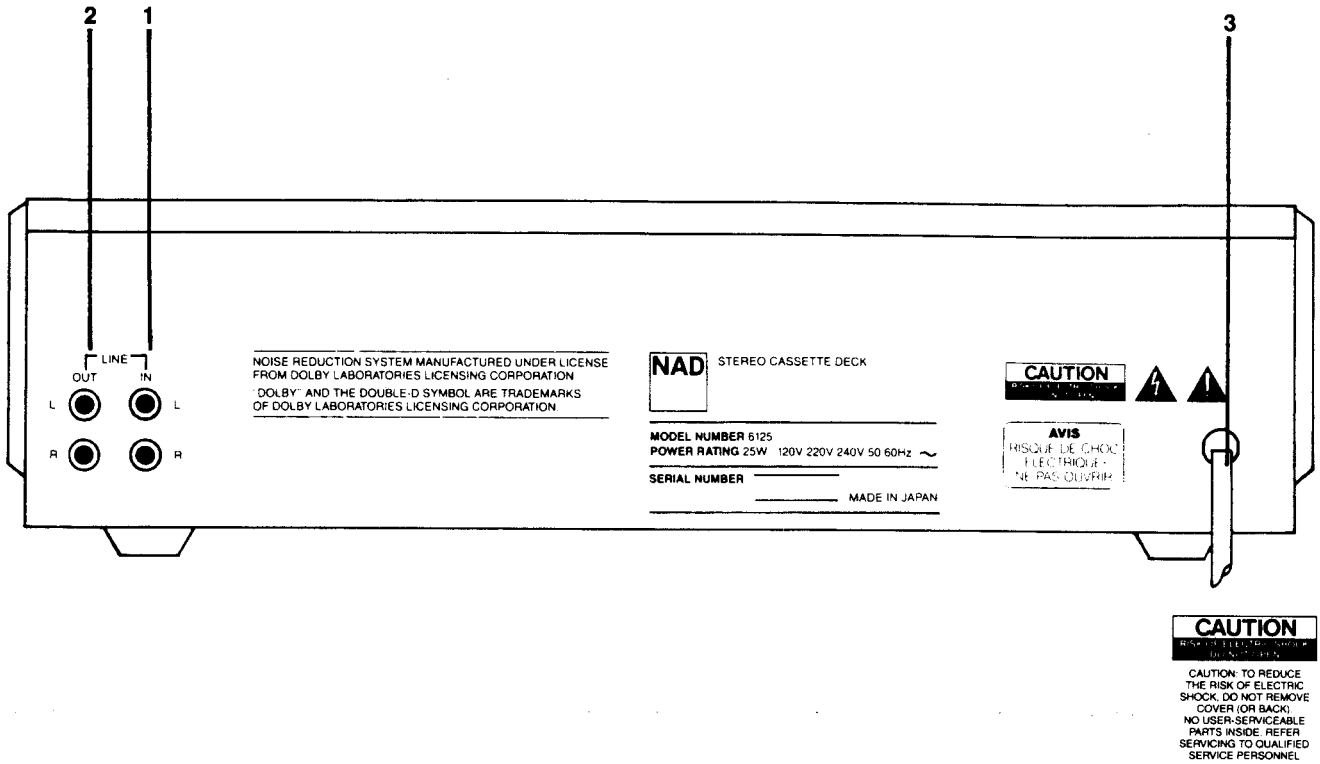
NAD SERVICE MANUAL

MODEL

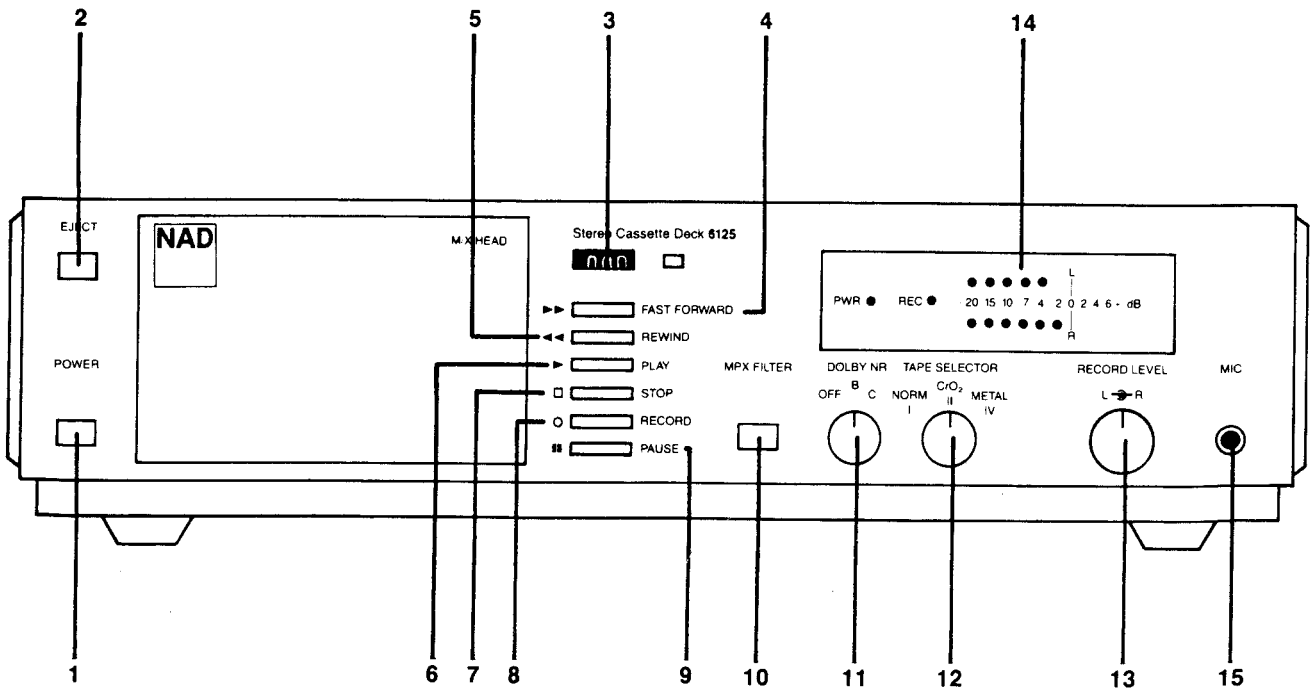
6125

1. Line IN
2. Line OUT
3. AC Power Cord



1. Power
2. Eject
3. Turns Counter
4. Fast Forward
5. Rewind
6. Play
7. Stop
8. Record
9. Pause
10. MPX Filter
11. Dolby NR*
12. Tape Selector
13. Record Level
14. Recording Level Display
15. MIC

*Dolby Noise Reduction system manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.



SPECIFICATIONS

Speed Accuracy	±1.5%
Wow & Flutter	<0.05% JIS wtd. RMS <0.10% DIN wtd. peak
Frequency Response (MPX filter off)	
I (Norm.)	30 Hz-15 kHz ±3 dB
II(CrO2)	30 Hz-16 kHz ±3 dB
IV(Metal)	30 Hz-17 kHz ±3 dB
MPX filter response	Flat within 1 dB to 15 kHz
Harmonic Distortion	Varies with recording level; typically<0.3% at -10 dB
THD at 0 dB	<0.5% (Normal) <1.5% (CrO2, Metal)

Signal-to-Noise Ratio ref.3% THD at 333 Hz	Dolby OFF	Dolby B	Dolby C
A-weighting	56 dB	65 dB	70 dB
CCIR weighting	55 dB	64 dB	72 dB

Channel Separation	40 dB at 1 kHz 35 dB broadband
Erasure	>70 dB
Input Sensitivity ref. 0dB/Impedance	
MIC	0.7 mV/10kΩ
LINE	110 mV/47kΩ
Maximum input level before overload	
MIC	15 mV
LINE	25V
Output Level ref. 200nWb/m	460 mV
Output Impedance	2.2kΩ
Dimensions	
Width	42 cm. (16.5 in.)
Height	10 cm. (4 in.)
Depth	23 cm. (9.5 in.)
Net Weight	3.3 kg. (7 lbs. 8 oz.)
Shipping Weight	4.25 kg. (9 lbs. 6 oz.)

ALIGNMENT METHOD

IMPORTANT

The tape path (heads, tape guides, capstan, pinch roller) should be cleaned and degaussed before alignments.

This tape recorder is designed so that it can work well with a variety of tapes, however, maximum performance will easiest be obtained with recommended tapes or similar types of tape formulas.

Recommended tapes	for North America	for Europe - DIN
TYPE I	MAXELL UDXL-I	BASF TP 18 No. R723DG
TYPE II	MAXELL UDXL-II	BASF TP 18 No. S4592A
TYPE IV	MAXELL MX	TDK AC 711

Unless otherwise specified TAPE SELECTOR should be set to TYPE I (NORMAL), DOLBY NR to OFF and MPX FILTER OFF. All test points are in reference to GROUND.

1. TAPE SPEED

   Connect outputs to Wow & Flutter Meter or Frequencey Counter. Play Speed Test Tape (TEAC MTT-111) and adjust semi-fixed resistor accessible through hole in motorcasing for correct reading on Wow & Flutter Meter or Frequency Counter.
   Tolerances: within ±1%

2. AZIMUTH

   Play Azimuth Tape (MTT-114) and watch outputs on VTVM's or Oscilloscope. Rotate azimuth-adjust-screw to maximum output. Reseal adjustment-screw with nail polish or similar (Do not use glue).

3. PLAYBACK LEVEL

   Connect outputs to VTVM's and/or Oscilloscope. Play Dolby level tape 200 nWb/m (TEAC MIT-150) and adjust VR 102 for 580mV RMS at L TP2 (or TP14) and VR 202 for 580mV RMS at R TP2 (or TP24).
   Tolerances: ±10mV
   Output level should be approximately 460mV (WARNING: Do not use output level for Dolby level adjustment).

4. LED DISPLAY

   Play Dolby Level Tape (TEAC MIT-150) and adjust VR103 for 0dB left channel and VR203 for 0 dB right channel on LED display.

5. BIAS OSCILLATOR FREQUENCY

   Adjustments are not normally required.
   Engage RECORD and PAUSE mode. Connect Frequency Counter to Resistor R301 and adjust L301 to 105kHz.
   Tolerances ±3 kHz.

6. BIAS TRAP

   Adjustments are not normally required.

Engage RECORD and PAUSE mode. Connect VTVM or Oscilloscope to L TP3 (or TP12) left channel and R TP3 (or TP22) right channel. Adjust L102 left channel to minimum and L202 right channel to minimum on VTVM or Oscilloscope.
Tolerances: less than 40mV RMS

7. RECORD LEVEL

Connect Audio Signal Generator to input.
Engage RECORD and PAUSE mode.

Feed unit 400Hz input signal approximately 750mV RMS level and adjust record volume to 580mV at L IP2 (or TP14) left channel and R TP2 (or TP24) right channel.
Reset TAPE COUNTER to 0 and record signal onto tape (release PAUSE). Meters should indicate 0 dB and output should be approximately 460mV RMS. Rewind tape to 0 on TAPE COUNTER and play back recorded signal. Outputs should now read 460mV RMS and meters should indicate 0 dB. If playback results are different, adjust Record Levels VR104 left channel and VR204 right channel. Record again and play back until correct playback reading is obtained.
Tolerances: ±20mV RMS

8. FREQUENCY RESPONSE (BIAS) TAPE II

Set TAPE SELECTOR to TYPE II (CrO2) position.
Reduce input level -23dB ref 400Hz. Reset TAPE COUNTER to 0 and engage record. Record and change the signal frequency from 400Hz to 1000Hz, and vary between 10 to 18kHz.
Rewind to 0 on TAPE COUNTER and play back recorded signal observing Output RMS Voltage. Output level should not vary outside of ±1 dB until the very highest frequencies above 15kHz. Adjust VR101 left channel and VR201 right channel for the flattest possible response while repeating the RECORD/REWIND/PLAYBACK procedure.
Be aware that lifting the frequency response in the 6000-12000Hz area in order to increase the high frequency response could grossly affect the distortion at 0dB or higher.
The THD at 400Hz should be checked at 0 dB RECORD/PLAYBACK level. It should not exceed 1.5% THD.
If BIAS setting was initially far off, step 7 and 8 should be repeated.

9. FREQUENCY RESPONSE TYPE I AND IV

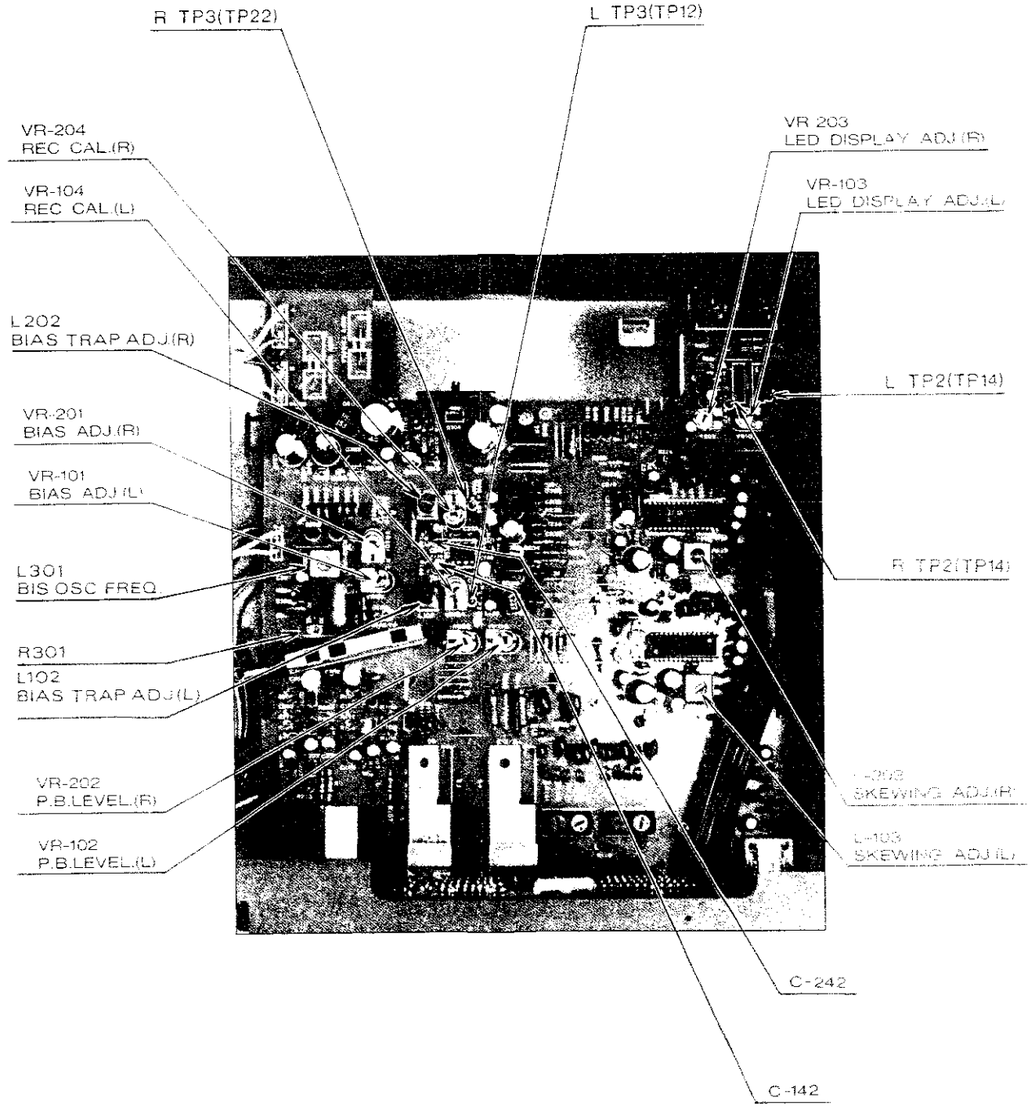
Frequency response and distortion should be checked using same level and method as in step 8. Be aware that any further adjustments of BIAS or RECORD LEVEL will affect the performance of all 3 tape formula's.

10. DOLBY C SPECTRAL SKEWING

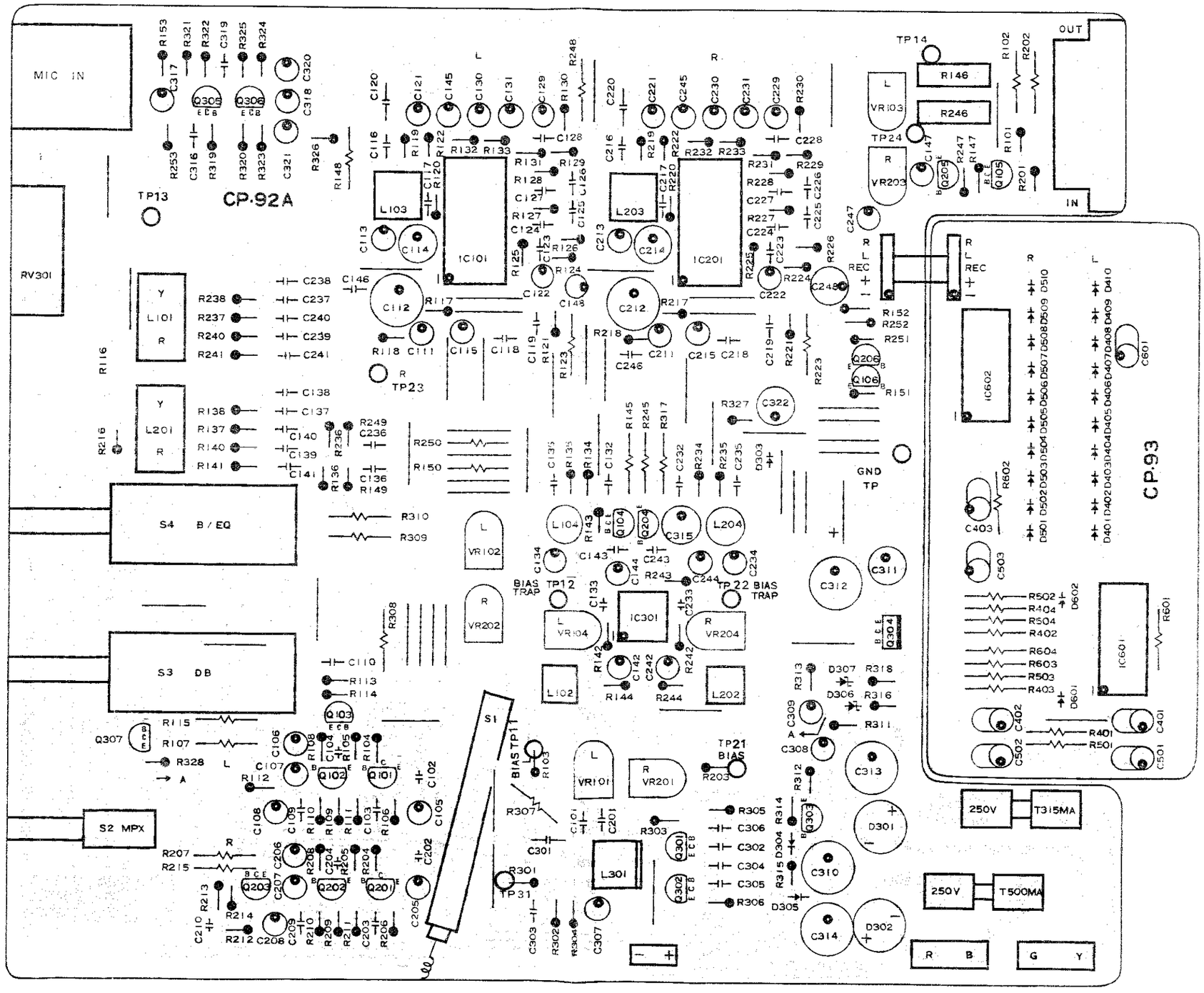
Set DOLBY NR switch to C position. Connect VTVM to C142 left channel and C242.
Engage RECORD/PAUSE mode.
Apply 1kHz input signal and adjust output level to 460mV RMS Reference Level. Change Input Frequency to 17kHz with same input level and adjust L103 left channel and L203 right channel for 8.3dB reduction from the 1kHz Reference Level.

Tolerance: ±0.5dB

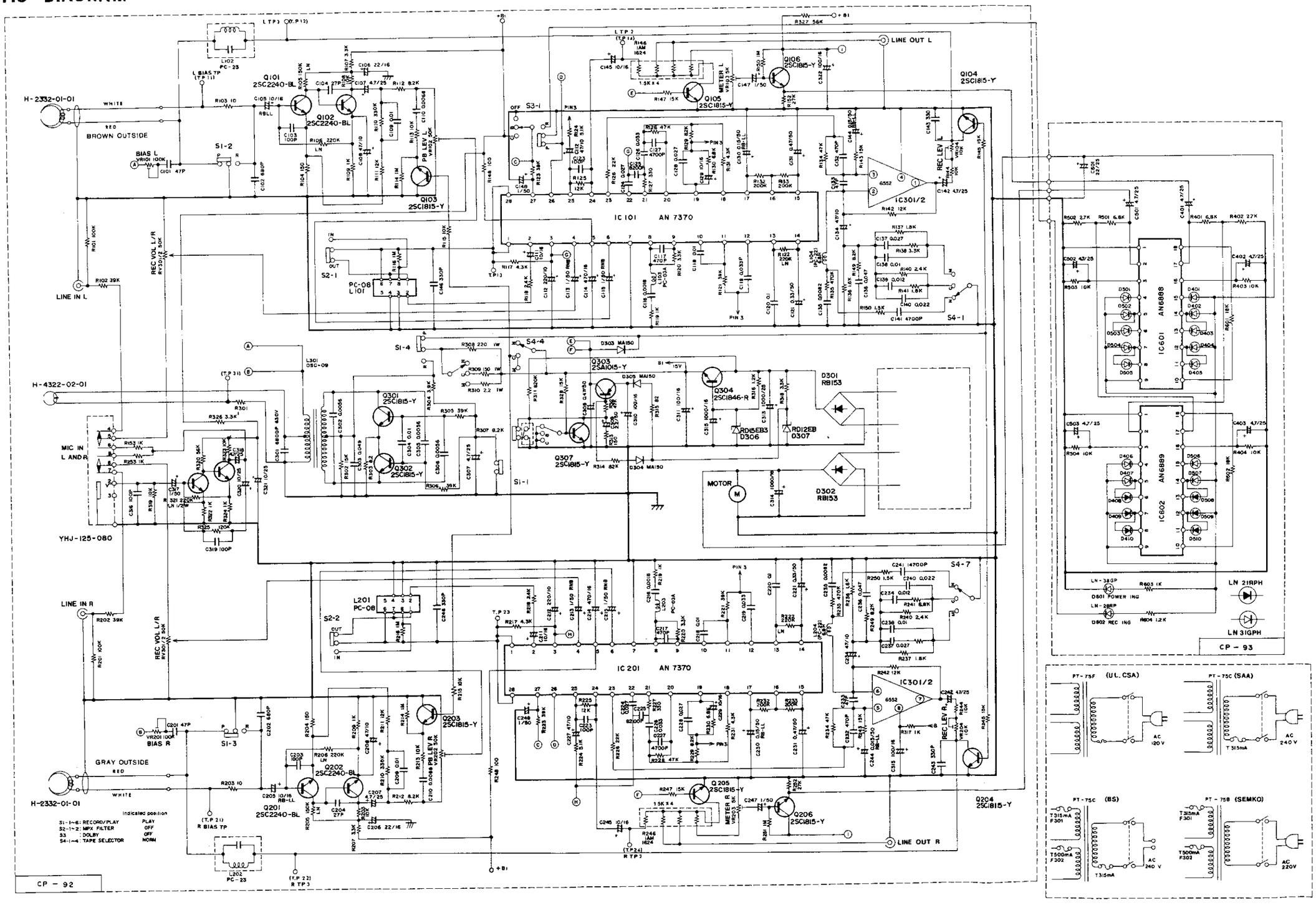
11. Preferably check unit by recording and playing back music and also degauss tape path after alignments.



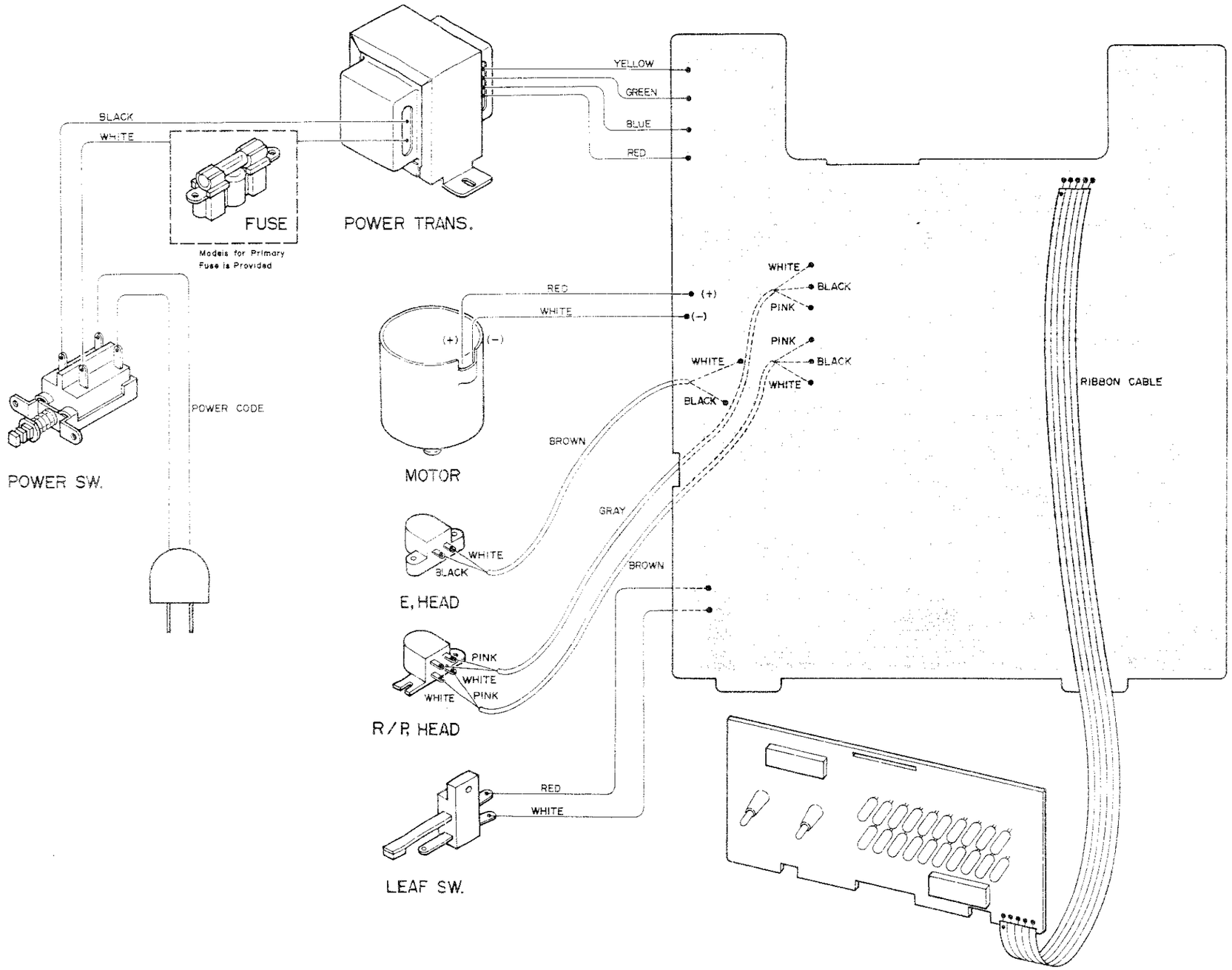
MAIN PCB


MIC IN
RV301
S4 B/EQ
S3 DB
S2 MPX
S1
CP-92A
CP-93
TP13
TP14
TP24
TP23
TP12
TP22 BIAS TRAP
TP11 BIAS
TP21 BIAS
GND TP
OUT
IN
IC101
IC201
IC301
IC602
IC601
L103
L203
L101
L201
L104
L204
L102
L202
L301
VR103
VR203
VR102
VR202
VR104
VR204
VR101
VR201
REC
250V T315MA
250V T500MA
R B
G Y

SCHEMATIC DIAGRAM



WIRING DIAGRAM



CAUSE AND REMEDY FOR NOISE FROM TRANSPORT MECHANISM

1. NOISE IN IDLING STATE

Noise could be generated then from transfer gears (Parts No. U4680 & A1451) which are running in idling state (see Fig. 1).

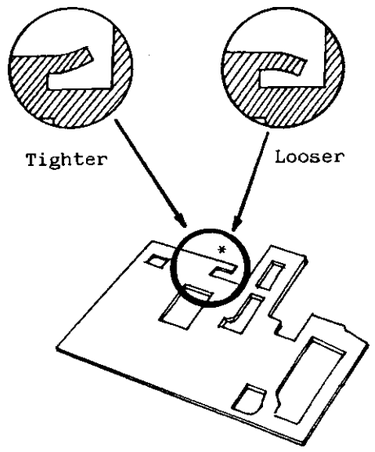
REMEDY :
1) Remove the gear U4680 by first removing Nylon Lock Washer. Clean out the shaft with alcohol or something like that.
2) Apply silicon grease sparingly to the shaft.
3) Reposition the gears gently. Take care not to apply grease onto the the rubber belt and not to twist the belt.
4) Apply silicon grease sparingly onto both worm gears.

2. NOISE GENERATED IN PLAY/RECORD MODES

Too tight or too loose meshing of Idler (Take-up) Gear and Take-up-Reel-Gear can cause noise in play or record modes (see Fig. 2).

REMEDY :
1) Apply grease onto the meshing part of both the gears.
2) If noise cannot be eliminated with the grease application, adjust the tightness of gears by bending the tab of head bridge plate (Parts No. Y6031) as per drawing. (Fig. 3)

This adjustment requires utmost caution because it may affect wow and flutter performance.



Head Bridge Plate
Y6031

Fig. 3

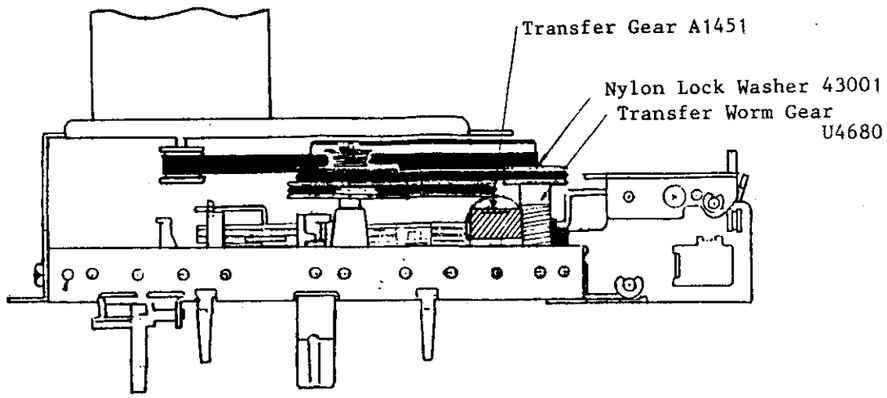


Fig. 1

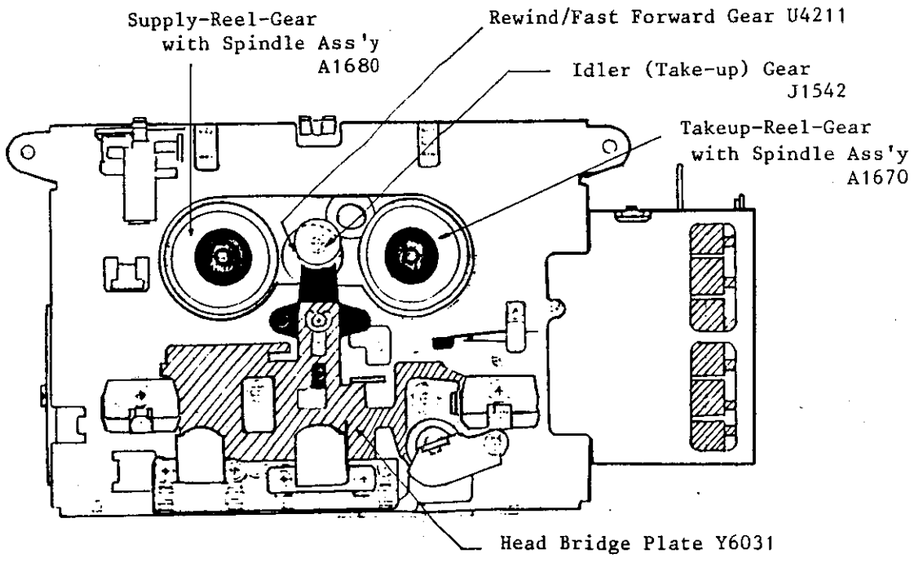


Fig. 2

PARTS LIST

6125

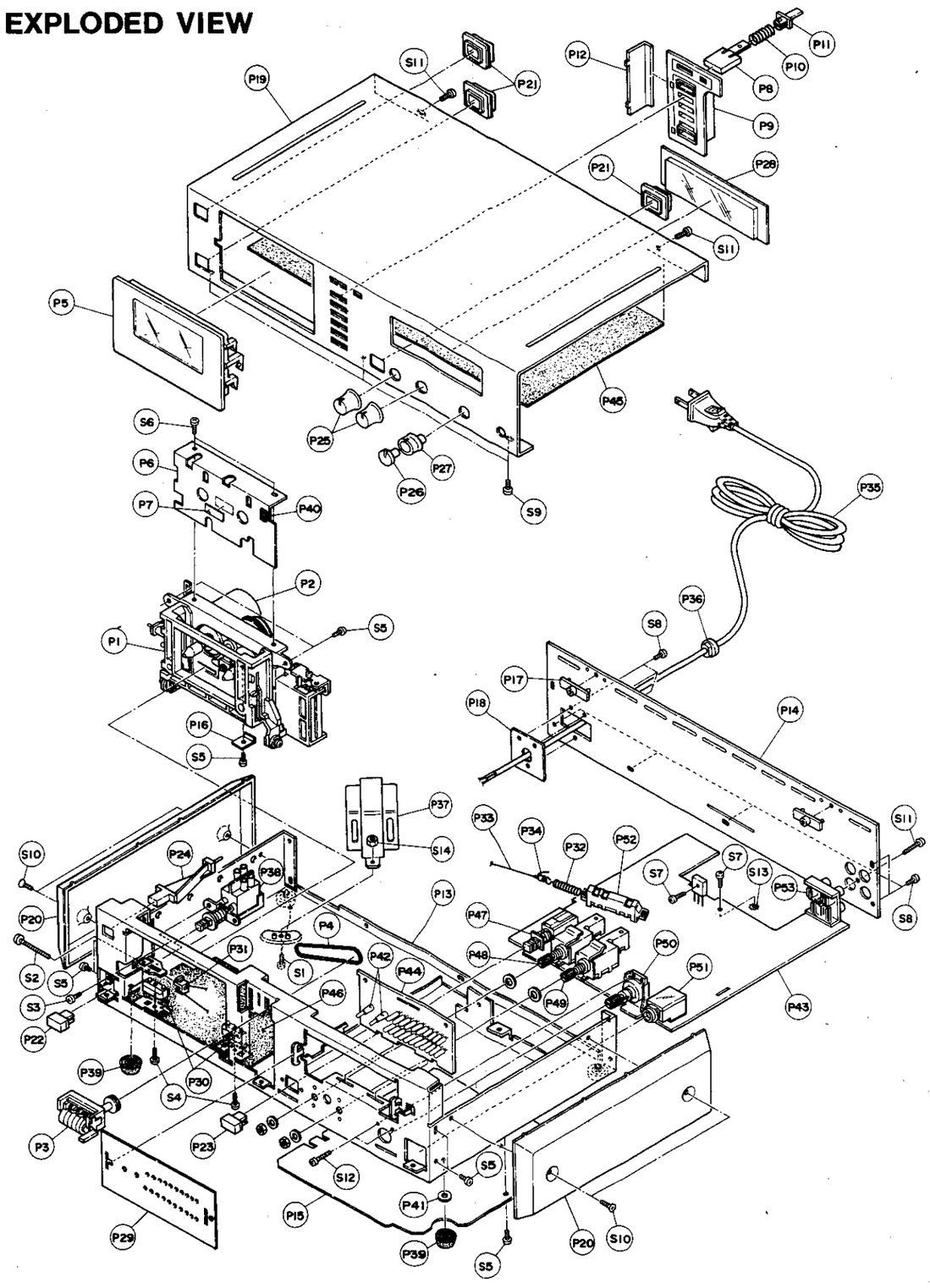
Ref. No.	Parts No.	Description	Type No.
P 1	172029	Transport Mechanism	C-8F44A
P 2	242509	DC motor	EG-510ED-2B2
	232486	R/P head	H-2332-01-01
	232494	Erase head	H-4322-02-01
P 3	252538	Tape counter	T3SA-733-10k-14
P 4	373482	Counter belt	SN-240816
P 5	182185	Cassette window(SD type)	SN-230318
P 6	141580	Mechanism cover	SN-230315A
P 7	343260	Reflector (SD type)	SN-240898
P 8	182184	Key knob	SN-241023A
P 9	182186	Knob frame (SD type)	SN-230317A
P11	182187	Spring frame	SN-241024A
P12	182188	Key stopper	SN-241022
P10	222458	Spring (SX type)	SN-241034C
P13	141577	Bottom schassis	SN-210022D
P14	141597	Rear panel	SN-220265
P15	141579	Bottom cover	SN-230316
P16	182993	String slide plate	SN-241025
P17	141586	Cover frame	SN-241028A
P18	141587	Metal plate for fastening AC cord	SN-241030
P19	141581	Top panel	SN-210021A
P20	182994	Side plate	SN-220266B
P21	182176	Square frame (SItype)	SN-240988
P22	302929	Square knob	KG-10D
P23	302788	Square knob	KB-10D
P24	302789	Square knob	KB-10E
P25	302926	Round knob	PB-18B
P26	302930	Round knob (RA type)	WPB-22A (RA)
P27	302931	Round knob (RB type)	WPB-22A (RB)
P28	182996	LED window (SC type)	SN-240987
P29	182997	LED plate	SN-241033B
P30	182995	Mechanism spacer	SN-241027A
P31	182132	Adjuster	SN-240899A
P32	222445	Spring (SP type)	SN-240817A
P33	192270	Dial string	L-430 0.7ϕ
P34	373488	Eyelet	2x2.5

Ref.No.	Parts No.	Description	Type No.
P35	202329	Power supply cord	
P36	373499	Cord stopper	SR-3P-4 for UL, CSA W-5116 for SEMKO,BS,CSA
	262599	Time lag fuse	250V T315mA for BS,CSA
	262597	Fuse holder	For BS,CSA
P37	161999	Power transformer	PT-75 type
P38	111149	Power switch	ESB-90102T for UL,CSA ESB-90117S for SEMKO,BS, SAA
P39	192998	Rubber foot	VX-0044#01
P40		Cassette cushion	SN-241038
P41		Fiber washer #8	SN-230249H
P42		LED spacer	
P43		Main PCB	
P44		LED PCB	
P45		Fiber plate	
P46		Fiber plate	
P47	111119	Push switch (MPX Filter)	PSC00-C2L
P48	112989	Rotary slide switch (Dolby NR)	SRSY1-2-3k205-7x6N
P49	111147	Rotary slide switch (Tape selector)	SRSY1-4-3k205-7x6S
P50	101044	Rotary volume	V765-0374-1
P51	121614	Microphone socket	YHJ-125-080
P52	112990	Slide switch for recording	00620594
P53	121178	4P RCA socket	VA-1075#01
S 1		Pan screw	M4 x 10
S 2		Pan screw	M3 x 30
S 3		Pan screw	M3 x 6
S 4		S tight pan screw	3 x 12
S 5		S tight pan screw	3 x 6
S 6		S tight pan screw	3 x 4
S 7		S tight binding screw	3 x 8
S 8		S tight binding screw	3 x 8
S 9		S tight binding screw	3 x 16
S10		S tight screw	4 x 12
S11		B tight binding screw	3 x 12
S12		S tight binding screw	2.6 x 12
S13		Toothed washer	
S14		Hexagonal nut	

Ref. No.	Parts No.	Description	Type No.
	262599	Time lag fuse for motor	250V T500mA for SEMKO, BS
	262599	Time lag fuse for 2nd coil & base	250V T315mA for SEMKO, BS
	262599	Time lag fuse	250V T315mA for BS, CSA
	262597	Fuse holder	for BS and CSA
	202302	RCA Audio cord	Dual grey 1.2m

Note :
UL ..... for USA market
CSA ..... for Canadian market
BS ..... for UK market
SAA ..... for Australian market
SEMKO .... for Europe and others

EXPLODED VIEW



TRANSPORT MECHANISM MODEL C-8F44A

Parts No.	Description	Q'ty/unit
A0960	Cassette holder damping ass'y	1 pc.
A1362	Pinch roller ass'y	1
A1451	Transfer gear ass'y	1
A1531	Spindle base ass'y	1
F0363	Fly wheel	1
G6250	Record/Play head H-2332-01-01	1
G6260	Erase head H-4322-02-01	1
G6780	Motor EG510ED2B2	1
J1542	Idler gear arm ass'y	1
K4899	Main chassis	1
K5181	Cassette holder lock base plate (side bracket)	1
S0531	Micro switch (leaf switch)	1
U2540	Belt, 1.0 x 40.0 - 60	1
U3272	Cassette Guide	1
U3411	Rear capstan Bearing	1
U3542	Cassette holder	1
U4063	Head bracket	1
U4090	Idler gear	1
U4103	Record sensing arm	1
U4112	Brake plate	1
U4122	Return lever	1
U4132	Pause trigger lever	1
U4150	Rewind/forward trigger lever	1
U4185	Record/Play trigger lever	1
U4333	Auto stop trigger lever	1
U4342	Cancel lever	1
U4371	Capstan gear	1
U4381	Key lever	5
U4392	Pause key lever	1
U4406	Pause lock cam	1
U4412	Push button interlock	1
U4424	Record trigger lever	1
U4442	Belt, 1.2 x 50.0 - 65	1
U4450	Brake rubber, 3.0 x 5.0 x 2.0	2 pcs.
U4480	Belt, 60.5 x 4 x 0.4 - 65	1
U4521	Rewind/Forward drive gear	1
U4532	Drive gear	1
U4680	Transfer worm gear	1
V8390	Hinge bushing	1
V8900	Hinge bushing	1
V9552	Spacer for Erase head	1
V9561	Bushing	1
V9730	Motor Pully	1
V9740	Record trigger lever bushing	1
V9750	Key lever axis	1
W0110	Spacer, Record/Play selector	1
W0130	Transfer gear axis	1
Y4790	Holding plate	2
Y4963	Record lever plate	1
Y4990	Record/play shift arm	1
Y5031	Cassette holding spring	1
Y5043	Motor mounting bracket	1
Y5054	Push button frame	1
Y5072	Rewind/Forward interlock plate	1

Parts No.	Description	Q'ty/unit
Y5082	Record interlock plate	1
Y5112	Release lever	1
Y5131	Hinge bracket	1
Y5141	Hinge bracket	1
Y5161	Lever, head bridge	1
Y5290	Play interlock plate	1
Y5331	Key lever spring plate	1
Y5341	Push button frame support bracket	1
Y5360	Record/Play selector lever	1
Y5381	Fast Forward lever plate	1
Y5391	Rewind lever plate	1
Y5711	Play arm plate	1
Y6031	Plate, head bridge	1
Y6201	Cassette holder lock lever	1
Y6220	Arm, Record/Play switch	1
A1531	SPINDLE BASE ASSEMBLY consists of :	
A1680	Supply-reel-gear with spindle ass'y	1
A1670	Take-up-reel-gear with spindle ass'y	1
U4211	Rewind/Fast forward gear (Semi-transparent)	1
U4230	Fast forward Gear (white)	1
U4650	Rewind Gear (black)	1
43023	Nylon Washer (black) 1.7 x 3.2 x 0.25	2
43018	Nylon Washer 1.7 x 3.5 x 0.25	2

Ref. No.	
Q4860	Spring
Q5756	Spring
Q5772	Spring
Q5780	Spring
Q5792	Spring
Q5803	Spring
Q5822	Spring
Q5832	Spring
Q5841	Spring
Q5891	Spring
Q5905	Spring
Q5911	Spring

Ref. No.	
43001	Nylon washer, 1.7 x 3.2 x 0.25
X4111	Nylon washer, 2.4 x 6.0 x 0.50
01153	Screw, 2.6 x 12
04146	Screw, 2.6 x 5
08085	Binding screw, 2.0 x 4
08095	Binding screw, 2.0 x 14
08151	Binding screw, 2.6 x 5
17146	Tap tight pan screw 2.6 x 5
17166	Tap tight pan screw 3.0 x 5
19095	Pan screw, 2.0 x 14SW
19145	Pan screw, 2.6 x 4SW
19146	Pan screw, 2.6 x 5SW
19147	Pan screw, 2.6 x 6SW
19169	Pan screw, 3.0 x 8SW
19173	Pan screw, 3.0 x 12SW

Ref. No.	
Q5921	Spring
Q5941	Spring
Q5951	Spring
Q5964	Record wire connector
Q5760	Spring
Q6051	Spring
Q6060	Spring
Q6091	Spring
Q6100	Spring
Q6110	Spring
Q6340	Spring
Q6540	Spring

Ref. No.	
23030	Screw, 2.0 x 13
23037	Pan screw, 2.6 x 2.5
23039	Pan screw, 2.6 x 6.5
23040	Binding screw, 2.6 x 12
30126	Steel washer 7.5 x 0.5
32003	Plastic washer 8.0 x 0.25
32252	Plastic washer 2.6 x 4.70
36020	Circlip E-2.0
36025	Circlip E-2.5
36030	Circlip E-3.0
36425	C-ring G-2.5
42030	Steel ball M3.0
43004	Nylon lock washer 0.10

MECHANISM EXPLODED VIEW