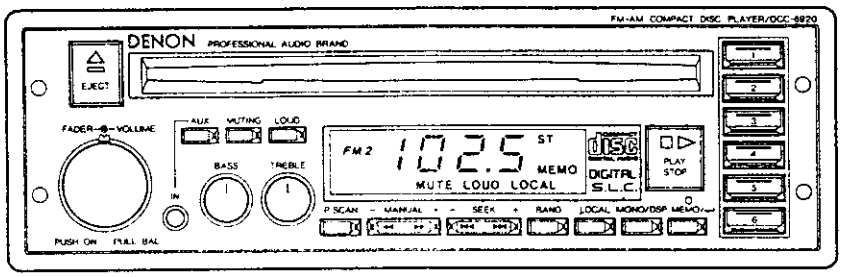
DENON

Hi-Fi Stereo FM-AM Compact Disc Player

SERVICE MANUAL

MODEL DCC-8920

STEREO FM-AM COMPACT DISC PLAYER



CONTENTS

NIPPON COLUMBIA CO., LTD.

Please read carefully all safety and operating instructions before installation and use.
It will help you to obtain the best performances from your new FM/AM Compact Disc Player.

FEATURES

- Theft Prevention Chassis (Handle sold separately ASG-190)
- 24 Preset-Station (18 FM–6 AM)
- DENON Optimum Reception System FM circuitry (Auto high blend and FM pulse noise cancellor)
- Up/Down manual & seek tuning
- Stereo/mono (FM), local, & muting buttons
- Thermal shut down laser protection circuitry
- Auxiliary input jack and switch.
- All Program Repeat Play
- Automatic Search
- Manual Search
- Super linear converter (S.L.C.)
- 3-spot laser pickup servo
- DIN "E" with easy installation lock-in sleeve
- Night illumination with dash light lead
- 2-times over sampling with digital filter.

CERTIFICATION
- CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE
- CERTIFIE EN VERTU DU CODE CANADIEN DE L'ELECTRICITE SEULEMENT

CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER I APPLICABLE AT DATE OF MANUFACTURE.

CAUTION – USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

SPECIFICATIONS

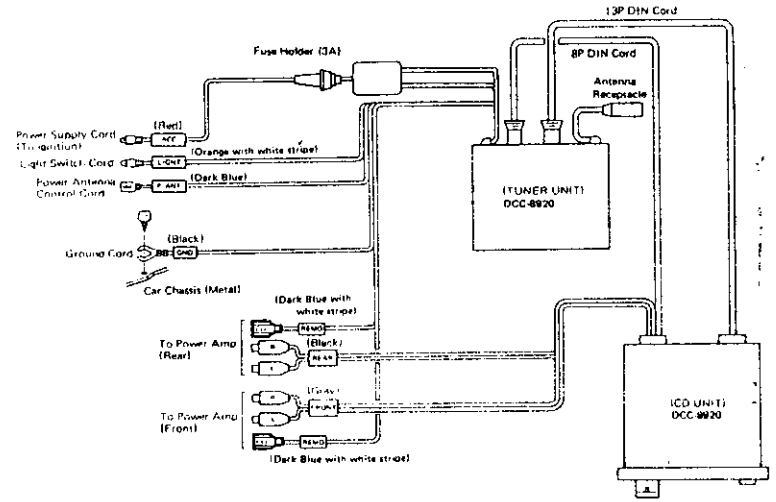
FM TUNER	
Mono Usable Sensitivity	14.8 dBf 1.5 µV (75 ohms)
50 dB Quieting Sensitivity	20.3 dBf 2.8 µV (75 ohms)
Alternate Channel Selectivity	70 dB
S/N (Signal to Noise Ratio)	60 dB
Stereo Separation	40 dB (at 1 kHz)
Capture Ratio	2.0 dB
Image Rejection	50 dB
IF Rejection	110 dB
AM TUNER	
Sensitivity	30 µV (S/N 20 dB)
CD	
Frequency Response	5 Hz ~ 20 kHz ± 1.0 dB
Dynamic Range	90 dB
Signal to Noise Ratio	90 dB
Harmonic Distortion	0.005%
Wow and Flutter	Below a Measurable Level
DISC	
Applicable Disc	Compact Disc

SIGNAL FORMAT	
Sampling Frequency	44.1 kHz
Quantization	16 Bit Linear
Transfer Bit Rate	4.3218 Megabits/sec.
GENERAL	
Output Voltage	3V/10k ohm
Bass	±10 dB at 100 Hz
Treble	±10 dB at 10 kHz
Muting	–20 dB
Loudness (Vol. –30 dB)	+10 dB at 100 Hz +8.5 dB at 10 kHz
Chassis Size (W x H x D)	180 mm x 50 mm x 180 mm (7-3/32" x 1-31/32" x 7-3/32")
Panel Size (W x H x D)	186 mm x 58 mm x 15 mm (7-21/64" x 2-9/32" x 19/32")
Weight	1.5 kg (3 lbs. 5 oz)
Tuner Size (W x H x D)	178 mm x 30 mm x 146 mm (7-1/64" x 1-3/16" x 5-3/4")
Weight for Tuner	0.8 kg (1 lbs. 12 oz)

Design and specifications are subject to change for improvement without prior notice.

CONNECTIONS

Make all connections securely to prevent noise. Bind up the cords by tape after connection.
Confirm again that your connection follows this instruction manual, re-install the parts of your automobile as they were and re-connect the negative (–) cable to the negative (–) terminal of the battery.



DENON FM-AM Compact Disc Player DCC-8920 will operate properly with 14.4 V (11 V–16 V) car batteries. You cannot use it for 24 V or other types of car batteries.

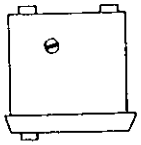
LITHIUM BATTERY WARNING!
Because of the danger of explosion, the lithium battery is allowed to change only to the same manufacturer's same type.

- **Before Installation**

1. Remove the fastening screw used during shipping and the Caution Label on the top of the set.
   The fastening screw is used to keep the laser pickup from moving around inside the set during shipment.
   Keep this fastening screw for use when the set is shipped at some future time.
2. Remove the ground cable (−) from the battery before installation to prevent damage to unit or the automobile's electrical system by miss-connection.

- **This unit can be installed within a tilt range of 0° to 40° with respect to level.**

1. Installation at a tilt of 0° – 20°
   Set the slot visible in the top of the unit at about the position which the unit will be tilted (approx. 15°)



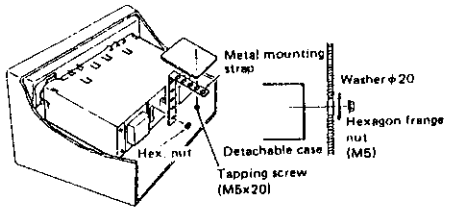
- **Installing the Tuner Unit**

1. Attach the tuner unit beneath the seat or where it will not be in the way using the accessory L-fittings or Velcro tape. Avoid installing the tuner unit in the following locations.
2. Near a heater vent.
3. In a location hit by the direct rays of the sun.
4. Near a window or door where rain or moisture could fall on it.
5. In a location which could interfere with safe driving, such as near the pedals.

INSTALLATION

- Use screws supplied as accessories when installing the unit.

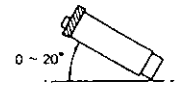
1.



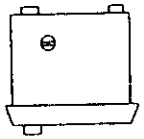
Insert the detachable case into the console and clamp with the claws. If the detachable case cannot be inserted, file opening slightly to accommodate.

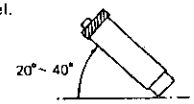
- Fig. 2 & 3 are for use without ASG-190 handle (option) for directions for use with handle see ASG-190 package.
- Note that the screws that accompany the ASG-190 should not be used for attaching the handle. Use the M3x30 mm screws that come with the DCC-8920 for making the attachment.

Install the set so that it is within 20° of level.

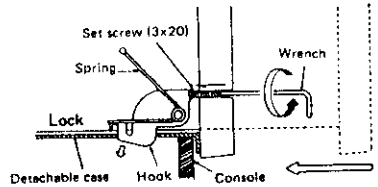


2. Installation at a tilt of 20° – 40°
   Use a screwdriver to position of the slot in the top of the unit so that it is parallel with the front and back panels.
   Install the set so that it is within 40° of level.



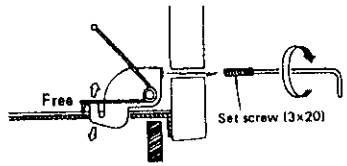


2.

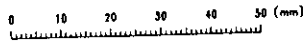


Insert the unit into the detachable case and fasten the unit with the 2 screws (3x20) in the bottom. (The 2 holes in the top are not used to fasten the unit in place. Do not insert screws there.) The hook secures the unit.

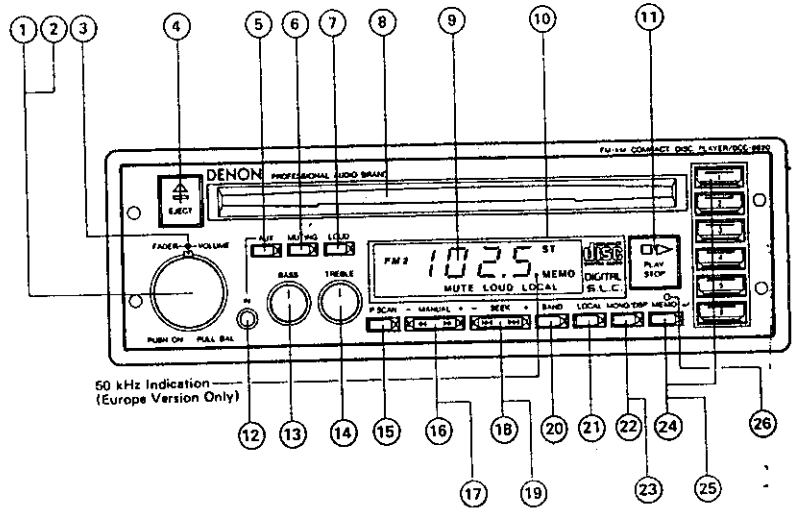
3.



To remove the unit, remove 2 screws to release the hooks.



CONTROLS & INDICATORS



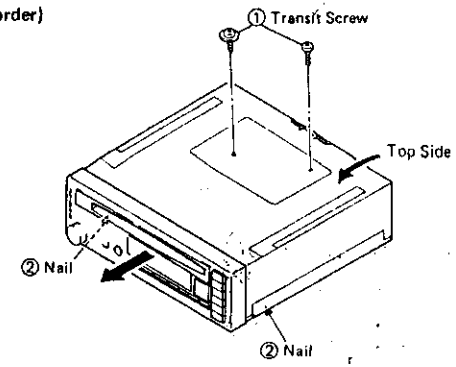
① TUNER ON/OFF SWITCH/VOLUME (1120489005)
② BALANCE VOLUME (1120489005)
③ FADER VOLUME (1120486008)
④ EJECT SWITCH (1130816202)
⑤ AUXILIARY BUTTON (1131010007)
⑥ MUTING BUTTON (1131010007)
⑦ LOUDNESS BUTTON (1131010007)
⑧ COMPACT DISC SLOT
⑨ LCD DISPLAY (3934048009)
⑩ FM STEREO INDICATOR
⑪ PLAY/STOP BUTTON (1131011006)
⑫ AUXILIARY INPUT JACK (2048295002)
⑬ BASS CONTROL (1120488006)
⑭ TREBLE CONTROL (1120488006)
⑮ PRESET SCAN BUTTON (1130815009)
⑯ MANUAL SEARCH BUTTON
⑰ MANUAL TUNING BUTTON (1130814107)
⑱ AUTOMATIC SEARCH BUTTON (1130814110)
⑲ SEEK BUTTON (1130814110)
⑳ BAND BUTTON (1130815009)
㉑ LOCAL BUTTON (1130815009)
㉒ FM AUTO/MONO BUTTON (1130815009)
㉓ DISPLAY BUTTON (1130815009)
㉔ MEMORY BUTTON (113082205, 018, 021, 034, 047, 050)
㉕ RETURN BUTTON (1130815009)
㉖ RESET BUTTON (1131013004)

Memory back up battery
Removable type DCC-8920 lithium battery powers the memory and preset memory.
Battery life is about 3 years.
In extremely high or low temperatures the memory back up occasionally does not work properly, this is normal.
For replacement contact your DENON dealer or local DENON service station.

REMOVAL OF EACH SECTION
(When reassembling, follow this procedure reverse order)

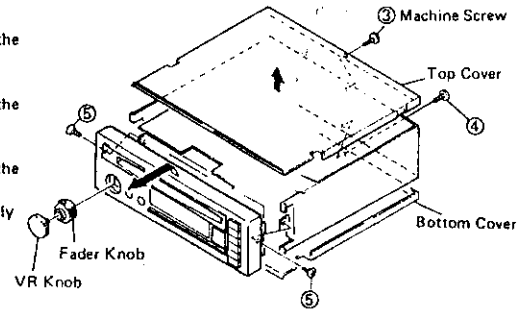
How to remove the Main Unit

1) Remove the 2 transit screws (1) on the Top Cover.
2) Remove the two nails (2) holding the mount sleeve (black case) and pull the unit out.



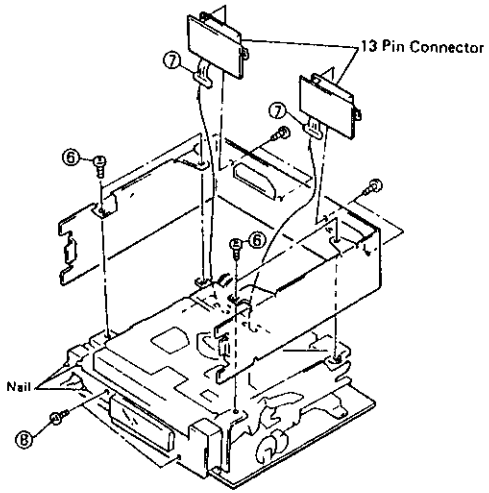
How to remove the Top Cover Bottom Cover and Front Panel

- To remove the Top Cover
  Remove the screw (3) from the rear side of the unit.
- To remove the Bottom Cover
  Remove the screw (4) from the rear side of the unit.
- To remove the Front Panel
  1) Remove the two screws (5), then remove the Fader Knob and VR Knob.
  2) Haul the Front Panel in the center upwardly a little, and pull forwardly out.



How to remove the DC Mechanism and the Main Unit P.W. Board

1) Remove the 4 screws (6) and set the Chassis Frame upright.
2) Disconnect 2 13-pin connectors (7) attaching the Chassis Frame from the Main Unit P.W. Board, and detach the Chassis Frame.
3) Unfasten the 2 screws securing the Front P.W. Board release 3 nails (left side), and bring down the Front P.W. Board frontward.



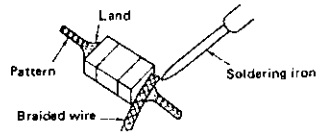
4) Remove the 2 screws securing the P.W. Board Holder, and take out the P.W.Board Holder and the Holder Bracket.
5) Disconnect 1 each 2-p and 3-p connectors. Remove the 2 FPC on the right side and the 1 FPC on the rear side. At this time to protect the Laser Diode against damages, solder the short land.
6) Turn the CD Mechanism and place the Main P.W. Board facing up, then remove the 4 screws. This is all to apart the CD Mechanism and the Main P.W. Board.

- **Precaution to reassembling the Mechanism Unit Ass'y**
  1) When attaching the FPC on the rear of the unit to the Main Unit P.W. Board adjust the shape as shown in the illustration and insert it.

[Chip Replacing Procedure]
Use a fine tipped soldering iron, a tweezers, a solder, and a braided wire to remove and attach the chip.

Notes at the time of replacement

1. **Do not try to remove the chip focibly as this may result in peeling off the pattern.**



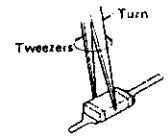
2. **Never reuse the chip that is removed.**
3. **For protecting the parts, apply heating within 3 second to remove the chip quickly.**

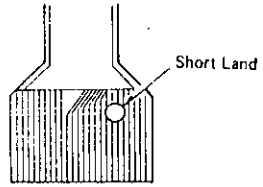
REMOVING

1. **Absorb solder on the electrode**
   Use a braided wire to absorb solder on the electrode. At this time carefully perform this work and not absorb solder in the adjacent parts'.

2. **Removing the chip**
   Touch the soldering iron alternately to the lands and rotate the tweezers holding the chip removes the chip. Do not attempt to remove the chip by giving an excessive power to the tip of the soldering iron as this may invite peeling off the land.

* **Never reuse the chip that is removed.**



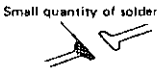


3. **Flatten the soldering portion**
   After removed the chip, flatten the surface of land by means of absorbing the solder with the braided wire.

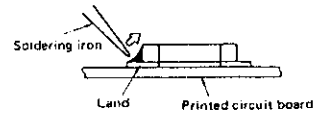
ATTACHING

As chip has no indication of constant, do not mix with other chips after taking out from the bag.

1. **Solder one side of land beforehand**
   Solder a small amount on the one side of land the chip is to be attached. In case applying solder a lot, excess solder may bridge other portions.



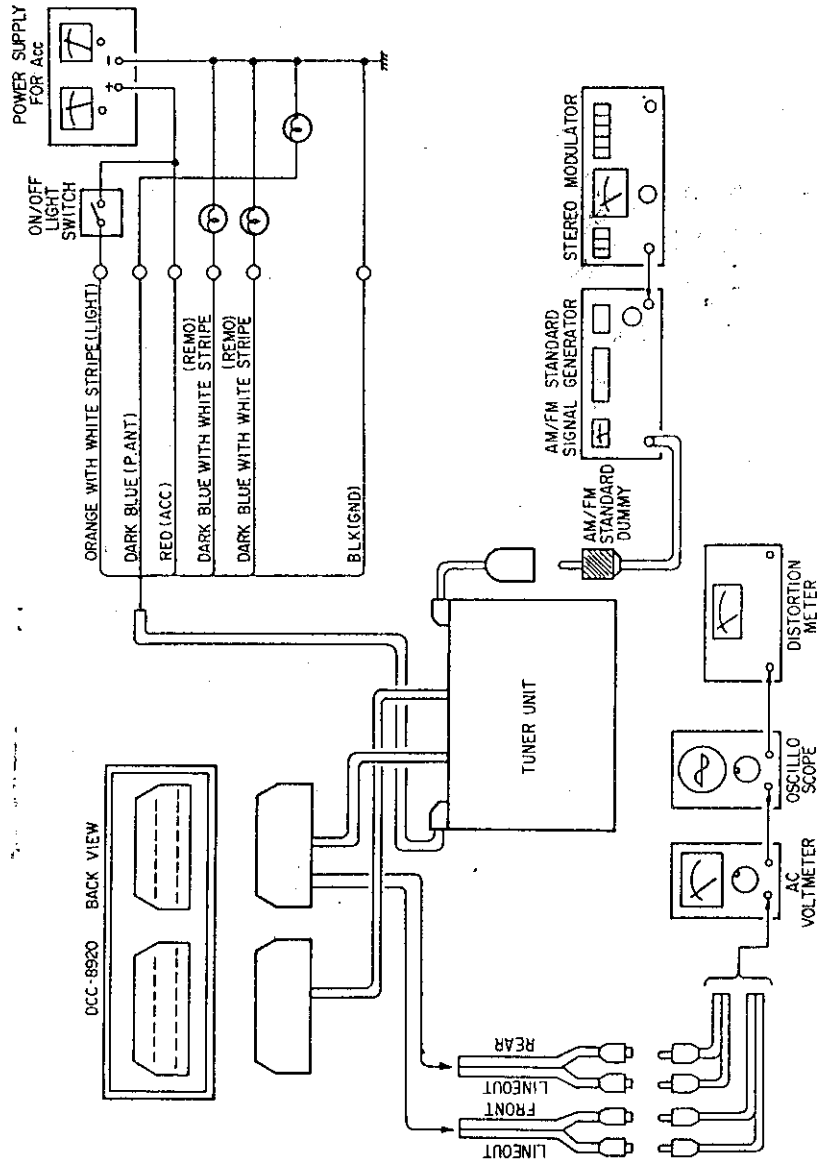
2. **Perform fast soldering**
   Put the chip on the place and hold down with the tweezers and apply heating with the soldering iron toward the arrow direction. To protect the chip, heating for soldering should be within 3 seconds.



3. **Perform fast soldering also for the other side**
   Solder the other electrode and land in the same manner as to step 2.

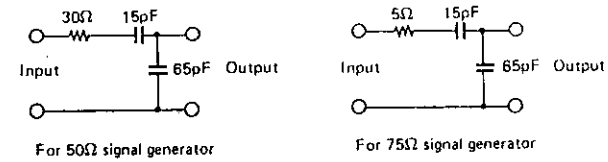
SPECIFICATIONS FOR ADJUSTMENT

- WIRING DIAGRAM

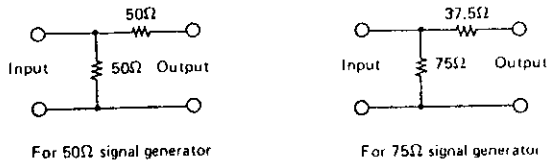


1. Conditions for adjustment (adjustment must be done in the following conditions)
   - 1-1 Supply voltage — 14.4 VDC
   - 1-2 Temperature — Normal temperature
   - 1-3 Dummy antenna — Use standard dummy antenna

AM standard dummy



FM standard dummy



Note: Input level should be read at the unit input (antenna input)

2. Setting of controls before adjustment (controls and switches must be set as follows)
   - 2-1 Controls
     - Required semifixed resistors, trimmer condenser — set at mechanical center position.
     - Balance, bass and treble control — set at mechanical center position.
     - Volume at approximate volume position.
     - Fader balance at minimum (fully counterclockwise).
   - 2-2 Switches
     - MUTING, and LOUD, MONO, LOCAL. — set to OFF position.
   - 2-3 Connection of power supply to radio.

TUNER SECTION ADJUSTMENT

• FM ALIGNMENT

Table 1

Step	Aligning	SG set	Tune in to	Output Connection	Adjusting Method	Remarks
1	Discriminator (FM Det Trans)	98.1 MHz 1 kHz, 75 kHz dev 60 dBμ (Ant input)	98.1 MHz	TP-1 – TP-2 0-center meter	Adjust T601 and obtain 0-center meter indication at 0V.	Indication should be within 0±0.05V.
2	FM IF (Tuner Pack)	98.1 MHz 1 kHz, 75 kHz dev v Low level without limiter effect	98.1 MHz	LINE Amp output to AC voltmeter	(Adjust T602 for) maximum output.	Preset by the factory. Adjust only as necessary.
3	Muting level	98.1 MHz 1 kHz, 75 kHz dev 60 dBμ (Ant input)	98.1 MHz	LINE Amp output to AC voltmeter	Set the LINE output at 0dB. Adjust VR603 to obtain −35dB noise output by moving the SG frequency from 98.1 to 99.1 MHz.	None
4	Auto-stop level	98.1 MHz 1 kHz, 22.5 kHz dev 17 dBμ (Ant input)	98.1 MHz		Adjust VR601 and set to the range.	Select appropriate frequency point and search. Confirm that auto-stop functions at 17±3 dBμ ANT input.

• FM MPX ALIGNMENT (Confirm that the MONO is not indicated.)

Table 2

Step	Aligning	SG set	Tune in to	Output Connection	Adjusting Method	Remarks
5	Separation	98.1 MHz 1 kHz, 67.5 kHz dev Pilot 7.5 kHz dev 60 dBμ (Ant input)	98.1 MHz	L and R LINE Amp output to AC Voltmeter	Adjust VR650 for optimum L and R separation.	
6	D.O.R.S (Auto-blend and Auto-high Filter)	98.1 MHz 1 kHz, 67.5 kHz dev Pilot 7.5 kHz dev 34 dBμ (Ant input)	98.1 MHz	L and R LINE Amp output to AC Voltmeter	Adjust VR602 so that the L and R separation becomes t0±3 dB.	As input 60 dBμ separation occasionally changes for worse when performing adjustment, repeat adjustments Separation and Auto-blend for any number of times.
7	Pilot Canceller	98.1 MHz Pilot only 7.5 kHz dev 60 dBμ (Ant input)	98.1 MHz	Land R LINE Amp output to AC Voltmeter	Adjust VR604 and set to minimum 19 kHz output both L and R Balancing	

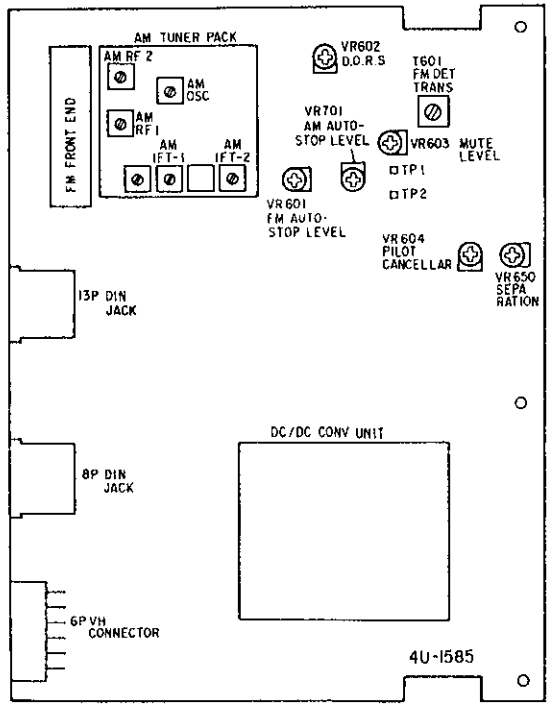
• AM ALIGNMENT

Table 3

Step	Aligning	SG set	Tune in to	Output Connection	Adjusting Method	Remarks
8	AM IF	1000 kHz [999 kHz] 400 Hz 30% mod Level at no AGC effect	1000 kHz [999 kHz]	L and R LINE Amp to AC voltmeter	Adjust IFT1, IFT2 for maximum output.	Preset by the factory. Adjust only as neces necessary.
9	Auto-stop level	1000 kHz [999 kHz] 400 Hz 30% mod 35 dBμ	1000 kHz [999 kHz]		Adjust VR701 and set to the range.	Select appropriate frequency point and search. Confirm that auto stop functions at 35±5 dB input.

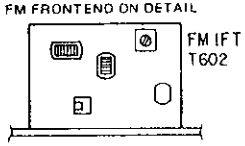
* The value in [ ] is Europe versions.

ADJUSTMENT POINT



(Component side)

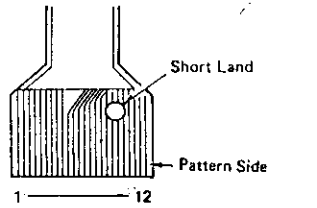
FM FRONTEND ON DETAIL

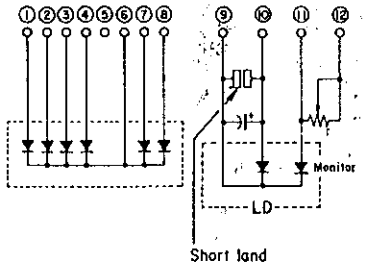


CONNECTOR SPECIFICATIONS

•Diode Harness (CN301)

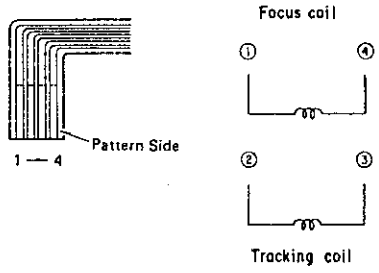
Terminal No.	Symbol	Content
1	B	PD B
2	A	PD A
3	C	PD C
4	D	PD D
5	G	NC (GND)
6	K	PD K
7	E	PD E
8	F	PD F
9	G	LD GND
10	LD	LD
11	PD	PD
12	VR	VR





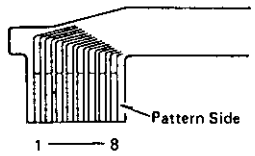
•Actuator Harness (CN302)

Terminal No.	Symbol	Content
1	F-	FCS B-
2	T-	TRK A-
3	T+	TRK B+
4	F+	FCS A+



•KSM-130A Motor Harness (CN303)

Terminal No.	Symbol	Content
1	G	LS GND
2	SL	LS (SLED LIMIT)
3	G	SPD GND
4	SD	SPD Vs
5	+5	SPD V+
6	-5	SPD V-
7	SL-	SLED B
8	SL+	SLED A



•Senser Harness (CN502)

Terminal No.	Symbol	Content
1	BRN	F
2	RED	D
3	ORG	E
4	YEL	GND
5	GRN	5+

•Loading Motor Harness (CN304)

Terminal No.	Color	Content
1	BLU	-
2		NC
3	RED	+

•Plunger Harness (CN305)

Terminal No.	Symbol	Content
1	RED	
2	RED	

CAUTIONS FOR HANDLING THE LASER PICK-UP

The laser pick-up is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

1. Handle with Care

(1) Storage
Do not store the pick-up in dusty, high-temperatured or high-humidity environments.

(2) Please take care for preventing from shock by falling down or careless handling.

2. Laser Diode (LD)

(1) Protect your eyes
The laser beam may damage the human eye, since the intensity of the focused spot may reach 1.3×10^4 W/cm^2 even if the intensity at the objective lens is 400 μW maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.

(2) Poison of As
As the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison. Although the poison is relatively weak, in comparing with others, e.g. As_2O_3, $AsCl_3$ etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over 200°C or putting it into your mouth.

(3) Avoid surge current or electrostatic discharge
The LD may be damaged or deteriorated by it's own strong light if a large current is supplied to it, even if only a short pulse.
Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge.
For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommanded. And still it is further desirable to make use of mat on the platform and floor for handling the LD.

3. Actuator

(1) The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through.

(2) Cleaning the lens
It may change the specifications when dust or dirt is stuck on the objective lens.
For cleaning, use a dry lens cleaning paper applying no excessive pressure to the lens. If it is difficult to remove it, moisten the paper with a little amount of water. At this time never drip water other than the lens portion.

4. The Metal Bearing

You do not normally need lubricate the bushing in initializing time nor supplying oil in running time.

5. Handling

Please handle the laser pick-up with holding the optical base (of aluminum die-casting made).
When either a part of human body or some other things may happen to touch directly with the circuit part of the laser pick-up, it may cause deterioration, take careful attention in handling this base.

6. Deterioration

When difficulty occurs either in focus or tracking adjustment nor able to adjust the focus or tracking, it seems that the laser pick-up is deteriorated. In these cases, check a value of laser diode current and give a decision for deterioration.

7. Fundamental Deterioration Decision of Laser Pick-up

(1) If an "Iop" exceeds ±10% campared with the IOP indication on the CD MECHANISM nameptate, there is a fair chance for deterioration when it is checked under a circumambient temperature 23°C.

(2) When the circumambient temperature changes ±10%, "Iop 1" will change ±5%. The "Iop 1" will also be changed the passage of time.

DESCRIPTION OF SERVICE PROGRAM

1. **Starting of Service Program**
   (1) Simultaneously hold pushing the PRESET button '3', '4', '5', '6', and push the RESET button starts the heat run program, showing H r u n on the LCD and the PRESET LED '1' and '2' blink alternately.
   (2) In the next place, push the TUNER ON/OFF button. The service program starts to run, and the indication r u n shows on the LCD and the PRESET LED '3' lights.
   Note: When service program starts, the all other operation buttons do not perform normal playing functions.

2. **Explanation on Operation Buttons at the Time of Service Program is in Operation**
   (1) 'EJECT' button (▲ EJECT)
   Eject disc.
   (2) 'PLAY/STOP' button (■ ▶ PLAY STOP)
   Pushing the button while playing the disc continuously searches the last and the first music alternately. While searching from the first to last music, PRESET LED '5' lights, and searching from the last to first music, PRESET '4' lights.
   During this operation, repush this button searches the first music and plays.
   (3) Other Operation Buttons
   All other operation buttons other than the above mentioned do not function at all.

3. **Releasing of Service Program**
   To release this state, push the 'RESET' button while the power is turned on. (Once service program is started, even though to turn off the power, and again to turn on the power still resume the same operation as to 1. (1).

DESCRIPTION OF HEAT RUN PROGRAM

1. **Starting of Heat Run Program**
   (1) Simultaneously hold pushing the PRESET buttons '3', '4', '5', '6', and push the RESET button starts the heat run program, showing H r u n on the LCD and the PRESET LED '1' and '2' blink alternately.
   Note: When heat run program starts, the all other operation buttons do not perform normal playing functions.

2. **Starting of Disc**
   Mode 1
   (1) Under 1. (1) state, push the PRESET button '1'. LCD indicates 0000 and the PRESET LED '1' lights. When the disc is loaded, the unit start to play from the first music. If the disc is not loaded, insert it, then the unit starts playing.
   Mode 2
   (2) Under 1. (2) state, push the PRESET button '2'. LCD indicates 0000 and the PRESET LED '2' lights. When the disk is loaded, the unit starts to play from the first music. If the disc is not loaded, insert it, then the unit starts playing. When the first music ends, the unit searches the last music. After played the last music, the unit ejects the disc, then load the disc, the unit resume the playing in the same manner repeatedly.

3. **Explanation on LCD indication**
   (1) 4 digits numerals : The number of disc ejected. Count up 1 for every 1 ejection.
   (2) FM1 : Error indication for incompletion of loading within 8 seconds from the insertion of disc.
   (3) FM2 : Error indication for the reading of TOC exceeds 14 seconds.
   (4) FM3 : Error Indication for the searching of the last music exceeds 14 seconds.
   (5) AM : Error indication for repeat playing the same portion more than 14 second.
   (6) SDK : Error indication for ejection does not complete within 8 seconds from the start of ejection.
   (7) LOCAL : Error indication for out of focus.

4. **When Error Occurs**
   In the heat run program, when disc playing does not properly function, the LCD indicates the error, and the unit ejects the disc then stops in this state (except the ejection error, the unit stops but the disc is loaded). The unit standing by in 1. (1) state and the PRESET LED '1' and '2' blink alternately.

5. **Explanation on the Operation Buttons at the Time of Heat Run Program is in Operating Mode**
   (1) EJECT button (▲ EJECT)
   Ejects the disc, LCD indication counts up 1, PRESET LED '1' and '2' alternately blink, and the unit standing by in 1. (1) state.
   (2) P. SCAN button
   Resets number of ejection counter on the LCD to 0000.
   (3) PRESET '1' button
   Pushing the button in 1. (1) state starts heat run mode 1.
   (4) PRESET '2' button
   Pushing the button in 1. (1) state starts heat run mode 2.
   (5) TUNER ON/OFF button
   Pushing the button in 1. (1) state starts service program.
   (6) Other operation buttons
   All other operation buttons other than the above mentioned do not function at all.

6. **Releasing of Heat Run Program**
   Once heat run program is started, even though to turn off the power, and again turn on the power still resume the same operation as to 1. (1).

CD SECTION ADJUSTMENT

Microcomputer built in the unit, provides service program to facilitate servo adjustment by pushing operation button.

1. Service programs

Refer to Page 14.

Note: When service program started, normal function of operation keys are defeated.

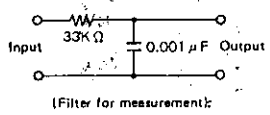
2. Adjustment

(1) Prior to adjustment

Adjustment of Super-linear converter of the unit is not normally necessary.

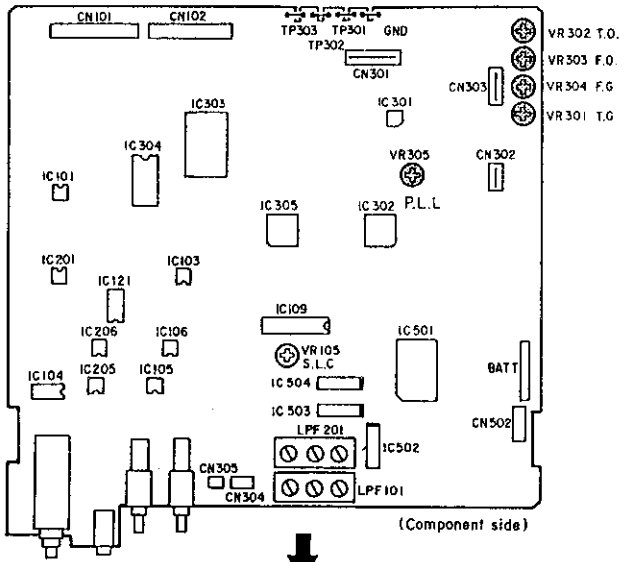
(2) Necessary equipment for adjustment

1. Dual trace oscilloscope
2. Reference disk
3. Oscillator (10 Hz ~ 10 kHz, 0 ~ 3 Vp-p)
4. Frequency counter (readable more than 5 MHz)
5. Filter for measurement



(Filter for measurement)

(3) Adjustment point



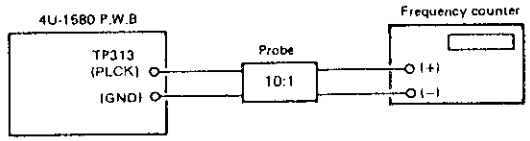
Front panel Side

(4) Presetting

1.	Start service program (Refer to Page 13).	
2.	Preset VR301 ~ 305 as per figure.	VR302 (T.OFFSET) 12 o'clock VR303 (F.OFFSET) 12 o'clock VR304 (F.GAIN) 1 o'clock VR301 (T.GAIN) 1 o'clock VR305 (PLL) (Not Adjustment)
3.	Step	1. PLL 2. Focus offset 3. Tracking offset 4. Focus gain 5. Tracking gain 6. Recheck tracking offset

3. PLL Adjustment

Connection

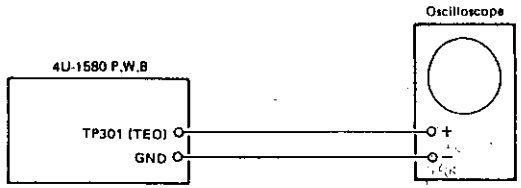


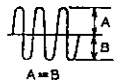
- Ground test points (TP305) and (TP306) to (GND).

Adjust	Check	Step
(VR)	(Counter)	• Adjust VR305 (PLL) so that frequency counter reads 3.43 MHz.
VR305	3.43 MHz ±10 kHz (3.42 MHz ~ 3.44 MHz)	

4. Tracking offset

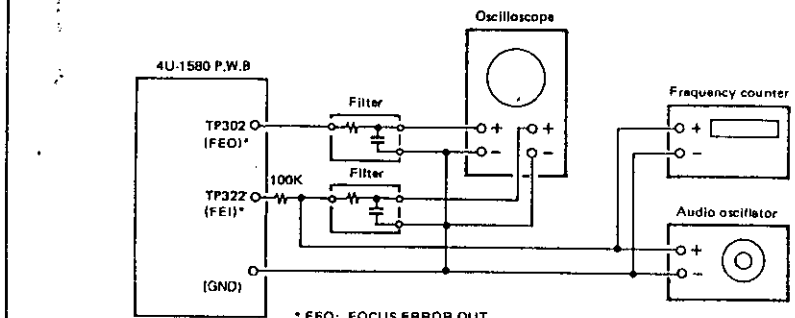
Connection



Oscilloscope (DC range)		Adjust	Check	Step
V	H	(VR)	(Oscilloscope)	
0.5V/ div	1 ~ 2 ms	VR302	 A=B *Traverse waveform: Tracking error waveform when transverse the track.	1. Push EJECT button and lay reference disk on disk holder. 2. Close disk holder. 3. Push [▷ PLAY] to start disk. 4. Push ⏮ or ⏭ (or ◀◀, ▶▶) and check traverse waveform*. 5. Adjust VR302 [T-OFFSET] to even upper and lower amplitude.

5. Focus gain

Connection



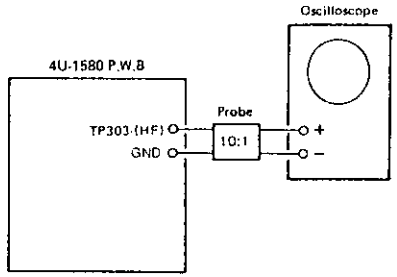
* FEO: FOCUS ERROR OUT
FEI: FOCUS ERROR IN

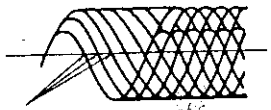
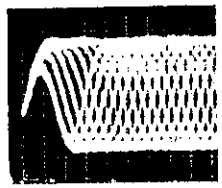
Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
760 Hz (±10 Hz) 1.5Vp-p (±0.3V)	760 Hz (±10 Hz)	• DC range • X-Y mode		VR304	(Oscilloscope) Y / X Correct figure Incorrect figure	(Coarse adjustment) 1. Set VR304 (main PWB) to normal position. 2. Check function noise (white noise) from dual axes device (optical block lens section). If the function noise is excessive, turn VR304 counterclockwise. (Fine adjustment) 1. Start service program to [▷ PLAY] mode. 2. Set oscillator to 760 Hz, 1.5Vp-p. 3. Switch oscilloscope input to X-Y mode. 4. Adjust VR304 (F.GAIN) to symmetrize Lissajous figure to X and Y axes.

- If gain is low . . .
  Fails to focus and performance
- If gain is high . . .
  Prone to produce noise due to crack or dust, and prone to function unstably.

6. Focus offset

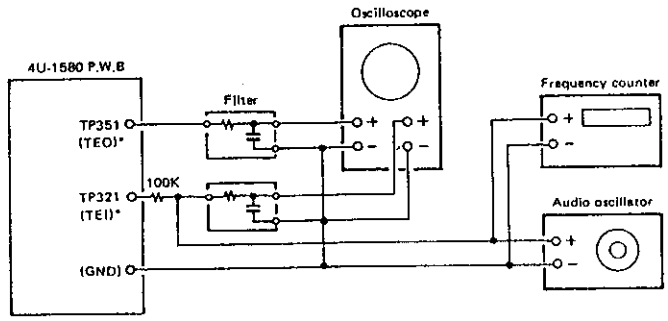
Connection



Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
–	–	200mV/div	0.5μ/div	VR303	(Oscilloscope)  Adjust to minimize pattern jitter.  Eye Pattern	1. Start service program to ▷PLAY mode. 2. Adjust VR303 (F-OFFSET) to minimize patter jitter. Note: Fine pattern means shapes in waveform are observed distinctly.
		• Set input mode to ALTERNATE or CHOPPER				

7. Tracking gain

Connection



* TEO: TRACK ERROR OUT
TEI: TRACK ERROR IN

Adjust tracking gain after focus offset and tracking offset have done.

(Coarse adjustment)

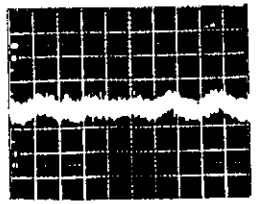
1. Push EJECT button and lay reference disk on disk holder.
2. Close disk holder.
3. Push ▷PLAY to start disk.
4. Watch waveform, turn VR301 of main PWB so that undulated waveform become stable.

Figure below shows normal setting of VR301.

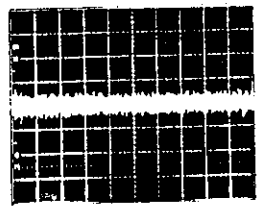
VR301 Normal position.

Front Panel Side

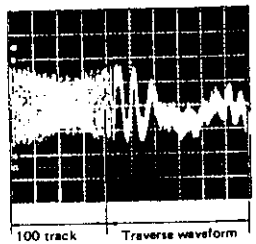
Volt/Div: 0.5V
Time/Div: 2mSec



Undulate waveform



Stable waveform



- If gain is low . . .
  When ⏮ or ⏭ button pushed, track jump waveform changes indistinctively, and music selection lags.
  (Does not brake right due to low gain)
- If gain is high . . .
  Prone to produce noise due to crack or dust, and prone to function unstably.

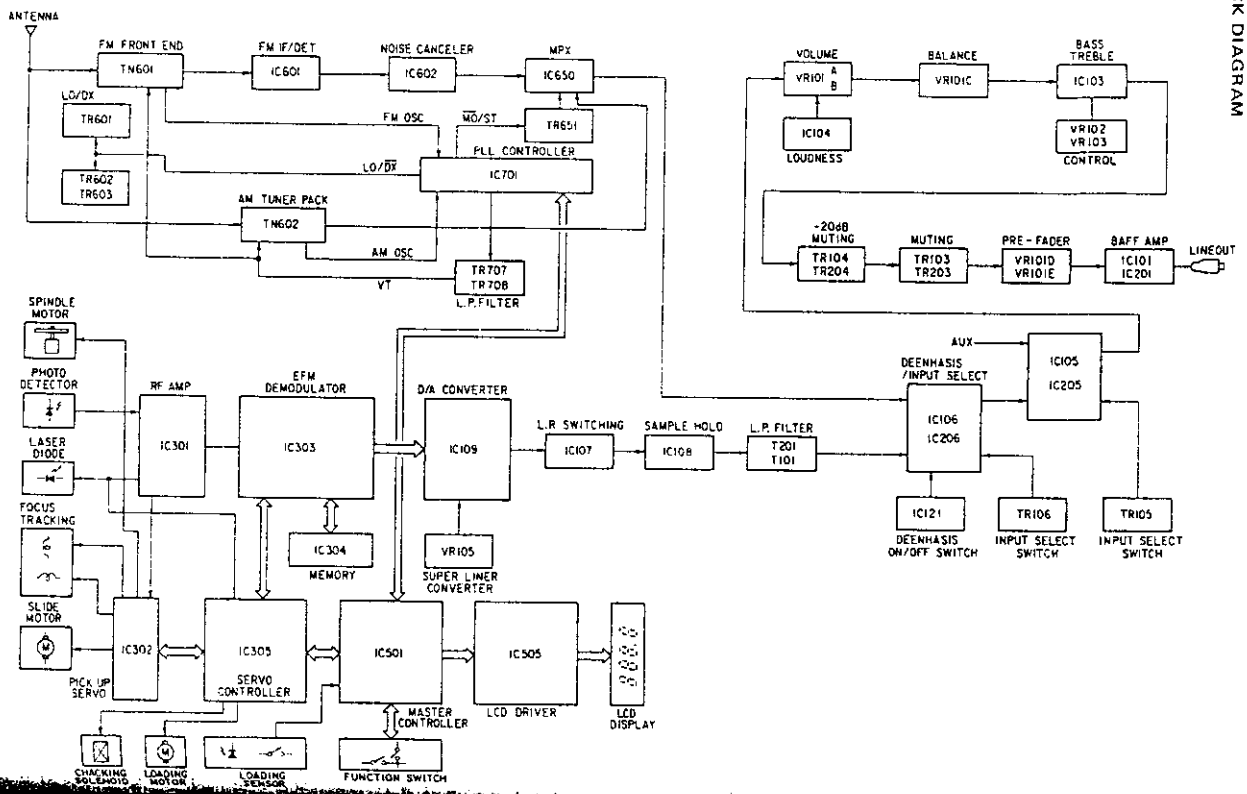
(Fine Adjustment)

Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
1.2 kHz (±120 Hz) 2.6 Vp-p (±0.1V)	1.2 kHz (±120 Hz)	• DC range • X-Y mode		VR301	Y / X Phase 90°	1. Set oscillator to 1.2 kHz, 2.6 Vp-p. 2. Switch oscillator input to X, Y mode. 3. Adjust VR301 (T-GAIN) to symmetrize Lissajous figures to X and Y axes.

8. Tracking offset adjustment check

(1) Adjust tracking offset in Item 4 again.
(2) Push ▷ STOP to stop disk.
(3) Push ▷ PLAY and see disk turns.
Note: If the disk does not turn, push ▷ PLAY again, and see ▷ displays.
(4) Check waveform for even upper and lower amplitude to base line.
(5) Push ▷ STOP to stop disk.
(6) Push EJECT and remove the reference disk.

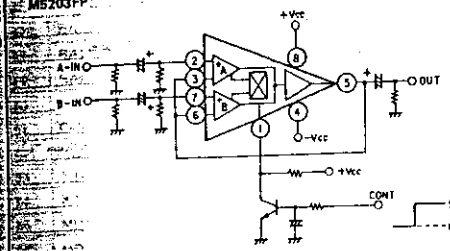
BLOCK DIAGRAM

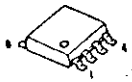


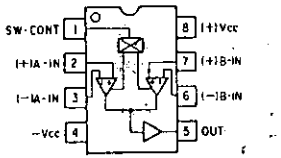
SEMICONDUCTORS

●IC'S

M5203FP

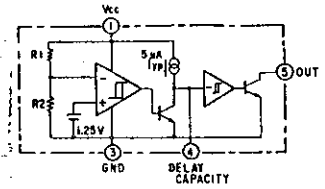


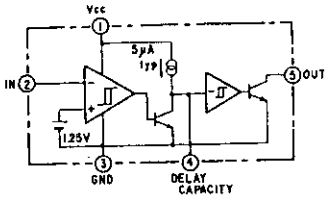




The M5203FP is an IC employin A and B operation amplifiers which function as analog switch, two systems of inputs, and one output.
Refer to the above figure, when the CONT terminal is in "L" level (0V), the operation amplifier A is activated, and the A-IN input signal is conveyed to the output terminal (5). In case of the CONT terminal is in "H" level (5V), the operation amplifier B is activated, and the B-IN input signal is delivered to the output terminal (5).

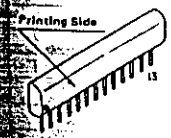
M51957B

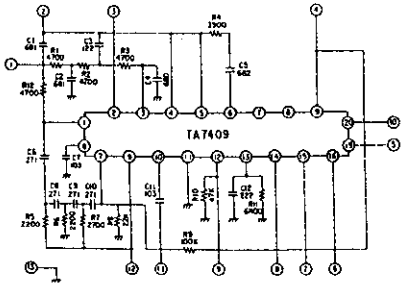




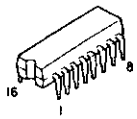
M51953B

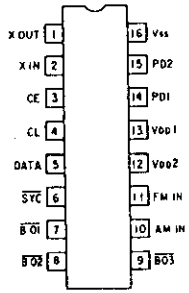
NJM2035D



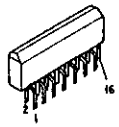


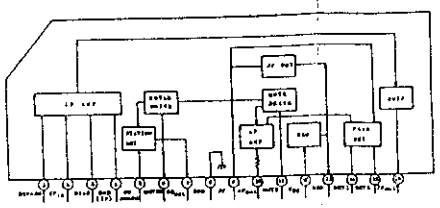
LM7001



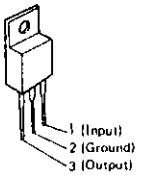


TA7411AP

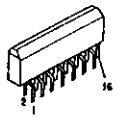


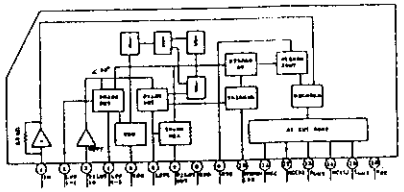


L78M18ML

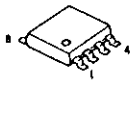


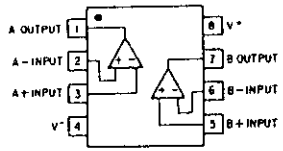
TA7413AP



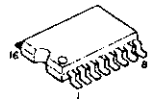


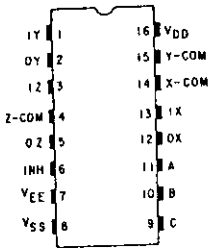
M5218FP
NJM5532M



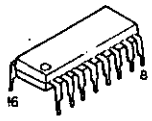


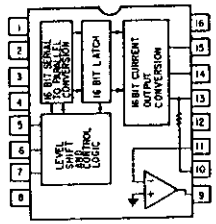
TC4053BF

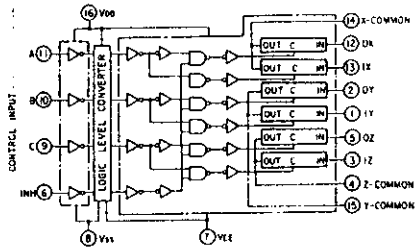




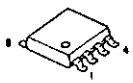
PCM56HP

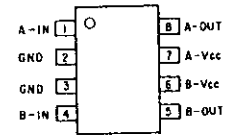


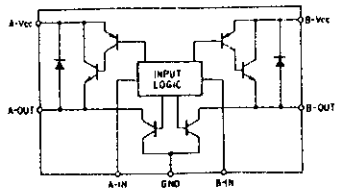




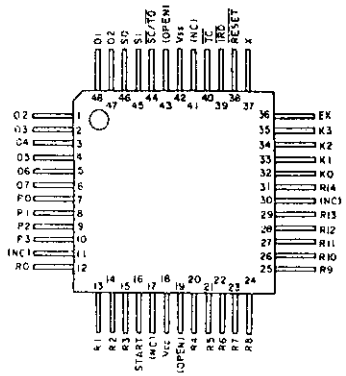
MB3783PF



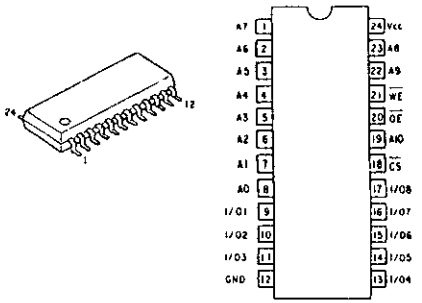




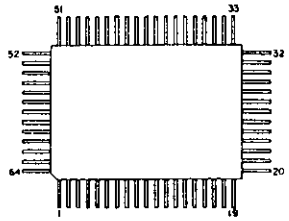
MB8805H-530



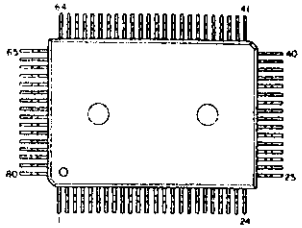
HM6116FP-4

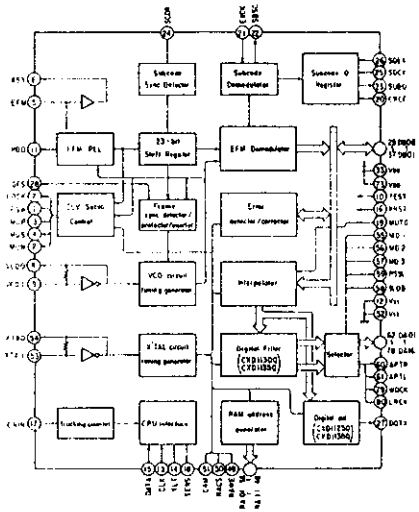


HD404418A04F (HD4074418F)



CXD1135Q





CXD1135Q Terminal Function

Terminal No.	Terminal Symbol	I/O	Terminal Function
1	FSW	O	Output to shift time constant of output filter for spindle motor.
2	MON	O	ON/OFF control output for spindle motor.
3	MDP	O	Drive output for spindle motor. Rough control at CLV-S mode and phase control at CLV-P mode.
4	MDS	O	Drive output for spindle motor. Speed control at CLV-P mode.
5	EFM	I	Input of EFM signal from RF amplifier.
6	ASY	O	Output to control slice level of EFM signal.
7	LOCK	O	Sampling GFS signal by WFCK/16 and if it is "H", delivers "H"; if it is continuously "L" 8 times, delivers "L".
8	VCOO	O	VCO output. When EFM signal is locked, f = 8.6436 MHz.
9	VCOI	I	VCO input.
10	TEST	I	(0V).
11	PDO	O	Phase comparing output for EFM signal and VCO/2.
12	V_{SS}	–	GND (0V).
13	CLK	I	Serial data transfer clock input from CPU. Latches data by rising edge of clock.
14	XLT	I	Input of Latch from CPU. Latches 8-bit shift register data (serial data from CPU) to each register.
15	DATA	I	Input of serial data from CPU.
16	XRST	I	System reset input. Resets at "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	Answer to address, output internal condition.
19	MUTG	I	Input of muting. When internal register A's ATTM is in "L", and MUTG is in "L" for normal condition; "H" for no sound condition.
20	CRCF	O	Output of CRC check result of sub-code Q.
21	EXCK	I	Clock input for serial output of sub-code.
22	SBSO	O	Serial output of sub-code.
23	SUBQ	O	Q output of sub-code.
24	SCOR	O	Output of sub-code sync. S0 + S1.
25	SQCK	I/O	Reading clock of sub-code Q.
26	SQEX	I	Selection input of SQCK.
27	DOTX	O	Digital out output. (When CXD1130Q or DO is OFF, output $\overline{WFCK}$.)
28	GFS	O	Output of indication for frame sync lock condition.
29	DB08	I/O	Data terminal of external RAM. DATA8 (MSB).
30	DB07	I/O	Data terminal of external RAM. DATA7.
31	DB06	I/O	Data terminal of external RAM. DATA6.
32	DB05	I/O	Data terminal of external RAM. DATA5.
33	V_{DD}	–	Power supply (+5V).
34	DB04	I/O	Data terminal of external RAM. DATA4.
35	DB03	I/O	Data terminal of external RAM. DATA3.
36	DB02	I/O	Data terminal of external RAM. DATA2.
37	DB01	I/O	Data terminal of external RAM. DATA1 (LSB).
38	RA01	O	Address output of external RAM. ADDR01 (LSB).
39	RA02	O	Address output of external RAM. ADDR02.
40	RA03	O	Address output of external RAM. ADDR03.
41	RA04	O	Address output of external RAM. ADDR04.
42	RA05	O	Address output of external RAM. ADDR05.
43	RA06	O	Address output of external RAM. ADDR06.
44	RA07	O	Address output of external RAM. ADDR07.
45	RA08	O	Address output of external RAM. ADDR08.
46	RA09	O	Address output of external RAM. ADDR09.
47	RA10	O	Address output of external RAM. ADDR10.
48	RA11	O	Address output of external RAM. ADDR11. (MSB)
49	RAWE	O	Write enable signal output for external RAM. (Active at "L".)
50	RACS	O	Chip select signal output for external RAM. (Active at "L".)
51	C4M	O	Dividing output of X'tal. f = 4.2336 MHz.
52	V_{SS}	–	GND (0V).
53	XTAI	I	X'tal oscillation circuit input. By selecting of mode, f = 8.4672 MHz or 16.9344 MHz.
54	XTAO	O	X'tal oscillation circuit output. By selecting of mode, f = 8.4672 MHz or 16.9344 MHz.
55	MD1	I	Mode selection input 1.
56	MD2	I	Mode selection input 2.
57	MD3	I	Mode selection input 3.
58	SLOB	I	Code switching input for audio data output. At "L" for 2's compliment output; at "H" for offset binary output.
59	PSSL	I	Mode switching input for audio data output. At "L" for serial output; at "H" for parallel output.
60	APTR	O	Control output for aperture compensation. In "H" for R-ch.
61	APTL	O	Control output for aperture compensation. In "H" for L-ch.
62	DA01	O	At PSSL = "H" for DA01 (LSB of parallel voice data) output. At PSSL = "L" for C1F1 output.
63	DA02	O	At PSSL = "H" for DA02 output; PSSL = "L" for C1F2 output.
64	DA03	O	At PSSL = "H" for DA03 output; PSSL = "L" for C2F1 output.
65	DA04	O	At PSSL = "H" for DA04 output; PSSL = "L" for C2F2 output.
66	DA05	O	At PSSL = "H" for DA05 output; PSSL = "L" for C2FL output.
67	DA06	O	At PSSL = "H" for DA06 output; PSSL = "L" for C2PO output.
68	DA07	O	At PSSL = "H" for DA07 output; PSSL = "L" for RFCK output.
69	DA08	O	At PSSL = "H" for DA08 output; PSSL = "L" for WFCK output.
70	DA09	O	At PSSL = "H" for DA09 output; PSSL = "L" for PLCK output.
71	DA10	O	At PSSL = "H" for DA10 output; PSSL = "L" for UGFS output.
72	DA11	O	At PSSL = "H" for DA11 output; PSSL = "L" for GTOP output.
73	V_{DD}	–	Power supply (+5V).
74	DA12	O	At PSSL = "H" for DA12 output; PSSL = "L" for RAOV output.
75	DA13	O	At PSSL = "H" for DA13 output; PSSL = "L" for C4LR output.
76	DA14	O	At PSSL = "H" for DA14 output; PSSL = "L" for C21O output.
77	DA15	O	At PSSL = "H" for DA15 output; PSSL = "L" for C21O output.
78	DA16	O	At PSSL = "H" for DA16 (MSB of parallel voice data) output. At PSSL = "L" for DATA output.
79	WDCK	O	Strobe signal output. At DF ON, 176.4 kHz. At CXD1125Q or DF OFF, 88.2 kHz.
80	LRCK	O	Strobe signal output. At DF ON, 88.2 kHz. At CXD1125Q or DF OFF, 44.1 kHz.

Note:

C1F1:, C1F2: Monitor output for error correction state what C1 is at decode.

C2F1:, C2F2: Monitor output for error correction state what C2 is at decode.

C2FL: Correction state output. Becomes "H" when C2 system in which presently under correction is unable to correct.

C2PO: C2 pointer indication output. Synchronizes with audio data output.

RFCK: Read frame clock output, 7.35 kHz of X'tal system.

WFCK: Write frame clock output, 7.35 kHz when locked on to X'tal system.

$\overline{PLCK}$: VCO/2 output. When locked to EFM signal, f = 4.3218 MHz.

UGFS: Output of unprotected frame sync pattern.

GTOP: Indication output of frame synchro in protected condition.

RAOV: Overflow and underflow indication outputs of ±4 frame jitter absorbing RAM.

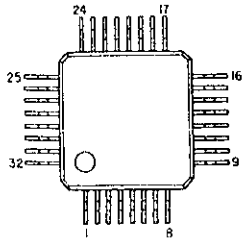
C4LR: Strobe signal. At DF ON, 352.8 kHz. At CXD1125Q or DF OFF, 176.4 kHz.

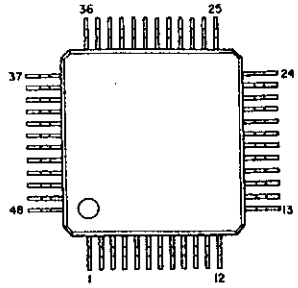
$\overline{C21O}$: Reverse output of C21O.

C21O: Bit clock output. At DF ON, 4.2336 MHz. At CXD1125Q or DF OFF, 2.1168 MHz.

DATA: Serial data output of audio signal.

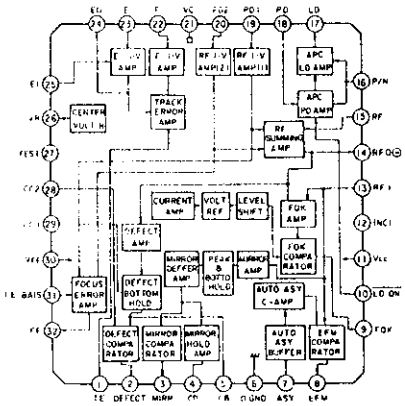
CXA1081Q
CXA1082AQ

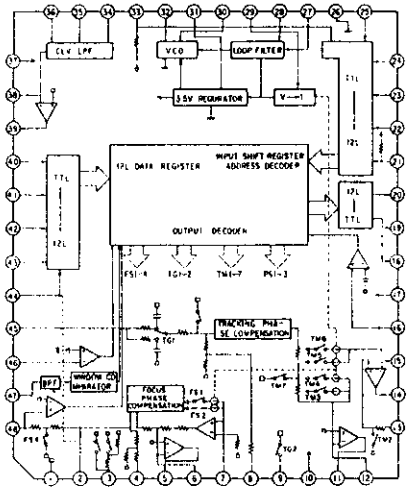




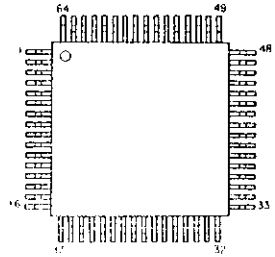
CXA1082AQ

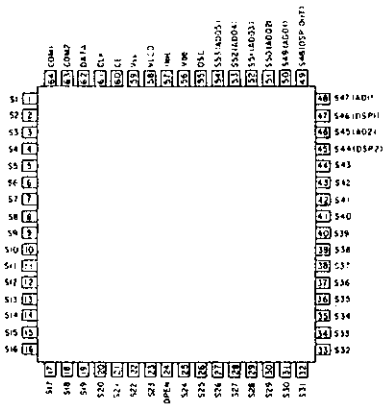
CXA1081Q





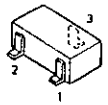
LC7582





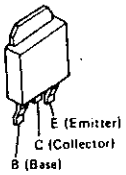
• TRANSISTORS

RN1404(4.7K-4.7K)NPN
RN2401(4.7K-4.7K)PNP
2SA1034R
2SD601S
2SD1280S
2SC3326(A/B)
RN1402(10K-10K)NPN
RN2402(10K-10K)PNP

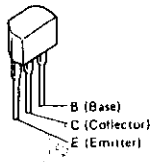


1: Emitter
2: Base
3: Collector

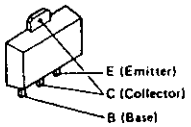
2SB968R
2SD1296R



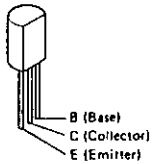
RN1202(10K-10K)
RN1204(47K-47K)
2SA1048(Y/GR)
2SC2458(Y/GR)



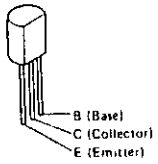
2SB766S
2SD874R



2SB892(T/S)

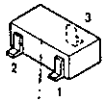


2SC1815(GR)
2SA1015(GR)
2SC1740(R/S)



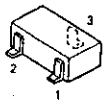
• DIODES

MA151WA



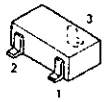
1 : Cathode
2 : Cathode
3 : Anode

MA151A



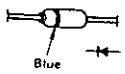
1 : NC
2 : Cathode
3 : Anode

MA151WK

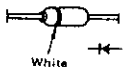


1 : Anode
2 : Anode
3 : Cathode

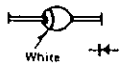
1S2076
1SS270



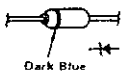
DSM1A2



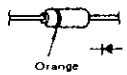
DSA1A2 (Type 3)



HZS6B-1
HZS9C-2
HZ53C-1

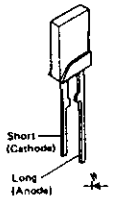


DSP-301N
(Serge absorber)

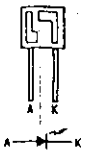


• LED'S

SEL1121R(Red)



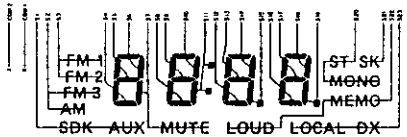
SEL4826A (Amber)
SEL4426E (Green)



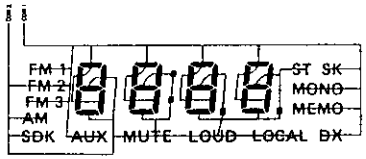
• LCD

LF2229JP-03

(1) SEGMENT SIDE CONNECTION (TOP VIEW)



(2) COMMON SIDE CONNECTION (TOP VIEW)



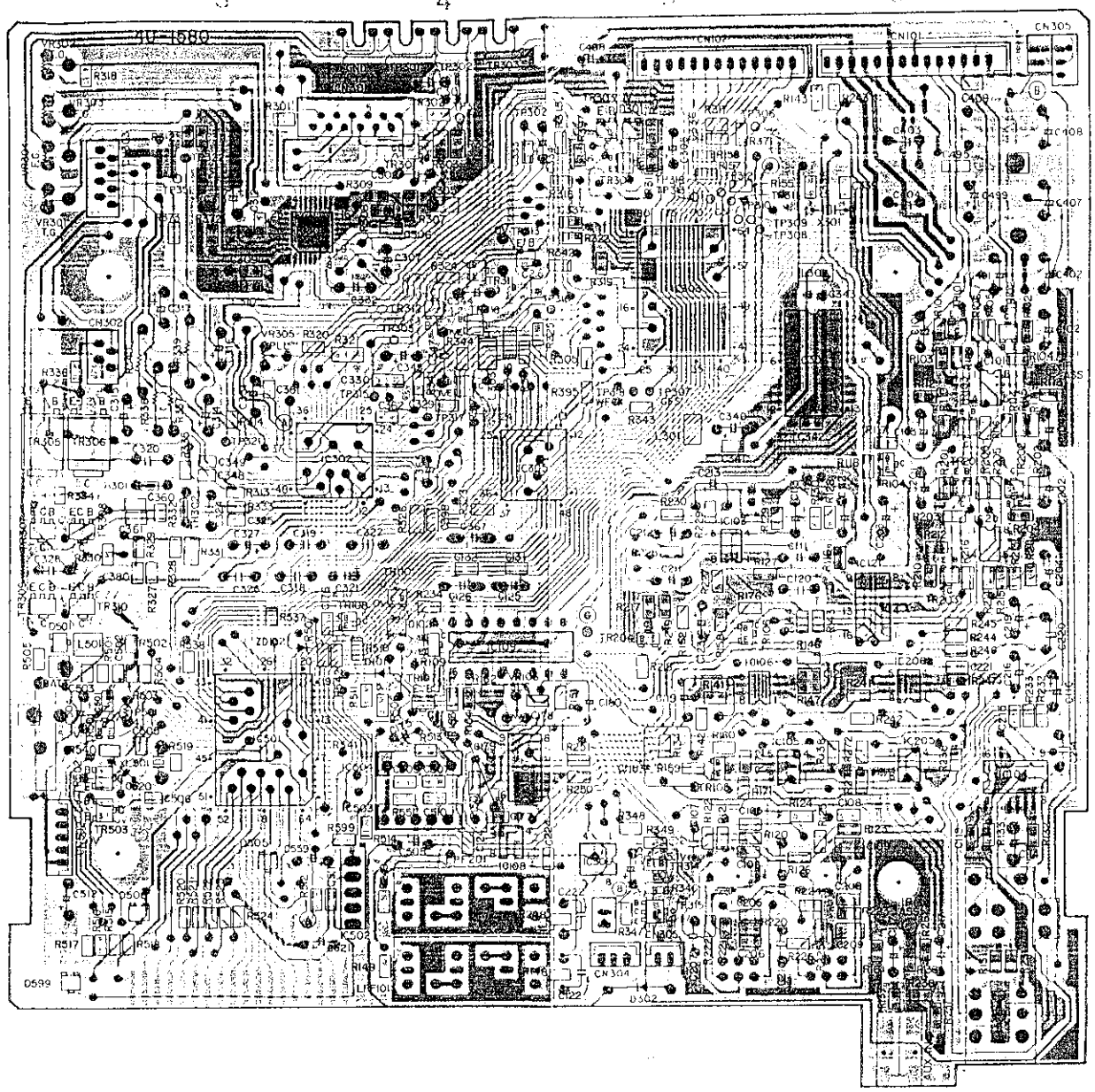
(3) TERMINAL ORDER (TOP VIEW)
From the left edge COM2,COM1,S1.....S21,S22,S23

• OTHERS

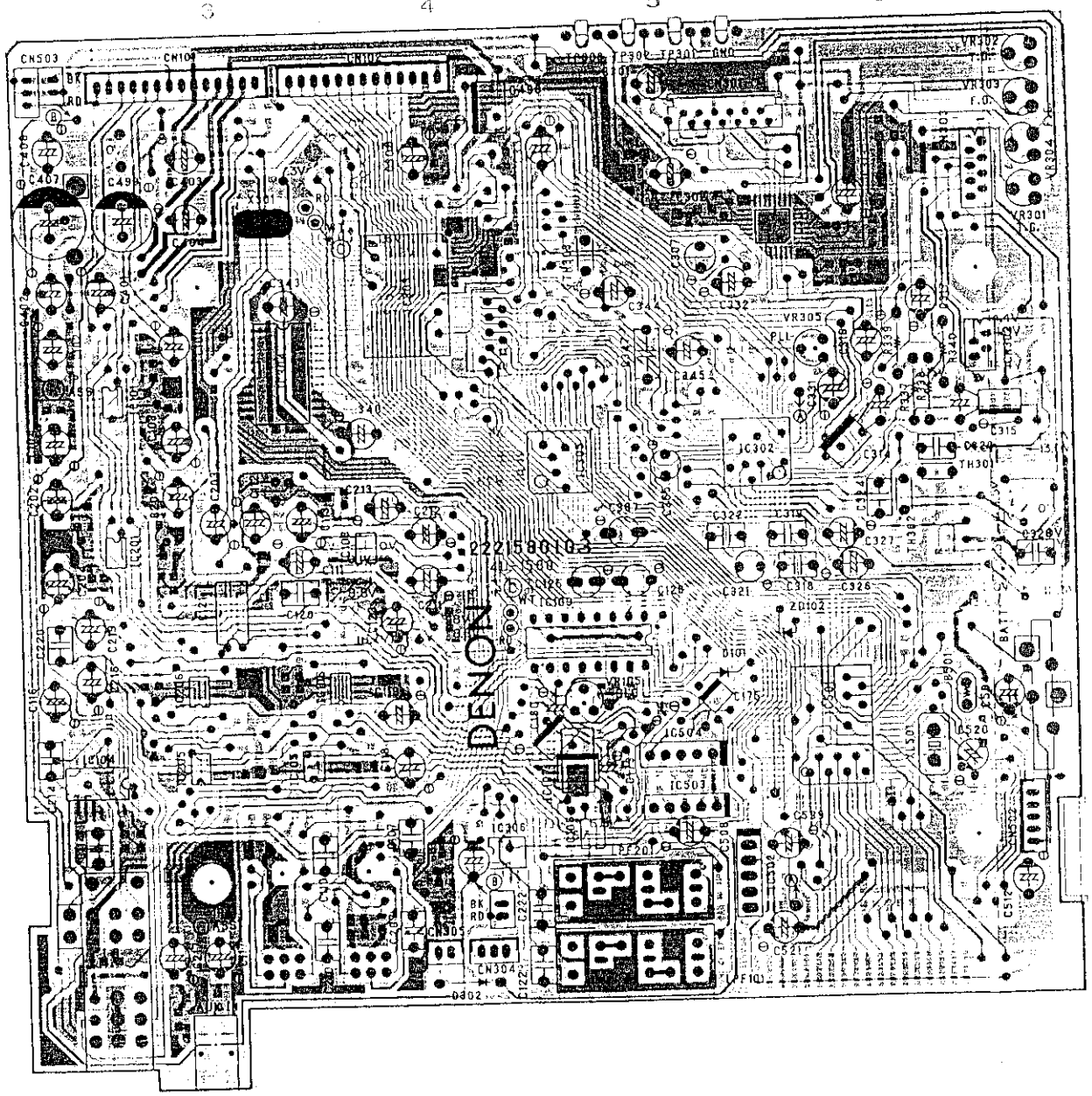
ERT-D2FHJ802U
(Thermister)

PTH59F04BG222TS
(Posistor)

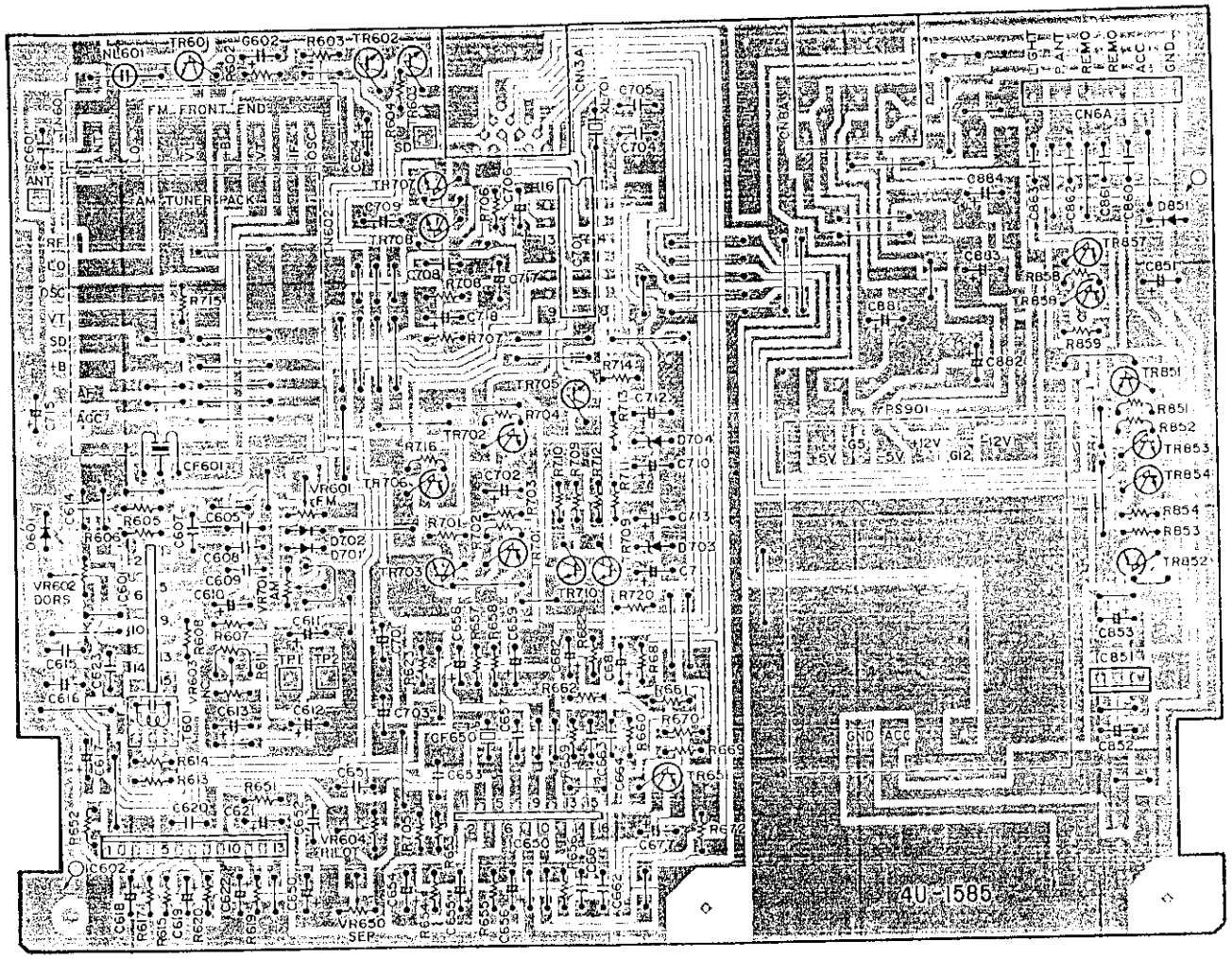
PRINTED WIRING BOARD
4U 1580 MAIN UNIT
Pattern Side



Component Side



4U-1585 TUNER UNIT
Pattern Side



1 2 3 4 5 6 7 8

Component Side

A

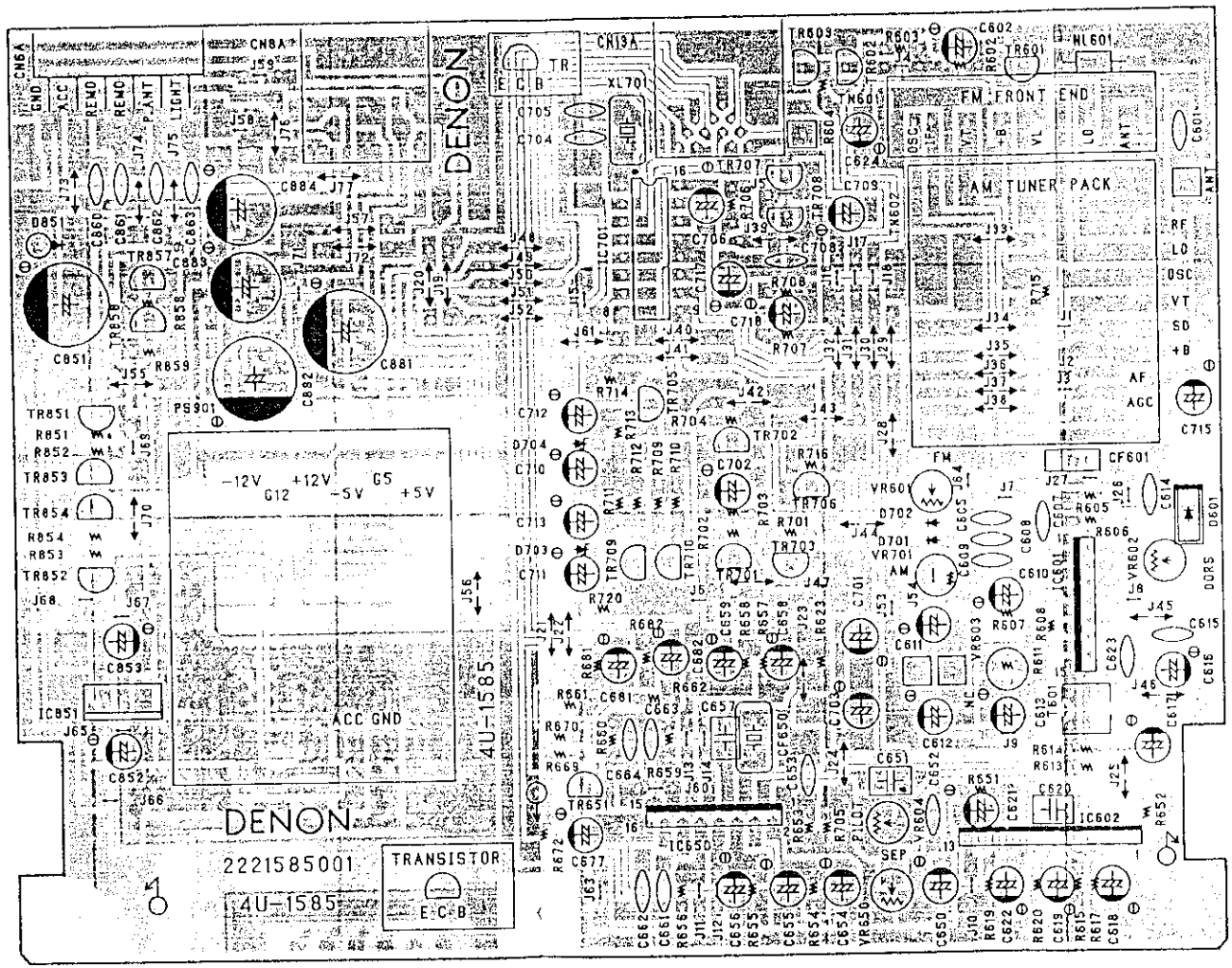
B

C

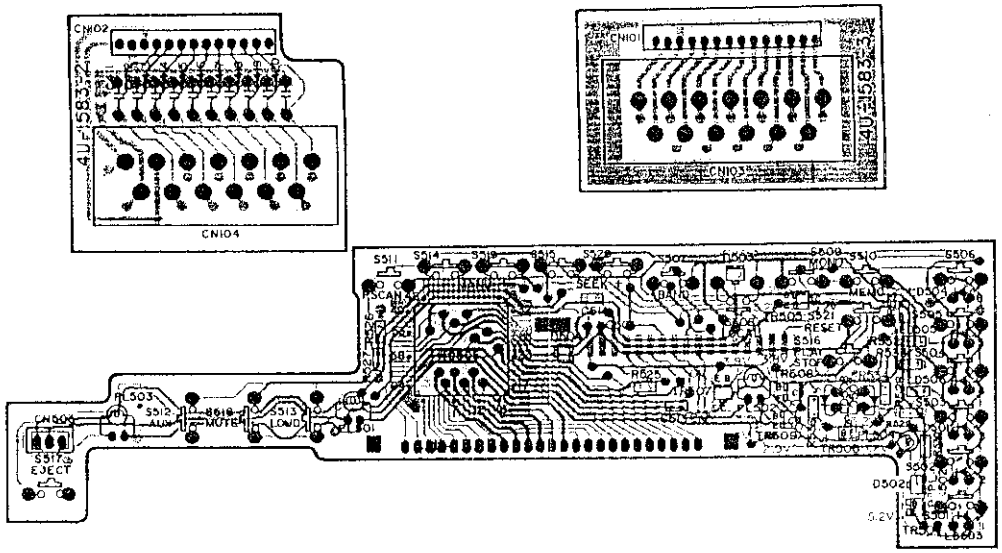
D

E

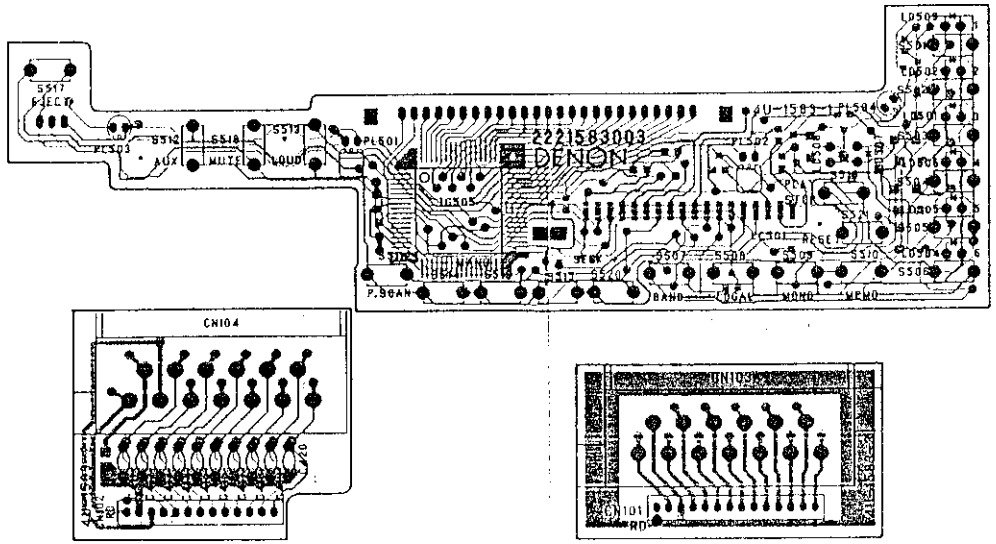
F



4U-1583 FRONT UNIT
Pattern Side



Component Side



PRINTED WIRING BOARD PARTS LIST

Main Unit Ass'y: 4U-1580

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC101	2630424009	M5218FP	IC
IC103	2630424009	M5218FP	IC
IC104	2620707008	TC4053BP	IC
IC105,106	2630532001	M5203FP	IC
IC107	2620707008	TC4053BP	IC
IC108	2630422001	NJM5532M	IC
IC109	2620743004	PCM56HP	IC
IC121	2620707008	TC4053BP	IC
IC201	2630424009	M5218FP	IC
IC205,206	2630532001	M5203FP	IC
IC301	2620964003	CXA1081Q	IC
IC302	2620848006	CXA1082AQ	IC
IC303	2620742005	CXD1135Q	IC
IC304	2620673006	HM6116FP-4	IC
IC305	2620967000	MB88505H-530	IC
IC306	2620712006	MB3763PF	IC
IC501	2620968106	HD404418A04F	IC
IC502,503	2630454008	M51957B	IC
IC504	2630423000	M51953B	IC
TR101~104	2730348001	2SC3326A/B	Transistor
TR105,106	2740117002	2SD601S	Transistor
TR107,108	2690033003	RN2401	D. Transistor
TR109,110	2690035001	RN1404	D. Transistor
TR201~204	2730348001	2SC3326A/B	Transistor
TR301	2720081006	2SB766S	Transistor
TR303	2690035001	RN1404	D. Transistor
TR304	2690033003	RN2401	D. Transistor
TR305	2740115004	2SD1295R	Transistor
TR306	2720082005	2SB968R	Transistor
TR307	2740114005	2SD874R	Transistor
TR308	2720081006	2SB766S	Transistor
TR309	2740114005	2SD874R	Transistor
TR310	2720081006	2SB766S	Transistor
TR311	2710210007	2SA1034R	Transistor
TR312	2690032004	RN1402	D. Transistor
TR313	2690035001	RN1404	D. Transistor
TR314	2710210007	2SA1034R	Transistor
TR315	2740116003	2SD1280S	Transistor
TR316,317	2740117002	2SD601S	Transistor
TR501,502	2690061004	RN2402	D. Transistor
TR503	2690035001	RN1404	D. Transistor
D101	2760049008	1S2076	Diode
D102	2760438046	MA151WK	Diode
D301	2760438017	MA151A	Diode
D302	2760433009	DSM1A2	Diode
D501	2760438046	MA151WK	Diode
D505,506	2760438017	MA151A	Diode
D599	2760438017	MA151A	Diode
ZD101,102	2760454004	HZS3C-1	Zener
PS01	2790017000	PTH59F048G222TS	Pothistor
TH301,302 303	2790025005	ERT-D2FHJ802S	Thermistor
RESISTORS			
R101,102	2470011054	51 kohm ±5%	1/10W C. Carbon Film
R103,104	2470006069	470 ohm ±5%	1/10W C. Carbon Film
R105,106	2470009024	5.6 kohm ±5%	1/10W C. Carbon Film
R110,111	2470011041	47 kohm ±5%	1/10W C. Carbon Film
R112,113	2470007042	1 kohm ±5%	1/10W C. Carbon Film
R114~116	2470009024	5.6 kohm ±5%	1/10W C. Carbon Film
R117	2470005002	100 ohm ±5%	1/10W C. Carbon Film
R118	2470009008	4.7 kohm ±5%	1/10W C. Carbon Film
R119	2470007042	1 kohm ±5%	1/10W C. Carbon Film
R120	2470008083	3.9 kohm ±5%	1/10W C. Carbon Film
R121	2470007042	1 kohm ±5%	1/10W C. Carbon Film
R122	2470011064	56 kohm ±5%	1/10W C. Carbon Film
R123	2470010097	30 kohm ±5%	1/10W C. Carbon Film
R124	2470007042	1 kohm ±5%	1/10W C. Carbon Film
R125	2470012092	180 kohm ±5%	1/10W C. Carbon Film
R127	2470014064	1 Mohm ±5%	1/10W C. Carbon Film
R128	2470012024	100 kohm ±5%	1/10W C. Carbon Film

Ref. No.	Part No.	Part Name & Descriptions
R129	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R130	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R131	2470009008	4.7 kohm ±5% 1/10W C. Carbon Film
R132	2470008083	3.9 kohm ±5% 1/10W C. Carbon Film
R133	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R134	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R136	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R137,138	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R141,142	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R143	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R144	2470008012	2 kohm ±5% 1/10W C. Carbon Film
R145	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R146	2470008067	3.3 kohm ±5% 1/10W C. Carbon Film
R147	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R148	2470009024	5.6 kohm ±5% 1/10W C. Carbon Film
R149	2470008041	2.7 kohm ±5% 1/10W C. Carbon Film
R150	2470008083	3.9 kohm ±5% 1/10W C. Carbon Film
R151	2470008070	3.6 kohm ±5% 1/10W C. Carbon Film
R152	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R153	2470012095	200 kohm ±5% 1/10W C. Carbon Film
R154	2470013081	470 kohm ±5% 1/10W C. Carbon Film
R155~157	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R158,159	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R160	2470011041	47 kohm ±5% 1/10W C. Carbon Film
R161	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R162	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R171,172	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R175	2470008025	2.2 kohm ±5% 1/10W C. Carbon Film
R176	2470011041	47 kohm ±5% 1/10W C. Carbon Film
R198,199	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R201,202	2470011054	51 kohm ±5% 1/10W C. Carbon Film
R203,204	2470006069	470 ohm ±5% 1/10W C. Carbon Film
R205,206	2470009024	5.6 kohm ±5% 1/10W C. Carbon Film
R210,211	2470011041	47 kohm ±5% 1/10W C. Carbon Film
R212,213	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R214~216	2470009024	5.6 kohm ±5% 1/10W C. Carbon Film
R217	2470005002	100 ohm ±5% 1/10W C. Carbon Film
R218	2470009008	4.7 kohm ±5% 1/10W C. Carbon Film
R219	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R220	2470008083	3.9 kohm ±5% 1/10W C. Carbon Film
R221	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R222	2470011067	56 kohm ±5% 1/10W C. Carbon Film
R223	2470010097	30 kohm ±5% 1/10W C. Carbon Film
R224	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R225	2470012082	180 kohm ±5% 1/10W C. Carbon Film
R227	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R228	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R229	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R230	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R231	2470009008	4.7 kohm ±5% 1/10W C. Carbon Film
R232	2470008083	3.9 kohm ±5% 1/10W C. Carbon Film
R233	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R234	2470008041	2.7 kohm ±5% 1/10W C. Carbon Film
R236	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R237,238	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R241,242	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R243	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R244	2470008012	2 kohm ±5% 1/10W C. Carbon Film
R245	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R246	2470008067	3.3 kohm ±5% 1/10W C. Carbon Film
R247	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R248	2470009024	5.6 kohm ±5% 1/10W C. Carbon Film
R249	2470008041	2.7 kohm ±5% 1/10W C. Carbon Film
R250	2470008083	3.9 kohm ±5% 1/10W C. Carbon Film
R251	2470008070	3.6 kohm ±5% 1/10W C. Carbon Film
R261	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R271,272	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R275	2470008025	2.2 kohm ±5% 1/10W C. Carbon Film
R301	2470004090	91 ohm ±5% 1/10W C. Carbon Film
R302	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R303,304	2471004057	62 ohm ±5% 1/8W C. Carbon Film
R305	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R307	2471008024	2.2 kohm ±5% 1/8W C. Carbon Film
R308	2470010013	13 kohm ±5% 1/10W C. Carbon Film
R309	2470009066	8.2 kohm ±5% 1/10W C. Carbon Film
R310	2470010042	18 kohm ±5% 1/10W C. Carbon Film
R311	2470009008	4.7 kohm ±5% 1/10W C. Carbon Film
R312	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R313	2470013081	470 kohm ±5% 1/10W C. Carbon Film
R314	2470012008	82 kohm ±5% 1/10W C. Carbon Film
R315	2470014064	1 Mohm ±5% 1/10W C. Carbon Film

Ref. No.	Part No.	Part Name & Descriptions
R316	2470010055	20 kohm ±5% 1/10W C. Carbon Film
R317	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R318	2470009095	11 kohm ±5% 1/10W C. Carbon Film
R319	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R320	2470008067	3.3 kohm ±5% 1/10W C. Carbon Film
R321	2471011082	68 kohm ±5% 1/8W C. Carbon Film
R322	2470009087	10 kohm ±5% 1/10W C. Carbon Film
R323	2470009037	6.2 kohm ±5% 1/10W C. Carbon Film
R324,325	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R326	2471013093	510 kohm ±5% 1/8W C. Carbon Film
R327	2470009066	8.2 kohm ±5% 1/10W C. Carbon Film
R328	2470011083	68 kohm ±5% 1/10W C. Carbon Film
R329	2470013010	240 kohm ±5% 1/10W C. Carbon Film
R330	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R331	2471013048	330 kohm ±5% 1/8W C. Carbon Film
R332	2470011025	39 kohm ±5% 1/10W C. Carbon Film
R333	2470011067	56 kohm ±5% 1/10W C. Carbon Film
R334	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R335	2470012008	82 kohm ±5% 1/10W C. Carbon Film
R336	2470010068	22 kohm ±5% 1/10W C. Carbon Film
R341	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R342,343	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R344	2470013081	470 kohm ±5% 1/10W C. Carbon Film
R346	2470005002	100 ohm ±5% 1/10W C. Carbon Film
R347	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R348	2470008067	3.3 kohm ±5% 1/10W C. Carbon Film
R349	2470011041	47 kohm ±5% 1/10W C. Carbon Film
R370	2471004047	62 ohm ±5% 1/8W C. Carbon Film
R371	2470009095	11 kohm ±5% 1/10W C. Carbon Film
R381	2470008063	3.3 kohm ±5% 1/10W C. Carbon Film
R395	2470007042	1 kohm ±5% 1/10W C. Carbon Film
R399	2470008050	3 kohm ±5% 1/10W C. Carbon Film
R501	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R502	2470009095	11 kohm ±5% 1/10W C. Carbon Film
R503	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R504	2470010084	27 kohm ±5% 1/10W C. Carbon Film
R505	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R506,507	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R512	2470009008	4.7 kohm ±5% 1/10W C. Carbon Film
R513	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R514~518	2470011041	47 kohm ±5% 1/10W C. Carbon Film
R519	2470014064	1 Mohm ±5% 1/10W C. Carbon Film
R520~523	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R524	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R537	2470012095	200 kohm ±5% 1/10W C. Carbon Film
R538	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R540	2470012024	100 kohm ±5% 1/10W C. Carbon Film
R541,542	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R551	2470009082	10 kohm ±5% 1/10W C. Carbon Film
R599	2470012024	100 kohm ±5% 1/10W C. Carbon Film
VR101	2110520009	Variable Resistor Main
VR102,103	2110519007	Variable Resistor Tone
VR105	2116074012	Semi Fixed Resistor 100 kohm Solid
VR301~304	2116073013	Semi Fixed Resistor 22 kohm Cermet
VR305	2116073000	Semi Fixed Resistor 2.2 kohm Cermet

CAPACITORS

C101~104	2544299016	22μF ±20% 16V Electrolytic
C105	2570004068	100pF ±5% 50V C. Ceramic
C106	2570007065	1800pF ±5% 50V C. Ceramic
C107	2551121025	0.01μF ±5% 50V Plastic Film
C108	2570003027	27pF ±5% 50V C. Ceramic
C109	2571100039	6800pF ±5% 50V C. Ceramic
C110	2561034021	0.039μF ±5% 50V Metalized
C111	2544299016	22μF ±20% 16V Electrolytic
C112,113	2544299003	10μF ±20% 16V Electrolytic
C114	2561034050	0.068μF ±5% 50V Metalized
C115	2570007065	1800pF ±5% 50V C. Ceramic
C116	2544299016	22μF ±20% 16V Electrolytic
C117	2544299003	10μF ±20% 16V Electrolytic
C118	2544300002	33μF ±20% 6.3V Electrolytic
C119	2544299003	10μF ±20% 16V Electrolytic
C120	2551121012	0.0082μF ±5% 50V Plastic Film
C121	2570006053	620pF ±5% 50V C. Ceramic
C122	2551124041	0.015μF ±5% 50V Plastic Film
C123	2544300002	33μF ±20% 6.3V Electrolytic
C124	2570006011	430pF ±5% 50V C. Ceramic

Ref. No.	Part No.	Part Name & Descriptions
C125,126	2544193840	100μF ±20% 16V Electrolytic
C131,132	2570014032	0.1μF +80,-20% 25V C. Ceramic
C175	2544254006	10μF ±20% 16V Electrolytic
C176~178	2570010007	0.01μF ±10% 50V C. Ceramic
C179,180	2544250026	100μF ±20% 6.3V Electrolytic
C201~204	2544299016	22μF ±20% 16V Electrolytic
C205	2570004068	100pF ±5% 50V C. Ceramic
C206	2570007065	1800pF ±5% 50V C. Ceramic
C207	2551121025	0.01μF ±5% 50V Plastic Film
C208	2570003027	27pF ±5% 50V C. Ceramic
C209	2571100039	6800pF ±5% 50V C. Ceramic
C210	2561034021	0.039μF ±5% 50V Metalized
C211	2544299016	22μF ±20% 16V Electrolytic
C212,213	2544299003	10μF ±20% 16V Electrolytic
C214	2561034050	0.068μF ±5% 50V Metalized
C215	2570007065	1800pF ±5% 50V C. Ceramic
C216	2544299016	22μF ±20% 16V Electrolytic
C217	2544299003	10μF ±20% 16V Electrolytic
C219	2544299003	10μF ±20% 16V Electrolytic
C220	2551121012	0.0082μF ±5% 50V Plastic Film
C221	2570006053	620pF ±5% 50V C. Ceramic
C222	2551124041	0.015μF ±5% 50V Plastic Film
C224	2570006011	430pF ±5% 50V C. Ceramic
C301	2544213021	47μF ±20% 6.3V Electrolytic
C302	2544213021	47μF ±20% 6.3V Electrolytic
C305	2571003039	30pF ±5% 50V C. Ceramic
C306	2570010007	0.01μF ±10% 50V C. Ceramic
C307	2544300840	47μF ±20% 6.3V Electrolytic
C308	2544299003	10μF ±20% 16V Electrolytic
C309	2570011064	0.033μF ±10% 25V C. Ceramic
C310	2570010007	0.01μF ±10% 50V C. Ceramic
C311	2570007007	1000pF ±5% 50V C. Ceramic
C312	2570011064	0.033μF ±10% 25V C. Ceramic
C313	2544213021	47μF ±20% 6.3V Electrolytic
C314,315	2544250042	330μF ±20% 16V Electrolytic
C316,317	2544213034	100μF ±20% 6.3V Electrolytic
C318~320	2561034076	0.1μF ±5% 50V Metalized
C321	2544305890	3.3μF ±20% 50V Electrolytic
C322	2561034076	0.1μF ±5% 50V Metalized
C324	2561034076	0.1μF ±5% 50V Metalized
C325	2570002028	10pF ±0.5pF 50V C. Ceramic
C326	2561034047	0.056μF ±5% 50V Metalized
C327	2544196054	2.2μF ±20% 50V Electrolytic
C328	2561034018	0.033μF ±5% 50V Metalized
C329	2570010007	0.01μF ±10% 50V C. Ceramic
C330	2571010064	4700pF ±10% 50V C. Ceramic
C331	2544213021	47μF ±20% 6.3V Electrolytic
C332	2544196038	0.47μF ±20% 50V Electrolytic
C333	2570011064	0.033μF ±10% 25V C. Ceramic
C334	2544196038	0.47μF ±20% 50V Electrolytic
C336	2570010007	0.01μF ±10% 50V C. Ceramic
C337	2570007007	1000pF ±5% 50V C. Ceramic
C338,339	2570002044	12pF ±5% 50V C. Ceramic
C340	2544213021	47μF ±20% 6.3V Electrolytic
C341	2570014032	0.1μF +80,-20% 25V C. Ceramic
C342	2570010007	0.01μF ±10% 50V C. Ceramic
C343	2544213021	47μF ±20% 6.3V Electrolytic
C344,345	2544196041	1μF ±20% 50V Electrolytic
C346	2571013090	0.1μF ±10% 25V C. Ceramic
C347	2561035033	0.33μF ±5% 50V Metalized
C348	2570010036	0.018μF ±10% 50V C. Ceramic
C349	2570009021	2200pF ±10% 50V C. Ceramic
C351	2544213005	22μF ±20% 6.3V Electrolytic
C360,361	2570013032	0.1μF +80,-20% 25V C. Ceramic
C362	2570010007	0.01μF ±10% 50V C. Ceramic
C365	2544300840	47μF ±20% 6.3V Electrolytic
C367	2544300840	47μF ±20% 6.3V Electrolytic
C398	2570010007	0.01μF ±10% 50V C. Ceramic
C401,402	2544254064	330μF ±10% 16V Electrolytic
C403,404	2544250042	330μF ±10% 6.3V Electrolytic
C407	2544250753	3300μF ±20% 6.3V Electrolytic
C408	2544250039	220μF ±20% 6.3V Electrolytic
C409	2570014032	0.1μF +80,-20% 25V C. Ceramic
C495	2531022005	0.022μF+80,-20% 50V Ceramic
C496	2571013090	0.1μF ±10% 25V C. Ceramic
C498	2544252066	470μF ±20% 10V Electrolytic
C499	2544250767	1000μF ±20% 6.3V Electrolytic
C501	2570014016	0.047μF +80,-20% 50V C. Ceramic
C502	2570009021	2200pF ±10% 50V C. Ceramic
C503	2570005009	150pF ±5% 50V C. Ceramic
C504	2544213021	47μF ±20% 6.3V Electrolytic

4U-1585 TUNER UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
C505,506	2570003030	30pF ±5% 50V C. Ceramic
C507	2570014032	0.1μF +80,-20% 25V C. Ceramic
C508	2544196041	1μF ±20% 25V Electrolytic
C509	2570014032	0.1μF +80,-20% 50V C. Ceramic
C510	2570014016	0.047μF +80,-20% 25V C. Ceramic
C511	2570014032	0.1μF +80,-20% 25V C. Ceramic
C512	2544213021	47μF ±20% 6.3V Electrolytic
C515	2544213021	47μF ±20% 6.3V Electrolytic
C520	2544258002	4.7μF ±20% 50V Electrolytic
C521	2544213021	47μF ±20% 6.3V Electrolytic
C599	2544299003	10μF ±20% 16V Electrolytic
E.U.P.		**Q'ty**
L301	2350056016	Chip Inductor 10μH 1
L303	2350056003	Chip Inductor 10μH 2
L501	2350056003	Chip Inductor 3.3μH 1
XL301	3990036000	X'tal 8.4672MHz 1
XT501	3990063002	OSC Element CSA8.00MT 1
LF101,201	2610074000	Low Pass Filter 2
	2048259002	Jack (ø3.5) 1
	3940015000	Battery 1
OTHER PARTS		**Q'ty**
	2221580103	(P.W. Board) 1
CN305	2050461024	2P Connector Base Sol 1
CN304	2050461037	2P Connector Base Load-M 1
CN502	2050461053	5P Connector Base Sensor 1
CN302	2050462007	FPC Connector Base (4P) F/T Coil 1
CN303	2050462010	FPC Connector Base (8P) Motor 1
CN301	2050463006	FPC Connector Base (12P) RF 1
CN101	2050375042	14P Connector Base Signal 1
CN102	2050375039	13P Connector Base (KR-PH) Power 1
	2030333004	1P Contact Ass'y Earth 1
	2034357028	3P Connector Ass'y 1
	2032218004	2P Connector Ass'y 1
	2030328006	1P Sin Connector Ass'y 1
	2090008146	Jumper Wire for Test Point 4

Ref. No.	Part No.	Part Name & Descriptions
SEMICONDUCTORS		
IC601	2620716002	TA7411AP (FMIF & Det) IC
IC602	2620717001	NC3S320 (FM NC) IC
IC650	2620718000	TA7413AP (FM MPX) IC
IC701	2620719009	LM7001 (PLL) IC
IC851	2630556003	L78M18ML IC
TR601	2730222004	2SC2458 (Y/GR) Translstor
TR602	2690029004	RN1204 (47K-47K) D. Transistor
TR603	2690029064	RN1204 (47K-47K) D. Transistor
TR651	2730222004	2SC2458 (Y/GR) Translstor
TR701	2710194000	2SA1048 (Y/GR) Transistor
TR702	2690029304	RN1204 (47K-47K) D. Transistor
TR703	2730222004	2SC2458 (Y/GR) D. Transistor
TR705	2730178006	2SC1740(R/S) D. Transistor
TR706	2690029004	RN1204 (47K-47K) D. Transistor
TR707,708	2730222004	2SC2458 (Y/GR) Translstor
TR709,710	2730198028	2SC1815 (GR) Transistor
TR851,852	2720069002	2SB892 (T/S) Transistor
TR853,854	2690025008	RN1202 (10K-10K) D. Transistor
TR857,858	2710102021	2SA1015 (GR) Transistor
D601	3939351005	SEL1121R Red LED
D701,702	2760417009	1SS270 Diode
D703	2750469015	HZS9C-2 Zener
D704	2760462009	HZS6B-1 Zener
D851	2750427015	DSA1A2 Type 3 Diode
NL601	3890039007	DSP-301N Zener
RESISTORS (not Included Carbon Film ±5%, ¼W Type)		
VR601~603	2116064006	Semi Fixed Resistor 10 kohm
VR604	2116064019	Semi Fixed Resistor 47 kohm
VR650	2116064006	Semi Fixed Resistor 10 kohm
VR701	2116064019	Semi Fixed Resistor 47 kohm
CAPACITORS		
C601	2533627000	100pF ±20% 50V Electrolytic
C602	2544250026	100μF ±20% 6.3V Electrolytic
C605	2531025002	0.022μF +80,-20% 50V Ceramic
C607,608	2531025002	0.022μF +80,-20% 50V Ceramic
C609	2531024003	0.01μF +80,-20% 50V Ceramic
C610	2544260045	1μF ±20% 50V Electrolytic
C611	2544260058	2.2μF ±20% 50V Electrolytic
C612	2544260045	1μF ±20% 50V Electrolytic
C613	2544254006	10μF ±20% 16V Electrolytic
C614	2531024003	0.01μF +80,-20% 50V Ceramic
C615	2533635005	220pF ±5% 50V Ceramic
C616	2544254006	10μF ±20% 16V Electrolytic
C617	2544258007	4.7μF ±20% 35V Electrolytic
C618	2544252024	47μF ±20% 10V Electrolytic
C619	2544254006	10μF ±20% 16V Electrolytic
C620	2561034076	0.1μF ±5% 50V Metalized
C621	2544260003	0.1μF ±20% 50V Electrolytic
C622	2544254019	22μF ±20% 16V Electrolytic
C623	2533121001	10pF ±0.5pF 50V Ceramic (Temp.)
C624	2544258002	4.7μF ±20% 35V Electrolytic
C650	2544258002	4.7μF ±20% 3.5V Electrolytic
C651	2561034076	0.1μF ±5% 50V Metalized
C652	2531004007	1000pF ±10% 50V Ceramic
C653	2533621006	56pF ±5% 50V Ceramic
C654	2544260032	0.47μF ±20% 50V Electrolytic
C655	2544260003	0.1μF ±20% 50V Electrolytic
C656	2544260068	2.2μF ±20% 50V Electrolytic
C657	2561034018	0.033μF ±5% 50V Metalized
C658,659	2544260045	1μF ±20% 50V Electrolytic
C661,662	2539025004	0.033μF ±20% 25V Ceramic
C663,664	*2539035023	0.027μF ±10% 25V Ceramic
—	*2539035010	0.018μF ±10% 25V Ceramic
C677	2544252024	47μF ±20% 10V Electrolytic
C681,682	2544260032	0.47μF ±20% 50V Electrolytic
C701	2544260045	1μF ±20% 50V Electrolytic
C702	2544252008	22μF ±20% 10V Electrolytic
C703	2544260045	1μF ±20% 50V Electrolytic
C704,705	2533607004	15pF ±5% 50V Ceramic
C706	2544252024	47μF ±20% 10V Electrolytic
C708	2539022007	0.01μF ±20% 25V Ceramic
C709	2544228061	1μF ±20% 50V Electrolytic (Low leak)

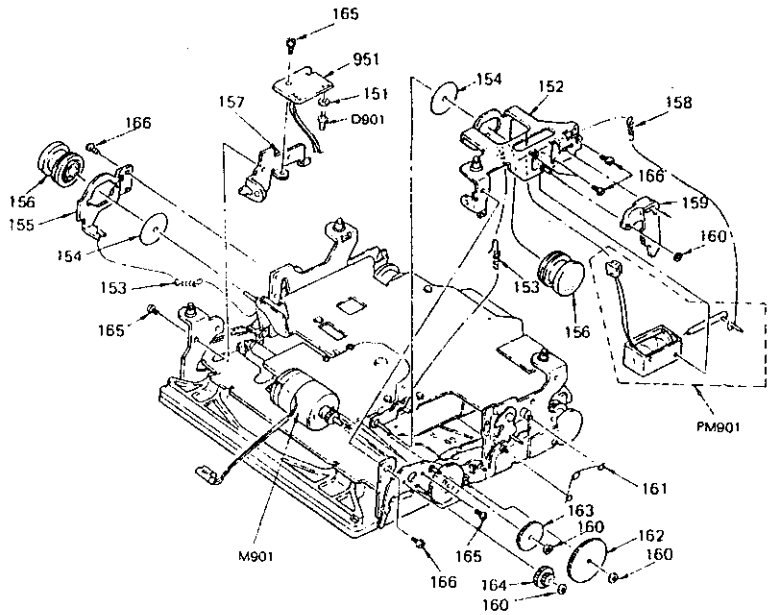
4U-1583 FRONT UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions
C710,711	2544254006	10μF ±20% 16V Electrolytic
C712,713	2544260045	1μF ±20% 50V Electrolytic
C715	2544228087	2.2μF ±20% 50V Electrolytic (Low leak)
C717,718	2544258002	4.7μF ±20% 35V Electrolytic
C851	2544254776	470μF ±20% 16V Electrolytic
C852,853	2544260045	1μF ±20% 50V Electrolytic
C860~863	2531024003	0.01μF +80,-20% 50V Electrolytic
C881,882	2544250084	3300μF ±20% 6.3V Electrolytic
C883,884	2544254048	100μF ±20% 16V Electrolytic
E.U.P.		**Q'ty**
TN601	2160088003	FM Front End 1
TN602	2160063008	AM Tuner Pack 1
CF601	*2610089008	FMC Filter (SFE10.7MS2GH-A) 1
—	*2610097003	FMC Filter (SFE10.7MS3GH-A) 1
CF650	2610076008	AMC. Filter (CSB456F14) 1
XL701	3990040009	X'tal (7.2 MHz) 1
	2048214005	8P DIN Jack 1
	2048215004	13P DIN Jack 1
	2050449062	6P VH Connector Base 1
PS901	3990064001	DC/DC Conv. Unit 1
	2030301052	1P Contact Ass'y 1
	2030301078	1P Contact Ass'y 1
OTHER PARTS		**Q'ty**
	2221585001	(P.W. Board) 1

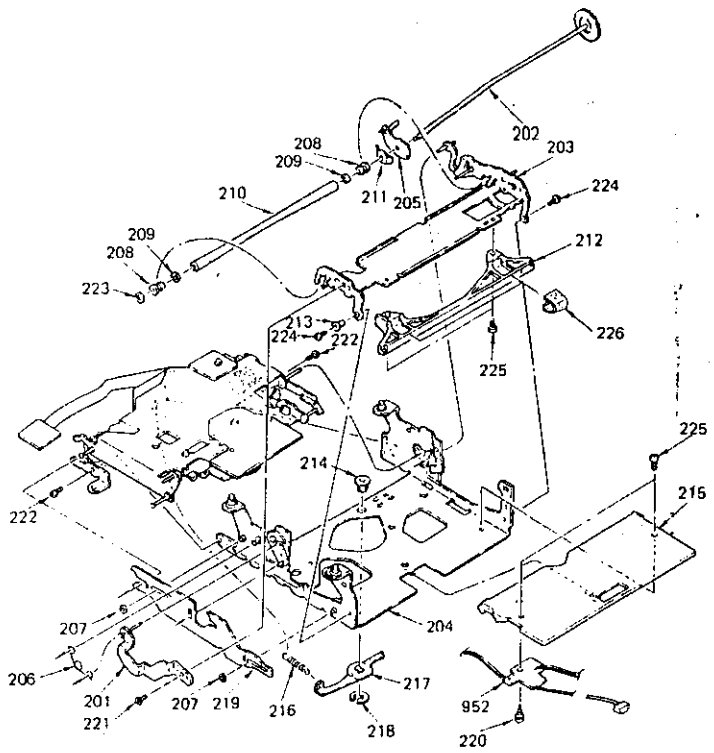
Ref. No.	Part No.	Part Name & Descriptions
SEMICONDUCTORS		
IC505	2630533000	LC7582 IC
TR504~506	2690033003	RN2401 D. Transistor
TR507~509	2690035001	RN1404 D. Transistor
D502	2760438004	MA151WA Diode
D503	2760438046	MA151WK Diode
D504	2760438004	MA151WA Diode
LD501~506	3939398000	SEL4826A Amber LED
LD507,508	3939399009	SEL4426E Green LED
LC501	3934048009	LCD
RESISTORS		
R525	2470011054	51 kohm ±5% 1/10W C. Resistor
R526	2470005002	100 ohm ±5% 1/10W C. Resistor
R527	2470007042	1 kohm ±5% 1/10W C. Resistor
R528~533	2471002062	10 ohm ±5% 1/8W C. Resistor
R534	2471003058	24 ohm ±5% 1/8W C. Resistor
R536	2471003058	24 ohm ±5% 1/8W C. Resistor
CAPACITORS		
C411~420	2539030060	0.01μF ±10% 25V Ceramic
C496	2531025002	0.022μF ±10% 50V C. Ceramic
C513	2570006066	680pF ±5% 50V C. Ceramic
C514	2570010007	0.01μF ±10% 50V C. Ceramic
E.U.P.		**Q'ty**
SW501~521	2124616006	Tact Switch 21
PL501~504	3930098105	Lamp Ass'y 4
OTHER PARTS		**Q'ty**
	2221583003	(P.W. Board) 1
	1430465405	LCD Lens 1
	4990090003	Filter 1
CN503	2050343032	3P Connector Base (KR-PH) 1
CN501	2090280003	F.P.C. (18P) 1
CN103,104	2050312005	13P Connector P. Ass'y B 2
CN102	2046177005	13P Connector Ass'y 1
CN101	2046176006	14P. Connector Ass'y 1
	2030287040	1P Contact Ass'y 1

Note: *U.S.A./CANADA
*EUROPE

CD MECHANISM EXPLODED VIEW (Part No. : 3370002007)



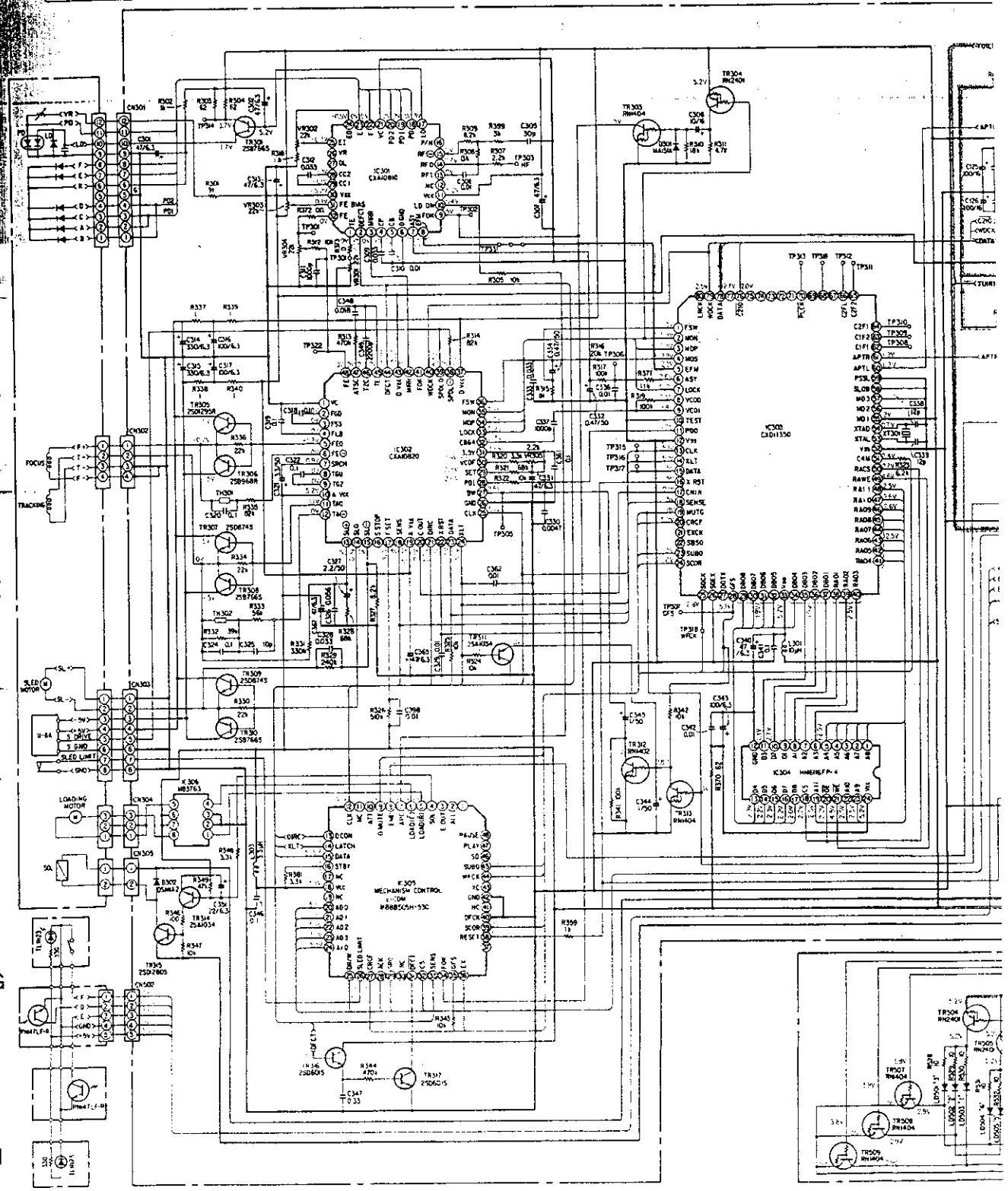
Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
151	*	B-2	S333094401	SPACER (LED)	1
152		B-3	SX33205581	INSULATOR BRACKET (B) 2 ASS'Y	1
153		B-1	S333091601	TENSION SPRING (FLOATING)	2
154		B-1	S332326301	TEFLON WASHER (PLAY)	2
155	*	B-1	S333094301	INSULATOR BRACKET (A) 2	1
156		B-1	S333092901	HYPER DUMPER (S)	2
157	*	B-2	S333091901	BRACKET FOR LED P.W.B.	1
158	*	B-3	S332324601	TENSION SPRING (STEEL)	1
159		B-4	S333093001	RACK	1
160		C-3	S357393600	REEL STOPPER	4
161		C-3	S333091701	SPRING (S) (STEEL)	1
162		C-3	S332055201	DOWN GEAR ASS'Y	1
163		C-3	S333090401	GEAR (B2)	1
164		D-3	S333090301	GEAR (A2)	1
165		C-1	S762825300	SCREW + PS 2 x 4	3
166		B-1	S762755407	SCREW + P2 x 2.2 CR-N Type 1	4
951	*	B-2	S162201811	P.W. BOARD LED (D)	1
D901		B-2	S871981231	TLR123 LED	1
M901		C-2	SX33205651	MOTOR ASS'Y (DC)	1
PM901		C-4	S145443511	PLUNGER SOLENOID	1



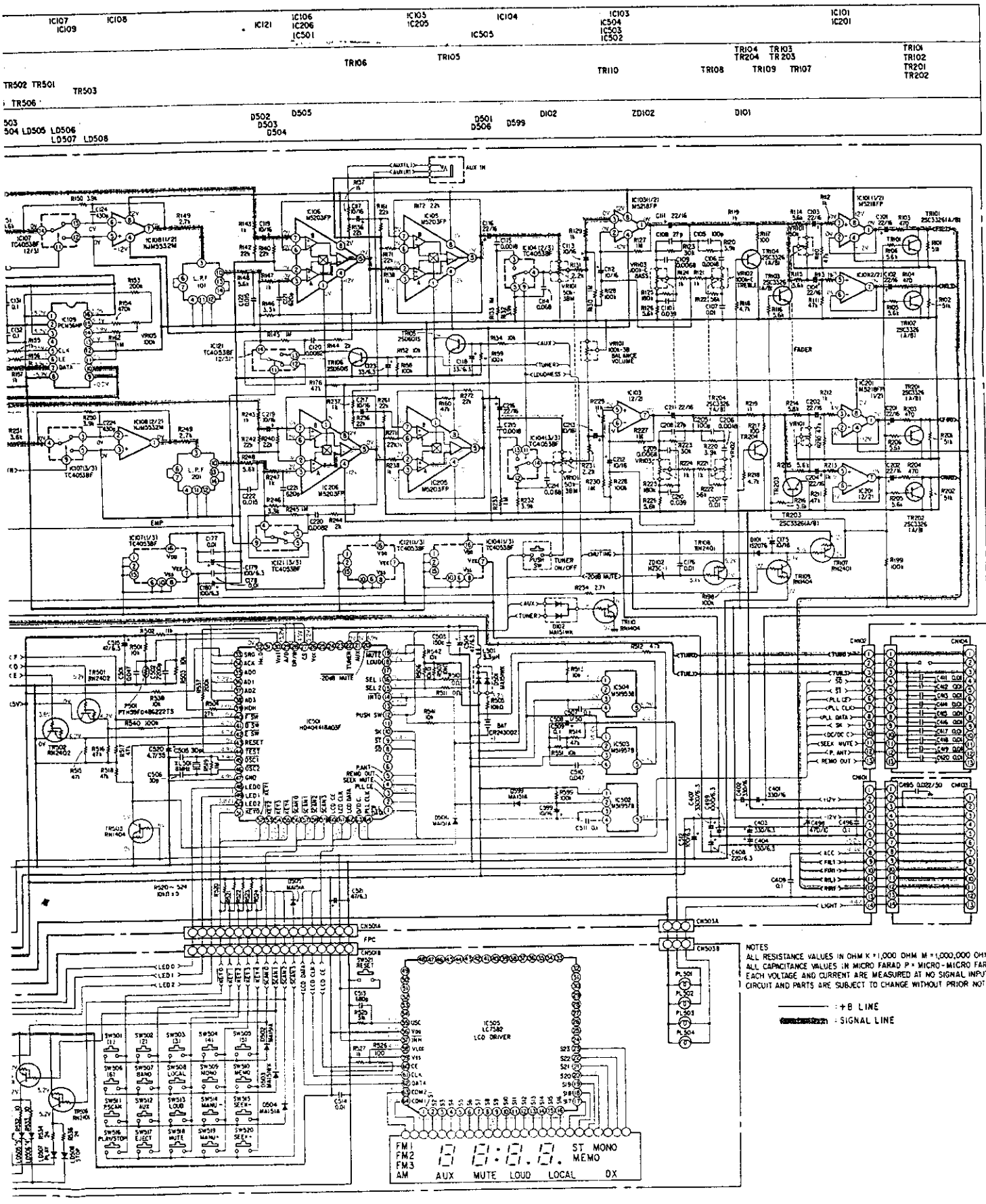
Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
201	*	D-1	SX3320559-1	ASSIST ARM (S) ASS'Y	1
202		B-3	SX33205661	ROLLER SHAFT ASS'Y (LOWER)	1
203		B-3	SX33205631	DRIVING ROLLER ARM (S2) ASS'Y	1
204	*	D-3	SX33205621	MD FRAME (S2) ASS'Y	1
205		B-2	SX33205571	FRICTION LEVER (S) ASS'Y	1
206		D-1	S333091701	SPRING (S)	1
207		D-1	S357393600	REEL STOPPER	2
208		B-1	S332056001	BEARING (LOWER)	2
209		B-1	S370143831	POLY WAHER 2.5	2
210		B-2	S332323102	ROLLER (LOWER)	1
211		B-2	S333091801	SPRING (S)	1
212	*	B-4	S333093701	DISK SHUTTER	1
213		B-2	S332322901	ROLLER ARM SHAFT (RIGHT)	1
214	*	C-2	S332989901	ANGLE SELECTOR SHAFT	1
215	*	C-4	S333093401	SUPER DISK GUIDE	1
216		D-2	S333091501	TENSION SPRING	1
217	*	D-2	S333090201	FITTING SQUARE SELECTOR	1
218		D-2	S762410904	STOPPING E-5	1
219	*	D-2	S333092801	LOCK HOOK (B) S	1
220		D-3	S76B510319	SCREW + PTP2 x 5 BLACK	1
221		D-1	S7628253000	SCREW + PS 2 x 4	2
222		C-1	S762755407	SCREW + P2 x 2.2 CR-N Type 1	1
223		B-1	S76241044	STOPPING RING E-2	1
224		B-2	S762745238	SCREW PRECISION +K2 x 5	2
225		C-3	S762125525	SCREW +P 2 x 4	2
226	*	B-3	S333098001	SHUTTER SHEET	1
952	*	D-3	S162201711	P.W. BOARD DET (D)	1

SCHEMATIC DIAGRAM (MAIN UNIT, FRONT UNIT)

	1	2	3	4	5
A	IC	*IC306	IC301 IC302 IC305	IC303 IC304	
	Transistor	TR301 TR305 TR306 TR307 TR308 TR309 TR310 TR314 TR315	TR311 TR316 TR317	TR303 TR304 TR312 TR313	TR509 TR508 TR507 TR504 TR50
	Diode (Including LED)	D302		D301	LD501 LD502 LD
B					
C					
D					
E					
F					
G					
H					



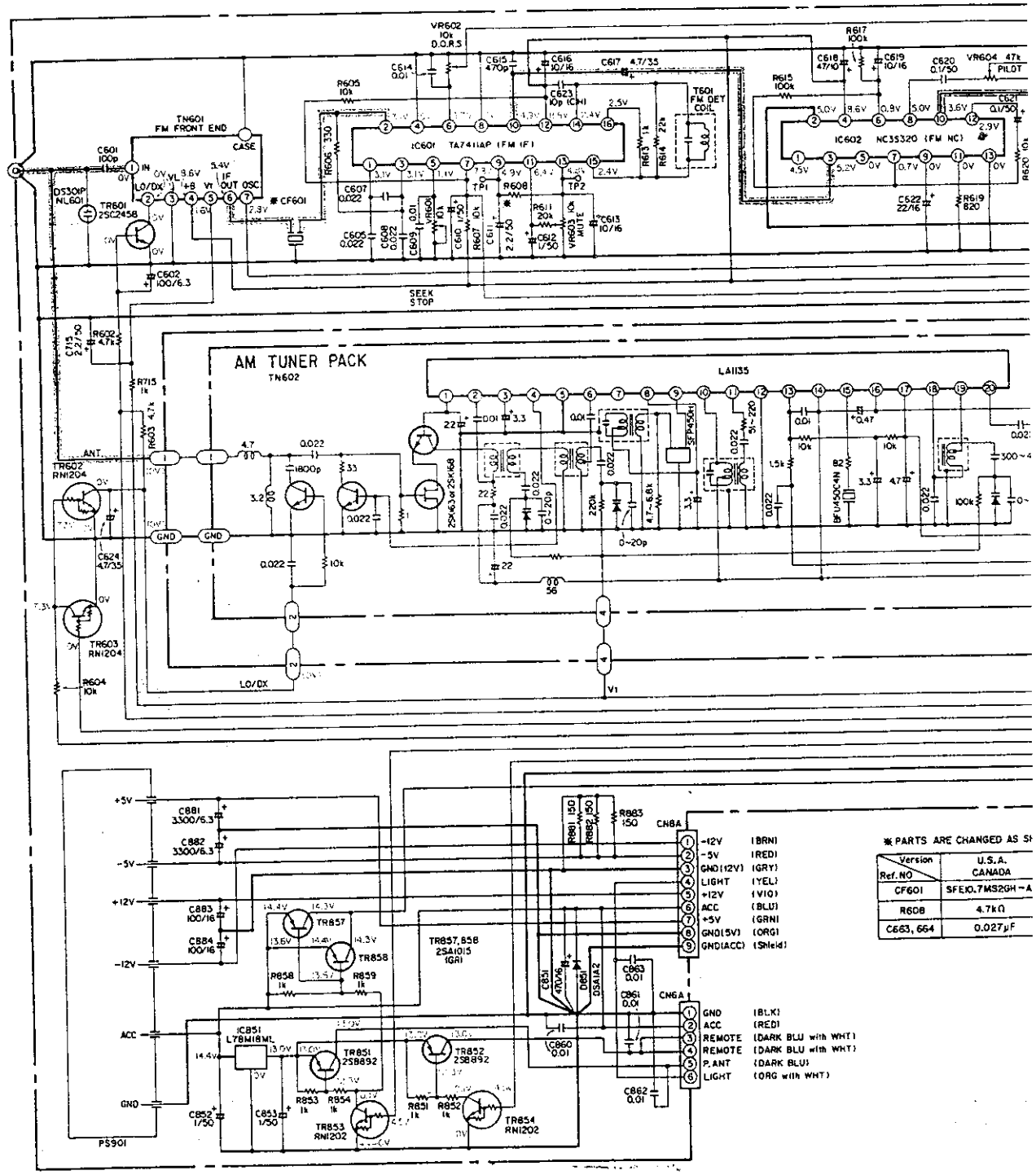
6 7 8 9 10 11


IC107 IC108 IC109 IC121 IC106 IC206 IC501 IC105 IC205 IC104 IC505 IC103 IC504 IC503 IC502 IC101 IC201
TRI06 TRI05 TRI10 TRI08 TRI04 TR204 TRI03 TR203 TRI09 TRI07 TRI01 TRI02 TR201 TR202
TR502 TR501 TR503 TR506
D502 D503 D504 D505 D501 D506 D599 DI02 ZDI02 DI01
LD503 LD504 LD505 LD506 LD507 LD508
AUX IN
FADER
VOLUME
TUNER ON/OFF
FPC
IC505 LC7582 LCD DRIVER
FM1 FM2 FM3 AM ST MONO MEMO AUX MUTE LOUD LOCAL DX
NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CO
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE
:+B LINE
:SIGNAL LINE

EMATIC DIAGRAM (TUNER UNIT)

1 2 3 4 5 6

IC	IC601 IC602 IC851
Transistor	TR601 TR602 TR603 TR857 TR858 TR851 TR853 TR852 TR854
Diode (Including LED)	D851



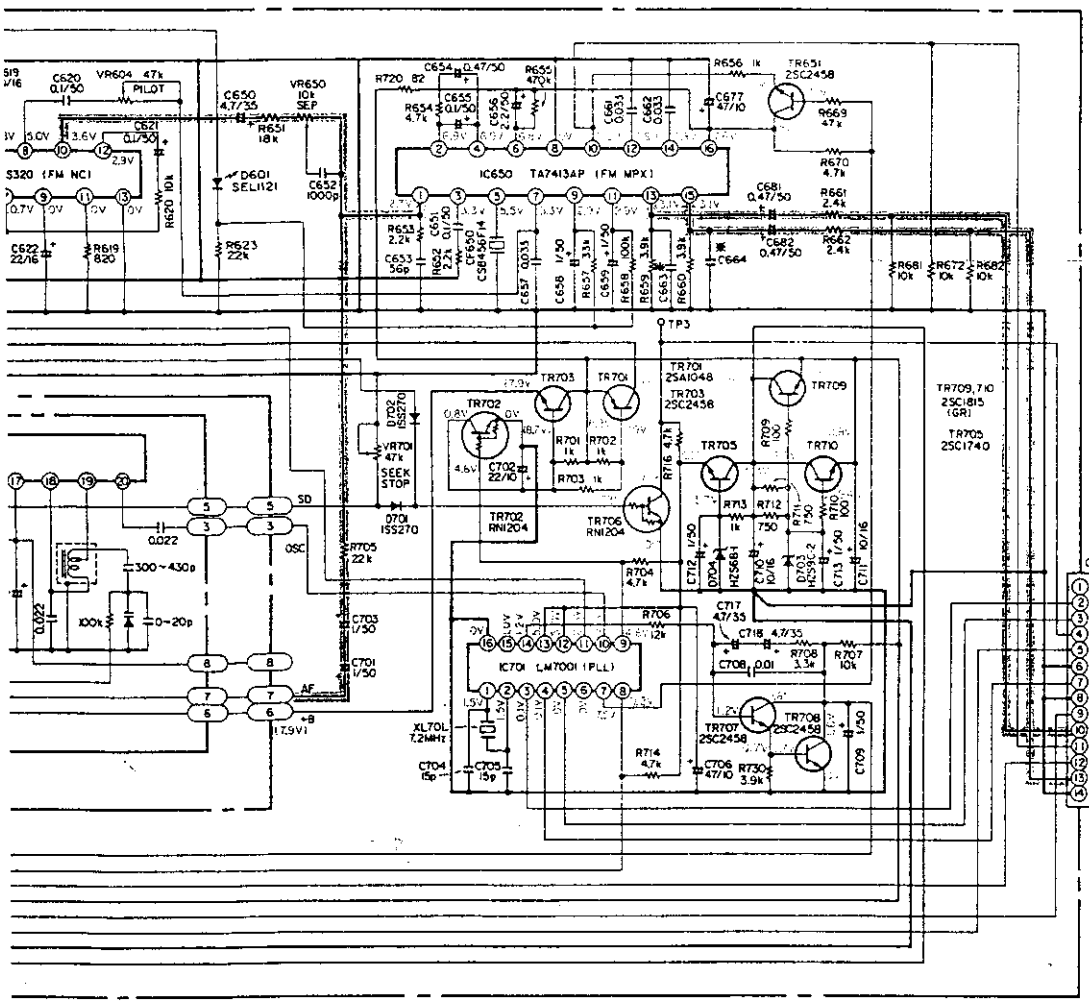
* PARTS ARE CHANGED AS SH

Version / Ref.NO	U.S.A. CANADA
CF601	SFE10.7MS2GH-A
R608	4.7kΩ
C663, 664	0.027μF

IC650
IC701

TR651
TR702 TR703 TR701 TR706 TR705 TR709 TR710
TR707 TR708

D601 D702 D701 D704 D703

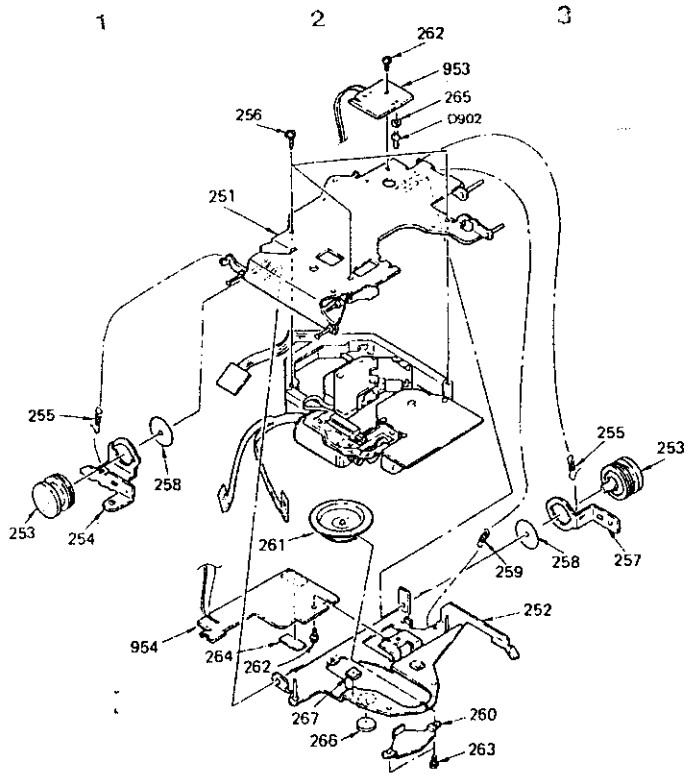


: +B LINE
: SIGNAL LINE

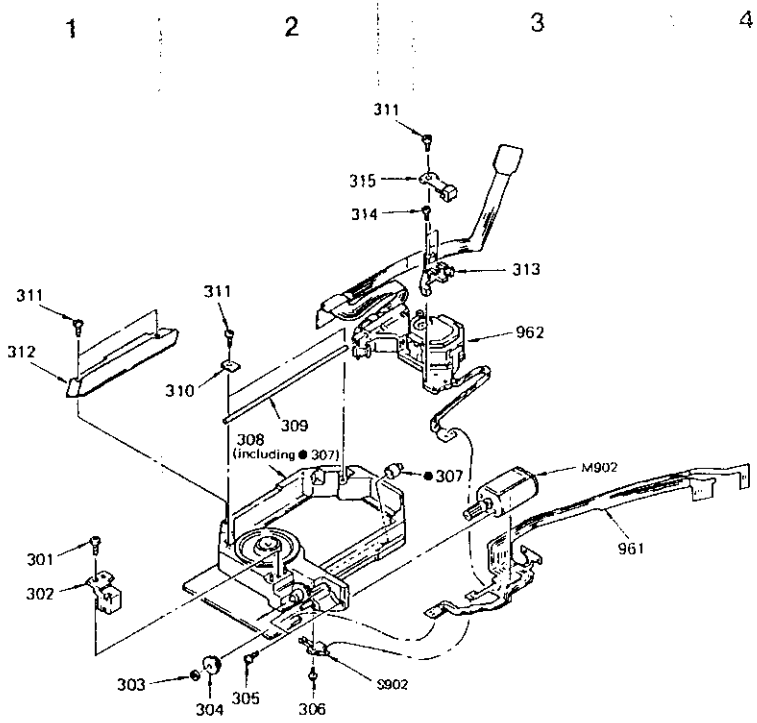
ARTS ARE CHANGED AS SHOWN BELOW

ersion /	U.S.A. CANADA	EUROPE
601	SFE10.7MS2GH-A	SFE10.7MS3GH-A
608	4.7kΩ	16kΩ
3, 664	0.027μF	0.018μF

NOTES
ALL RESISTANCE VALUES IN OHM K = 1,000 OHM M = 1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.



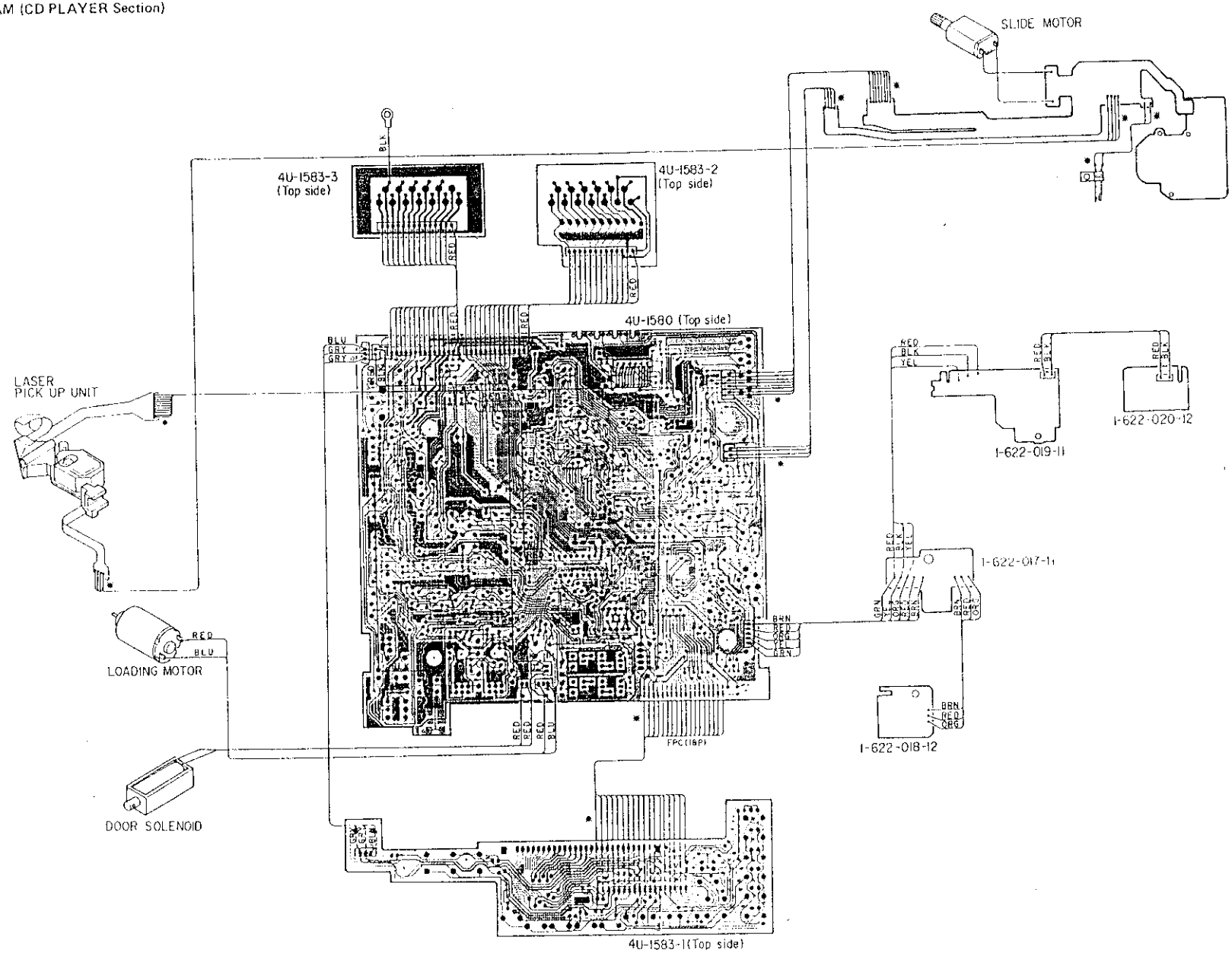
Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
251	*	B-2	SX33205641	MD FITTING CHASSIS ASS'Y	1
252		C-3	SX33205611	CHUCKING ARM (2) ASS'Y	1
253		C-1	S333092901	HYPER DAMPER (S)	2
254	*	C-1	S333090701	INSULATOR BRACKET (C) 2	1
255		C-1	S333091601	TENSION SPRING (FLOATING)	2
256		A-2	S768510319	SCREW +PTP2 x 5 BLACK	3
257	*	C-3	S333090801	INSULATOR BRACKET (D) 2	1
258		C-1	S332326301	TEFRON WASHER	2
259		C-3	S333092001	TENSION SPRING (CHUCKING)	1
260		D-3	S333090501	THRUST RETAINER	1
261		C-2	S333093101	CHUCK PLATE (S)	1
262		A-2	S762825300	SCREW +PS2 x 4	2
263		D-3	S762755218	SCREW PRECISION +P1.7 x 1.6 TYPE 1	2
264	*	D-2	S333095101	DET (E) INSULATING SHEET	1
265	*	A-3	S333094401	SPACER (LED)	1
266		D-2	S332329001	CUSHION	1
267	*	D-2	S333097901	PROTECTION SHEET C, A	1
953	*	A-3	S162202011	P.W. BOARD LED (E)	1
954	*	D-1	S162201911	P.W. BOARD DET (E)	1
D902	*		S871981231	TLR123 (LED)	1



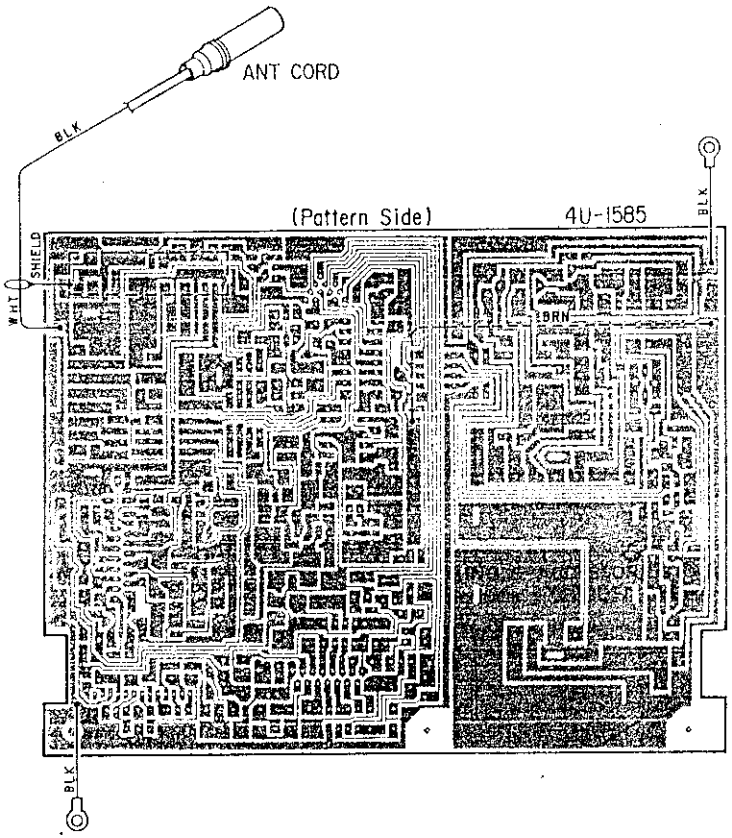
Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
301		C-1	S768620319	SCREW +K 2 x 5 TYPE 2	1
302		C-1	SX26406111	THRUST RETAINER ASS'Y	1
303		D-1	S332181301	WASHER	1
304		D-2	S264062501	GEAR (B)	1
305		D-2	S762755417	SCREW +P2 x 3.5 TYPE 3	2
306		D-2	S264062003	TAPPING SCREW (B) 1.4 x 3	1
307		C-3	S264062903	THRUST RETAINER (C)	1
308		C-2	SX33205671	MD SLED CHASSIS ASS'Y	1
309	*	C-2	S264063201	GUIDE SHAFT	1
310		B-2	S264064501	GUIDE SHAFT RETAINER	2
311		B-1	S768510219	SCREW +PTP2 x 4 TYPE 2 BLACK	5
312		B-1	S264062301	MD COVER	1
313		B-3	S264063801	FEED GUIDE BEARING	1
314		B-2	S762785217	SCREW +P1.7 x 4	2
315		B-2	S264062201	FEED NUT	1
961		C-3	S162140811	P.W. BOARD FLEXIBLE (MOTOR)	1
▲962		B-3	S884806701	OPTICAL PICKUP ASS'Y (KSS-160B)	1
M902		C-3	SX33205681	SLED (DC) MOTOR ASS'Y	1
S902		D-2	S155493811	LEAF SWITCH	1

Note : * indicates the parts newly in this unit.

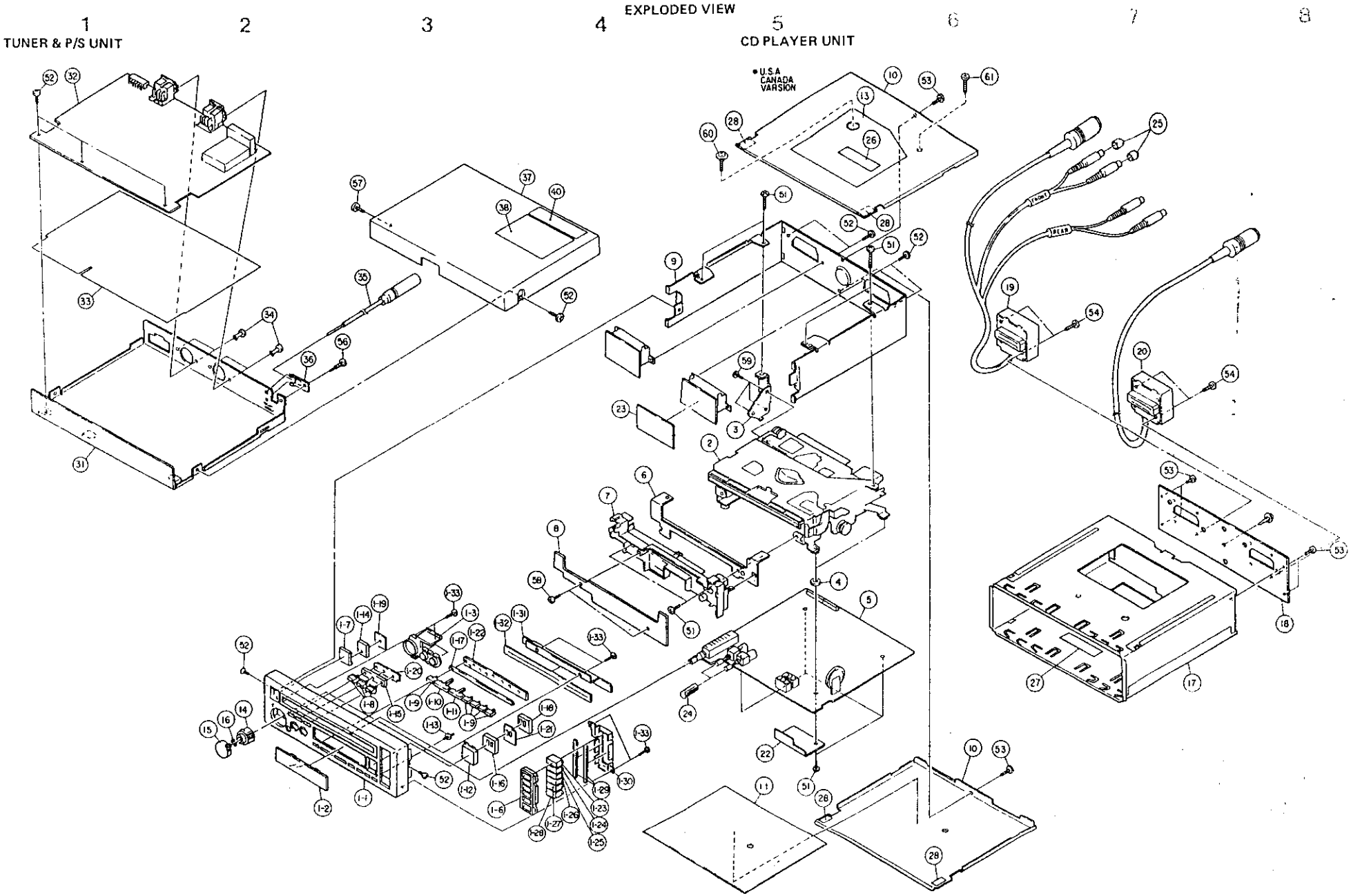
WIRING DIAGRAM (CD PLAYER Section)



WIRING DIAGRAM (TUNER, AMP & P/S Section)



EXPLODED VIEW



CD PLAYER UNIT (GN-0024-1) •U.S.A. VARSION

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
1			1031074305	FRONT PANEL ASS'Y	1
1-1		E-3	1031075207	FRONT PANEL	1
1-2		E-2	1430461108	LCD WINDOW	1
1-3		D-3	1430535102	KNOB LENS	1
1-4			1430536101	DISC LENS	1
1-5			1430537100	PUSH BUTTON LENS	1
1-6		E-3	1430463300	BUTTON LENS	1
1-7		D-3	1130816202	EJECT BUTTON ASS'Y	1
1-8		E-3	1131010007	PUSH KNOB (AUX, LOUD, MUTE)	3
1-9		E-3	1130815009	PUSH BUTTON D	5
1-10		E-3	1130814107	PUSH BUTTON C (MANUAL)	1
1-11		E-3	1130814110	PUSH BUTTON (SEEK)	1
1-12		E-3	1131011006	P/S KNOB ASS'Y (PLAY-STOP)	1
1-13		E-3	1131013004	RESET KNOB	1
1-14		D-3	4610287109	CUSHION A (EJECT)	1
1-15		E-3	4610360107	CUSHION B (AUX, LOUD, MUTE)	1
1-16		E-3	4610361009	CUSHION C (PLAY-STOP)	1
1-17		D-3	4610362105	CUSHION D	1
1-18		E-4	4610381005	CUSHION E	1
1-19		D-3	4410902008	KNOB HOLDER (A) (EJECT)	1
1-20		E-3	4410890000	KNOB HOLDER (B) (AUX, LOUD, MUTE)	1
1-21		E-4	4410898002	KNOB HOLDER	1
1-22		D-3	4410891106	BUTTON HOLDER	1
1-23	*	E-4	1130822005	PRESET BUTTON	1
1-24	*	E-4	1130822018	PRESET BUTTON	1
1-25	*	E-4	1130822021	PRESET BUTTON	1
1-26	*	E-4	1130822034	PRESET BUTTON	1
1-27	*	E-4	1130822047	PRESET BUTTON	1
1-28	*	E-4	1130822050	PRESET BUTTON	1
1-29		E-4	4610291001	CUSHION	2
1-30		E-4	4122014103	BUTTON BRACKET	1
1-31		D-4	4122357106	BRACKET	1
1-32		D-3	1220138104	BLIND SHEET	1
1-33		D-3	4737506006	TAPPING SCREW (P) 2 x 5	7
1-34			1220145003	BLIND SHEET (B)	1
2		C-5	3370002007	CD MECH. UNIT	1[5]
3		C-5	4122358008	MECH. BRACKET	1
4		D-5	4770224028	SP WASHER	4
5		D-5	4U-1580	MAIN UNIT	1[5]
6		C-4	4122369104	HOLDER BRACKET	1
7		D-4	4410892008	P.C.B. HOLDER	1
8		D-4	4U-1583	FRONT UNIT	1[5]
9		B-4	4110734000	CHASSIS FRAME ASS'Y	1
10		A-6	4122370106	COVER	2
11		E-5	4150426103	INSULATING SHEET	1
12	*		--	--	
13	*	B-5	5131340100	RATING CAUTION LABEL	1
14		E-2	1120486008	FADER KNOB	1
15		E-2	1120489005	KNOB (VOL.)	1
16		E-2	4630474002	KNOB SPRING	1
17		E-7	4122033100	MOUNT SLEEVE	1
18		D-8	4122018205	CONNECTOR BRACKET	1
19		B-6	2046188001	13P SOCKET A (2) ASS'Y	1
20		C-7	2046189006	13P SOCKET B (2) ASS'Y	1
21	*		5050099024	POLY COVER	1
22		E-5	4150438007	INSULATING SHEET (B)	1
23		C-4	4150439006	INSULATING SHEET (C)	1
24		E-4	1120488006	KNOB (TONE)	2
25		B-7	4150453008	RCA CAP	2
26			5131361008	WARNING LABEL (A)	1
27			5131362007	WARNING LABEL (B)	1
28			1220150001	HIMERON SHEET	4

TUNER & P/S UNIT (GN-0025-1)

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
31		C-1	4110674202	TUNER CASE	1
32		A-1	4U-1585	TUNER UNIT	1[5]
33		B-1	4150433002	INSULATING SHEET	1
34		C-2	4770210016	PUSH RIVET	4
35		B-3	2030285000	ANT. CORD	1
36		C-2	4122035108	CORD CLAMP	1
37		B-4	4122019108	TUNER COVER	1
38		B-4	5111617002	NOTICE SHEET	1
39	*		5050099037	POLY COVER	1
40		B-4	5131373009	NOTICE LABEL	1

SCREWS

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
51		B-5	4713204018	BIND SCREW 2.6 x 8	10
52		A-1	4737005073	TAPPING SCREW (S) 3 x 5	10
53		C-7	4733301018	BIND SCREW 3 x 4	6
54		B-7	4770270001	SPECIAL SCREW	4
55			4770271000	SPECIAL BELT	1
56		C-3	4770276018	EARTH SCREW	1
57		B-3	4730454016	TAPPING SCREW 4 x 8	1
58		D-4	4737506019	BIND SCREW (P) 2 x 6	2
59		C-5	4713201011	BIND SCREW 2.6 x 4	3
60		A-6	4770299008	FIX. SCREW	1
61		B-6	4713310012	BIND SCREW 3 x 20	1

PACKING & ACCESSORIES
(not included EXPLODED VIEW)

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
71			5050076115	POLY COVER	1
72			4770186001	SPECIAL BOLT (M3 x 30)	4
73			4744311006	HEXAGON SOCKET SET SCREW	2
74			4756010007	NUT M5	6
75			4711811021	PAN SCREW 5 x 10 (CR)	1
76			4733817003	TAPPING SCREW (1) 5 x 20	4
77			4713403013	BIND SCREW 4 x 6	4
78			4713509014	BIND SCREW 5 x 16	4
79			4752005003	SPRING WASHER ø5	4
80			4751006003	WASHER ø6	4
81			5290049009	1.5HS SCREW KEY	1
82			4122036000	METAL MOUNT STRAP	1
83			4410748013	STAY	2
84			5050061007	ENVELOPE	1
85			5111618001	INST. MANUAL	1
86			5150333101	GUARANTEE CARD	1
87			5150337204	CUSTOM CARD	1
88			5290041007	VELCRO TAPE	4
89			2090281002	EXT. CORD ASS'Y (VH)	1
90			5030551207	CUSHION ASS'Y	1
91			5011231106	INDIVIDUAL CARTON	1
92			5011232008	MASTER CARTON	1/3
93			5131338015	CONTROL CARD BASE	2
94			5131349004	THERMAL CARBON FILM	1
95			5050099079	POLY COVER	1
96			5131341002	CAUTION CARD	1
97			5131370002	CAUTION CARD B	1
98			2030296015	1P GND CORD (3T)	1

Note : • indicates the parts newly in this unit.

CD PLAYER UNIT (GN-0024-2) *EUROPE VARSION

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
1			1031074305	FRONT PANEL ASS'Y	1
1-1		E-3	1031075207	FRONT PANEL	1
1-2		E-2	1430461108	LCD WINDOW	1
1-3		D-3	1430535102	KNOB LENS	1
1-4			1430536101	DISC LENS	1
1-5			1430537100	PUSH BUTTON LENS	1
1-6		E-3	1430463300	BUTTON LENS	1
1-7		D-3	1130816202	EJECT BUTTON ASS'Y	1
1-8		E-3	1131010007	PUSH KNOB (AUX, LOUD, MUTE)	3
1-9		E-3	1130815009	PUSH BUTTON D	5
1-10		E-3	1130814107	PUSH BUTTON C (MANUAL)	1
1-11		E-3	1130814110	PUSH BUTTON (SEEK)	1
1-12		E-3	1131011006	P/S KNOB ASS'Y (PLAY-STOP)	1
1-13		E-3	1131013004	RESET KNOB	1
1-14			4610287109	CUSHION A (EJECT)	1
1-15		E-3	4610360107	CUSHION B (AUX, LOUD, MUTE)	1
1-16		E-3	4610361009	CUSHION C (PLAY-STOP)	1
1-17		D-3	4610362105	CUSHION D	1
1-18		E-4	4610381005	CUSHION E	1
1-19		D-3	4410902008	KNOB HOLDER (A) (EJECT)	1
1-20		E-3	4410890000	KNOB HOLDER (B) (AUX, LOUD, MUTE)	1
1-21		E-4	4410898002	KNOB HOLDER	1
1-22		D-3	4410891106	BUTTON HOLDER	1
1-23	*	E-4	1130822005	PRESET BUTTON	1
1-24	*	E-4	1130822018	PRESET BUTTON	1
1-25	*	E-4	1130822021	PRESET BUTTON	1
1-26	*	E-4	1130822034	PRESET BUTTON	1
1-27	*	E-4	1130822047	PRESET BUTTON	1
1-28		E-4	4610291001	CUSHION	2
1-30		E-4	4122014103	BUTTON BRACKET	1
1-31		D-4	4122367106	BRACKET	1
1-32		D-3	1220138104	BLIND SHEET	1
1-33		D-3	4737506006	TAPPING SCREW (P) 2 x 5	7
1-34			1220145003	BLIND SHEET (B)	1
2		C-5	3370002007	CD MECH. UNIT	1
3		C-5	4122368008	MECH. BRACKET	1
4		D-5	4770224028	SP WASHER	4
*5		D-6	4U-1580B	MAIN UNIT	1
6		C-4	4122369104	HOLDER BRACKET	1
7		D-4	4410892008	P.C.B. HOLDER	1
8		D-4	4U-1583	FRONT UNIT	1
9		B-4	4110734000	CHASSIS FRAME ASS'Y	1
10		A-6	4122370106	COVER	2
11		E-5	4150426103	INSULATING SHEET	1
*12	*		—	—	
*13	*	B-5	5131375007	RATING SHEET	1
14		E-2	1120486008	FADER KNOB	1
15		E-2	1120489005	KNOB (VOL.)	1
16		E-2	4630474002	KNOB SPRING	1
17		E-7	4122033100	MOUNT SLEEVE	1
18		D-8	4122018205	CONNECTOR BRACKET	1
19		B-6	2046188001	13P SOCKET A (2) ASS'Y	1
20		C-7	2046189006	13P SOCKET B (2) ASS'Y	1
21	*		5050099024	POLY COVER	1
22		E-5	4150438007	INSULATING SHEET (B)	1
23		C-5	4150439006	INSULATING SHEET (C)	1
24		E-4	1120488006	KNOB (TONE)	2
25		B-7	4150453008	RCA CAP	2
*26			—	—	
*27			—	—	
28			1220150001	HIMERON SHEET	4
*29			5130985003	INST LABEL	1
*30			5131284004	E2 LASER CAUTION	1

TUNER & P/S UNIT (GN-0025-2)

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
31		C-1	4110574202	TUNER CASE	1
*32		A-1	4U-1585B	TUNER UNIT	1
33		B-1	4150433002	INSULATING SHEET	1
34		C-2	4770210016	PUSH RIVET	4
35		B-3	2030285000	ANT CORD	1
36		C-2	4122035108	CORD CLAMP	1
37		B-4	4122019108	TUNER COVER	1
38		B-4	5111617002	NOTICE SHEET	1
39	*		5050099037	POLY COVER	1
40		B-4	5131373009	NOTICE LABEL	1

SCREWS

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
51		B-5	4713204018	BIND SCREW 2.6 x 8	10
52		A-1	4737005073	TAPPING SCREW (S) 3 x 5	10
53		C-7	4733301018	BIND SCREW 3 x 4	6
54		B-7	4770270001	SPECIAL SCREW	4
55			4770271000	SPECIAL BELT	1
56		C-3	4770276018	EARTH SCREW	1
57		B-3	4730454016	TAPPING SCREW 4 x 8	1
58		D-4	4737506019	BIND SCREW (P) 2 x 6	2
59		C-5	4713201011	BIND SCREW 2.6 x 4	3
60		A-6	4770299008	FIX SCREW	1
61		B-6	4713310012	BIND SCREW 3 x 20	1

PACKING & ACCESSORIES (not included EXPLODED VIEW)

Ref. No.	*	Address	Part No.	Part Name & Descriptions	Q'ty
71			5050076115	POLY COVER	1
72			4770186001	SPECIAL BOLT (M3 x 30)	4
73			4744311006	HEXAGON SOCKET SET SCREW	2
74			4756010007	NUT M5	6
75			4711811021	PAN SCREW 5 x 10 (CR)	1
76			4733917003	TAPPING SCREW (S) 5 x 20	4
77			4713403013	BIND SCREW 4 x 6	4
78			4713509014	BIND SCREW 5 x 16	4
79			4752005003	SPRING WASHER ø5	4
80			4751006003	WASHER ø5	4
81			5290049009	1.5HS SCREW KEY	1
82			4122036000	METAL MOUNT STRAP	1
83			4410748013	STAY	2
84			5050061007	ENVELOPE	1
*85			5111658003	INST. MANUAL	1
86			—	—	
87			—	—	
88			5290041007	VELCRO TAPE	4
89			2090281002	EXT. CORD ASS'Y (VFI)	1
90			5030551207	CUSHION ASS'Y	1
91			5011231106	INDIVIDUAL CARTON	1
92			5011232008	MASTER CARTON	1/3
93			5131336015	CONTROL CARD BASE	2
94			5131349004	THERMAL CARBON FILM	1
95			5050099079	POLY COVER	1
96			5131341002	CAUTION CARD	1
97			5131370002	CAUTION CARD R	1
98			2030296015	1P GND CORD (3T)	1

Note: * indicates the parts newly in this unit.