



VT-8500A

SERVICE MANUAL

No. 1422

Technical Data



VIDEO CASSETTE RECORDER

August 1980

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SPECIFICATIONS

Recording	Rotary two head Helical Scan Azimuth Recording
Video	NTSC Color EIA Standard
Cassette	VHS Type
Tape Speed	33.4 mm/sec. (SP mode)
	16.7 mm/sec. (LP mode)
	11.1 mm/sec. (EP mode)
RF Input	VHF: 75 ohm
	UHF: 300 ohm
RF Output	Channel 3 or Channel 4
Video Input	0.5~2.0 Vp-p, 75 ohm Unbalanced
Video Output	1.0 Vp-p, 75 ohm Unbalanced
Audio Input	Mic: -66 dB 600 ohm
	Line: -20 dB 50k ohm
Audio Output	-6 dB 600 ohm
SP Video Recording S/N	Better than 46 dB
LP Video Recording S/N	Better than 43 dB
EP Video Recording S/N	Better than 43 dB
SP Horizontal Resolution	240 lines
LP Horizontal Resolution	230 lines
EP Horizontal Resolution	230 lines
SP Audio Response	50 Hz~10 kHz
LP Audio Response	50 Hz~7 kHz
EP Audio Response	100 Hz~6 kHz
SP Audio S/N	Better 43 dB
LP Audio S/N	Better than 40 dB
EP Audio S/N	Better than 40 dB
Power Input	AC 120V 60 Hz
Power Consumption	38W
Cabinet Size	43.5 (W) x 14.5 (H) x 33.0 (D) cm
	17-1/8" x 5-11/16" (H) x 13"
Weight	11 kg (24.2 lbs)

FOR CANADA

CAUTION AGAINST FUSE REPLACEMENT

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND SAME RATING FUSE IN ACCORDANCE WITH THE FUSE SYMBOL LABEL.

The following is indication of the fuse symbol label which is affixed adjacent to the fuse in the equipment.

*Example



This symbol indicates Fast Operating
Type 2A, 250V Fuse.

SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine General Electric replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with Δ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

DISASSEMBLY

1. Top Panel

- 1) Open the timer pre-set cover and cassette compartment.
- 2) ① 4 screws. (Fig. 1)

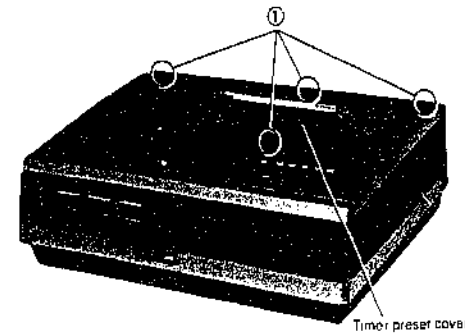


Fig. 1

2. Timer Pre-set Cover

- ② 2 hinge. (Fig. 2, 3)

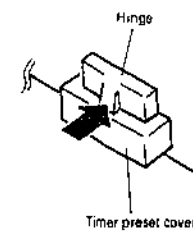


Fig. 2

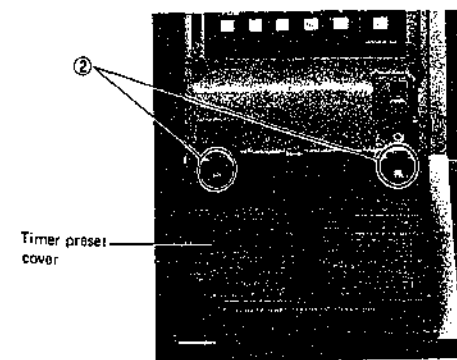


Fig. 3

3. Bottom Cover

- ③ 6 screws. (Fig. 4)

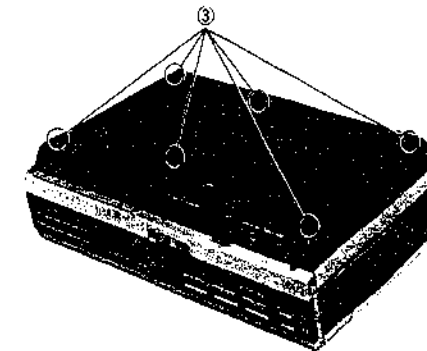


Fig. 4

4. Front Panel

- 1) Open the switch cover and pre-set cover.
- 2) ④ 6 screws. (Fig. 5, 6)

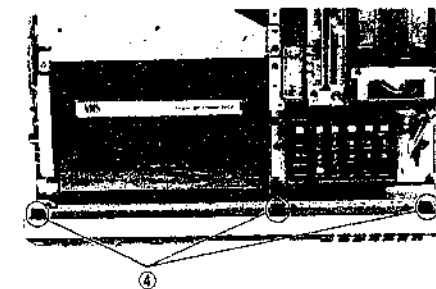


Fig. 5

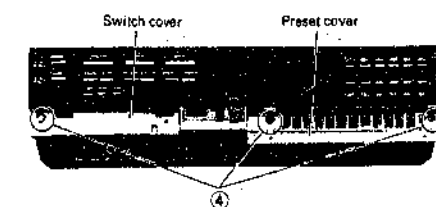


Fig. 6

5. Front Switch P.C.B.
⑤ 5 screws. (Fig. 7)



Fig. 7

6. Sub Chassis (with timer control block)
1) Remove the front bracket.
⑥ 3 screws. (Fig. 8)
2) ⑦ 4 screws. (Fig. 8)
3) Remove the sub chassis.
⑧ pull. (Fig. 9)

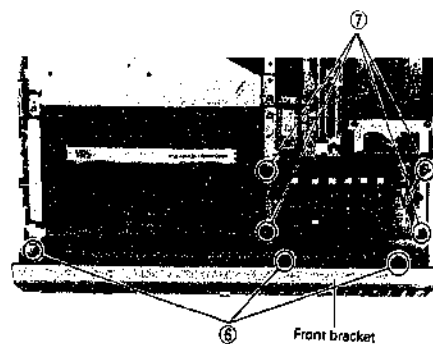


Fig. 8

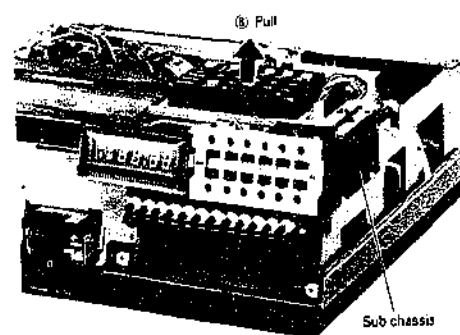


Fig. 9

7. Channel Pre-set P.C.B.
⑨ 2 screws. (Fig. 10)

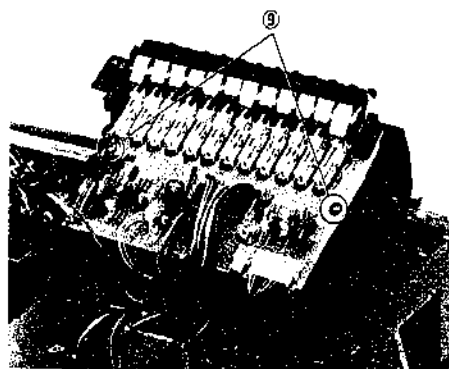


Fig. 10

8. Channel Pre-set Key P.C.B.
⑩ 2 screws. (Fig. 11)

9. Timer Control P.C.B.
⑪ 2 screws. (Fig. 11)

10. Display P.C.B.
⑫ 1 screws. (Fig. 11)

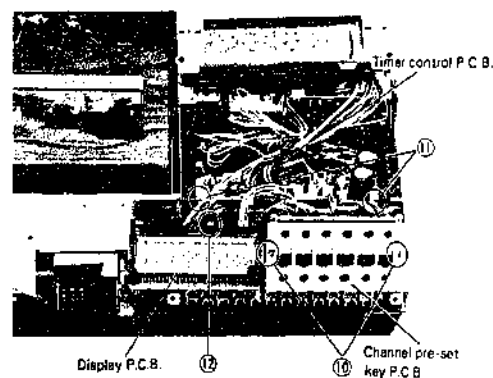


Fig. 11

11. Audio P.C.B.
⑬ 2 stoppers. (Fig. 12, 13)

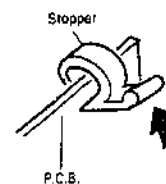


Fig. 12

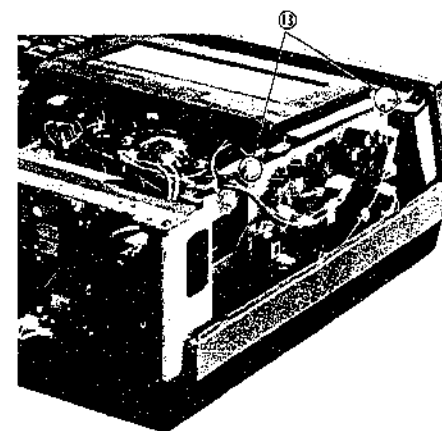


Fig. 13

12. WYC P.C.B.
1) Disconnect video head connector. (PG201)
2) ⑭ 2 stoppers. (Fig. 14)

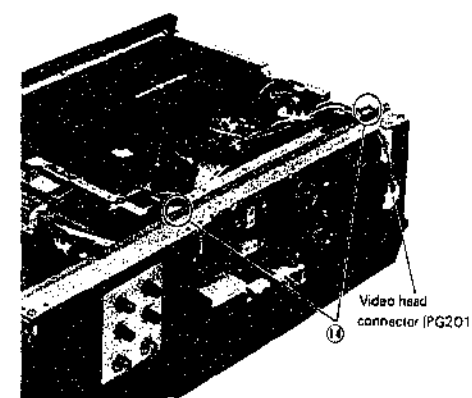


Fig. 14

13. Power Supply (Line Filter) P.C.B.
1) Remove the rear cover.
⑮ 4 screws. (Fig. 15)
2) Remove the RF converter unit.
⑯ 1 screw. (Fig. 15)
3) ⑰ 2 screws. (Fig. 16)

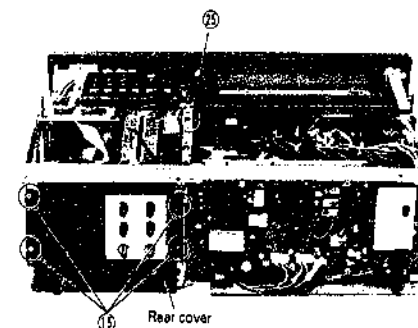


Fig. 15

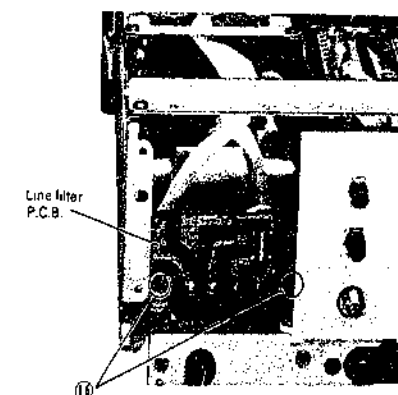


Fig. 16

14. Power Supply P.C.B.

- 1) Remove the power transformer.
- ⑩ 2 screws. (Fig. 17)
- 2) ⑪ 2 screws. (Fig. 17)

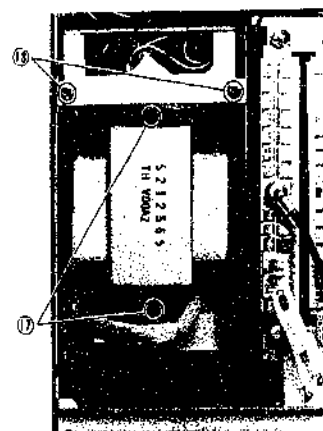


Fig. 17

15. PSS P.C.B. (Servo and system control block)

- ⑫ 4 screws. (Fig. 18)

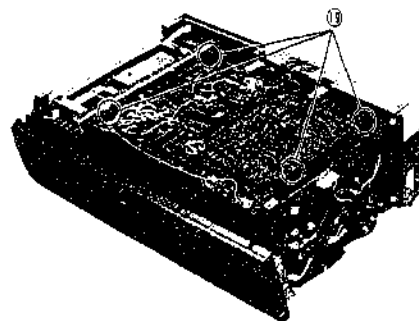


Fig. 18

16. RF-IF P.C.B. Block

- 1) Remove the rear cover.
- ⑬ 4 screws. (Fig. 19)
- 2) Remove the rear bracket.
- ⑭ 2 screws. (Fig. 19)
- 3) ⑮ 2 screws. (Fig. 20)

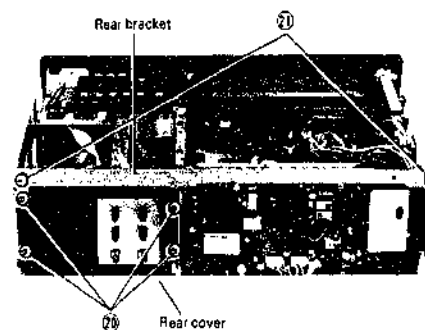


Fig. 19

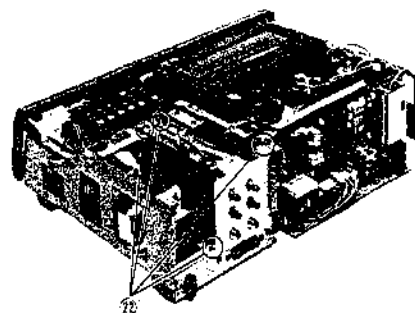


Fig. 20

17. Cassette Housing

- ⑯ 4 screws. (Fig. 21)

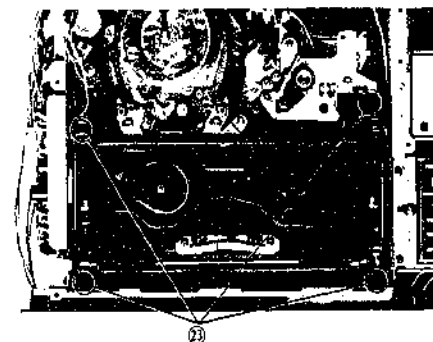


Fig. 21

18. Main Chassis

- ⑰ 4 screws. (Fig. 22)

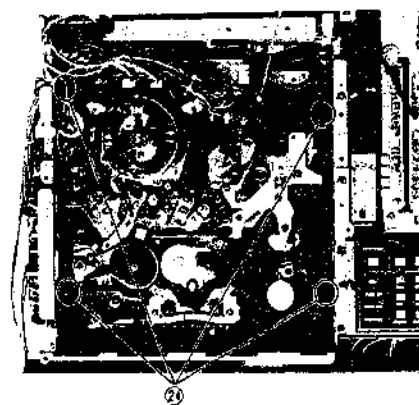


Fig. 22

19. Reel Motor

- 1) ⑱ 2 screws. (Fig. 23)

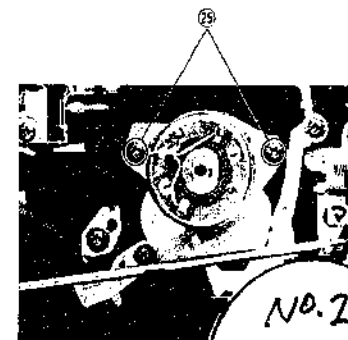


Fig. 23

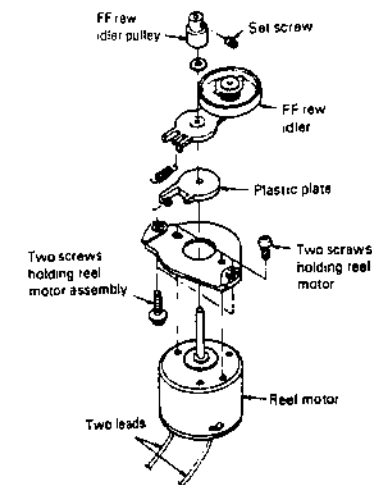


Fig. 24

20. Take-up, Supply Reel Disk

- 1) ② stopper washer. (Fig. 27)

Note: 1. Pay particular attention to the washer and thrust bearing located under the reel disk as they determine the proper disk height.

2. Before removing the supply reel disk, it will be necessary to remove the tension band.

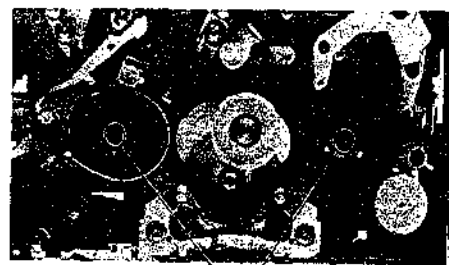


Fig. 27

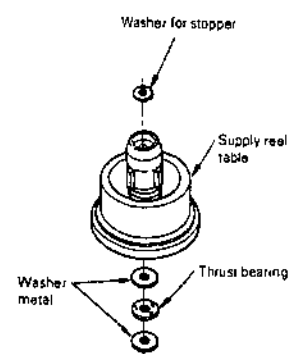


Fig. 25

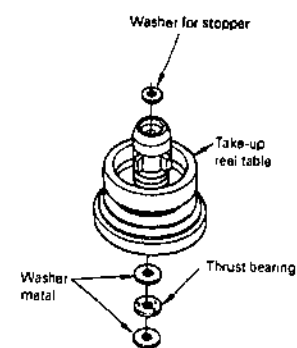


Fig. 28

21. Audio Control Head

- 1) ② 1 nut (Fig. 26)
- 2) ② 2 screws (Fig. 26)

Note: When replacing the A/C head, it is necessary to adjust head height, angle, X value, etc.

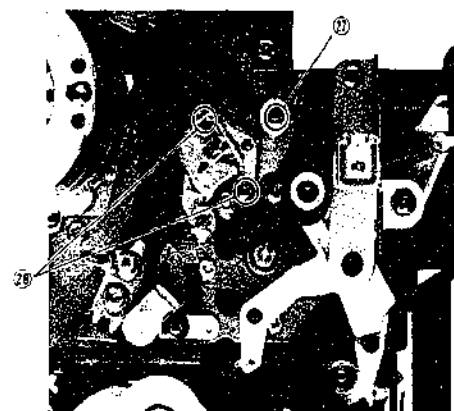


Fig. 26

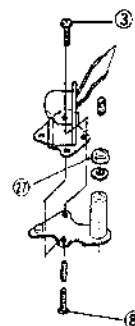


Fig. 29

22. Full Erase Head

- 1) Remove FE head arm.
② 1 screw. (Fig. 30)
- 2) ② 2 screws. (Fig. 30)

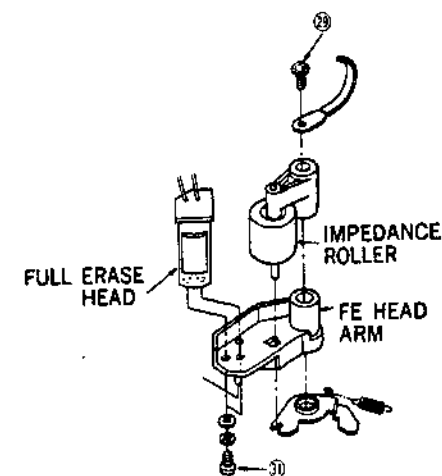


Fig. 30

23. D-D Capstan Motor

- 1) Remove 2 springs ② (Fig. 31)
- 2) ② screws.
- 3) ② 4 screws. (Fig. 31, 32)

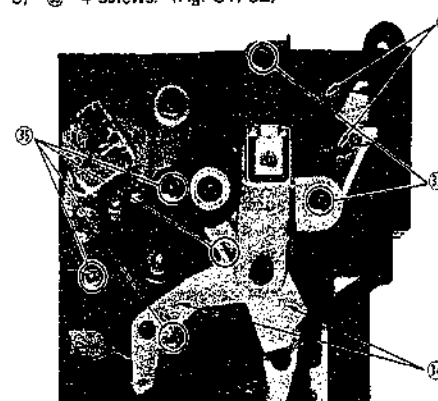


Fig. 31

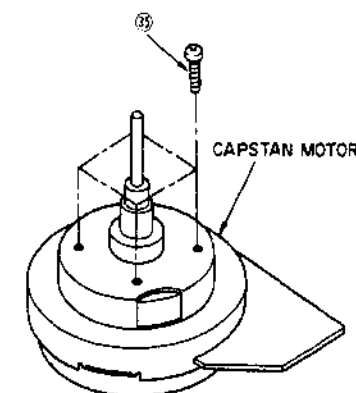


Fig. 32

24. Take-up Idler

- 1) Remove take-up idler twist spring. ② (Fig. 33, 34)
- 2) Remove screw holding take-up assembly bracket. ② (Fig. 33, 34)
- 3) Remove take-up assembly ② and bracket simultaneously towards the bottom. (Fig. 33, 34)



Fig. 33

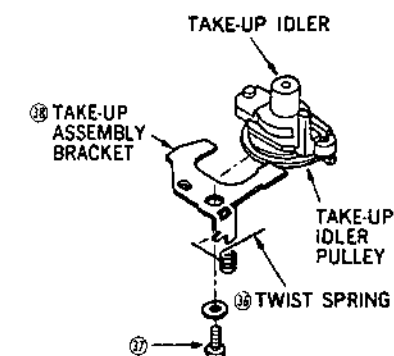


Fig. 34

25. D-D Cylinder Motor

- 1) Remove magnet plate
38 2 screws. (Fig. 35, 36)
- 2) 40 4 screws. (Fig. 35, 36)

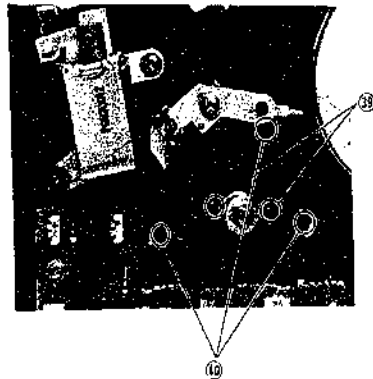


Fig. 35

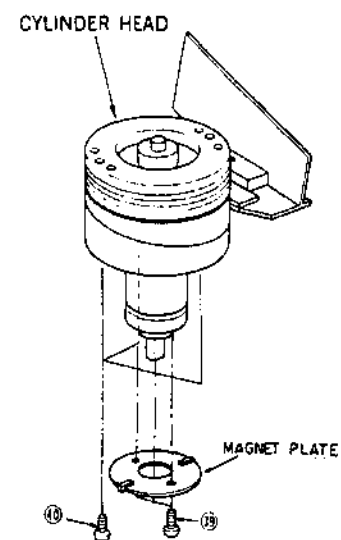


Fig. 36

26. Sub Chassis

- 1) Remove tension arm and supply reel sub brake.
41 Ering (Fig. 37)
- 2) 42 6 screws. (Fig. 37)

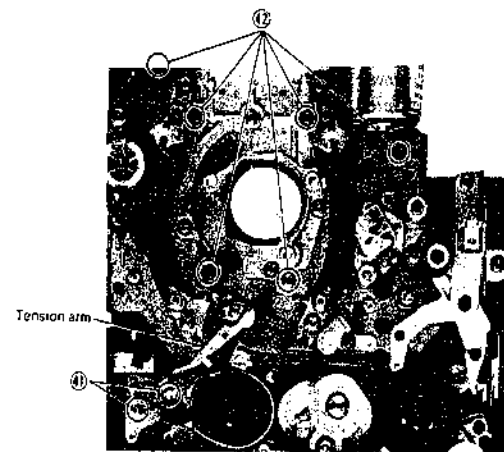


Fig. 37

27. Loading Gear

- 1) Remove sub chassis (Fig. 38)

Note: Be careful to ensure that the projections inside the gear wheels are in a straight line when replacing the loading gear.

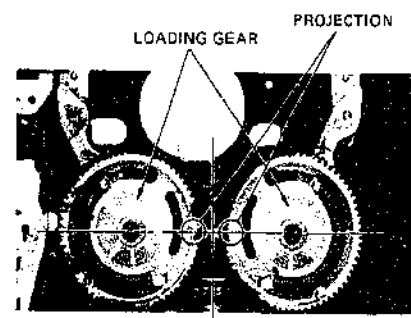


Fig. 38

28. Micro Switch (Pause switch)

- 1) Remove loading arm/slider.
- 2) 43, 44 2 screws. (Fig. 39)

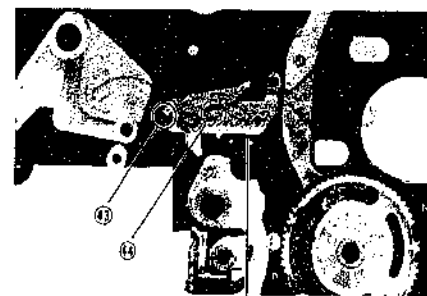


Fig. 39

ADJUSTMENT

SERVICING JIGS AND TOOLS

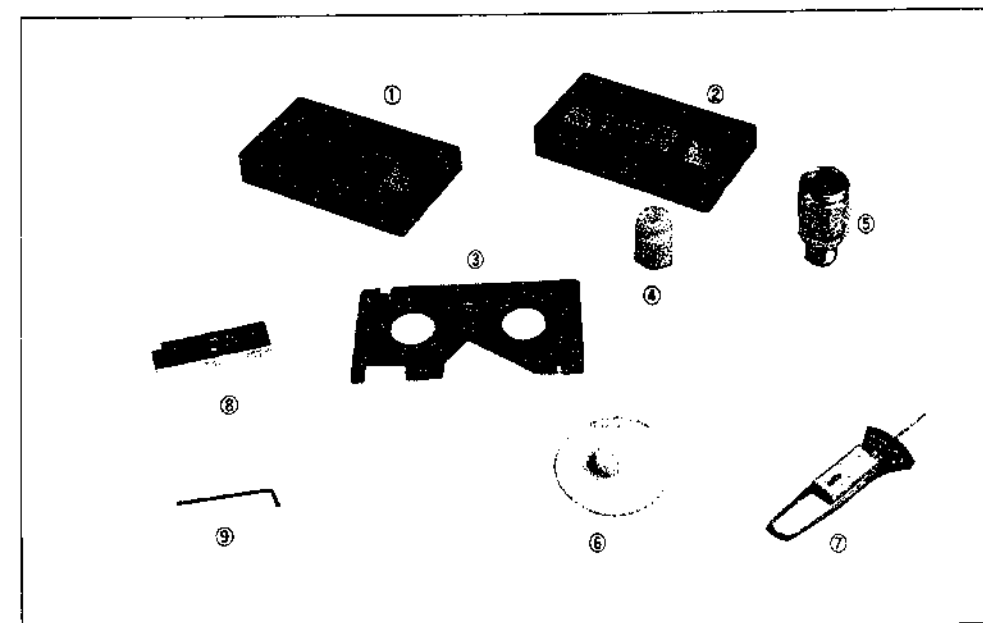


Fig. 40

- | | |
|------------------------------------|----------------------------|
| 1 Back tension meter | 6 Tension measurement reel |
| 2 Alignment tape | 7 Fan type tension gauge |
| 3 Cassette housing positioning jig | 8 Reel disk height jig |
| 4 Torque gauge adaptor | 9 Hexagonal wrench |
| 5 Torque gauge | |

ELECTRIC CIRCUIT ADJUSTMENT

SERVO BLOCK ADJUSTMENT

Before adjustment

To adjust the servo block, remove the upper and bottom covers and place the VTR with the audio PC Board being at

the bottom as shown in Fig. 41, 42.

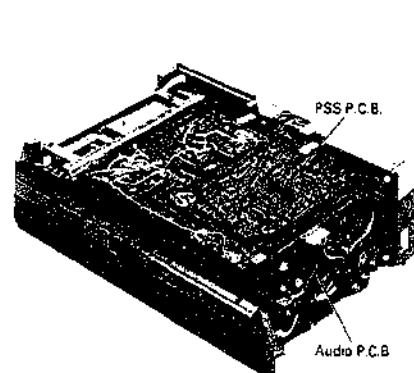


Fig. 41

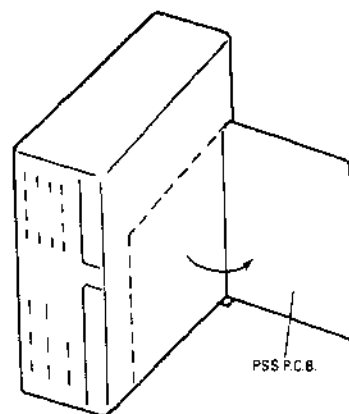


Fig. 42

PSS PC Board (Servo and system control block)

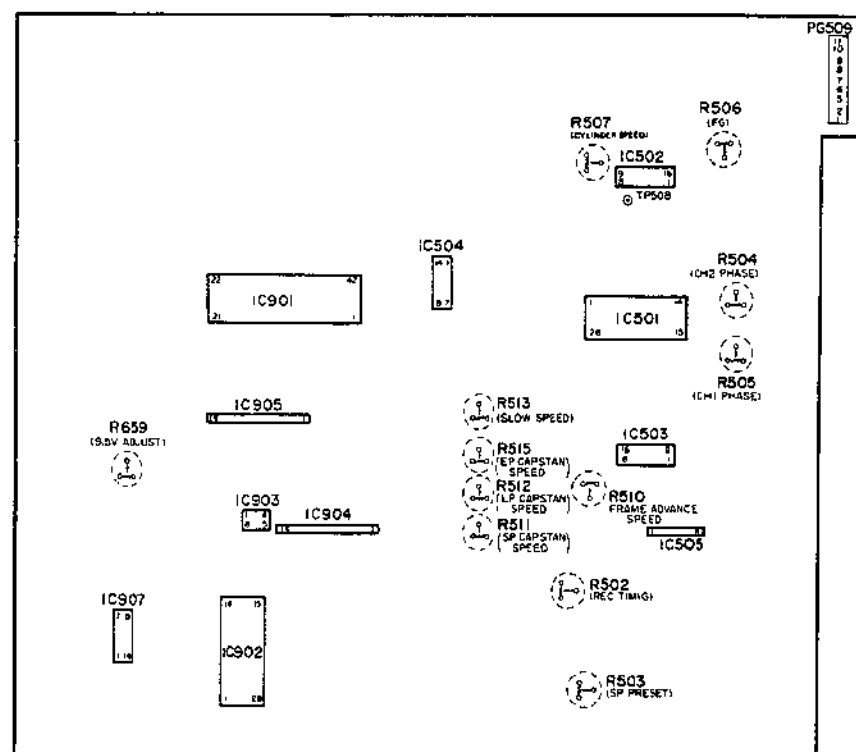


Fig. 43

1. 9.5Vreg. adjustment

Connection

Connect the DC voltmeter to PG509-② on the PSS pc board.

Mode

Turn power ON.

Adjustment Point

R659

Measurement Value

9.5V $\pm 0.1V$

2. Capstan speed adjustment

The purpose of this adjustment is to make the tape speed approx. 33.4 mm/sec in the SP mode, 16.7 mm/sec in the LP mode, 11.1 mm/sec in the EP Mode.

Tape Speed Adjustment	Tape Speed Selector	Connection	Adjustment
SP mode (33.4 mm/sec)	SP	Fig. 44	R511
LP mode (16.7 mm/sec)	LP		R512
EP mode (11.1 mm/sec)	EP		R515

Connection

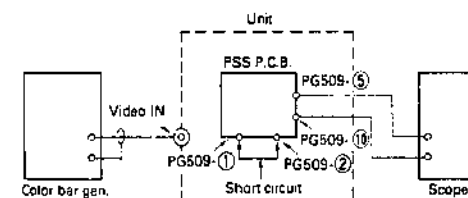


Fig. 44

Mode

Insert a blank tape and record a color bar signal or tune-in a local TV program at adjustment tape speed.

Adjustment

- 1) Short-circuit PG509-① and PG509-② and adjust the capstan speed controls (R511, R512, R515) so that the sample pulse is locked on the trapezoid waveform or the sample pulse flows as slowly as possible on the trapezoid waveform (Fig. 45).
- 2) Open-circuit PG509-① and PG509-② and confirm the sample pulse falls approximately on the center of the trapezoid's leading edge. (Fig. 46)

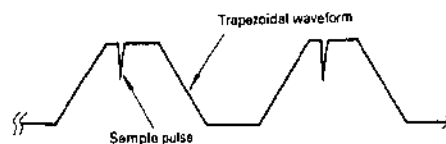


Fig. 45

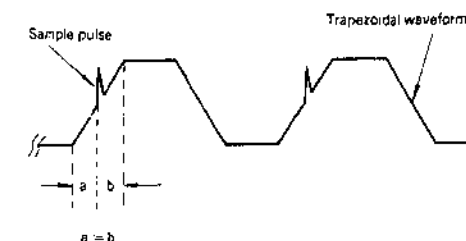


Fig. 46

3. Cylinder speed adjustment

The purpose of this adjustment is to make the cylinder speed 1800 rpm.

Connection

- 1) Connect the oscilloscope to PG509-⑦ on the PSS pc board.
- 2) Connect the color bar gen. to video input on the front panel or tune in a local on air TV program.

Mode

Insert a blank tape and record a color bar signal or tune-in a local TV program in the SP mode.

Adjustment point

R507

Adjustment

- 1) Short-circuit PG509-① and PG509-② and adjust the cylinder speed control (R507), so that the sample pulse is locked on the trapezoid waveform or the sampling pulse flows as slowly as possible on the trapezoid waveform. (Fig. 45)
- 2) Open-circuit PG509-① and PG509-② and confirm that the sample pulse falls approximately on the center of the trapezoid's trailing edge. (Fig. 47)

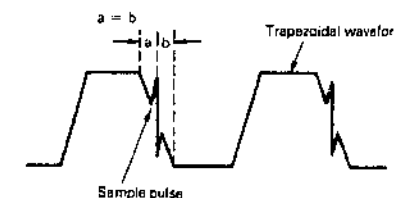


Fig. 47

4. Cylinder FG level adjustment

Connection

Connect the oscilloscope to PG509-⑥ on the PSS pc board.

Mode

Insert a blank tape and load.

Adjustment point

R505

Adjustment

Adjust the cylinder FG level control (R505) so that the ripple level is minimum. (Fig. 48)

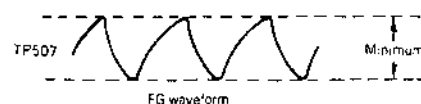


Fig. 48

5. Head switching point adjustment

This adjustment positions the video head switching point so that head switching occurs 6.5 horizontal lines before the start of the vertical sync pulse or 3 lines before the start of the equalizing pulse. (Figs. 49, 50)

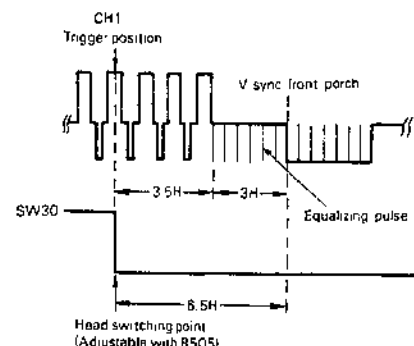


Fig. 49

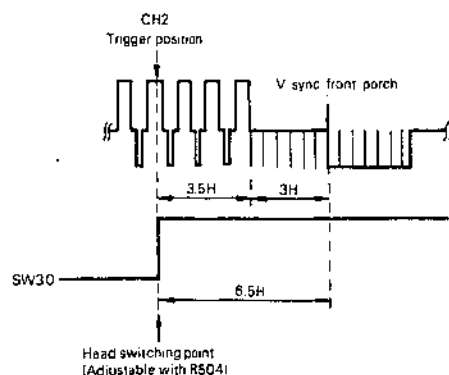


Fig. 50

Connection

Connect the oscilloscope to video output on the front panel, and apply synchronization with the signal from PG509-⑧ on the PSS pc board.

Mode

Insert an alignment tape and playback a color bar signal in the SP mode.

Adjustment Point

Adjustment channel	Oscilloscope sync slope	Adjustment
CH1	-	R505
CH2	+	R504

Adjustment

- 1) Set the synchronizing range of the oscilloscope to "EXT", and set the sync slope to "-" at channel 1 (CH1) adjustment, or "+" at channel 2 (CH2) adjustment.
- 2) Adjust the PG shifter controls (R505, R504) so that the start of the trigger position is 6.5H before the start of the vertical sync pulse. (Figs. 49, 50)

Note: It is difficult to count 6.5H, so adjust R505 and R504 so that the equivalent pulse is approx. 220 μ sec (3.5H) after the trigger position. If head switching occurs too soon, a narrow noise band may appear at the bottom of the picture. If the head switching pulse is late, noise can be introduced during vertical sync, possibly resulting in vertical sync problems.

6. Record shifter adjustment

Connection

- 1) Connect the oscilloscope to video output on the front panel and apply synchronization with the signal from PG509-⑧ on the PSS pc board.
- 2) Connect the color bar gen. to video input on the front panel or tune in a local on air TV program.

Mode

Insert a blank tape and record a color bar signal or tune-in a local TV program in the SP mode.

Adjustment Point

R502

Adjustment

Same as head switching point adjustment.

7. Tracking preset adjustment (SP PRESET)

Connection

- 1) Connect the oscilloscope to TP202 on the WYC pc board.
- 2) Connect the color bar gen. to video input on the front panel or tune in a local TV program.

Mode

- 1) Insert a blank tape and record a color bar signal or tune-in a local TV program for 1 — 2 minutes in the SP mode.
- 2) Playback the portion just recorded.

Adjustment Point

R503

Adjustment

Set the tracking control (RV502) to the click position, and adjust the tracking preset control (R503) so that the FM wave level at TP202 is maximum. (Fig. 51)

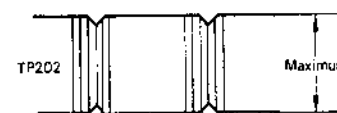


Fig. 51

8. SLOW speed adjustment

Connection

Same as capstan speed adjustment.

Mode

- 1) Insert a blank tape and record a color bar signal or tune-in a local TV program for 1 — 2 minutes in the EP mode.
- 2) Playback, in the SLOW mode, the portion just recorded.

Adjustment Point

R513

Adjustment

- 1) Short-circuit PG509-① and PG509-②, and adjust the slow speed control (R513) so that the pair of sampling pulses are locked on the two periodic trapezoid waveforms or the pair of sampling pulses flow as slowly as possible. (Fig. 52)
- 2) After adjustment, open circuit PG509-① and PG509-②.

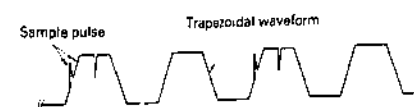


Fig. 52

9. CUE speed confirmation

Connection

- 1) Connect the frequency counter to IC503-Pin 8 on the PSS pc board.
- 2) Connect the color bar gen. to video input on the front panel or tune in a local TV program.

Mode

- 1) Insert a blank tape and record a color bar signal or tune in a local TV program for 1 — 2 minutes in the EP mode.
- 2) Playback, in the CUE mode, the portion just recorded.

Confirmation

2500 Hz $\pm$ 150 Hz

10. QUE offset confirmation

Connection

- 1) Connect the frequency counter to IC502-⑧ on the PSS pc board.
- 2) Connect the color bar gen. to video input on the front panel or tune in a local TV program.

Mode

- 1) Insert a blank tape and record a color bar signal or tune in a local TV program for 1 — 2 minutes in the EP mode.
- 2) Playback, in the QUE mode, the portion just recorded.

Confirmation

122 Hz $\pm$ 1 Hz

11. REVIEW offset confirmation

Connection

Same as QUE offset confirmation

Mode

- 1) Insert a blank tape and record a color bar signal or tune in a local TV program for 1 — 2 minutes in the EP mode.
- 2) Playback, in the REVIEW mode, the portion just recorded.

Confirmation

118 Hz $\pm$ 1 Hz

12. Frame advance speed adjustment

Connection

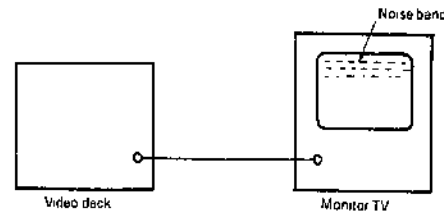


Fig. 53

Mode

- 1) Insert a blank tape and record a color bar signal or tune in a local TV program for 1 - 2 minutes in the EP mode.
- 2) Playback, in the PAUSE mode, the portion just recorded.

Adjustment Point

R510

Adjustment

Short-circuit PG509-⑩ and PG509-⑪, and adjust the frame advance speed control (R510) so that the noise band appearing on the monitor TV when the frame advance button is kept pressed in the pause mode flows 18 to 20 times in 10 seconds.

13. QUICK preset confirmation

Connection

- 1) Connect the monitor TV to RF converter output on the rear panel.
- 2) Connect the color bar gen to video input on the front panel or tune in a local TV program.

Mode

- 1) Insert a blank tape and record a color bar signal or tune in a local TV program in the EP mode.
- 2) Playback, in the QUICK mode, the portion just recorded.

Confirmation

Confirm the quick preset control so that the noise band on the monitor TV becomes as shown in Fig. 54.

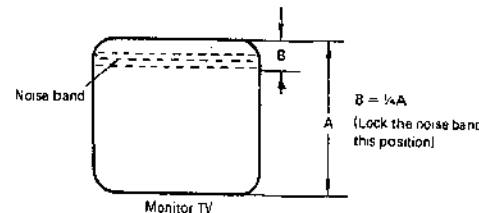
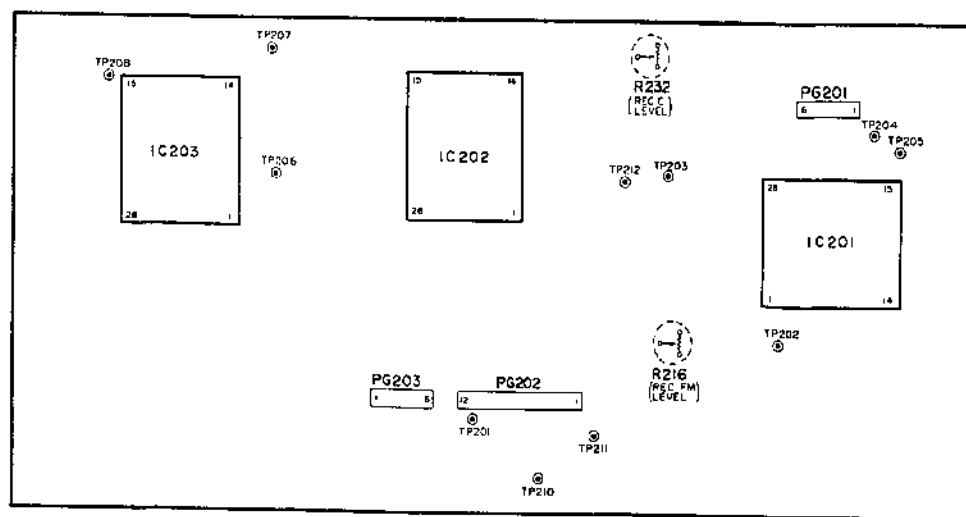


Fig. 54

WYC BLOCK ADJUSTMENT



WYC P.C. Board (Luminance and chroma)

Fig. 55

1. Video agc output level confirmation

Connection

- 1) Connect the oscilloscope to TP212 on the WYC pc board.
- 2) Connect the color bar gen to PG202-1 and PG202-2 on the WYC pc board.

Mode

Insert a blank tape and record a color bar signal in the SP mode.

Confirmation



Fig. 56

2. EE level confirmation

Connection

- 1) Connect the oscilloscope to TP201 on the WYC pc board.
- 2) Connect the color bar gen to PG202-1 and PG202-2 on the WYC pc board.

Mode

Insert a blank tape and record a color bar signal in the SP mode.

Confirmation



Fig. 58

3. White clip and dark clip confirmation

Connection

- 1) Connect the oscilloscope to TP205 on the WYC pc board.
- 2) Connect the color bar gen to PG202-1 and PG202-2 on the WYC pc board.

Mode

Insert a blank tape and record a color bar signal in the SP mode.

Confirmation

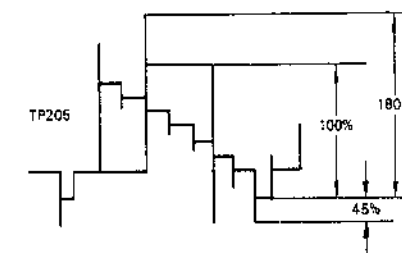


Fig. 57

4. Local Fo confirmation (3.58 MHz Xtal osc)

Connection

- 1) Connect the frequency counter to TP208 on the WYC pc board.
- 2) Connect the color bar gen to PG201-1 and PG201-2 on the WYC pc board.

Mode

Stop mode.

Confirmation

3.579545 MHz $\pm$ 100 Hz

5. Record chroma level adjustment

Connection

- 1) Connect the oscilloscope to TP204 on the WYC pc board.
- 2) Connect the color bar gen to PG201-1 and PG201-2 on the WYC pc board.

Mode

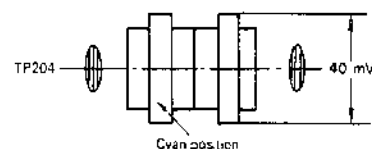
Insert a blank tape and record a color bar signal in the SP mode.

Adjustment Point

- R216 (Record chroma level control)
R232 (Record luminance level control)

Adjustment

- 1) Turn the record luminance level control (R232) fully counterclockwise and adjust the record chroma level control (R216) so that the cyan portion becomes 40 mVp-p. (Fig. 59)

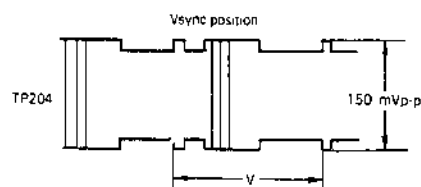


Note:

Cylinder mark 4 and 5: 45 mVp-p

Fig. 59

- 2) Adjust the record luminance level control (R232) so that the V sync portion on the envelope at TP204 becomes 140 mVp-p. (Fig. 60)



Note

Cylinder mark A: 140 mVp-p
B: 160 mVp-p

Fig. 60

6. Playback gain confirmation

Connection

Connect the oscilloscope to TP201 on the WYC pc board.

Mode

Insert an alignment tape and playback the color bar signal in the SP mode.

Confirmation

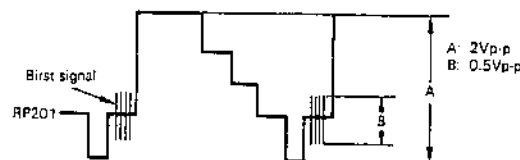
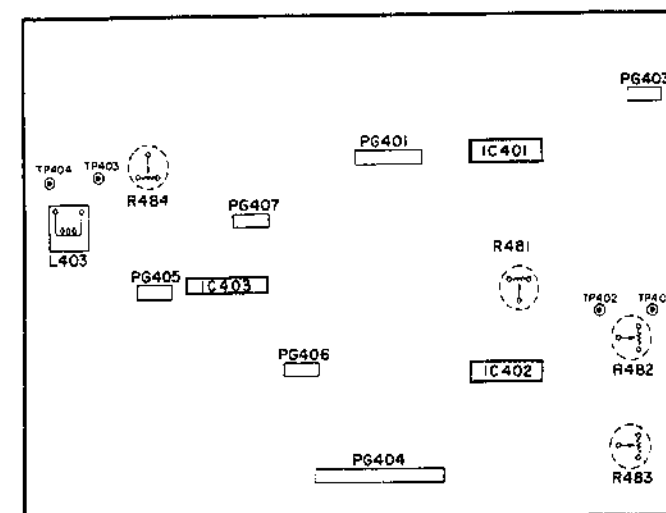


Fig. 61

AUDIO BLOCK ADJUSTMENT



Audio PC Board

Fig. 62

1. Audio/control head azimuth adjustment

Connection

Connect the VTVM to audio output on the rear panel.

Mode

Insert an alignment tape (Recorded a 7 kHz audio signal) and playback signal.

Adjustment Point

See Fig. 63.

Adjustment

Adjust the azimuth adjustment screw for maximum output.

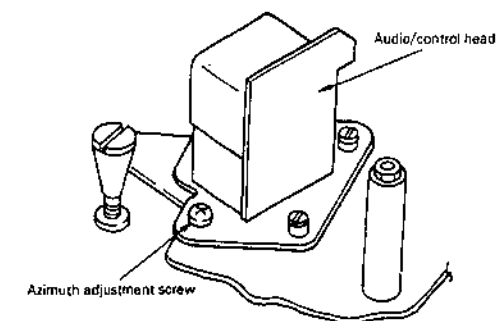


Fig. 63

2. Noise canceller adjustment

Connection

- 1) Connect the oscilloscope CH1 to TP411 and TP402 (GND) on the audio pc board.
- 2) Connect the oscilloscope CH2 to audio output on the rear panel.

Mode

Insert a blank tape and load.

Adjustment Point

R482, R483

Adjustment

- 1) Turn the FG level control (R482) fully clockwise and adjust the phase control (R483) so that the phase of the channel-1 signal is 180° out of phase with the channel-2 signal (Fig. 64).
- 2) Adjust the FG level control (R482) for minimum amplitude (Fig. 64).

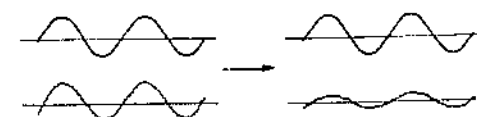


Fig. 64

3. Playback gain adjustment

Connection

Same as audio/control head azimuth adjustment.

Mode

Insert an alignment tape (Recorded a 1 kHz, 0 dB audio signal) and playback the signal.

Adjustment Point

R481

Adjustment

Adjust the playback gain control (R481) so that the audio output becomes -4 dBm.

4. Bias trap adjustment (Bias freq. 70 kHz ± 8 kHz)

Connection

- 1) Connect the VTVM to TP403 and TP404 on the audio pc board.
- 2) Connect the color bar gen to video input on the front panel.

Mode

Insert a blank tape and record a color bar signal or tune-in a local TV program in the SP mode.

Adjustment Point

L403

Adjustment

Adjust the bias trap (L403) for minimum output.

5. Bias level adjustment

Connection

See Fig. 65.

Mode

Insert a blank tape and record a color bar signal or tune-in a local TV program in the SP mode.

Adjustment Point

R484

Adjustment

- 1) Adjust the bias level (R484 for 4 mV in the SP mode.
- 2) Confirm the bias level for 3 mV ± 0.2 mV in the LP or EP mode.

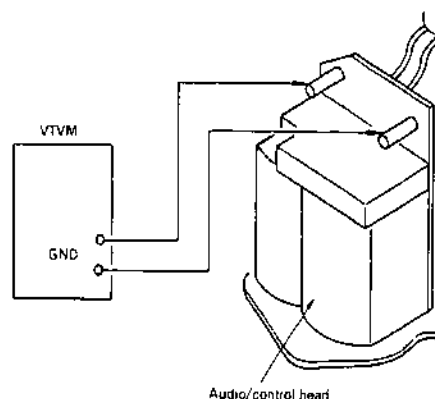


Fig. 65

Recording tape speed	Bias level	Remark
SP mode	4 mV	Adjustable (R484)
LP mode	3 mV ± 0.2 mV	
EP mode	3 mV ± 0.2 mV	

TUNER AND IF BLOCK ADJUSTMENT

Note: In this unit, the tuner and IF pack is a single unit as a replacement part. It has been adjusted carefully, but if it gets out of adjustment, adjust it by the following procedure. When it is desired to adjust the tuner and IF pack, remove this block from the unit.

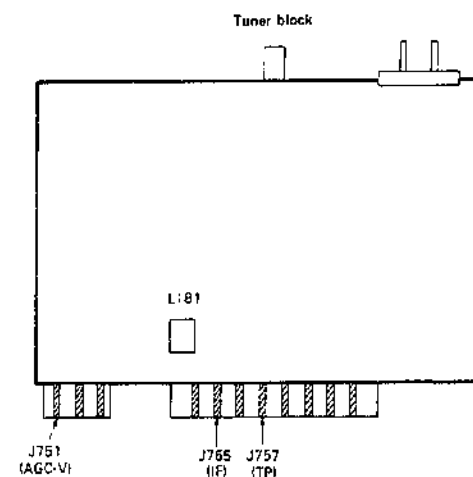


Fig. 66

1. Carrier filter adjustment

Connection

- (1) Connect the pattern generator to the antenna terminal at the back of the main body.
- (2) Connect the oscilloscope to the TP terminal of the IF pack.

Mode

Turn power ON.

Adjustment Point

L805

Adjustment

Receive the white pattern, then turn the core of L805 gradually counterclockwise from the full clockwise position to adjust so that the spacing between the sync tip and white peak is a minimum as shown in the diagram above.

Set the input level to -41 dBm ± 10 dBm at the IF terminal of the IF pack at that time.

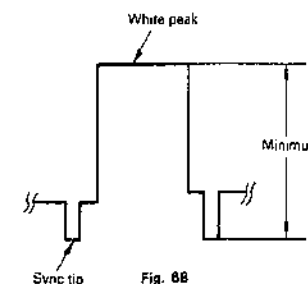


Fig. 68

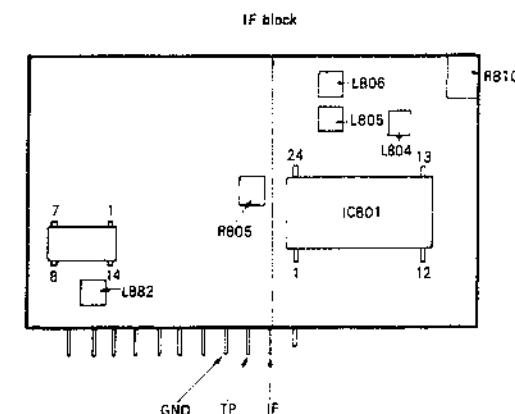


Fig. 67

2. Video output adjustment

Connection

- (1) Connect the pattern generator to the VHF antenna terminal at the back of the main body.
- (2) Connect the oscilloscope to the VIDEO OUT terminal at the IF pack.

Mode

Turn power ON.

Adjustment Point

R805

Adjustment

Receive the white pattern and adjust so that spacing between the white peak and the sync tip is 1 Vp-p as shown in the diagram above.

Set the input level to -41 dBm ± 10 dBm at the IF terminal of the IF pack.

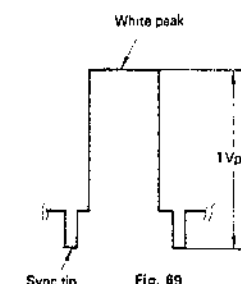


Fig. 69

3. 4.5 MHz Trap adjustment

Connection

Connect the sweep generator (40 to 50 MHz) to the IF terminal of the IF pack via the coupling circuit shown in Fig. 70.

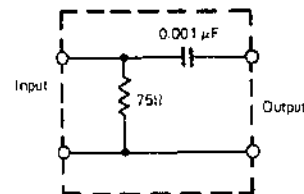


Fig. 70

- (1) Loose-couple the marker generator (41.25 MHz) with the sweep generator.
- (2) Connect the oscilloscope to the TP pin of the IF pack.
- (3) Insert the 50Ω resistor between pins 19 and 18 of IC801.
- (4) Connect the IC801 pin 22 to the GND terminal.
- (5) Connect the +8.4V stabilized voltage power supply to IC801 pin 12.

Mode

Turn power ON.

Adjustment Point

L804

Adjustment

After obtaining the PIF waveform shown in the diagram, adjust so that the 41.25 MHz section is minimum. (Fig. 71)

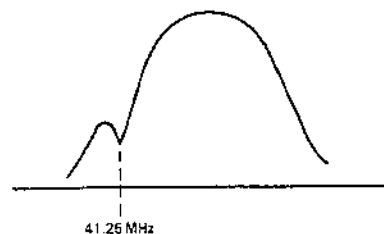


Fig. 71

4. AFC adjustment

Connection

- (1) Connect the sweep generator (40 to 50 MHz) to the IF terminal of the IF pack via the coupling circuit shown in Fig. 70.
- (2) Loose-couple the marker generator (45.75 MHz) with the sweep generator.
- (3) Connect the oscilloscope to the IF terminal of the IF pack during adjustment procedure 1, and to IC801 pin 16 inside the IF pack during adjustment procedure 3.
- (4) Connect the +8.3V stabilized voltage power supply to IC801 pin 12 of the IF pack.
- (5) Connect IC801 pin 22 of the IF pack and the GND terminal.

Mode

Turn power ON.

Adjustment Point

L806

Adjustment

- (1) Connect the oscilloscope to the IF terminal of the IF pack and adjust the output of the sweep generator so that the waveform of this terminal is 1 Vp-p.
- (2) Connect the oscilloscope to IC801 pin 16 inside the IF pack, set to DC range and adjust so that the output voltage at 45.75 MHz is 6.5V. (Fig. 72)

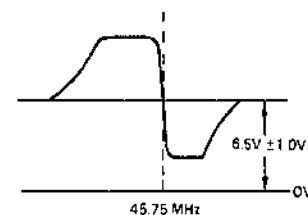


Fig. 72

5. SIF adjustment

Connection

- (1) Connect the AM signal generator to the contact point of R881 and L881 of the IF pack via the coupling circuit shown in Fig. 73.

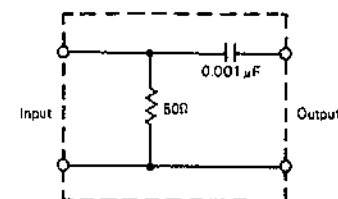


Fig. 73

- (2) Connect the IC881 pin 6 of the IF pack and the GND terminal.
- (3) Connect the oscilloscope to the AUDIO OUT terminal.

Mode

Turn power ON.

Adjustment Point

L882

Adjustment

Assuming the output of the AM signal generator to be -75 to -65 dBm (4.5 MHz ± 5 kHz, 400 Hz, 30% AM modulation), adjust so that the signal amplitude of the AUDIO OUT terminal is a minimum at that time.

6. PIF adjustment

Connection

- (1) Connect the sweep generator (40 to 50 MHz) to the TP terminal of the tuner pack via the coupling circuit shown in Fig. 75.
- (2) Loose-couple the marker generator (41.25 MHz, 42.17 MHz, 45.75 MHz) with the sweep generator.
- (3) Connect the oscilloscope to the TP terminal of the IF pack.
- (4) Connect the +5.6V stabilized voltage power supply to J751 (AGC-V) of the tuner pack.
- (5) Connect IC801 pin 22 of the IF pack and the GND terminal.
- (6) Connect a 50Ω resistor between IC801 pins 18 and 19 of the IF pack.

Mode

Turn power ON.

Adjustment Point

L181

Adjustment

Adjust so that the PIF waveform level at each marker position shown in the diagram is within the specification shown on the diagram. (Fig. 74)

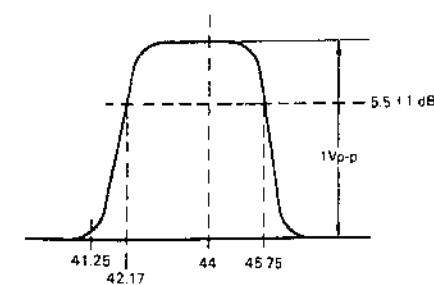


Fig. 74

7. AGC adjustment

Connection

- (1) Connect the pattern generator to the VHF antenna terminal.
- (2) Connect the VTVM to J751 (AGC-V) of the tuner pack.

Mode

Turn power ON.

Adjustment Point

R810

Adjustment

Adjust so that the voltage at J751 (AGC-V) is 9.2V ± 0.1V when a non-modulated signal with an input level of -49 dBm is applied.

MECHANISM ADJUSTMENT

1. Reel table height

The height of the supply and take up reel tables should be the same. (With ± 0.2 mm tolerance). The height of the reel tables is adjusted by changing the number of washers under each table — See "Disassembly". Check the height of the reel tables by installing the Height Reference Plate and the Reel Table Height Gauge as shown in Figure 45, and adjust so that the reel tables come between A and B.

Two sizes of washers are available: 0.25 mm and 0.5 mm. These should be used in combination to achieve the same reference height for both reel tables. (Fig. 75)

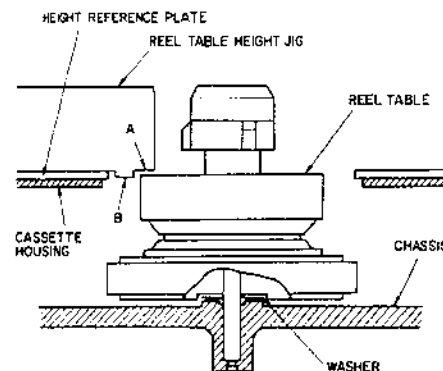


Fig. 75

2. Main brake mounting position

1) Adjust the two (2) screws holding the solenoid so that the chassis guide is 0.1 to 0.4 mm when the solenoid is ON (the plunger moves in the direction of the arrow). Check that the clearance between the brake conversion arm and the main brake arm is 1.5 ± 0.3 mm when the main brake is compressed against the supply and take-up reel tables. (Fig. 76)

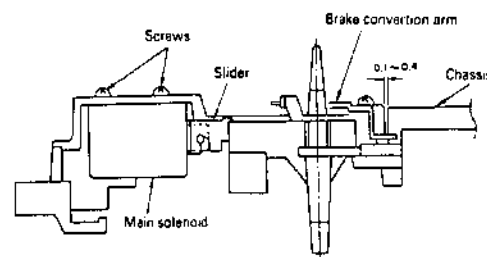


Fig. 76

2) Check that the clearance between the main brake and the supply and take-up reel tables is more than 0.3 mm when the latch solenoid is OFF (when the plunger moves in the opposite direction to the arrow).

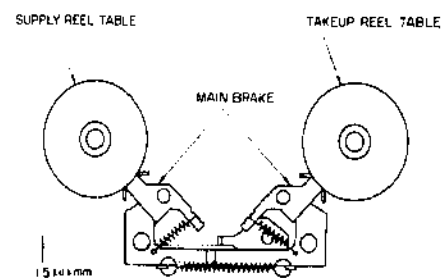


Fig. 77

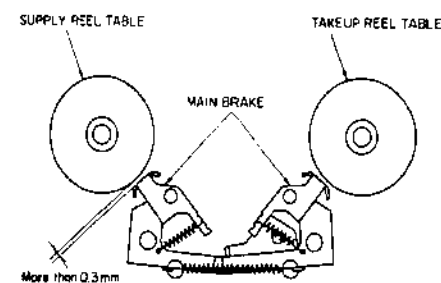


Fig. 78

3. Tension arm position

Optimum backtension is 35 — 45 g/cm. If it is not in this range, check the pole position of the tension arm. If it is normal, adjust the backtension.

1) Tension arm pole position

Remove the top case and cassette housing, apply a blind to the end sensor, and then press the PLAY key to enter the loading mode. After loading is complete, check the pole of the tension arm, viewing from above, loosen screw (A), and adjust plate (A) so that the distance between the tension arm and the groove of the chassis just beneath the pole is within 0.2 — 0.8 mm. Adjustment procedure: Loosen screw (A) so that plate (A) does not slide smoothly, and adjust plate (A) using a screwdriver, so that chassis groove (B) as the fulcrum. Tighten screw (A) after adjustment is complete.

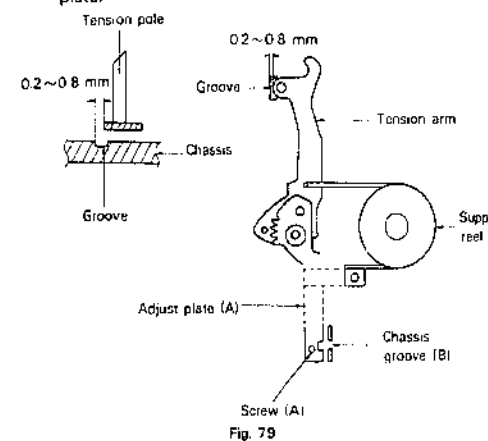


Fig. 79

2) Backtension

Mount the backtension meter, loosen screw (C) and adjust plate (B) so that the backtension is 35 — 45 gr/cm. Adjustment procedure: Loosen screw (C) so that plate (B) does not slide smoothly and adjust plate (B) using a screwdriver to set the convex part (D) of the tension arm as the fulcrum. Tighten screw (C) after adjustment is complete.

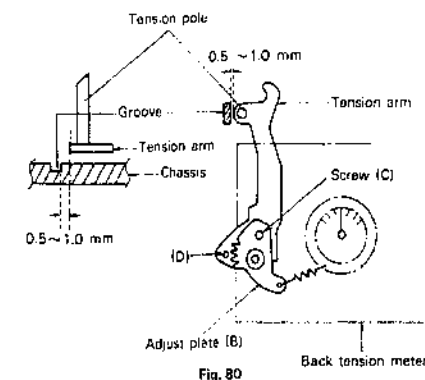


Fig. 80

4. Supply sub brake position

Check that the clearance between the supply reel table and the supply sub. brake is more than 0.3 mm in PLAY, REC. FF and REW modes. (Fig. 81)

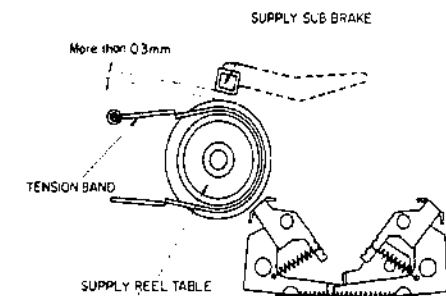


Fig. 81

5. Reel torque and back-tension

		Mode	Measurement reel	Measurement value	Remark
1	Main brake torque	STOP	Supply and Take-up reel	More than 200 gr cm	Note 1
2	Slack removal torque	UNLOADING	Supply reel	100 to 200 gr cm	Note 1
3	Rewind torque	REWIND	Supply reel	More than 200 gr cm	Note 1
4	Take-up torque	PLAY	Take-up reel	100 to 200 gr cm	Note 1
5	FF torque	FF	Take-up reel	More than 200 gr cm	Note 1
6	Supply back-tension	FF	Supply reel	4 to 15 gr cm	Note 2
7	Take-up back-tension	REW.	Take-up reel	4 to 15 gr cm	Note 2
8	Take-up back-tension 1 Rev search 2 Loading 3 Unloading 4 Rec pause	1 Rev 2 Loading 3 Unloading 4 Rec pause	Take-up reel	50 to 120 gr cm	Note 2

Note 1: Using the tension measurement reel, and pull the tension gauge gradually while the reel stops, and check the value immediately before the reel starts rotation.

Note 2: Wind the cord several turns on the tension measurement reel, pull the tension gauge gradually and check the value while the reel is rotating.

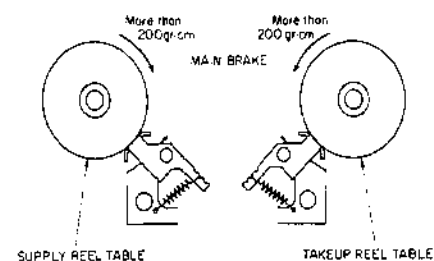


Fig. 81

6. Take-up reel rotation sensor position

Loosen the mounting screw to adjust in the direction of the arrow so that the clearance between the Hall IC and magnetic pulley is 0.5 ± 0.2 mm. (Fig. 82)

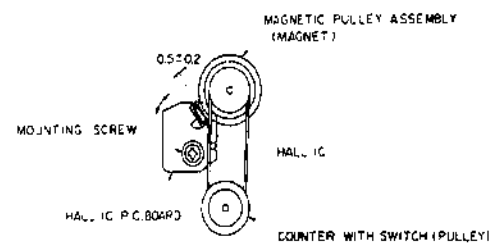


Fig. 82

7. Cylinder tach head position

Loosen the screw to adjust in the direction of the arrow so that the clearance between the Tach head and the magnet plate is 0.6 ± 0.2 mm (Fig. 83).

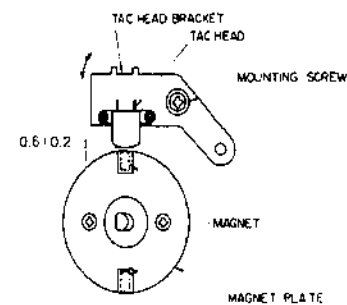


Fig. 83

8. Micro switch mounting position

Turn the worm gear in the loading direction and adjust the installation of the micro-switch so that the switch lever (1) is stopped by the click of the plate spring and then is pushed in by a further 0.5 mm from the position where the micro-switch comes ON. (Fig. 84)

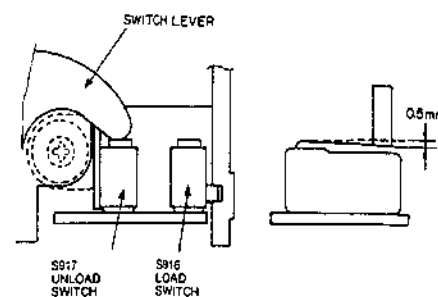


Fig. 84

9. Guide roller height

Install the height reference plate and place the reel table height jig onto it. Adjust the nut so that the clearance is 0 ± 0.1 . (Fig. 85)

Note: Electrical adjustment is required after mechanical adjustment is complete.

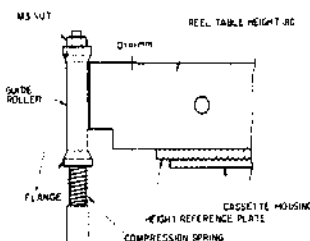


Fig. 85

10. Audio/Control head mounting position

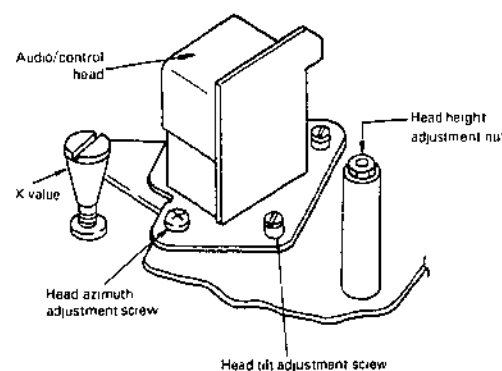


Fig. 86

1) Head height

Adjust the head height adjustment nut so that the Audio/control head height becomes as shown in Fig. 87.

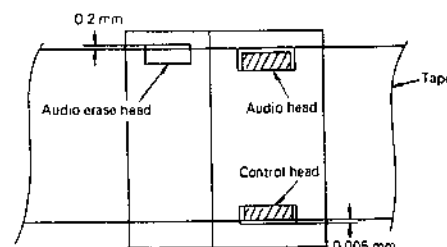


Fig. 87

2) Head azimuth

See audio block adjustment item 1.

3) X value

Connection:

Connect the oscilloscope to TP202 on the WYC board.

Mode:

Play the color bar signal from the alignment tape (MH-3)

Adjustment point:

X value adjustment screw

Adjustment:

The figure below shows the variation in the output of TP202 with respect to the positions of the tracking control knob when the X value is correctly adjusted. The aim of adjustment is that the output curve matches point b' when the tracking control knob is positioned at the central click.

The adjustment procedure is as follows.

Adjust the X value adjustment screw so that the output reaches a peak with the tracking control knob positioned at the central click. Then, turn the tracking control knob $5 - 10^\circ$ clockwise and anti-clockwise and check the positions of the output peaks on the curve. Continue to adjust the knob so that point b' coincides with the output peak when the tracking control knob is positioned at the central click point.

- 5 to 10° anti-clockwise from the central click b
- Central click
- 5 to 10° clockwise from the central click b

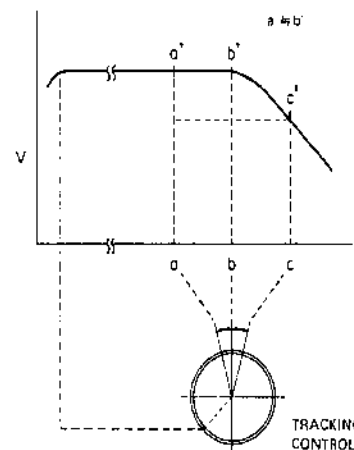


Fig. 88

4) Tilt

Adjust the tilt adjustment screw using the parallel check jig. (reel table height gauge) so that the head is parallel to the capstan.

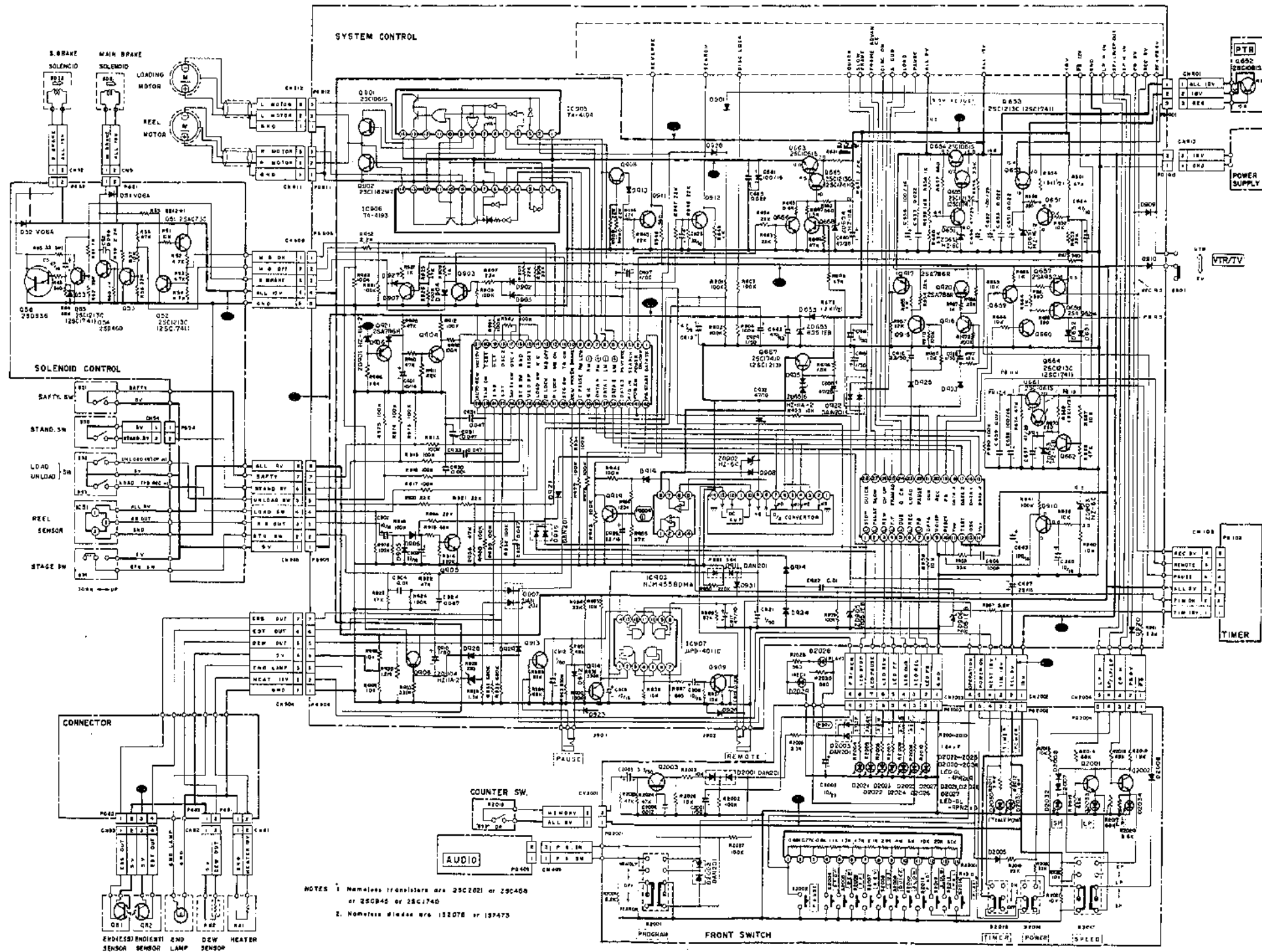
DIAGRAM

Abbreviation

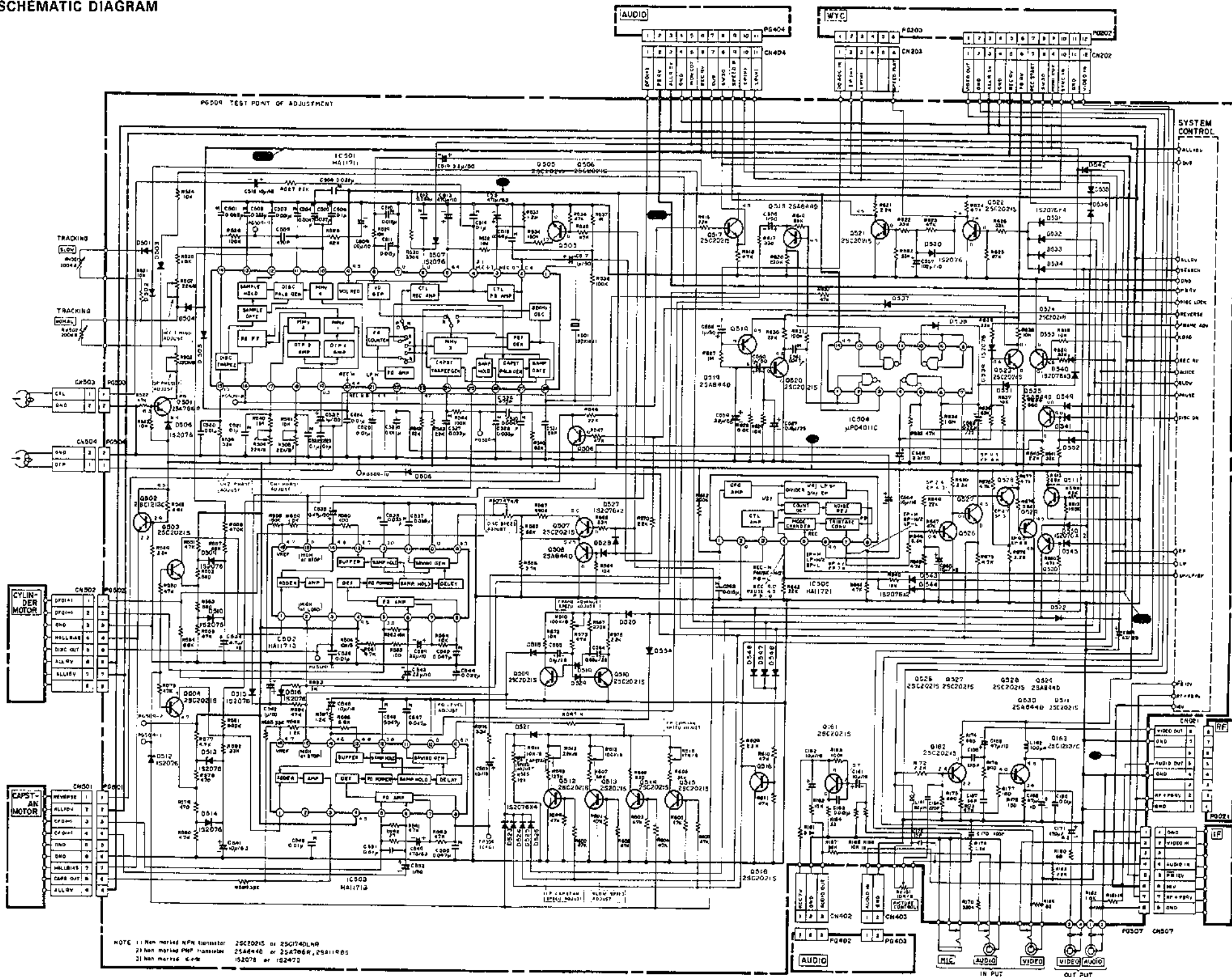
	Abbreviation	Name
A	AMP A/D IN A. REC ADD AE A	Amplifier Analog/Digital converter input Dubbing control Adding Audio erase Audio
B	CTL CFG CONV. CAPS OUT CH1 ~ CH2 CH-UP CH-SW CUE	Control pulse Capstan frequency generator Converter Capstan servo control Video head channel Pre-set channel-up Pre-set channel switch Cueing
D	DTP DO DFG DISC DUB DEW DATA1 ~ 3 DISC LOCK DISC ON DE EMPH D.W.	Cylinder tack pulse Drop out Cylinder frequency generator Cylinder Dubbing Dew sensor System control matrix pulse Cylinder rotation stop sensor Cylinder rotation control De-emphasis Dark and white
E	ESS EST EP EP 9V EMPH EQ	End stop sensor (Supply) End stop sensor (Take-up) Extra playback (6 Hours) Extra playback control Emphasis Equalizer
F	FG FRAM ADV. FE	Frequency generator Frame advance Full erase
G	GEN.	Generator
H	HALL BIAS H1 ~ H3 HEAT	Hall bias Hall head Cylinder heat
L	LP LP 9V LOAD LM⊕ LM⊖	Long play (4 Hours) Long play 9V Loading Loading motor (Loading control) Loading motor (Unloading control)
M	MM MIC MONI CUT MB ON MB OFF MEMO	Mono-multivibrator Microphone Monitor cut control Main brake ON Main brake OFF Memory

	Abbreviation	Name
P	PB PB 9V PB PAUSE PS. STOP PS. SW PS/MEM PB-Y PB-C	Playback Playback mode control Pause in the playback mode Cueing stop Cueing switch Cueing/Memory Luminance signal in the playback mode Color signal in the playback mode
R	RS. FF. REF REC REC 9V RM + RM - R SENS. RM LOW REC-Y REC-C RECT	Flip flop Reference Recording Recording mode control Reel motor take-up mode Reel motor supply mode Reel rotation sensor Reel motor supply slow speed mode Luminance signal in the recording mode Color signal in the recording mode Rectifier
S	SW30 SP SP 9V SPEED PLAY STG SW	Head switching pulse 30 Hz Standard play (2 Hours) Standard play mode control Slow, Quick, and Video scan mode Cassette housing position sensor Switch
T	TRAPEZ TB ON	Trapezoid Take-up reel brake ON
V	V SYNC V SEP	Vertical synchronize signal V sync separator
Y	Y/C	Luminance/Color

SYSTEM CONTROL SCHEMATIC DIAGRAM

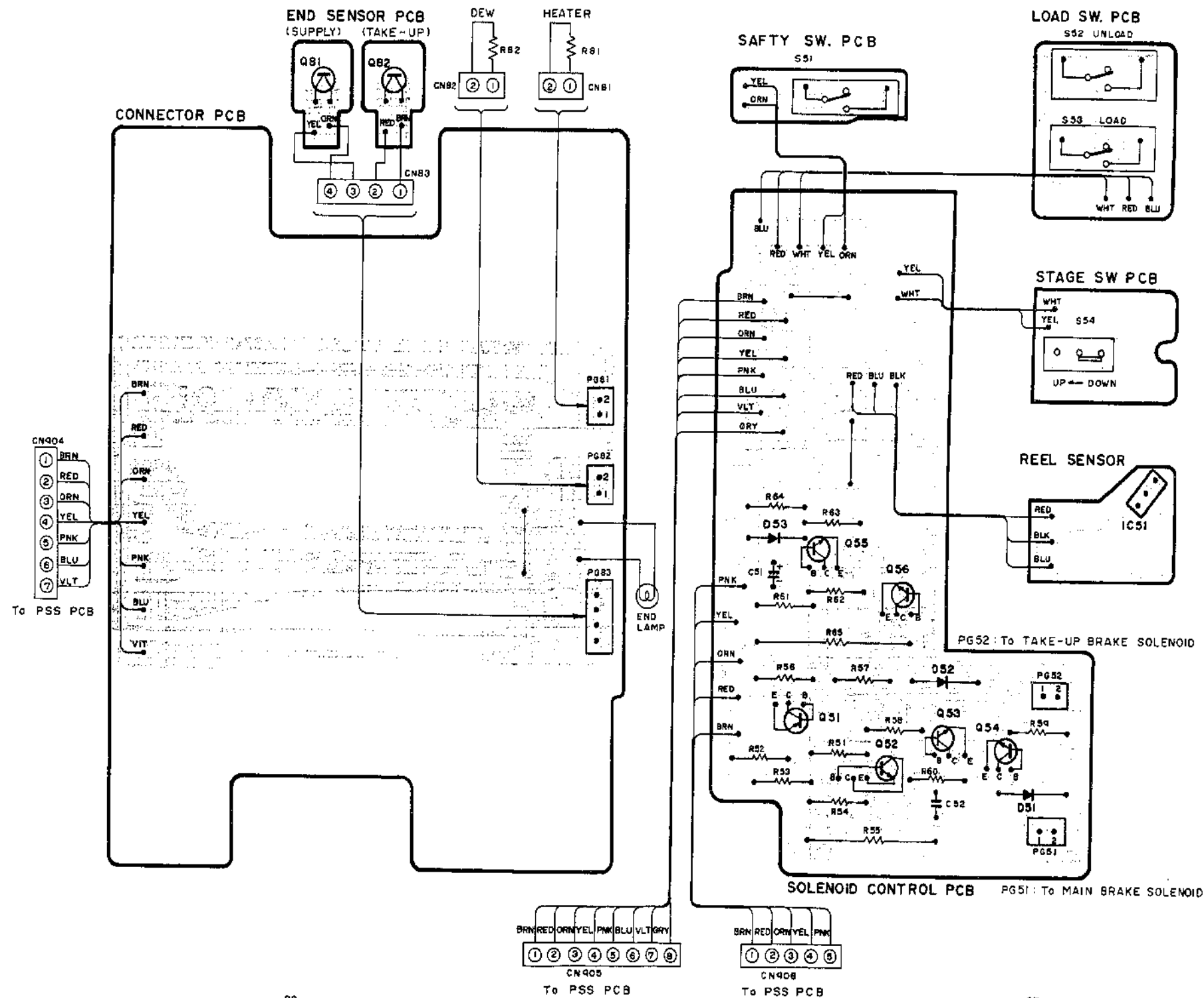


SERVO SCHEMATIC DIAGRAM



SOLENOID CONTROL AND CONNECTOR CIRCUIT BOARD DIAGRAM

(See system control schematic diagram)



CN904	
1	GND
2	HEATER 18V
3	END LAMP
4	5V
5	DEW
6	EST OUT
7	ESS OUT

CN905	
1	5V
2	STAGE SW
3	RS OUT
4	LOAD SW
5	UNLOAD SW
6	SAFTY SW
7	ALL 9V
8	

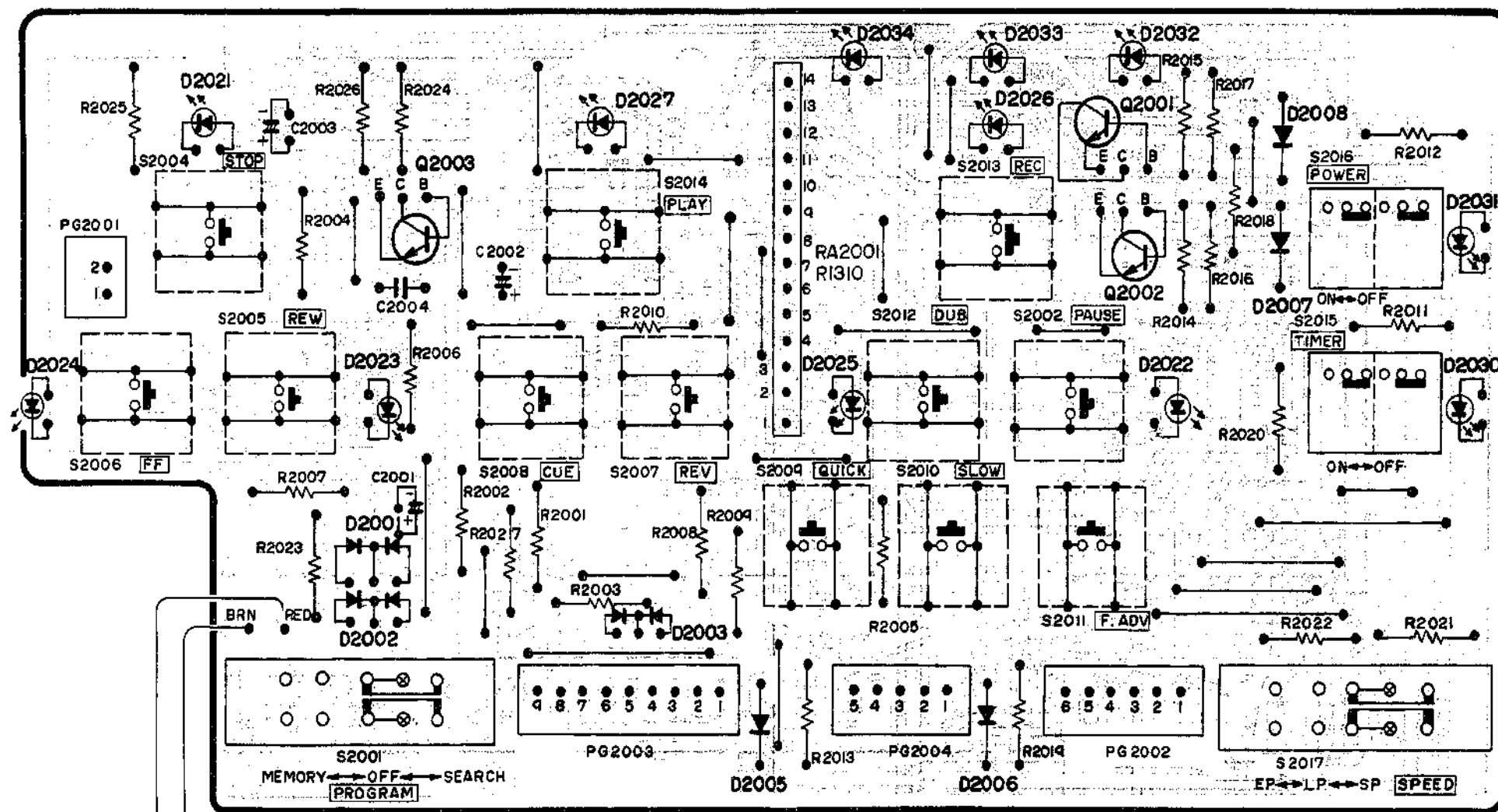
CN906	
1	MAIN B. ON
2	MAIN B. OFF
3	SUB B. ON
4	ALL 15V
5	GND

PG51	
1	MAIN B
2	ALL 15V

PG52	
1	SUB B
2	ALL 15V

FRONT SWITCH CIRCUIT BOARD DIAGRAM

(See system control schematic diagram)



PG2002 - 2004 : To SYSTEM CONTROL

FRONT SW

TO
AUD PWB

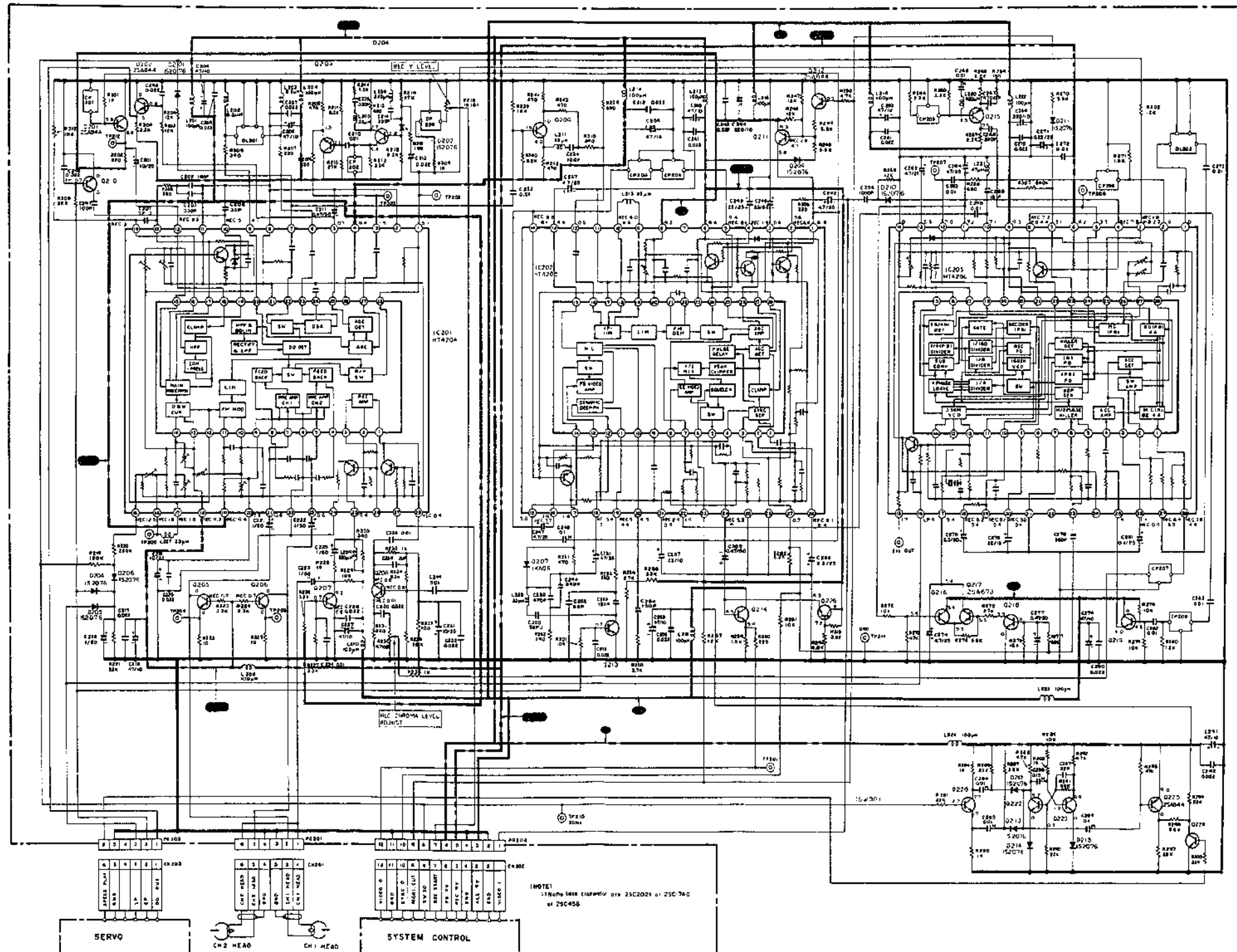
PG2001
1 ALL 9V
2 MEMORY

PG2002
1 OPERATION
2 POWER ON
3 HEATER 18V
4 TIMER 18V
5 ALL 9V
6 18V

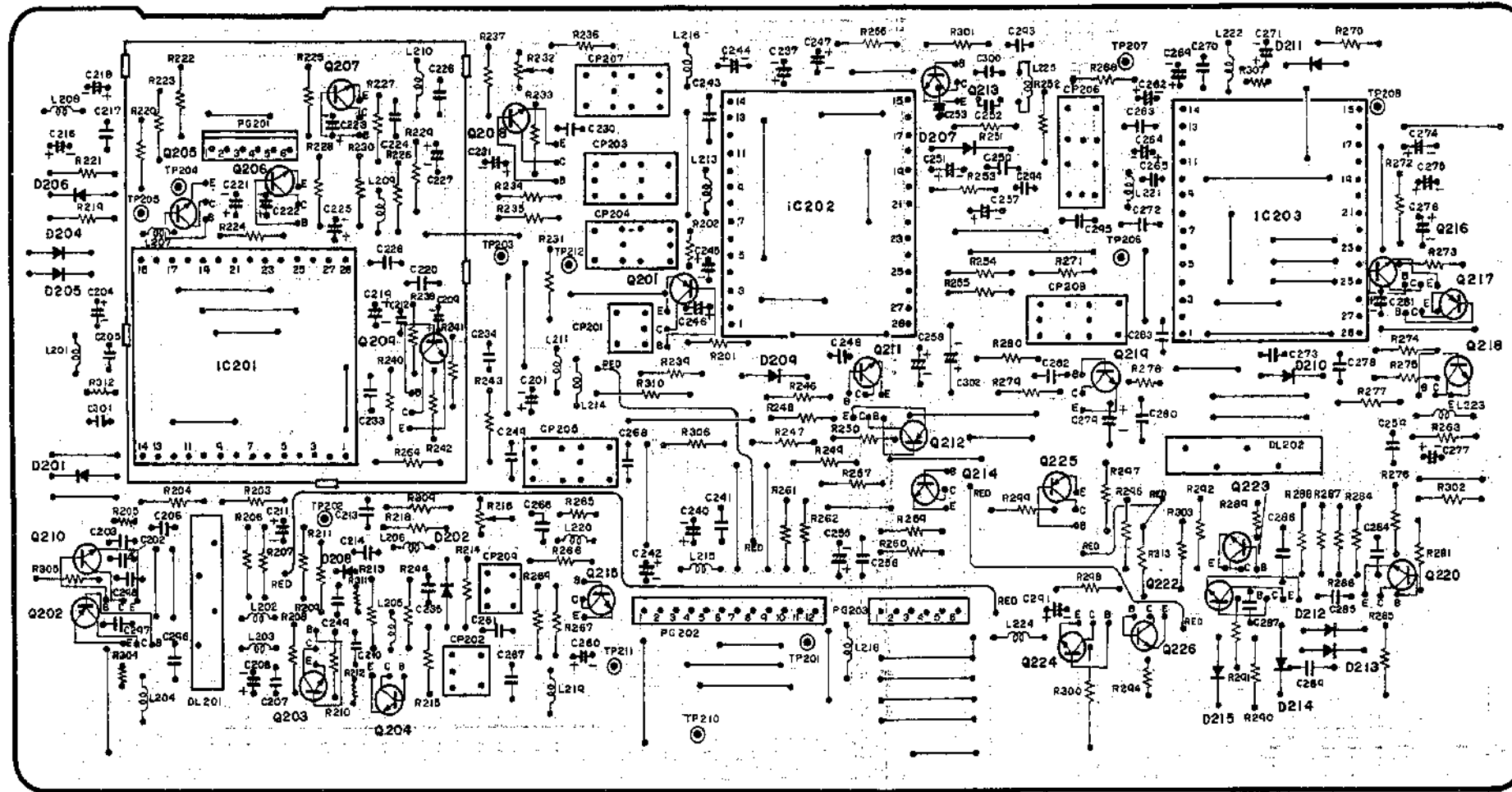
PG2003
1 PS/MEMORY
2 LED STOP
3 LED PAUSE
4 LED REW
5 LED FF
6 LED DUB
7 LED REC
8 LED P.B
9 GND

PG2004
1 LP
2 SP/LP/EP
3 EP
4 PB 9V
5 PB

WYC (LUMINANCE AND CHROMA) SCHEMATIC DIAGRAM



WYC (LUMINANCE AND CHROMA) CIRCUIT BOARD DIAGRAM



IC203 (REC)

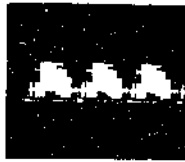
1	10	5	3	5	9	13	5	5	17	5	4	21	25	4	0
2	10	6	9	2	10	7	1	14	0	18	5	4	15	21	22
3	2	3	1	8	7	5	1	11	7	2	15	1	7	19	5
4	17	8	3	4	4	12	7	0	16	9	0	20	5	4	15

Y/CHROMA WAV

TP204, 205
50mV/20μs div.



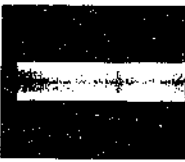
TP201 REC
1V/20μs div.



IC202-② STOP
0.5V/20μs div.



TP203 REC
0.5V/20μs div.



IC202 ③ PB
2V/20μs div.



PG201

1	CH1 HEAD
2	CH1 HEAD
3	GND
4	GND
5	CH2 HEAD
6	CH2 HEAD

PG202

1	VIDEO IN
2	GND
3	AHL 9V
4	GND
5	REC 9V
6	PB 9V
7	REC START
8	SW30
9	MONITOR CUT
10	SYNC OUT
11	GND
12	VIDEO OUT

PG203

1	DO OUT
2	EP
3	LP
4	
5	GND
6	SPEED PLAY

Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	W210	Q211	Q212	Q213	Q214	Q215	Q216	Q217	Q218
E 6.4	E 1.5	E 1.5	E 2.7	REC	REC	REC	REC	E 1.0	EP	REC	MONI CUT	LP	E 9.0	E 1.9	E 5.5	E 5.5	E 0
B 5.8	B 0.8	B 2.1	B 2.8	B 0.7	B 0.7	B 0.7	B 0.6	B 1.6	B 0.7	B 2.6	B 0.7	B 0.7	B 6.5	B 2.5	B 5.9	B 5.5	B 0
C 0	C 0	C 9.4	C 9.4	C 0	C 0	C 1.6	C 0.8	C 1.0	C 0	C 9.3	C -	C 0	C 5.9	C 7.5	C 5.4	C 5.4	C 5.5

Q219	Q220	Q222	Q223	Q225	IC201 (REC)	IC202 (REC)
E 4.0	E 1.7	E 0	E 0	E 9.0	1 5.1	1 5.8
B 4.6	B 2.2	B 0.3	B 1.0	B -	2 15.0	2 5.6
C 9.0	C 7.7	C 8.2	C 0.9	C 0	3 1.5	3 0.4
					4 9.4	4 1.4

AC INPUT Δ AC120V 60Hz

POWER TRANSFORMER

LINE FILTER

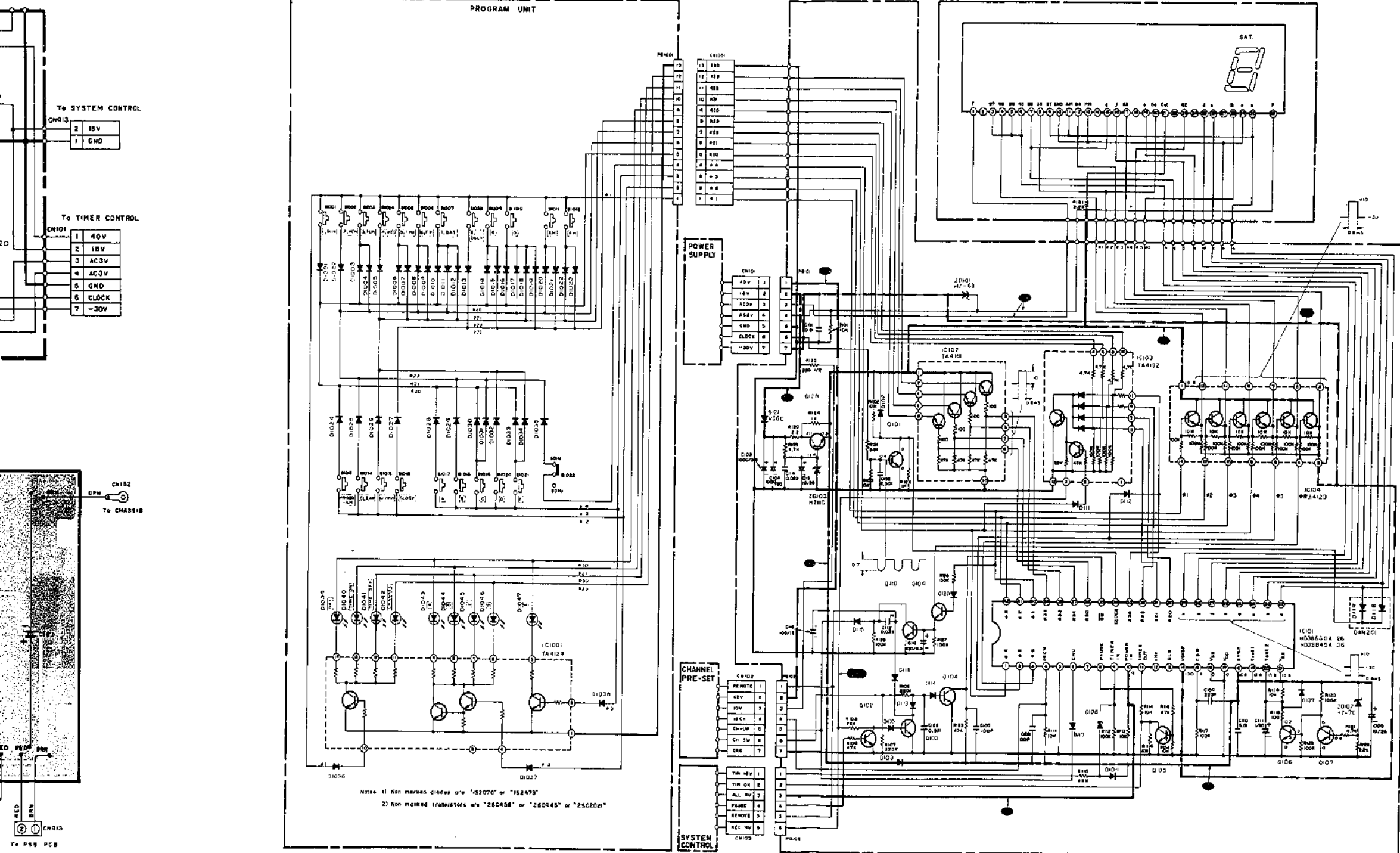
POWER SUPPLY

TO SYSTEM CONTROL

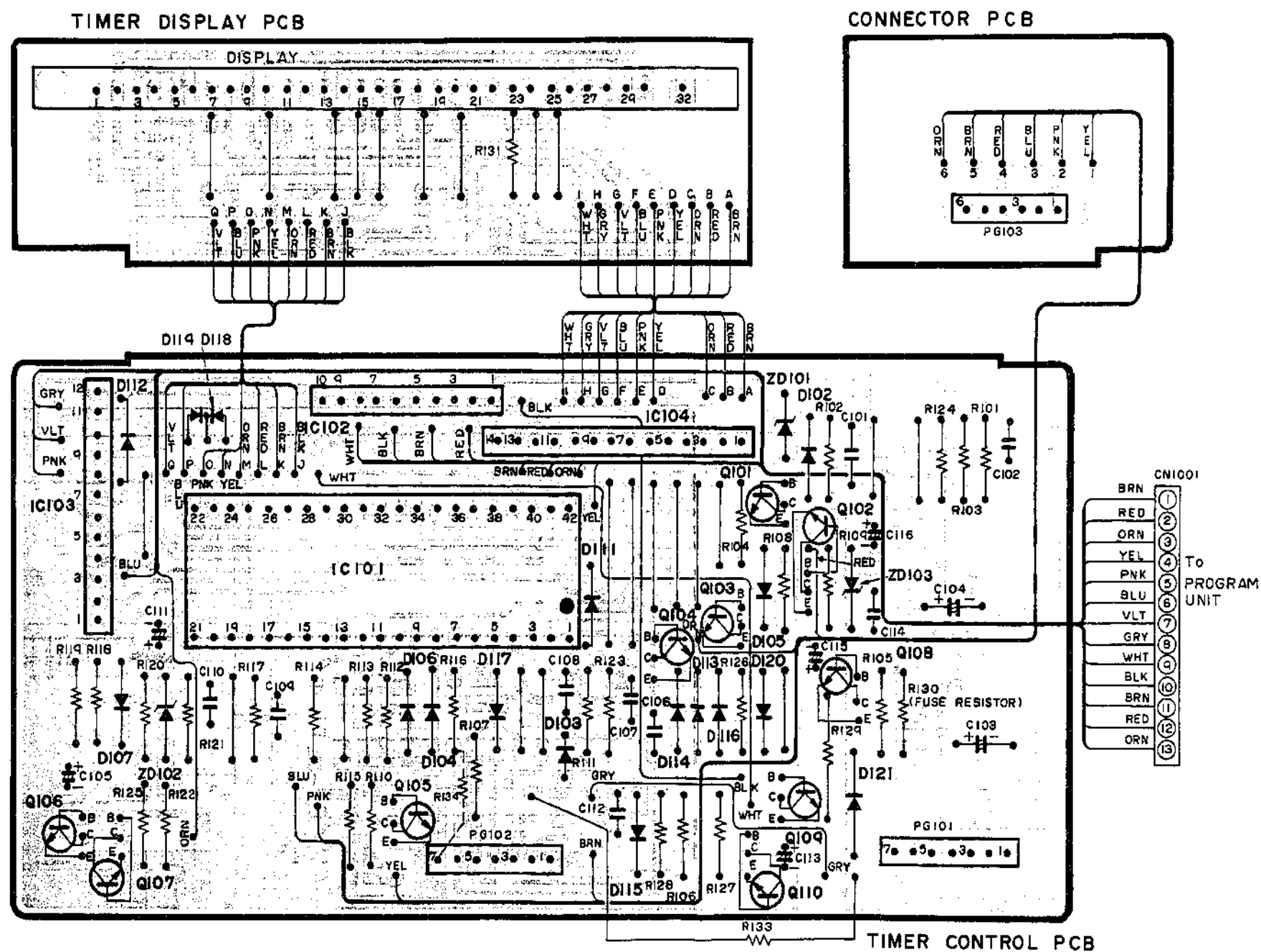
TO TIMER CONTROL

1 40V
2 18V
3 AC3V
4 AC3V
5 GND
6 CLOCK
7 -30V

TIMER CONTROL SCHEMATIC DIAGRAM



TIMER CONTROL CIRCUIT BOARD DIAGRAM



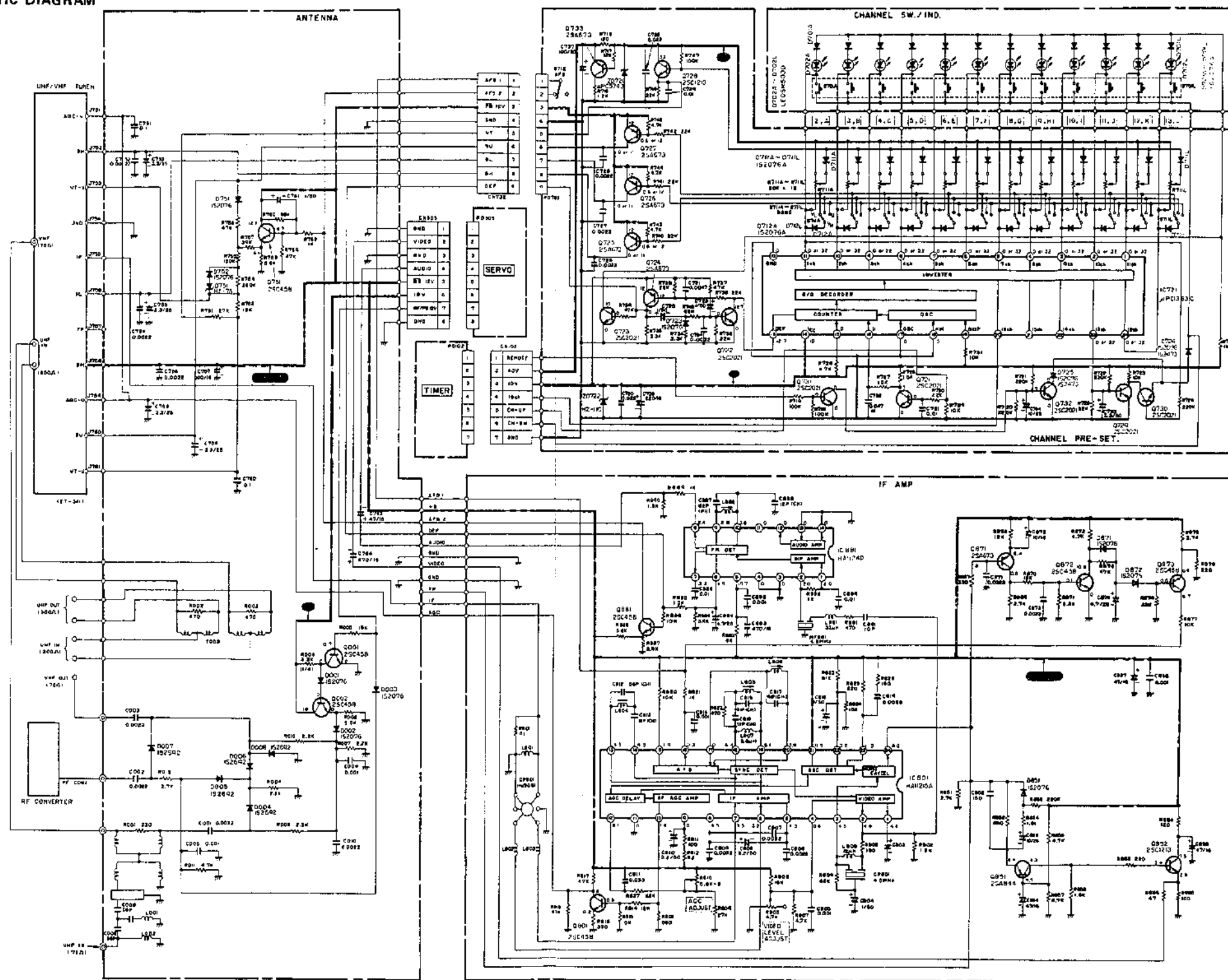
PG101	
1	40V
2	18V
3	AC3V
4	AC3V
5	GND
6	CLOCK
7	-30V

IG102	
1	REMOTE
2	40V
3	10V
4	16CH
5	CH-UP
6	CH-SW
7	GND

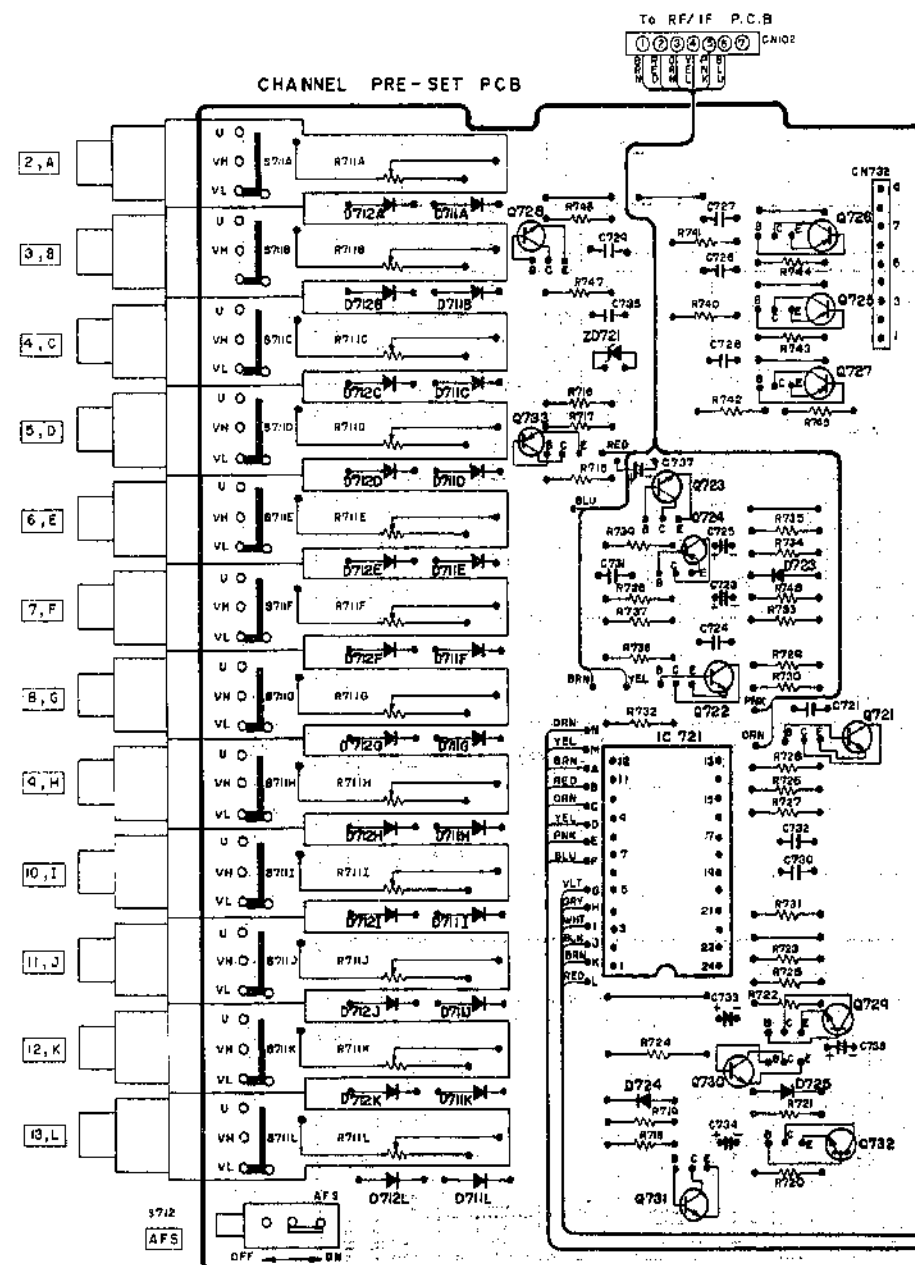
PG103	
1	TIMER 18V
2	TIMER ON
3	ALL 9V
4	PAUSE
5	REMOTE
6	REC 9V

CN1001	
1	41
2	42
3	43
4	44
5	R20
6	R21
7	R22
8	R23
9	R30
10	R31
11	R32
12	R33
13	GND

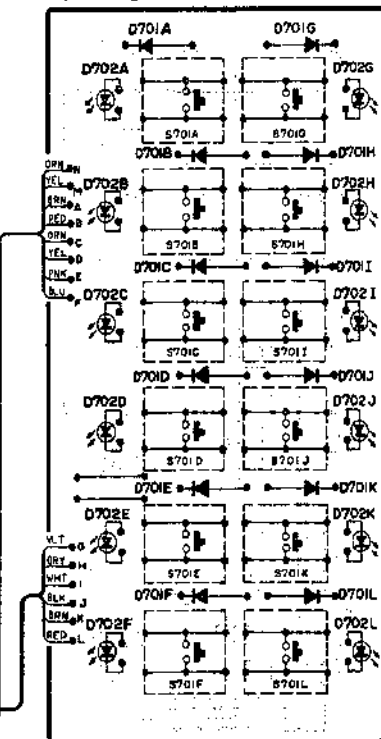
RF-IF SCHEMATIC DIAGRAM



RF-IF BLOCK CIRCUIT BOARD DIAGRAM



CHANNEL PRE-SET/INDICATOR PCB



IC721

1	0/32	5	0/32	9	0/32	13	12.7	17	21
2	0/32	6	0/32	10	0/32	14	10	18	22
3	0/32	7	0/32	11	0/32	15		19	23
4	0/32	8	0/32	12	0	16		20	24

IC801

1	4.8	5	4.5	9	0	13	4.5	17	0
2	4.5	6	3.2	10	1.8	14	4.5	18	6.4
3	4.5	7	3.3	11	0	15	1.9	19	6.4
4	0.6	8	4.5	12	8.1	16	0.3	20	3.9

IC881

1	2.0	5	10.1	9	2.8	13	0
2	2.0	6	1.9	10	3.8	14	0
3	0	7	3.3	11	0	15	
4	0	8	2.4	12	0	16	

PG102

1	REMOTE
2	40V
3	10V
4	10CH
5	CH-UP
6	CH-SW
7	GND

CN505

1	GND
2	VIDEO OUT
3	GND
4	AUDIO OUT
5	PE 12V
6	18V
7	RF/PB 12V
8	GND

Q001
E 0
B 0.7
C 0

Q002
E 0
B 0
C 18

Q751
E 6.1
B 6.7
C 12.1

Q801
E 0.2
B 0.8
C 6.0

Q851
E 6.4
B 5.7
C 4.3

Q852
E 2.8
B 3.4
C 7.5

Q871
E 8.4
B 8
C 0.5

Q721
E 0
B 0
C 7

Q722
E 0
B 0
C 12.7

Q723
E 0
B 0
C 10

Q724
E 12
B 12.1
C 0

Q725
E 12
B 0.6/12
C 0/11

Q726
E 12
B 0.6/12
C 0/11

Q727
E 12
B 0.6/12
C 0/11

Q728
E
B
C 32

Q729
E
B
C

Q730
E
B
C

Q731
E 0
B 0
C 5

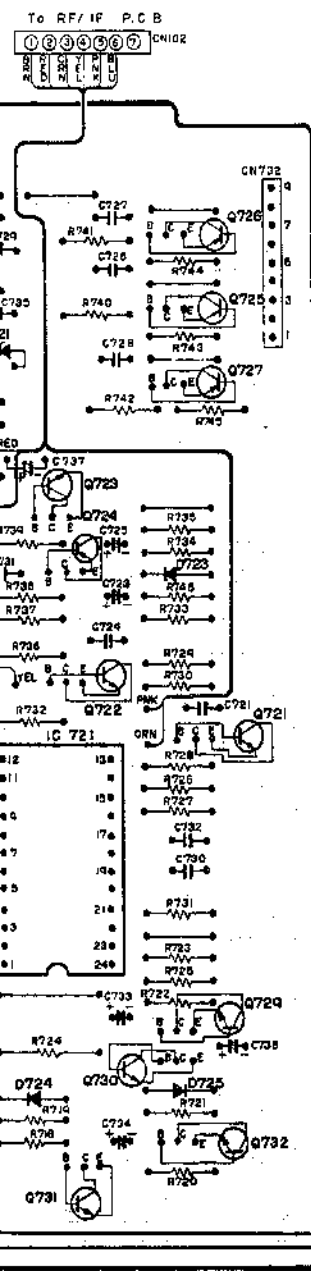
Q732
E 0
B 5
C 0

Q733
E
B
C

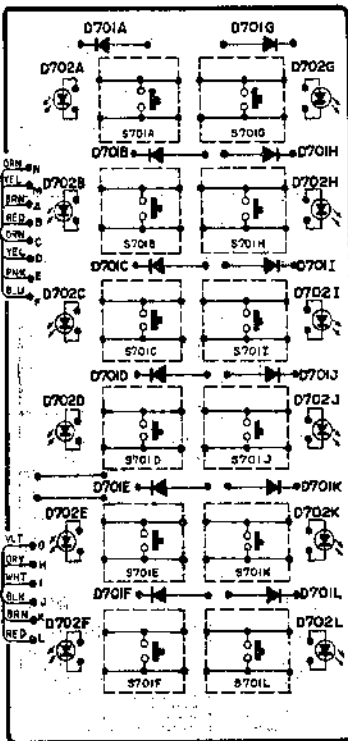
Q872
E 0
B 0.1
C 10.6

Q873
E 0.9
B 0.5
C 6.7

Q881
E
B
C



CHANNEL PRE-SET/INDICATOR PCB



Q726	Q727	Q728	Q729	Q730	Q731	Q732	Q733	Q872	Q873	Q881
2	E 12	E -	E	E	E 0	E 0	E	E 0	E 09	E
6/12	B 0 6/12	B -	B	B	B 0	B 5	B	B 0.1	B 0.5	B
0/11	C 0/11	C 32	C	C	C 5	C 0	C	C 10.6	C 1.7	C

IC721

1	0/32	5	0/32	9	0/32	13	12.7	17		21
2	0/32	6	0/32	10	0/32	14	10	18		22
3	0/32	7	0/32	11	0/32	15		19		23 0/32
4	0/32	8	0/32	12	0	16		20		24 0/32

IC801

1	4.8	5	4.5	9	0	13	4.5	17	0	21	1.5
2	4.5	6	3.2	10	1.8	14	4.5	18	6.4	22	3.2
3	4.5	7	3.3	11	0	15	1.9	19	6.4	23	11.3
4	0.6	8	4.5	12	8.1	16	0.3	20	3.9	24	8.0

IC881

1	2.0	5	10.1	9	2.8	13	0
2	2.0	6	1.9	10	3.8	14	0
3	0	7	3.3	11	0	15	
4	0	8	2.4	12	0	16	

PG102

1	REMOTE
2	40V
3	10V
4	18CH
5	CH-UP
6	CH-SW
7	GND

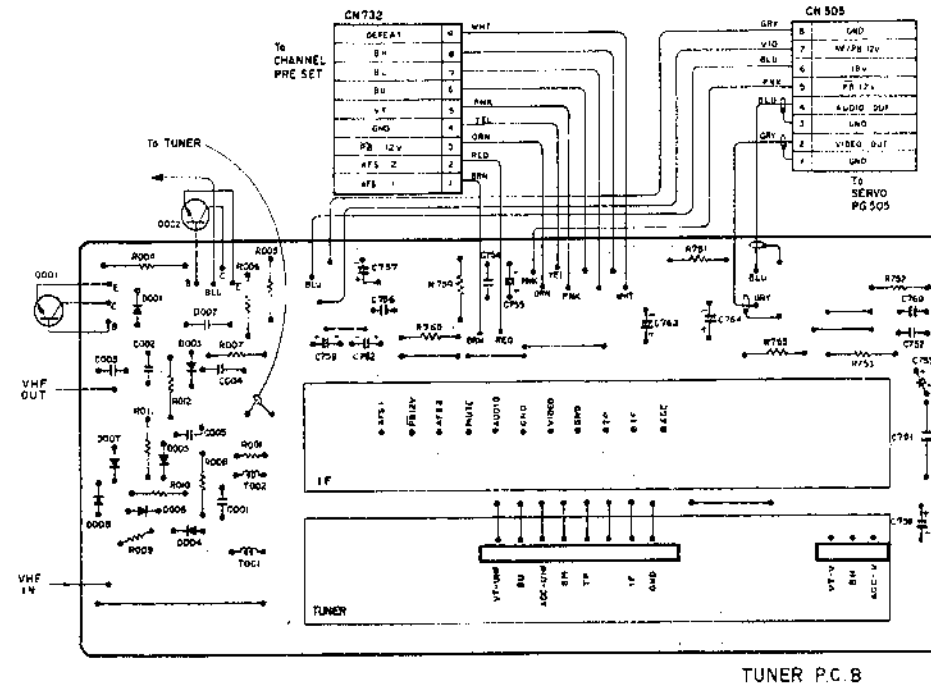
CN505

1	GND
2	VIDEO OUT
3	GND
4	AUDIO OUT
5	PB 12V
6	18V
7	RF/PB 12V
8	GND

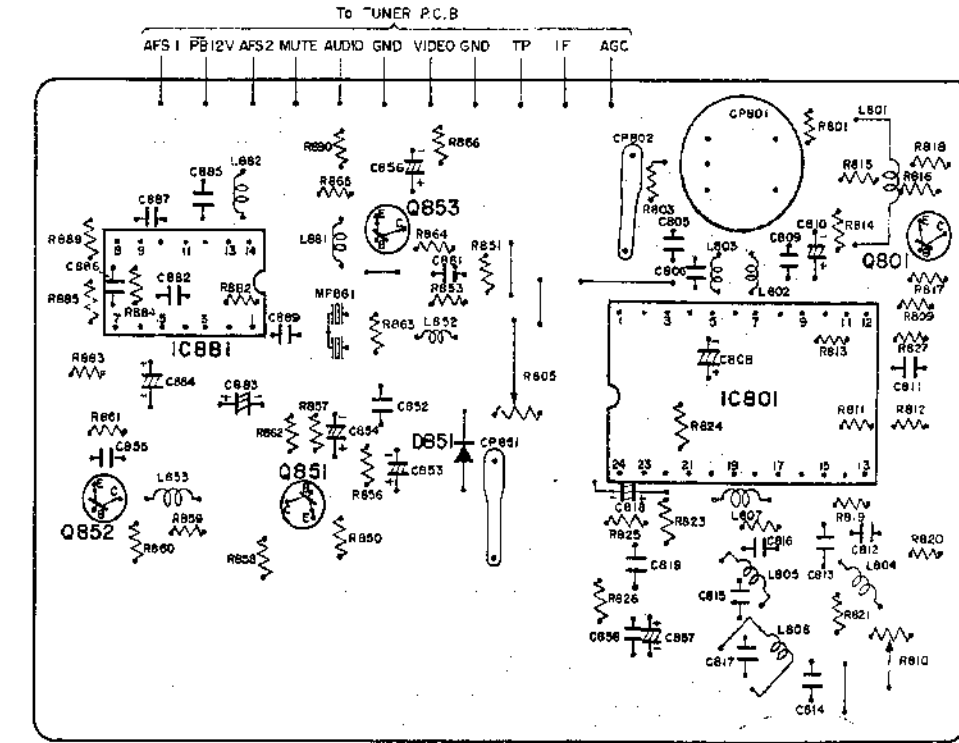
Q801	Q851	Q751
E 0	E 0	E 8.1
B 0.7	B 0	B 6.7
C 0	C 18	C 12.1

Q801	Q851	Q852	Q871
E 0.2	E 6.4	E 2.8	E 8.4
B 0.8	B 5.7	B 3.4	B 8
C 6.0	C 4.3	C 7.5	C 0.5

TUNER/IF CIRCUIT BOARD DIAGRAM

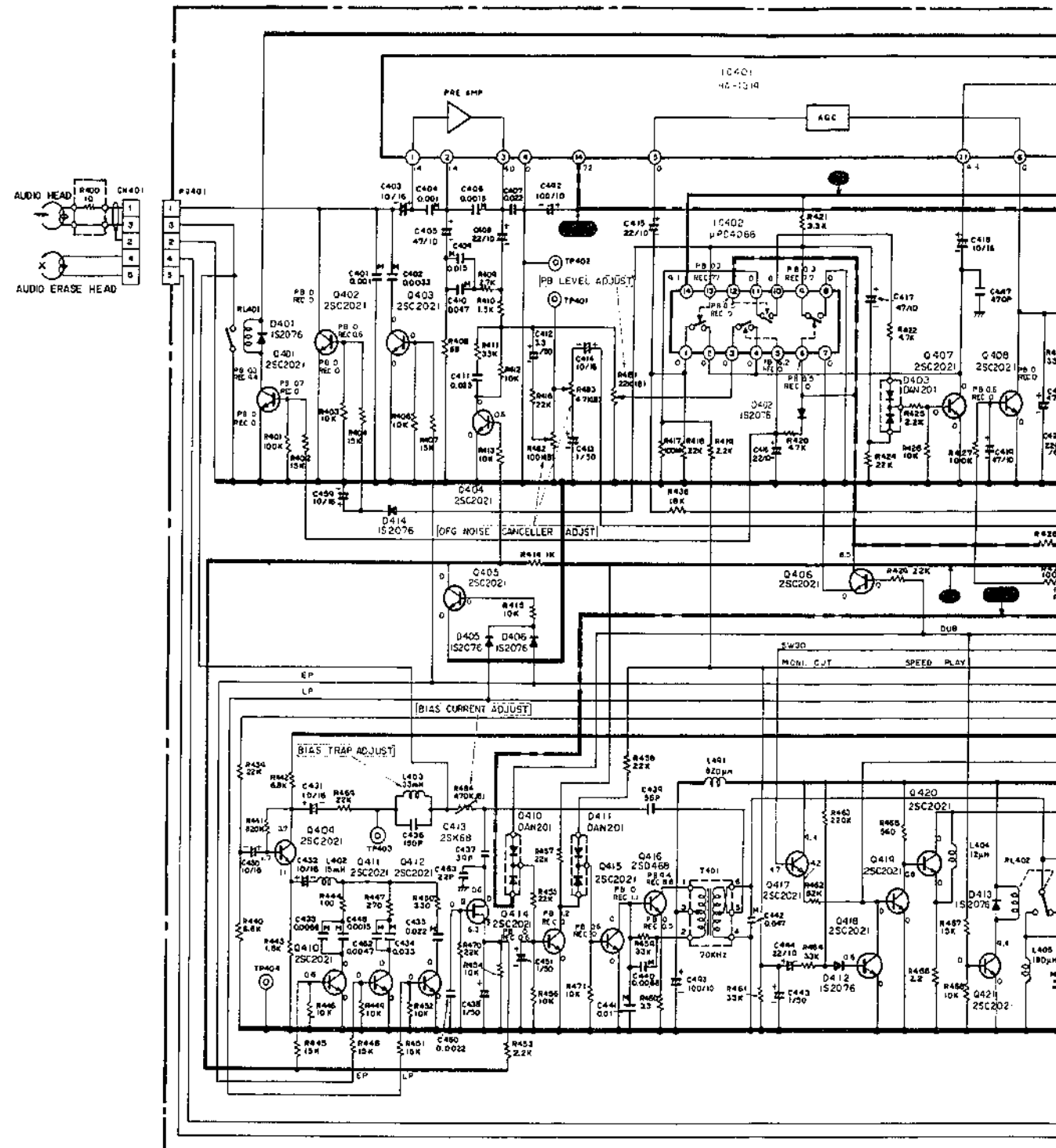


TUNER P.C.B

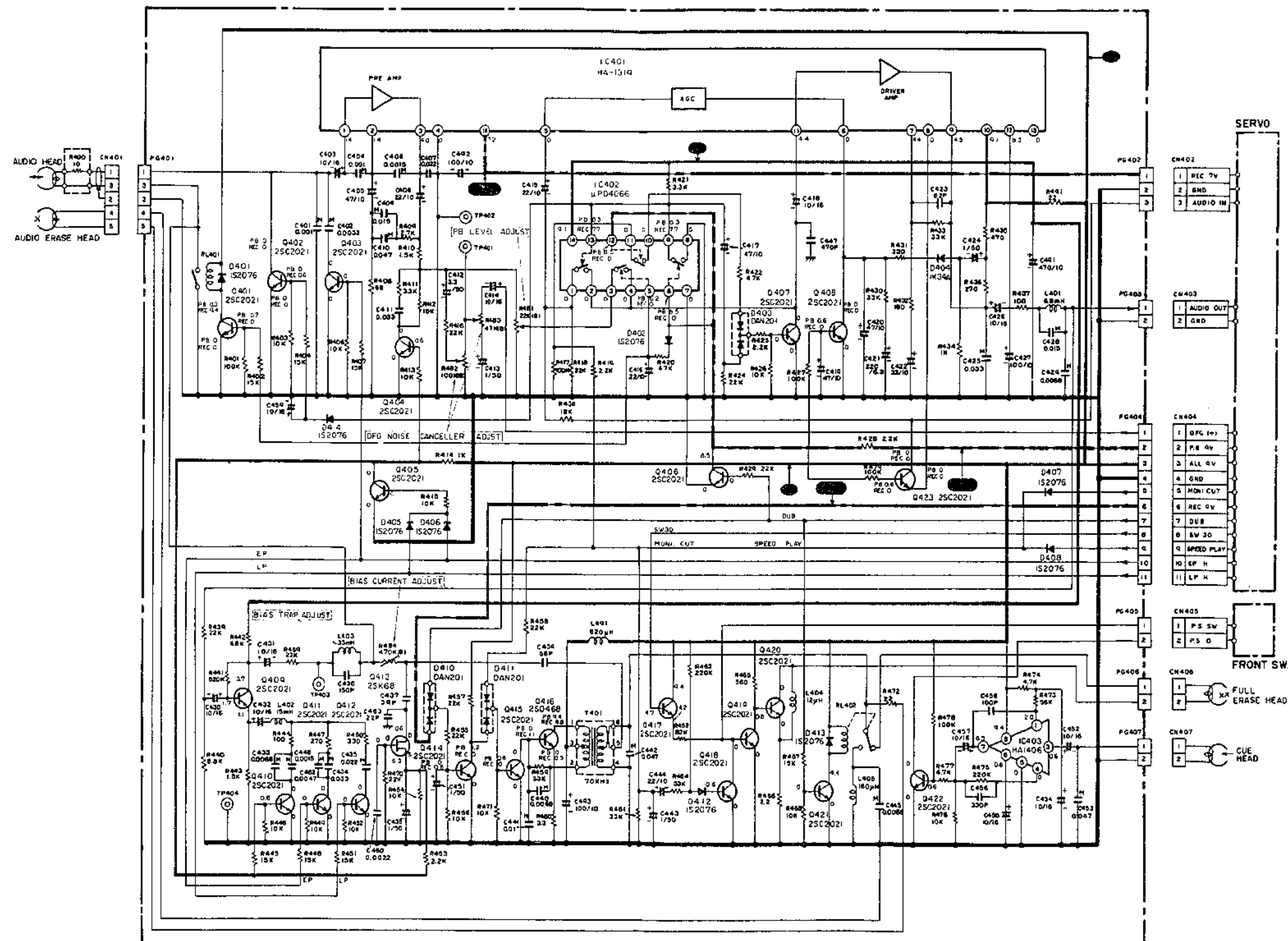


IF P.C.B

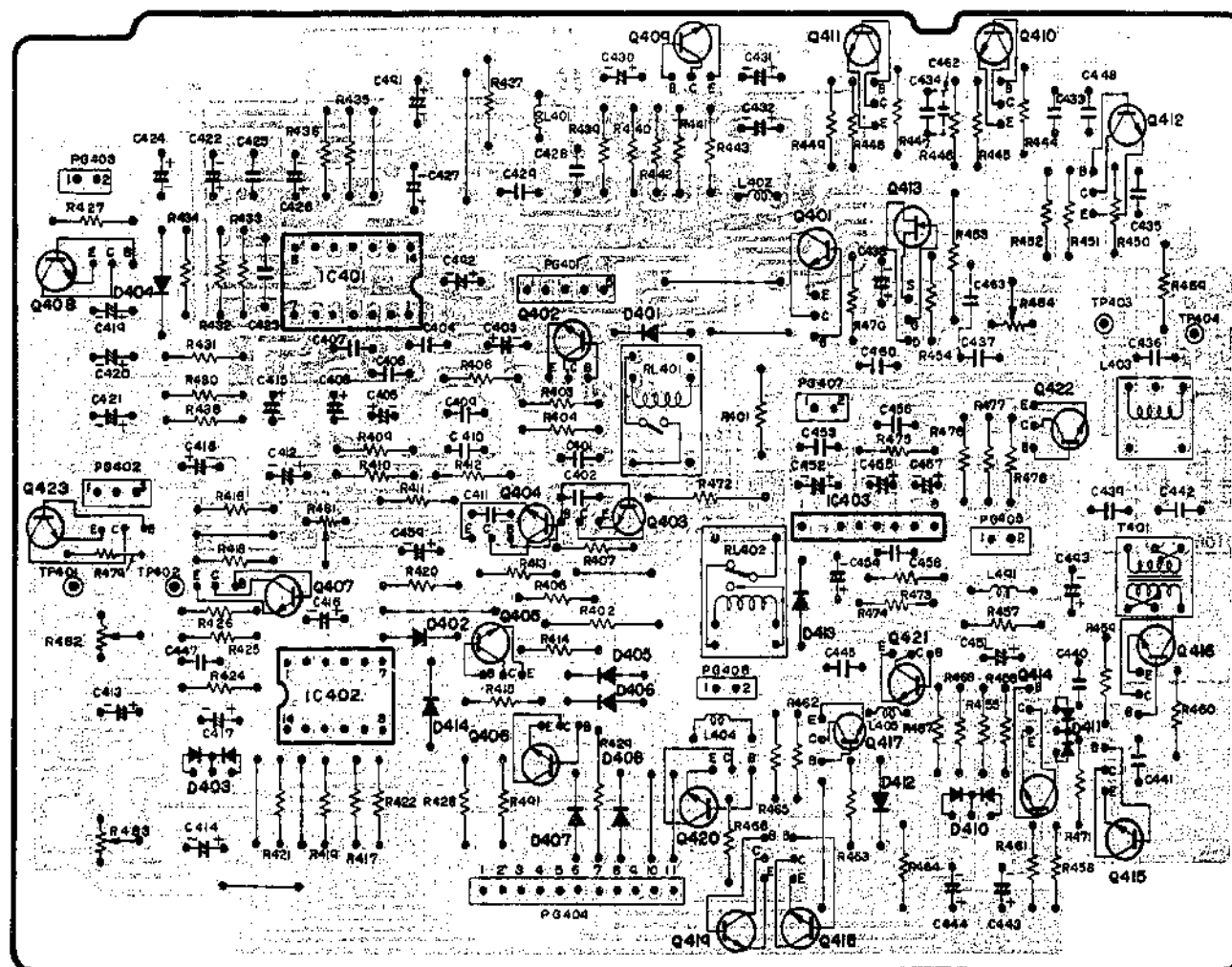
AUDIO SCHEMATIC DIAGRAM



AUDIO SCHEMATIC DIAGRAM

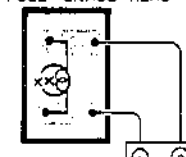


AUDIO CIRCUIT BOARD DIAGRAM



AUDIO PCB

FULL ERASE HEAD



To AUDIO PCB

PG401	
1	AUDIO HEAD
2	AUDIO HEAD
3	GND
4	A. ERASE HEAD
5	A. ERASE HEAD

PG404	
1	DFG (+)
2	P.B. 9V
3	ALL 9V
4	GND
5	MONI CUT
6	REC 9V
7	DUB
8	SW30
9	SPEED PLAY
10	EPH
11	LPH

PG406	
1	FE HEAD
2	FE HEAD

PG402	
1	REC 7V
2	GND
3	AUDIO IN

PG407	
1	CUE HEAD
2	GND

PG403	
1	AUDIO OUT
2	GND

PG405	
1	PS SW
2	PS OUT

IC401											
1	1.4	5 0	9 4.5	13 0							
2	1.4	6 0	10 9.1	14 7.2							
3	4.0	7 4.4	11 4.4	15							
4	0	8 0	12 8.3	16							

IC402 (P.B. (REC))											
1	0	5 6.2 (0)	9 0.3 (7.7)	13 0.3 (7.7)							
2	0	6 0 (8.5)	10 0	14 9.1 (9.1)							
3	0	7 0	11 0	15							
4	0	8 0	12 0 (8.5)	16							

IC403			
1	2.0	5 0	
2	—	6 0.6	
3	0.6	7 6.5	
4	0	8 9.4	

Q401	
PB (REC)	
E 0	
B 0.7 (0.1)	
C 0.3 (4.4)	

Q402	
PB (REC)	
E 0	
B 0.10 (6)	
C 0	

Q403	
LP, SP (EP)	
E 0	
B 0.10 (6)	
C 0	

Q404	
LP, EP (SP)	
E 0	
B 0.10 (6)	
C 0	

Q405	
LP, EP (SP)	
E 0	
B 0.6 (0)	
C 0 (9)	

Q406	
DUB	
E 0	
B 0.6	
C 0	

Q407	
MUTE ON	
E 0	
B 0.6	
C 0	

Q408	
PB (REC)	
E 0	
B 0.6 (0)	
C 0	

Q409	
REC	
E 1.1	
B 1.7	
C 3.7	

Q410	
EP, LP (SP)	
E 0	
B 0.10 (6)	
C 0	

Q411	
SP, LP (EP)	
E 0	
B 0.10 (6)	
C 0	

Q412	
SPEP (LP)	
E 0	
B 0.10 (6)	
C 0	

Q413	
REC	
D 6.3	
B 0	
C 0.6	

Q414	
PB (REC)	
E 0	
B 0.10 (6)	
C 0	

Q415	
PB (REC)	
E 0	
B 0.6 (0)	
C 0	

Q416	
PB (REC)	
E 0 (0.5)	
B 0 (1.1)	
C 9.4 (8.1)	

Q417	
P.B.	
E 4.2	
B 4.7	
C 9.4	

Q418	
CUE	
E 0	
B 0.6	
C 0	

Q419	
CUE	
E 0	
B 0	
C 0	

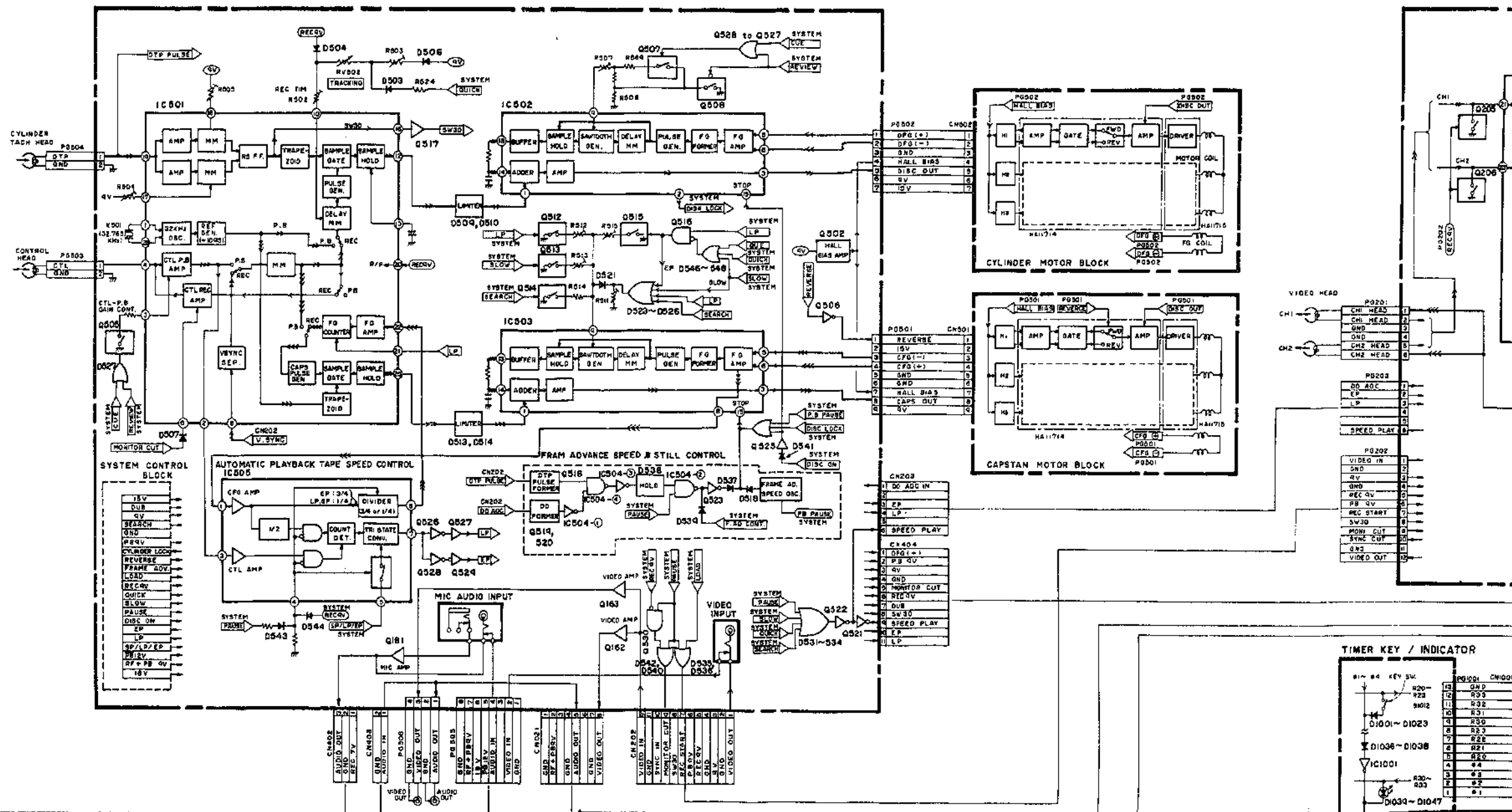
Q420	
REC	
E 0	
B 0.6	
C 0	

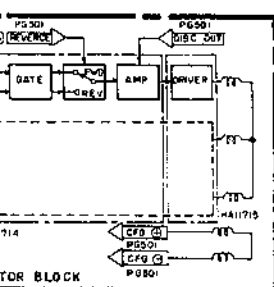
Q421	
REC (DUB)	
E 0	
B 0.10 (6)	
C 9.4 (0)	

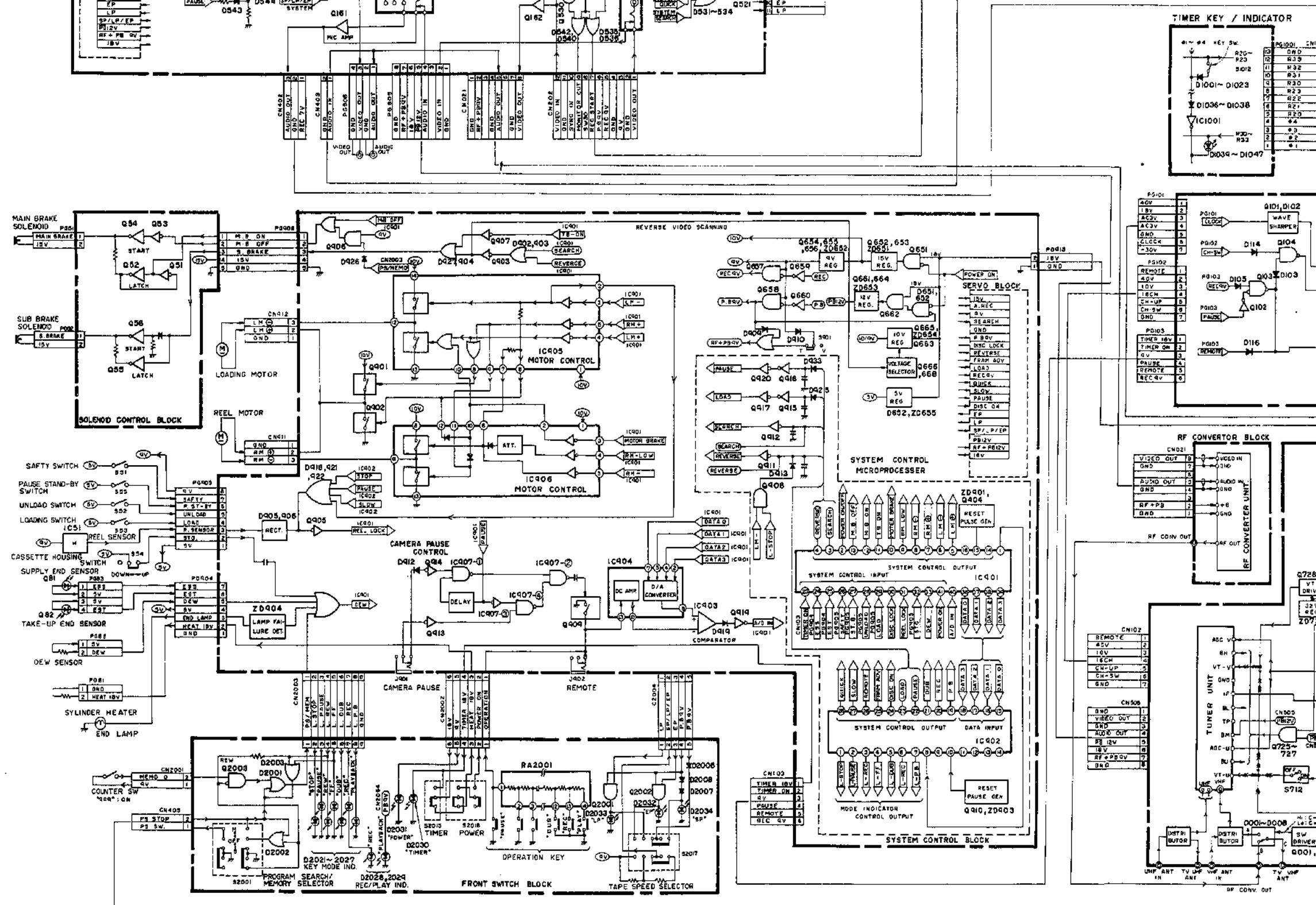
Q422	
P.B.	
E 0	
B 0.6	
C 0	

Q423	
DUB	
E 0	
B 0.6	
C 0	

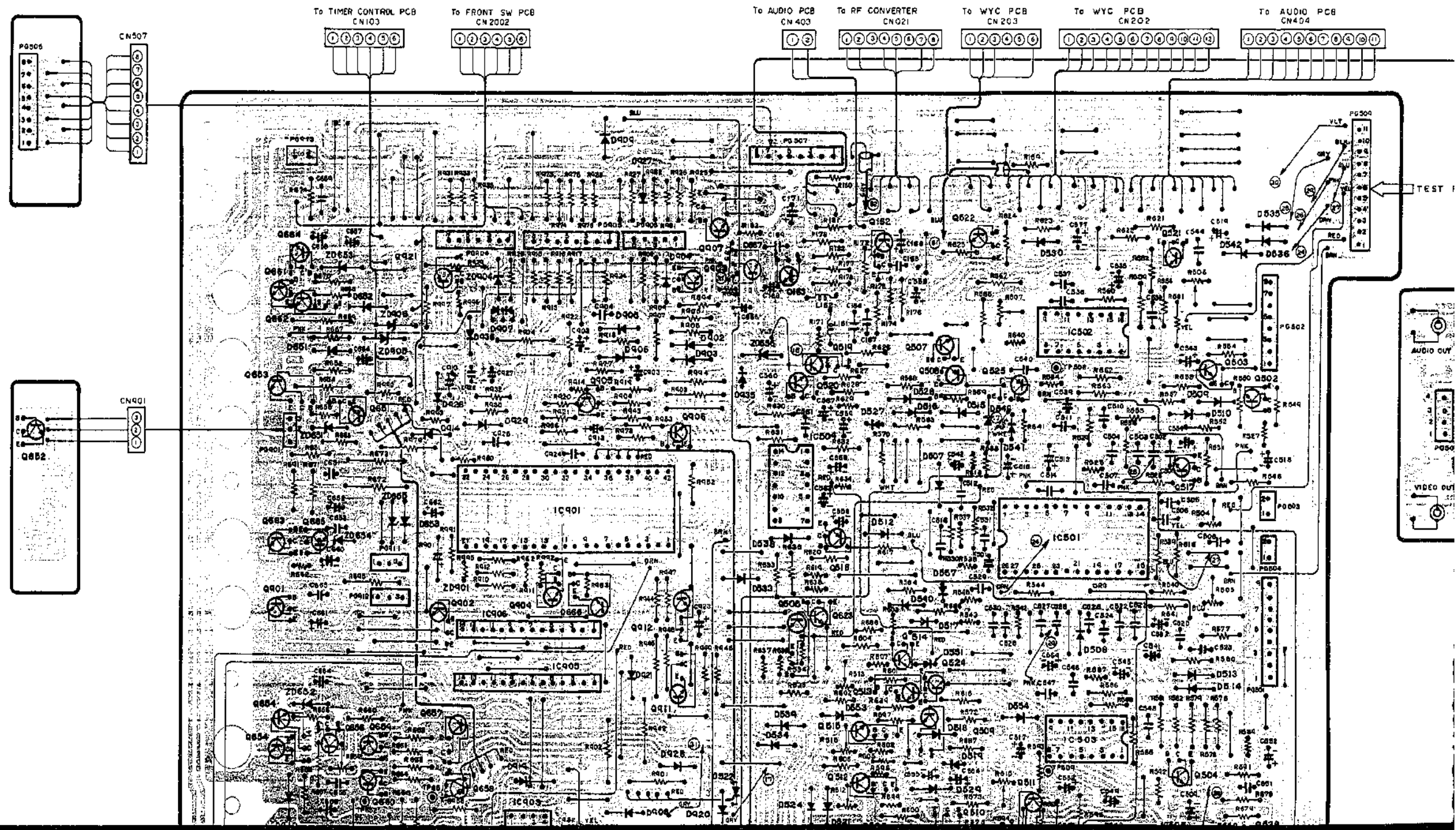
OVERALL BLOCK DIAGRAM

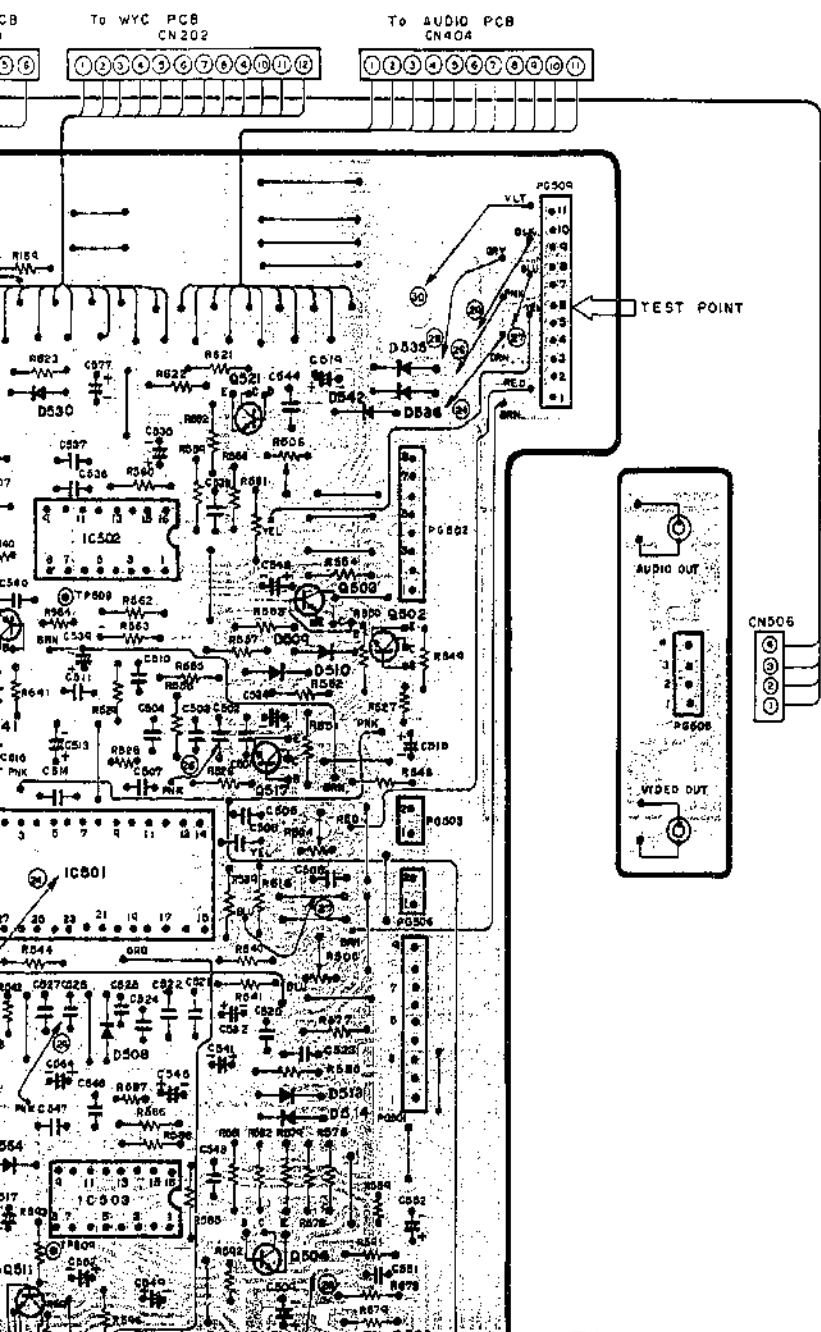






PSS P.C.B.(SYSTEM CONTROL & SERVO BLOCK)





CN021	
1	VIDEO OUT
2	GND
3	
4	AUDIO OUT
5	GND
6	
7	RF + PB 9V
8	GND

PG503	
1	CTL
2	GND

PG504	
1	DTP
2	GND

PG505	
1	GND
2	VIDEO IN
3	
4	AUDIO IN
5	PB 12V
6	18V
7	RF + PB 9V
8	GND

CN013	
1	TIMER 18V
2	TIMER ON
3	ALL 9V
4	PAUSE
5	REMOTE
6	REC 9V

PG903	
1	GND
2	18V

CN202	
1	VIDEO OUT
2	GND
3	ALL 9V
4	GND
5	REC 9V
6	PB 9V
7	REC START
8	SW30
9	MDNI CUT
10	SYNC IN
11	GND
12	VIDEO IN

PG904	
1	GND
2	HEAT 18V
3	END LAMP
4	5V
5	DEW OUT
6	STAND BY SW
7	EST OUT
8	ESS OUT

CN203	
1	DO AGC IN
2	
3	EP
4	LP
5	
6	
7	SPEED PLAY

PG905	
1	5V
2	STAGE SW
3	REELS OUT
4	LOAD SW
5	UNLOAD SW
6	SAFETY SW
7	ALL 9V

CN402	
1	REC 7V
2	GND
3	AUDIO OUT

PG906	
1	MAIN B. ON
2	MAIN B. OFF
3	SUB B. ON
4	ALL 15V
5	GND

CN403	
1	AUD. O IN
2	GND

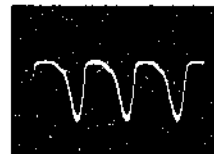
PG911	
1	GND
2	REEL MOTOR
3	REEL MOTOR

CN404	
1	DFG I +
2	PB 9V
3	ALL 9V
4	GND

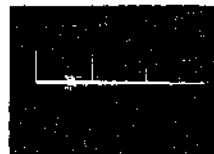
PG912	
1	GND

SERVO WAVEFORMS

IC501 ① REC
0.2V/20μs div.



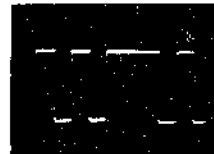
IC501 ② REC
2V/10ms div.



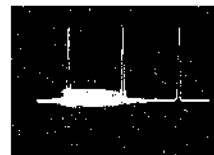
IC501 ③ REC
2V/10ms div.



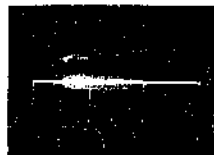
IC501 ④ REC
EP 0.5V/2ms div.



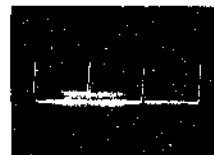
IC501 ⑤ PB
0.5V/10μs div.



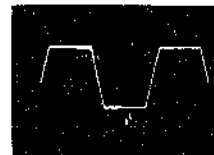
IC501 ⑥ REC
2V/10ms div.



IC501 ⑦ REC
2V/10ms div.



IC501 ⑧ REC
2V/5ms div.



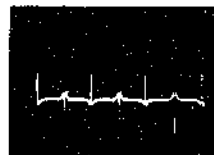
IC501 ⑨ REC
2V/10μs div.



IC501 ⑩ PB
2V/10ms div.



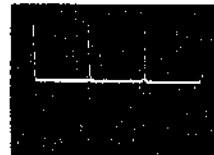
IC501 ⑪ REC
0.5V/10ms div.



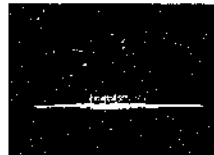
IC501 ⑫ PB
2V/10ms div.



IC501 ⑬ REC
0.2V/5ms div.



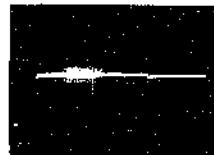
IC501 ⑭ REC
0.2/10ms div.



IC501 ⑮ REC
SP 0.5V/2ms div.



IC501 ⑯ REC
0.2V/10ms div.



IC501 ⑰ PB
2V/10ms div.



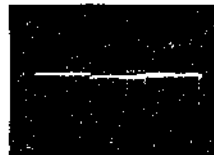
IC501 ⑱ REC
2V/10ms div.

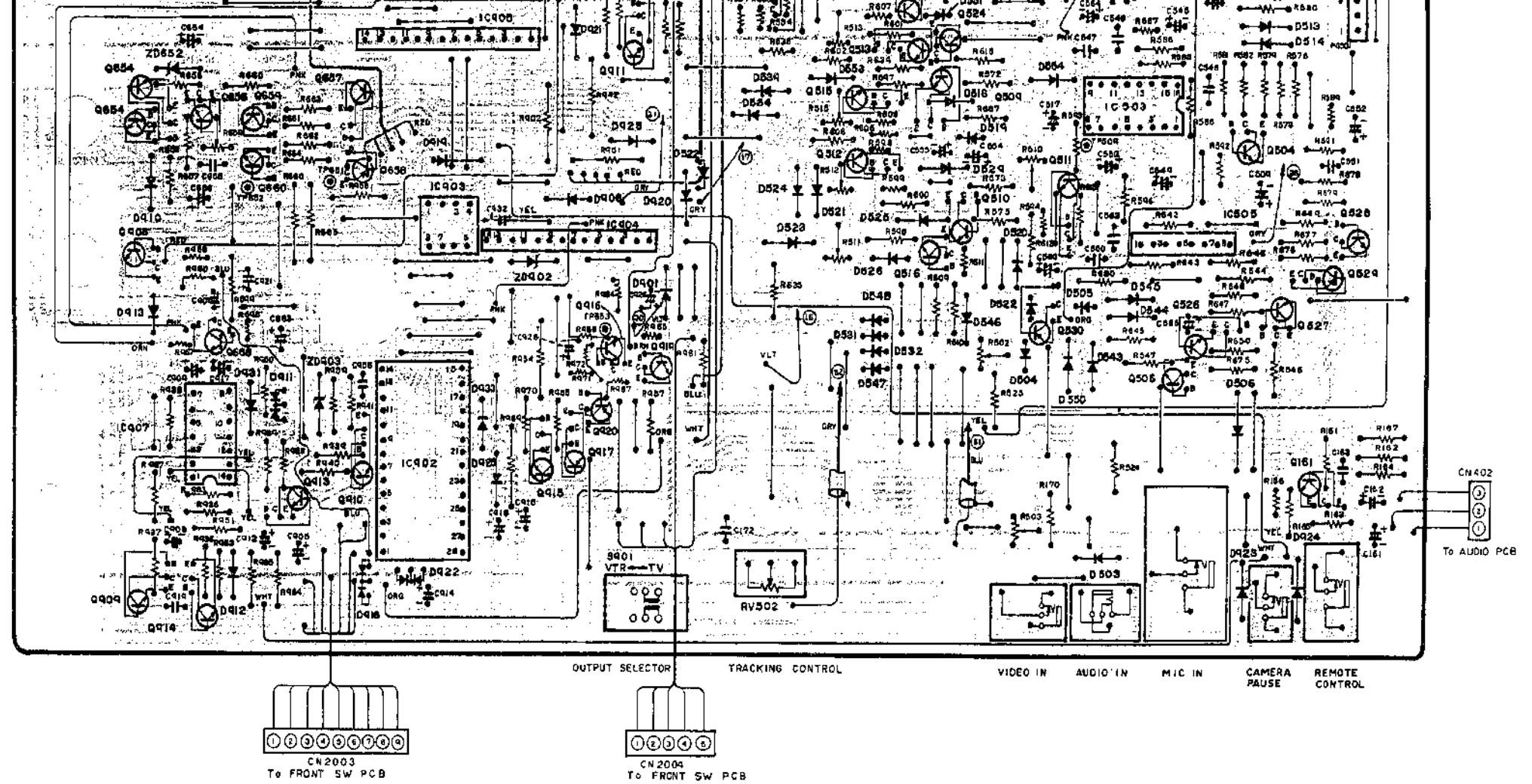


IC501 ⑲ REC
LP 0.5V/2ms div.



IC501 ⑳ REC
0.2V/10ms div.





Q501

P.B
E 8.9
B 8.3
C 8.8

Q502

P.B
E 2.2
B 2.9
C 9.5

Q503

SEARCH
E 5.0
B 5.7
C 5.0

Q504

SEARCH
E 5.0
B 5.7
C 5.0

Q505

SEARCH
E 0
B 0.6
C 0.1

Q506

SP/EP	SEARCH/PAUSE
E 0	0
B 0.1	0.1
C 3.1	0.1

Q507

PB/REC	SEARCH
FWD	RIV
E 0	0.6 0.9
B 5	0 1.5
C 0.25	0 0.9

Q508

PB/REC	SEARCH
FWD	RIV
E 0.25	0.6 0.9
B 0	0 2.7
C 5	0 0

Q512

LP
E 0
B 0.6
C 0.1

Q513

SLOW
E 0
B 0.6
C 0.1

Q514

SEARCH
E 0
B 0.6
C 0.1

Q515

EP
E 0
B 0.6
C 0.1

Q516

SPEED PLAY
E 0
B 0.6
C 0.1

Q517

P.B
E
B
C 9.5

Q518

P.B
E
B 9.5
C

Q519

P.B
E 9.5
B 9
C 6

Q520

P.B
E 0
B 0
C 9.5

Q521

S
E C
B C
C C

Q526

P.B
E 0
B 0.6
C 0.1

Q527

P.B
E 0
B 0.1
C 9.5

Q528

EP
E 3.7
B 4.3
C 8

Q529

EP
E 8.5
B 8.8
C 9.4

Q530

P.B PAUSE
E 8
B 7.4
C 7

Q161

P.B
E 0
B 0.7
C 1.0

Q162

P.B
E 2.2
B 2.8
C 7.0

Q163

P.B
E 3.4
B 4.0
C 9.5

Q651

P.B
E 0
B 0.2
C 16.5

Q652

P.B
E 14.8
B 15.4
C 20

Q653

P.B
E 15.4
B 16
C 20

Q654

P.B
E 9.5
B 10.1
C 14.8

Q655

P.B
E 10.1
B 10.7
C 14.8

Q656

P.B
E 0.6
B 6.6
C 10.7

Q657

REC
E 9.5
B 8.9
C 9.5

Q658

P.B
E 9.5
B 8.9
C 9.5

Q659

REC
E 0
B 0.6
C 0

Q660

P.B
E 0
B 0.6
C 0

Q661

P.B
E 11.8
B 12.4
C 20

Q662

P.B
E 0
B 0.6
C 0

Q663

P.B
E 9.0
B 9.5
C 20

Q916

STIL
E 0
B 0.6
C 0

Q917

LOAD
E 9.5
B 8.9
C 9.0

Q920

STIL
E 9
B 8.9
C 9.0

IC501 (REC)

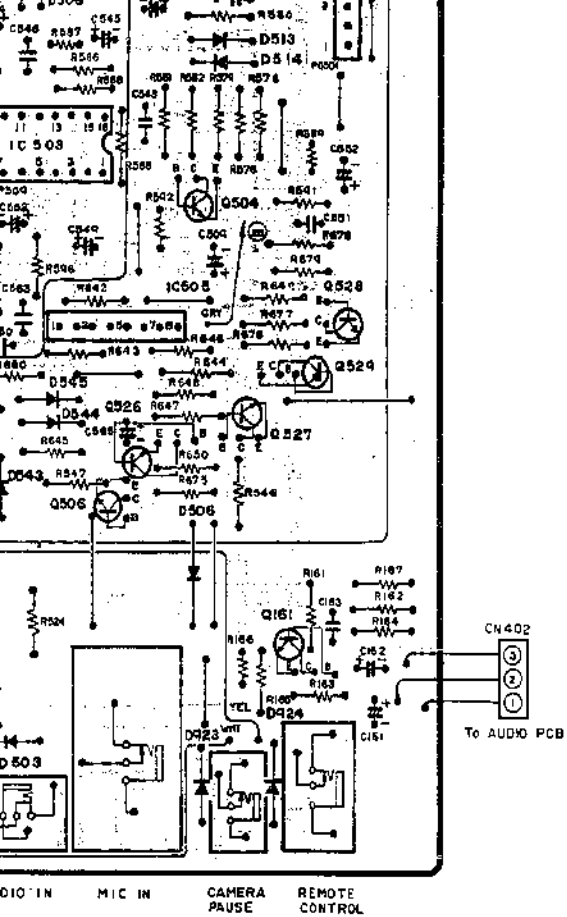
1	(0.6)	5	6.4	9	9.5	13	-	17	-	21	4.4	25	-
2	(0.7)	6	0	10	-	14	-	18	0.3	22	-	26	-
3	3.1 (0.2)	7	0	11	-	15	1.7	19	-	23	4.7	27	-
4	-	8	-	12	-	16	-	20	4.4 (8.8)	24	-	28	-

IC502

1	-	5	3	9	6.3	13	4.7
2	-	6	-	10	0	14	4.6
3	-	7	-	11	-	15	0
4	9.5	8	-	12	3	16	4.7

IC503

1	-	5	3	9	6.3	13	4.8
2	0	6	-	10	0	14	4.6
3	-	7	-	11	-	15	0
4	9.5	8	-	12	3	16	4.7



CN403	
1	AUDIO IN
2	GND

CN404	
1	DFG (+)
2	PB 9V
3	ALL 9V
4	GND
5	MONI CUT
6	REC 9V
7	DUB
8	SW30
9	SPEED PLAY
10	EP
11	LP

PG501	
1	REVERSE
2	ALL 15V
3	CFG (-)
4	CFG (+)
5	GND
6	GND
7	HALL BIAS
8	CAPS. OUT
9	ALL 9V

PG502	
1	DFG (+)
2	DFG (-)
3	GND
4	HALL BIAS
5	DISC OUT
6	ALL 9V
7	ALL 15V
8	

3	SUB 8 ON
4	ALL 15V
5	GND

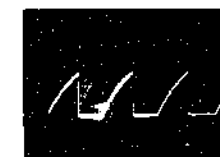
PG911	
1	GND
2	REEL MOTOR
3	REEL MOTOR

PG912	
1	GND
2	LOAD MOTOR
3	LOAD MOTOR

CN2002	
1	OPERATION
2	POWER ON
3	HEAT 18V
4	TIMER 18V
5	ALL 9V
6	18V

CN2003	
1	PS/MEMO
2	LED STOP
3	LED PAUSE
4	LED REW
5	LED FF
6	LED DUB
7	LED REC
8	LED P.B
9	GND

IC501 ① PB
2V/10ms.div.



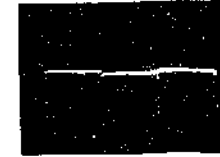
IC501 ② REC
2V/10ms.div.



IC501 ③ REC
LP 0.5V/2ms.div.



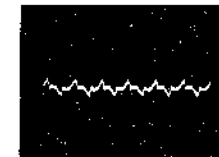
IC501 ④ REC
0.2V/10ms.div.



IC501 ⑤ REC
2V/5ms.div.



IC502 ⑥ PB/REC
50mV/5ms.div.



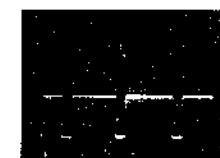
IC502 ⑦ PB/REC
50mV/2ms.div.



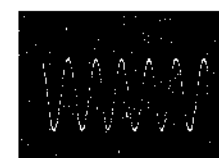
IC503 ⑧ PB/REC
2V/0.5ms.div.



IC501 ⑨ PB
2V/10ms.div.



IC502 ⑩ PB/REC
100mV/5ms.div.



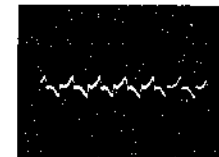
IC503 ⑪ PB/REC
50mV/1ms.div.



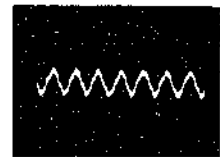
IC501 ⑫ REC
0.2V/20μs.div.



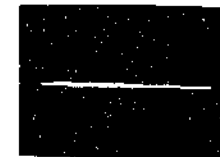
IC502 ⑬ PB/REC
50mV/5ms.div.



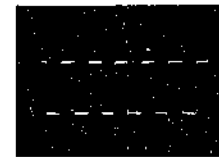
IC503 ⑭ PB/REC
50mV/1ms.div.



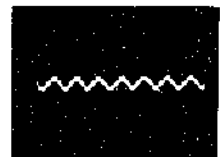
IC502 ⑮ PB/REC
50mV/10ms.div.



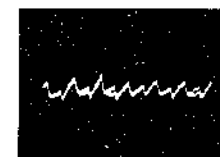
IC502 ⑯ PB/REC
50mV/5ms.div.



IC503 ⑰ PB/REC
50mV/1ms.div.



IC502 ⑱ PB/REC
50mV/5ms.div.



IC502 ⑲ PB/REC
2V/2ms.div.



IC503 ⑳ PB/REC
0.5V/ms.div.



Q516	
E	0
B	0.6
C	0.1

Q517	
E	
B	
C	9.5

Q518	
E	
B	9.5
C	

Q519	
E	9.5
B	9
C	6

Q520	
E	9.5
B	0
C	9.5

Q521	
E	0
B	0.6
C	0.7

Q522	
E	0
B	0
C	7

Q523	
E	0
B	0
C	7.4

Q524	
E	0
B	0.6
C	0.7

Q525	
E	9
B	B.3
C	9

Q558	
E	9.5
B	8.9
C	9.5

Q559	
E	0
B	0.6
C	0

Q560	
E	0
B	0.6
C	0

Q561	
E	11.8
B	12.4
C	20

Q562	
E	0
B	0.6
C	0

Q563	
E	9.0
B	9.5
C	20

Q565	
E	
B	
C	

Q566	
E	
B	
C	

Q510	
E	0
B	0.6
C	0

Q515	
E	0
B	0.6
C	0

9	6.3	13	4.8
0	0	14	4.6
1		15	0
2	3	16	4.7

EXPLODED VIEW

REPLACEMENT SCREW KIT EP1 x 44

TYPE	Q'TY (pcs.)	DESCRIPTION	FIGURE
BT3 x 6 BT3 x 8 BT3 x 10(B) BT3 x 10	3 3 12 3	Bind head tap tight screw 3 mmφ x 6 mm (Yellow) Bind head tap tight screw 3 mmφ x 8 mm (Yellow) Bind head tap tight screw 3 mmφ x 10 mm (Black) Bind head tap tight screw 3 mmφ x 10 (Yellow)	
B3 x 6(B) B3 x 6 B3 x 8(B) B3 x 8 B3 x 14(B)	3 12 3 3 3	Bind head screw M3 mmφ x 6 mm (Black) Bind head screw M3 mmφ x 6 mm (Yellow) Bind head screw M3 mmφ x 8 mm (Black) Bind head screw M3 mmφ x 8 mm (Yellow) Bind head screw M3 mmφ x 14 mm (Black)	
P2 x 3 P2 x 4 P2 x 5 P3 x 4 P3 x 5(B) P3 x 6 P3 x 8 P3 x 12 P4 x 6	3 3 3 3 3 3 3 3 3	Pan head screw M2 mmφ x 3 mm Pan head screw M2 mmφ x 4 mm Pan head screw M2 mmφ x 5 mm Pan head screw M3 mmφ x 4 mm Pan head screw M3 mmφ x 5 mm (Black) Pan head screw M3 mmφ x 6 mm Pan head screw M3 mmφ x 8 mm Pan head screw M3 mmφ x 12 mm Pan head screw M4 mmφ x 6 mm	
T3 x 12	3	Tapping screw 3 mmφ x 12 mm	
BTW3 x 10 BTW3 x 6	12 3	Bind head tap tight screw with wave washer 3 mmφ x 10 mm Bind head tap tight screw with wave washer 3 mmφ x 6 mm	
F3 x 6	3	Flat head screw M3 mmφ x 6 mm	
P3 x 6(W)	3	Pan head screw with washer M3 mmφ x 6 mm	
PSW2 x 6 PSW3 x 6 PSW3 x 8	3 3 3	Pan head screw with spring washer and flat washer M2 mmφ x 6 mm Pan head screw with spring washer and flat washer M3 mmφ x 6 mm Pan head screw with spring washer and flat washer M3 mmφ x 8 mm	
PW3 x 5(B) PW3 x 6	3 3	Pan head screw with wave washer M3 mmφ x 5 mm (Black) Pan head screw with wave washer M3 mmφ x 6 mm	
BF3 x 6	3	Bind head with forming tap tight screw 3 mmφ x 6 mm	
W2(L) W3(S) W5(S)	3 3 3	Washer 2 mmφ (Large) Washer 3 mmφ (Small) Washer 5 mmφ (Small)	
N3 N5	3 3	Nut 3 mmφ Nut 5 mmφ	

Descriptive Legend for Screws

For example: P 3 x 4
Type of head — Diameter — Length

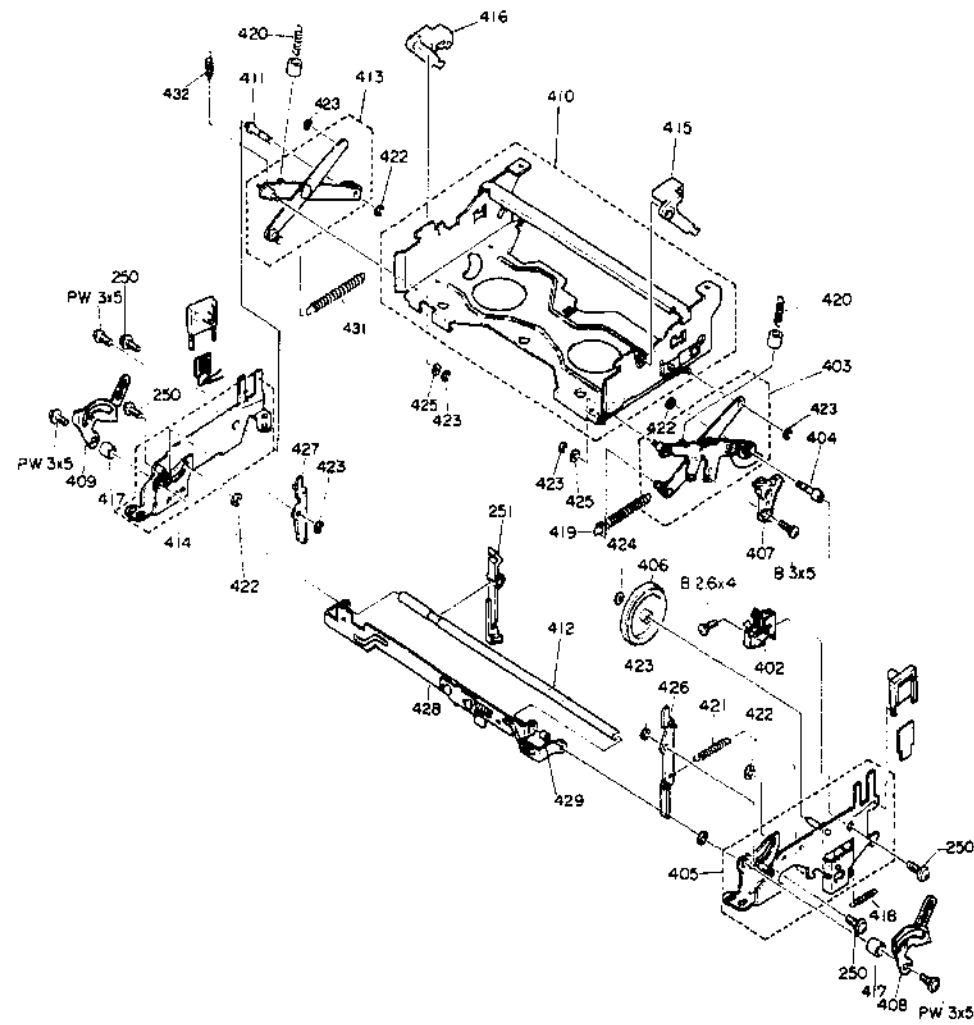
LUBRICATION

Lubrication points are shown in the disassembly diagrams by marks.

Lubrication shown in the diagram are as follows.

(P)	Pan motor oil	X10W-40	(H)	Hitazol	MO-138
(S)	Sonic slider oil	#1600	No symbol	Froil	GB-TS-1
(Si)	Silicone grease	KS-64			

CASSETTE HOUSING SECTION



[illegible]

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS		
E534	025e3b3	TANTALUM ELECTROLYTIC 4.7MF 16V
C543	025e3b7	TANTALUM ELECTROLYTIC 10UF
RESISTORS		
K420C1	5006211	RESISTOR PACK R1110
M4161	5000769	VARIABLE RESISTOR 10KOHM
R5501-507	5000762	VARIABLE RESISTOR 200KOHM
K136	0170471	FUSE RESISTOR 2.20KOHM-5% 1/4W
K216	5007165	SEMI VARIABLE RESISTOR 10KOHM
K232	5007165	SEMI VARIABLE RESISTOR 4.7KOHM
H400	0170472	FUSE RESISTOR 3.40KOHM-5% 1/4W
H401	5007167	SEMI VARIABLE RESISTOR 22KOHM
H402	5007169	SEMI VARIABLE RESISTOR 100KOHM
R403	5007165	SEMI VARIABLE RESISTOR 4.7KOHM
K404	5007192	SEMI VARIABLE RESISTOR 470KOHM
R401	0170481	FUSE RESISTOR 220OHM-5% 1/4W
R502	5007225	SEMI VARIABLE RESISTOR
R503	5007191	SEMI VARIABLE RESISTOR 220KOHM
H504-505	5007167	SEMI VARIABLE RESISTOR 22KOHM
H506	5007190	SEMI VARIABLE RESISTOR 10KOHM
H507	5007226	SEMI VARIABLE RESISTOR
H510	5007189	SEMI VARIABLE RESISTOR 100KOHM
H511	5007180	SEMI VARIABLE RESISTOR 10KOHM
H512	5007167	SEMI VARIABLE RESISTOR 22KOHM
H513	5007189	SEMI VARIABLE RESISTOR 100KOHM
H515	5007180	SEMI VARIABLE RESISTOR 4KOHM
R659	5007183	SEMI VARIABLE RESISTOR 10KOHM
R711A-711L	5006601	PHE-SM1 VARIABLE RESISTOR
SEMI-CONDUCTORS		
U 51	5330104	RECTIFIER V06A
U 52	5330104	RECTIFIER V06A
U 53	5330574	DIODE 152473
Q122	5330573	DIODE 152473
Q103	5330573	DIODE 152473
Q104-107	5330573	DIODE 152473
Q111-117	5330573	DIODE 152473
Q118-119	5330573	DIODE 152473
U120	5330573	DIODE 152473
Q121	5330101	RECTIFIER V06C
U151-154	5330101	RECTIFIER V06C
Q155	5330102	DIODE M40-31-22
Q2001-2003	5330131	DIODE DAN201
Q2005-2008	5330131	DIODE 152076
Q201-202	5330131	DIODE 152076

SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS		
Q2021	5330271	LED GL-49H2
Q2022-2025	5330301	LED GL-49H2
Q2026-2027	5330271	LED GL-49H2
Q2028	5330401	LED SLR-53CC1
Q2029	5330402	LED SLR-53UK1
Q2030-2034	5330301	LED GL-49H2
Q204-206	5330131	DIODE 152076
D207	0575005	DIODE IN40
D208-215	5330131	DIODE 152076
Q401-402	5330131	DIODE 152076
Q403	5330131	DIODE DAN201
Q404	5330131	DIODE
Q405-406	5330131	DIODE 152076
Q413-411	5330131	DIODE DAN201
Q412-414	5330131	DIODE 152076
D501-506	5330573	DIODE 152473
D510	5330573	DIODE 152473
D512-513	5330573	DIODE 152473
D515	5330573	DIODE 152473
D517-525	5330573	DIODE 152473
Q526-528	5330573	DIODE 152473
Q529-530	5330573	DIODE 152473
Q531-532	5330573	DIODE 152473
Q533-537	5330573	DIODE 152473
Q538-548	5330573	DIODE 152473
Q550-554	5330573	DIODE 152473
Q651-653	5330573	DIODE 152473
Q701A-701L	5330131	DIODE 152076
Q702A-702L	5330561	LED SR5030
Q711A-711L	5330131	DIODE 152076
Q712A-712L	5330131	DIODE 152076
Q723-725	5330573	DIODE 152473
Q901-906	5330573	DIODE 152473
Q907	5330131	DIODE DAN201
Q908-910	5330573	DIODE 152473
Q911	5330131	DIODE DAN201
Q912	5330573	DIODE 152473
Q913	5330573	DIODE 152473
Q914	5330573	DIODE 152473
Q916	5330131	DIODE DAN201
Q919	5330573	DIODE 152473
Q920-921	5330573	DIODE 152473
Q922	5330131	DIODE DAN201
Q923-929	5330573	DIODE 152473
Q931	5330573	DIODE 152473
Q933-934	5330573	DIODE 152473
Q935	5330573	DIODE 152473

SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS		
Q936	5330573	DIODE 152473
IC 51	5330103	HALL ELEMENT DA6030
IC131	5330776	IC HD30030A26
IC132	5330281	IC TA4181
IC133	5330291	IC TA4182
IC134	5330181	IC TA4123
IC201	5330551	MODULE HT4204
IC202	5330551	MODULE HT4205
IC203	5330571	MODULE HT4206
IC401	5330211	IC HA1319
IC402	5330001	IC UPD40661
IC403	5330251	IC HA1306
IC404	5330211	IC HA11714
IC407	5330211	IC HA11715
IC501	5330042	IC HA11711
IC502-503	5330211	IC HA11715
IC504	5330501	IC MPD4011L
IC505	5330261	IC HA11721
IC721	53301721	IC MPC1261L
IC901	5330551	IC MU40501A05
IC902	5330551	IC MU40501A05
IC903	5330003	IC NJM45580H
IC904	5330101	IC TA410H
IC905	5330003	IC TA4104
IC906	5330301	IC TA4193
IC907	5330501	IC MPD4011L
U 51	5320503	TRANSISTOR 2SA673C
Q 52	5320213	TRANSISTOR 2SC1741H
Q 53	5321062	TRANSISTOR 2SC20215
Q 54	5321213	TRANSISTOR 2SC406C
U 55	5322213	TRANSISTOR 2SC1741H
U 56	5322751	TRANSISTOR 2SC636
U 61	53300471	PHOTO TRANSISTOR PH150TV
U 62	53300471	PHOTO TRANSISTOR PH150TV
Q101-107	5321061	TRANSISTOR 2SC2021H
U108	5321213	TRANSISTOR 2SC406C
Q109-110	5321061	TRANSISTOR 2SC2021H
Q101-107	5321062	TRANSISTOR 2SC20215
Q103	5320613	TRANSISTOR 2SC1213C
Q2001-2003	5321061	TRANSISTOR 2SC2021H
Q201-202	5321252	2SA644D
Q203-211	5321062	TRANSISTOR 2SC20215
Q212	5321252	2SA644D
Q213-216	5321062	TRANSISTOR 2SC20215
Q217	5320593	TRANSISTOR 2SA673C
Q218-220	5321062	TRANSISTOR 2SC20215
Q222-224	5321062	TRANSISTOR 2SC20215

SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS		
Q225	5321252	2SA644D
Q226	5321062	TRANSISTOR 2SC20215
Q401-412	5321062	TRANSISTOR 2SC20215
Q413	5321507	TRANSISTOR 2SC608H
Q414-415	5321062	TRANSISTOR 2SC20215
Q416	5321213	TRANSISTOR 2SC406C
Q417-419	5321062	TRANSISTOR 2SC20215
Q501	5321072	TRANSISTOR 2SA706H
Q502	5320613	TRANSISTOR 2SC1213C
Q503-507	5321062	TRANSISTOR 2SC20215
Q508	5321252	2SA644D
Q509-510	5321062	TRANSISTOR 2SC20215
Q511	5321062	TRANSISTOR 2SC20215
Q512-517	5321062	TRANSISTOR 2SC20215
Q518-519	5321252	2SA644D
Q520-524	5321062	TRANSISTOR 2SC20215
Q525	5321252	2SA644D
Q526-528	5321062	TRANSISTOR 2SC20215
Q529-530	5321252	2SA644D
Q651	5321062	TRANSISTOR 2SC20215
Q652	5321301	TRANSISTOR 2SC1061
Q653	5320613	TRANSISTOR 2SC1213C
Q654	5321301	TRANSISTOR 2SC1061
Q655	5320613	TRANSISTOR 2SC1213C
Q656	5321062	TRANSISTOR 2SC20215
Q657-658	5322751	TRANSISTOR 2SA952H
Q659-660	5321062	TRANSISTOR 2SC20215
Q661	5321301	TRANSISTOR 2SC1061
Q662	5321062	TRANSISTOR 2SC20215
Q663	5321301	TRANSISTOR 2SC1061
Q664-665	5320613	TRANSISTOR 2SC1213C
Q666	5321062	TRANSISTOR 2SC20215
Q667	5320613	TRANSISTOR 2SC1213C
Q668	5321293	TRANSISTOR 2SC1740LN-R
Q721-723	5321061	TRANSISTOR 2SC2021H
Q724	5321252	2SA644D
Q725-727	5320593	TRANSISTOR 2SA673C
Q728	5320613	TRANSISTOR 2SC1213C
Q729-732	5321061	TRANSISTOR 2SC2021H
Q733	5320593	TRANSISTOR 2SA673C
Q901	5321301	TRANSISTOR 2SC1061
Q902	5320643	TRANSISTOR SILICON 2SC1162
Q903-907	5321062	TRANSISTOR 2SC20215
Q908	5321293	TRANSISTOR 2SC1740LN-R
Q909-910	5321062	TRANSISTOR 2SC20215
Q917	5321072	TRANSISTOR 2SA706H
Q919	5321062	TRANSISTOR 2SC20215

SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS		
0920-921	5321672	TRANSISTOR 2SA766R
Z0101	5330392	ZENER DIODE H268
Z0102	5330393	DIODE H27C
Z0103	5330553	ZENER DIODE H211C
Z0651	5330562	DIODE H216-2
Z0652	5330393	ZENER DIODE H26C
Z0653	5330552	DIODE H2-12B
Z0654	5330556	ZENER DIODE H211A2
Z0655	5330554	ZENER DIODE H211E-B
Z0656	5330556	ZENER DIODE H211A2
Z0721	5350611	IC LPC574J
Z0722	5330553	ZENER DIODE H211C
Z0901	5330556	ZENER DIODE H211A2
Z0902-903	5330393	ZENER DIODE H26C
Z0904	5330556	ZENER DIODE H211A2
Z0905-906	5330641	ZENER DIODE H211E-B
TRANSFORMERS		
T401	5260386	BIAS COIL
COILS		
L131	5270241	LINE FILTER
L161	5152086	CHOKER COIL 62MICROH
L162	5152027	CHOKER COIL
L201	5152087	PEAKING COIL 100MICROH
L203-204	5152073	CHOKER COIL 100MICROH
L204	5152087	PEAKING COIL 100MICROH
L205	5152081	CHOKER COIL 3.3MICROH
L206	5152092	PEAKING COIL 220MICROH
L207	5152081	CHOKER COIL 3.3MICROH
L208	5152087	PEAKING COIL 100MICROH
L209	5152092	PEAKING COIL 220MICROH
L210	5152087	PEAKING COIL 100MICROH
L211	5152076	CHOKER COIL 22MH
L213	5152086	CHOKER COIL 62MICROH
L214-215	5152087	PEAKING COIL 100MICROH
L216-219	5152087	PEAKING COIL 100MICROH
L220	5152099	CHOKER COIL H20H-10C
L221	5152083	CHOKER COIL
L222-224	5152087	PEAKING COIL 100MICROH
L225	5152081	CHOKER COIL 3.3MICROH
L401	5150362	CHOKER COIL
L402	5150366	CHOKER COIL 15 MH
L403	5260215	TRAP COIL 33MH
L404	5152075	CHOKER COIL 12MH
L405	5150573	CHOKER COIL

SYMBOL-NO	P-NO	DESCRIPTION
COILS		
L401	5152099	CHOKER COIL H20H-10C
CRYSTALS		
X001	5780492	CRYSTAL
MISCELLANEOUS		
	5350451	TIMER DISPLAY
	5762281	LAMP
	6762171	SPACER FOR LCL (PAUSE/REW FF)
	6762181	SPACER FOR LCL (REC PLAY STOP)
	6762191	SPACER FOR LCL (CHANNEL PRESET)
	6860401	SPACER FOR LCL (REP LR SP)
	6860441	SPACER FOR LCL (POWER TIMER)
CP201	5125051	TRAP FILTER
CP202	5123632	COIL
CP203	5162032	DELAY LINE
CP204	5162031	LOW PASS FILTER
CP205	5162033	LOW PASS FILTER
CP206	5162041	BAND PASS FILTER
CP207	5162033	LOW PASS FILTER
CP208	5162042	BAND PASS FILTER
CP209	5161953	HIGH PASS FILTER
LL201	5765032	L-TH DELAY LINE
LL202	5765052	DELAY LINE
FU151	5720001	FUSE 1A
FU152	5720243	FUSE
RL401-402	5641204	RELAY
S 51	5601166	PUSH SWITCH
S 52	5601165	SWITCH
S 53	5601165	SWITCH
S 54	5633362	PUSH SWITCH
S 55	5601165	SWITCH
S2001	5624251	SLIDE SWITCH
S2002	5633351	PUSH SWITCH
S2004-2014	5633351	PUSH SWITCH
S2015-2018	5633362	PUSH SWITCH
S2017	5624251	SLIDE SWITCH
S701A-701L	5633352	PUSH SWITCH
S712	5633362	PUSH SWITCH
S901	5623551	SLIDE SWITCH
FOR FINAL ASSEMBLY		
101	5150362	TOP CASE (USA)
101	6104138	TOP CASE (CANADA)
102	6172384	TIME SET COVER
103	6337411	HINGE TIMER PANEL
104	6092951	CASSETTE LTD

SYMBOL-NO	P-NO	DESCRIPTION
FOR FINAL ASSEMBLY		
105	7947741	SPECIAL SCREW
106	6224082	FRONT PANEL ASSEMBLY
107	6174031	SWITCH DOOR
108	6860643	CHANNEL PLATE COVER
109	6860541	SWITCH PIECE
119	6465152	CHANNEL CARD
111	6860513	CHANNEL CARD HOLDER
112	6053571	BUTTON
113		BUTTON
114		BUTTON
115		BUTTON
119	6762201	SWITCH CAP
121	5550343	TAPE COUNTER
122	6354241	COUNTER BELT
122	6860773	EJECT LEVER (EJECT KNOB)
124	5630392	PROGRAM BOARD ASSEMBLY
125	5505602	RF CONVERTER
126	5212565	POWER TRANSFORMER (USA)
126	5212567	POWER TRANSFORMER (CANADA)
127	6794091	RUBBER BUSH
128	5746491	POWER CORD
129	6860613	REAR PLATE PANEL
130	6173623	BURSTER COVER
131	6835434	BOTTOM COVER
132	6860732	FRONT JACK COVER
138	6860471	TIMER HOLDER
137	6860531	CHANNEL LEE COIL
140	6860502	P.C.B. HOLDER
149	6860631	P.C.B. HOLDER
148	6860641	P.C.B. HOLDER
149	6960661	HINGE (P.C.B.)
150	6795191	RIVET
151	6795151	RIVET
152	5679711	FRONT JACK PLATE
153	5679721	REAR JACK PLATE
157		HINGE (BUTTON)
158	7864072	VTA FRONT LHC ASSEMBLY
201	6413633	SUPPLY REEL TABLE ASSEMBLY
202	6750441	RETAJNEN
203	7787031	THROST SUPPORT
204	7786216	POLYSLIDER WASHER
205	7778659	POLYSLIDER WASHER
206	6413654	TAKE-UP REEL TABLE ASSEMBLY
207	5576417	WHEEL MOTOR
208	6413663	FF/REW ICLE
209	6755521	FF/REW IDLER BASE
210	6324436	SPRING

SYMBOL-NO	P-NO	DESCRIPTION
FOR FINAL ASSEMBLY		
211	7766176	HOLE-SLIDER WASHER
212	6363551	FF/REW PULLEY
213	7773004	SCREW
214	6755573	MOTOR HOLDER
215	7781132	BT SCREW
216	6421932	MAGNET PULLEY
217	6414271	PLAY IDLER ASSEMBLY
219	7761133	BT SCREW-3MM
220	6545502	SPRING
221	7316324	SHAKE ARM (LEFT)
222	7316332	SHAKE ARM (RIGHT)
223	7761133	BT SCREW-3MM
224	7371042	SHAKE LEVER
225	7371031	SHAKE ARM
226	7371052	SUBJECT SLIDER
227	6562491	SPRING
228	6755502	SUB SHAKE (SLIPPER)
229	6562416	SPRING
230	5642604	DC SLEEVES
235	6421902	PULLEY
236	7778659	POLYSLIDER WASHER
237	6860701	TAKE-UP SOLLERID ARM
238	6756582	WHEEL MOTOR
239	6354401	DEL7
242	6860241	CONNECT ARM
243	6755471	NEUTRAL ARM
244	7761133	BT SCREW-3MM
245	6755542	PLAY ARM
246	6756241	EJECT (INITIATING ARM (1))
247	6756251	EJECT (INITIATING ARM (2))
248	6540611	SPRING
250	6860405	PH SCREW-3MM (10MM)
251	6860162	RECORDING PREVENTION ARM
255	5576743	DO CAPSTAN MOTOR
256	7677368	CUSHION
257	6430421	LOADING GEAR (LEFT)
258	7316352	3 SERIES LINK
259	6302344	SPRING
260	6430422	LOADING GEAR (RIGHT)
261	7316352	3 SERIES LINK
262	6302344	SPRING
263	6413671	LOADING DOWN
264	6762241	SWITCH ARM (LOADING)
268	6755613	SWITCH ARM (UNLOADING)
267	6540542	SWITCH ARM STOPPER (LOADING)
268	6540552	SWITCH ARM STOPPER (UNLOADING)
269	7781133	BT SCREW-3MM

SYMBOL-NO	P-NO	DESCRIPTION
FOR FINAL ASSEMBLY		
270	0343473	ROLLER
271	7318376	PRESSURE ROLLER LINK
272	0301855	SPRING
273	0755671	SPRING
274	0540561	SPRING
275	0800212	PRESSURE ROLLER ARM
276	0363213	PRESSURE ROLLER ASSEMBLY
277	7316401	LOADING SLIDER
278	0545592	SPRING
281	0532921	CASSETTE OPENER
283	7701135	BT SCREW-3MM
284	7041671	TENSION ARM (WITH CUC HEAD)
287	0301394	SPRING FOR DAMPER ARM
288	7701135	BT SCREW-3MM
290	7516302	TENSION BAND
294	0977091	GUIDE ROLLER BASE
295	0532911	SPRING
296	7317342	LIMIT PLATE
298	0973461	TILT POLE (SUPPLY)
299	0973471	TILT POLE (TAKE-UP)
300	0344252	GUIDE ROLLER SHAFT
301	7773387	SET SCREW
302	0977021	CATCHER (TAKE-UP)
303	0977011	CATCHER (SUPPLY)
309	7575242	TAPE GUIDE
310	7543031	GUIDE FRAME
311	0304905	SPRING
312	5448401	AUDIO CONTROL HEAD
316	7549271	X-ADJUST SCREW
317	0323873	SPRING
318	0322211	PRESSURE ROLLER ARM SPRING
319	7320402	IMPEDANCE OPERATING ARM (2)
320	7370422	IMPEDANCE OPERATING ARM (1)
321	0800171	HEAD ARM
322	5448371	FULL ERASE HEAD
323	0303520	IMPEDANCE ARM
324	7060452	MG PLATE
328	5445195	HEAD
330	5576351	LOADING MOTOR
331	0354921	BELT-LOADING
334	0170309	DEW SENSOR
339	7330417	BRACKET
341	0977031	CYLINDER BASE
342	7707001	WASHER
343	7707002	WASHER
344	0060201	MOTOR HOLDER
348	0540101	SPRING

SYMBOL-NO	P-NO	DESCRIPTION
FOR FINAL ASSEMBLY		
351	7370072	PLATE
352	0800412	LEVER
353	7540701	WIRE
354	7370002	LEVER
355	5442601	DC SOLENOID
358	7370923	SOLENOID BASE
357	0800722	ARM
358	7370371	ACE HEAD BASE
359	0304701	SPRING
360	0626575	WASHER
361	7371451	SLIDER
362	0800711	HOLDER
402	0347261	GOVERNOR
403	7318263	HOLDER LINK
404	7540701	SHAFT
405	7316084	HOLDER BRACKET (RIGHT)
406	0301954	DUMPLER WHEEL
407	0430391	WACK GEAR
408	7318403	SYNCHRO ARM
409	7318402	SYNCHRO ARM
410	7310405	CASSETTE UP ASSEMBLY
411	7540701	SHAFT
412	7540701	SHAFT
413	7318493	HOLDER LINK (LEFT)
414	7318073	HOLDER BRACKET (LEFT)
415	0755742	PRESSURE ARM (RIGHT)
416	0755752	PRESSURE ARM (LEFT)
417	7575253	SPACER
418	0300147	SPRING
419	0540671	SPRING
420	0540602	SPRING
421	0300111	SPRING
422	7230902	E RING
423	7230401	E RING
424	7770009	POLYSLIDER WASHER
425	7707411	WASHER
426	7318301	LOCK ARM (RIGHT)
427	7318303	LOCK ARM (LEFT)
428	0755551	SPACER RING
431	0540673	SPRING
501	5450163	UPPER CYLINDER
502	5450254	LOWER CYLINDER ASSEMBLY
603	5687401	BRUSH

SYMBOL-NO	P-NO	DESCRIPTION
FOR ACCESSORIES		
5639413		REMOTE CONTROL BOX
5661251		PLUG
5670541		ANTENNA ADAPTOR (300OHM-75OHM)
5670591		MATCHING CONNECTOR
5893171		FEEDER CABLE
5896761		CABLE
6180181		DUST COVER
0800562		CHANNEL ADJUST DRIVER



HITACHI SALES CORPORATION OF AMERICA

Eastern Regional Office

1200 Wall Street West, Lyndhurst, New Jersey 07071

Tel. 201-935-8980

Mid-Western Regional Office

1400 Morse Ave., Elk Grove Village, Ill. 60007

Tel. 312-593-1550

Southern Regional Office

510 Plaza Drive College Park, Georgia 30349

Tel. 404-763-0360

Western Regional Office

401 West Artesia Boulevard, Compton, California 90220

Tel. 213-537-8383

HITACHI SALES CORPORATION OF HAWAII, INC

3219 Koapaka Street, Honolulu, Hawaii 96819, U.S.A.

Tel. 808-836-3621

HITACHI SALES CORP. OF CANADA Ltd.

3300 Trans Canada Highway Pointe Claire, Quebec, H9R1B1, Canada

Tel. 514-697-9150