

1. DISASSEMBLY

MS-VHR5417

031298IDP104319SFH

1/EA

FILE NO.

Service Manual

Video Cassette Recorder

VWM-320 (U.S.A.)

VHR-5416 (U.S.A.)

VHR-5417 (U.S.A.)



(VWM-320, VHR-5416)



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Please see other materials with Reference No. given in table below.

	Model No.	Reference No.
Mechanism Manual	P90 Mechanism	WM-530596
	92 Midi Mid-Mount Mechanism	MS531167

Circuit Diagram

NOTE: 1. Parts order must contain Model Number, Part Number and Description.
2. N.S.P. :Not available as service parts.

SAFETY PRECAUTIONS

NOTE-1

WARNING:

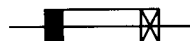
Service should not be attempted by anyone unfamiliar with the necessary precautions for this recorder. The following precautions are necessary during servicing:

1. Many electrical and mechanical parts in this recorder have special safety-related characteristics for providing protection against shock, fire and other hazards. These characteristics often go unnoticed in a visual inspection, and the protection afforded by them cannot necessarily be obtained by using replacement components with higher ratings (voltage, wattage, etc.).
2. Replacement parts having special safety-related characteristics are identified in this manual, and in the schematic diagrams, by the symbol \triangle . These components have values that are of special significance to product safety. Should any component (identified by the symbol \triangle) need to be replaced, use only the part designated in the Parts List. Do not deviate from the specified resistance, wattage and voltage ratings.

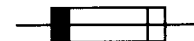
3. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screwheads, metal overlays, etc. to be sure that the set is safe to operate without the danger of electrical shock. Plug the AC line cord directly into a 120 VAC outlet (do not use a line isolation transformer during this check.) Use an AC voltmeter with a sensitivity of 5000 ohms per volt (or more) as follows: Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15 mfd, 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the 1500 ohm resistor and 0.15 mfd capacitor combination. Reverse the AC plug at the AC outlet and repeat the AC voltage measurements for each exposed metallic part. The measured voltage must not exceed 300 mVrms. This corresponds to 200 μ A AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

4. Fuse symbol marks.

For CANADA: CSA Standard No. C22.2 No. 1-M1981



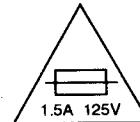
Slow Operating Fuse



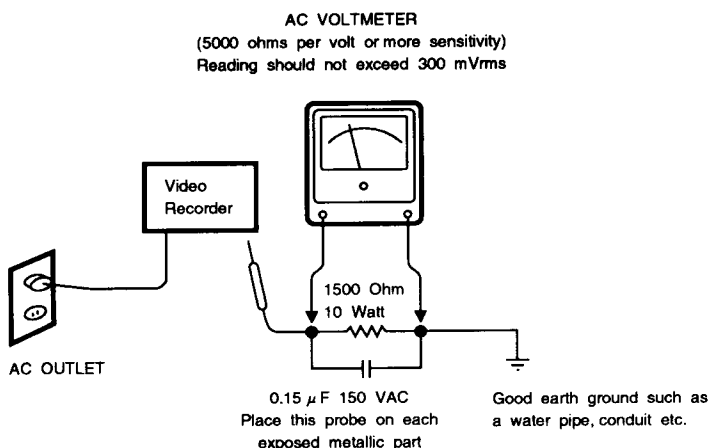
Fast Operating Fuse

For U.S.A.: (UL Sub. No. 1409)

UNDERWRITERS LABORATORIES Standard



CAUTION "Risk of fire-replace fuse as marked"



Voltmeter Hook-up for Leakage Current Check

1. DISASSEMBLY

1-1. REMOVAL OF CABINET, MECHANISM UNIT AND MAIN BOARD

REMOVING THE CABINET PARTS (Fig. 1-1)

1. Remove the cabinet and bottom cover by removing the four screws (A) and five screws (B).
2. Remove the front panel by removing the locks of the clamps (C) using a screwdriver, etc. and slightly rotating the bottom part in the direction of the arrow.

Notes:

- Electrical adjustments for the this model can be performed with only the cabinet removed.
- When replacing the bottom cover, do not tighten the screws (B) too much. Excess tightness may damage the screws taps on the chassis.

REMOVING THE MECHANISM MAIN UNIT (Fig. 1-2 and Fig. 1-3)

After removing the cabinet parts:

1. Remove the two screws (D), and then remove the bracket.
2. Remove the 29-wire flat cable from CN811 of the MC-2 PWB.

3. Remove the flat cable from the cylinder assembly, then the two screws (E), and finally the VM-1 PWB assembly. It is not necessary to remove a couple of flat cables connected between the VM-1 PWB assembly and CP-1 PWB assembly.
4. Remove the mechanism main unit by removing the two screws (F) and four screws (G). Remove, as well, the two screws (G) at the cassette tray side by pressing the tray lock lever in the direction of the arrow to remove the lock and pushing the cassette tray backwards.

REMOVING THE CP-1 PWB ASSEMBLY (Fig. 1-3)

After removing the cabinet parts and mechanism unit:

1. Pull out the TM-1 PWB assembly from CN301 and CN302 while pressing and spreading out the four clamps (H).
2. Remove the two red screws (I). Next, remove the CP-1 PWB assembly by lifting it straight up while pressing and spreading out the two clamps (J).

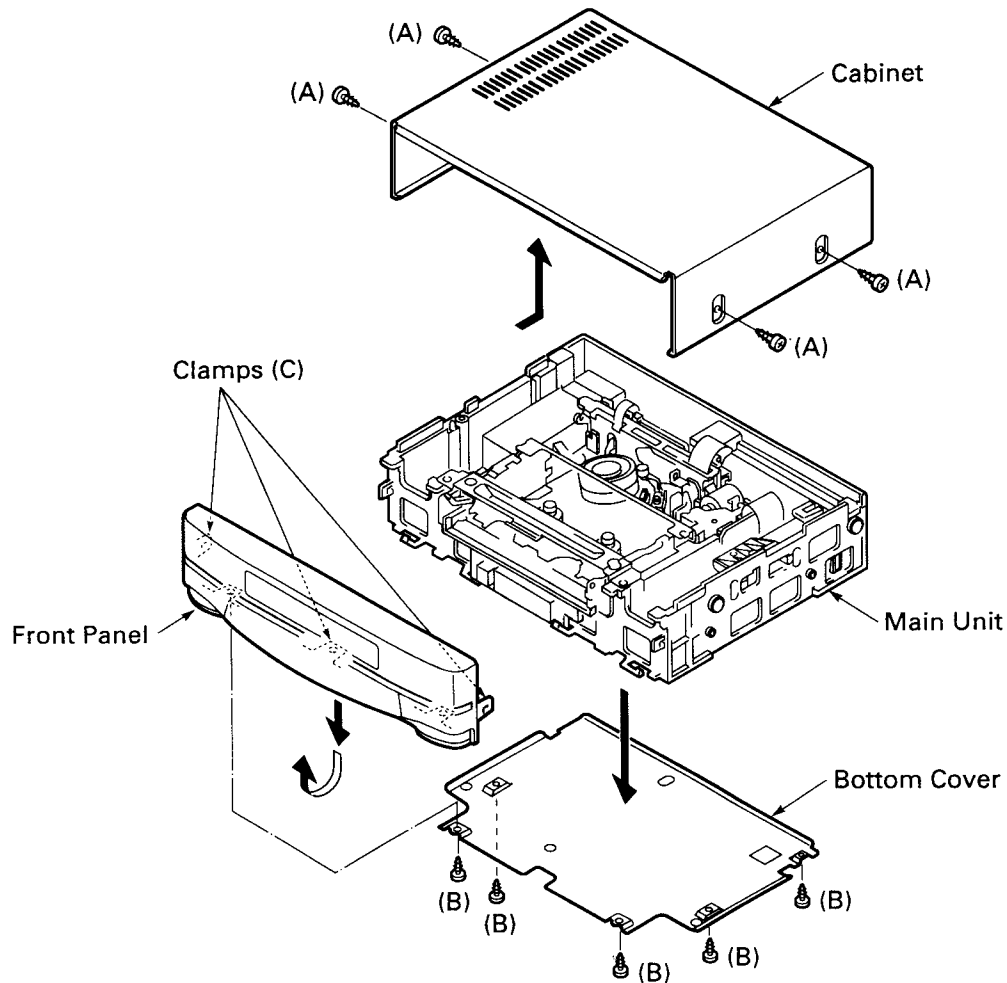


Fig. 1.1

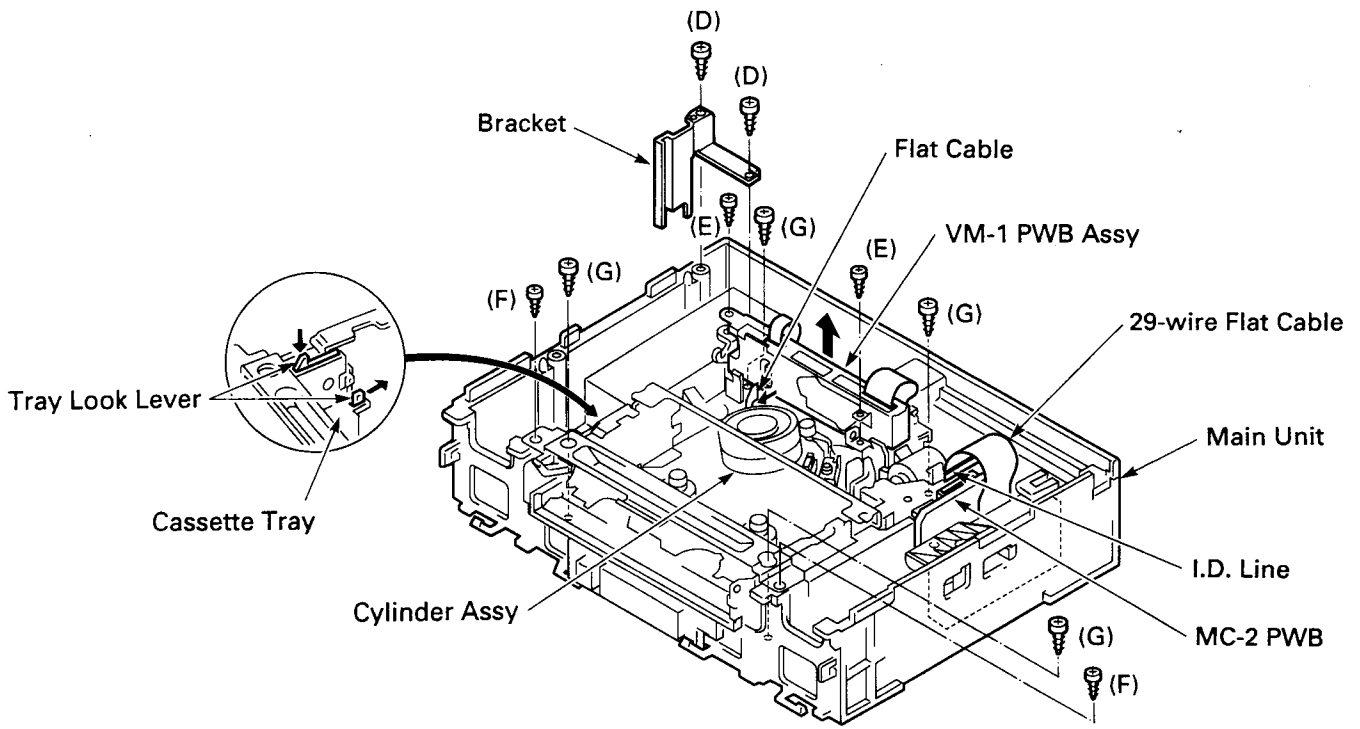


Fig. 1.2

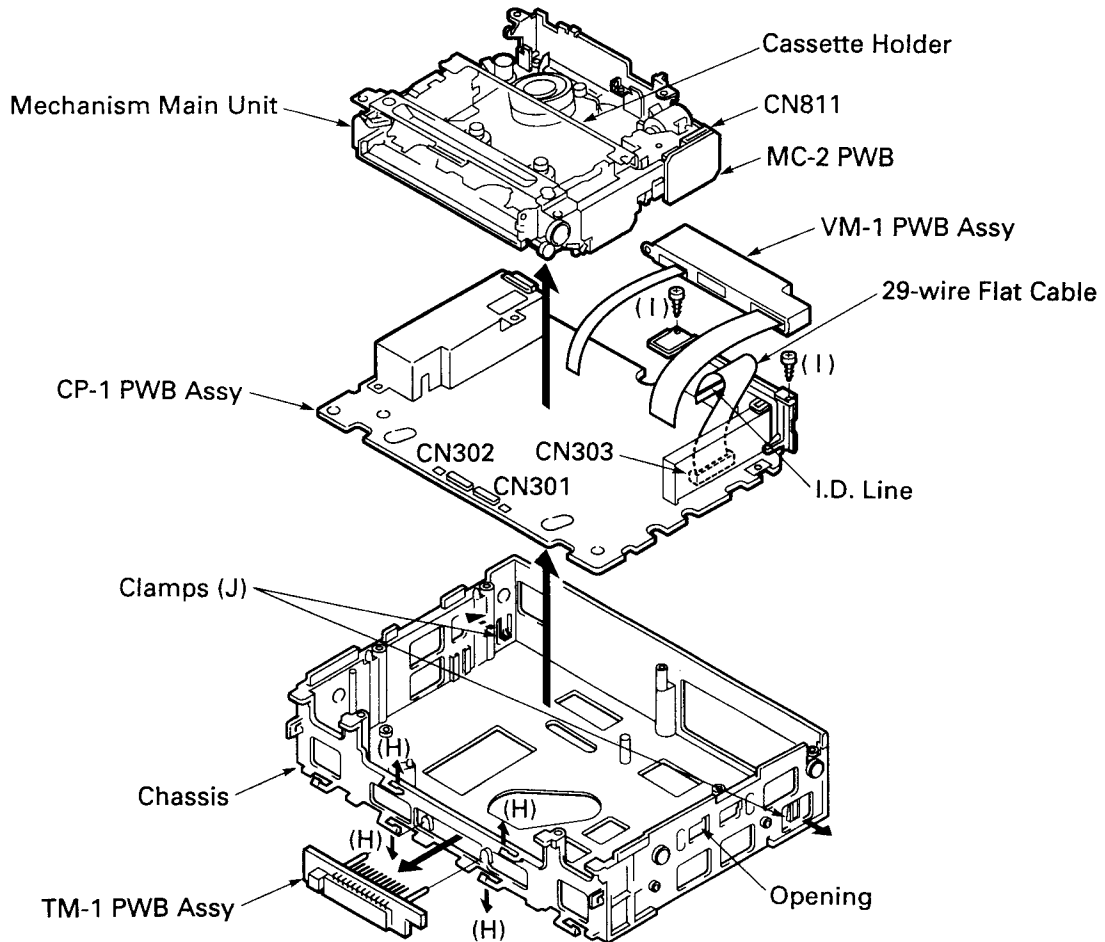


Fig. 1.3

TEMPORARILY SETTING UP AND CONNECTING CP-1 PWB ASSEMBLY (Fig. 1-4)

The following is an example of how to place and connect the main board not requiring a jig, when repairing the CP-1 PWB assembly.

1. Place the mechanism main unit at the fixed position for the chassis. It is not necessary to tighten the screws.
2. Insert the VM-1 PWB assembly at the fixed position of the mechanism unit and connect the flat cable of the cylinder assembly.
3. Connect the 29-wire flat cable to MC-2 PWB, on the mechanism unit. Connect the TM-1 PWB assembly if necessary.
4. Place the CP-1 PWB assembly on top of the mechanism main unit along the cassette holder. Insert the tip (K) of the terminal board into the opening (L) at the side of the chassis, as shown in the enlargement diagram to stabilize the CP-1 PWB assembly.

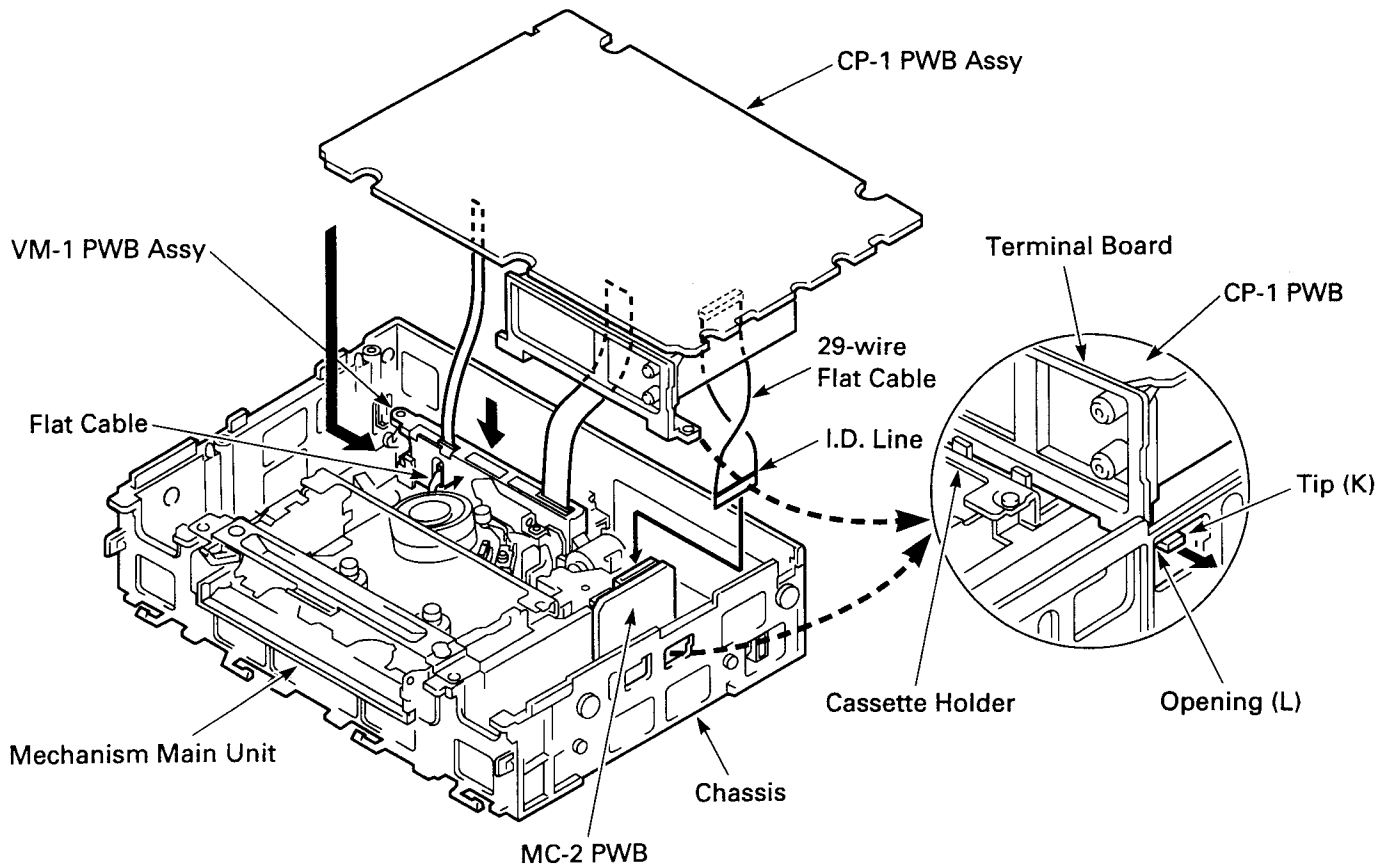


Fig. 1.4

1-2. CIRCUIT BOARD LOCATIONS

L2200

Shield Case
(Power Supply Part)

VM-1 PWB Assy

MC-2 PWB
(On the Mechanism Unit)

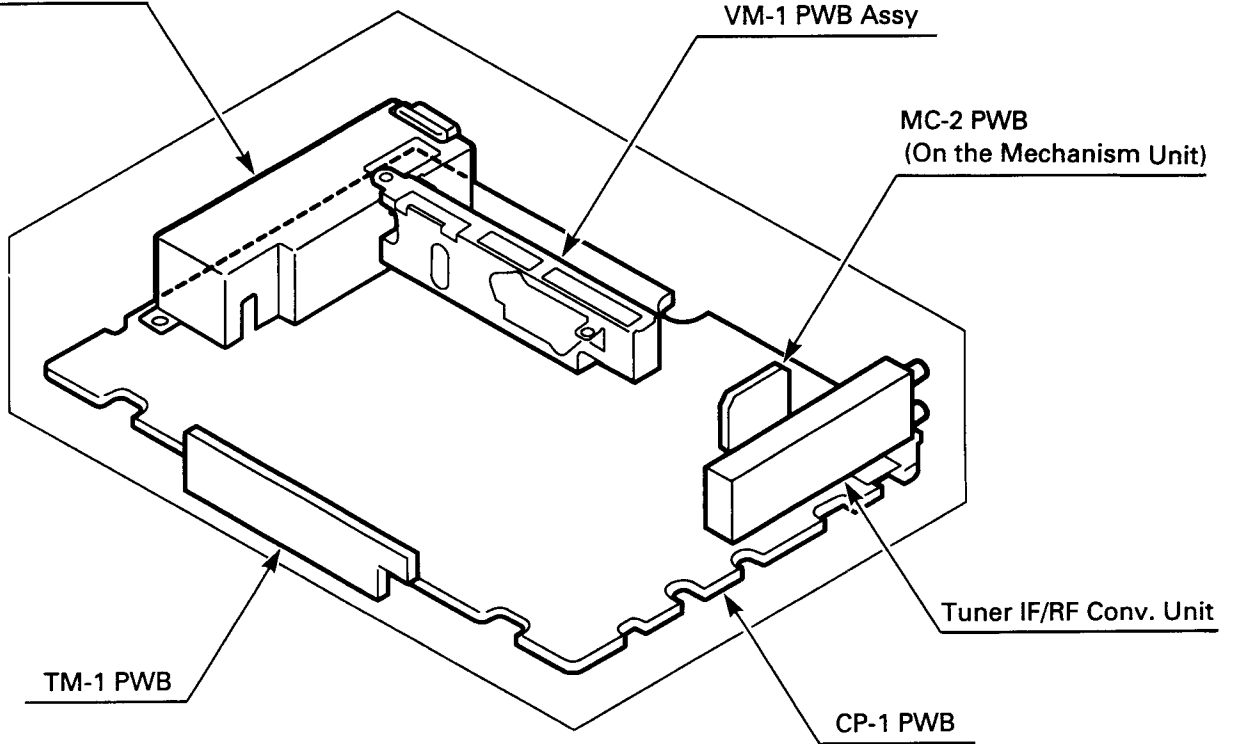


Fig. 1.5

2. ELECTRICAL ADJUSTMENT

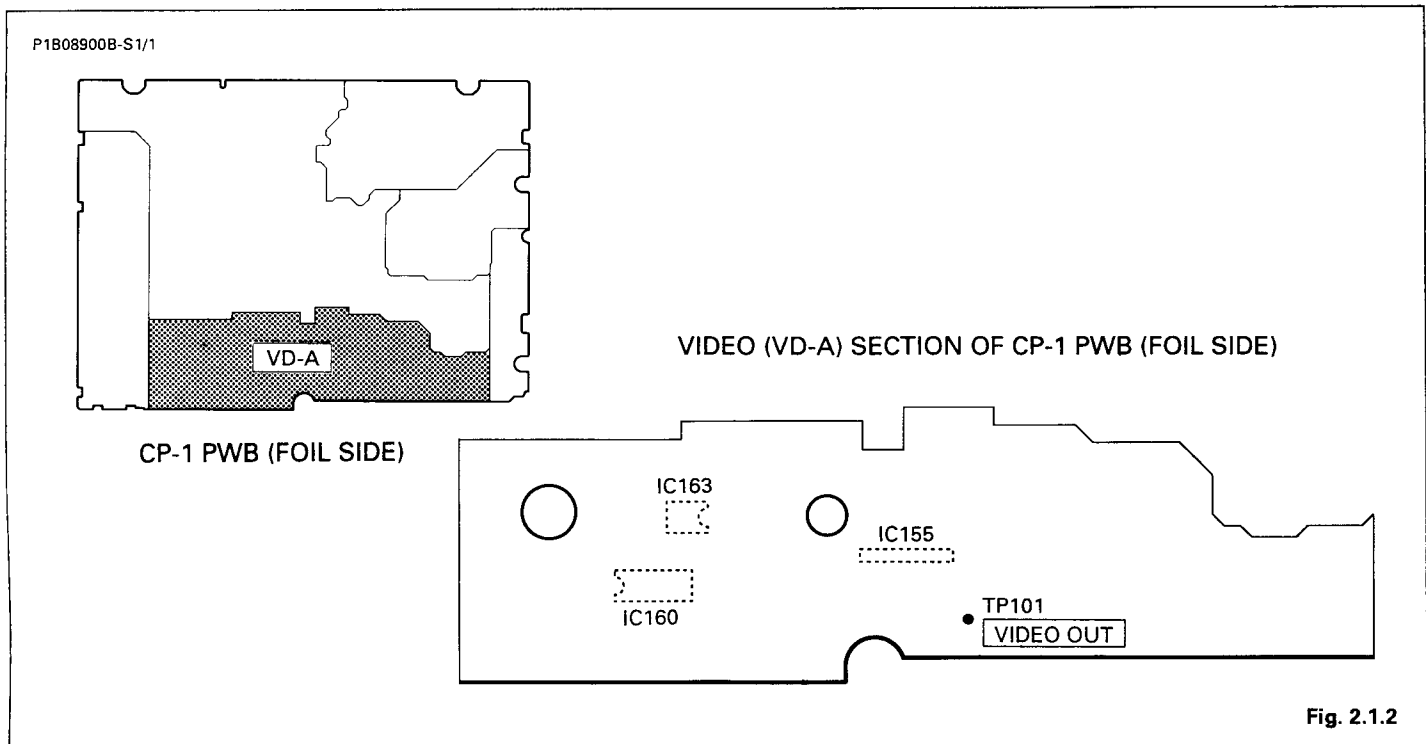
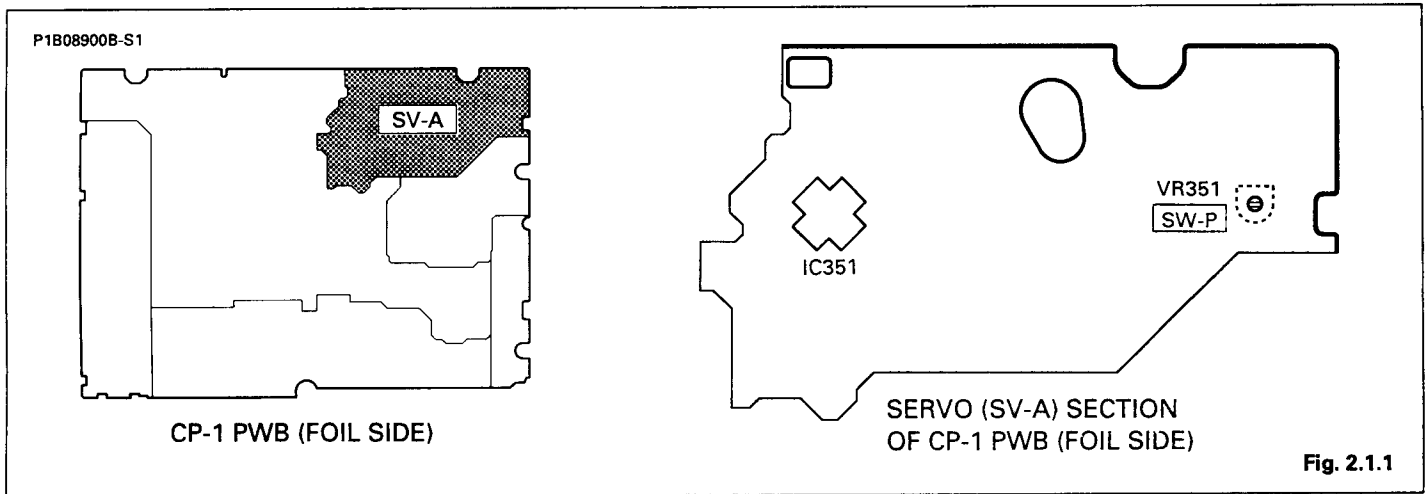
2-1. SERVO CIRCUIT ADJUSTMENT

- These adjustments should be carried out upon completion of the tape transport adjustments.
- If the tape transport adjustments (except the tilt adjustment) are carried out after these adjustments, follow the procedures again in Section 2-1-3. SWITCHING POSITION ADJ.

2-1-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Oscilloscope	Vertical sensitivity: 5 mV/DIV, external trigger Band width: more than 10 MHz
Test Tape	SP mode: VNM-7 (SVJ-00027) or NM-S7 (VHJ-0006)
Blank Tape	VHS-type cassette tape
Monitor TV	

2-1-2. LOCATION OF ADJUSTMENT POINTS



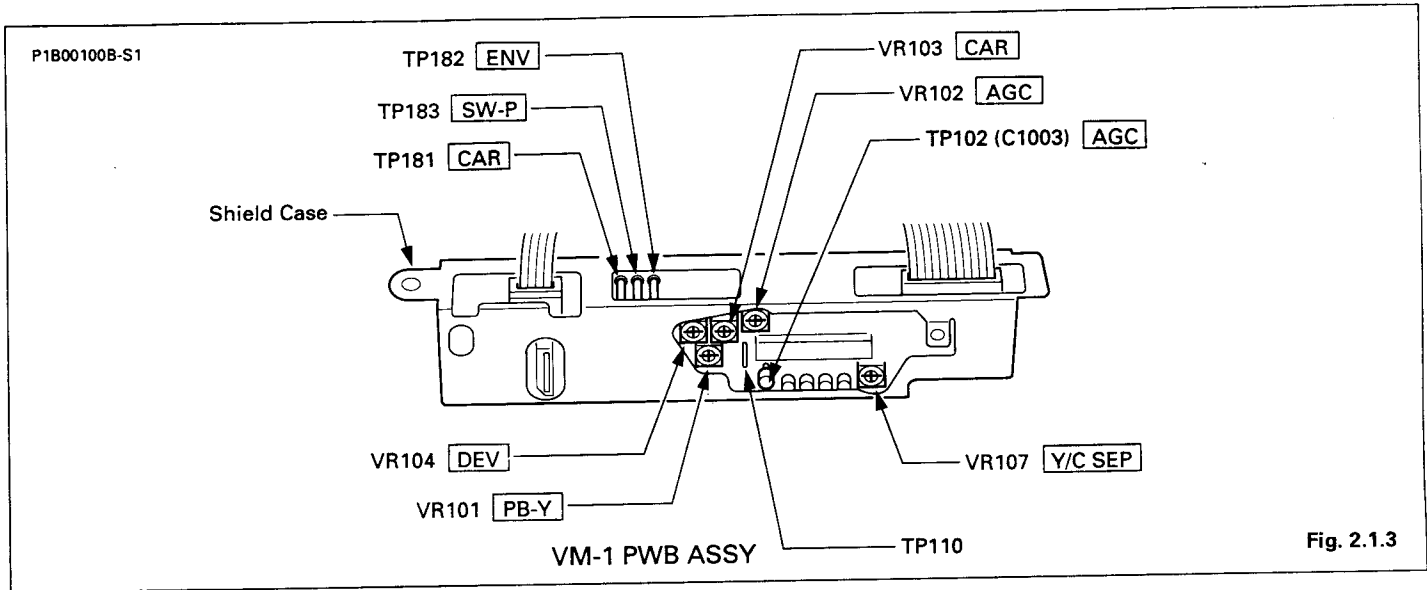


Fig. 2.1.3

NOTES:

- Self-recording means "Record any broadcasting or video signal and play back the just-recorded portion".
- It is possible to use the SLOW function only with remote control operation.

2-1-3. SWITCHING POSITION ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP101 TP183 (SW-P)	Oscilloscope	PLAY (SP) mode Test tape (VNM-7 or NM-S7)
ADJ. Location		ADJ. Value
VR351 (SW-P)		6.5 H ± 0.5 H

1. Set the tracking control position to the center by pressing CHANNEL buttons (▲) and (▼) simultaneously. (Tracking center position display in the indicator panel "T —:— ")
2. Adjust VR351 (SW-P) so that the width "T" becomes 6.5 H ± 0.5 H as shown in Fig. 2.1.4.

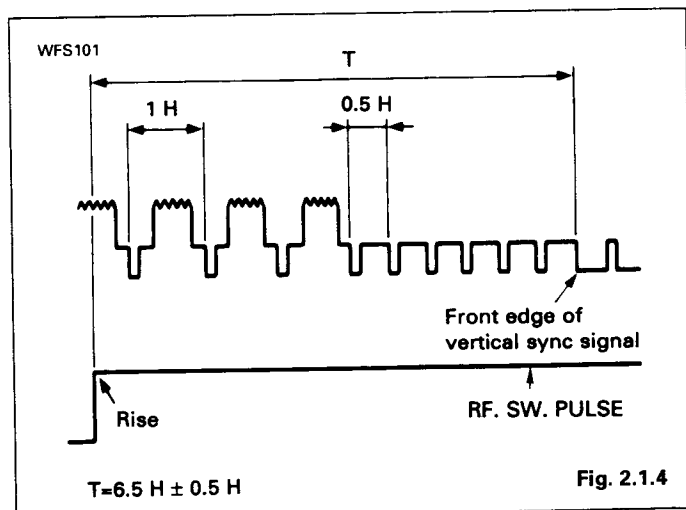


Fig. 2.1.4

2-1-4. STILL V-LOCK ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
Picture of monitor TV	Color bar generator or Broadcasting Monitor	Self-recording (SP mode) STILL mode Blank tape
		Self-recording (EP mode) STILL mode Blank tape
ADJ. Location		ADJ. Value
CHANNEL UP (▲) button CHANNEL DOWN (▼) button		The minimum vertical shake

SP MODE AND EP MODE STILL V-LOCK

1. Play back the just-recorded portion and then set the VCR in the STILL mode.
2. Press the CHANNEL UP (▲) button or the CHANNEL DOWN (▼) button so that any vertical shake of the picture is brought to its minimum.

2-1-5. SLOW TRACKING ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
Picture of monitor TV	Color bar generator or Broadcasting Monitor	Self-recording (SP mode) SLOW mode Blank tape
		Self-recording (EP mode) SLOW mode Blank tape
ADJ. Location		ADJ. Value
CHANNEL UP (▲) button CHANNEL DOWN (▼) button		—

SP MODE AND EP MODE SLOW TRACKING ADJ.

1. Set the tracking control to the center position by pressing CHANNEL buttons (▲) and (▼) simultaneously.
(Tracking center position is displayed on the indicator panel as shown "T —:—".)
2. Play back the self-recorded portion and set the VCR in the SLOW mode with the remote control unit.
3. Confirm that there is no noise on the slow playback display
4. Press the CHANNEL UP button (▲) about three times and check that noise does not appear at the upper part of the display.
5. Adjust the tracking control to the center again.
6. Press the CHANNEL DOWN button (▼) the same number of times as in the step 2 (about three times) and check that noise does not appear at the lower part of the display.

NOTES:

- CHANNEL button also serves as a TRACKING button.
- When the CHANNEL button is released, after a few seconds, the display on the indicator is turned to time display.

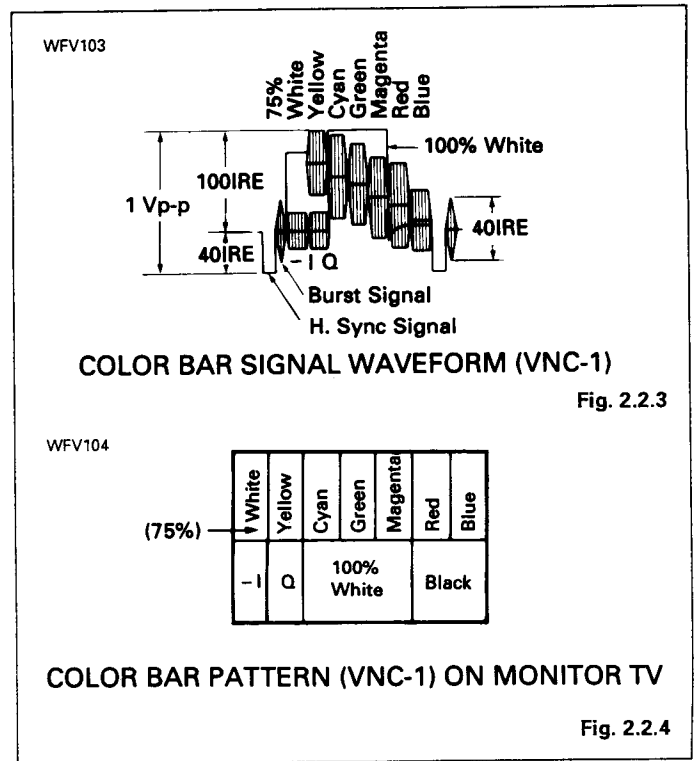
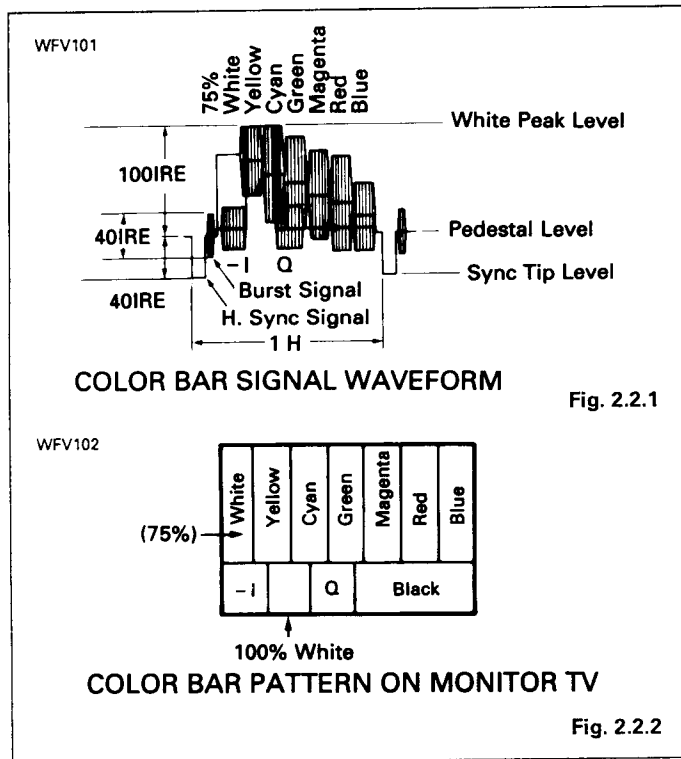
2-2. VIDEO CIRCUIT ADJUSTMENT

Before making the following adjustments, Section 2-1. SERVO CIRCUIT ADJUSTMENT should be completed.

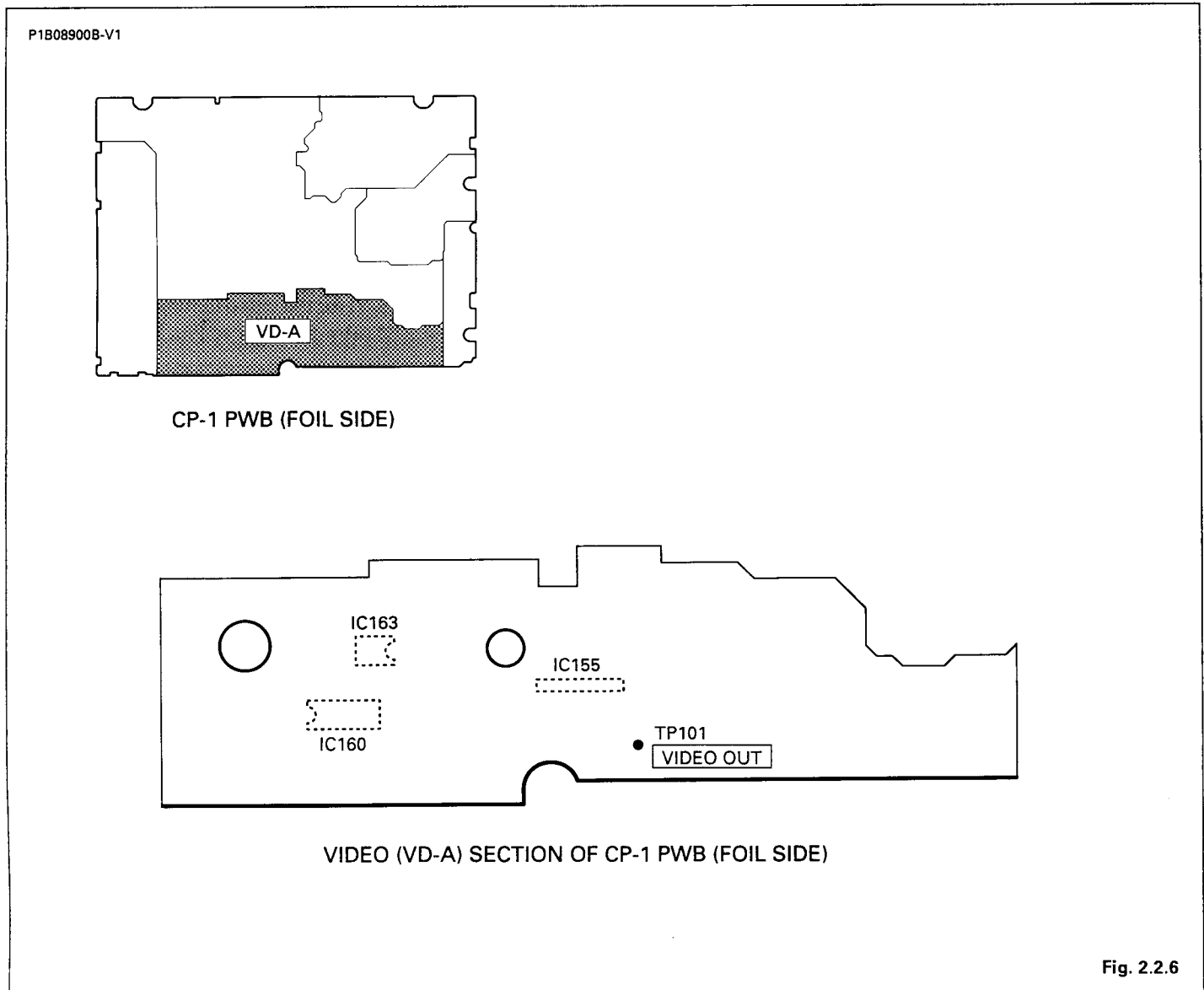
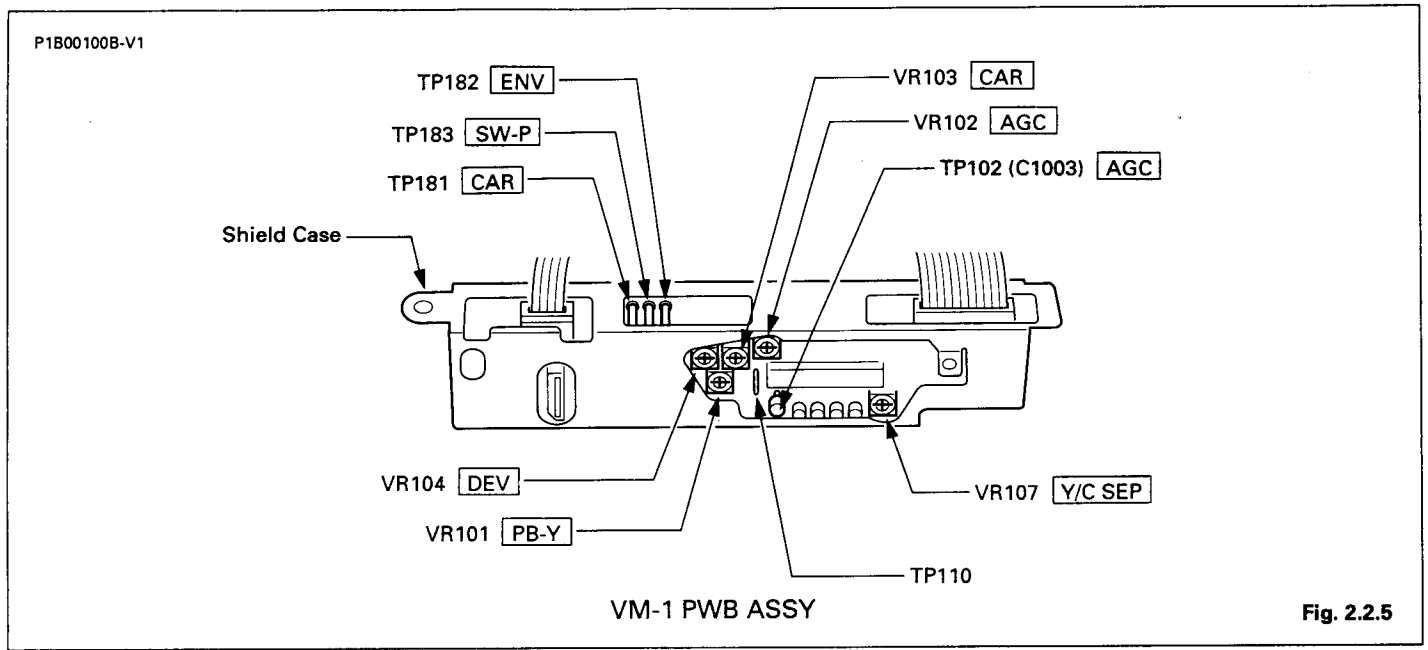
2-2-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Color Bar Signal Generator	Color bar signal with 100% white level (EIA color bar signal) (Signal waveform is described below. Refer to Fig. 2.2.1.)
Oscilloscope	Vertical sensitivity: 5 mV/DIV, external trigger Band width: more than 10 MHz
Test Tape	VNC-1 (SVJ-00028) or NC-S1 (VHJ-0005): SP mode, color bar, 1 kHz (Color bar signal waveform is described below. Refer to Fig. 2.2.3.)
Blank Tape	VHS-type cassette tape
Oscilloscope Probe	Input capacity: less than 25 pF (10:1) less than 40 pF (1:1) Covering frequency: DC ~ 40 MHz (10:1) DC ~ 30 MHz (1:1)
Frequency Counter	8 significant digits
Signal Generator	3.58 MHz CW signal

NTSC TV TEST SIGNAL



2-2-2. LOCATION OF ADJUSTMENT POINTS



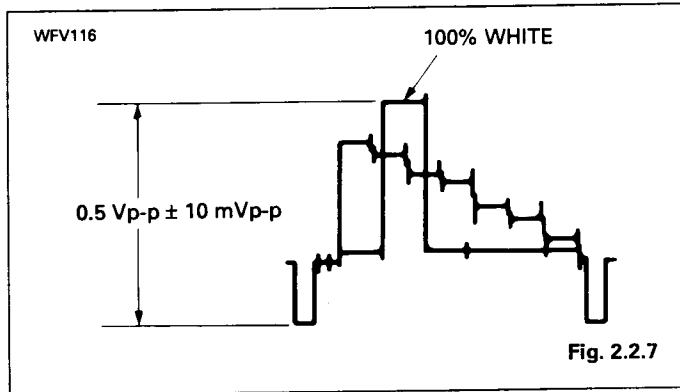
NOTE:

- Self-recording means "Record the video signal and play back the just-recorded portion".

2-2-3. AGC LEVEL ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP102 (Body of C1003)	Oscilloscope (10:1 probe) Color bar generator	E-E mode
ADJ. Location		ADJ. Value
VR102 (AGC)		0.50 Vp-p ± 10 mVp-p

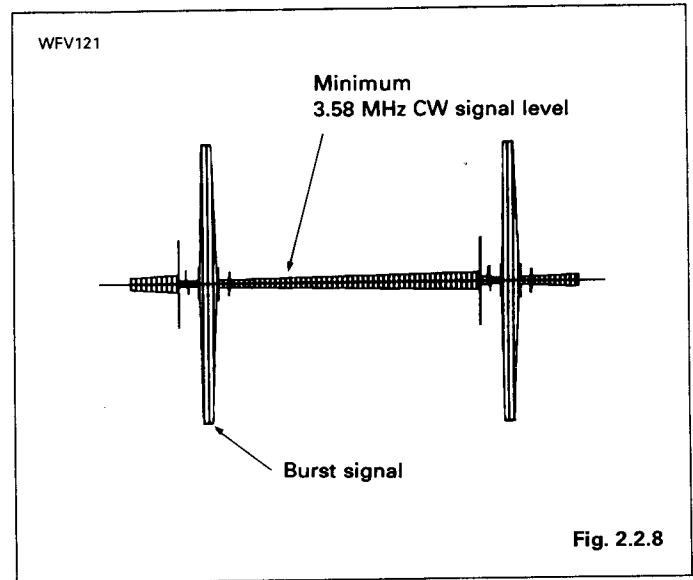
1. Connect the color bar generator to the VIDEO INPUT terminal.
2. Adjust VR102 (AGC) for **0.50 Vp-p ± 10 mVp-p** as shown in Fig. 2.2.7.



2-2-4. Y/C SEP. ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP182 (on VM-1 PWB)	Oscilloscope (10:1 probe) 3.58 MHz CW signal	REC (EP) mode Blank tape
ADJ. Location		ADJ. Value
VR107 (Y/C SEP)		—

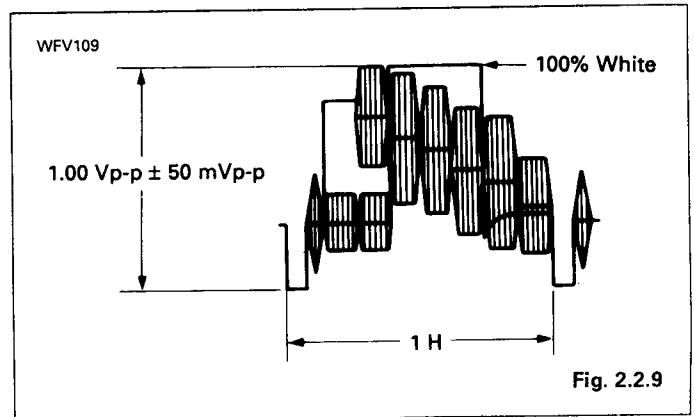
1. Input the 3.58 MHz CW signal to the VIDEO INPUT terminal.
2. Adjust VR107 (Y/C SEP) for the minimum 3.58 MHz CW signal level as shown in Fig. 2.2.8.



2-2-5. PB-Y LEVEL ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP101	Oscilloscope	PLAY (SP) mode Test tape (VNC-1 or NC-S1)
ADJ. Location		ADJ. Value
VR101 (PB-Y)		1.00 Vp-p ± 50 mVp-p

1. Terminate the VIDEO OUTPUT terminal with a 75 Ω resistor.
2. Adjust VR101 (PB-Y) for the video luminance signal level of **1.00 Vp-p ± 50 mVp-p**. (Refer to Fig. 2.2.9.)



2-2-6. CARRIER SET ADJ.

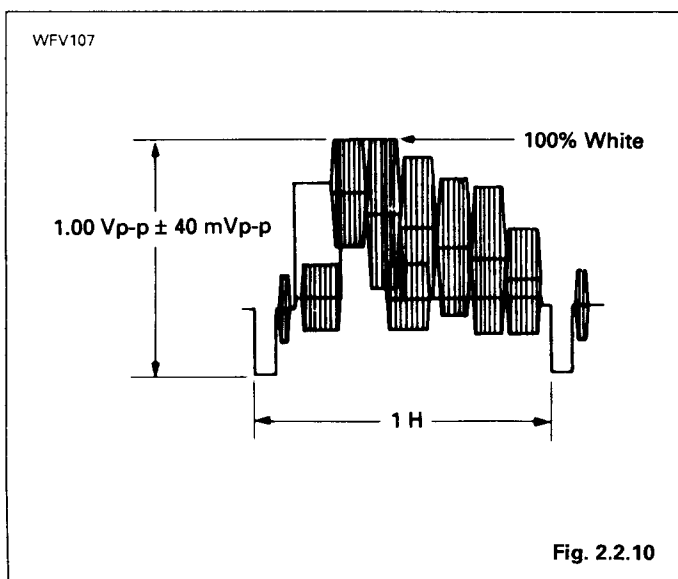
Measuring Point	Measuring Equipment	ADJ. Condition
TP181 (on VM-1 PWB)	Frequency counter	E-E mode
ADJ. Location		ADJ. Value
VR103 (CAR)		3.44 MHz \pm 30 kHz

1. Disconnect the power cord of VCR unit from AC outlet.
2. Disconnect every input signal from VIDEO INPUT terminal.
3. Connect the power cord of VCR unit to AC outlet.
4. Press the power switch to ON and adjust VR103 (CAR) so that in the zero level signal status the frequency at TP181 becomes **3.44 MHz \pm 30 kHz**.

2-2-7. DEVIATION ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP101	Color bar generator Oscilloscope	Self-recording (EP) mode Blank tape
ADJ. Location		ADJ. Value
VR104 (DEV)		1.00 Vp-p \pm 40 mVp-p

1. Connect the color bar generator to the VIDEO INPUT terminal.
2. Terminate the VIDEO OUTPUT terminal with a 75 Ω resistor.
3. Play back of the just-recorded portion.
4. Adjust VR104 (DEV) for **1.00 Vp-p \pm 40 mVp-p** as shown in Fig. 2.2.10.
5. If the adjustment value is not satisfactory, adjust VR104 and repeat steps 3 to 4.



2-3. AUDIO CIRCUIT ADJUSTMENT

- Before making these adjustments, (especially, the tape guide height and audio control erase head height adjustments) should be carried out, so that the tape traveling between the loading guide pole and the audio control erase head runs without fluttering, twisting, curling.
- Before making these adjustments, Section 2-1. SERVO and Section 2-2. VIDEO circuit adjustments should be carried out.

2-3-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Standard Audio Signal Generator (SG)	Output frequency : 10 Hz ~ 20 kHz Output level : more than 1 Vrms Output impedance : 600 Ω Distortion ratio : less than 0.1% Output in use SG : Frequency: 1 kHz, 10 kHz (switchable) Output level: -28 dBs ± 0.5 dB
Color Bar Signal Generator	Color bar signal with 100% white level. (Signal waveform is described before. Refer to Fig. 2.2.1.)
Oscilloscope	Vertical sensitivity : 10 mV/DIV Band width : more than 30 MHz
AC Voltmeter	Effective value indication Input frequency : 10 Hz ~ 20 kHz Input Impedance : more than 1 MΩ Measurement level : 1 mV (full scale)
Blank Tape	VHS-type cassette tape
Dummy Plug	RCA plug, Shorting type

2-3-2. LOCATION OF ADJUSTMENT POINTS

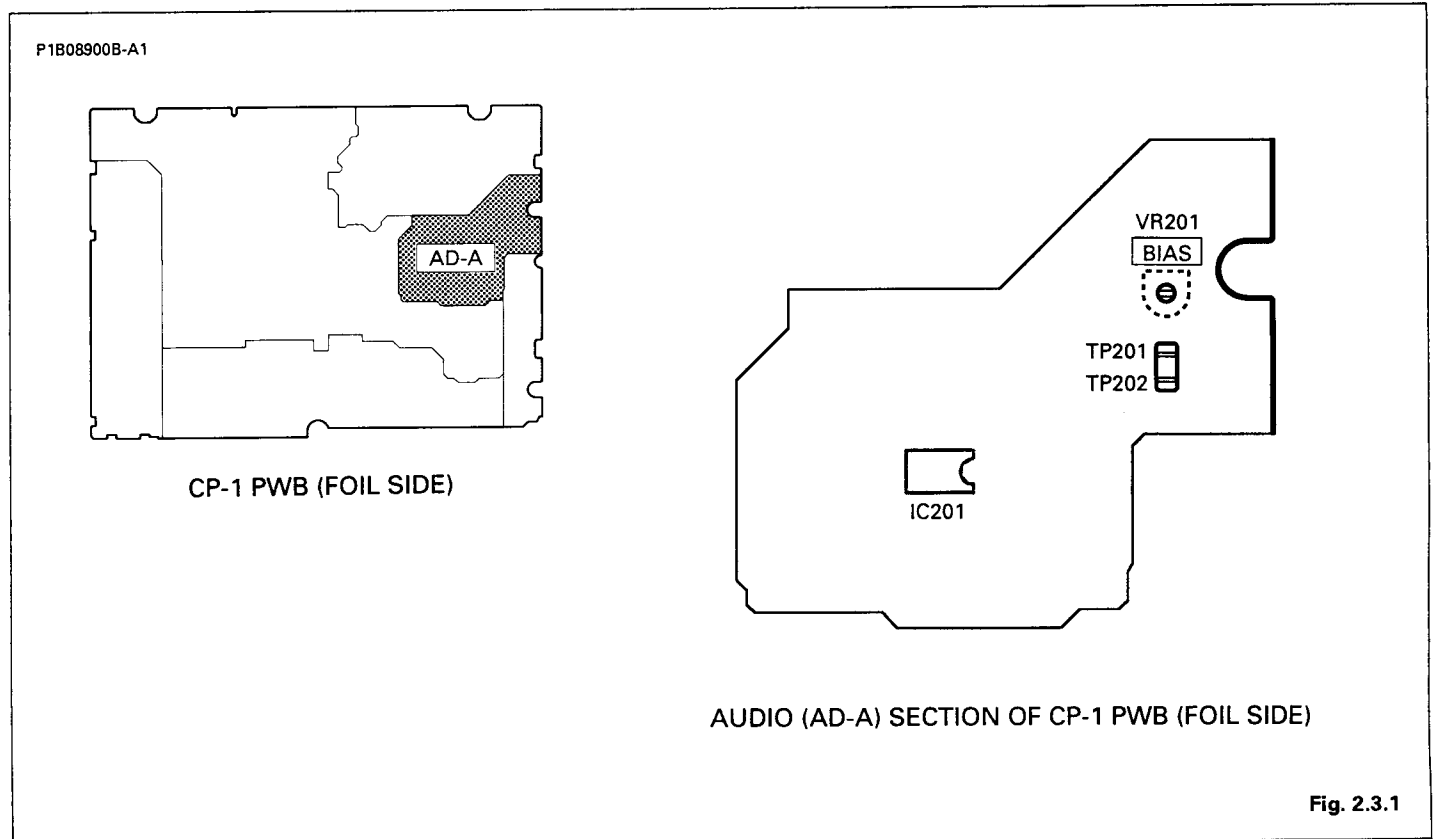


Fig. 2.3.1

NOTES:

- Self-recording means "Record the audio signal and play back the just-recorded portion."
- Set the INPUT select to the "AV" position with the remote control unit. (for the model VHR-5417 only.)

2-3-3. BIAS LEVEL ADJ.**[A]**

Measuring Point	Measuring Equipment	ADJ. Condition
TP201 (HOT) TP202 (EARTH)	Color bar generator Oscilloscope AC voltmeter Dummy plug	REC (SP) mode Blank tape
ADJ. Location		ADJ. Value
VR201 (BIAS)		23 mVrms

1. Connect the color bar generator to the VIDEO INPUT terminal.
2. Insert the dummy plug into the AUDIO INPUT terminal.
3. After confirming on the oscilloscope that a 70 kHz sine wave is being output, adjust VR201 (BIAS) so that the AC voltmeter's reading is **23 mVrms**.

[B]

Measuring Point	Measuring Equipment	ADJ. Condition
AUDIO OUTPUT terminal	Oscilloscope AC voltmeter Standard audio signal generator (SG)	Self-recording (SP mode) Blank tape
ADJ. Location		ADJ. Value
VR201 (BIAS)		-1 dB ~ +2 dB between 1 kHz and 10 kHz

1. Connect the standard audio signal generator to the AUDIO INPUT terminal.
2. Set the standard audio signal generator's output level to -28 dBs.
3. Set the standard audio signal generator's frequency to 1 kHz and then 10 kHz. Record each of these frequency signals.
4. Play back each of the just-recorded portion.
5. Confirm that the 10 kHz level on AC voltmeter's reading is **from -1 dB to +2 dB**, compared with 1 kHz level.
6. If the 10 kHz level is less than -1 dB below 1 kHz level, rotate VR201 (BIAS) slightly clockwise (seeing from the foil side) to adjust it.
7. If the 10 kHz level is more than +2 dB above 1 kHz level, rotate VR201 (BIAS) slightly counterclockwise (seeing from the foil side) to adjust it.
8. Repeat steps 3 through 7 if necessary.

2-4. IF (RF AGC) CIRCUIT ADJUSTMENT

- In this model, the circuits of the TUNER, IF and RF converter have been made into one. Therefore, should one circuit malfunction, the whole unit must be replaced.

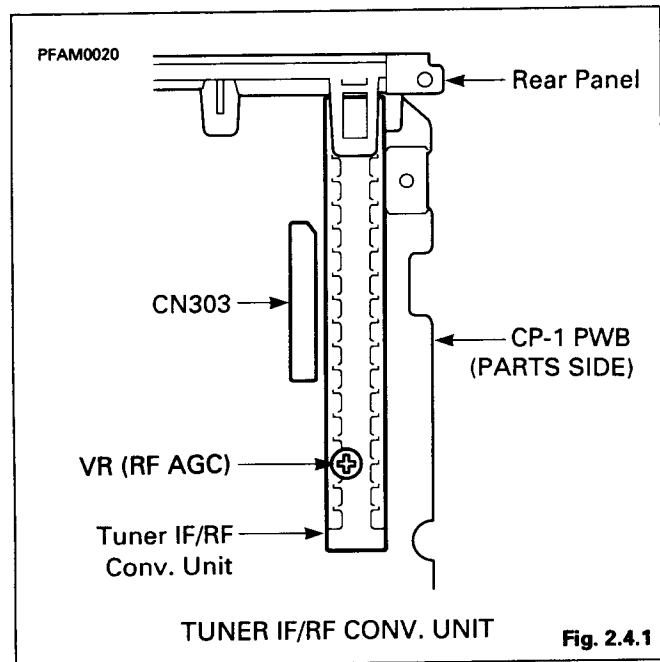
Note: The TUNER IF/RF CONV. unit does not need any adjustments, because precise adjustments have been performed before shipment.

- The adjustments for the IF (RF AGC) circuit of the TUNER IF/RF CONV. unit are described below.

2-4-1. TEST EQUIPMENT AND STANDARD REQUIRED

Monitor TV	
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2-4-2. LOCATION OF ADJUSTMENT POINT



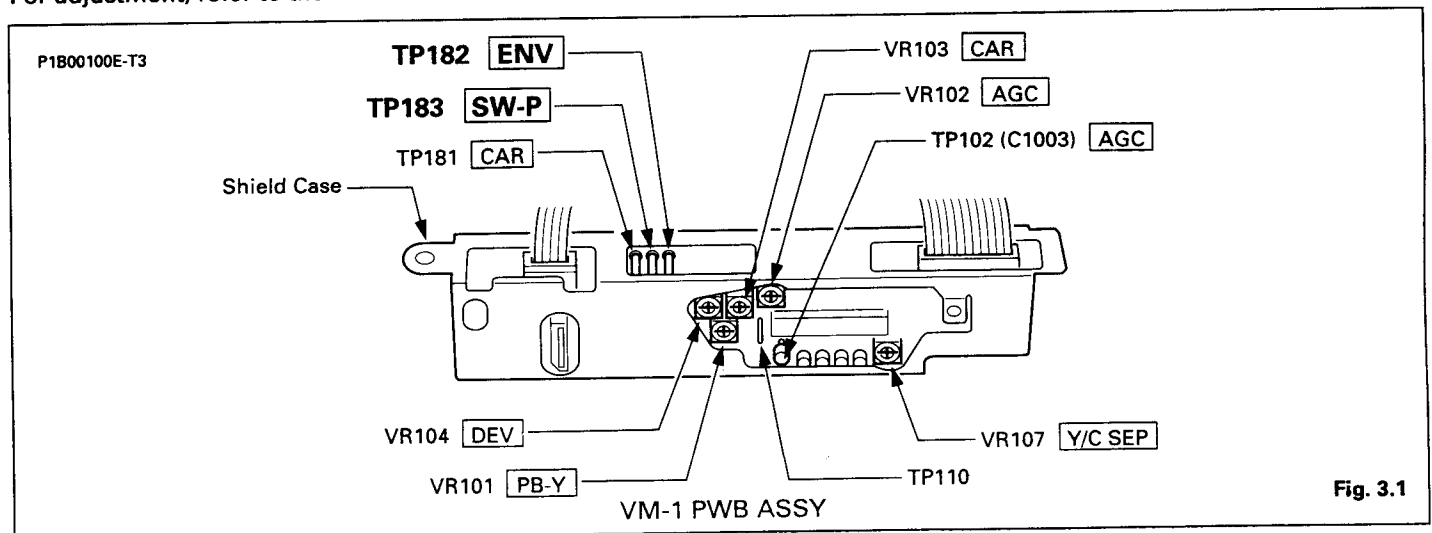
2-4-3. RF AGC ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
Picture of monitor TV	Monitor TV	EE-mode
ADJ. Location		ADJ. Value
VR(RF AGC) (on the IF circuit)		S/N is best point

- Connect the monitor TV to VHF/UHF ANTENNA OUTPUT terminal.
- Connect the VHF antenna to VHF/UHF ANTENNA INPUT terminal.
- Receive the middle electrical field (60 dB μ ~ 80 dB μ) of the VHF high channel, and slowly turn VR(RF AGC) from the point where snow-noise is present to the point where it just disappears from the monitor TV.
- Confirm by monitor TV that there is no beat and saturation (S/N is best point) when receiving any TV channel.

3. TEST POINT FOR TAPE PATH ADJUSTMENT

Test point TP182 (ENV) and TP183 (SW-P) for tape path adjustment is shown in Figure below. For adjustment, refer to the Mechanism Service Technical Information (WM-530596 and MS531167).



4.PARTS LIST

ACCESSORIES

LOCATION	PARTS NO.	DESCRIPTION
	613 146 6944	REMOCON,VHR-5417(WITH LID,BATTERY)
OR	645 002 2319	REMOCON,VWM-320(WITH LID,BATTERY)
OR	645 002 3576	REMOCON,VHR-5416(WITH LID,BATTERY)
	613 102 9323	LID,BATTERY FOR REMOCON (VHR-5417 ONLY)
OR	613 136 4820	LID,BATTERY FOR REMOCON (VHR-5416,VWM-320)
	613 145 5788	INSTRUCTION MANUAL,(VHR-5417 ONLY)
OR	613 145 5757	INSTRUCTION MANUAL,(VWM-320 ONLY)
OR	613 145 5818	INSTRUCTION MANUAL,(VHR-5416 ONLY)
	621 006 9226	CONNECTOR CABLE 75
OR	621 006 9240	CONNECTOR CABLE 75
OR	621 006 9257	CONNECTOR CABLE 75
OR	621 006 9271	CONNECTOR CABLE 75
	△ 613 124 3194	CORD,POWER US

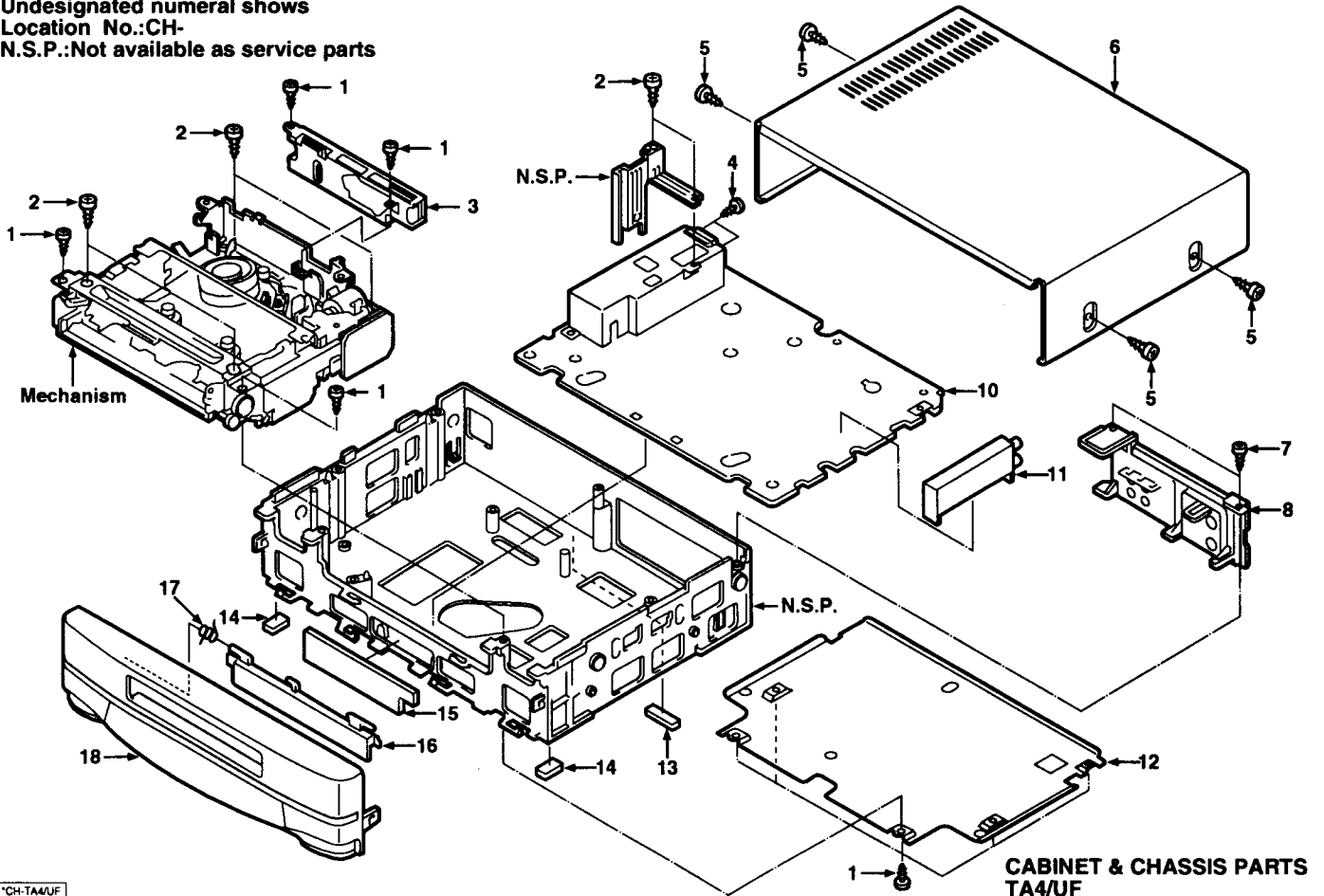
PACKING MATERIALS

LOCATION	PARTS NO.	DESCRIPTION
	613 144 0517	CARTON CASE(VHR-5417 ONLY)
OR	613 146 6357	CARTON CASE(VWM-320 ONLY)
OR	613 146 9860	CARTON CASE(VHR-5416 ONLY)
	613 144 5802	CUSHION,FRONT(VHR-5417 ONLY)
OR	613 146 5985	CUSHION,FRONT(VWM-320,VHR-5416)
	613 144 5819	CUSHION,BACK(VHR-5417 ONLY)
OR	613 146 5992	CUSHION,BACK(VWM-320,VHR-5416)
	613 099 1768	POLYE COVER,INNER-K

CABINET & CHASSIS PARTS

LOCATION	PARTS NO.	DESCRIPTION
CH-1	411 137 0007	SCR L-TPG BIN 3X10
CH-2	411 021 7907	SCR S-TPG BIN 4X12
CH-3	613 145 0639	COMPL PWB,VM-1(N.S.P.)
CH-4	411 021 6405	SCR S-TPG BIN 3X8
CH-5	412 028 9406	SPECIAL SCREW
CH-6	613 140 7411	COMPL,COVER TOP(VHR-5417 ONLY)
OR	613 143 4288	COMPL,COVER TOP(VWM-320,VHR-5416)
CH-7	411 021 3800	SCR S-TPG BIN 3X10
CH-8	613 146 5077	TERMINAL
CH-10	613 146 3103	COMP PWB,CP-1-A(N.S.P.)(VHR-5417 ONLY)
OR	613 146 6678	COMP PWB,CP-1-A(N.S.P.) (VWM-320,VHR-5416)
CH-11	645 000 2724	TUNER,RF/TU/IF
CH-12	613 139 2182	COVER BOTTOM
CH-13	613 145 0707	STAND,BACK(VWM-320,VHR-5416)
CH-14	613 121 1001	STAND,FELT,FRONT
CH-15	613 139 4162	COMPL PWB,TM-1(N.S.P.)
CH-16	613 146 4629	DOOR CASSETTE(VHR-5417 ONLY)
OR	613 146 2038	DOOR CASSETTE(VWM-320 ONLY)
OR	613 146 5879	DOOR CASSETTE(VHR-5416 ONLY)
CH-17	613 140 7459	SPRING
CH-18	613 146 2847	ASSY,CABINET FRONT(VHR-5417 ONLY)
OR	613 146 6258	ASSY,CABINET FRONT(VWM-320 ONLY)
OR	613 146 9655	ASSY,CABINET FRONT(VHR-5416 ONLY)

Undesignated numeral shows
Location No.:CH-
N.S.P.:Not available as service parts



MECHANISM PARTS

DB600200
MB0002ZZ

LOCATION PARTS NO. DESCRIPTION

LOCATION PARTS NO. DESCRIPTION

MECHANISM PARTS 1

DR-1	613 022 0295	COMPL,CYLINDER,2N4N
DR-2	411 038 1608	SCR PAN+W 3X8
DR-3	613 022 0332	ASSY,CYLINDER,UPR 2N4N
DR-4	613 022 0325	ASSY,CYLINDER,LWR4
DR-5	613 107 0509	SPACER,MOTOR 0.5T
DR-6	613 088 9072	BASE,CYLINDER
DR-7	411 047 7509	SCR PAN+FLG 3X6
DR-8	411 047 5000	SCR PAN+FLG 2.6X8
DR-9	613 085 7279	STATOR,MOTOR CYL
DR-10	411 044 8301	SCR PAN+SW 2.3X10
OR	411 044 9209	SCR PAN+SW 2.3X8
DR-11	613 022 4019	ROTOR,MOTOR CYL
DR-12	411 044 9001	SCR PAN+SW 2.3X6

MB-1	613 123 4802	SLEEVE
MB-2	613 053 3227	SPECIAL WASHER
MB-3	613 123 4970	TAPE GUIDE
MB-4	411 004 5302	NUT HEX (3)
MB-5	613 123 9418	CAP
MB-6	613 021 9961	ASSY,SLIDE,ACT PINCH
MB-7	613 021 9800	ASSY,LEVER,CAM PINCH
MB-8	411 109 2008	WASHER Y 3.1X8X0.5
MB-9	613 022 1797	SPRING,ACE HEAD
MB-10	613 144 5741	COMPL,BRACKET,HEAD
MB-11	613 110 1692	SLEEVE,ACE HEAD
MB-12	412 015 8207	SPECIAL NUT (M5)
MB-13	411 120 0007	SCR PAN+SW+W 2.6X5
MB-14	613 120 3631	BRACKET,STOPPER
MB-15	613 022 1582	SPRING,SLIDE BRAKE
MB-16	613 094 9240	COMPL,SLIDE,CAM
MB-17	613 022 1575	SPRING,LINK LOCK
MB-18	613 022 2725	DAMPER
MB-19	613 022 2534	GEAR,FRONT LOAD
MB-20	613 094 1206	ASSY,LEVER,FRONT
MB-21	613 134 2910	GEAR,HELICAL FRONT
MB-22	411 046 8002	SCR PAN+SW+W 2.6X6
MB-23	411 023 2801	SCR S-TPG PAN 2.6X6
MB-24	411 021 3107	SCR S-TPG BIN 2.6X8
OR	411 023 3303	SCR S-TPG PAN 2.6X8
MB-28	613 077 3227	HOLDER,WORM
MB-29	613 027 0382	WASHER
MB-30	613 078 8320	ASSY,WORM,FRONT
MB-31	613 117 0599	BRACKET,HOLDER
MB-32	613 093 9159	PLATE,NUT
MB-33	613 093 8374	DAMPER,MOTOR
MB-34	613 077 3616	DAMPER,WORM
MB-35	613 121 9960	ASSY,LOADING MOTOR
MB-36	613 092 9945	DAMPER,MOTOR
MB-37	613 132 8075	COMPL PCB,MC-3(N.S.P.)
MB-38	613 143 8439	COMPL PWB,MC-2(N.S.P.)
MB-39	613 110 0374	ROTARY SWITCH
MB-40	411 126 5303	SCR PAN 2.6X13
MB-41	613 092 9921	ASSY,SLIDE,FRONT
MB-42	613 092 5985	SPRING,LEVER LOAD
MB-43	613 092 5992	SPRING,LEVER ACT
MB-44	613 092 5886	HOLDER,WORM
OR	613 138 8628	HOLDER,WORM
MB-45	613 027 0627	WASHER 2.1X6X0.5
MB-46	613 092 9938	ASSY,WORM,LOAD
MB-47	613 022 2985	BELT,LOADING
MB-48	412 033 4106	WASHER SLIT 2.6X5X0.50
MB-49	613 077 3579	GEAR,HELICAL
MB-50	613 102 9293	ASSY,LEVER,REV GUIDE
MB-51	613 022 1568	SPRING,REVIEW LEVER
MB-52	613 022 0158	COMPL,PINCH ROLLER
MB-53	613 147 9951	SPRING,PINCH ROLLER
MB-54	411 109 2107	WASHER Y 3.6X6X0.5
MB-55	613 078 8160	COMPL,LEVER,ACT BRAKE

Note:

As shown in the figure, the parts supporting the "ASSY,GUIDE,ROLLER" of Location No. MB-61 comes in two types-group A and group B. (Location MB-60 and 61 are the same.) No one part of group A can be replaced by that of group B by itself, but group A and group B can be replaced as a whole as they are interchangeable.

NOTE-M1

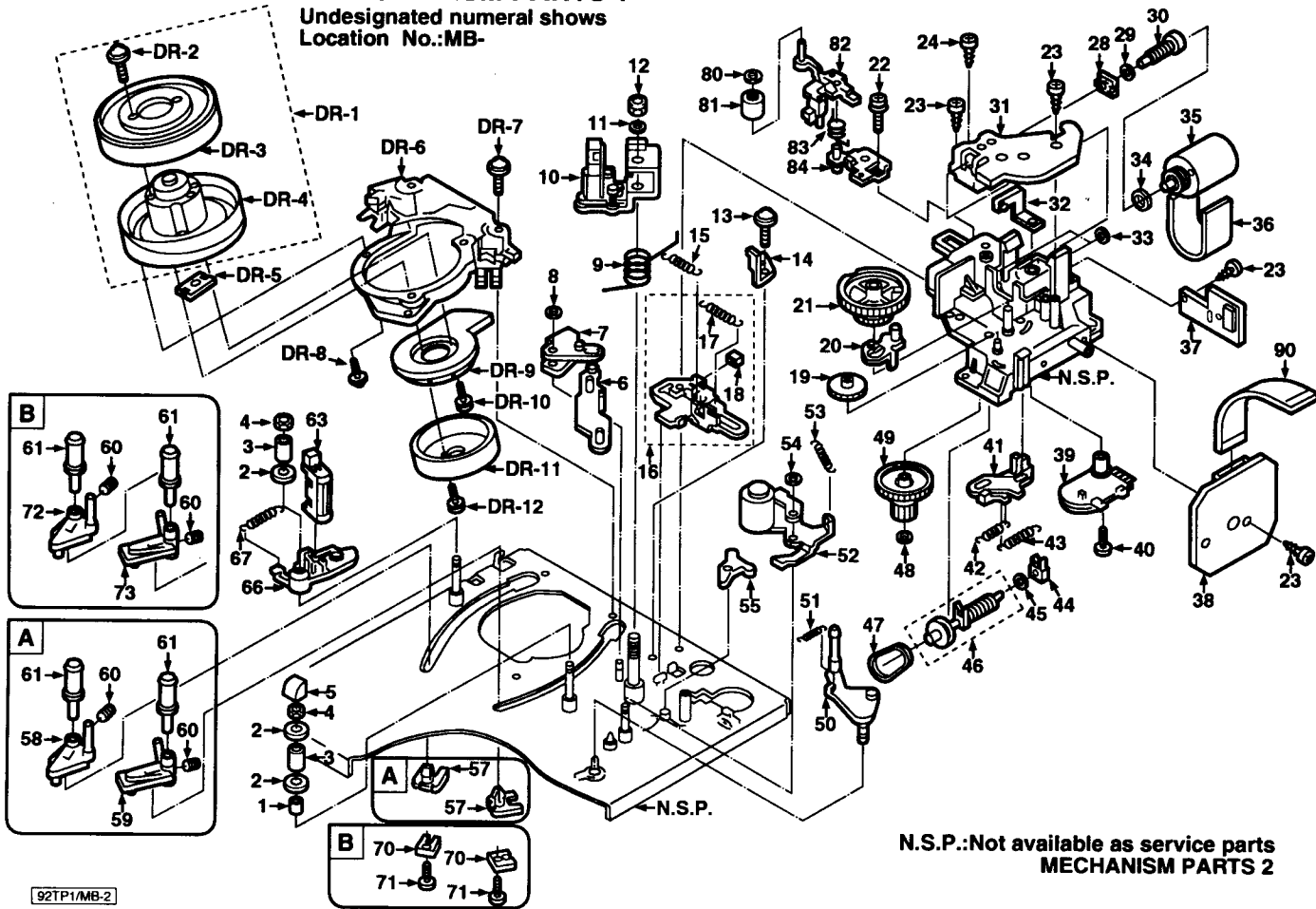
MB-57	613 135 7655	PLATE,BGR
MB-58	613 145 5009	ASSY,MOUNTING,ROLLER S
MB-59	613 145 5016	ASSY,MOUNTING,ROLLER T
MB-60	411 063 0904	SCR SET HEX-SCT 2X3
MB-61	613 022 0233	ASSY,GUIDE,ROLLER
MB-63	645 000 2533	HEAD,ERASE FULL
MB-66	613 136 0532	LEVER,FE HEAD
MB-67	613 022 1698	SPRING,ERASE HEAD
MB-70	613 022 1919	PLATE,GUIDE
MB-71	411 031 1209	SCR BIN 2.6X5
MB-72	613 021 9725	ASSY,BASE,ROLLER S
MB-73	613 021 9732	ASSY,BASE,ROLLER T
MB-80	411 109 1803	WASHER Y 2.6X6X0.5
MB-81	613 119 8562	ASSY,ROLLER,CLEANER
MB-82	613 143 1881	ASSY,LEVER,CLEANER
MB-83	613 119 8593	SPRING
MB-84	613 142 9055	BRACKET,CLEANER
MB-90	613 144 3051	FLEXIBLE FLAT CABLE SCN811-CN303

MECHANISM PARTS 2

MC-1	645 000 5053	MOTOR,CAPSTAN DC 3W
MC-2	613 022 2978	BELT,REEL DRIVE
MC-3	613 135 4609	COMPL,LEVER,CLUTCH
MC-6	613 022 1520	SPRING,LEVER CLUTCH
MC-7	613 082 3434	LEVER,CHANGE CLUTCH
MC-8	613 022 1711	SPRING,CHANGE CLUTCH
MC-9	613 081 7518	ASSY,BRAKE,CAPSTAN
MC-10	613 098 2285	SPRING,CAPSTAN
MC-12	411 021 3107	SCR S-TPG BIN 2.6X8
MC-13	411 109 2008	WASHER Y 3.1X8X0.5
MC-14	613 142 9093	SLIDE,CAM PLATE
MC-15	613 022 2701	CAM,MODE
MC-16	411 109 1902	WASHER Y 3.1X6X0.5
MC-17	613 135 7686	CAM,MAIN
MC-18	613 135 7532	ASSY,RACK,LOAD
MC-19	411 109 1803	WASHER Y 2.6X6X0.5
MC-20	613 135 7648	SPACER,RACK LOAD
MC-22	411 047 6809	SCR PAN+FLG 3X4
MC-23	613 021 9763	ASSY,EARTH,CYL
MC-24	613 135 7662	GEAR,LOAD TAKE UP
MC-25	613 022 1551	SPRING,GEAR LOAD T
MC-26	613 021 9879	ASSY,LEVER,LOAD T
MC-27	613 090 6373	GEAR,LOAD S
MC-28	613 022 1704	SPRING,GEAR LOAD S
MC-29	613 021 9862	ASSY,LEVER,LOAD S
MC-30	613 022 2039	LEVER,RETURN TENSION
MC-31	613 091 3104	ASSY,LEVER CONTROL
MC-34	411 028 6309	SCR S-TPG PAN 2.6X6
MC-35	412 015 8603	SPECIAL WASHER 3.1X6X0.25
MC-36	613 130 9890	ASSY,GEAR,FRICTION
MC-37	412 045 4606	SPECIAL WASHER 2.4X6X0.25
MC-38	411 092 0906	WASHER Z 2.6X10X0.5
MC-40	411 100 0300	SCR S-TPG BIN 2.6X5
MC-41	613 120 9060	COMPL,MC-1(N.S.P.)

EXPLODED VIEW OF MECHANISM PARTS 1

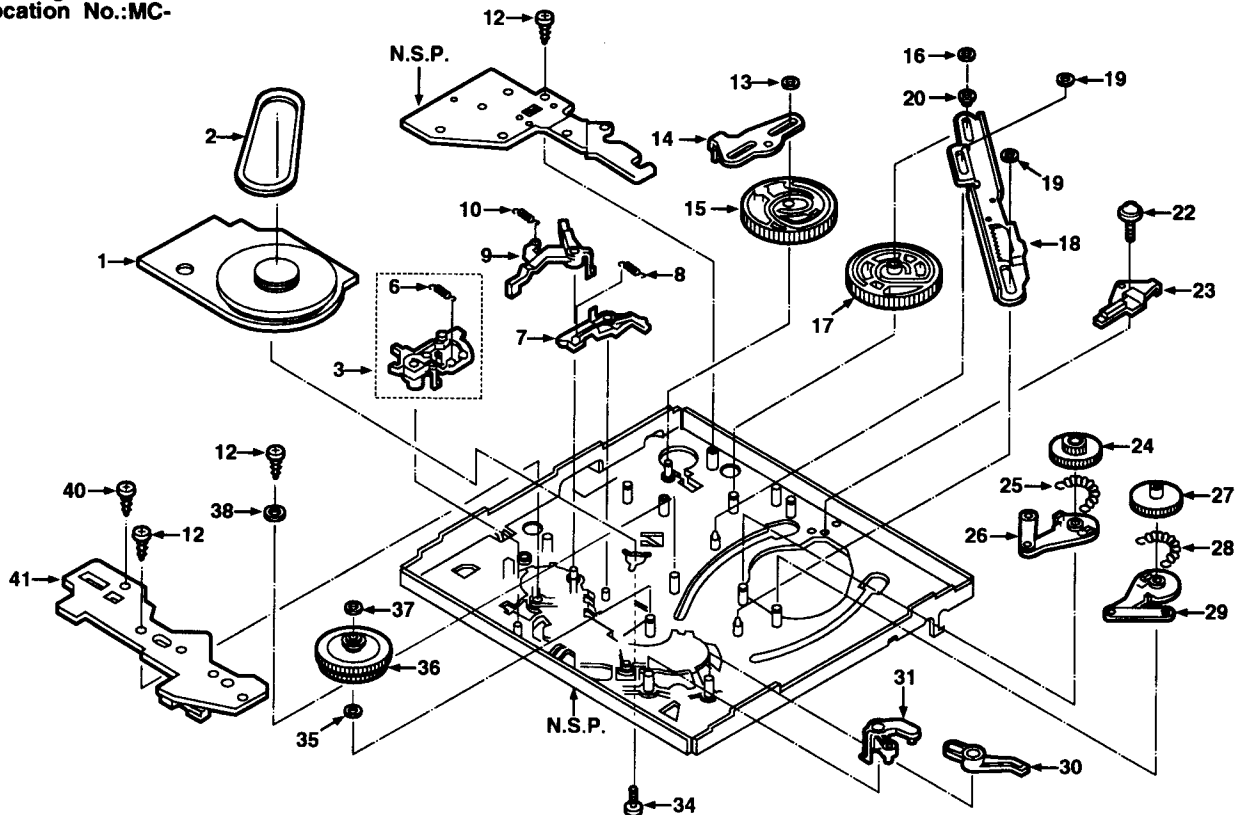
Undesignated numeral shows
Location No.:MB-



N.S.P.:Not available as service parts
MECHANISM PARTS 2

EXPLODED VIEW OF MECHANISM PARTS 2

Undesignated numeral shows
Location No.:MC-



N.S.P.:Not available as service parts
MECHANISM PARTS 3

92TP1/MB-2

93TP1/MC-1

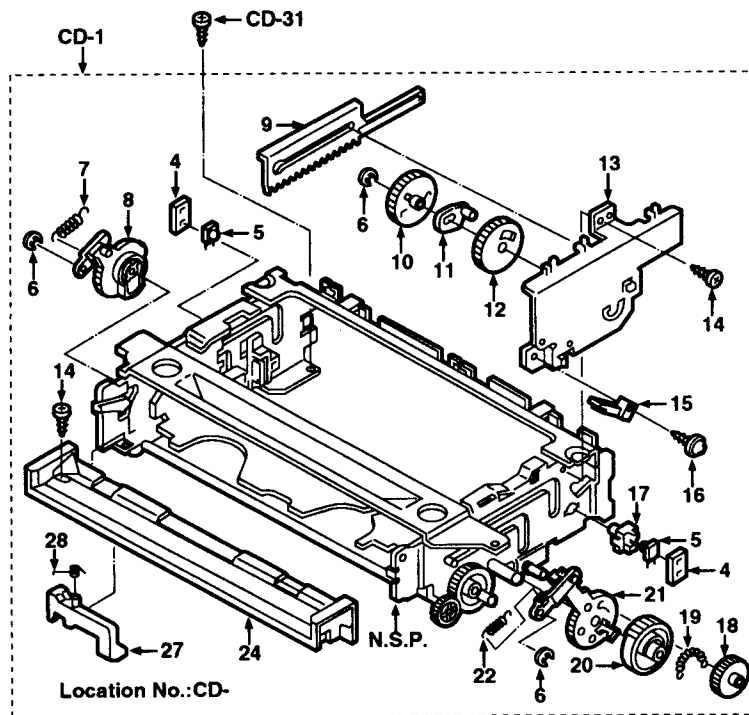
LOCATION PARTS NO. DESCRIPTION

LOCATION PARTS NO. DESCRIPTION

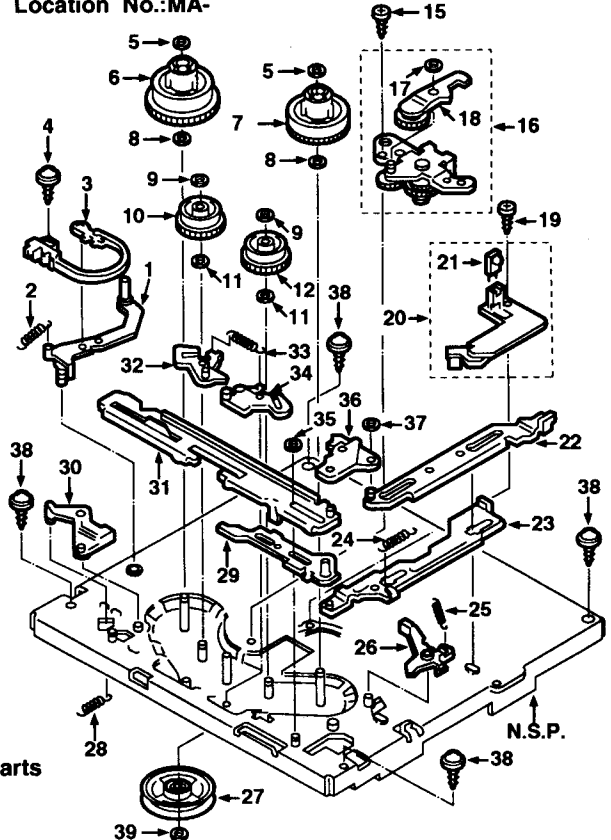
MECHANISM PARTS 3

CD-1	613 142 9581	COMPL,CASSETTE MECHA
CD-4	613 022 0585	LID
CD-5	407 098 3201	PHOTO COUPLE PN150SAN
CD-6	411 015 9801	RING E 2.3
CD-7	613 022 1643	SPRING,LINK L
CD-8	613 022 0073	ASSY,GEAR,LEVER L
CD-9	613 022 2695	RACK
CD-10	613 022 2633	GEAR,LOCK
CD-11	613 021 9916	ASSY,LEVER,PINION
CD-12	613 022 2626	GEAR,PINION
CD-13	613 021 9657	ASSY,BRACKET,GEAR
CD-14	411 027 1305	SCR S-TPG BIN 2.6X4
CD-15	613 095 0949	SW,SPECIAL
CD-16	411 106 9208	SCR PAN+SW+W 2X9
CD-17	613 022 0943	HOLDER,TRANSISTOR
CD-18	613 022 2619	GEAR,IDLER
CD-19	613 022 1667	SPRING,GEAR MAIN
CD-20	613 022 2596	GEAR,MAIN
CD-21	613 022 0097	ASSY,GEAR,LEVER R
CD-22	613 022 1674	SPRING,LINK R
CD-24	613 022 4064	BOARD,UNDER
CD-27	613 124 5006	LEVER,SAFETY SW
CD-28	613 125 6149	SPRING,SAFETY SW
CD-31	411 001 8702	SCR BIN 3X6
MA-1	613 100 0391	ASSY,LEVER,TENSION
MA-2	613 085 7996	SPRING,LEVER TENSION
MA-3	613 021 9701	ASSY,HOLDER,BAND
MA-4	411 144 2803	SCR PAN+SW+W 2.6X6
MA-5	411 109 1605	WASHER Y 2.6X6X0.25
MA-6	613 130 8787	ASSY,REEL,SUPPLY
MA-7	613 130 8770	ASSY,REEL,TAKE UP
MA-8	412 021 5306	SPECIAL WASHER 3.1X6X0.3

MA-8	412 015 8900	SPECIAL WASHER 3.1X6X0.4
OR	412 015 8504	SPECIAL WASHER 3.1X6X0.5
MA-9	411 109 1407	WASHER Y 2.1X5X0.25
OR	411 109 1506	WASHER Y 2.1X6X0.25
MA-10	613 126 6148	GEAR,REEL SUPPLY
MA-11	412 026 7305	SPECIAL WASHER 2.6X6X0.25
MA-12	613 126 6155	GEAR,REEL TAKE UP
MA-15	412 042 4302	SPECIAL SCREW 2.6X4
MA-16	613 085 7101	COMPL,IDLER,CLUTCH
MA-17	411 120 1301	WASHER Y 2.1X4X0.25
MA-18	613 022 0134	ASSY,IDLER
MA-19	411 021 3107	SCR S-TPG BIN 2.6X8
MA-20	613 120 9053	COMPL PCB,MC-4
MA-21	407 016 7205	LED LN59
MA-22	613 021 9985	ASSY,SLIDE,ACT PLATE
MA-23	613 142 9086	SLIDE,C BRAKE
MA-24	613 022 1612	SPRING,RETURN SLIDE
MA-25	613 022 1506	SPRING,SUB T
MA-26	613 098 0106	ASSY,BRAKE SUB T
MA-27	613 077 3647	PULLEY,REEL
MA-28	613 022 1490	SPRING,SUB SUPPLY
MA-29	613 022 2374	SLIDE,ACT BRAKE
MA-30	613 084 8871	BRAKE,SUB SUPPLY
MA-31	613 022 0004	ASSY,SLIDE,M PLATE
MA-32	613 080 9216	ASSY,BRAKE,SUPPLY(NECESSARY TO REPLACE WITH LOC.MA-34)
MA-33	613 086 2914	SPRING,MAIN BRAKE
MA-34	613 080 9209	ASSY,BRAKE,TAKE UP(NECESSARY TO REPLACE WITH LOC.MA-32)
MA-35	411 109 3005	WASHER Y 2.6X5X0.5
MA-36	613 022 2015	LEVER,CONT PLATE
MA-37	412 015 9501	SPECIAL WASHER
MA-38	411 021 7907	SCR S-TPG BIN 4X12
MA-39	412 045 4606	SPECIAL WASHER 2.4X6X0.25



Undesignated numeral shows Location No.:MA-



N.S.P.:Not available as service parts

92EP1/MA-1

ELECTRICAL PARTS

NOTE-2

NOTE:

1. Materials of Capacitors and Resistors are abbreviated as follows;

Resistors

MT-FILMMetal Film Resistor
 MT-GLAZEMetal Glaze Resistor
 OXIDE-MTOxide Metal film Resistor

TA-SOLIDTantalum Solid Capacitor
 AL-SOLIDAluminium Solid Capacitor
 NP-ELECTNon-Polarized Electrolytic Capacitor
 OS-SOLIDAluminum Solid Capacitors with Organic
 Semiconductive Electrolytic Capacitor
 DL-ELECTDouble Layered Electrolytic Capacitor

Capacitors

MT-POLYESTMetallized Polyester capacitor
 MT-COMPOMetallized Composite capacitor

2. Tolerance of Capacitor(10pF over) and Resistor are noted with follow symbols.

F±1% G±2% J±5% K±10%
 M±20% N±30% Z+80%~-20%

3. Capacitors

U:µF P:pF

4. Inductors

UH:µH MH:mH

5. N.S.P.;Not available as servise parts.

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
COMPL PWB,CP-1-A(N.S.P.)					
COMPL.NO. 613 146 3103	(VHR-5417)		OR	405 019 2005	(VWM-320 ,VHR-5416) TR 2SC536-E-SPA-AC
COMPL.NO. 613 146 6678	(VWM-320 ,VHR-5416)		OR	405 019 2708	(VWM-320 ,VHR-5416) TR 2SC536-F-NP-AA
Note:			OR	405 019 2807	(VWM-320 ,VHR-5416) TR 2SC536-F-SPA-AC
The ceramic capacitors and resistors mounted on the COMPL PWB, CP-1-A may be two different types of parts, chip (leadless) type or discrete (with lead wire) type. Therefore, even though the location number is the same, you may encounter either chip or discrete parts on the PWB. This parts list contains only the discrete parts. Please order discrete type parts to substitute for any chip type parts.			Q1672	405 004 3901	TR 2SA608-E-NP-AA
			OR	405 004 4007	TR 2SA608-E-SPA-AC
			OR	405 004 4502	TR 2SA608-F-NP-AA
			OR	405 004 4601	TR 2SA608-F-SPA-AC
			OR	405 006 1707	TR 2SA933S-TP-Q
			OR	405 006 1806	TR 2SA933S-T93-R
			Q2001	405 018 0002	TR 2SC3331-S-AA
			OR	405 018 0101	TR 2SC3331-T-AA
			OR	405 018 0200	TR 2SC3331-U-AA
			Q2002	405 000 6104	TR DTC144ES-DCTP
			OR	405 018 2501	TR 2SC3399-AC
			Q2003	405 000 0508	TR DTA114ES-DCTP
			OR	405 003 7900	TR 2SA1348-AC
			Q2005	405 000 6104	TR DTC144ES-DCTP
			OR	405 018 2501	TR 2SC3399-AC
			Q2008	405 011 8500	TR 2SC1740S-DCTP-R
			OR	405 019 2807	TR 2SC536-F-SPA-AC
			Q3002	405 000 3103	TR DTC114ES-DCTP
			OR	405 018 2808	TR 2SC3402-AC
			Q3003	405 000 3103	TR DTC114ES-DCTP
			OR	405 018 2808	TR 2SC3402-AC
			Q3504	405 063 9708	TR DTC144EL-TL2
			Q3507	405 019 2005	TR 2SC536-E-SPA-AC
			OR	405 019 2807	TR 2SC536-F-SPA-AC
			Q3551	405 057 6201	TR 2SC4038-Q-TL2
			OR	405 057 6409	TR 2SC4038-R-TL2
			Q3552	405 057 6201	TR 2SC4038-Q-TL2
			OR	405 057 6409	TR 2SC4038-R-TL2
			Q5001	405 094 6608	TR 2SK1446
			Q5002	405 013 7006	TR 2SC2274-F-AA
			Q5003	405 006 6702	TR 2SA984-F-AA
			Q5004	405 013 7006	TR 2SC2274-F-AA
			Q5101	405 000 6104	TR DTC144ES-DCTP
			OR	405 018 2501	TR 2SC3399-AC
			Q5102	405 013 7006	TR 2SC2274-F-AA
			Q5103	405 043 6000	TR 2SC3807
			Q5104	405 006 6702	TR 2SA984-F-AA
			Q5105	405 043 6000	TR 2SC3807
			Q5106	405 013 7006	TR 2SC2274-F-AA
Q1501	405 013 6801	TR 2SC2274-E-AA			
OR	405 013 7006	TR 2SC2274-F-AA			
Q1502	405 006 6504	TR 2SA984-E-AA			
OR	405 006 6702	TR 2SA984-F-AA			
OR	405 006 7006	TR 2SA984K-E-AA			
OR	405 006 7204	TR 2SA984K-F-AA			
Q1503	405 003 5609	TR 2SA1318-S-AA			
OR	405 003 5708	TR 2SA1318-T-AA			
OR	405 003 5807	TR 2SA1318-U-AA			
Q1504	405 000 6104	TR DTC144ES-DCTP			
OR	405 018 2501	TR 2SC3399-AC			
Q1505	405 000 6104	TR DTC144ES-DCTP			
OR	405 018 2501	TR 2SC3399-AC			
Q1506	405 019 1909	TR 2SC536-E-NP-AA			
Q1601	405 004 3901	TR 2SA608-E-NP-AA			
OR	405 004 4007	TR 2SA608-E-SPA-AC			
OR	405 004 4502	TR 2SA608-F-NP-AA			
OR	405 004 4601	TR 2SA608-F-SPA-AC			
OR	405 006 1707	TR 2SA933S-TP-Q			
OR	405 006 1806	TR 2SA933S-T93-R			
Q1641	405 011 8401	TR 2SC1740S-DCTP-Q (VWM-320 ,VHR-5416)			
OR	405 011 8500	TR 2SC1740S-DCTP-R (VWM-320 ,VHR-5416)			
OR	405 019 1909	TR 2SC536-E-NP-AA (VWM-320 ,VHR-5416)			
OR	405 019 2005	TR 2SC536-E-SPA-AC (VWM-320 ,VHR-5416)			
OR	405 019 2708	TR 2SC536-F-NP-AA (VWM-320 ,VHR-5416)			
OR	405 019 2807	TR 2SC536-F-SPA-AC (VWM-320 ,VHR-5416)			
Q1671	405 011 8401	TR 2SC1740S-DCTP-Q (VWM-320 ,VHR-5416)			
OR	405 011 8500	TR 2SC1740S-DCTP-R (VWM-320 ,VHR-5416)			
OR	405 019 1909	TR 2SC536-E-NP-AA			

NOTE-E1

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
(INTEGRATED CIRCUIT)					
IC155	409 120 3401	IC LA7221(VHR-5417 ONLY)	D5108	407 063 8903	ZENER DIODE MTZJ5.6C-T-77
IC160	409 292 5906	IC LC7471-8776	D5109	407 063 8903	ZENER DIODE MTZJ5.6C-T-77
IC201	409 262 2409	IC LA7285M	(CRYSTAL DEVICE)		
IC301	410 169 9804	IC LC866128A-5359	X1601	613 122 9020	OSC,CRYSTAL 7.16MHZ
IC302	409 114 4803	IC LB1641	OR	613 135 2766	OSC,CRYSTAL 7.16MHZ
IC303	409 032 3308	IC MN1280-L	OR	645 000 4636	OSC,CRYSTAL 7.15909MHZ
OR	409 243 4101	IC MN1380-L	OR	645 001 7155	OSC,CRYSTAL 7.15909MHZ
IC351	409 306 0606	IC XRU2891BK	X3001	613 132 8242	RESONATOR,CERAMIC13.92MHZ
OR	409 306 0705	IC BU2891BK	X3002	613 109 0972	OSC,CRYSTAL 32KHZ
IC511	409 067 7203	IC L5431-AA	OR	613 123 6387	OSC,CRYSTAL 32.768KHZ
(DIODE)			(VARIABLE RESISTOR)		
D1501	407 007 9904	DIODE GMA01-BT	VR201	613 001 9097	SEMI VR 100KB
OR	407 012 4406	DIODE 1SS133-T-77	OR	613 097 7915	VR,SEMI 100KB
D1502	407 099 5204	ZENER DIODE MTZJ5.1B-T-77	VR351	613 001 9110	SEMI VR 220KB
D1503	407 063 8903	ZENER DIODE MTZJ5.6C-T-77	OR	613 097 7953	VR,SEMI 220KB
D1671	407 078 1203	ZENER DIODE MTZ33B-T-77	(INDUCTOR)		
D1672	407 078 2705	DIODE 1SS244-T-77	L1601	613 014 8254	HF CHOKE 100UHQ
D2001	407 007 9904	DIODE GMA01-BT	OR	613 015 6204	COIL,INDUCTOR 100UHQ
OR	407 012 4406	DIODE 1SS133-T-77	L1672	613 014 8223	HF CHOKE 56UHQ
D3002	407 051 6904	ZENER DIODE GZS5.6Y-BT	OR	613 015 6174	COIL,INDUCTOR 56UHQ
OR	407 099 5303	ZENER DIODE MTZJ5.6B-T-77	L1673	613 014 0944	COIL,INDUCTOR 56UHQ
D3003	407 063 9504	ZENER DIODE MTZJ8.2B-T-77	OR	613 014 4461	HF CHOKE 56UHQ
OR	407 070 8101	ZENER DIODE GZS8.2Y-BT	L2001	613 014 3518	HF CHOKE 6800UHQ
D3004	407 078 2705	DIODE 1SS244-T-77	L2002	613 014 3259	HF CHOKE 560UHQ
D3005	407 007 9904	DIODE GMA01-BT	L3001	613 014 0760	COIL,INDUCTOR 1.8UHM
OR	407 012 4406	DIODE 1SS133-T-77	OR	613 014 4287	HF CHOKE 1.8UHQ
D3103	407 007 9904	DIODE GMA01-BT	L3002	613 107 6884	FERRITE CORE
OR	407 012 4406	DIODE 1SS133-T-77	L5001	△ 645 000 3264	LINE FILTER
D3104	407 007 9904	DIODE GMA01-BT(VWM-320 ,VHR-5416)	L5101	613 110 4198	COIL,INDUCTOR 10UH K
OR	407 012 4406	DIODE 1SS133-T-77(VWM-320 ,VHR-5416)	L5102	613 017 0354	CORE
D3105	407 007 9904	DIODE GMA01-BT	(TRANSFORMER)		
OR	407 012 4406	DIODE 1SS133-T-77	T2001	613 098 6023	TRANS,OSC 70KHZ
D3106	407 007 9904	DIODE GMA01-BT(VHR-5417 ONLY)	OR	621 019 9596	70KHZ OSC TRANS
OR	407 012 4406	DIODE 1SS133-T-77(VHR-5417 ONLY)	T5001	△ 645 001 7438	TRANS,POWER,PULSE
D3107	407 007 9904	DIODE GMA01-BT(VWM-320 ,VHR-5416)	(CAPACITOR)		
OR	407 012 4406	DIODE 1SS133-T-77(VWM-320 ,VHR-5416)	C1501	403 200 9505	ELECT 22U M 10V
D3122	407 007 9904	DIODE GMA01-BT	OR	403 258 2909	ELECT 22U M 10V
OR	407 012 4406	DIODE 1SS133-T-77	C1504	403 200 7907	ELECT 10U M 16V
D3123	407 007 9904	DIODE GMA01-BT	OR	403 248 1905	ELECT 10U M 16V
OR	407 012 4406	DIODE 1SS133-T-77	C1551	403 200 1202	ELECT 2.2U M 50V
D3124	407 007 9904	DIODE GMA01-BT	OR	403 248 2803	ELECT 2.2U M 50V
OR	407 012 4406	DIODE 1SS133-T-77	C1556	403 200 1202	ELECT 2.2U M 50V
D3125	407 007 9904	DIODE GMA01-BT	OR	403 248 2803	ELECT 2.2U M 50V
OR	407 012 4406	DIODE 1SS133-T-77	C1557	403 201 1201	ELECT 33U M 6.3V
D3126	407 007 9904	DIODE GMA01-BT	OR	403 258 2701	ELECT 33U M 6.3V
OR	407 012 4406	DIODE 1SS133-T-77	C1558	403 200 7907	ELECT 10U M 16V
D3502	407 007 9904	DIODE GMA01-BT	OR	403 248 1905	ELECT 10U M 16V
OR	407 012 4406	DIODE 1SS133-T-77	C1559	403 001 1906	CERAMIC 0.01U M 16V
D3554	407 007 9904	DIODE GMA01-BT	OR	403 194 1400	CERAMIC 0.01U M 16V
OR	407 012 4406	DIODE 1SS133-T-77	C1602	403 014 2501	CERAMIC 18P J 50V
D5001	407 134 8801	DIODE DBC10E	C1603	403 012 5900	CERAMIC 15P J 50V
D5002	407 091 6902	DIODE ERA38-04-V5			
D5003	407 078 2705	DIODE 1SS244-T-77			
D5004	407 078 2705	DIODE 1SS244-T-77			
D5005	407 078 2705	DIODE 1SS244-T-77			
D5006	407 063 9306	ZENER DIODE MTZJ7.5C-T-77			
D5013	△ 407 129 5907	PHOTO COUPLE ON3131-R			
D5101	407 129 2005	DIODE RL2Z-LF-B1			
D5104	407 153 5409	DIODE RK36LF-B1			
D5105	407 078 2705	DIODE 1SS244-T-77			
D5106	407 078 2705	DIODE 1SS244-T-77			
D5107	407 100 6909	DIODE AG01-V2			

LOCATION PARTS NO. DESCRIPTION

(FUSE)

F5001 Δ 423 006 0803 FUSE 125V 2A
 OR Δ 423 022 4403 FUSE 250V 2A

(PROTECTOR)

PR511 Δ 613 000 2297 CIRCUIT PROTECTOR

(JACK)

JK101 613 100 3651 JACK,RCA,VIDEO I/O (VHR-5417 ONLY)
 OR 645 002 1091 JACK,RCA-2,VIDEO I/O (VWM-320 ,VHR-5416)

JK201 613 100 3644 JACK,RCA,AUDIO I/O (VHR-5417 ONLY)
 OR 645 002 1084 JACK,RCA-2,AUDIO I/O (VWM-320 ,VHR-5416)

(CONNECTOR)

CN501 Δ 645 000 7019 SOCKET,INLET AC

COMPL PWB,VM-1(N.S.P.)

COMPL.NO. 613 145 0639

(SEMICONDUCTOR)

Q1002 405 002 0308 TR 2SA1037K-T96-R
 OR 405 002 0407 TR 2SA1037K-T96-S
 OR 405 002 6508 TR 2SA1179-M5-TB
 OR 405 002 6706 TR 2SA1179-M6-TB
 Q1003 405 000 2007 TR DTA144EK-T96
 OR 405 003 7108 TR 2SA1341-TB
 Q1004 405 018 1900 TR 2SC3395-TB
 OR 405 029 3504 TR DTC144EK-T96
 Q1006 405 014 4509 TR 2SC2412K-T96-R
 OR 405 014 4608 TR 2SC2412K-T96-S
 OR 405 015 8407 TR 2SC2812-L5-TB
 OR 405 015 8704 TR 2SC2812-L6-TB
 Q1101 405 014 4509 TR 2SC2412K-T96-R
 OR 405 014 4608 TR 2SC2412K-T96-S
 OR 405 015 8407 TR 2SC2812-L5-TB
 OR 405 015 8704 TR 2SC2812-L6-TB
 Q1121 405 002 0308 TR 2SA1037K-T96-R
 OR 405 002 0407 TR 2SA1037K-T96-S
 OR 405 002 6508 TR 2SA1179-M5-TB
 OR 405 002 6706 TR 2SA1179-M6-TB
 Q1301 405 018 1900 TR 2SC3395-TB
 OR 405 029 3504 TR DTC144EK-T96
 Q1332 405 015 9701 TR 2SC2814-F4-TB
 OR 405 015 9909 TR 2SC2814-F5-TB
 OR 405 035 6100 TR 2SC2413K-T96-Q
 Q1333 405 014 4509 TR 2SC2412K-T96-R
 OR 405 014 4608 TR 2SC2412K-T96-S
 OR 405 015 8407 TR 2SC2812-L5-TB
 OR 405 015 8704 TR 2SC2812-L6-TB

(INTEGRATED CIRCUIT)

IC100 409 271 8201 IC LA7387A
 OR 409 283 0200 IC LA7387B
 IC110 409 276 2808 IC LC8996
 OR 409 296 6503 IC LC89960
 IC130 409 212 8109 IC BA7274S

(DIODE)

D1004 407 007 9904 DIODE GMA01-BT
 OR 407 012 4406 DIODE 1SS133-T-77
 D1006 407 007 9904 DIODE GMA01-BT
 OR 407 012 4406 DIODE 1SS133-T-77

(CRYSTAL DEVICE)

X1001 645 000 4643 OSC,CRYSTAL 3.579545MHZ
 OR 645 000 5305 OSC,CRYSTAL 3.579545MHZ
 OR 645 002 4245 OSC,CRYSTAL 3.579545MHZ

LOCATION PARTS NO. DESCRIPTION

(CERAMIC RESONATOR)

XF101 613 136 0549 FILTER,6.5MHZ L.P.F
 OR 645 000 4544 FILTER,LP 6.5MHZ

(VARIABLE RESISTOR)

VR101 613 001 9011 SEMI VR 4.7KB
 OR 613 097 7991 VR,SEMI 4.7KB
 VR102 613 001 9035 SEMI VR 10KB
 OR 613 097 7908 VR,SEMI 10KB
 VR103 613 001 9059 SEMI VR 22KB
 OR 613 097 7946 VR,SEMI 22KB
 VR104 613 001 9042 SEMI VR,15KB
 OR 613 105 3779 VR,SEMI 15KB
 VR107 613 001 8991 SEMI VR,2.2KB
 OR 613 097 7939 VR,SEMI 2.2KB

(INDUCTOR)

L1001 613 014 1231 COIL,INDUCTOR 180UHZ
 OR 613 014 4751 HF CHOKE 180UHZ
 L1051 613 014 8346 HF CHOKE 560UHZ
 OR 613 015 6297 COIL,INDUCTOR 560UHZ
 L1052 613 014 1248 COIL,INDUCTOR 220UHZ
 OR 613 014 4768 HF CHOKE 220UHZ
 L1318 613 014 1132 COIL,INDUCTOR 27UHZ
 OR 613 014 4652 HF CHOKE 27UHZ
 L1329 613 014 8254 HF CHOKE 100UHZ
 OR 613 015 6204 COIL,INDUCTOR 100UHZ
 L1331 613 014 1156 COIL,INDUCTOR 39UHZ
 OR 613 014 4676 HF CHOKE 39UHZ
 L1333 613 014 1248 COIL,INDUCTOR 220UHZ
 OR 613 014 4768 HF CHOKE 220UHZ
 L1335 613 014 1125 COIL,INDUCTOR 22UHZ
 OR 613 014 4645 HF CHOKE 22UHZ
 L1336 613 014 1149 COIL,INDUCTOR 33UHZ
 OR 613 014 4669 HF CHOKE 33UHZ
 L1351 613 014 1224 COIL,INDUCTOR 150UHZ
 OR 613 014 4744 HF CHOKE 150UHZ

(CAPACITOR)

C1001 403 018 0602 CERAMIC 22P J 50V
 OR 403 018 2507 CERAMIC 22P J 50V
 OR 403 018 3306 CERAMIC 22P J 50V
 C1003 403 191 8709 ELECT 1U M 50V
 OR 403 193 6703 ELECT 1U M 50V
 C1004 403 030 7009 CERAMIC 68P J 50V
 OR 403 030 8709 CERAMIC 68P J 50V
 OR 403 030 9409 CERAMIC 68P J 50V
 C1005 403 024 7206 CERAMIC 390P J 50V
 OR 403 024 7800 CERAMIC 390P J 50V
 OR 403 024 8005 CERAMIC 390P J 50V
 C1006 403 010 8606 CERAMIC 12P J 50V
 OR 403 011 0203 CERAMIC 12P J 50V
 OR 403 011 0807 CERAMIC 12P J 50V
 C1007 403 022 8304 CERAMIC 33P J 50V
 OR 403 023 0208 CERAMIC 33P J 50V
 OR 403 023 0901 CERAMIC 33P J 50V
 C1008 403 189 2405 ELECT 10U M 16V
 OR 403 193 4709 ELECT 10U M 16V
 C1009 403 189 2405 ELECT 10U M 16V
 OR 403 193 4709 ELECT 10U M 16V
 C1010 403 017 5004 CERAMIC 200P J 50V
 OR 403 164 0303 CERAMIC 200P J 50V
 C1011 403 191 8709 ELECT 1U M 50V
 OR 403 193 6703 ELECT 1U M 50V
 C1012 403 069 5601 CERAMIC 0.01U K 50V
 OR 403 203 9304 CERAMIC 0.01U K 50V
 C1013 403 073 1200 CERAMIC 0.033U K 50V
 OR 403 229 9302 CERAMIC 0.033U K 50V
 C1014 403 069 5601 CERAMIC 0.01U K 50V
 OR 403 203 9304 CERAMIC 0.01U K 50V

LOCATION	PARTS NO.	DESCRIPTION				LOCATION	PARTS NO.	DESCRIPTION			
C1015	403 191 8709	ELECT	1U	M	50V	C1308	403 068 0409	CERAMIC	0.1U	Z	25V
OR	403 193 6703	ELECT	1U	M	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
C1016	403 069 5601	CERAMIC	0.01U	K	50V	C1309	403 068 0409	CERAMIC	0.1U	Z	25V
OR	403 203 9304	CERAMIC	0.01U	K	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
C1017	403 191 8709	ELECT	1U	M	50V	C1310	403 068 0409	CERAMIC	0.1U	Z	25V
OR	403 193 6703	ELECT	1U	M	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
C1018	403 009 5807	CERAMIC	100P	J	50V	C1312	403 068 0409	CERAMIC	0.1U	Z	25V
OR	403 009 7108	CERAMIC	100P	J	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
OR	403 009 7603	CERAMIC	100P	J	50V	C1313	403 068 0409	CERAMIC	0.1U	Z	25V
C1019	403 191 8709	ELECT	1U	M	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
OR	403 193 6703	ELECT	1U	M	50V	C1314	403 010 1102	CERAMIC	1000P	J	50V
C1020	403 191 8709	ELECT	1U	M	50V	OR	403 010 1508	CERAMIC	1000P	J	50V
OR	403 193 6703	ELECT	1U	M	50V	OR	403 010 1706	CERAMIC	1000P	J	50V
C1021	403 072 1607	CERAMIC	0.022U	K	50V	C1315	403 030 7009	CERAMIC	68P	J	50V
OR	403 203 9403	CERAMIC	0.022U	K	50V	OR	403 030 8709	CERAMIC	68P	J	50V
C1022	403 130 3604	CERAMIC	0.047U	K	25V	OR	403 030 9409	CERAMIC	68P	J	50V
C1024	403 193 3801	ELECT	22U	M	6.3V	C1316	403 033 4609	CERAMIC	82P	J	50V
OR	403 193 7502	ELECT	22U	M	6.3V	OR	403 033 6009	CERAMIC	82P	J	50V
C1025	403 193 3801	ELECT	22U	M	6.3V	OR	403 033 6603	CERAMIC	82P	J	50V
OR	403 193 7502	ELECT	22U	M	6.3V	C1317	403 068 0409	CERAMIC	0.1U	Z	25V
C1029	403 068 0409	CERAMIC	0.1U	Z	25V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
OR	403 142 9205	CERAMIC	0.1U	Z	25V	C1319	403 068 0409	CERAMIC	0.1U	Z	25V
C1030	403 189 2405	ELECT	10U	M	16V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
OR	403 193 4709	ELECT	10U	M	16V	C1321	403 068 0409	CERAMIC	0.1U	Z	25V
C1032	403 189 2405	ELECT	10U	M	16V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
OR	403 193 4709	ELECT	10U	M	16V	C1322	403 069 5601	CERAMIC	0.01U	K	50V
C1033	403 069 5601	CERAMIC	0.01U	K	50V	OR	403 203 9304	CERAMIC	0.01U	K	50V
OR	403 203 9304	CERAMIC	0.01U	K	50V	C1323	403 069 5601	CERAMIC	0.01U	K	50V
C1046	403 069 5601	CERAMIC	0.01U	K	50V	OR	403 203 9304	CERAMIC	0.01U	K	50V
OR	403 203 9304	CERAMIC	0.01U	K	50V	C1324	403 189 2405	ELECT	10U	M	16V
C1051	403 011 5000	CERAMIC	120P	J	50V	OR	403 193 4709	ELECT	10U	M	16V
OR	403 011 6403	CERAMIC	120P	J	50V	C1325	403 068 0409	CERAMIC	0.1U	Z	25V
OR	403 011 7004	CERAMIC	120P	J	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
C1052	403 014 9302	CERAMIC	180P	J	50V	C1327	403 069 5601	CERAMIC	0.01U	K	50V
OR	403 014 9908	CERAMIC	180P	J	50V	OR	403 203 9304	CERAMIC	0.01U	K	50V
OR	403 015 0100	CERAMIC	180P	J	50V	C1329	403 193 3801	ELECT	22U	M	6.3V
C1053	403 032 8707	CERAMIC	8P	D	50V	OR	403 193 7502	ELECT	22U	M	6.3V
C1102	403 069 5601	CERAMIC	0.01U	K	50V	C1330	403 191 8709	ELECT	1U	M	50V
OR	403 203 9304	CERAMIC	0.01U	K	50V	OR	403 193 6703	ELECT	1U	M	50V
C1103	403 069 5601	CERAMIC	0.01U	K	50V	C1331	403 022 8304	CERAMIC	33P	J	50V
OR	403 203 9304	CERAMIC	0.01U	K	50V	OR	403 023 0208	CERAMIC	33P	J	50V
C1108	403 069 5601	CERAMIC	0.01U	K	50V	OR	403 023 0901	CERAMIC	33P	J	50V
OR	403 203 9304	CERAMIC	0.01U	K	50V	C1332	403 026 2902	CERAMIC	47P	J	50V
C1109	403 193 3801	ELECT	22U	M	6.3V	OR	403 026 4203	CERAMIC	47P	J	50V
OR	403 193 7502	ELECT	22U	M	6.3V	OR	403 026 4708	CERAMIC	47P	J	50V
C1110	403 068 0409	CERAMIC	0.1U	Z	25V	C1333	403 018 7502	CERAMIC	220P	J	50V
OR	403 142 9205	CERAMIC	0.1U	Z	25V	OR	403 018 8301	CERAMIC	220P	J	50V
C1111	403 068 0409	CERAMIC	0.1U	Z	25V	OR	403 018 8400	CERAMIC	220P	J	50V
OR	403 142 9205	CERAMIC	0.1U	Z	25V	C1335	403 024 2201	CERAMIC	39P	J	50V
C1112	403 068 0409	CERAMIC	0.1U	Z	25V	OR	403 024 3604	CERAMIC	39P	J	50V
OR	403 142 9205	CERAMIC	0.1U	Z	25V	OR	403 024 4304	CERAMIC	39P	J	50V
C1113	403 191 8709	ELECT	1U	M	50V	C1336	403 068 0409	CERAMIC	0.1U	Z	25V
OR	403 193 6703	ELECT	1U	M	50V	OR	403 142 9205	CERAMIC	0.1U	Z	25V
C1122	403 012 6907	CERAMIC	15P	J	50V	C1351	403 024 7206	CERAMIC	390P	J	50V
OR	403 012 8505	CERAMIC	15P	J	50V	OR	403 024 7800	CERAMIC	390P	J	50V
OR	403 012 9106	CERAMIC	15P	J	50V	OR	403 024 8005	CERAMIC	390P	J	50V
C1123	403 022 8304	CERAMIC	33P	J	50V	C1352	403 028 4201	CERAMIC	56P	J	50V
OR	403 023 0208	CERAMIC	33P	J	50V	OR	403 028 6106	CERAMIC	56P	J	50V
OR	403 023 0901	CERAMIC	33P	J	50V	OR	403 028 7004	CERAMIC	56P	J	50V
C1125	403 011 5000	CERAMIC	120P	J	50V	C1353	403 030 7009	CERAMIC	68P	J	50V
OR	403 011 6403	CERAMIC	120P	J	50V	OR	403 030 8709	CERAMIC	68P	J	50V
OR	403 011 7004	CERAMIC	120P	J	50V	OR	403 030 9409	CERAMIC	68P	J	50V
C1303	403 069 5601	CERAMIC	0.01U	K	50V	C1354	403 069 5601	CERAMIC	0.01U	K	50V
OR	403 203 9304	CERAMIC	0.01U	K	50V	OR	403 203 9304	CERAMIC	0.01U	K	50V
C1304	403 068 0409	CERAMIC	0.1U	Z	25V						
OR	403 142 9205	CERAMIC	0.1U	Z	25V	(RESISTOR)					
C1305	403 068 0409	CERAMIC	0.1U	Z	25V	R1001	401 037 5608	MT-GLAZE	10K	JA	1/10W
OR	403 142 9205	CERAMIC	0.1U	Z	25V	R1002	401 038 6406	MT-GLAZE	4.7K	JA	1/10W
C1307	403 068 0409	CERAMIC	0.1U	Z	25V	R1003	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
OR	403 142 9205	CERAMIC	0.1U	Z	25V	R1004	401 038 2101	MT-GLAZE	2.7K	JA	1/10W

LOCATION	PARTS NO.	DESCRIPTION			
R1005	401 038 8509	MT-GLAZE	620	JA	1/10W
R1006	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1015	401 037 5806	MT-GLAZE	1M	JA	1/10W
R1016	401 039 0403	MT-GLAZE	8.2K	JA	1/10W
R1017	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
R1018	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
R1020	401 037 6704	MT-GLAZE	1.2K	JA	1/10W
R1028	401 038 3405	MT-GLAZE	33	JA	1/10W
R1030	401 038 3702	MT-GLAZE	33K	JA	1/10W
R1032	401 037 6803	MT-GLAZE	12K	JA	1/10W
R1033	401 037 7909	MT-GLAZE	1.5K	JA	1/10W
R1034	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
R1035	401 037 5608	MT-GLAZE	10K	JA	1/10W
R1051	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1052	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1101	401 037 5806	MT-GLAZE	1M	JA	1/10W
R1102	401 038 3504	MT-GLAZE	330	JA	1/10W
R1107	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1110	401 039 0502	MT-GLAZE	82K	JA	1/10W
R1111	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1121	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1125	401 038 6307	MT-GLAZE	470	JA	1/10W
R1126	401 038 6307	MT-GLAZE	470	JA	1/10W
R1128	401 038 7601	MT-GLAZE	560	JA	1/10W
R1302	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1303	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1304	401 039 0304	MT-GLAZE	820	JA	1/10W
R1308	401 039 0304	MT-GLAZE	820	JA	1/10W
R1309	401 038 9001	MT-GLAZE	680	JA	1/10W
R1313	401 038 9001	MT-GLAZE	680	JA	1/10W
R1316	401 037 6704	MT-GLAZE	1.2K	JA	1/10W
R1317	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1318	401 037 5202	MT-GLAZE	100	JA	1/10W
R1319	401 038 3405	MT-GLAZE	33	JA	1/10W
R1325	401 037 5608	MT-GLAZE	10K	JA	1/10W
R1332	401 037 5400	MT-GLAZE	1K	JA	1/10W
R1334	401 037 7909	MT-GLAZE	1.5K	JA	1/10W
R1335	401 038 2101	MT-GLAZE	2.7K	JA	1/10W
R1336	401 037 6704	MT-GLAZE	1.2K	JA	1/10W
R1337	401 037 6704	MT-GLAZE	1.2K	JA	1/10W
R1351	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
R1352	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
R1353	401 038 5003	MT-GLAZE	390	JA	1/10W
R1354	401 038 6307	MT-GLAZE	470	JA	1/10W
R1355	401 037 9200	MT-GLAZE	1.8K	JA	1/10W
R1356	401 038 0701	MT-GLAZE	2.2K	JA	1/10W
R1357	401 039 0205	MT-GLAZE	82	JA	1/10W
R1358	401 037 6605	MT-GLAZE	120	JA	1/10W

LOCATION	PARTS NO.	DESCRIPTION			
(JUMPER)					
J1051	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1053	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1054	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1055	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1056	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1059	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1061	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1101	401 037 5004	MT-GLAZE	0.000	ZA	1/10W
J1102	401 037 5004	MT-GLAZE	0.000	ZA	1/10W

COMPL PWB,TM-1(N.S.P.)

COMPL.NO. 613 139 4162

(REMOCON RECEIVER)

RR711	613 129 0938	IR RECEIVER PACK UNIT
OR	613 134 9087	IR RECEIVER PACK UNIT

(DISPLAY)

A7101	613 140 3987	FLUORESCENT TUBE
OR	613 140 3994	FLUORESCENT TUBE

(MISCELLANEOUS)

613 139 2267	HOLDER FL
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COMPL,MC-1(N.S.P.)

COMPL.NO. 613 120 9060

(DIODE)

D8001	407 094 1300	PHOTO COUPLE SPI-315-04-C
OR	407 043 0101	PHOTO DIODE ON2170-R

(RESISTOR)

R8001	401 017 0708	CARBON	270	JA	1/4W
OR	401 026 0607	CARBON	270	JA	1/6W
R8002	401 012 4404	CARBON	100	JA	1/4W
OR	401 024 6700	CARBON	100	JA	1/6W

(SWITCH)

S8001	613 022 4545	SPECIAL SWITCH
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CONNECTOR

613 141 1395	PLUG,26P (CN301,302-CN711,712)
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For parts or service contact



SFS Corporation: 1200 West Artesia Blvd., Compton, California 90220

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
C1605	403 200 1103	ELECT	1U	M	50V
OR	403 248 1400	ELECT	1U	M	50V
C1610	403 201 1300	ELECT	47U	M	6.3V
OR	403 248 2902	ELECT	47U	M	6.3V
C1611	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1614	403 020 4902	CERAMIC	270P	J	50V
OR	403 214 9805	CERAMIC	270P	J	50V
C1615	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1616	403 214 1502	CERAMIC	0.1U	J	16V
OR	403 217 5507	CERAMIC	0.1U	J	16V
C1617	403 069 0309	CERAMIC	1000P	J	50V
C1622	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1623	403 201 1300	ELECT	47U	M	6.3V
OR	403 248 2902	ELECT	47U	M	6.3V
C1641	403 200 2506	ELECT	0.33U	M	50V
		(VWM-320 ,VHR-5416)			
OR	403 248 3008	ELECT	0.33U	M	50V
		(VWM-320 ,VHR-5416)			
C1643	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1646	403 009 3100	CERAMIC	100P	J	50V
OR	403 201 5209	CERAMIC	100P	J	50V
C1651	403 201 1706	ELECT	470U	M	6.3V
OR	403 223 9308	ELECT	470U	M	6.3V
C1663	403 201 1300	ELECT	47U	M	6.3V
OR	403 248 2902	ELECT	47U	M	6.3V
C1672	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1673	403 200 1509	ELECT	22U	M	50V
OR	403 233 1101	ELECT	22U	M	50V
C1674	403 201 1201	ELECT	33U	M	6.3V
OR	403 258 2701	ELECT	33U	M	6.3V
C1675	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1676	403 200 6603	ELECT	47U	M	16V
OR	403 248 1608	ELECT	47U	M	16V
C1677	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1678	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C1679	403 072 7500	CERAMIC	330P	J	50V
C1681	403 069 0309	CERAMIC	1000P	J	50V
C1694	403 121 9509	CERAMIC	0.1U	Z	50V
OR	403 244 3408	CERAMIC	0.1U	Z	50V
C2003	403 001 5003	CERAMIC	2200P	K	16V
C2004	403 001 3207	CERAMIC	1200P	K	16V
C2005	403 001 1609	CERAMIC	0.01U	K	16V
C2006	403 167 6500	ELECT	33U	M	6.3V
OR	403 193 3900	ELECT	33U	M	6.3V
C2009	403 042 0708	ELECT	10U	M	16V
OR	403 139 1502	ELECT	10U	M	16V
C2012	403 200 7907	ELECT	10U	M	16V
OR	403 248 1905	ELECT	10U	M	16V
C2014	403 213 1107	CERAMIC	8200P	K	16V
OR	403 214 2400	CERAMIC	8200P	K	16V
C2016	403 213 1206	CERAMIC	0.027U	K	16V
OR	403 214 2509	CERAMIC	0.027U	K	16V
C2017	403 189 2405	ELECT	10U	M	16V
OR	403 193 4709	ELECT	10U	M	16V
C2018	403 150 0201	CERAMIC	0.018U	K	16V
OR	403 150 0300	CERAMIC	0.018U	K	16V
C2020	403 001 6505	CERAMIC	3300P	K	16V
C2021	403 129 0409	CERAMIC	0.01U	K	16V
OR	403 138 2203	CERAMIC	0.01U	K	16V
C2022	403 129 0409	CERAMIC	0.01U	K	16V
OR	403 138 2203	CERAMIC	0.01U	K	16V
C2023	403 071 6207	CERAMIC	220P	K	50V
OR	403 120 7506	CERAMIC	220P	K	50V
C2024	403 082 4209	POLYPRO	6800P	J	100V
C2032	403 200 4609	ELECT	4.7U	M	25V
OR	403 248 2001	ELECT	4.7U	M	25V
C2034	403 002 4708	CERAMIC	0.1U	Z	25V
		(VHR-5417 ONLY)			
OR	403 213 8601	CERAMIC	0.1U	Z	25V
		(VHR-5417 ONLY)			
C2036	403 002 4708	CERAMIC	0.1U	Z	25V
OR	403 213 8601	CERAMIC	0.1U	Z	25V
C2038	403 200 6603	ELECT	47U	M	16V
OR	403 248 1608	ELECT	47U	M	16V
C2062	403 120 8107	CERAMIC	0.012U	J	16V
OR	403 214 0406	CERAMIC	0.012U	J	16V
C2063	403 120 8107	CERAMIC	0.012U	J	16V
OR	403 214 0406	CERAMIC	0.012U	J	16V
C2064	403 189 2405	ELECT	10U	M	16V
OR	403 193 4709	ELECT	10U	M	16V
C2070	403 069 1207	CERAMIC	1000P	K	50V
OR	403 166 1209	CERAMIC	1000P	K	50V
C2072	403 191 8709	ELECT	1U	M	50V
OR	403 193 6703	ELECT	1U	M	50V
C2091	403 002 4708	CERAMIC	0.1U	Z	25V
OR	403 213 8601	CERAMIC	0.1U	Z	25V
C3001	403 191 8808	ELECT	2.2U	M	50V
OR	403 193 6802	ELECT	2.2U	M	50V
C3002	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C3003	403 121 9509	CERAMIC	0.1U	Z	50V
OR	403 244 3408	CERAMIC	0.1U	Z	50V
C3004	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C3005	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C3008	403 042 0708	ELECT	10U	M	16V
OR	403 139 1502	ELECT	10U	M	16V
C3009	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C3010	403 017 0108	CERAMIC	20P	J	50V
C3011	403 010 7708	CERAMIC	12P	J	50V
C3012	403 001 1906	CERAMIC	0.01U	M	16V
OR	403 194 1400	CERAMIC	0.01U	M	16V
C3013	403 068 9402	CERAMIC	100P	K	50V
OR	403 109 3109	CERAMIC	100P	K	50V
C3015	403 069 1207	CERAMIC	1000P	K	50V
OR	403 166 1209	CERAMIC	1000P	K	50V
C3017	403 196 4102	ELECT	1000U	M	6.3V
OR	403 206 9004	ELECT	1000U	M	6.3V
C3020	403 071 6207	CERAMIC	220P	K	50V
OR	403 120 7506	CERAMIC	220P	K	50V
C3023	403 009 1700	CERAMIC	10P	J	50V
C3024	403 069 1207	CERAMIC	1000P	K	50V
OR	403 166 1209	CERAMIC	1000P	K	50V
C3025	403 121 9509	CERAMIC	0.1U	Z	50V
OR	403 244 3408	CERAMIC	0.1U	Z	50V
C3501	403 129 9709	CERAMIC	0.015U	K	16V
OR	403 173 2602	CERAMIC	0.015U	K	16V
C3502	403 001 8806	CERAMIC	6800P	K	16V
OR	403 231 4203	CERAMIC	6800P	K	16V
C3503	403 129 0409	CERAMIC	0.01U	K	16V
OR	403 138 2203	CERAMIC	0.01U	K	16V
C3504	403 228 8207	ELECT	22U	M	16V
OR	403 265 4903	ELECT	22U	M	16V
C3505	403 228 8207	ELECT	22U	M	16V
OR	403 265 4903	ELECT	22U	M	16V
C3506	403 001 8806	CERAMIC	6800P	K	16V
OR	403 231 4203	CERAMIC	6800P	K	16V

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
C3507	403 228 8207	ELECT	C5110	403 243 7803	ELECT
OR	403 265 4903	ELECT	C5111	403 057 2902	POLYESTER
C3508	403 228 8207	ELECT	OR	403 057 3107	POLYESTER
OR	403 265 4903	ELECT	C5113	403 195 7807	ELECT
C3509	403 163 7907	ELECT	OR	403 233 0302	ELECT
OR	403 193 4006	ELECT	C5115	403 201 1300	ELECT
C3510	403 001 1906	CERAMIC	OR	403 248 2902	ELECT
OR	403 194 1400	CERAMIC	C5116	403 200 1301	ELECT
C3511	403 071 6207	CERAMIC	OR	403 248 3107	ELECT
OR	403 120 7506	CERAMIC	C5124	403 200 2407	ELECT
C3512	403 061 4107	POLYESTER	OR	403 258 3807	ELECT
OR	403 061 4206	POLYESTER			
C3513	403 119 6701	CERAMIC	(RESISTOR)		
OR	403 214 2707	CERAMIC	R1501	401 022 1806	CARBON
C3514	403 260 2102	MT-COMPO	R1502	401 012 6903	CARBON
OR	403 263 5605	MT-COMPO	R1503	401 019 1802	CARBON
C3515	403 063 0107	POLYESTER	R1504	401 012 6903	CARBON
OR	403 063 0206	POLYESTER	R1505	401 016 3700	CARBON
C3516	403 001 5003	CERAMIC	R1506	401 016 4707	CARBON
OR	403 231 3800	CERAMIC	R1507	401 022 3008	CARBON
C3517	403 001 3801	CERAMIC	R1552	401 012 5609	CARBON
C3518	403 121 9509	CERAMIC		(VHR-5417 ONLY)	
OR	403 244 3408	CERAMIC	R1557	401 012 5609	CARBON
C3519	403 121 9509	CERAMIC		(VHR-5417 ONLY)	
OR	403 244 3408	CERAMIC	R1611	401 018 1506	CARBON
C3522	403 069 1207	CERAMIC	R1612	401 018 1506	CARBON
OR	403 166 1209	CERAMIC	R1618	401 016 3700	CARBON
C3523	403 193 6703	ELECT	R1641	401 012 6903	CARBON
C3524	403 001 1906	CERAMIC		(VWM-320 ,VHR-5416)	
OR	403 194 1400	CERAMIC	R1642	401 020 2805	CARBON
C3525	403 193 6406	ELECT		(VWM-320 ,VHR-5416)	
OR	403 193 8400	ELECT	R1643	401 020 2805	CARBON
C3526	403 138 2500	CERAMIC		(VWM-320 ,VHR-5416)	
OR	403 138 2609	CERAMIC	R1644	401 015 3701	CARBON
C3529	403 167 6500	ELECT		(VWM-320 ,VHR-5416)	
OR	403 193 3900	ELECT	R1651	401 022 6702	CARBON
C3530	403 163 7907	ELECT	R1652	401 022 6702	CARBON
OR	403 193 4006	ELECT	R1671	402 067 8706	FUSIBLE RES680
C3536	403 193 4204	ELECT	R1672	401 017 1705	CARBON
OR	403 193 7601	ELECT	R1673	401 017 1705	CARBON
C3551	403 260 2102	MT-COMPO	R1674	401 012 4404	CARBON
OR	403 263 5605	MT-COMPO		(VWM-320 ,VHR-5416)	
C3552	403 026 2209	CERAMI	OR	401 017 1705	CARBON
C3553	403 193 6703	ELECT		(VHR-5417 ONLY)	
C3554	403 070 7205	CERAMIC	R1675	401 022 6702	CARBON
C3555	403 001 1906	CERAMIC		(VWM-320 ,VHR-5416)	
OR	403 194 1400	CERAMIC	R1679	401 016 3700	CARBON
C3556	403 069 1207	CERAMIC	R1680	401 016 3700	CARBON
OR	403 166 1209	CERAMIC	R1681	401 022 5002	CARBON
C5001	△ 404 052 2102	MT-POLYEST	R1682	401 021 4907	CARBON
C5002	△ 404 052 2102	MT-POLYEST			
C5005	△ 404 032 6304	CERAMIC	R2001	401 012 4404	CARBON
C5007	△ 404 034 6500	CERAMIC	R2003	401 013 4106	CARBON
C5010	403 264 1606	ELECT	R2004	401 018 5702	CARBON
C5011	403 057 2902	POLYESTER0.1U	R2005	401 012 6903	CARBON
OR	403 057 3107	POLYESTER0.1U	R2009	401 012 6903	CARBON
C5012	403 137 4604	MT-POLYEST 0.047U	R2010	401 012 6903	CARBON
C5014	403 057 2902	POLYESTER0.1U	R2011	401 012 5609	CARBON
OR	403 057 3107	POLYESTER0.1U	R2013	401 016 4707	CARBON
C5016	403 075 6906	CERAMIC	R2018	401 020 2805	CARBON
C5017	403 073 6205	CERAMIC	R2023	401 012 9201	CARBON
C5021	403 076 0507	CERAMIC	R2024	401 022 3008	CARBON
C5101	403 199 5700	ELECT	R2025	401 014 5102	CARBON
C5102	403 038 4505	ELECT	R2026	401 012 6903	CARBON
OR	403 135 3302	ELECT	R2027	401 014 5102	CARBON
C5105	403 207 5005	ELECT	R2031	401 020 1907	CARBON
C5106	403 125 5507	ELECT	R2033	401 020 2805	CARBON
OR	403 200 6900	ELECT	R2034	401 013 6308	CARBON
C5108	403 209 4709	ELECT		(VHR-5417 ONLY)	
C5109	403 228 9501	ELECT			

LOCATION	PARTS NO.	DESCRIPTION			
R2034	401 019 2908	CARBON	39K	JA	1/4W
		(VWM-320 ,VHR-5416)			
R2035	401 014 5102	CARBON	15K	JA	1/4W
R2036	401 019 9501	CARBON	47	JA	1/4W
R2037	401 021 7007	CARBON	6.8	JA	1/4W
R2038	401 154 4904	CARBON	33	JB	1/4W
R2041	401 012 5609	CARBON	1K	JA	1/4W
R2042	401 014 4006	CARBON	1.5K	JA	1/4W
R2043	401 012 5609	CARBON	1K	JA	1/4W
R2044	401 012 5609	CARBON	1K	JA	1/4W
R2045	401 017 1705	CARBON	2.7K	JA	1/4W
R2053	401 012 6903	CARBON	10K	JA	1/4W
		(VHR-5417 ONLY)			
R2054	401 020 2805	CARBON	47K	JA	1/4W
		(VHR-5417 ONLY)			
R2057	401 020 2805	CARBON	47K	JA	1/4W
R2058	401 012 6903	CARBON	10K	JA	1/4W
R2061	401 020 1907	CARBON	4.7K	JA	1/4W
R2062	401 013 5202	CARBON	1.2K	JA	1/4W
R2063	401 017 1705	CARBON	2.7K	JA	1/4W
R2064	401 020 1907	CARBON	4.7K	JA	1/4W
R2071	401 023 0600	CARBON	82	JA	1/4W
R2093	401 020 1907	CARBON	4.7K	JA	1/4W
R2094	401 014 5102	CARBON	15K	JA	1/4W
R3001	△ 402 036 3701	FUSIBLE RES	3.3	JA	1/2W
OR	△ 402 036 4401	FUSIBLE RES	3.3	JA	1/2W
R3002	401 022 7105	CARBON	750	JA	1/4W
R3003	401 016 4707	CARBON	22K	JA	1/4W
R3004	401 012 6903	CARBON	10K	JA	1/4W
R3006	401 020 1907	CARBON	4.7K	JA	1/4W
R3007	401 020 1907	CARBON	4.7K	JA	1/4W
R3008	401 012 6903	CARBON	10K	JA	1/4W
R3011	401 020 2805	CARBON	47K	JA	1/4W
R3012	401 020 1907	CARBON	4.7K	JA	1/4W
R3013	401 020 1907	CARBON	4.7K	JA	1/4W
R3014	401 016 0402	CARBON	200K	JA	1/4W
R3015	401 016 0402	CARBON	200K	JA	1/4W
R3016	401 014 4006	CARBON	1.5K	JA	1/4W
R3017	401 012 5609	CARBON	1K	JA	1/4W
R3018	401 012 6903	CARBON	10K	JA	1/4W
R3019	401 016 4707	CARBON	22K	JA	1/4W
R3025	401 012 5609	CARBON	1K	JA	1/4W
R3026	401 012 5609	CARBON	1K	JA	1/4W
R3027	401 012 8006	CARBON	100K	JA	1/4W
R3028	401 012 8006	CARBON	100K	JA	1/4W
		(VHR-5417 ONLY)			
R3029	401 012 5609	CARBON	1K	JA	1/4W
R3030	401 020 1907	CARBON	4.7K	JA	1/4W
R3031	401 020 1907	CARBON	4.7K	JA	1/4W
R3032	401 020 1907	CARBON	4.7K	JA	1/4W
R3033	401 016 3700	CARBON	2.2K	JA	1/4W
R3101	401 012 8006	CARBON	100K	JA	1/4W
R3102	401 012 8006	CARBON	100K	JA	1/4W
R3501	401 012 8006	CARBON	100K	JA	1/4W
R3502	401 012 8006	CARBON	100K	JA	1/4W
R3503	401 019 8603	CARBON	430K	JA	1/4W
R3504	401 012 8006	CARBON	100K	JA	1/4W
R3505	401 012 6903	CARBON	10K	JA	1/4W
R3506	401 016 5704	CARBON	220K	JA	1/4W
R3507	401 014 6000	CARBON	150K	JA	1/4W
R3508	401 017 2702	CARBON	27K	JA	1/4W
R3516	401 012 6903	CARBON	10K	JA	1/4W
R3517	401 020 2805	CARBON	47K	JA	1/4W
R3518	401 020 2805	CARBON	47K	JA	1/4W
R3520	401 019 3905	CARBON	390K	JA	1/4W
R3521	401 012 6903	CARBON	10K	JA	1/4W
R3525	401 012 5609	CARBON	1K	JA	1/4W
R3526	401 016 3700	CARBON	2.2K	JA	1/4W

LOCATION	PARTS NO.	DESCRIPTION			
R3527	401 012 5609	CARBON	1K	JA	1/4W
R3528	401 020 7800	CARBON	510	JA	1/4W
R3529	401 020 7800	CARBON	510	JA	1/4W
R3537	401 023 2703	CARBON	8.2K	JA	1/4W
R3539	401 012 4404	CARBON	100	JA	1/4W
R3546	401 020 1907	CARBON	4.7K	JA	1/4W
R3547	401 014 5102	CARBON	15K	JA	1/4W
R3549	401 012 6903	CARBON	10K	JA	1/4W
R3550	401 012 6903	CARBON	10K	JA	1/4W
R3551	401 019 3905	CARBON	390K	JA	1/4W
R3552	401 012 8006	CARBON	100K	JA	1/4W
R3553	401 018 8703	CARBON	360K	JA	1/4W
R3555	401 012 8006	CARBON	100K	JA	1/4W
R3556	401 012 6903	CARBON	10K	JA	1/4W
R3557	401 018 5702	CARBON	330K	JA	1/4W
R3558	401 020 0702	CARBON	470	JA	1/4W
R3560	401 012 5609	CARBON	1K	JA	1/4W
R5001	402 013 9108	SOLID 2.7M	1/2W	K	
OR	402 064 1502	CARBON	2.7M	KA	1/2W
R5002	401 014 0206	CARBON	130K	JA	1/4W
R5003	401 023 3601	CARBON	82K	JA	1/4W
R5004	401 013 5202	CARBON	1.2K	JA	1/4W
R5005	401 016 1409	CARBON	22	JA	1/4W
R5006	401 012 6903	CARBON	10K	JA	1/4W
R5007	401 014 5102	CARBON	15K	JA	1/4W
R5008	401 020 8807	CARBON	51K	JA	1/4W
R5009	401 013 2201	CARBON	110K	JA	1/4W
R5010	401 178 3402	OXIDE-MT	15K	JA	3W
R5011	401 021 9605	CARBON	62K	JA	1/4W
R5013	401 014 0206	CARBON	130K	JA	1/4W
R5101	401 018 2701	CARBON	330	JA	1/4W
R5102	401 019 7200	CARBON	430	JA	1/4W
R5103	401 021 1807	CARBON	560	JA	1/4W
R5104	401 012 6903	CARBON	10K	JA	1/4W
R5110	401 023 2703	CARBON	8.2K	JA	1/4W
R5111	401 021 1807	CARBON	560	JA	1/4W
R5112	401 019 7705	CARBON	4.3K	JA	1/4W
R5114	401 019 9501	CARBON	47	JA	1/4W
R5115	401 012 5609	CARBON	1K	JA	1/4W
R5116	401 016 4707	CARBON	22K	JA	1/4W
R5117	401 019 7705	CARBON	4.3K	JA	1/4W
R5118	401 020 8302	CARBON	5.1K	JA	1/4W
R5119	401 009 1706	CARBON	2.7K	JA	1/2W
R5120	401 012 3308	CARBON	10	JA	1/4W
R5121	401 021 7007	CARBON	6.8	JA	1/4W
R5123	401 016 7906	CARBON	2.4K	JA	1/4W
(SWITCH)					
S1501	645 001 8350	SWITCH,SLIDE 1P-2T,RF/MOD			
S3101	613 139 4308	SW,PUSH,REC			
OR	645 000 3363	SWITCH,PUSH,REC			
S3102	613 139 4308	SW,PUSH,EJECT			
OR	645 000 3363	SWITCH,PUSH,EJECT			
S3103	613 139 4308	SW,PUSH,PAUSE			
OR	645 000 3363	SWITCH,PUSH,PAUSE			
S3104	613 139 4308	SW,PUSH,POWER			
OR	645 000 3363	SWITCH,PUSH,POWER			
S3105	613 139 4308	SW,PUSH,CH UP			
OR	645 000 3363	SWITCH,PUSH,CH UP			
S3106	613 139 4308	SW,PUSH,CH DOWN			
OR	645 000 3363	SWITCH,PUSH,CH DOWN			
S3107	613 139 4308	SW,PUSH,REW			
OR	645 000 3363	SWITCH,PUSH,REW			
S3108	613 139 4308	SW,PUSH,PLAY			
OR	645 000 3363	SWITCH,PUSH,PLAY			
S3109	613 139 4308	SW,PUSH,FF			
OR	645 000 3363	SWITCH,PUSH,FF			
S3110	613 139 4308	SW,PUSH,STOP			
OR	645 000 3363	SWITCH,PUSH,STOP			