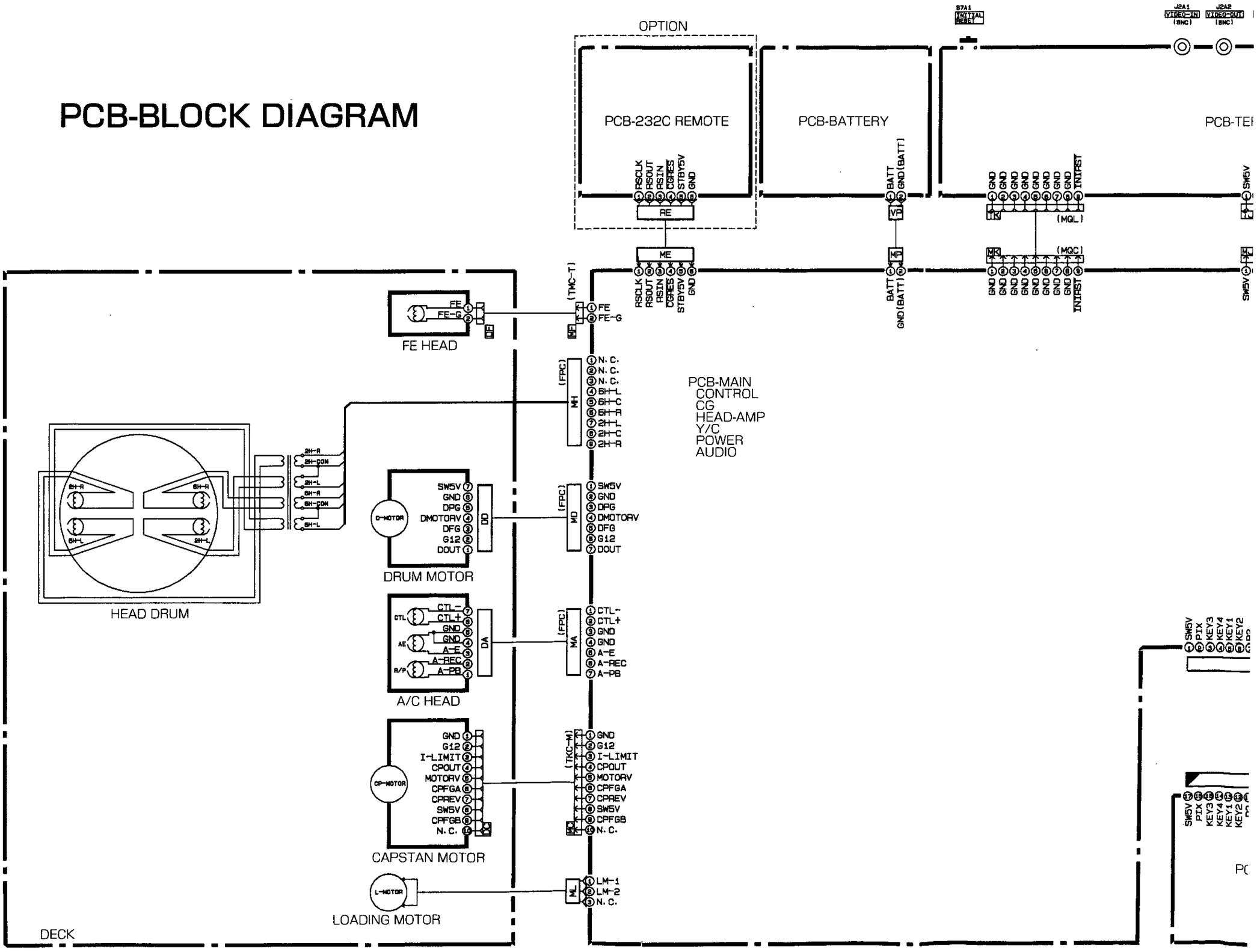
A-2

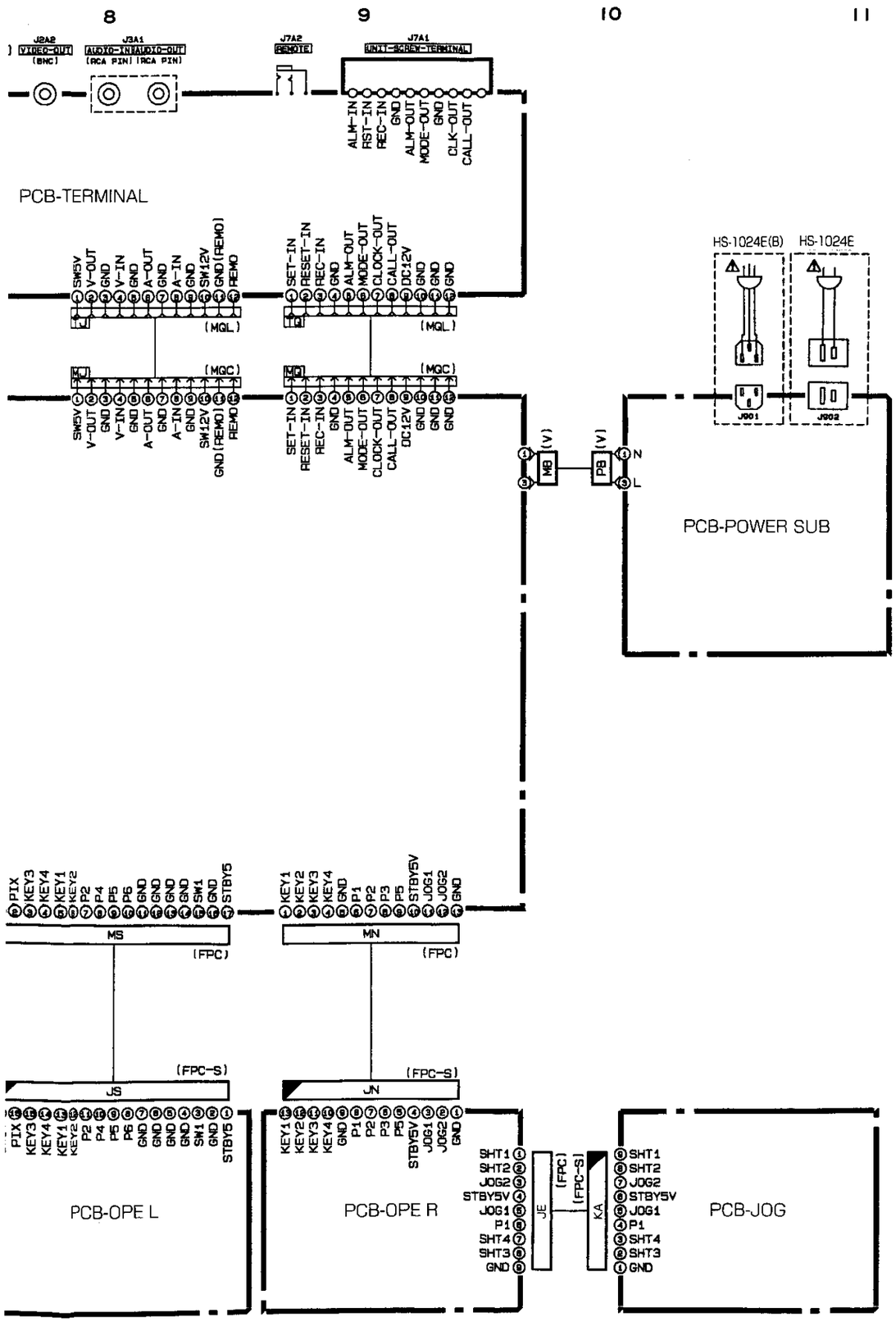


* Settled Service Parts

ITEM	PARTS NO.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
G-017	948D089O01	○	H-4		LOADING ARM ASSY (SP)	SUPPLY	1
G-018	948D090O01	○	G-3		LOADING ARM ASSY (TU)	TAKE UP	1
G-019	622D916O10	○	B-5		IDLER UNIT		1
G-025	948D098O03	○	B-4		PULLEY GEAR ASSY		1
G-031	622D800O10	○	E-3		MODE POSITION UNIT		1
G-034	622D801O10	○	F-5		REVERSE UNIT (SP)	SUPPLY	1
G-035	622D802O10	○	C-4		REVERSE UNIT (TU)	TAKE UP	1
G-036	621C831O10	○	F-2		BCP UNIT		1
G-042	621C807O10		I-6		REC HOLDER		1
G-043	621C765O10	○	C-3		LAMP GUIDE		1
G-044	621C766O20	○	H-5		REC LEVER		1
G-056	640C185O30	○	B-3		BELT PULLEY		1
G-057	640C186O10	○	B-3		SHIFT SLIDER		1
G-060	640D948O10	○	B-2		PULLEY BUSH		1
G-061	640D949O10	○	B-4		SLIP GEAR		1
G-066	640C189O20	○	B-5		SLIP ADJUSTER		1
G-081	594C228O10	○	G-4		A/L LEVER		1
G-088	594C304O10	○	G-2		SPACER PLATE		1
G-094	572D977O10	○	I-6		REC SPRING		1
G-096	573D073O10	○	B-4		SLIP SPRING		1
G-101	521D102O10	○	B-1		REEL BELT		1
G-201	669D224O90	○	G-2	I-6	SCREW	2.6×5	2
G-211	597D997O10	○	B-4		SLIP WASHER		1
G-212	552C017O30	○	B-3		THRUST WASHER	2.5×6×0.13	1
G-214	552C022O10		F-3		CUT WASHER	4.0×8.0×0.5	1
G-215	680P140O10		F-3		WASHER		1
G-216	552C012O50		B-5		THRUST WASHER	5.6×9.5×0.2	1
M-031	288P217O10	○	E-2		CAPSTAN MOTOR	F2QTB45	1
M-034	669D285O10		D-8		SCREW	M2.6×6	3

PCB-BLOCK DIAGRAM





SCHEMATIC DIAGRAMS

• NOTE

1. Each voltage should be within ±20% of the DC voltages measured with a digital voltmeter.
2. The voltages parenthesised are on 3H recording mode. While those without parenthesised on 3H play back mode.
3. Waveforme were taken with standard colour bar signal.
4. TP6A, etc. show Test Points.

5. Capacitors

Value	Not indicated	pF, for numbers more than 1 μF, for numbers less than 1	
Dielectric Strength	Not indicated :50V		
Tolerance	Not indicated =±10%	No Tolerance is indicated for electroiytic capacitors and ±20%	
	G = ± 2% N = ± 30% Q = + 30% C = ± 0.25 pF J = ± 5% P = + 100% − 10% D = ± 0.5 pF K = ± 10% − 0% Z = + 80% F = ± 1 pF M = ± 20% − 20% G = ± 2 pF		
Sort	I Parts except for chips	Not indicated : Ceramic capacitor (MF) : Polyester capacitor (PP) : Polypropylene film capacitor (ALM) : Aluminus electrolytic capacitor (TF) : Twin film capacitor (SC) : Semiconductor ceramic capacitor (MP) : Metalized paper (MPP) : Metalized plastic film capacitor (MMF) : Metalized polyester capacitor (MF,PP) : Polyester polypropylene film capacitor (PS) : Styrol capacitor (TAN)or(TANT) : Tantalum capacitor : Electrolytic capacitor (BP)or(NP) : Non polarized electrolytic capacitor	
	II Chips	Not indicated : Ceramic capacitor chip : Electrolytic capacitor (BP)or(NP) : Non polarized electrolytic capacitor chip	
Characteristic (only ceramic capacitor)	Not indicated : F or B(high dielectric percentage) CH,SL,etc. : Temperature compensating types		

6. Resistors

Value	Not indicated = Ω K = kΩ(1000Ω) M = MΩ(1000kΩ)	
Wattage	Parts except for chips	Not indicated = 1/4W or 1/6W
	Chips	Not indicated = 1/10W
Tolerance	Not indicated =±5 % D =±0.5 % J =±5 % F =±1 % K=±10 %	
Sort	I Parts except for chips	Not indicated : Carbon resistor (S) : Fixed composition resistor (MB) : Metal oxide film resistor(type B) (CE) : Cemented resistor (W) : Wire wound resistor (M) : Metal film resistor (MPC) : Metal plate cement resistor (ML) : Metal liner resistor
	II Chip	Not indicated : Chip resistor

7. This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement.

SPECIFIC SYMBOL

Zener Diode	Crystal unit
Varicap	LE Diode
Thermistor	Photo Diode
Fusible Resistor	Ceramic filter
PNP DIGITAL TRANSISTOR	
NPN DIGITAL TRANSISTOR	

8. Correspondence of the units in the Schematic Diagrams to the SI units.

	Schematic Diagram	SI
Kilo	K	k
Hertz	HZ	Hz
Pico	P	p

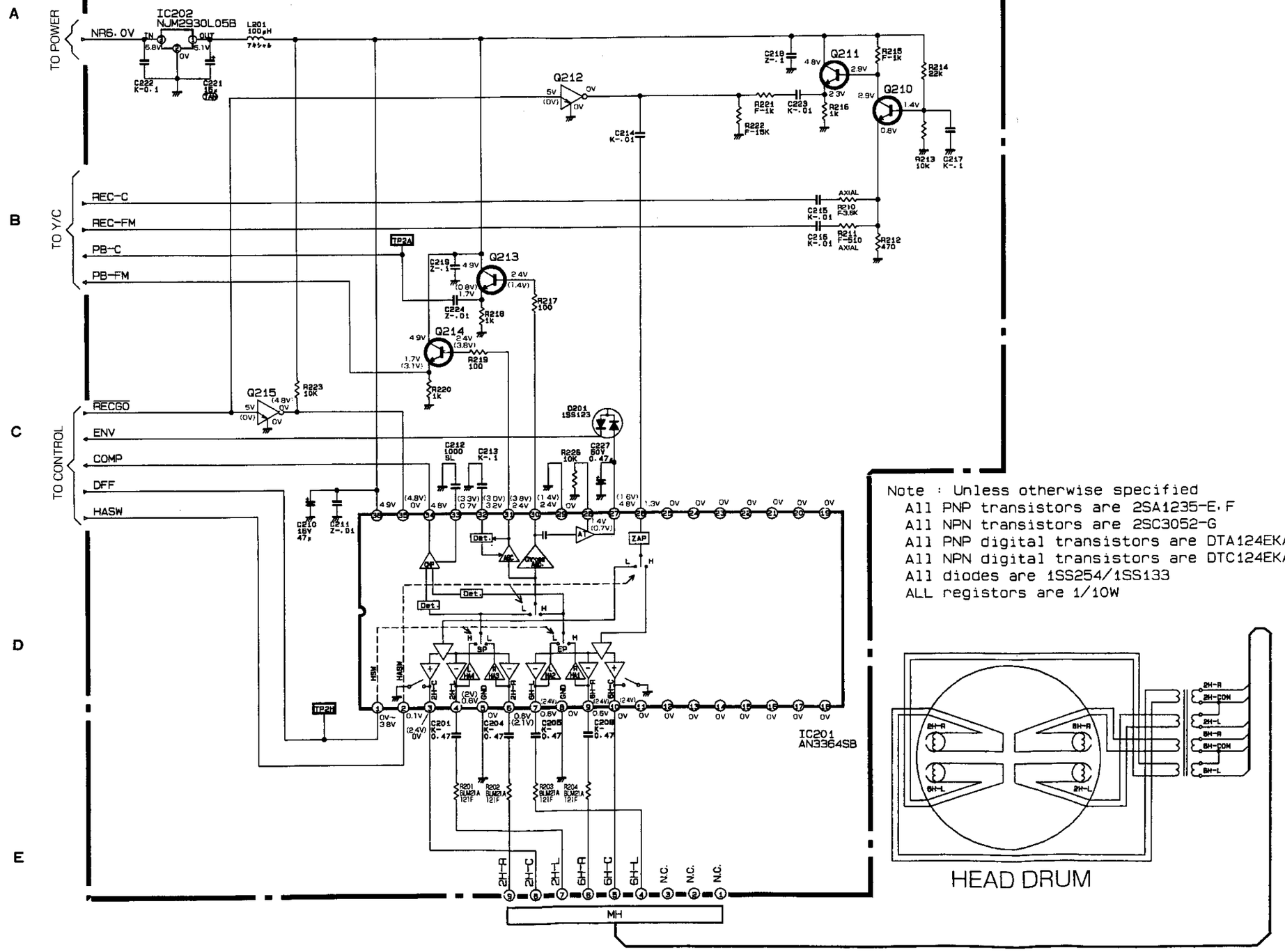
CONTENTS

⚠

SERVICING PRECAUTION

SYMBOLS INDICATE COMPONENTS HAVING SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY AND PERFORMANCE. THEREFOR REPLACEMENT OF ANY SAFETY PARTS SHOULD BE IDENTICAL IN VALUE AND CHARACTERISTICS.
DON'T DEGRADE THE SAFETY OF THE VCR THROUGH IMPROPER SERVICING.

(HEAD-AMP) ⚠ PCB-MAIN



Note : Unless otherwise specified
All PNP transistors are 2SA1235-E·F
All NPN transistors are 2SC3052-G
All PNP digital transistors are DTA124EKA/RT1P241C
All NPN digital transistors are DTC124EKA/RT1N241C
All diodes are 1SS254/1SS133
ALL registors are 1/10W

HEAD DRUM

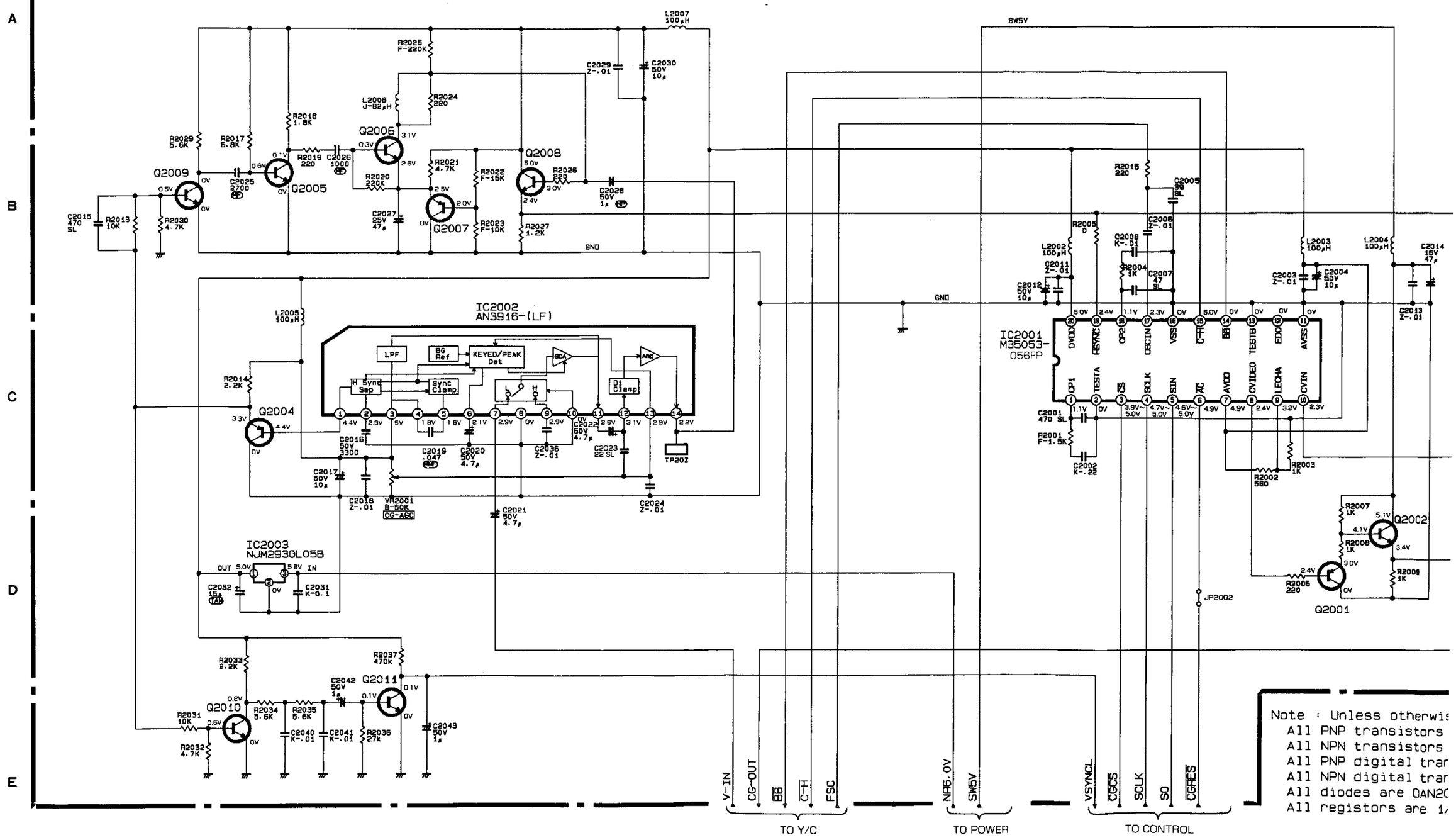
HS-1024E
HS-1024E(B)

②

(AUDIO) ⚠ PCB-MAIN

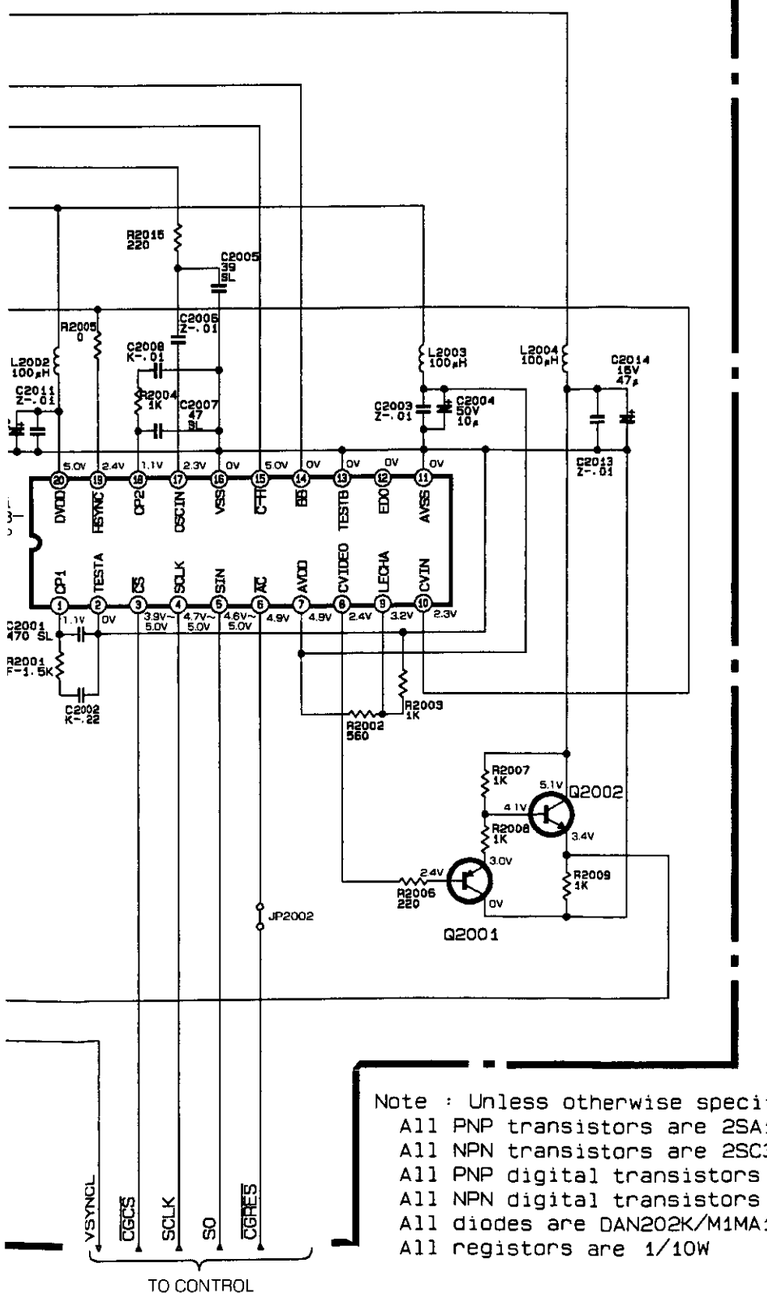
FE HEAD
FE
FE-G
MF
(TMC-T)
TO POWER
TO CONTROL
TO Y/C
SW12V
REC2
EE
AMUTE
L12/L18H
L24/L30H
CTL-
CTL+
A-IN
A-OUT
Q3A0 2SC3331-S, T, U
Q3A1 2SC1740S-S /2SC5395-F
Q3A2 2SC1740S-S /2SC5395-F
Q3A3 DTC124EKA /RT1N241C
Q3A4 DTA124EKA /RT1P241C
Q3A5 2SC2412K-S
IC3A0 LA7295
D3A0 1SS254 /1SS133
D3A1 DAN202K /MINA151WKT1
T3A0 P852A10/P852A20
REC/PB CONT
RIPPLE FILTER
PB/EE CONT
MUTING CONT
EP. SW CONT
LP. SW CONT
POWER ON/OFF MUTE
REC AMP
REC MUTE
LINE AMP
PB AMP
PB MUTE
EE MUTE
ALC
ALC DET
REC CURRENT PROTECTOR
TP35
A/C HEAD
CTL
AE
R/P
DA
CTL-
CTL+
GND
GND
A-E
A-REC
A-PB
MA
TP3F
N.C.
TP3E
TP3EF
TEST POINT

41C
41C


1
2
3
4
5
6
7
A
B
C
D
E
L2007 100μH
R2025 F-220K
C2029 Z-.01
C2030 50V 10μ
L2006 J-82μH
R2024 220
R2018 1.8K
R2029 5.6K
R2017 6.8K
Q2006 3.1V
0.3V
Q2009
0.5V
0V
0.1V
0.6V
R2019 220
C2026 1000
Q2005
C2025 3300
R2021 4.7K
R2022 F-15K
Q2008
5.0V
R2026 220
3.0V
2.4V
R2020 220K
2.5V
2.0V
C2028 50V 1μ
C2027 25V 47μ
Q2007
R2023 F-10K
R2027 1.2K
GND
C2015 470 SL
R2013 10K
R2030 4.7K
L2005 100μH
IC2002
AN3916-(LF)
LPF
BG Ref
KEYED/PEAK Det
GCA
AMP
H Sync Sep
Sync Clamp
V
H
DI Clamp
R2014 2.2K
Q2004
3.3V
4.4V
0V
C2016 50V 3300
C2019 .047
C2020 50V 4.7μ
C2036 Z-.01
C2022 50V 4.7μ
C2023 22 SL
TP202
C2017 50V 10μ
C2018 Z-.01
VR2001 B-50K CG-AGC
C2021 50V 4.7μ
C2024 Z-.01
IC2003
NJM2930L05B
OUT 5.0V
5.8V IN
C2032 15μ TAN
C2031 K-0.1
R2033 2.2K
R2037 470K
C2042 50V 1μ
Q2011
0.1V
Q2010
0.2V
R2034 5.6K
R2035 5.6K
R2031 10K
0.6V
C2040 K-.01
C2041 K-.01
R2036 27K
C2043 50V 1μ
R2032 4.7K
SW5V
R2016 220
C2005 Pwr
R2005 0
L2002 100μH
C2006 K-.01
C2011 Z-.01
C2012 50V 10μ
R2004 1K
C2007 47
L2003 100μH
L2004 100μH
C2014 16V 47μ
C2003 Z-.01
C2004 50V 10μ
C2013 Z-.01
IC2001
M35053-
056FP
DVDD 5.0V
RESET 2.4V
OSCIN 2.3V
VSS 0V
C-H 5.0V
BB 0V
TESTB 0V
EDO 0V
AVSS 0V
OP1 1.1V
TESTA 0V
CS 3.9V~5.0V
SCLK 4.7V~5.0V
SDIN 4.6V~5.0V
AC 4.9V
AVDD 4.9V
CVIDEO 2.4V
LECHA 3.2V
CVIN 2.3V
C2001 470 SL
R2001 F-1.5K
C2002 K-.22
R2002 560
R2003 1K
R2007 1K
Q2002
5.1V
4.1V
3.4V
R2008 1K
3.0V
2.4V
R2006 220
R2009 1K
Q2001
0V
JP2002
V-IN
CG-OUT
BB
C-H
FSC
TO Y/C
NR6.0V
SW5V
TO POWER
VSYNCL
CGCS
SCLK
SO
CGRES
TO CONTROL
Note : Unless otherwis
All PNP transistors
All NPN transistors
All PNP digital trar
All NPN digital trar
All diodes are DAN2(
All registors are 1/

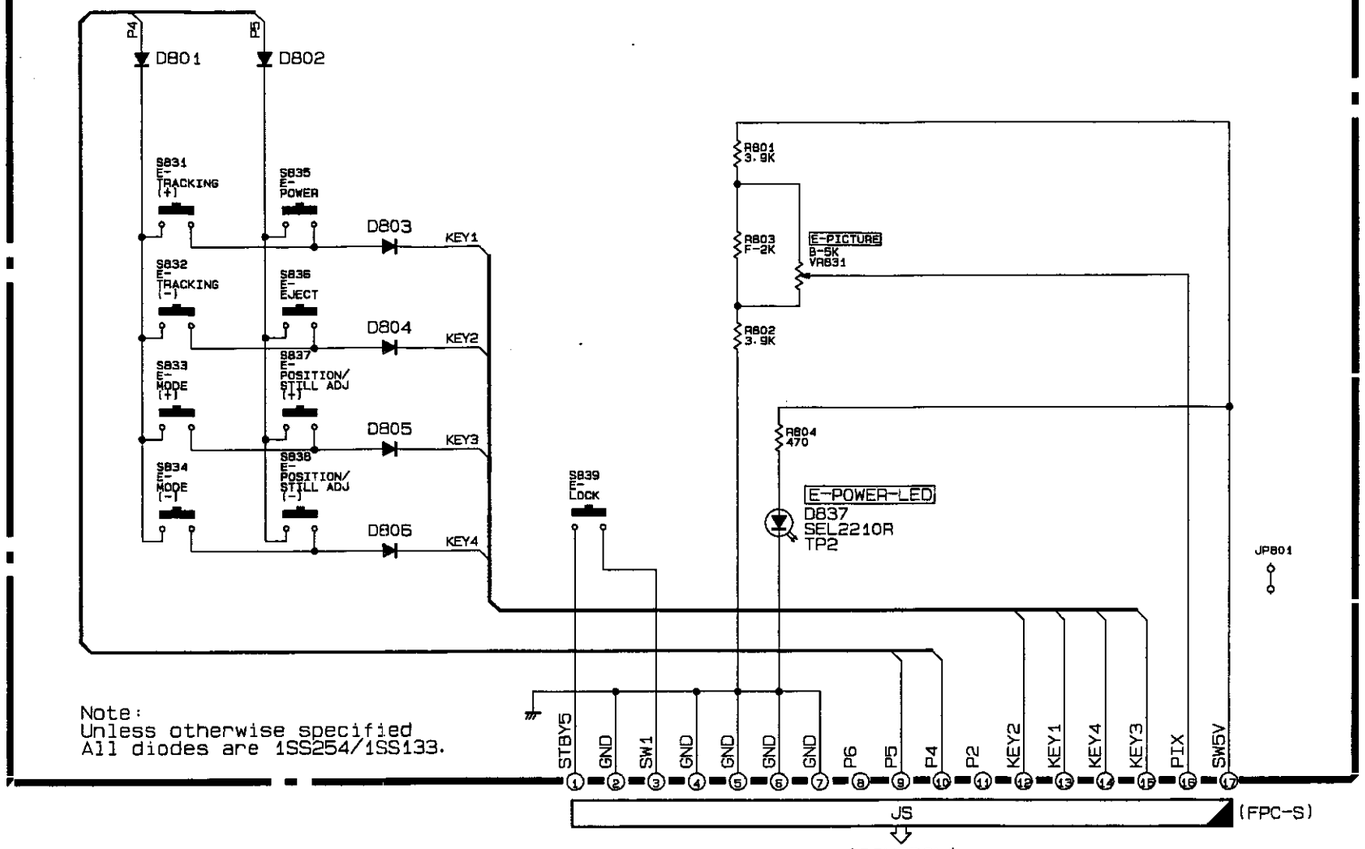
6 7 8 9 10 11 12 13

(CG) ⚠ PCB-MAIN

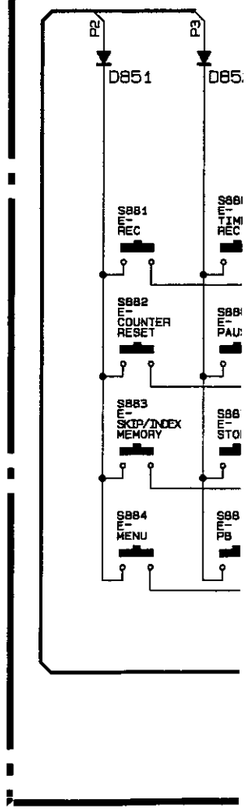


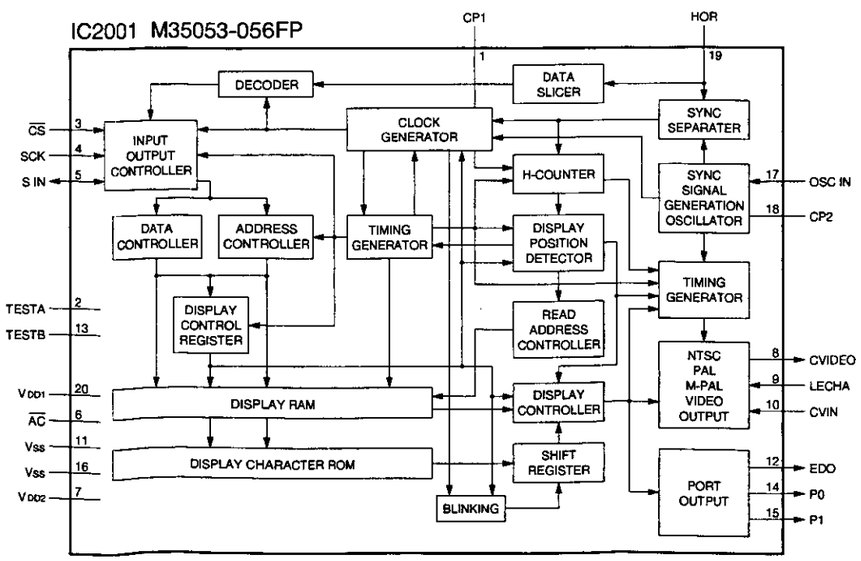
Note : Unless otherwise specified
All PNP transistors are 2SA1235-E, F
All NPN transistors are 2SC3052-G
All PNP digital transistors are DTA124EKA/RT1P241C
All NPN digital transistors are DTC124EKA/RT1N241C
All diodes are DAN202K/M1MA151WKT1
All registors are 1/10W

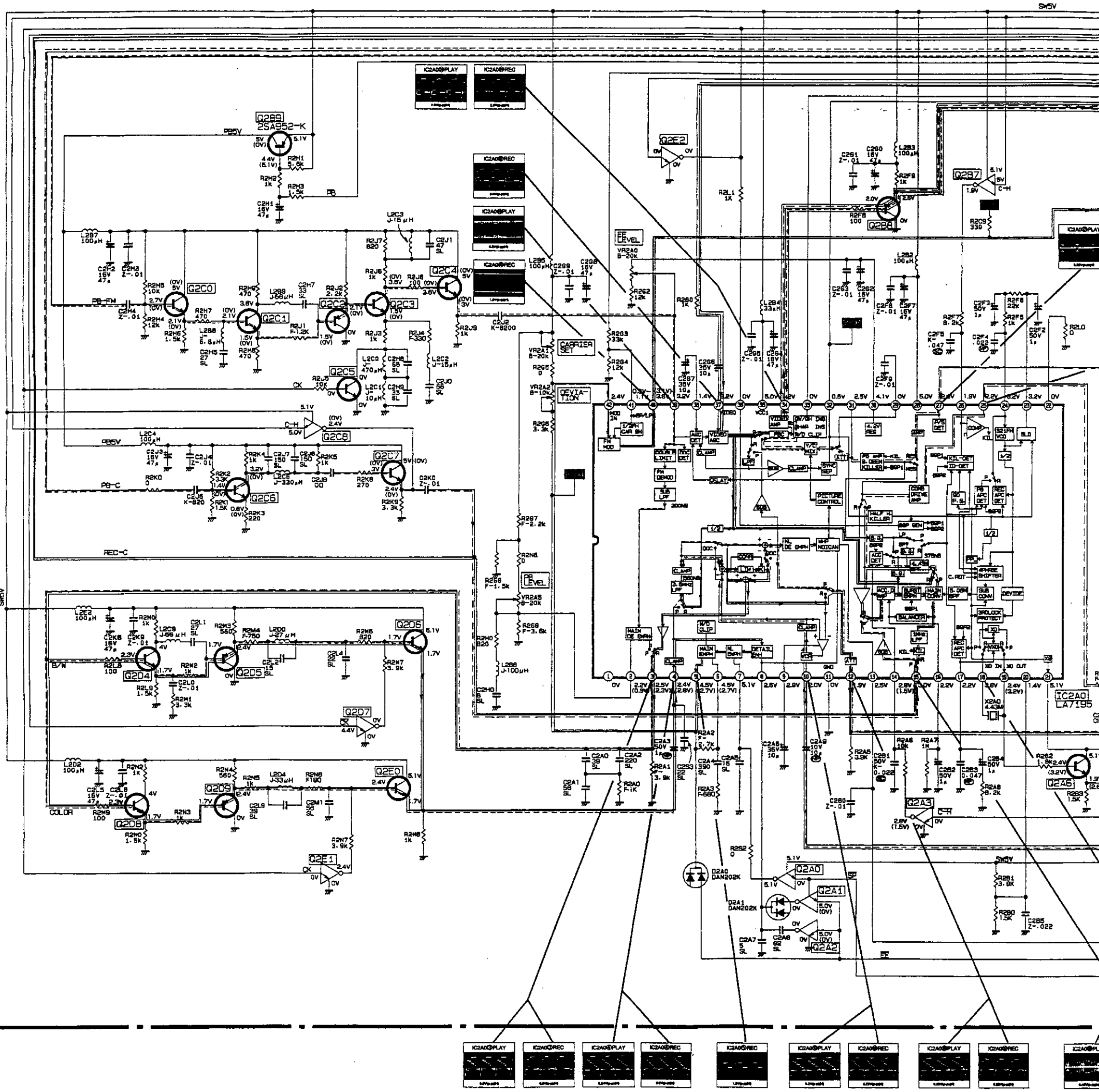
⚠ PCB-OPE L



Note:
Unless otherwise specified
All diodes are 1SS254/1SS133.

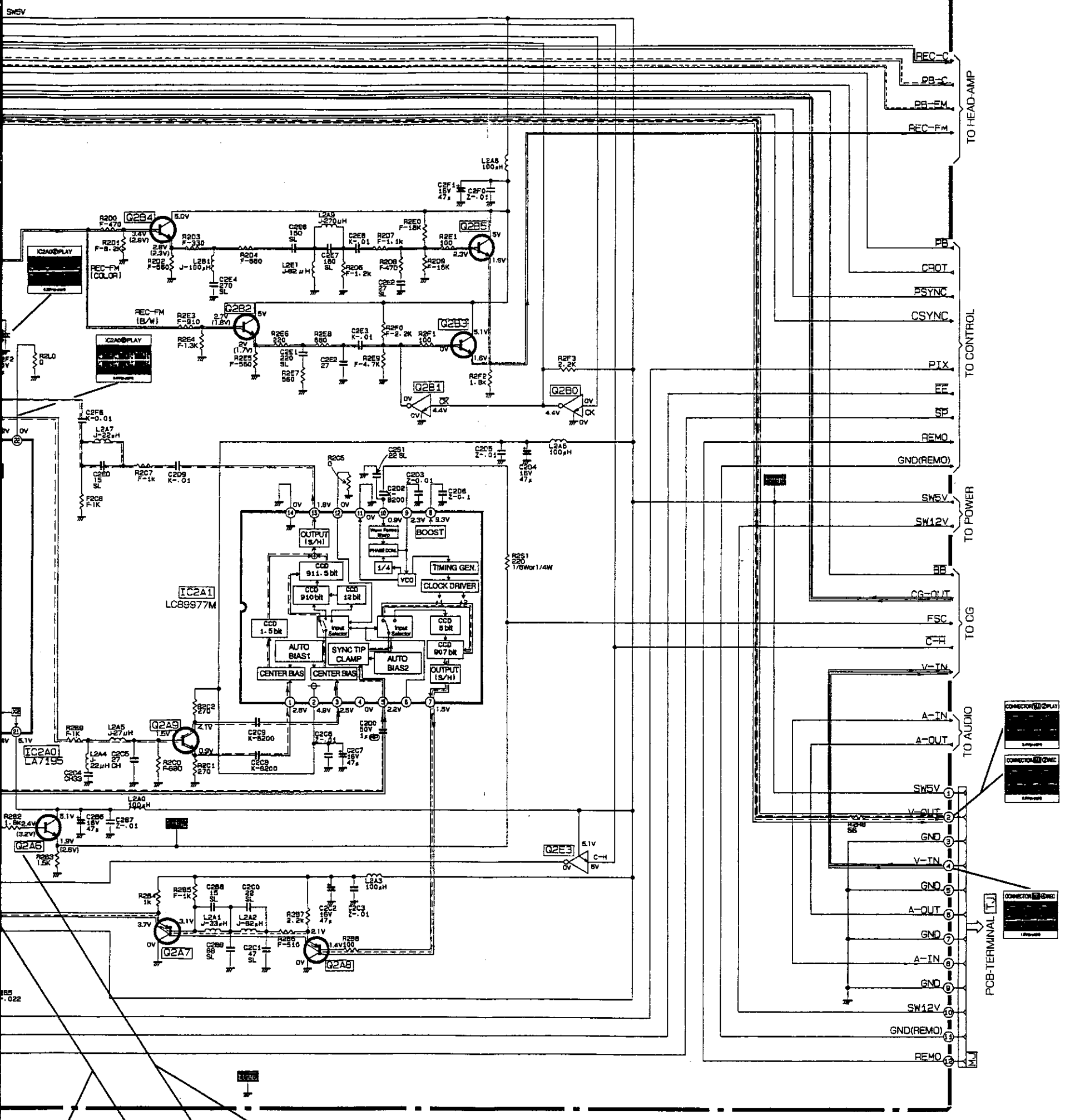





IC2A0@PLAY
IC2A0@REC
Q2B9 2SA952-K
PB5V
PB
Q2C0
Q2C1
Q2C2
Q2C3
Q2C4
Q2C5
Q2C6
Q2C7
Q2C8
PB-FM
PB-C
CK
C-H
REC-C
Q2E2
Q2B7
Q2B8
FF LEVEL
VR2A0 B-20K
R262 12k
CARRIER SET
VR2A1 B-20k
DEVIA-TION
VR2A2 B-10K
R265 0
R266 3.3k
R263 3.3k
R264 12k
R260 1K
R2L1 1K
R2F8 100
R2C9 330
R2F6 22k
R2F5 1k
R2L0 0
R2F7 8.2k
C2F8 .047
C2F4 .022
C2F3 50V 1μ
C2F2 50V 1μ
C2F1 50V 1μ
C2F7 16V 47μ
C2F6 Z-.01
C2F9 Z-.01
C2B5 Z-.022
C2B4 50V 1μ
C2B3 0.047
C2B2 50V 1μ
C2B1 50V 0.022
R2B2 1.8k
R2B3 1.5K
R2B1 3.8K
R2B0 1.5K
R2A6 10K
R2A7 1M
R2A5 3.9K
R2A8 8.2K
C2A9 10V 10μ
C2A6 35V 10μ
C2A4 390 5%
C2A5 15 5%
C2A3 50V 1μ
R2A2 F-2.7K
R2A1 3.9K
C2A2 R20 5%
C2A0 5%
R2A0 F-1K
R2A3 F-680
C2A1 56 5%
C2A7 5%
C2A8 68 5%
R252 0
D2A0 DAN202K
D2A1 DAN202K
Q2A0
Q2A1
Q2A2
Q2A3
Q2A5
Q2A6
C-H
5V@V
R281 3.8K
R280 1.5K
C285 Z-.022
C280 Z-.01
R267 F-2.2k
R2N8 0
R256 F-1.5k
PB LEVEL
VR2A5 B-20k
R268 F-3.6k
R2H0 820
L286 J-100μH
C2H0 5%
L2B7 100μH
L2B8 100μH
L2B9 J-66μH
L288 6.8μH
L2C3 J-15μH
L2C4 100μH
L2C9 470μH
L2C1 10μH
L2C2 J-15μH
L285 100μH
L284 33μH
L283 100μH
L282 100μH
C2H4 Z-.01
C2H5 27 SL
C2H6 68 SL
C2H7 33 SL
C2H8 68 SL
C2H9 33 SL
C2J0 56 SL
C2J1 47 SL
C2J2 K-8200
C2J3 16V 47μ
C2J4 Z-.01
C2J5 K-820
C2J6 150 SL
C2J7 150 SL
C2J8 150 SL
C2J9 00
C2K0 Z-.01
C2K1 SL
C2K2 Z-.01
C2K3 SL
C2K4 Z-.01
C2K5 SL
C2K6 16V 47μ
C2K9 Z-.01
C2L0 Z-.01
C2L1 SL
C2L2 15 SL
C2L3 SL
C2L4 SL
C2L5 16V 47μ
C2L6 Z-.01
C2M1 SL
C2M2 SL
C2M3 Z-.01
C2M4 SL
C2M5 SL
C2M6 SL
C2M7 SL
C2M8 SL
C2M9 SL
C2N0 SL
C2N1 SL
C2N2 SL
C2N3 SL
C2N4 SL
C2N5 SL
C2N6 SL
C2N7 SL
C2N8 SL
C2N9 SL
R2H5 10K
R2H4 12k
R2H6 1.5k
R2H7 470
R2H8 470
R2H9 470
R2J1 F-1.2K
R2J2 2.2K
R2J3 1k
R2J4 F-330
R2J5 10K
R2J6 1k
R2J7 820
R2J8 100
R2J9 1k
R2K0 0
R2K1 1.5K
R2K2 3.3K
R2K3 220
R2K4 1k
R2K5 1k
R2K6 270
R2K7 1k
R2K8 270
R2K9 3.3k
R2H1 9.6k
R2H2 1k
R2H3 1.5k
R2H0 1k
R2H1 1k
R2H2 1k
R2H3 560
R2H4 560
R2H5 820
R2H6 F-750
R2H7 3.9k
R2H8 1k
R2H9 100
R2N0 1.5K
R2N1 3.3k
R2N2 1k
R2N3 1k
R2N4 560
R2N5 1k
R2N6 F-180
R2N7 3.9k
R2N8 1k
R2L9 1.5k
L2D2 J-27μH
L2D3 J-56μH
L2D4 J-33μH
L202 100μH
Q2D4
Q2D5
Q2D6
Q2D7
Q2D8
Q2D9
Q2E0
Q2E1
B/W
COLOR
IC2A0 LA7195
X2A0 4.43M
5V@V
5.1V
0V

10 11 12 13 14 15 16

(Y/C) ⚠ PCB-MAIN



Note : Unless otherwise specified
All PNP transistors are 2SA1235-E·F
All NPN transistors are 2SC3052-G
All PNP digital transistors are DTA124EKA/RT1P241C
All NPN digital transistors are DTC124EKA/RT1N241C
All diodes are DAN202K/M1MA151WKT1
All registors are 1/10W

Recording of Luminance Signal
Playback of Luminance Signal
Recording of Colour Signal
Playback of Colour Signal

1 2 3 4 5 6 7

A

B

C

D

E

F

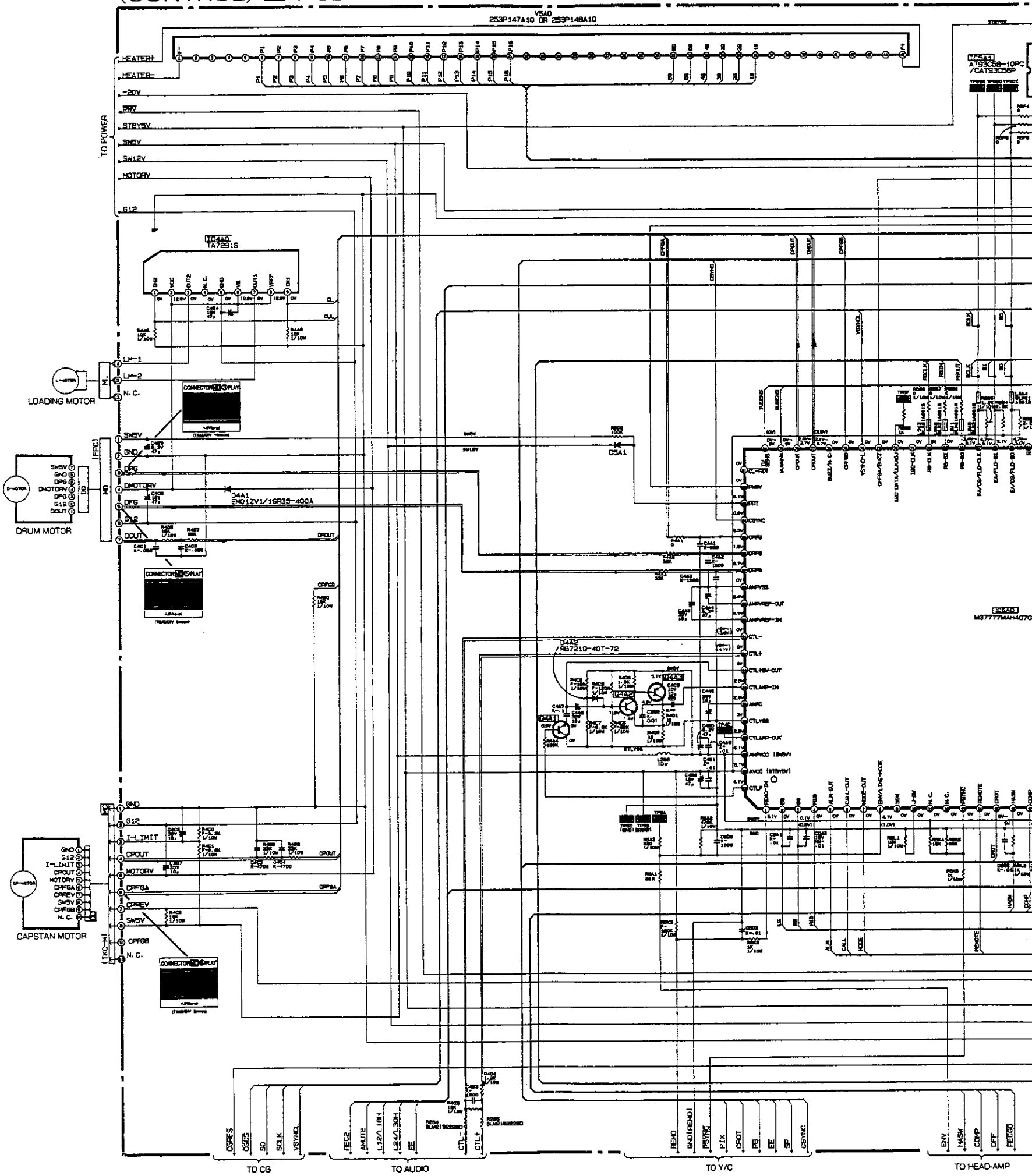
G

H

I

J

(CONTROL) ⚠ PCB-MAIN



6 7 8 9 10 11 12 13 14

PCB-OPE L JS

PCB-OPE R JN

IC5A1 AT93C56-10PC /CAT93C56P

IC5A0 M37777MAH407GP

IC5A2 PST7027MT

IC5A3 μPD16312GB-3BS/PT6312-0

Q5A1 2SA1235-E,F

Q5A2 2SC2412K-S

Q5A3 2SA1037AK-R,S

Q5A4 HZ4C2

Q5A5 SID1050 CM4TP5

Q5A6 2SC2412K-R,S

Q5A7 2SC1740S-R,S

Q5A8 2SC1740S-R,S

Q511

Q510

TO HEAD-AMP

PCB-232C REMOTE HE (OPTION)

PCB-BATTERY

Note:
Unless specified
All diodes are 1SS254/1SS133.
All NPN transistors are 2SC2412K-R,S/2SD601AI-R,S.
All PNP transistors are 2SA1037AK-R,S.
All PNP digital transistors are DTA124EKA/RT1P241C.
All resistors are 1/6W OR 1/4W.

Drum Servo System

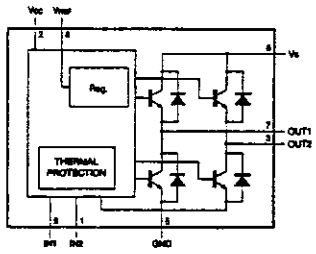
Capstan Servo System

10 11 12 13 14 15 16 17 18

PCB-OPE L JS

PCB-OPE R JN

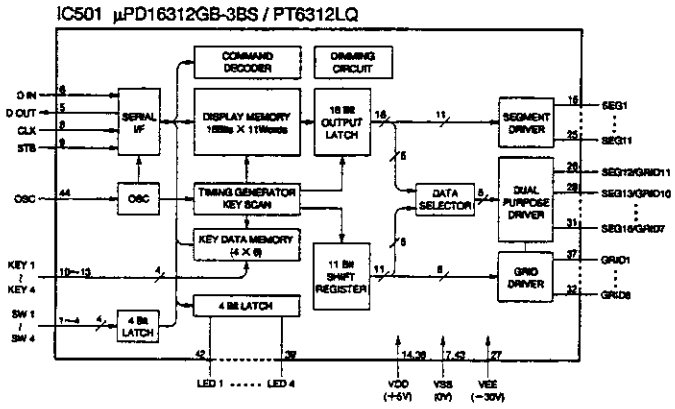
IC4A0 TA7291S



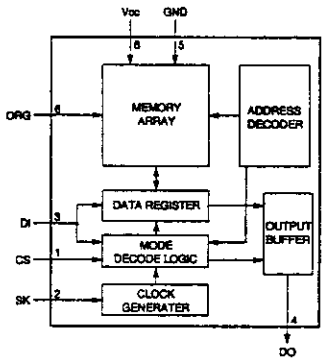
INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

∞ : High impedance.
Note : Input signal active= at "H".

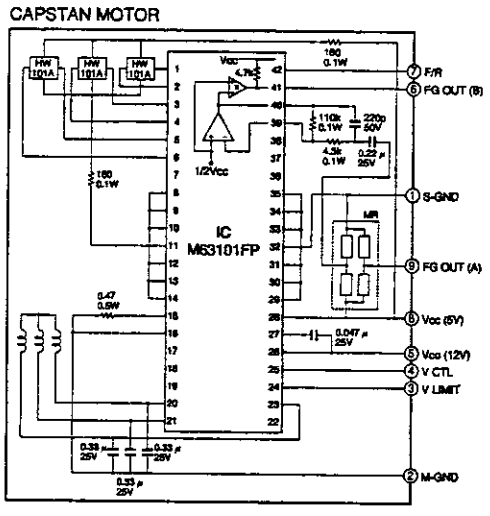
IC501 µPD16312GB-3BS / PT6312LQ



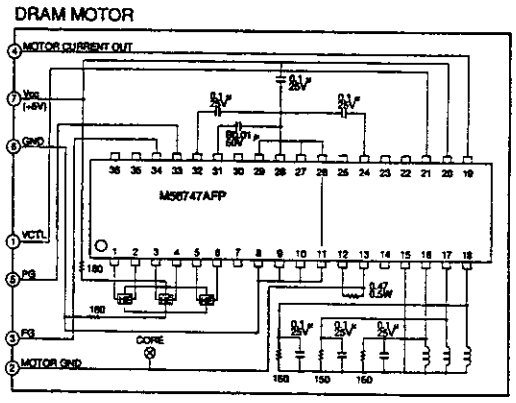
IC5A1 AT93C56-10PC / CAT93C56P



CAPSTAN MOTOR



DRAM MOTOR



PCB-TERMINAL TX

PCB-TERMINAL TK

PCB-BATTERY

Drum Servo System

Capstan Servo System

11 12 13 14 15 16 17

⚠ PCB-OPE L

R801 3.9K
R803 F-2K
E-PICTURE B-5K VR831
R802 3.9K
R804 470
E-POWER-LED D837 SEL2210A TP2
JP801

SW1 GND GND GND GND P6 P5 P4 P2 KEY2 KEY1 KEY4 KEY3 PIX SW5V
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

JS (FPC-S)

(CONTROL) PCB-MAIN MS

⚠ PCB-OPE R

P2 D851 P3 D852

S881 E- REC
S885 E- TIMER REC
S882 E- COUNTER RESET
S886 E- PAUSE
S883 E- SKIP/INDEX MEMORY
S887 E- STOP
S884 E- MENU
S888 E- P8

D853 D854 D855 D856

KEY1 KEY2 KEY3 KEY4

D857 D858 D860 D859

SHT1 SHT2 JOG2 STBY5V JOG1 P1 SHT4 SHT3 GND
1 2 3 4 5 6 7 8 9

JE (FPC)

GND JOG2 JOG1 STBY5V P5 P3 P2 P1 GND KEY4 KEY3 KEY2 KEY1
1 2 3 4 5 6 7 8 9 10 11 12 13

JN (FPC-S)

(CONTROL) PCB-MAIN MN

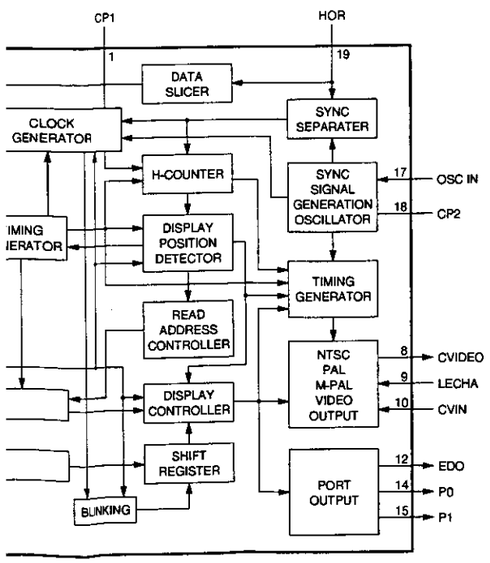
⚠ PCB-JOG

KE (FPC-S)

SBA1 MXS003802MB3

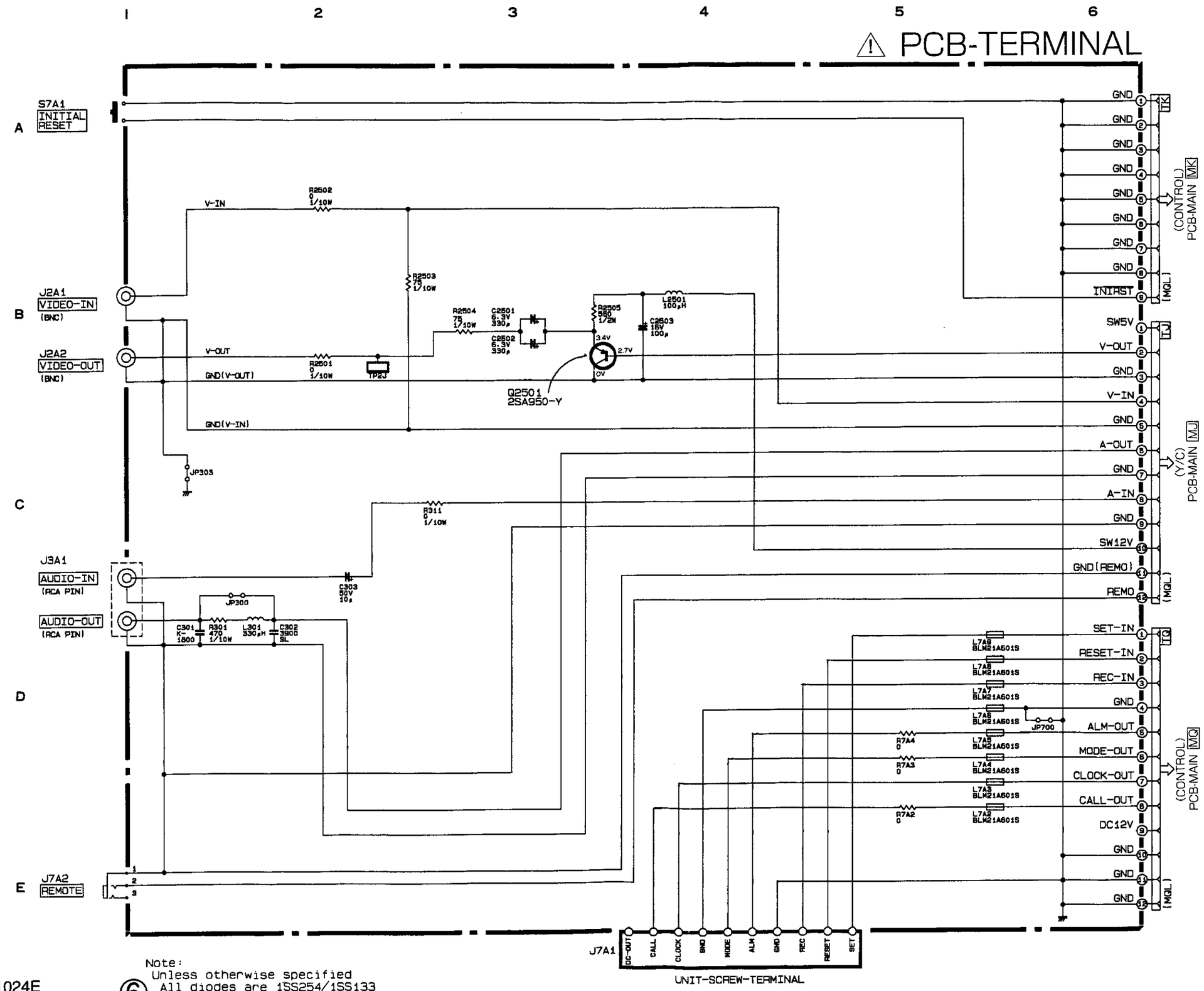
9 SHT1	1 S1
8 SHT2	2 S2
7 JOG2	3 J2
6 STBY5V	4 C2
5 JOG1	5 J1
4 P1	5 C1
3 SHT4	7 S4
2 SHT3	8 S3
1 GND	

Note:
Unless otherwise specified
All diodes are 1SS254/1SS133.

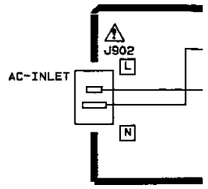


HS-1024E
HS-1024E(B)

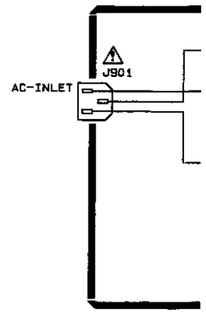
⑤



HS-1024E
⚠ PCB-PO



HS-1024E (B)
⚠ PCB-PO



Note:
Unless otherwise specified
⑥ All diodes are 1SS254/1SS133
All resistors are 1/6W OR 1/4W

HS-1024E
HS-1024E(B)

6 7 8 9 10 11 12 13

ERMINAL

GND 1
GND 2
GND 3
GND 4
GND 5
GND 6
GND 7
GND 8
INIRST 9
(MQL)

(CONTROL) PCB-MAIN MK

SW5V 1
V-OUT 2
GND 3
V-IN 4
GND 5
A-OUT 6
GND 7
A-IN 8
GND 9
SW12V 10
GND(REMO) 11
REMO 12
(MQL)

(CONTROL) PCB-MAIN MJ

SET-IN 1
RESET-IN 2
REC-IN 3
GND 4
ALM-OUT 5
MODE-OUT 6
CLOCK-OUT 7
CALL-OUT 8
DC12V 9
GND 10
GND 11
GND 12
(MQL)

JP700

(CONTROL) PCB-MAIN MQ

(POWER) ⚠ PCB-MAIN

HS-1024E
⚠ PCB-POWER SUB

J902 AC-INLET N L PB MB

F901 ⚠ AC250V S2A
C901 AC250V .1
C902 AC250V .1
R902 K-1M 1/2W
SA902 ERZV10D471CS
R901 K-8.2M 1/2W
SA901 ERZV07D471
L901 SS11V-04350 35mH 0.4A
RV901 DSS-302M
HS-1024E(B) ONLY
D901 S1WBA60
R912 22K 1/4W
R913 22K 1/4W
R914 22K 1/4W
R904 22K 1/4W
C908 400V 68p
R911 820K-F 1/4W
D928 ST02D-170
C913 1KV 220P
T901
1.86mH 102turn
R921 D921 D1NS4/AK04
PROTECTOR LF 2000
C921 10V 100μ
5turn
C922 .01 Chip
R922 27K 1/4W
D923 D1NL20U1A
24turn
C924 50V 22μ
C925 Chip
D924 MTZJ2
5turn
D925 EK14V
C926 16V 1000μ
11turn
D926 RK36 2A
L92 10μ
14turn
C927 35V 470μ
L922 10μ
C907 AC250V 4700
R925 1K 1/10W
R926 220 1/10W
R927 0 1/10W
4.5V
2.5V
0V

IC901①POWER ON
460V(p-p)

IC901
STR-G6651
16.8V
START O.V.P REG. T.S.D LATCH DRIVE Vth(1) Comp.1 O.S.C Vth(2) Comp.2
0V 1.8V 0V

L904 ZBF-6035-P/ FBA04HA450
D903 AG01Z
R906 10 1/4W
D904 AG01Z
C914 50V 22μ
R907 2.4K 1/4W
C911 1200
R908 680 1/4W
R909 .33 1W
D906 D1NS4/AK04
C912 470
R910 3.3K 1/4W
D908 1SS254
C915 .01
JP903
D905 1SS254
PC901 PC123FY
PC902 PC123FY
R936 330 1/10W
IC902 HA17431PA

HS-1024E(B)
⚠ PCB-POWER SUB

J901 AC-INLET N L PB MB

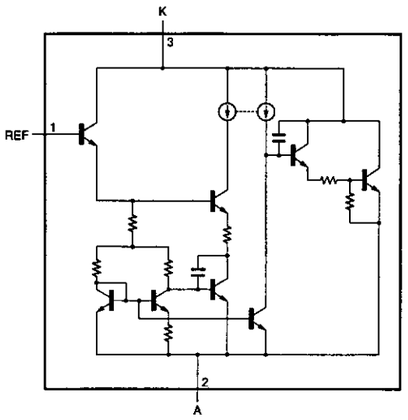
TO CONTROL

HEATER+ HEATER− −20V PWV STBY5V SW5V SW12V MOTORV G12

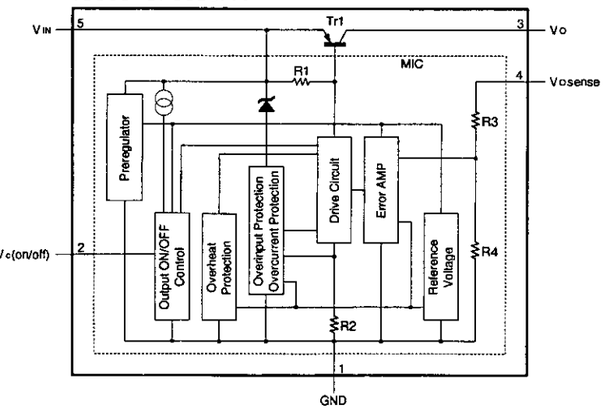
C902 AC250V .1
D904 S1WBA60
R912 22K 1/4W
R913 22K 1/4W
R914 22K 1/4W
R904 22K 1/4W
C908 400V 68µ
R911 820K-F 1/4W
D928 ST02D-170
C913 1KV 220P
L904 ZBF-5035-P/ FBA04HA450
D903 AG01Z
R906 10 1/4W
D904 AG01Z
C914 50V 22µ
R908 680 1/4W
R909 .33 1W
C912 470
D905 D1N54/AK04
R907 2.4K 1/4W
C911 1200
T901
R921 PROTECTOR LF 2000
D921 D1NS4/AK04
C921 10V 100µ
3turn
12
C922 .01 chip
R922 27K 1/4W
D922 MTZJ2.4A
R924 100
29.9V
19.9V
20.6V
Q921 2SA1619A-Q, R, S
10
D923 D1NL20U1A
24turn
C924 50V 22µ
C925 .01 chip
R923 3.9K 1/4W
D924 MTZJ20D
9
5turn
8
D925 EK14V
C926 16V 1000µ
11turn
D926 RK36 2A
14turn
6
L921 10µ
C927 35V 470µ
C928 25V 330µ
R937 1K 1/2W
L922 10µ
D927 D1NL20U
C907 AC250V 4700
R910 3.3K 1/4W
D908 1SS254
C915 .01
PC901 PC123FY
R926 1K 1/10W
R928 100 1/10W
R926 220 1/10W
R927 0 1/10W
C933 .1 chip
R929 1.2K 1/10W
C930 10V 470µ
4.5V
2.5V
0V
R930 1.2K 1/10W
JP903
D905 1SS254
PC902 PC123FY
R936 330 1/10W
IC902 HA17431PA
IC904 SI-3120F
13.4V
12.2V
2.1V
0V
C932 16V 100µ
IC905 SI-3050FA
5.8V
5.1V
5V
R931 22 1/10W
R932 1.5K 1/10W
C931 10V 100µ
R935 10K
Q922 DTC124EKA/RT1N241C

SW12V → TO AUDIO
NR6.0V → TO CG
SW5V → TO CG
NR6.0V → TO HEAD-AMP
SW12V → TO Y/C
SW5V → TO Y/C

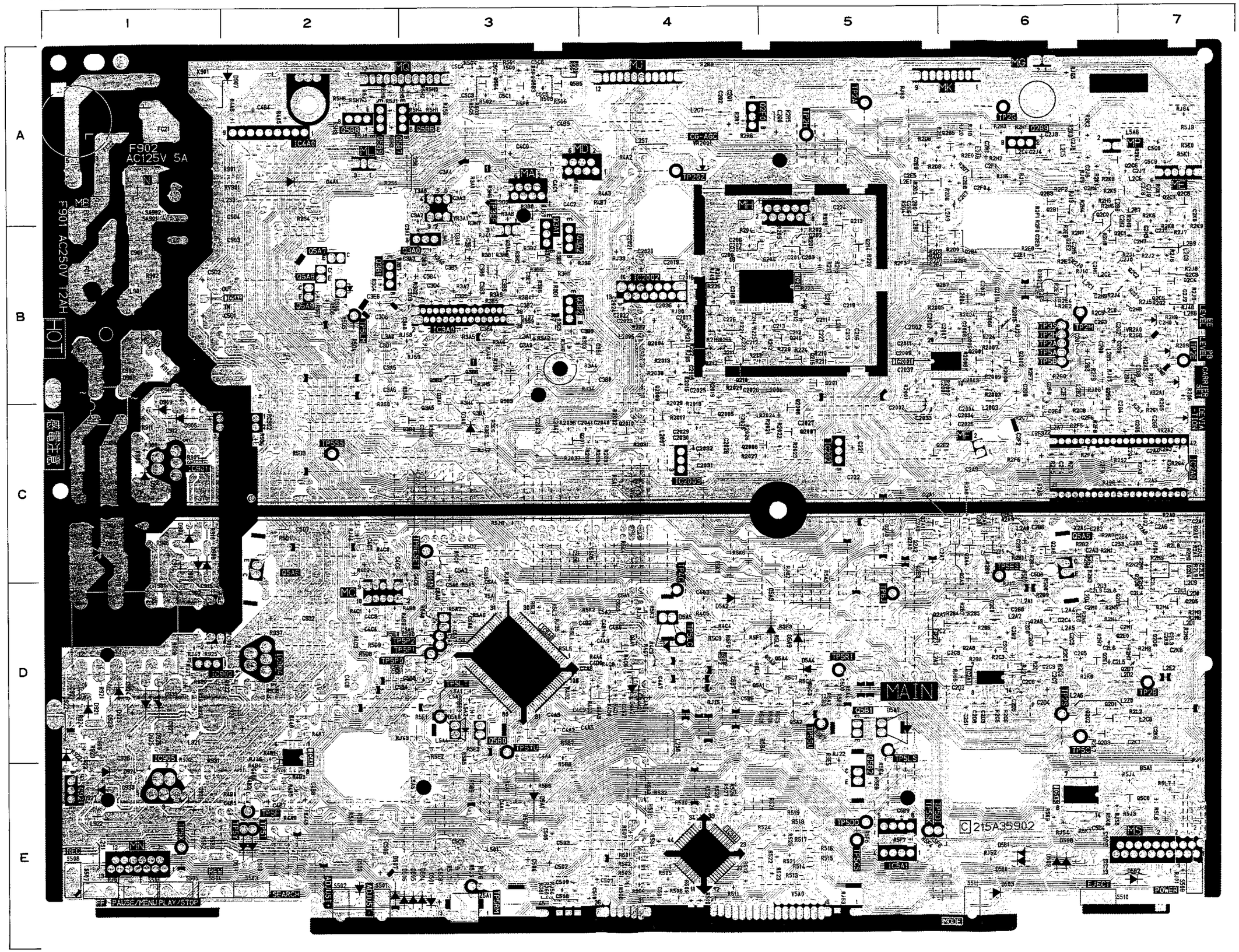
IC902 HA17431PA



IC904 SI-3120F
IC905 SI-3050FA



PCB-MAIN



PCB-MA

SYMBOL NO.
B5A1
C2001
C2002
C2003
C2004
C2005
C2006
C2007
C2008
C2009
C201
C2011
C2012
C2013
C2014
C2015
C2016
C2017
C2018
C2019
C202
C2020
C2021
C2022
C2023
C2024
C2025
C2026
C2027
C2028
C2029
C203
C2030
C2031
C2032
C2033
C2034
C2035
C2036
C2037
C204
C2040
C2041
C2042
C2043
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C207
C208
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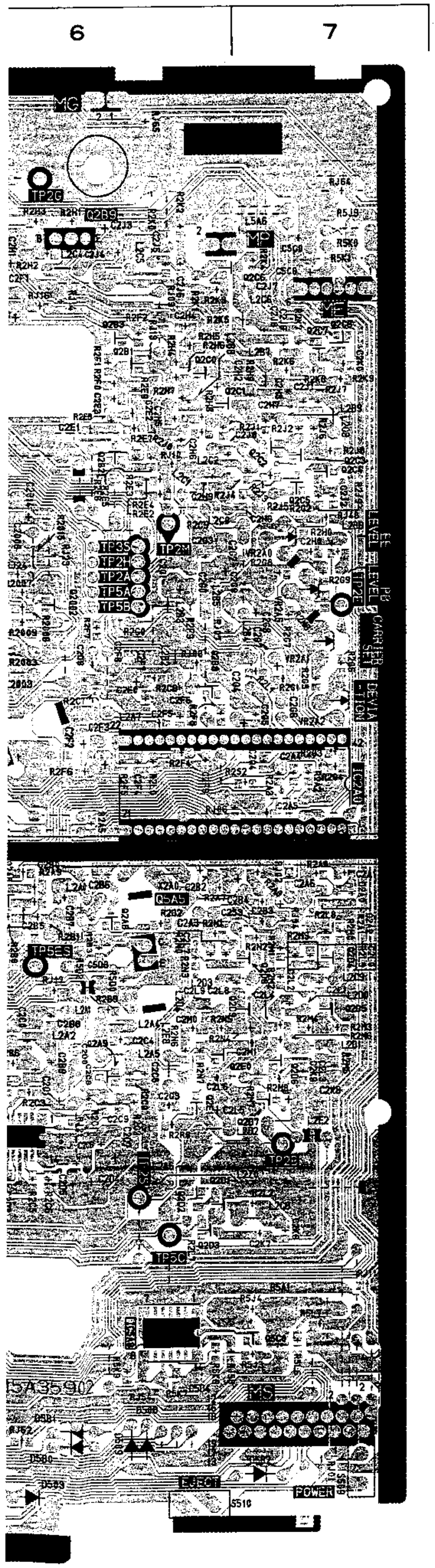
C211
C212
C213
C214
C215
C216
C217
C218
C219



PCB-MAIN

SYMBOL NO.	ADDRESS
B5A1	E-7
C2001	B-5
C2002	B-5
C2003	B-6
C2004	C-6
C2005	B-6
C2006	B-6
C2007	B-6
C2008	B-6
C2009	B-5
C201	B-5
C2011	B-5
C2012	B-5
C2013	B-6
C2014	B-6
C2015	B-4
C2016	B-4
C2017	B-4
C2018	B-4
C2019	B-4
C202	B-5
C2020	B-4
C2021	B-4
C2022	B-4
C2023	B-4
C2024	B-4
C2025	B-4
C2026	B-4
C2027	C-5
C2028	C-4
C2029	C-4
C203	B-5
C2030	C-4
C2031	C-4
C2032	C-4
C2033	C-5
C2034	C-6
C2035	C-6
C2036	B-4
C2037	B-5
C204	B-5
C2040	C-4
C2041	C-4
C2042	C-3
C2043	C-3
C205	B-5
C206	B-4
C207	B-4
C208	B-4
C210	B-5
C211	B-5
C212	B-5
C213	B-5
C214	B-4
C215	B-5
C216	B-5
C217	B-4
C218	B-4
C219	B-5

SYMBOL NO.	ADDRESS
C221	C-5
C222	C-5
C223	B-4
C224	A-5
C226	B-4
C227	B-5
C2A0	C-7
C2A1	C-7
C2A2	C-7
C2A3	C-6
C2A4	C-7
C2A5	C-7
C2A6	C-7
C2A7	C-5
C2A8	C-5
C2A9	C-6
C2B0	C-6
C2B1	C-6
C2B2	C-6
C2B3	C-7
C2B4	C-7
C2B5	C-6
C2B6	C-6
C2B7	C-6
C2B8	D-6
C2B9	D-6
C2C0	D-6
C2C1	D-6
C2C2	D-6
C2C3	D-6
C2C4	D-6
C2C5	D-6
C2C6	D-6
C2C7	D-6
C2C8	D-6
C2C9	D-6
C2D0	D-6
C2D2	D-6
C2D3	D-6
C2D4	D-6
C2D5	D-6
C2D8	D-6
C2D9	C-6
C2E0	C-6
C2E1	B-6
C2E2	B-6
C2E3	B-6
C2E4	B-5
C2E5	A-5
C2E6	A-6
C2E7	A-6
C2E8	A-6
C2E9	A-5
C2F0	A-6
C2F1	A-6
C2F2	C-6
C2F3	C-6
C2F4	C-6
C2F5	C-6
C2F6	C-6

SYMBOL NO.	ADDRESS
C2F7	C-6
C2F8	C-6
C2F9	C-6
C2G0	B-6
C2G1	B-6
C2G2	B-6
C2G3	B-6
C2G4	C-7
C2G5	C-7
C2G6	C-7
C2G7	B-7
C2G8	B-7
C2G9	B-7
C2H0	B-7
C2H1	A-6
C2H2	B-6
C2H3	B-7
C2H4	A-6
C2H5	B-6
C2H6	B-6
C2H7	B-7
C2H8	B-7
C2H9	B-6
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C2J1	B-7
C2J2	B-7
C2J3	A-6
C2J4	A-6
C2J5	A-6
C2J6	A-6
C2J7	A-7
C2J8	A-7
C2J9	A-7
C2K0	A-7
C2K6	D-7
C2K7	D-7
C2K8	D-7
C2K9	D-7
C2L0	C-7
C2L1	D-7
C2L2	D-7
C2L3	D-7
C2L4	D-7
C2L5	D-6
C2L6	D-6
C2L7	C-6
C2L8	D-7
C2L9	D-6
C2M0	D-6
C2M1	D-7
C2Q0	A-5
C2Q1	A-4
C2Q2	A-4
C2Q3	D-6
C2Q4	C-7
C2S1	D-6
C2S2	D-4
C2S3	C-7
C3A0	B-3
C3A1	B-3

SYMBOL NO.	ADDRESS
C3A2	A-3
C3A3	A-3
C3A4	A-3
C3A5	B-2
C3A6	B-2
C3A7	B-3
C3A8	B-2
C3A9	B-3
C3B0	B-4
C3B1	B-4
C3B2	B-3
C3B3	B-3
C3B4	B-3
C3B5	B-3
C3B6	B-3
C3B7	B-3
C3B8	B-3
C3B9	B-3
C3D1	B-2
C3D2	A-3
C3D3	B-3
C3D4	B-3
C3D5	B-3
C3D6	B-2
C3E4	B-3
C3E6	B-2
C3E7	B-3
C3F0	C-3
C4A1	E-3
C4A2	D-3
C4A3	D-3
C4A4	D-3
C4A5	D-4
C4A6	D-4
C4A7	D-4
C4A8	D-4
C4A9	D-4
C4B0	D-4
C4B1	D-4
C4B2	D-4
C4B3	D-4
C4B4	A-2
C4B5	E-2
C4B6	E-2
C4B7	E-2
C4B8	E-2
C4B9	A-3
C4C0	A-3
C4C1	A-3
C4C2	A-3
C4C3	D-2
C4C4	D-2
C4C5	C-3
C4C6	C-2
C4C7	C-2
C4C8	D-2
C4C9	D-4
C4D0	D-4
C501	E-4
C502	E-3

SYMBOL NO.	ADDRESS
C503	E-3
C504	E-3
C505	E-3
C506	E-2
C507	E-4
C508	E-3
C509	E-3
C510	E-4
C5A1	D-4
C5A2	D-4
C5A3	C-3
C5A4	D-3
C5A5	D-3
C5A6	D-3
C5A7	D-3
C5A8	D-3
C5A9	D-3
C5B0	D-3
C5B1	D-3
C5B2	D-3
C5B3	D-3
C5B4	D-3
C5B5	C-3
C5B6	D-4
C5B7	D-4
C5B8	D-5
C5B9	E-5
C5C0	A-7
C5C1	A-3
C5C2	A-3
C5C3	A-3
C5C4	A-3
C5C5	A-3
C5C6	A-3
C5C7	E-3
C5C3	E-3
C5C9	A-7
C5D0	D-5
C5D1	B-1
C5D2	B-1
C5D3	D-4
C5D4	E-6
C5D5	C-4
C5D6	C-3
C5D7	C-2
C5D8	C-6
C901	B-1
C902	B-1
C903	B-1
C904	A-1
C907	D-1
C908	C-1
C911	B-1
C912	C-1
C913	C-1
C914	C-1
C915	D-1
C921	D-1
C922	D-1
C923	D-1

SYMBOL NO.	ADDRESS
C924	D-1
C925	D-1
C926	D-1
C927	D-1
C928	D-2
C930	E-1
C931	E-1
C932	D-2
C933	D-1
D201	B-5
D2A0	C-5
D2A1	C-6
D3A0	C-3
D3A1	C-3
D4A1	A-2
D4A2	D-4
D501	E-3
D502	E-2
D503	E-6
D504	E-3
D505	E-3
D506	E-3
D507	E-2
D508	E-6
D509	E-6
D510	E-2
D511	E-2
D5A1	E-3
D5A2	D-4
D5A3	D-5
D5A4	D-5
D5A5	D-4
D5A6	B-2
D5A7	D-5
D5A8	D-3
D5A9	D-5
D5B0	E-6
D5B1	E-6
D5B2	E-7
D901	C-1
D903	C-1
D904	C-1
D905	C-1
D906	C-1
D907	A-2
D908	C-1
D909	C-1
D921	D-1
D922	D-1
D923	D-1
D924	E-1
D925	D-1
D926	D-1
D927	E-1
D928	C-1
F901	B-1
F902	A-1

SYMBOL NO.	ADDRESS
FC11	B-1
FC12	A-1
FC21	A-1
FC22	A-1
IC2001	B-6
IC2002	B-4
IC2003	C-4
IC201	B-5
IC202	C-5
IC2A0	C-7
IC2A1	D-6
IC3A0	B-3
IC4A0	A-2
IC4A1	D-2
IC501	E-4
IC5A0	D-3
IC5A1	E-5
IC5A2	C-3
IC5A3	E-6
IC5A4	B-1
IC901	C-1
IC902	D-1
IC904	D-2
IC905	E-1
K901	A-1
L2002	B-5
L2003	C-6
L2004	B-6
L2005	B-4
L2006	B-5
L2007	C-4
L201	B-5
L2A0	C-6
L2A1	D-6
L2A2	D-6
L2A3	D-6
L2A4	D-6
L2A5	D-6
L2A6	D-6
L2A7	C-6
L2A8	A-6
L2A9	A-6
L2B0	A-5
L2B1	B-5
L2B2	C-6
L2B3	B-6
L2B4	C-7
L2B5	B-6
L2B6	B-7
L2B7	B-7
L2B8	B-6
L2B9	B-7
L2C0	B-7
L2C1	B-6
L2C2	B-7
L2C3	B-7
L2C4	A-6

SYMBOL NO.	ADDRESS
L2C5	A-6
L2C6	A-7
L2C7	A-4
L2C8	D-7
L2C9	D-7
L2D0	D-7
L2D1	D-7
L2D2	D-6
L2D3	D-7
L2D4	D-6
L2E1	A-6
L2E2	D-7
L2E8	D-6
L2S1	E-1
L2S2	C-3
L2S3	A-2
L2S6	A-3
L2S7	A-4
L2S8	D-4
L2Z0	D-6
L3A0	B-2
L3A1	B-3
L501	E-3
L5A1	D-3
L5A2	D-3
L5A3	D-3
L5A4	D-3
L5A5	E-3
L5A6	A-7
L901	B-1
L904	C-1
L921	D-1
L922	E-1
MA	A-3
MB	A-1
MC	D-2
MD	A-4
ME	A-7
MF	C-6
MG	A-6
MH	A-5
MJ	A-4
MK	A-6
ML	A-2
MN	E-1
MP	A-6
MQ	A-3
MS	E-7
PC901	D-1
PC902	C-2
Q2001	B-6
Q2002	B-6
Q2004	B-4
Q2005	C-4
Q2006	C-5
Q2007	C-5
Q2008	C-5

SYMBOL NO.	ADDRESS
Q2009	B-4
Q2010	C-4
Q2011	C-3
Q210	B-4
Q211	B-4
Q212	B-4
Q213	B-5
Q214	B-5
Q215	B-5
Q216	B-5
Q2A0	C-5
Q2A1	C-5
Q2A2	C-5
Q2A3	C-6
Q2A4	C-6
Q2A5	C-6
Q2A6	C-6
Q2A7	D-6
Q2A8	D-6
Q2A9	D-6
Q2B0	B-6
Q2B1	A-6
Q2B2	B-6
Q2B3	A-6
Q2B4	B-6
Q2B5	A-6
Q2B7	B-6
Q2B8	C-6
Q2B9	A-6
Q2C0	B-6
Q2C1	B-6
Q2C2	B-7
Q2C3	B-7
Q2C4	B-7
Q2C5	B-7
Q2C6	A-6
Q2C7	A-7
Q2C8	A-7
Q2D1	D-6
Q2D2	D-6
Q2D3	D-6
Q2D4	C-7
Q2D5	D-7
Q2D6	D-7
Q2D7	D-7
Q2D8	C-7
Q2D9	D-7
Q2E0	D-6
Q2E1	D-6
Q2E2	C-5
Q2E3	C-5
Q2F0	A-4
Q3A0	B-3
Q3A1	B-3
Q3A2	B-3
Q3A3	B-3
Q3A4	B-3
Q3A5	B-3
Q3B0	C-3
Q3B1	B-2

SYMBOL NO.	ADDRESS
Q3B2	B-3
Q3B3	C-3
Q3B4	C-3
Q3B5	B-3
Q3B6	B-3
Q4A1	D-4
Q4A2	D-4
Q4A3	D-4
Q5A1	D-5
Q5A2	D-5
Q5A3	D-5
Q5A4	D-5
Q5A5	C-6
Q5A6	C-2
Q5A7	B-2
Q5A8	B-2
Q5A9	B-2
Q5B0	D-3
Q5B1	D-5
Q5B2	E-5
Q5B3	A-3
Q5B4	A-3
Q5B5	A-3
Q5B6	A-3
Q5B7	A-3
Q5B8	A-2
Q5B9	A-2
Q5C0	E-7
Q921	E-1
Q922	D-2
R2001	B-5
R2002	B-6
R2003	B-6
R2004	B-6
R2005	B-6
R2006	B-6
R2007	B-6
R2008	B-6
R2009	B-6
R201	B-5
R2013	B-4
R2014	B-4
R2015	B-6
R2016	B-4
R2017	C-4
R2018	C-4
R2019	B-4
R202	B-5
R2020	B-4
R2021	C-5
R2022	C-5
R2023	C-5
R2024	C-5
R2025	C-4
R2026	C-4
R2027	C-5
R2029	C-4
R203	B-5
R2030	B-4

SYMBOL NO.	ADDRESS
R2031	C-4
R2032	C-4
R2033	C-4
R2034	C-4
R2035	C-4
R2036	C-3
R2037	C-3
R204	B-5
R210	B-5
R211	B-5
R212	B-5
R213	B-4
R214	B-4
R215	B-4
R216	B-4
R217	B-5
R218	B-5
R219	B-5
R220	B-5
R221	B-4
R222	B-4
R223	B-5
R224	B-5
R225	B-5
R226	B-4
R2A0	C-7
R2A1	C-7
R2A2	C-7
R2A3	C-7
R2A5	C-6
R2A6	C-6
R2A7	C-6
R2A8	C-7
R2A9	C-6
R2B0	C-6
R2B1	C-6
R2B2	C-6
R2B3	C-6
R2B4	D-6
R2B5	D-6
R2B6	D-6
R2B7	D-6
R2B8	D-6
R2B9	D-6
R2C0	D-6
R2C1	D-6
R2C2	D-6
R2C3	D-6
R2C5	D-6
R2C6	D-6
R2C7	C-6
R2C8	C-6
R2C9	B-7
R2D0	B-6
R2D1	B-5
R2D2	B-5
R2D3	A-5
R2D4	A-5
R2D5	A-5
R2D6	A-6

SYMBOL NO.
R2D7
R2D8
R2D9
R2E0
R2E1
R2E2
R2E3
R2E4
R2E5
R2E6
R2E7
R2E8
R2E9
R2F0
R2F1
R2F2
R2F3
R2F4
R2F5
R2F6
R2F7
R2F8
R2F9
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R2G1
R2G2
R2G3
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R2G5
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R2G9
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R2H1
R2H2
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R2H4
R2H5
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R2H7
R2H8
R2H9
R2J0
R2J1
R2J2
R2J3
R2J4
R2J5
R2J6
R2J7
R2J8
R2J9
R2K0
R2K1
R2K2
R2K3
R2K4
R2K5
R2K6

BOL O.	ADDRESS
	D – 1
	D – 1
	D – 1
	D – 1
	D – 2
	E – 1
	E – 1
	D – 2
	D – 1
	B – 5
	C – 5
	C – 6
	C – 3
	C – 3
	A – 2
	D – 4
	E – 3
	E – 2
	E – 6
	E – 3
	E – 3
	E – 3
	E – 2
	E – 6
	E – 6
	E – 2
	E – 2
	E – 3
	D – 4
	D – 5
	D – 5
	D – 4
	B – 2
	D – 5
	D – 3
	D – 5
	E – 6
	E – 7
	C – 1
	C – 1
	C – 1
	C – 1
	C – 1
	A – 2
	C – 1
	C – 1
	D – 1
	D – 1
	E – 1
	D – 1
	D – 1
	E – 1
	C – 1
	B – 1
	A – 1

SYMBOL NO.	ADDRESS
FC11	B – 1
FC12	A – 1
FC21	A – 1
FC22	A – 1
IC2001	B – 6
IC2002	B – 4
IC2003	C – 4
IC201	B – 5
IC202	C – 5
IC2A0	C – 7
IC2A1	D – 6
IC3A0	B – 3
IC4A0	A – 2
IC4A1	D – 2
IC501	E – 4
IC5A0	D – 3
IC5A1	E – 5
IC5A2	C – 3
IC5A3	E – 6
IC5A4	B – 1
IC901	C – 1
IC902	D – 1
IC904	D – 2
IC905	E – 1
K901	A – 1
L2002	B – 5
L2003	C – 6
L2004	B – 6
L2005	B – 4
L2006	B – 5
L2007	C – 4
L201	B – 5
L2A0	C – 6
L2A1	D – 6
L2A2	D – 6
L2A3	D – 6
L2A4	D – 6
L2A5	D – 6
L2A6	D – 6
L2A7	C – 6
L2A8	A – 6
L2A9	A – 6
L2B0	A – 5
L2B1	B – 5
L2B2	C – 6
L2B3	B – 6
L2B4	C – 7
L2B5	B – 6
L2B6	B – 7
L2B7	B – 7
L2B8	B – 6
L2B9	B – 7
L2C0	B – 7
L2C1	B – 6
L2C2	B – 7
L2C3	B – 7
L2C4	A – 6

SYMBOL NO.	ADDRESS
L2C5	A – 6
L2C6	A – 7
L2C7	A – 4
L2C8	D – 7
L2C9	D – 7
L2D0	D – 7
L2D1	D – 7
L2D2	D – 6
L2D3	D – 7
L2D4	D – 6
L2E1	A – 6
L2E2	D – 7
L2E8	D – 6
L2S1	E – 1
L2S2	C – 3
L2S3	A – 2
L2S6	A – 3
L2S7	A – 4
L2S8	D – 4
L2Z0	D – 6
L3A0	B – 2
L3A1	B – 3
L501	E – 3
L5A1	D – 3
L5A2	D – 3
L5A3	D – 3
L5A4	D – 3
L5A5	E – 3
L5A6	A – 7
L901	B – 1
L904	C – 1
L921	D – 1
L922	E – 1
MA	A – 3
MB	A – 1
MC	D – 2
MD	A – 4
ME	A – 7
MF	C – 6
MG	A – 6
MH	A – 5
MJ	A – 4
MK	A – 6
ML	A – 2
MN	E – 1
MP	A – 6
MQ	A – 3
MS	E – 7
PC901	D – 1
PC902	C – 2
Q2001	B – 6
Q2002	B – 6
Q2004	B – 4
Q2005	C – 4
Q2006	C – 5
Q2007	C – 5
Q2008	C – 5

SYMBOL NO.	ADDRESS
Q2009	B – 4
Q2010	C – 4
Q2011	C – 3
Q210	B – 4
Q211	B – 4
Q212	B – 4
Q213	B – 5
Q214	B – 5
Q215	B – 5
Q216	B – 5
Q2A0	C – 5
Q2A1	C – 5
Q2A2	C – 5
Q2A3	C – 6
Q2A4	C – 6
Q2A5	C – 6
Q2A6	C – 6
Q2A7	D – 6
Q2A8	D – 6
Q2A9	D – 6
Q2B0	B – 6
Q2B1	A – 6
Q2B2	B – 6
Q2B3	A – 6
Q2B4	B – 6
Q2B5	A – 6
Q2B7	B – 6
Q2B8	C – 6
Q2B9	A – 6
Q2C0	B – 6
Q2C1	B – 6
Q2C2	B – 7
Q2C3	B – 7
Q2C4	B – 7
Q2C5	B – 7
Q2C6	A – 6
Q2C7	A – 7
Q2C8	A – 7
Q2D1	D – 6
Q2D2	D – 6
Q2D3	D – 6
Q2D4	C – 7
Q2D5	D – 7
Q2D6	D – 7
Q2D7	D – 7
Q2D8	C – 7
Q2D9	D – 7
Q2E0	D – 6
Q2E1	D – 6
Q2E2	C – 5
Q2E3	C – 5
Q2F0	A – 4
Q3A0	B – 3
Q3A1	B – 3
Q3A2	B – 3
Q3A3	B – 3
Q3A4	B – 3
Q3A5	B – 3
Q3B0	C – 3
Q3B1	B – 2

SYMBOL NO.	ADDRESS
Q3B2	B – 3
Q3B3	C – 3
Q3B4	C – 3
Q3B5	B – 3
Q3B6	B – 3
Q4A1	D – 4
Q4A2	D – 4
Q4A3	D – 4
Q5A1	D – 5
Q5A2	D – 5
Q5A3	D – 5
Q5A4	D – 5
Q5A5	C – 6
Q5A6	C – 2
Q5A7	B – 2
Q5A8	B – 2
Q5A9	B – 2
Q5B0	D – 3
Q5B1	D – 5
Q5B2	E – 5
Q5B3	A – 3
Q5B4	A – 3
Q5B5	A – 3
Q5B6	A – 3
Q5B7	A – 3
Q5B8	A – 2
Q5B9	A – 2
Q5C0	E – 7
Q921	E – 1
Q922	D – 2
R2001	B – 5
R2002	B – 6
R2003	B – 6
R2004	B – 6
R2005	B – 6
R2006	B – 6
R2007	B – 6
R2008	B – 6
R2009	B – 6
R201	B – 5
R2013	B – 4
R2014	B – 4
R2015	B – 6
R2016	B – 4
R2017	C – 4
R2018	C – 4
R2019	B – 4
R202	B – 5
R2020	B – 4
R2021	C – 5
R2022	C – 5
R2023	C – 5
R2024	C – 5
R2025	C – 4
R2026	C – 4
R2027	C – 5
R2029	C – 4
R203	B – 5
R2030	B – 4

SYMBOL NO.	ADDRESS
R2031	C – 4
R2032	C – 4
R2033	C – 4
R2034	C – 4
R2035	C – 4
R2036	C – 3
R2037	C – 3
R204	B – 5
R210	B – 5
R211	B – 5
R212	B – 5
R213	B – 4
R214	B – 4
R215	B – 4
R216	B – 4
R217	B – 5
R218	B – 5
R219	B – 5
R220	B – 5
R221	B – 4
R222	B – 4
R223	B – 5
R224	B – 5
R225	B – 5
R226	B – 4
R2A0	C – 7
R2A1	C – 7
R2A2	C – 7
R2A3	C – 7
R2A5	C – 6
R2A6	C – 6
R2A7	C – 6
R2A8	C – 7
R2A9	C – 6
R2B0	C – 6
R2B1	C – 6
R2B2	C – 6
R2B3	C – 6
R2B4	D – 6
R2B5	D – 6
R2B6	D – 6
R2B7	D – 6
R2B8	D – 6
R2B9	D – 6
R2C0	D – 6
R2C1	D – 6
R2C2	D – 6
R2C3	D – 6
R2C5	D – 6
R2C6	D – 6
R2C7	C – 6
R2C8	C – 6
R2C9	B – 7
R2D0	B – 6
R2D1	B – 5
R2D2	B – 5
R2D3	A – 5
R2D4	A – 5
R2D5	A – 5
R2D6	A – 6

SYMBOL NO.	ADDRESS
R2D7	A – 6
R2D8	A – 5
R2D9	A – 5
R2E0	A – 6
R2E1	A – 5
R2E2	B – 6
R2E3	B – 6
R2E4	B – 6
R2E5	B – 6
R2E6	B – 6
R2E7	B – 6
R2E8	B – 6
R2E9	B – 6
R2F0	B – 6
R2F1	A – 6
R2F2	A – 6
R2F3	B – 5
R2F4	C – 6
R2F5	C – 6
R2F6	C – 6
R2F7	B – 6
R2F8	C – 6
R2F9	C – 6
R2G0	B – 6
R2G1	C – 7
R2G2	B – 7
R2G3	C – 7
R2G4	C – 7
R2G5	C – 7
R2G6	B – 7
R2G7	B – 7
R2G8	B – 7
R2G9	B – 7
R2H0	B – 7
R2H1	A – 6
R2H2	A – 6
R2H3	A – 6
R2H4	A – 6
R2H5	A – 6
R2H6	B – 6
R2H7	B – 6
R2H8	B – 6
R2H9	B – 7
R2J0	B – 6
R2J1	B – 6
R2J2	B – 7
R2J3	B – 7
R2J4	B – 7
R2J5	B – 7
R2J6	B – 7
R2J7	B – 7
R2J8	B – 7
R2J9	B – 7
R2K0	A – 6
R2K1	A – 6
R2K2	A – 6
R2K3	A – 6
R2K4	A – 7
R2K5	A – 7
R2K6	B – 7

SYMBOL NO.	ADDRESS
R2K7	A – 7
R2K8	B – 7
R2K9	B – 7
R2L0	C – 6
R2L1	C – 7
R2L2	D – 7
R2L7	D – 6
R2L8	C – 7
R2L9	C – 7
R2M0	C – 7
R2M1	C – 7
R2M2	D – 7
R2M3	D – 7
R2M4	D – 7
R2M5	D – 7
R2M6	D – 7
R2M7	D – 7
R2M8	D – 7
R2M9	C – 7
R2N0	C – 6
R2N1	C – 6
R2N2	C – 7
R2N3	C – 6
R2N4	D – 7
R2N5	D – 6
R2N6	D – 6
R2N7	D – 6
R2N8	B – 7
R2R5	A – 5
R2R6	A – 5
R2R7	A – 4
R2R8	A – 4
R2R9	D – 6
R2S1	D – 5
R2S2	C – 7
R2S4	A – 2
R2S5	A – 2
R3A0	B – 3
R3A1	A – 3
R3A2	B – 3
R3A3	C – 3
R3A4	B – 3
R3A5	B – 3
R3A6	B – 3
R3A7	B – 3
R3A8	A – 3
R3A9	B – 3
R3B0	B – 3
R3B1	B – 3
R3B2	B – 3
R3B3	B – 3
R3B4	B – 3
R3B5	B – 3
R3B6	B – 3
R3B7	B – 3
R3B8	B – 3
R3C4	B – 2
R3C5	B – 3
R3D0	B – 3
R3D1	B – 3

SYMBOL NO.	ADDRESS
R3D2	B – 3
R3D3	B – 3
R3E5	C – 3
R3E6	C – 3
R3G0	C – 2
R3G5	C – 3
R3G9	B – 3
R3H0	B – 3
R3H1	B – 3
R3H2	B – 3
R3H4	B – 3
R3H5	B – 3
R3H6	A – 3
R3H7	A – 3
R3H8	B – 3
R4A1	E – 3
R4A2	A – 4
R4A3	A – 4
R4A4	D – 4
R4A5	A – 2
R4A6	A – 2
R4A7	D – 2
R4A8	D – 2
R4A9	E – 2
R4B0	E – 2
R4B1	E – 2
R4B2	E – 2
R4B3	E – 2
R4B4	E – 2
R4B5	E – 2
R4B6	A – 3
R4B7	A – 4
R4B8	D – 2
R4B9	D – 2
R4C0	C – 2
R4C1	D – 2
R4C2	C – 2
R4C3	D – 2
R4C4	D – 4
R4C5	D – 4
R4C6	D – 4
R4C7	D – 4
R4C8	D – 4
R4C9	D – 4
R4D0	D – 4
R4D1	D – 4
R4D2	D – 3
R4D3	D – 4
R501	E – 4
R502	E – 4
R503	E – 4
R504	E – 4
R505	E – 4
R506	E – 4
R507	E – 4
R508	E – 4
R509	E – 4
R510	E – 4
R511	E – 4
R512	E – 4

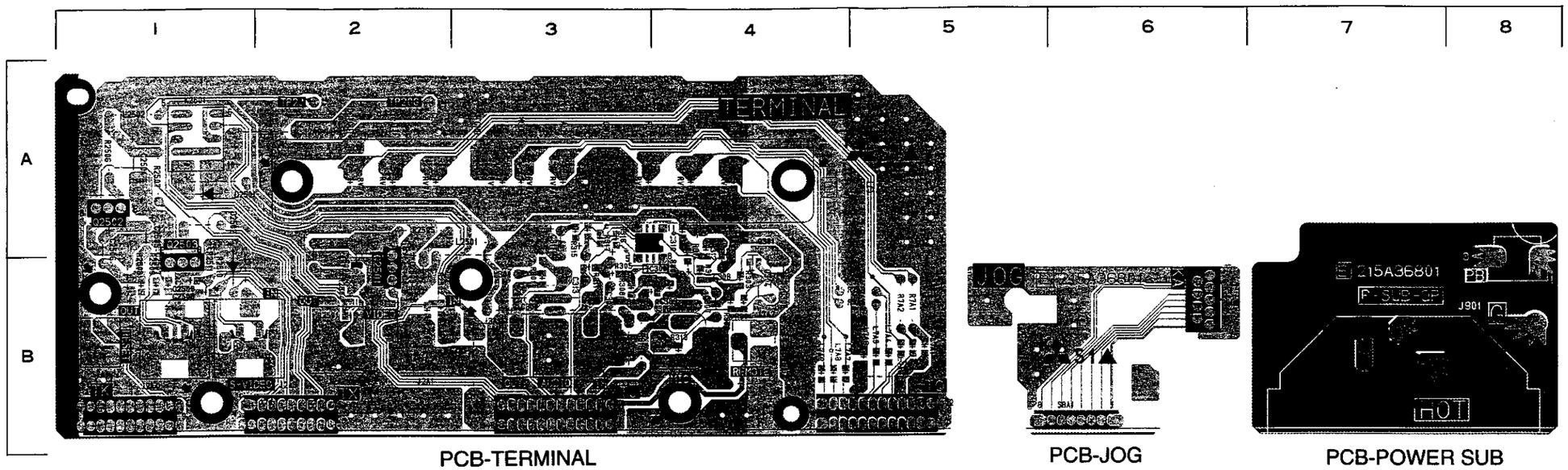
SYMBOL NO.	ADDRESS
R513	E – 5
R514	E – 5
R515	E – 5
R516	E – 5
R517	E – 5
R518	E – 5
R519	E – 5
R520	E – 5
R521	E – 5
R522	E – 5
R523	E – 5
R524	E – 5
R525	E – 5
R526	E – 4
R527	E – 4
R528	E – 4
R529	E – 4
R530	E – 4
R531	E – 4
R532	E – 4
R533	E – 4
R534	E – 4
R5A1	C – 4
R5A2	D – 5
R5A3	C – 5
R5A4	D – 5
R5A5	D – 3
R5A6	D – 3
R5A7	D – 3
R5A8	D – 3
R5A9	E – 2
R5B0	E – 1
R5B1	E – 2
R5B2	E – 1
R5B3	D – 3
R5B4	E – 5
R5B5	D – 3
R5B6	E – 3
R5B7	D – 3
R5B8	E – 3
R5B9	E – 3
R5C0	E – 3
R5C1	C – 3
R5C2	C – 3
R5C3	D – 5
R5C4	D – 5
R5C5	D – 5
R5C6	D – 5
R5C7	D – 5
R5C8	D – 5
R5C9	D – 4
R5D0	D – 6
R5D1	C – 2
R5D2	C – 6
R5D3	C – 2
R5D4	B – 2
R5D5	B – 2
R5D6	B – 2
R5D7	B – 2
R5D8	D – 3

SYMBOL NO.	ADDRESS
R5D9	D – 3
R5E0	D – 3
R5E1	D – 3
R5E2	D – 3
R5E3	D – 3
R5E4	E – 5
R5E5	E – 5
R5E6	E – 5
R5E7	D – 5
R5E8	D – 5
R5E9	D – 4
R5F0	D – 4
R5F1	D – 4
R5F2	D – 4
R5F3	D – 5
R5F4	E – 5
R5F5	E – 5
R5F6	E – 5
R5F7	E – 5
R5F8	A – 3
R5F9	A – 3
R5G0	A – 3
R5G1	A – 3
R5G2	A – 3
R5G3	A – 3
R5G4	A – 3
R5G5	A – 3
R5G6	A – 3
R5G7	A – 3
R5G8	A – 3
R5G9	A – 3
R5H0	A – 3
R5H1	A – 3
R5H2	A – 3
R5H3	A – 2
R5H4	A – 3
R5H5	A – 3
R5H6	A – 2
R5H7	A – 2
R5H8	A – 2
R5H9	A – 2
R5J0	A – 2
R5J1	A – 2
R5J2	A – 2
R5J3	E – 7
R5J4	E – 7
R5J5	E – 3
R5J6	E – 3
R5J7	E – 3
R5J8	C – 3
R5J9	A – 7
R5K0	A – 7
R5K1	A – 7
R5K2	D – 4
R5K3	D – 4
R5K4	C – 4
R5K5	D – 4
R5K6	C – 4
R5K7	E – 6
R5K8	E – 6

SYMBOL NO.	ADDRESS
R5K9	E – 6
R5L0	D – 4
R5L1	D – 3
R5L2	D – 3
R5L3	D – 3
R5L4	D – 4
R5L5	D – 3
R5L6	E – 7
R5L7	E – 7
R901	A – 1
R902	B – 1
R904	B – 1
R906	C – 1
R907	C – 1
R908	C – 1
R909	C – 1
R910	C – 1
R911	C – 1
R912	B – 1
R913	B – 1
R914	B – 1
R921	D – 1
R922	E – 1
R923	E – 1
R924	E – 1
R925	D – 1
R926	D – 1
R927	D – 1
R928	D – 1
R929	D – 1
R930	D – 1
R931	E – 1
R932	E – 1
R935	D – 2
R936	C – 2
R937	D – 2
RJ01	E – 7
RJ02	C – 7
RJ04	C – 7
RJ05	B – 4
RJ06	C – 7
RJ07	B – 6
RJ08	B – 6
RJ09	A – 6
RJ10	B – 6
RJ11	E – 7
RJ12	B – 5
RJ13	B – 6
RJ14	A – 6
RJ15	D – 4
RJ16	A – 6
RJ17	D – 6
RJ18	A – 6
RJ20	A – 6
RJ21	D – 6
RJ22	E – 5
RJ23	B – 6
RJ24	B – 6
RJ29	B – 5

SYMBOL NO.	ADDRESS
RJ30	B – 4
RJ31	D – 4
RJ32	B – 4
RJ33	B – 4
RJ34	B – 4
RJ35	D – 3
RJ36	B – 3
RJ37	B – 3
RJ38	D – 3
RJ39	B – 3
RJ40	B – 3
RJ41	B – 3
RJ42	C – 3
RJ43	D – 3
RJ44	C – 2
RJ45	E – 2
RJ46	E – 2
RJ47	D – 1
RJ48	B – 7
RJ49	B – 4
RJ50	E – 3
RJ51	E – 1
RJ52	E – 6
RJ53	E – 5
RJ54	E – 6
RJ55	E – 6
RJ56	A – 3
RJ57	A – 3
RJ58	B – 3
RJ59	B – 3
RJ60	E – 3
RJ61	E – 3
RJ62	C – 5
RJ63	A – 5
RJ64	A – 7
RJ65	A – 6
RJ66	D – 6
RV901	A – 1
S501	E – 2
S502	E – 2
S503	E – 2
S504	E – 1
S505	E – 1
S506	E – 1
S507	E – 1
S508	E – 1
S509	E – 7
S510	E – 6
S511	E – 6
SA901	A – 1
SA902	A – 1
T3A0	A – 3
T901	D – 1
TP20Z	A – 4
TP2A	B – 6

SYMBOL NO.	ADDRESS
TP2B	D – 7
TP2E	B – 7
TP2G	A – 6
TP2H	B – 6
TP2M	B – 6
TP2S	D – 6
TP3EF	B – 3
TP3S	B – 6
TP4C	D – 4
TP5A	B – 6
TP5B	B – 6
TP5C	D – 6
TP5CS	E – 5
TP5DI	E – 5
TP5DO	E – 5
TP5ES	C – 6
TP5F	E – 2
TP5LC	D – 4
TP5LM	B – 2
TP5LS	D – 5
TP5LT	D – 3
TP5P0	D – 3
TP5P1	D – 3
TP5P2	D – 3
TP5RI	D – 5
TP5RM	E – 3
TP5SK	E – 5
TP5SS	C – 2
TP5SU	D – 5
TP5T	E – 2
TP5TU	D – 3
TP5X	E – 1
TP5Y	E – 2
TP6J	D – 5
TPRESET	C – 3
V5A0	E – 5
VR2001	A – 4
VR2A0	B – 7
VR2A1	B – 7
VR2A2	C – 7
VR2A5	B – 7
VR3A1	A – 3
X2A0	C – 6
X5A1	D – 3
X5A2	D – 3
Z5A1	E – 3



PCB-TERMINAL

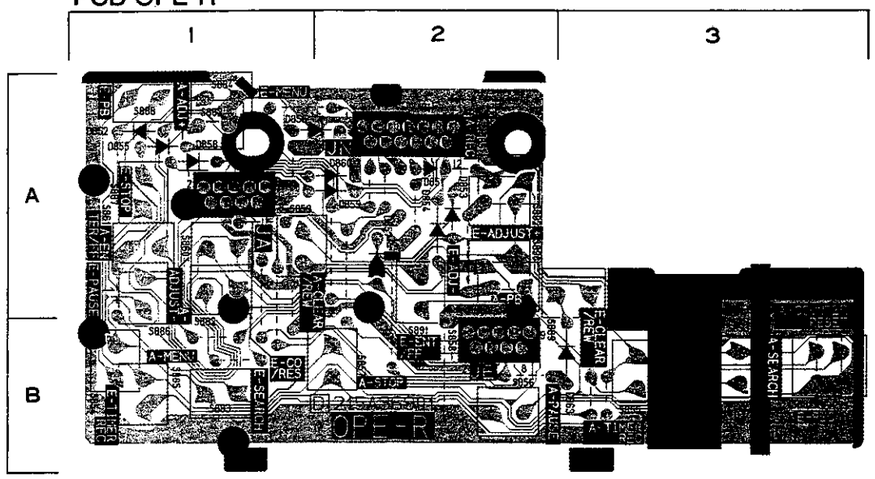
PCB-JOG

PCB-POWER SUB

SYMBOL NO.	ADDRESS
C2501	A – 2
C2502	A – 2
C2503	B – 2
C2504	A – 1
C2505	A – 1
C2506	A – 1
C2507	B – 1
C2508	B – 1
C2509	B – 1
C301	B – 3
C302	A – 3
C303	B – 3
C304	B – 4
C305	B – 4
C306	B – 3
C307	B – 4
C308	A – 4
C309	B – 4
C310	A – 4
C311	A – 3
C312	A – 3
C313	A – 3
D2501	A – 1
D2502	B – 1
IC300	A – 3
J2A1	B – 2
J2A2	B – 2

SYMBOL NO.	
J2A3	
J2A4	
J3A1	
J3A2	
J7A1	
J7A2	
J901	
K2501	
KA	
L2501	
L2502	
L301	
L7A1	
L7A2	
L7A3	
L7A4	
L7A5	
L7A6	
L7A7	
L7A8	
L7A9	
PB	
Q2501	
Q2502	
Q2503	

PCB-OPE R

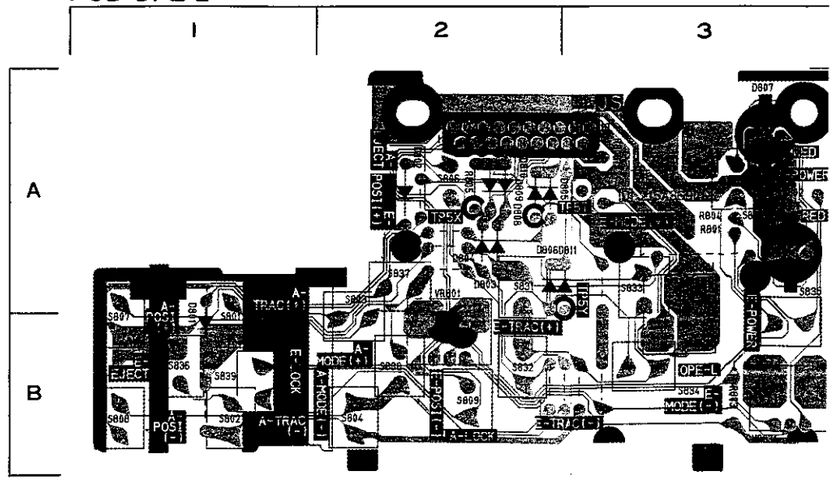


PCB-OPE R

SYMBOL NO.	ADDRESS
D851	A – 2
D852	A – 1
D853	A – 2
D854	A – 2
D855	A – 1
D856	A – 2
D857	A – 2
D858	A – 1
D859	A – 2
D860	A – 2
D863	B – 3
JA	A – 1
JE	B – 2
JN	A – 2
S851	A – 2
S852	B – 3
S853	B – 3
S854	B – 1
S855	B – 3
S856	B – 2
S857	B – 2
S858	A – 2
S859	A – 1
S860	A – 1
S861	A – 1
S862	A – 1
S881	B – 3
S882	A – 1

SYMBOL NO.	ADDRESS
S883	B – 1
S884	A – 1
S885	B – 1
S886	A – 1
S887	A – 1
S888	A – 1
S889	A – 3
S890	A – 2
S891	A – 2
S892	A – 2

PCB-OPE L



HS-1024E
HS-1024E(B)

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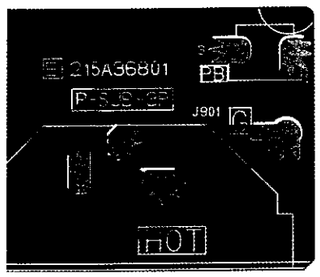


PCB-POWER SUB

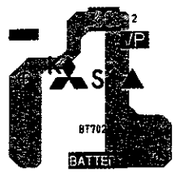
SYMBOL NO.	ADDRESS
C2501	A – 2
C2502	A – 2
C2503	B – 2
C2504	A – 1
C2505	A – 1
C2506	A – 1
C2507	B – 1
C2508	B – 1
C2509	B – 1
C301	B – 3
C302	A – 3
C303	B – 3
C304	B – 4
C305	B – 4
C306	B – 3
C307	B – 4
C308	A – 4
C309	B – 4
C310	A – 4
C311	A – 3
C312	A – 3
C313	A – 3
D2501	A – 1
D2502	B – 1
IC300	A – 3
J2A1	B – 2
J2A2	B – 2

SYMBOL NO.	ADDRESS
J2A3	B – 1
J2A4	B – 1
J3A1	B – 3
J3A2	B – 4
J7A1	A – 2
J7A2	B – 4
J901	B – 7
K2501	A – 1
KA	B – 6
L2501	A – 3
L2502	A – 1
L301	B – 3
L7A1	B – 5
L7A2	B – 5
L7A3	B – 5
L7A4	B – 5
L7A5	B – 5
L7A6	B – 5
L7A7	B – 4
L7A8	B – 4
L7A9	B – 4
PB	B – 8
Q2501	A – 2
Q2502	A – 1
Q2503	B – 1

SYMBOL NO.	ADDRESS
Q301	A – 4
R2501	B – 2
R2502	B – 2
R2503	B – 2
R2504	B – 2
R2505	A – 2
R2506	A – 1
R2507	A – 1
R2508	B – 1
R2509	B – 1
R2510	B – 1
R2511	B – 1
R301	B – 3
R302	B – 4
R303	B – 4
R304	B – 4
R305	B – 3
R306	B – 4
R307	B – 3
R308	B – 3
R309	A – 4
R310	B – 4
R311	B – 3
R312	A – 4
R313	B – 4
R314	A – 4
R315	A – 3
R316	A – 3
R317	A – 3

SYMBOL NO.	ADDRESS
R318	B – 3
R7A1	B – 5
R7A2	B – 5
R7A3	B – 5
R7A4	B – 5
RJ01	B – 2
RV7A1	A – 2
RV7A2	A – 2
RV7A3	A – 2
RV7A4	A – 3
RV7A5	A – 3
RV7A6	A – 3
RV7A7	A – 3
RV7A8	A – 4
RV7A9	A – 4
S7A1	B – 1
S8A1	B – 6
TJ	B – 3
TK	B – 1
TP20G	A – 2
TP2J	A – 2
TQ	B – 4
TX	B – 1

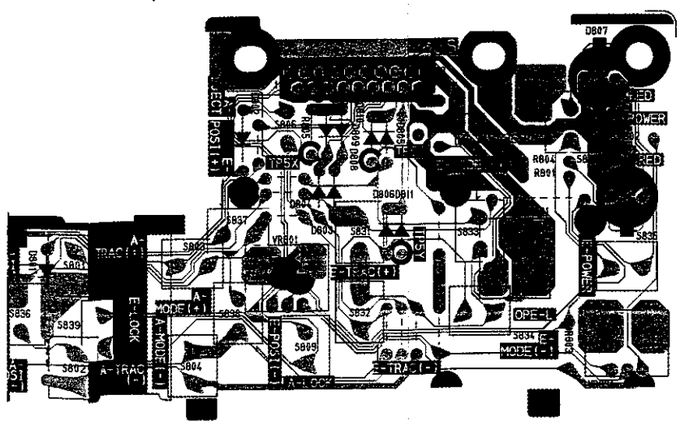
PCB-BATTERY



[D] 215C84401

E L

1 | 2 | 3



PCB-OPE L

SYMBOL NO.	ADDRESS
D801	B – 1
D802	A – 2
D803	A – 2
D804	A – 2
D805	A – 2
D806	A – 2
D807	A – 3
D808	A – 2
D809	A – 2
D810	A – 2
D811	A – 3
D837	A – 3
J801	B – 3
JS	A – 2
R801	A – 3
R802	A – 3
R803	B – 3
R804	A – 3
R805	A – 2
R806	A – 3
S801	B – 1
S802	B – 1
S803	B – 2
S804	B – 2
S805	A – 3
S806	A – 2

SYMBOL NO.	ADDRESS
S807	B – 1
S808	B – 1
S809	B – 2
S831	A – 2
S832	B – 2
S833	A – 3
S834	B – 3
S835	B – 3
S836	B – 1
S837	A – 2
S838	B – 2
S839	B – 1
TP5T	A – 2
TP5X	A – 2
TP5Y	B – 3
VR801	B – 2
VR831	B – 3