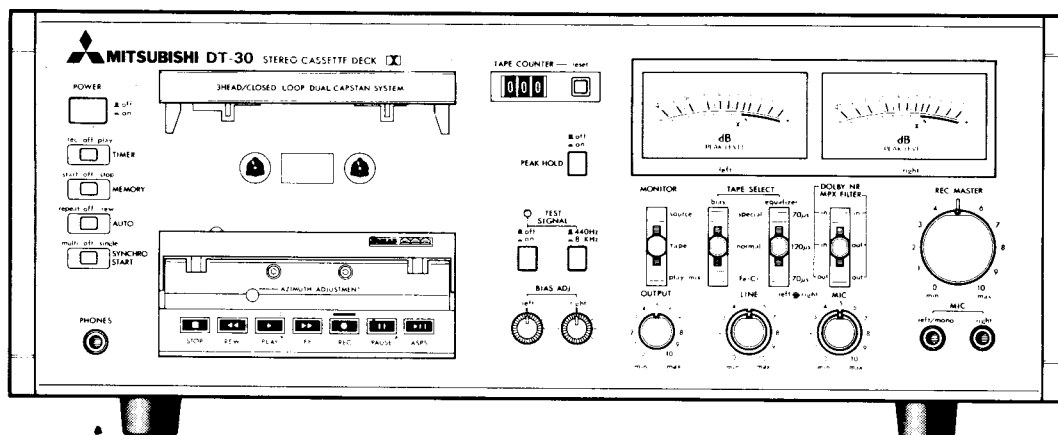




SERVICE MANUAL

STEREO CASSETTE DECK MODEL DT-30



SPECIFICATIONS

Noise Reduction System	Dolby NR
Tracks	4-track, 2 channel
Tape Speed	4.75 cm/sec.
Recommendable Type of Cassette	
Normal	Sony HF
FeCr	Sony Duad
Special	TDK SA
Recording System	AC bias (85 kHz)
Erasing System	AC erasing (85 kHz)
Playback Equalization	
Normal	3,180 μ sec./120 μ sec.
Fe-Cr and Special	3,180 μ sec./70 μ sec.
Input Level and Impedance	
MIC	0.3 mV/1.2 k ohms
LINE	100 mV/62 k ohms
Output Level and Impedance	
LINE	0.44 V/22 k ohms
HEADPHONES	.90 mV/8 ohms
Motors	PLL DC servo motor DC governed motor

Magnetic Heads	
Record & Erase	Ferrite
Playback	Sandust
Wow and Flutter	0.04% (Wrms)
Signal to Noise Ratio	
Weighted, Dolby NR out.	.58 dB (rms)
Weighted, Dolby NR in.	.66 dB (rms)
Frequency Response	
Normal	30 - 17 kHz (40 - 15 kHz $\pm$ 3 dB)
Fe-Cr	30 - 20 kHz (40 - 18 kHz $\pm$ 3 dB)
Special	30 - 18 kHz (40 - 17 kHz $\pm$ 3 dB)
Harmonic Distortion (at 400 Hz, 160 μ Wb/mm)	1.0%
Cross Talk	
at 1 kHz, between channels	35 dB
at 1 kHz, between tracks	65 dB
Power Consumption	.28 W
Dimensions	425(W) x 170(H) x 379(D) mm (16.3/4 x 6.3/4 x 14-7/8")
Weight	10.5 kg (23 lb)

Specifications of this unit are subject to change without notice for improvement.
"DOLBY" and the double D symbol "D" are trademarks for DOLBY Laboratories.

MELCO SALES INC.

3030 East Victoria Street Compton, California 90221

FRONT PANEL TERMINOLOGY AND FUNCTIONS

① POWER (Power Switch)

② TIMER (Timer Switch)

Using the commercial timer, you can automatically record or playback at the pre-set time. See page 10 for details.

③ MEMORY (Memory Switch)

At the start of recording or playback, set the tape counter to "000" by pushing the reset button, and then set this switch to the STOP or START position. When you rewind the tape after recording or playback, the tape automatically stops or restart to playback at position "999" on the tape recorder.

④ AUTO REW/REPEAT (Automatic rewind and repeat switch)

At the REW position of this switch, when the tape comes to the end in recording or playback, the tape will be rewound and stop at the beginning of the tape.

At the REPEAT position, after above automatic rewinding, the playback will start at the beginning of the tape. These rewinding and playback will be repeated until pressing the STOP button.

⑤ TURNTABLE SYNCHRO

If you make a connection between this unit and MITSUBISHI turntable DP-EC20 by using the cord supplied with this unit, the synchronous start and stop of recording with the turntable is possible. See page 12 for details.

⑥ TAPE COUNTER and RESET BUTTON

At the start of recording, push the reset button to set the tape counter to "000". If you list the recorded programs and the indexing figures of the tape counter, you can easily "cue" a program for playback.

⑦ PEAK HOLD (Peak hold switch)

In the ON position of this switch, the peak indication will be held at the highest input level when the peak level exceeds 0 dB. And the highest level will continue to be displayed for approx. 3 seconds, whereupon normal meter indication will resume. If a still higher peak is reached while a former peak is being held, the new peak will be indicated. But as long as the peak level is less than 0 dB, the peak meters function normally as same as in the OFF position.

⑧ PEAK METERS

These meters indicate the peak levels of the input signals when recording as well as the reproduced signals during playback. The output level control has no effect on the indication of the peak meters.

⑨ REC MASTER (Recording master control with pre-setter)

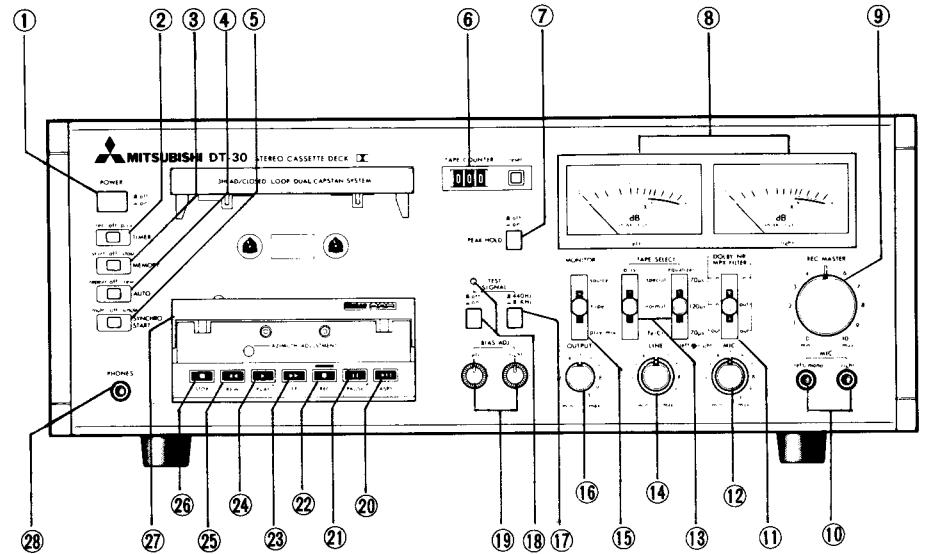
This control is for adjusting the levels of the recording signal through the all input terminals simultaneously. This control provides the pre-setter, which is possible to change the pre-setting position.

⑩ MIC (Microphone inputs)

For monoaural recordings of both the right (R) and left (L) channels, insert the microphone plug into the left (L) channel only.

⑪ DOLBY NR/MPX FILTER (Dolby noise reduction and FM multiplex filter switch)

Set this switch to the DOLBY NR "IN" and MPX FILTER "OUT" position for DOLBY recording. In this case, be sure to set this switch to the DOLBY NR "IN" and MPX FILTER "OUT" position during playback. Similarly, when you record with this switch



set to the DOLBY NR "OUT" position, play the tape with the same switch setting. The position of the DOLBY NR "IN" and MPX FILTER "IN" is only for recording from FM stereo broadcasting.

⑫ MIC (Microphone input level control)

These controls are for adjusting the levels of the recording signals through the microphone inputs.

⑬ TAPE SELECT, BIAS AND EQUALIZER

Select the optimum bias current in recording and the equalizer characteristics in recording and playback according to the tape being used. See page 7 for positioning of these switches.

⑭ LINE (Line input level control)

These controls are for adjusting the levels of the recording signals through the INPUT terminals on the rear panel.

⑮ SOURCE/TAPE/PLAY MIX (Monitor switch)

At the TAPE position of this switch, the recorded signal on the tape can be monitored. At the SOURCE position, the input signals can be monitored. At the PLAY MIX position, the mixed reproducing of the recorded signals and the microphone and line inputs is available.

⑯ OUTPUT (Output level control)

This control is for adjusting the levels of the output signals through the OUTPUT terminals on the rear panel and also through the PHONES jacks.

⑰ TEST SIGNAL (Test signal control)

By pressing this button, select the frequency of the test signals. (440 Hz or 8 kHz).

⑱ TEST SIGNAL (Test signal switch and its indicator)

If you press this switch to the ON position during recording the built-in oscillator will be activated, the test signal will be recorded on the tape and its indicator will be illuminated.

⑲ BIAS ADJ (Bias current adjusting knobs)

By rotating these knobs, the adjustment of the bias current into the recording head is available. See page 13 for details of above 3 items.

⑳ ASPS (▶ II, Automatic spacing pause button)

ASPS is the Automatic Spacing Pause System. By pressing this button during recording, input signals will be muted for approximately 3 seconds and then the pause mechanism will automatically function. See page 11 for details.

㉑ PAUSE (II, Pause button)

Press this button to temporarily stop the tape during recording or playback. By pressing this button once again, the pause mechanism is released and recording or playback will resume.

㉒ REC (●, Recording button)

For recording, press the PLAY button while pressing this button. When the cassette is not loaded or either tab at the rear of the cassette is removed, the failsafe recording mechanism works and recording will not proceed.

㉓ FF (▶▶, Fast forward winding button)

By pressing this button, the tape advances at high speed.

㉔ PLAY (▶, Playback button)

Press this button for playback or recording.

㉕ REW (◀◀, Rewinding button)

By pressing this button, the tape rewinds at high speed.

㉖ STOP (■, Stop button)

Press this button to stop the tape.

㉗ DUST COVER

When not in used, close this cover to protect the magnetic heads and mechanical parts from dust.

㉘ PHONES (Headphone jack)

Be sure to use the headphone with an impedance of more than 8 ohms.

SERVICING NOTES

For operation of the DT-30 refer to the instruction manual.

1. Many moving parts of the cassette deck are made of rubber and plastic materials. Use caution with the belts and pinch roller during servicing.
2. Notes of caution during mechanical servicing.
 - A. Treat the mechanical parts with care — especially the capstan and tape heads.
 - B. Before adjustments are made using test tapes, demagnetize all heads.
Note: The recording/playback heads may become magnetized when measured with a multimeter.
 - C. Demagnetize metal tools that are used for adjustment or repair in the vicinity of the heads.
 - D. Maintain heads surfaces free of tape magnetic particles by wiping with absorbent cotton or gauze impregnate with alcohol.
 - E. Confirm that the power supply voltage is normal (when the line voltage is abnormally low, tape speed decreases, wow and flutter increases, and distortion of the amplifier increases. All of these deteriorate the reproduced sound).
 - F. Before lubricating, thoroughly remove all old oil and grease, one or two drops of machine oil may be applied to the points of moving parts. Grease may be applied to the points of slide parts with a soft cloth. Avoid excess!
 - G. If the cabinet surfaces become soiled, clean them using a neutral detergent. Do not use alcohol or damage may result.
 - H. Securely lock the cover of the cassette case before making the various measurement characteristics.

DISASSEMBLY INSTRUCTIONS

PRECAUTIONS:

- (1) Refer to the exploded views for disassembly of the DT-30.
- (2) Do not allow any lubricant to be deposited on the motor pulley, idler wheels, flywheel, pinch rollers, capstan belt, or reel rests. If lubricants does become deposited on any of these surfaces, thoroughly clean with alcohol.
- (3) After disassembling any mechanical parts, avoid allowing any dust or dirt to be deposited on the lubricated parts.
- (4) During reassembly, use only the original screws to prevent damage to the unit.
- (5) Use caution when handling the front panel or meters during disassembly and reassembly.
- (6) Put all small parts such as screws and knobs in a container as they are removed.
- (7) Many of the screws on the mechanism are secured with screw lock paint. To loosen these screws, apply a drop or two of solvent/thinner. Allow 2 or 3 minutes and the screws may be removed.

DISASSEMBLY INSTRUCTIONS

Symbol	Type	Pitch	Extreme	
			Type	Cut
T1—	Tapping screw type-1	Large Pitch	Sharp	X
T2—	Tapping screw type-2	Large Pitch	Blunt	O
T3—	Tapping screw type-3	Meter standard	Blunt	X
M	Metric standard screw	M2 x 0.4P M2.6 x 0.45P M3 x 0.5P M4 x 0.7P M5 x 0.8P	Flat	

1. Removal of Top Cover.

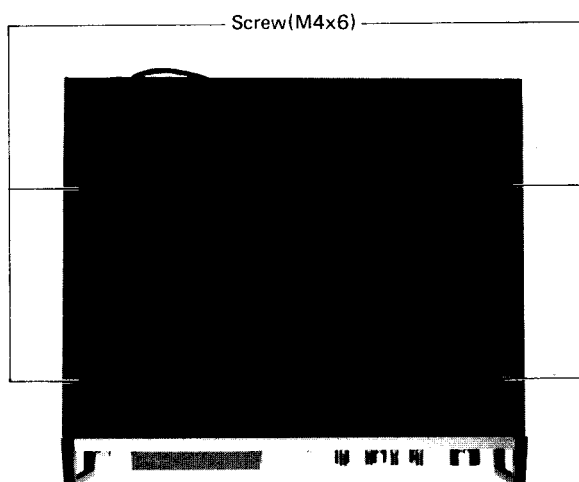
A. Remove four screws indicated in Figure 1. Top cover can now be removed.

2. Removal of Botton Cover.

A. Remove eight screws indicated at 1 in Figure 2. The botton cover can now be removed.

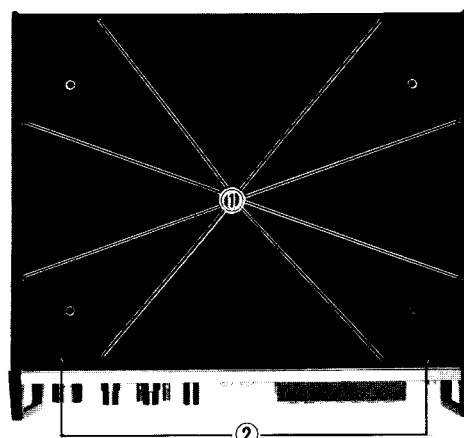
3. Removal of Front Panel.

- A. Remove the knobs.
- B. Remove the ten screws indicated at 1 and 2 in Figure 2 and remove botton cover.
- C. Remove top cover according to step 1.
- D. Remove the two screws indicated in Figure 3.
- E. Disconnect plugs from J901 and J902. See Figure 3.
- F. Disconnect three purple wires from terminals 312, 921, and lug terminal shown in B of Figure 3.
- G. Disconnect the black wire from the terminal 313. See Figure 3.
- H. Apply tape to push knobs of peak hold and test signal controls to prevent the knobs and springs from separating from front panel.
- I. Remove the front panel from the unit.



Top View

Fig. 1.



① ② Screw (Black T2-3x8)

Bottom View

Fig. 2.

4. To remove lamps in the tape control push buttons.

- Remove front panel as described in step 4.
- Carefully unsolder the lamp wires from the PCB on the back side of the push buttons. Remove the lamp through the PCB.

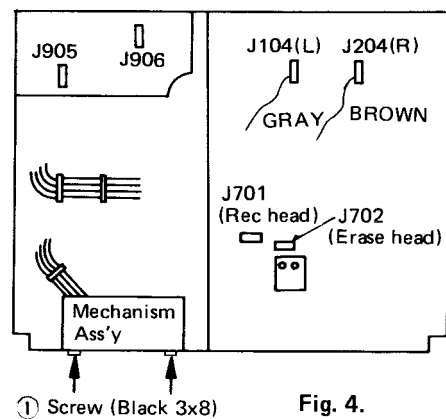
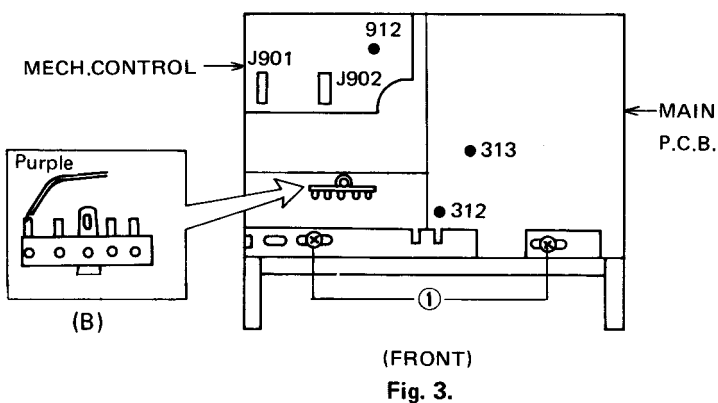
5. Removal of mechanism assembly.

- Remove front panel as described in step 3.
- Disconnect the tape counter belt.
- Disconnect the plugs from J104, J204, J701, J702, J905, and J906. See Figure 4.
- Remove the four screws indicated at 1 in Figure 4 and remove the assembly.

Note:

To test the assembly when removed from the unit, connect the plugs on the mechanism control PCB (J901, J902, J905, and J906). Insert cassette tape in assembly and operate with control buttons on front panel.

To maintain tape movement the magnet ring on the rear of the counter must rotate, this can be done by turning the ring with your finger tips. When reassembling the mechanism assembly, do not forget to reinstall the counter belt.



6. Removal of Mechanism Parts.

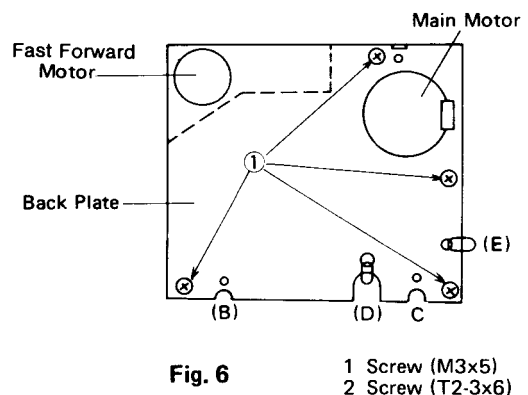
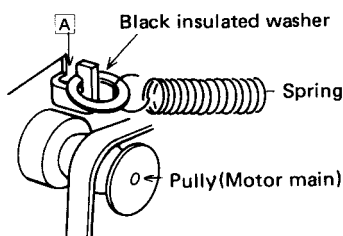
Note: These items are for the removal of the mechanical parts after the mechanism has been removed as described in step 5.

- To remove the rear mounting plate (necessary to replace main motor, etc.) remove the spring with the black insulated washer at (A) as shown in Figure 5.

Caution: When reinstalling, the insulated washer must be replaced as shown in Figure 5. The motor case is insulated from the chassis. Unless the insulated washer is used, the motor will run continuously.

- Remove the springs at points (B) and (C) as shown in Figure 6.
- Remove the wire ties at (D) and (E) as shown in Figure 6.
- Remove the motor belt.
- For access to remove the solenoid or capstans, remove the two screws mounting the fast forward motor. (See Figure 6.)
- Remove the two flywheels to allow access to other mechanical components.

Caution: Use care in handling capstan. Do not allow them to become marred.



TAPE WINDING ADJUSTMENTS

Adjustments are required when:

- There is slack tape or damage to the tape.
- Replacement or azimuth adjustment of the R/P head is necessary.
- Replacement or height adjustment of the right side pinch lever is necessary.
- Do not touch the tape contacting surfaces except as required for service. Clean these surfaces when service is completed.

1. Equipment Required.

A. Test tapes

		Description	Remarks
Cat. No.	Frequency Level	Form	
MTT-121	1 kHz - 10 dB	 10 minutes	TEAC
MTT-114	10 kHz - 10 dB	 10 minutes	TEAC, MTT-215C (10 kHz)
LCT-308-M	14 kHz - 24 dB	 10 minutes	(STEREO)

B. ● Blade type screwdrivers including a jewelers type.

- Allen (hexagon) wrench 1.27 mm.
- Soldering pencil.
- One C60 or C60c blank test tape.

C. Two AC VTVM's one for each channel.

2. Preparation for adjustment.

- A. Remove the front panel as described in step 3 of disassembly instructions.
- B. Position the unit such that it is in the normal operating position.
- C. Insert the plugs from the control push buttons in their proper jacks (See Figure 3).
- D. Connect an AC voltmeter to each output terminal, L and R.

Notes:

- (1) The adjustment screws on the head block are all secured with lock print. To adjust these screws first warm with a solder pencil, then adjust with driver or hex wrench.
- (2) When it is necessary to replace the erase head loosen the screw at the top and to the left of the pinch lever assembly, then the head can be removed.
- (3) When replacing the heads (REC and PLAY), remove the E ring and spring at (D) and remove screw at (A). (Figure 7).
- (4) When removing the right on left pinch lever remove the spring at (B) and the E ring at (C) (See Figure 7). Be sure the tip of screw (E) is in the convex upon reinstallation.

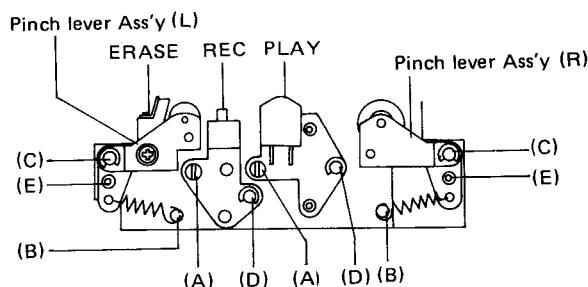


Fig. 7.

3. Adjustment.

When any of the adjustment screws shown in Figure 8 are turned, the screw securing the erase head is loosened, or the tape motion mechanism is repaired, adjustment is required as follows.

(Adjustment is not necessary when azimuth if record head is made as stated in the instruction manual).

A. The pinch lever height adjustment screws (① or ⑦) are adjusted so that the gap between side A and side B (See Figure 9) is 20 mm (See figure 10). Be sure the tip of screw (E) is in the convex. (See Figure 9).

B. Head block adjustment methods.

- (1) Insert test tape MTT-121 in cassette mechanism.
- (2) With finger move main plate assembly so that tape heads enter cassette windows. (See Figure 11).
- (3) Adjust the play head with adjustment screws ⑥, ⑧, and ⑤ in that order so that the head is centered in the cassette window, and outputs (left and right) are at a maximum.
- (4) Remove MTT-121 and insert MC-10, mirror cassette check the movement of the tape in the mirror. (See enlargement in Figure 11). At this time, if the tape touches the tape guide of the erase head, adjust screw ①, (See Figure 11), so that the tape is no longer touching the tape guide. After adjustment of screw ①. Repeat steps 1 through 3.
- (5) Insert test tape LCT-308-M and peak left and right outputs by adjusting screws ⑥, ⑧, and ⑤ in that order. The difference between channels should be within 1.5 dB of each other.
- (6) Insert the tape MTT-114 and adjust screw ⑤ (See Figure 8) for maximum output of both channels. Connect oscilloscope to each channel and make sure both channels are in phase with each other.
- (7) Again, check the erase head tape guide with the MC-10C, mirror with cassette. For adjustment is necessary, adjust with screw ① (See Figure 11) and repeat steps 1 through 6.

C. Adjustment of record head is as follows: Insert blank tape (AC-511) and record 8 KHz signal by depressing test signal switches, monitor switch in "tape" position. Adjust screws ③, ④, and ② in that order, (See Figure 8) for maximum output signal on each channel.

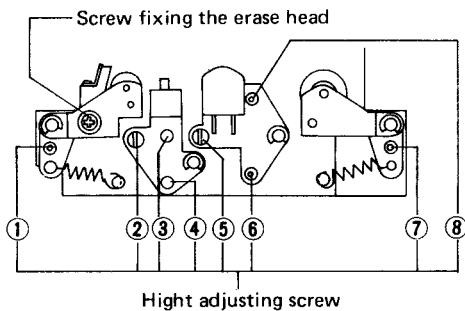


Fig. 8.

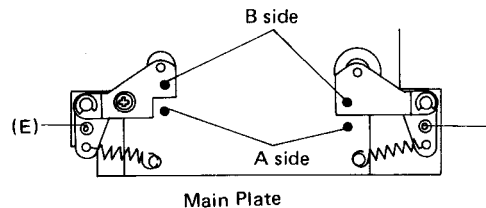


Fig. 9.

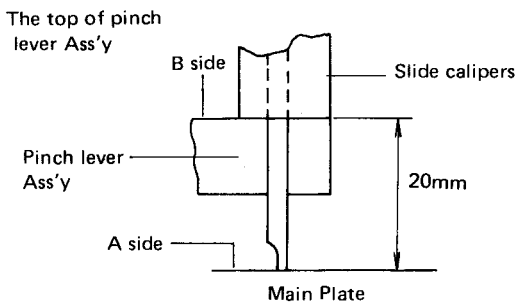


Fig. 10.

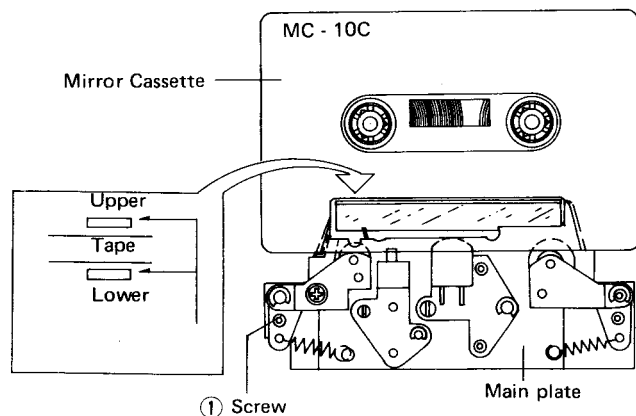


Fig. 11.

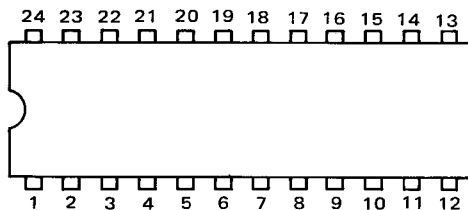
PERFORMANCE OF MECHANISM

Test Tape Used: MTT-111 (3 kHz) (TEAC)

Tape speed	3KHz ± 60 Hz (MTT-111)
Tape speed variation	Within 30 Hz (MTT-111)
Wow & flutter	Less than 0.12% rms (MTT-111)
FF & REW time	Within 90 seconds (C-60)
Counter range	445 $\pm$ 20 (C-60)
Pinch roller pressure	330 g $\pm$ 50 g
Take-up torque	PLAY 40 to 65 g-cm FF, REW 100 to 150 g-cm

IC (1/2) (2/2 – Back page)

TC 9121P (IC901)



PIN No.	Terminal Name	PIN No.	Terminal Name
1	GND	13	OSC
2	REW	14	INH
3	FF	15	0-PLAY
4	PLAY	16	0-REC
5	REC	17	0-STOP
6	STOP	18	0-FF-REW
7	PAUSE	19	0-PAUSE
8	A-PLAY	20	0-MUT
10	Y	21	0-REW
11	X	23	0-TAPE-END
12	Z	24	VDD

"0" marks mean a H level.

"L" INPUT	STOP	FF	REW	PLAY	REC PLAY	PAUSE	REC PLAY
OUTPUT							
0-PLAY				0	0		
0-REC					0		
0-STOP		0	0	0	0	0	0
0-FF-REW		0	0				
0-PAUSE		0				0	0
0-MUT	0	0				0	
0-REW			0				
0-FF		0					
0-TAPE-END	0		0	0	0	0	0
MODE NAME	STOP	FF	REW	PLAY	REC PLAY	PAUSE	REC PLAY

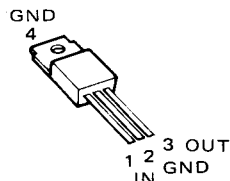
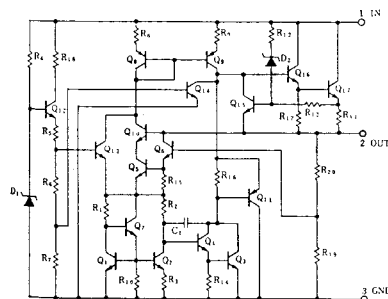
POSITION OF TAPE SELECT SWITCHES

Select the positions of TAPE SELECT switches (BIAS and EQUALIZER switches) as follows. If your tape is not listed in the table below, please refer to the instructions of the tape for the correct positioning.

TYPE OF TAPE		Position of Bias and Equalizer Switches
Manufacturer	Type	
TDK	D, SD, ED, AD	Normal
	SA	Special
MAXELL	LN, UD, UL, XL-1	Normal
	XL-II	Special
SONY	F, FP, HF, LN, AHF	Normal
	BHF	
	DUAD	Fe-Cr
	JHF	Special
SCOTCH	LD, LH, HE, TARTAN	
	CRYSTAL	Normal
	MASTER 120 μ SEC	
	CLASIC	Fe-Cr
FUJI	MASTER 70 μ SEC	Special
	FL, FX-I, Range 2, 4, 6	Normal
	FX-II, Range 4X	Special
DENON	DX 3	Normal
	DX 5	Fe-Cr
COLUMBIA	1H, 3H, 5H	Normal
	1K	Special
AGFA	SUPER, LH	Normal
	CARAT	Fe-Cr
	STEREO CHROM	Special
BASF	LN, LH, LH SUPER	Normal
	LH1	
	FCR	Fe-Cr
MEMOREX	SCR	Special
	MRX2	Normal
	MRX3	Fe-Cr
AMPEX	CHROMIUM DIOXIDE PLUS SERIES	Special
	GRAND (20/20) MASTER	Normal

μ PC 14315 H (IC801)

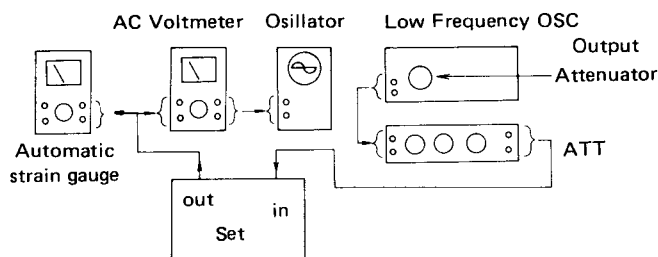
Three terminal voltage Regulator.
OUTPUT 15V



ELECTRICAL ADJUST

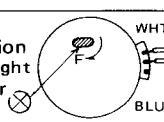
1. Equipment Required

- | | |
|---|--|
| A. Audio oscillator20 Hz to 20 kHz | D. TesterElectronic multimeter. |
| B. Attenuator.0 to 90 dB with steps 0.1 dB
or 0.5 dB | E. Frequency counter |
| C. AC VTVMFrequency - more than 20
100 kHz. Input impedance
over 100 k ohm. | F. Dual trace oscilloscope |
| | G. Test tapesMTT-111, MTT-150, AC511
(Blank Special)
Sony CS-30 (Blank Fe-Cr) ,
Maxell UD(blank Normal) |



Notes:

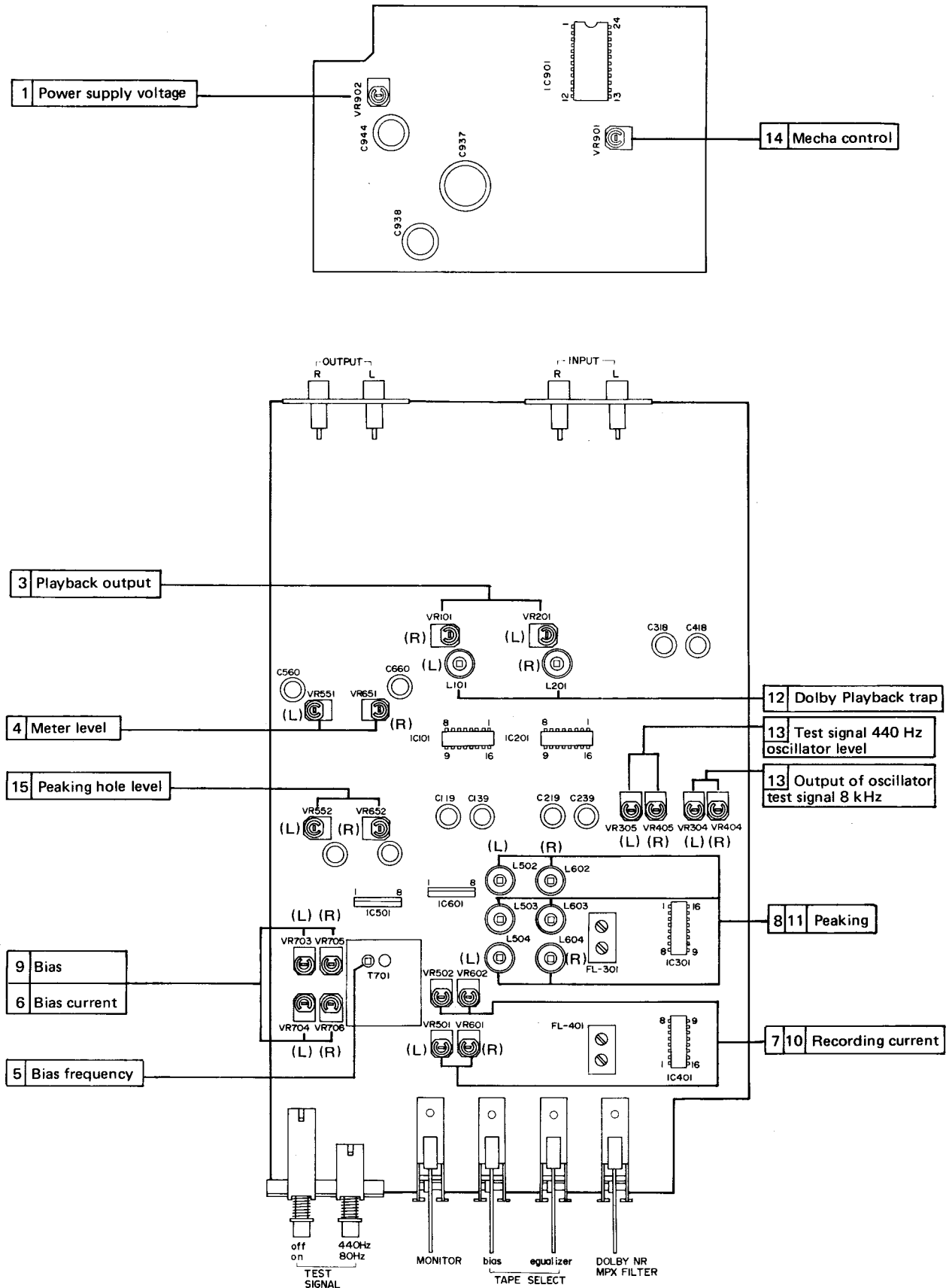
- (1) All adjustment are made with a 1V signal input unless otherwise stated.
- (2) If no instructions are provided, the attenuation should be set to 0 dB attenuation.
- (3) If no instructions are provided the controls on front panel should be set to maximum.
- (4) Unless otherwise stated, set tape select to "normal" position and Dolby Noise Reduction to "out" position.
- (5) Turning the variable positions (VR's) in the direction of the arrows, as shown on the PCB, increases the signal or current reading.
- (6) Before performing any adjustment, clean the tape contacting surfaces.

	Step	Adjustment		Detecting Position	Procedures
		item	Points		
	1	Power Supply Voltage	VR902	C139, C239 and C119, C219	Connect the voltmeter to both ends of the electrolytic condensers, C139, C239, and C119, C219, and adjust the voltage of C139 and C239 so that it equals the voltage of C139 and C219.
Playback System Adjustment	2	Tape Speed	VR in the motor	Output terminal	● Play the MTT-111 test tape (3 kHz). ● Insert a (-) screwdriver (2 mm wide tip) in the portion marked "⊗" on the back of the motor as shown in right figure, and make a check with the frequency counter to be 3000 Hz (+10 Hz to -0 Hz). 
	3	Playback Output	VR101 (L) VR201 (R)	Both ends of R125 and R225	● Play back the MTT-150 test atpe. ● The voltage at both ends of R shall be 580 mV ±0.25 dB.
	4	Meter Indication	VR551 VR651	The needle of level meter on R and L.	● Set the output VR at max. ● Playback the MTT-150 test tape and set the needle of the meter at 0 dB (±1 dB0)
					■ In the adjustment steps 5 to 8, remove the ground wire on the record head, and connect a resistor (10 ohms) for L and R each, and detect both ends by can AC voltmeter. ■ Place the unit in recording mode. (Cassette switch:ON PAUSE switch: OFF)
Recording System Adjustment	5	Bias Frequency	T701	Both ends of 10 ohms resistors	● 85 kHz (Use the frequency counter)
					■ Confirm that BIAS ADJVR is set at the center position of click for left and right. ■ Input signal is at min.
	6	Bias Current	VR704 VR706	L and R sides on 10 ohms	■ Set TAPE SELECT SW to NORMAL. ■ Adjust for 9mV.

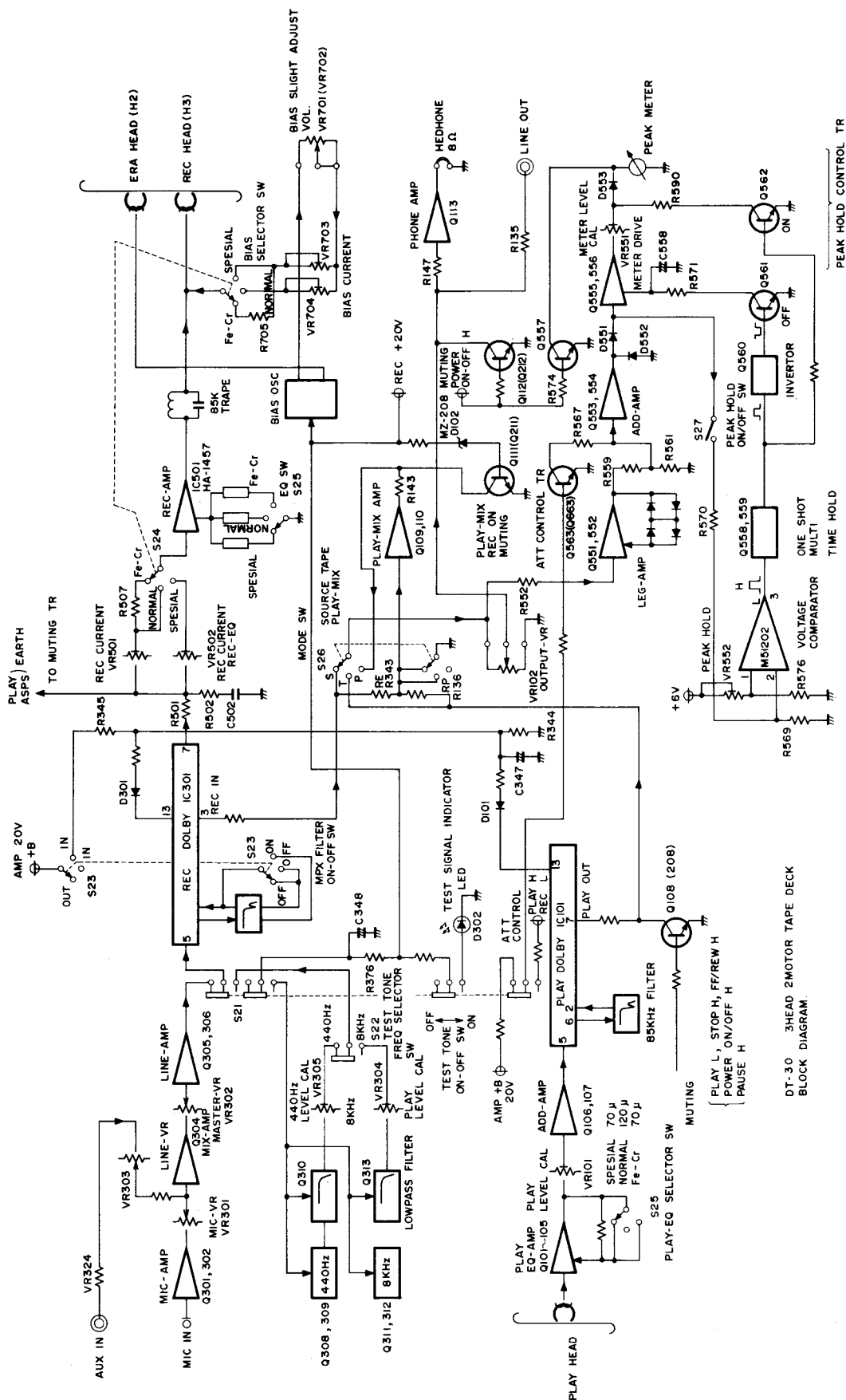
		Adjustment		Detecting Position	Procedures	
		Step	item			Points
Recording System Adjustment	Temporary Adjustment	6		VR703 VR705	L and R sides on 10 ohms resistors	● Set to SPECIAL side. ● Adjust for 12mV. ■ Short the terminal of the erase head, and make bias oscillation stop. ■ Set MONITOR SW to SOURCE, and apply a signal of 400 Hz to INPUT, and set it to 0 dB of DT-30 meter by the output attenuator of the low frequency oscillator.
		7	Recording Current	VR501 VR601 VR502 VR602	L and R sides on 10 ohms L and R sides on 10 ohms	● Set TAPE SELECT to NORMAL. ● Adjust for 1.8mV. ● Set TAPE SELECT to SPECIAL. ● Adjust for 2.2mV. ● Drop input signal by -10 dB, and compare it with Adjust for +14 dB at 14 kHz.
		8	Peaking	L504 L604 L502 L602 L503 L603	L and R sides on 10 ohms L and R sides on 10 ohms L and R sides on 10 ohms	● Set TAPE SELECT to NORMAL. ● Set +14 dB at 14 kHz. ● Set TAPE SELECT to SPECIAL. ● Set +15 dB at 16 kHz. ● Set to FeCr. ● Adjust for +16 dB at 16 kHz.
						■ Remove resistor from the recording head, and return to original. ■ Remove the short from the erase head. ■ Set MONITOR SW to TAPE.
		9	Bias	VR704 VR706 VR703 VR705	OUTPUT of L and R OUTPUT of L and R.	■ Record the signal of 400 Hz at 0 dB on level meter, and apply playback output to the automatic strain gauge for tape recorder, and make adjustments so that the strain becomes 2.1%. but as playback output varies, repeat adjustments several times so that the needle of the level meter is set to 0 dB and also the strain becomes 2.1%. ● Record on a NORMAL test tape. ● Record to a MTT-501 test tape. ● Record to a SPECIAL test tape. ● Record to a MTT-511 test tape.
						■ Further drop to -30 dB the input signal of 400 Hz at which ATT is set to 0 dB when the level meter indicates 0 dB, and make recording.
		10	Recording Current	VR501 VR601 VR502 VR602	Output of L and R Output of L and R	● Adjust the value obtained when switching to TAPE so that value becomes the same as the one obtained when the MONITOR switch is set to SOURCE. ● Set TAPE SELECT SW to NORMAL. ● Record to a NORMAL test tape. ● Set TAPE SELECT SW to SPECIAL. ● Record to a SPECIAL test tape.
		11	Peaking	L504 L604 L502 L602 L503 L603	Output of L and R Output of L and R Output of L and R	● Set TAPE SELECT SW to NORMAL. ● Record to a NORMAL test tape. ● Make 14 kHz into within 0 dB and -0.5 dB with reference to 400 Hz. ● Set TAPE SELECT SW to SPECIAL. ● Record to a SPECIAL test tape. ● Make 16 kHz into within 0 dB and -1 dB with reference to 400 Hz. ● Set TAPE SELECT SW to FeCr. ● Record to a CS-30 test tape. ● Make 16 kHz into within 0 dB and -2 dB with reference to 400 Hz.
		12	Dolby Playback Trap	L101 L201	IC101 IC201 (12th terminals)	● Make input into zero, and prepare for the recording mode. ● Set MONITOR SW to TAPE. ● Minimize the voltage on pin 12 of the IC.
		13	Output of oscillator	VR304 VR404 VR305 VR405	Needle of level meter (L and R) Needle of level meter (L and R)	● Make the recording mode. (LINE IN is zero) ● Set MONITOR SW to SOURCE. ● Set TEST SIGNAL to ON. ● Set TEST SIGNAL at 8 kHz. ● Set the needle at the position of 0 dB of the level meter. ● Set to 440 Hz (♩). ● Set the needle at the position of 0 dB of the level meter.
		14	Mecha Control	VR901	IC901 (13th terminal)	● Connect the frequency counter to pin 13 of IC901 and adjust for 70 Hz -2 Hz.
		15	Peak holding level	VR552 VR652	Needle of level meter (L and R)	● Set TAPE SELECT SW to SOURCE. ● On LINE IN, adjust signal of 400 Hz by ATT to the position where the needle of the level meter indicates +0.5 to 1.0 dB, and set PEAK HOLD switch to ON(■). Next, when the needle of the level meter is set at 0 to -0.5 dB by means of ATT, adjustments should be made so as for the needle not to be held even though PEAK HOLD switch is (■), in order that the needle of the level meter is held for about 2.5 to 3 seconds from the time when input signal is made to zero.

Note:

1. No output will be produced even if setting at PLAY MIX during recording.
2. No TEST signal will be produced even if setting TEST TONE switch at ON during playback.

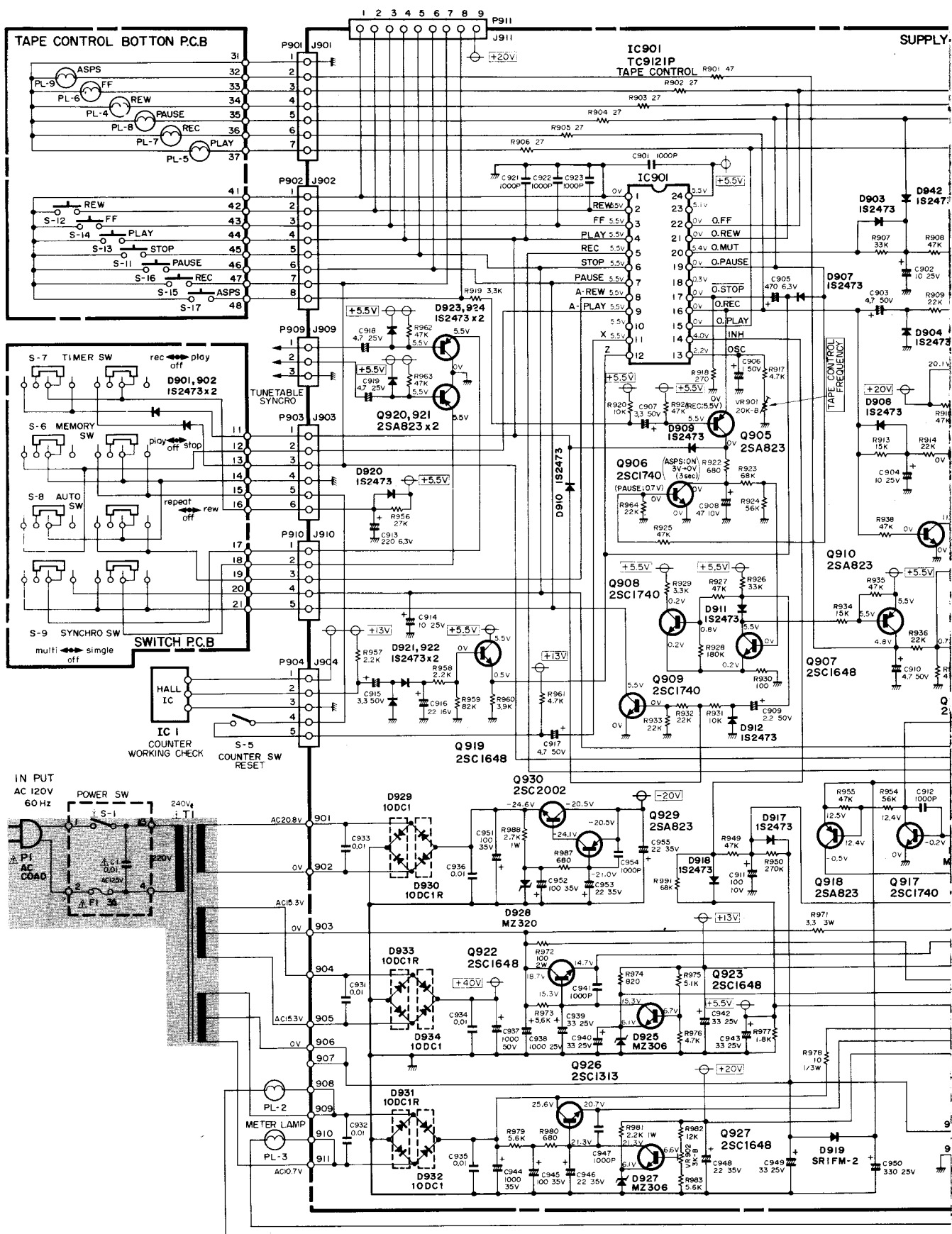


BLOCK DIAGRAM



DT-30 3HEAD 2MOTOR TAPE DECK
BLOCK DIAGRAM

SCHEMATIC DIAGRAM (1/2)



& MECHANISM CONTROL P.C.B

MECHANISM DRIVER P.C.B

CIRCUIT DIAGRAM 1/2

Note: 1 Unit of C and R
 (1) C-----non-symbol .F
 P symbol PF
 (2) R-----non-symbol Ω
 K symbol K Ω
 M symbol M Ω

Unspecified resistors are all 5% in tolerance.
 Allowable electric power is 1/4 W.

2 Nomenclature of switches

S1 POWER
 S3 REC TAPE CHECK
 S4 CASSETTE TAPE SETTING
 S5 COUNTER RESET
 S6 MEMORY (start-off-stop)
 S7 TIMER (rec.-off-play)
 S8 AUTO (repeat-off-rew)
 S9 SYNCHRO START (TURN TABLE) (multi-off-single)

S11 } TAPE CONTROL

S17
 S21 TEST SIGNAL (on-off)
 S22 TEST SIGNAL (440Hz-8KHz)
 S23 DOLBY NR(in-out)
 S24 MPX FILTER (in-out)
 S24 TAPE SELECT bias (special-normal-Fc-Cr)
 S25 TAPE SELECT equalizer (70.s-120.s-70.s)
 S26 MONITOR (source-tape-play mix)
 S27 PEAK HOLD (METER) (on-off)

3 Signal Line

PLAY BACK ⇐
 RECORD ⇒
 RECORDING MONITOR ⇐

4. All voltages are measured to chassis ground with a voltmeter.

5. The present circuit is standard circuit, which may be improved later.

6. Δ or marks components that are critical for continued safety and performance of this unit. Replace only with components of exact type as specified (See PARTS LIST).

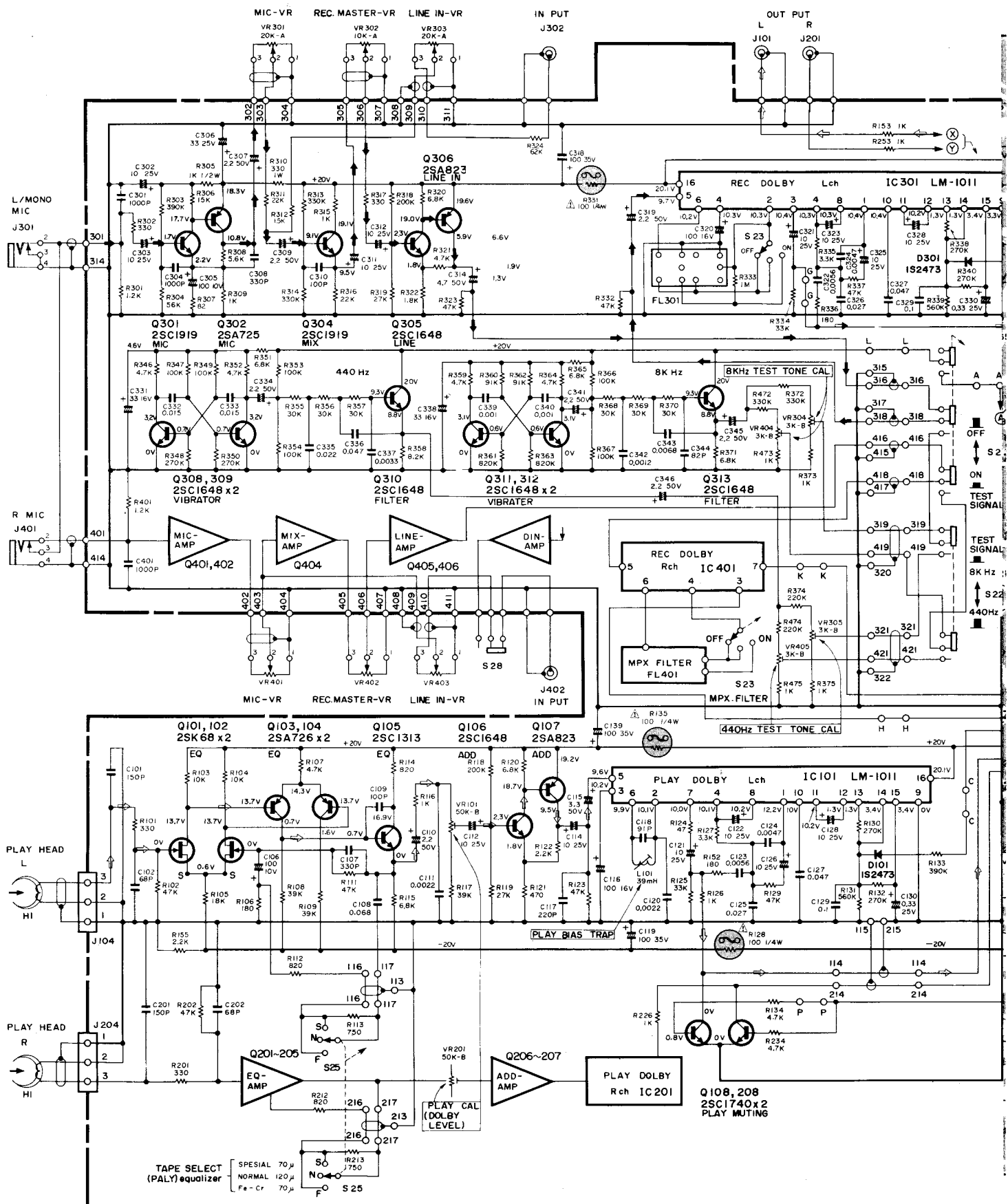
7. •• marks are combination parts.

8. □ marks are adjustment parts.

PARTS LIST:

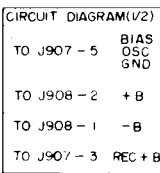
2SC1383	2SA823	2SD451	2SB514	2SD330	2SD712	2SK68	2SC1313
2SC1648	2SA854	2SD571	2SB564	2SD330	2SC2497		2SA725
2SC1740							2SA726

SCHEMATIC DIAGRAM (2/2)



TO J907-6 (CIRCUIT DTAGRAM 1/2)

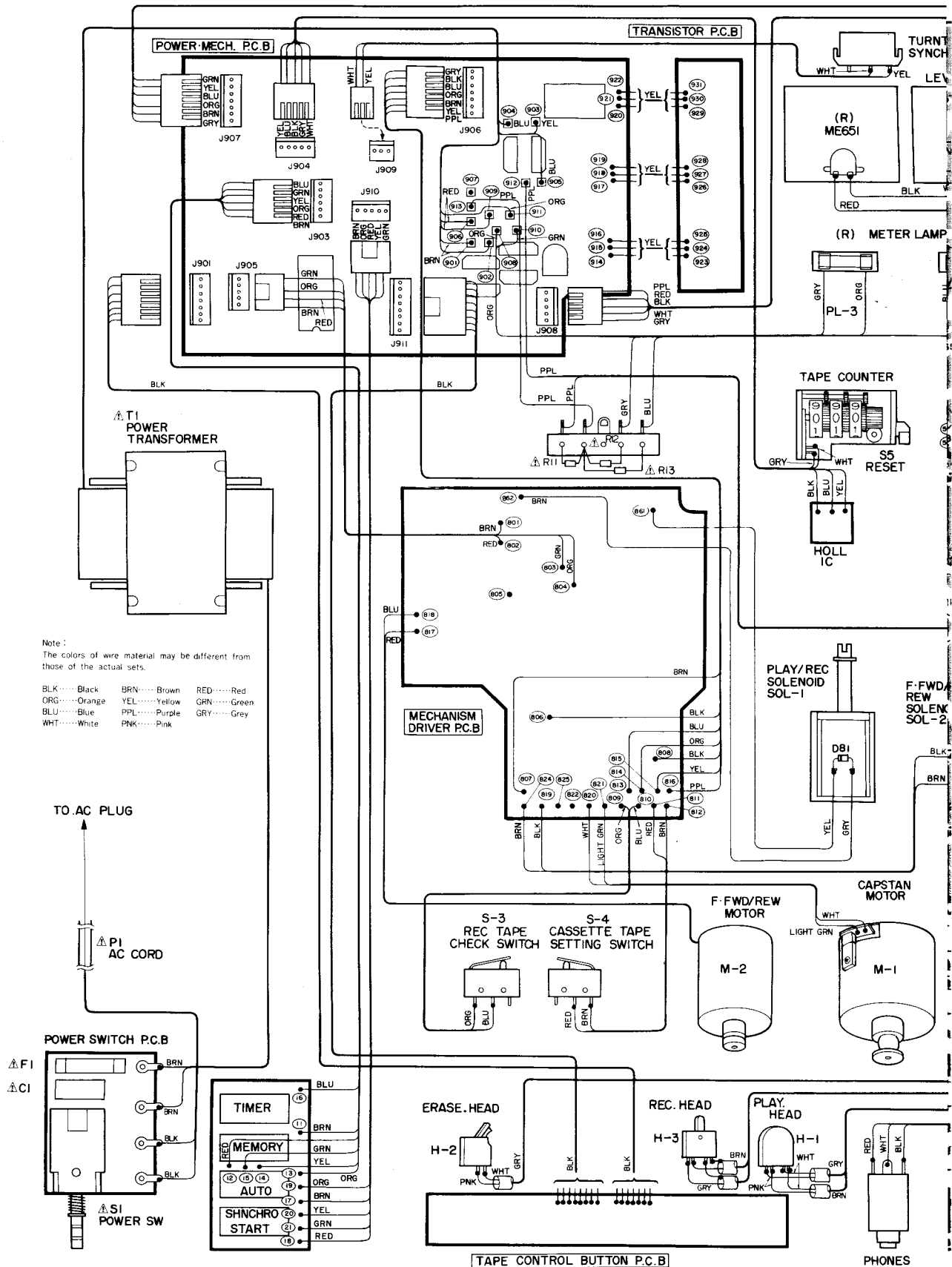
ASPS/PLAY MUTING (R-ch.....601 TO J907-7)

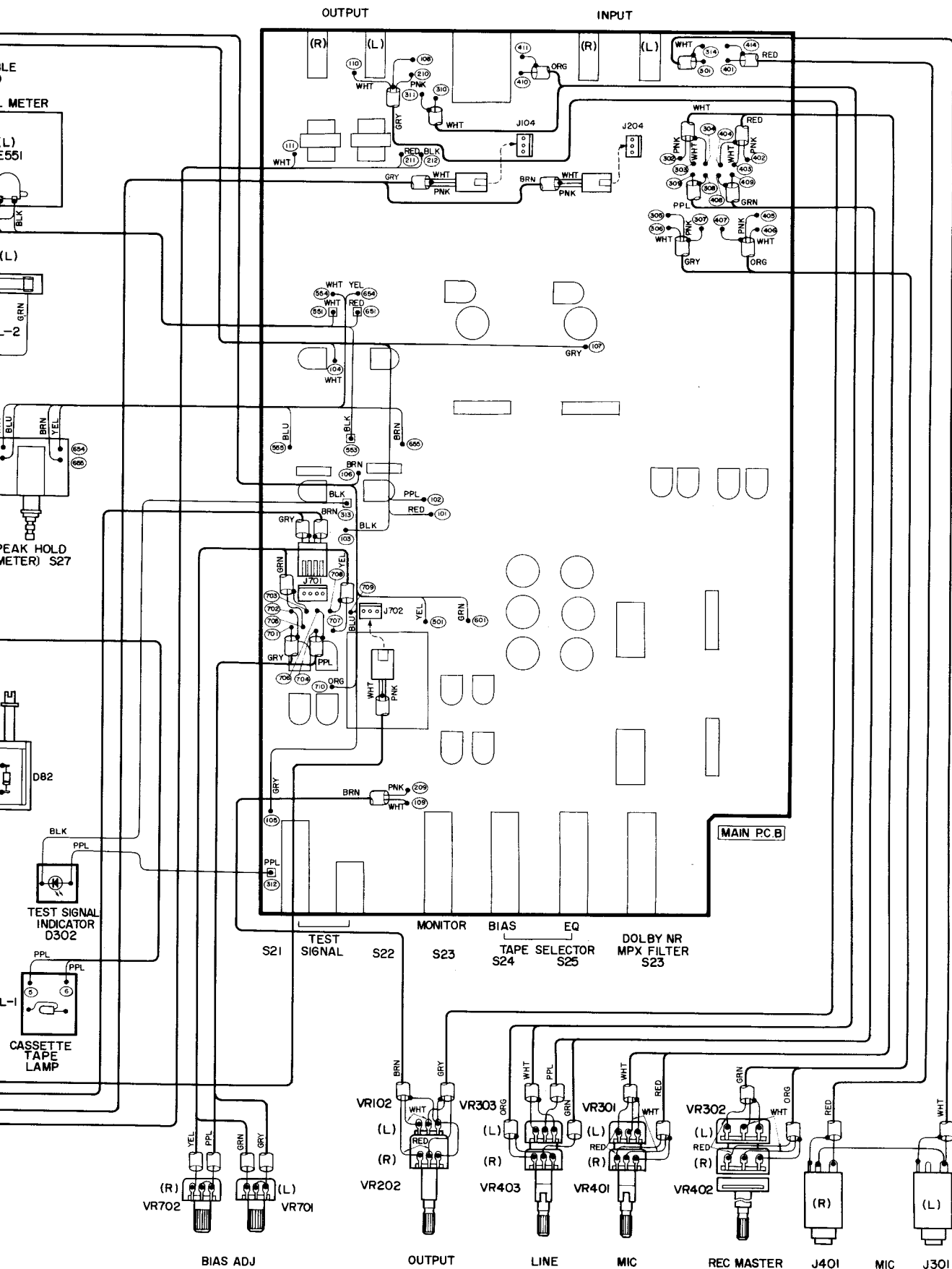


CIRCUIT DIAGRAM(1/2)
TO J908-3 AMP GND
TO J908-4 POWER

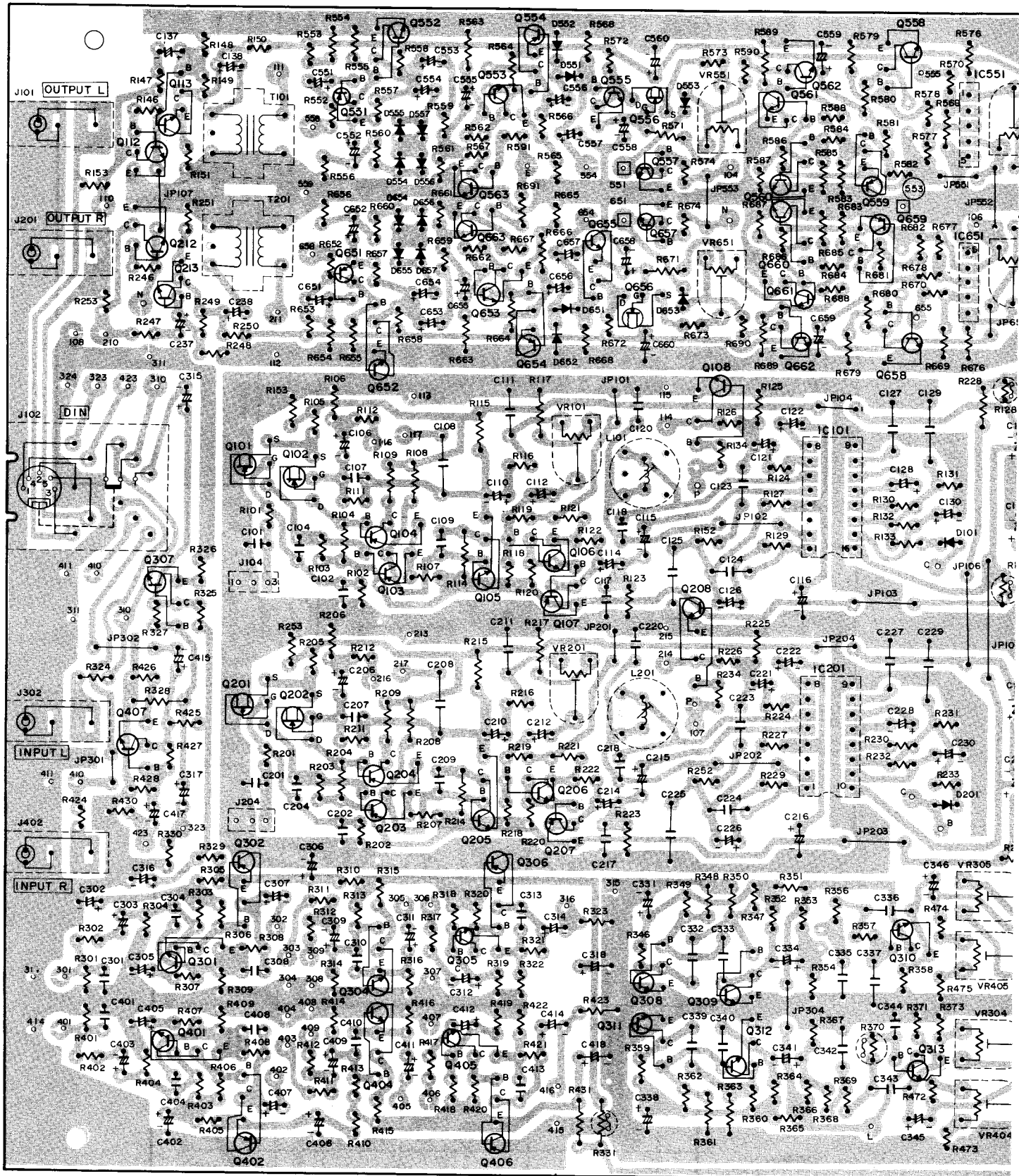
 D302
SLP-114 B
TEST SIGNAL
INDICATOR

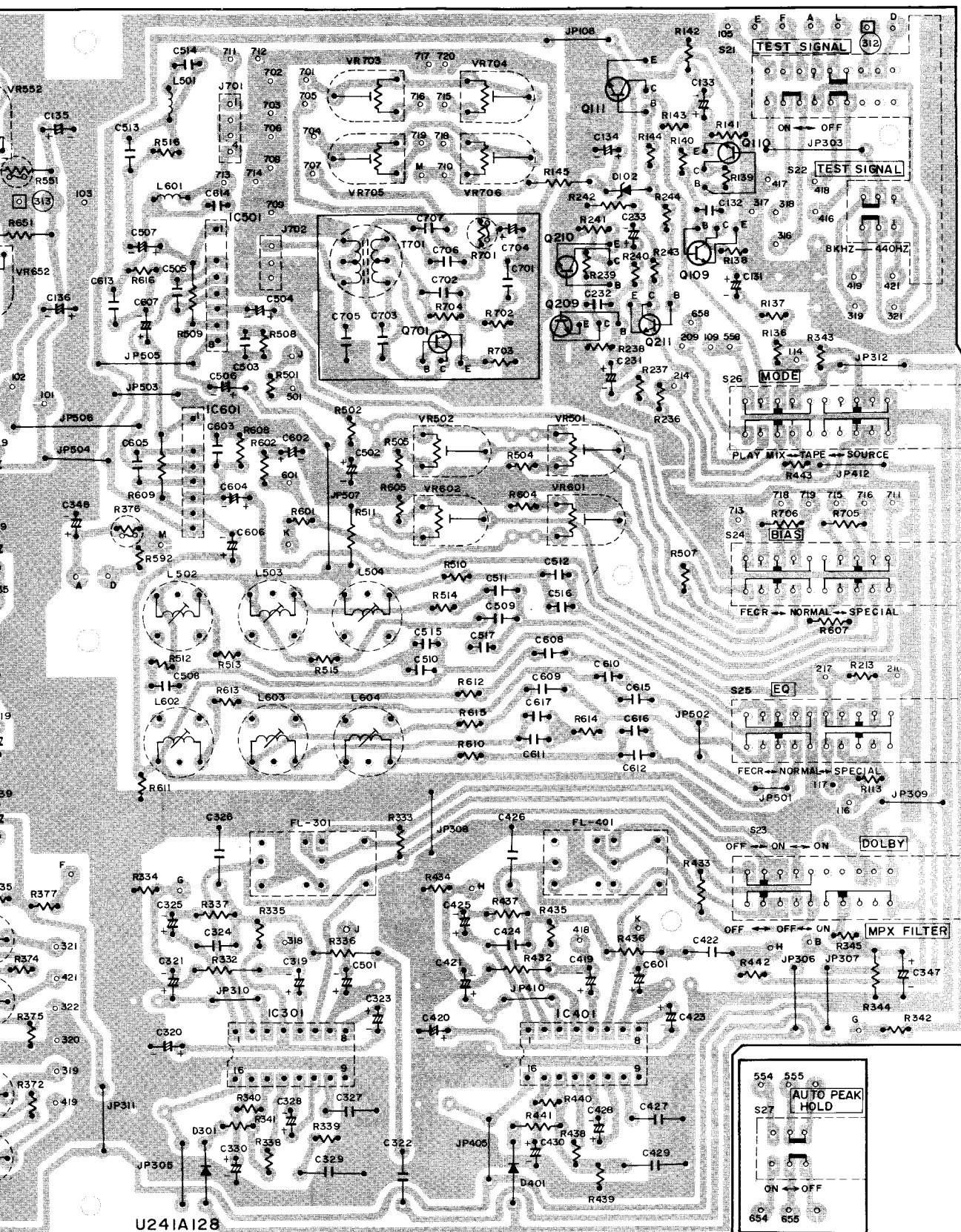
WIRING DIAGRAM

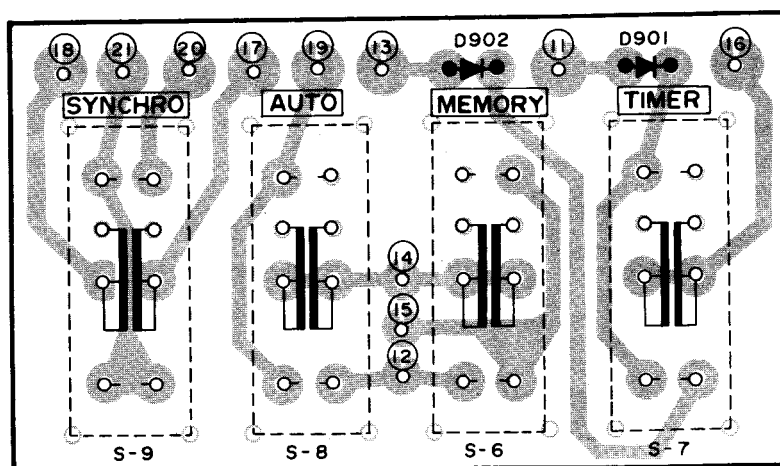
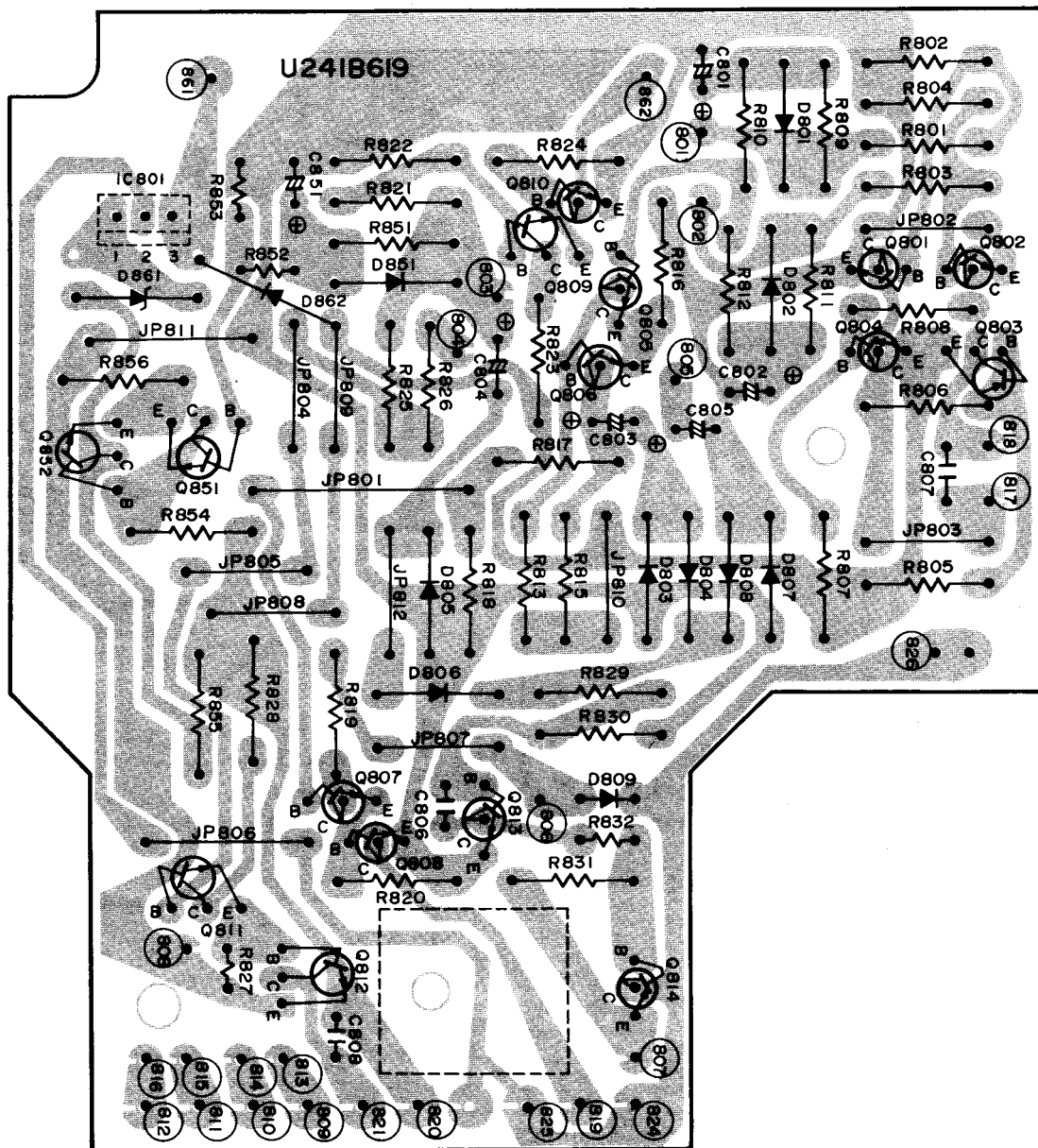




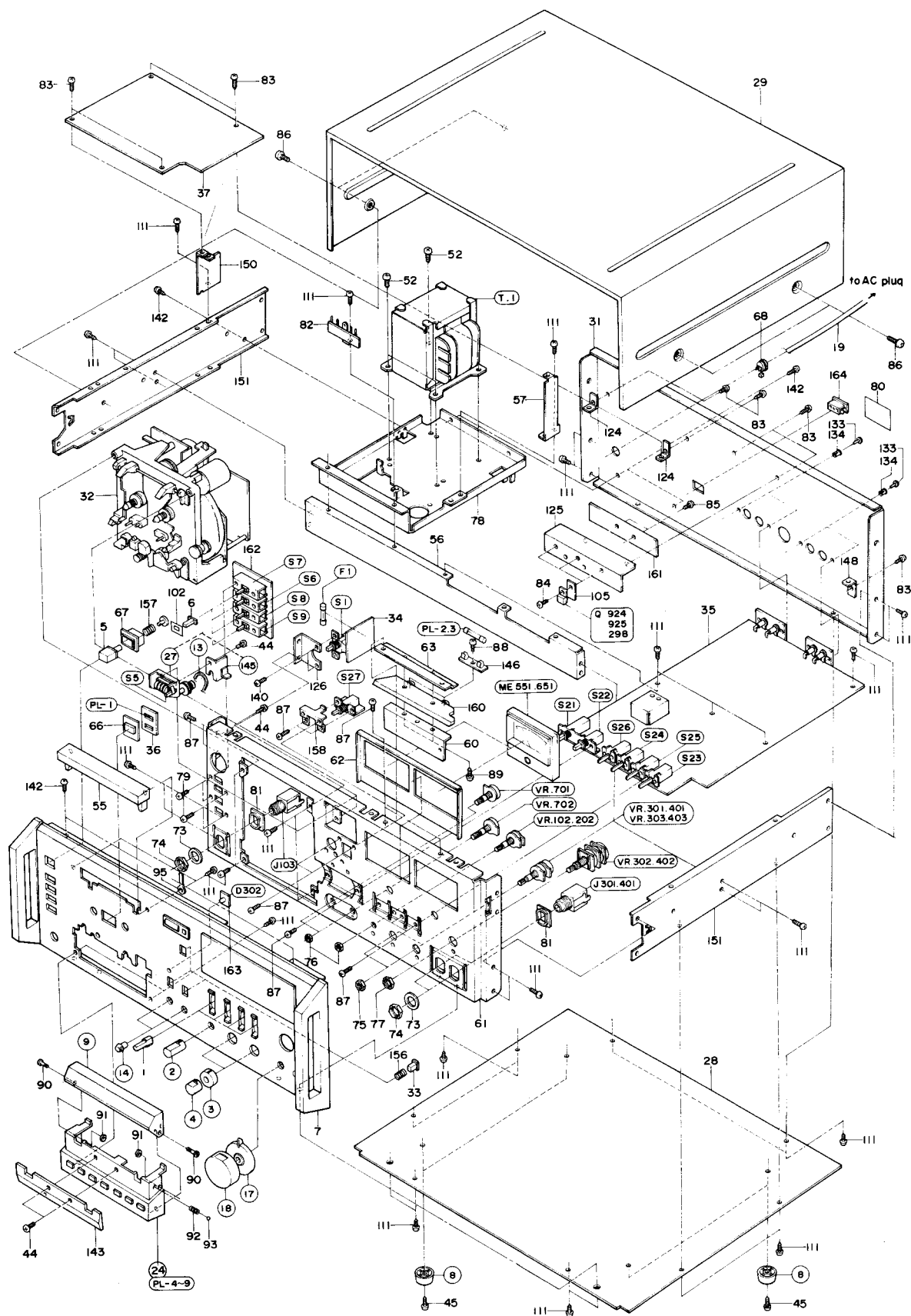
PRINTED CIRCUIT DIAGRAMS



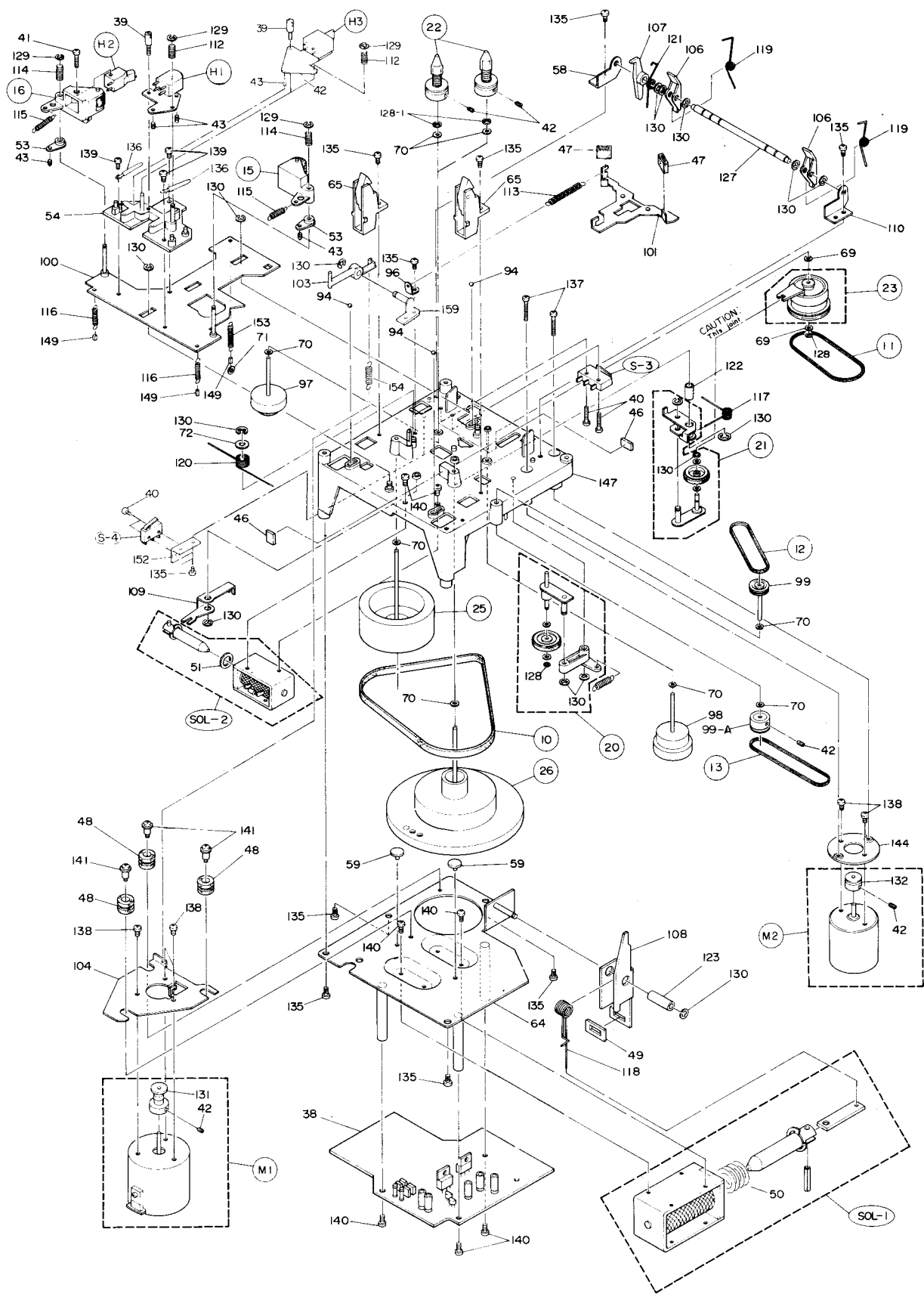




EXPLODED VIEW OF CABINET



EXPLODED VIEW OF MECHANISM



PARTS LIST

NOTE:  and  marks components on Parts list are for performance of this unit, replace them, uses safety critical components or designed component as specified.

Symbol No.	Part No.	Description
DIODES		
D81	M05036320	SR1FM-2
D82	M05036320	SR1FM-2
D101	M07060320	1S2473VE
D102	M07133322	MZ308
D202	M07060320	1S2473VE
D202	M07133322	MZ308
D301	M07060320	1S2473VE
D302	M05129321	SLP-114B
D401	M07060320	LS2473VE
D551	M04097320	1N60
D552	M04097320	1N60
D553	M07060320	1S2473VE
D554	M07060320	1S2473VE
D555	M07060320	1S2473VE
D556	M07060320	1S2473VE
D557	M07060320	1S2473VE
D651	M04097320	1N60
D652	M04097320	1N60
D653	M07060320	1S2473VE
D654	M07060320	1S2473VE
D656	M07060320	1S2473VE
D657	M07060320	1S2473VE
D801	M07060320	1S2473VE
D802	M07060320	1S2473VE
D803	M07060320	1S2473VE
D804	M07060320	1S2473VE
D805	M07060320	1S2473VE
D806	M07060320	1S2473VE
D809	M05036320	SR1FM-2
D851	M07060320	1S2473VE
D861	M07133322	MZ308
D862	M05036320	SR1FM-2
D901	M07060320	1S2473VE
D902	M07060320	1S2473VE
D903	M07060320	1S2473VE
D904	M07060320	1S2473VE
D905	M07060320	1S2473VE
D906	M07060320	1S2473VE
D907	M07060320	1S2473VE
D908	M07060320	1S2473VE
D909	M07060320	1S2473VE

Symbol No.	Part No.	Description
D910	M07060320	1S2473VE
D911	M07060320	1S2473VE
D912	M07060320	1S2473VE
D913	M05129320	MZ306
D914	M07060320	1S2473VE
D915	M07060320	1S2473VE
D916	M05129320	MZ306
D917	M07060320	1S2473VE
D918	M07060320	1S2473VE
D919	M05036320	SR1FM-2
D920	M07060320	1S2473VE
D921	M07060320	1S2473VE
D922	M07060320	1S2473VE
D923	M07060320	1S2473VE
D924	M07060320	1S2473VE
D925	M05129320	MZ306
D927	M05129320	MZ306
D928	M07140320	MZ320
D929	M04081321	10DC1
D931	M04081321	10DC1
D933	M04081320	10DC1R
D942	M07060320	1S2473VE
TRANSISTORS		
Q101	M07139304	2SK68
Q102	M07139304	2SK68
Q103	M07071306	2SA726
Q104	M07071306	2SA726
Q105	M07071303	2SC1313
Q106	M05104310	2SC1648
Q107	M05104312	2SA823
Q108	M05104313	2SC1740
Q109	M05104310	2SC1648
Q110	M05104310	2SC1648
Q111	M05124311	2SC1383
Q112	M05104313	2SC1740
Q113	M05104310	2SC1648
Q201	M07139304	2SK68
Q202	M07139304	2SK68
Q203	M07071306	2SA726
Q204	M07071306	2SA726
Q205	M07071306	2SC1313
Q206	M05104310	2SC1648
Q207	M05104313	2SC1740
Q209	M05104310	2SC1648
Q210	M05104310	2SC1648

Symbol No.	Part No.	Description
Q211	M05124311	2SC1383
Q212	M05104313	2SC1740
Q213	M05104310	2SC1648
Q301	M07113311	2SC1919
Q302	M07061303	2SA725
Q304	M07113311	2SC1919
Q305	M05104310	2SC1648
Q306	M05104312	2SA823
Q307	M05104310	2SC1648
Q308	M05104310	2SC1648
Q309	M05104310	2SC1648
Q310	M05104310	2SC1648
Q311	M05104310	2SC1648
Q312	M05104310	2SC1648
Q313	M05104310	2SC1648
Q401	M07113311	2SC1919
Q402	M07061303	2SA725
Q404	M07113311	2SC1919
Q405	M05104310	2SC1648
Q406	M05104312	2SA823
Q407	M05104310	2SC1648
Q408	M05104310	2SC1648
Q409	M05104310	2SC1648
Q410	M05104310	2SC1648
Q411	M05104310	2SC1648
Q412	M05104310	2SC1648
Q413	M05104310	2SC1648
Q551	M05104312	2SA823
Q552	M05104310	2SC1648
Q553	M05104310	2SC1648
Q554	M05104312	2SA823
Q555	M05104310	2SC1648
Q556	M07139304	2SK68
Q557	M05104313	2SC1740
Q558	M05104313	2SC1740
Q559	M05104312	2SC823
Q560	M05104313	2SC1740
Q561	M05104313	2SC1740
Q562	M05104312	2SC1740
Q563	M05104313	2SC1740
Q651	M05104312	2SA823
Q652	M05104310	2SC1648
Q653	M05104310	2SC1648
Q654	M05104312	2SA823
Q655	M05104310	2SC1648
Q656	M07139304	2SK68
Q657	M05104313	2SC1740
Q658	M05104313	2SC1740
Q659	M05104312	2SA823

Symbol No.	Part No.	Description
Q660	M05104313	2SC1740
Q661	M05104313	2SC1740
Q662	M05104313	2SC1740
Q663	M05104313	2SC1740
Q701	M07228303	2SD571
Q801	M05147311	2SD471
Q802	M05147311	2SD471
Q803	M05147312	2SB564
Q804	M05147312	2SB564
Q805	M05104313	2SC1740
Q806	M05104313	2SC1740
Q807	M05104313	2SC1740
Q808	M05147313	2SC2497
Q809	M05104313	2SC1740
Q810	M07228303	2SD571
Q811	M05104313	2SC
Q812	M05147311	2SD471
Q813	M07071303	2SC1313
Q814	M04120303	2SB514
Q851	M05104310	2SC1648
Q852	M05104310	2SC1648
Q901	M05104313	2SC1740
Q902	M05104312	2SA823
Q903	M05104313	2SC1740
Q904	M07137308	2SA854
Q905	M05104312	2SA823
Q906	M05104313	2SC1740
Q907	M05104310	2SC1648
Q908	M05104313	2SC1740
Q909	M05104313	2SC1740
Q910	M05104312	2SA823
Q911	M05104313	2SC1740
Q912	M05104313	2SC1740
Q913	M05124311	2SC1383
Q914	M05124311	2SC1383
Q915	M05124311	2SC1383
Q916	M05104313	2SC1740
Q917	M05104313	2SC1740
Q918	M05104312	2SA823
Q919	M05104310	2SC1648
Q920	M05104312	2SC823
Q921	M05104312	2SA823
Q922	M05104310	2SC1648
Q923	M05104310	2SC1648
Q924	M07413303	2SD712
Q925	M07413303	2SD712
Q926	M07071303	2SC1313
Q927	M05104310	2SC1648
Q928	M07413303	2SD712
Q929	M05104312	2SA823

Symbol No.	Part No.	Description
Q930	M07229305	2SC2002
IC's		
IC101	M05147343	LM-1011
IC201	M05147343	LM-1011
IC301	M05147343	LM-1011
IC401	M05147343	LM-1011
IC501	M07229343	HA-1457
IC551	M05155344	M051202L
IC601	M07229343	HA-1457
IC651	M05155344	M51202L
IC801	M05167343	μPC14315
IC901	M05147344	TC9121P
ELECTRICAL PARTS		
R11	M05168471	R-Fuse 1/2 W 33 ohm ⚠
R12, 13	M07133420	R-Fuse 1/2 W 10 ohm ⚠
R128, 135	M05129471	R-Fuse 1/4 W 100 ohm ⚠
R331, 376		
R551		
R701	M07215416	R-Fuse 1/4 W 68 ohm ⚠
VR102, 202	M05155352	VR-W-A20K25 (Output)
VR302, 402	M05155353	VR-W-A10K25 (REC)
VR303, 301	M05155350	VR-W-A20K25 (Mic, Line In)
403, 401		
VR701, 702	M05155351	VR-STD-B10K15 (Bias, Adj.)
S1	M07182450	SW-PUSH (Power) ⚠
S3, 4	M05129431	SW-MICRO
S5	M05155433	
S6, 7, 8, 9	M05155433	SW-SLIDE (Timer, Memory, Auto, Synchro)
S11, 12, 13, 14, 15, 16, 17	M05155117	SW-PUSH (Tape Operation)
S21, 22	M05155430	SW-PUSH (Test Signal, On, Off, 4008K)
S23, 24, 25	M05158431	SW-LEVER (Monitor, Tape Select, Dolby NR, MPX Filter)
S26, 27	M05155431	SW-PUSH (Peak Hold)
SOL-1	M05147391	SOLENOID (Play)
SOL-2	M05147392	SOLENOID (FF, REW)
PL-1	M05156490	LAMP (Cassette Tape)
PL-2, 3	M05155490	LAMP (Meter)
PL-4, 5, 6	M05147492	LAMP (Operation Mecha)
-7, 8, 9		
ME551, 651	M05158400	METER
T1	M05158410	TRANS POWER ⚠
H1	M05155830	HEAD-PLAY
H2	M05155831	HEAD-REC
H3	M05147831	HEAD-ERASE

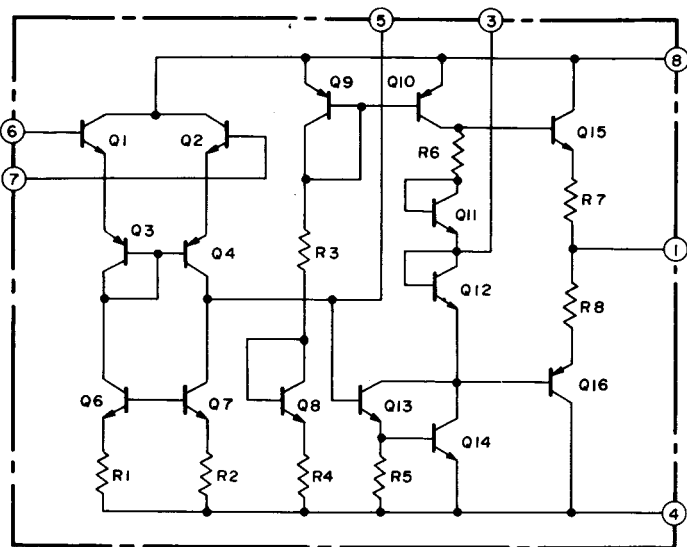
Symbol No.	Part No.	Description
M-1	M05147500	MOTOR-ASSY (Main)
M-2	M05147501	MOTOR-ASSY (FF, REW)
J103	M05104441	JACK (Headphone)
J204	M07213480	SOCKET (Turntable, Synchro)
J301, 401	M05129447	JACK (Mic.)
F1	M05158471	FUSE 125V 3A ⚠
MECHANICAL PARTS		
10	M05104551	Belt (MOTOR)
11	M05147551	Belt (FF, REW)
12	M05147550	Belt (COUNTER)
13	M05155550	Belt (COUNTER)
15	M05147541	Pulley-Assy (R)
16	M05147540	Pulley-Assy (L)
20	M05147542	Pulley-Assy (PLAY)
21	M05147453	Pulley-Assy (F/F)
22	M05147525	Reel-Reset-Assy
23	M05147544	Pulley-Assy (F/F, REWIND)
25	M05147520	Flywheel (L)
26	M05147521	Flywheel (R)
CABINET PARTS		
2	M05158120	Knob Assy (OUTPUT)
3	M05158124	Knob Assy (LINE, MIC)
4	M05158122	Knob Assy (LINE, MIC)
8	M05104140	Leg
9	M05155116	Cover, Head
14	M05155126	Knob, (BIAS, ADJ.)
17	M05158123	Knob Assy (REC, MASTER)
18	M05158121	Knob Assy (REC, MASTER)
24	M05155117	Mecha-SW-Assy
27	M05147404	Counter
30	M07213480	Jack (TURNTABLE, SYNCHRO)
PACKING		
	M05158999	Instruction Book
	M05149998	Warranty Card
	M05158900	Packing Box
	M05149910	Cushon
	M07050470	Lead (PIN, PIN)
	M05158710	Lead (TURNTABLE, SYNCHRO)

PARTS LIST

Symbol No.	Description
1	Knob (Lever-Switch)
5	Knob (Power-Switch)
6	Knob (Timer, S6 to S9)
7	Panel (Front)
19	Power Supply Cord
28	Bottom Cover
29	Top Cover
31	Panel (rear)
32	Mecha. Ass'y
33	Knob (Signal, Peak Hold)
34	P.C.B. (Power- Sw.)
35	P.C.B (Main)
36	P.C.B (PL-1)
37	P.C.B (Power, Mecha. Control)
38	P.C.B. (Drive Mecha.)
39	Screw (Special,M2x7)
40	Screw (M2x8)
41	Screw (M2x12)
42	Screw (W1.27—M2.6x6)
43	Screw (W1.27—M2.6x8)
44	Screw (W2—M3x5)
45	Screw (Blk, T2—3x14)
46	Rubber Plate(2t)
47	Rubber (Brake)
48	Rubber Tube (Motor)
49	Rubber (Play Lever)
50	Washer (0.2t)
51	Washer (Rubber)
52	Screw (M4x5)
53	Holder (Pinch Lever)
54	Holder (Head)
55	Holder (Cassette)
56	Holder (Main)
57	Holder (P.C.B.)
58	Holder (Shaft)
59	Holder (Fryheel)
60	Holder (Meter)
61	Holder (Main)
62	Holder (Meter)
63	Holder (Meter)
64	Holder (Sol)
65	Holder (Cassette)
66	Holder (PL-I)
67	Holder (Link)
68	Holder (Cord)
69	Washer PL(0.25tx2.1x4)
70	Washer PL(0.25tx2.6x4.7)
71	Washer PL(0.5tx3.1x5.4)
72	Washer PL(0.8tx4.5x8.8)
73	Washer (0.8tx1.2x18)
74	Nut (M12)

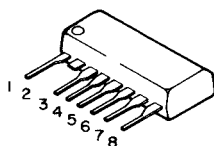
Symbol No.	Description
75	Nut (M9)
76	Nut (M7)
77	Nut (M11)
78	Holder
79	Screw (M2.6x3)
80	Name Plate
81	Bushing
82	Lug Terminal (5P)
83	Screw (Blk, M3x6)
84	Screw PL (M3x6)
85	Screw (M3x6)
86	Screw (Nickel, M4x6)
87	Screw M3x4)
88	Screw (Blk, T1—3x10)
89	Screw (M3x8)
90	Screw (Special,M2.6x6)
91	Nut (M2.6)
92	Spring
93	Ball (3.96 ϕ)
94	Ball (2.38 ϕ)
95	Lug Terminal (Clamp, 3 Use)
96	Lug Terminal (Spring)
97	Pulley (Supply)
98	Pulley (Take-Up)
99	Pulley (Counter)
99-A	Pulley (Counter)
100	Plate (Main Plate)
101	Link (Brake)
102	Plate (Trim)
103	Lever (Setting)
104	Holder (Motor)
105	Sheet (Insulation)
106	Lever (Cassette Push)
107	Lever (Rec, Tape)
108	Lever (Sol.)
109	Lever (Fast Forward)
110	Holder (Shaft)
111	Screw (Blk, T2—3x6)
112	Spring (Head)
113	Spring (Brake)
114	Spring (Pinch Lever)
115	Spring (Pinch Lever)
116	Spring (Play Plate)
117	Spring (Fast Forward)
118	Spring (Play)
119	Spring (Cassette)
120	Spring (Brake)
121	Spring (Rec, Tape)
122	Pipe (F.F. Lever)
123	Pipe (Play Lever)
124	Holder (P.C.B.)

Symbol No.	Description
125	Holder (Transistor)
126	Holder (Power Switch)
127	Shaft (Cassette Push)
128	E Ring (E1.5)
128-1	E-Ring (E2)
129	E Ring (E2.5)
130	E Ring (E3)
131	Pulley (Motor, M1)
132	Pulley (Motor, M2)
133	Plastic Rivet (A)
134	Plastic Rivet (B)
135	Screw (T2—3x6)
136	Lug Terminal (Cramp, 2.6)ial
137	screw (M2.6x16)
138	Screw (M2.6x3)
139	Screw (M2.6x4)
140	Screw (M3x5)
141	Screw (Special, M3x1.5)
142	Screw (Blk, T2—3x8)
143	Holder (Head)
144	Holder (Motor, M2)
145	Holder (IC1)
146	Holder (PL-2, 3)
147	Base (Mecha.)
148	Holder (P.C.B.)
149	Mould Plain
150	Holder (p'c'b')
151	Holder (For Both Side)
152	Holder (S4)
153	Spring (Main Plate)
154	Spring (Setting Lever)
156	Spring (S21, 22, 27 Knob)
157	Spring (S1, Knob)
158	Holder (S27)
159	Holder (Setting Lever)
160	Holder (Pilot Lamp Plate)
161	P.C.B. (Transistor)
162	P.C.B. (S6 to S9)
163	P.C.B (D302)
164	Jack (Turntable)
165	Voltage Selector (For Europe only)

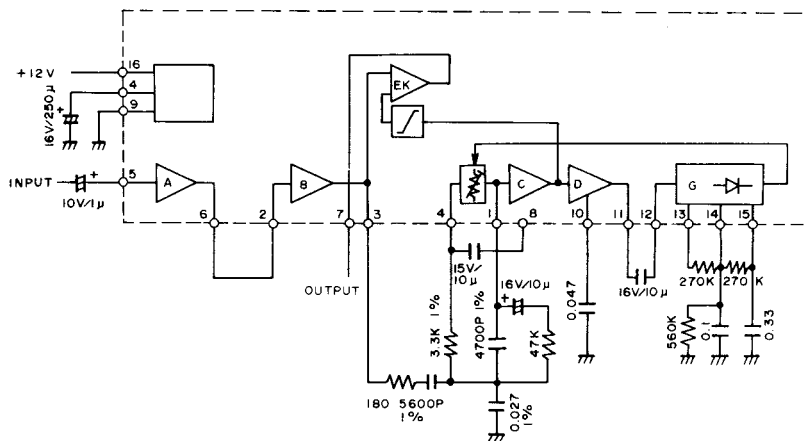
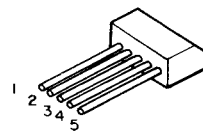
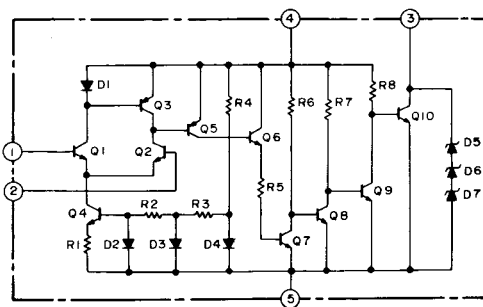


HA-1457

IC601



M51202L IC551
IC651

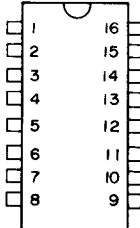


TOP VIEW

LM-5011

IC101, 201
IC301, 401

VARIABLE IMP INPUT
AMP B INPUT
AMP B OUTPUT
BIAS
AMP A INPUT
AMP A OUTPUT
AMP EK OUTPUT
DECOUPLING



POSITIVE SUPPLY
VARIABLE IMP CONTROL
RECTIFIER OUTPUT
RECTIFIER BIAS
RECTIFIER INPUT
AMP D OUTPUT
AMP D FEEDBACK DECOUPLING
GROUND