

# Service Manual

CD Stereo System

## SA-CH64M

**COMPACT**  
**disc**  
**DIGITAL AUDIO**

**MASH\***  
multi-stage noise shaping

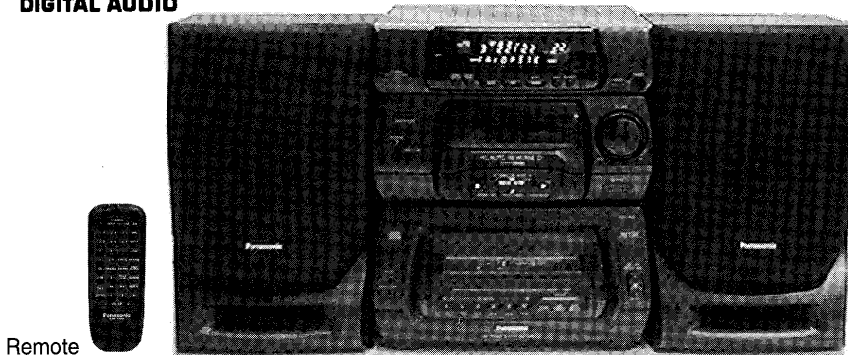
Colour

(K) . . . . . Black Type

Area

Suffix for Model No.	Area	Colour
(P)	U.S.A.	(K)
(PC)	Canada	

\* MASH is a trademark of NTT.



Remote Control Transmitter

SB-CH64

SA-CH6 4M

SB-CH64

**TAPE SECTION : AR-2 MECHANISM SERIES**  
**CD SECTION : RAE0113Z TRAVERSE DECK SERIES**

### Specifications

#### Amplifier Section

Rated minimum sine wave FTC power output	
95 Hz-20 kHz both channels driven	
0.9% total harmonic distortion	2 x 35W (6Ω)
1 kHz continuous power output, both channels driven 1% total harmonic distortion (DIN POWER)	2 x 40W (6Ω)
Total harmonic distortion	
Half power at 1 kHz	0.07% (6Ω)
Input sensitivity	
AUX	250mV (IHF '66)
Input impedance	
AUX	22kΩ
V. Bass (Vol. level at -30dB)	63Hz, +6dB

#### FM Tuner Section

Frequency range	87.9 — 107.9MHz
Sensitivity	23.3dBf (4.0μV, IHF '58)
Total harmonic distortion	
MONO	0.3%
STEREO	0.5%
S/N MONO	65dB
Image rejection at 98.1 MHz	35dB
Stereo separation at 1 kHz	35dB
Antenna terminal(s)	75Ω (unbalanced)

#### CD Section

Sampling frequency	44.1kHz
Decoding	16 bit linear
Beam source / wave length	Semiconductor laser / 780 nm
Number of channels	Stereo
S/N ratio	
CD UNIT OUT	95 dB (JIS.A)
SP OUT	85 dB (JIS.A)
Wow and flutter	Below measurable limit
Digital filter	8 fs
D/A converter	MASH (1 bit DAC)

System	Music Center	Speaker
SC-CH64M (P)	SA-CH64M (P)	SB-CH64 (P)
SC-CH64M (PC)	SA-CH64M (PC)	

#### AM Tuner Section

Frequency range	520 — 1710kHz
Sensitivity (S/N 20 dB)	500μV/m
Image rejection at 1000 kHz	40dB

#### Cassette Deck Section

Track system	4 track, 2 channels
Heads	
Record/playback	Permalloy head
Erasure	Double gap ferrite head
Motor	DC servo motor
Recording system	AC bias 100 kHz
Erasing system	AC erase
Tape speed	4.8cm/sec. (17 <sup>7</sup> / <sub>8</sub> ips)
Frequency response (EIAJ) at PHONES OUT	
NORMAL	35Hz — 14kHz
S/N ratio	50dB (A weighted)
Wow and flutter	0.18% (WRMS)
Fast forward and rewind time	Approx. 120 seconds with C-60 cassette tape

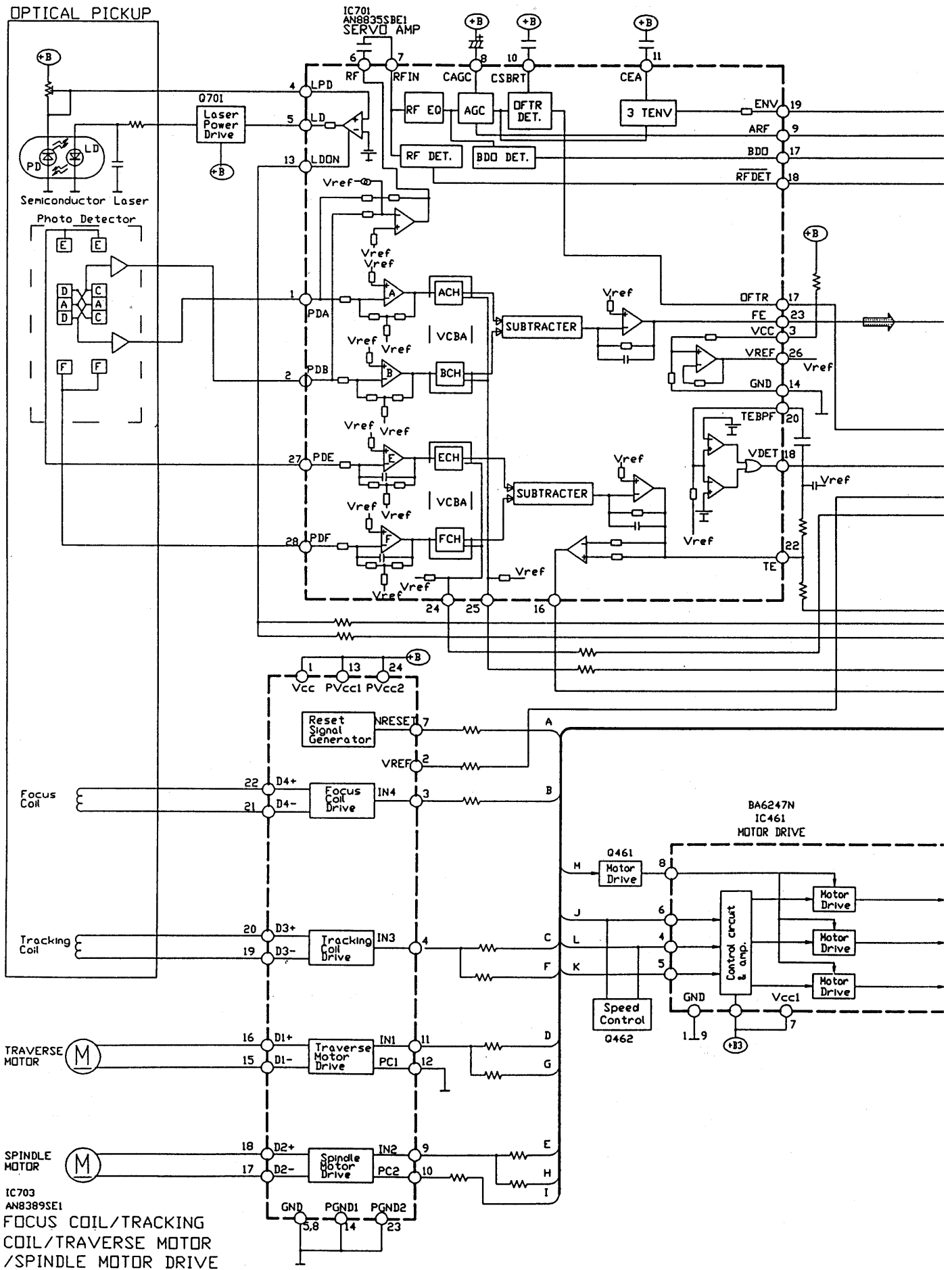
#### General

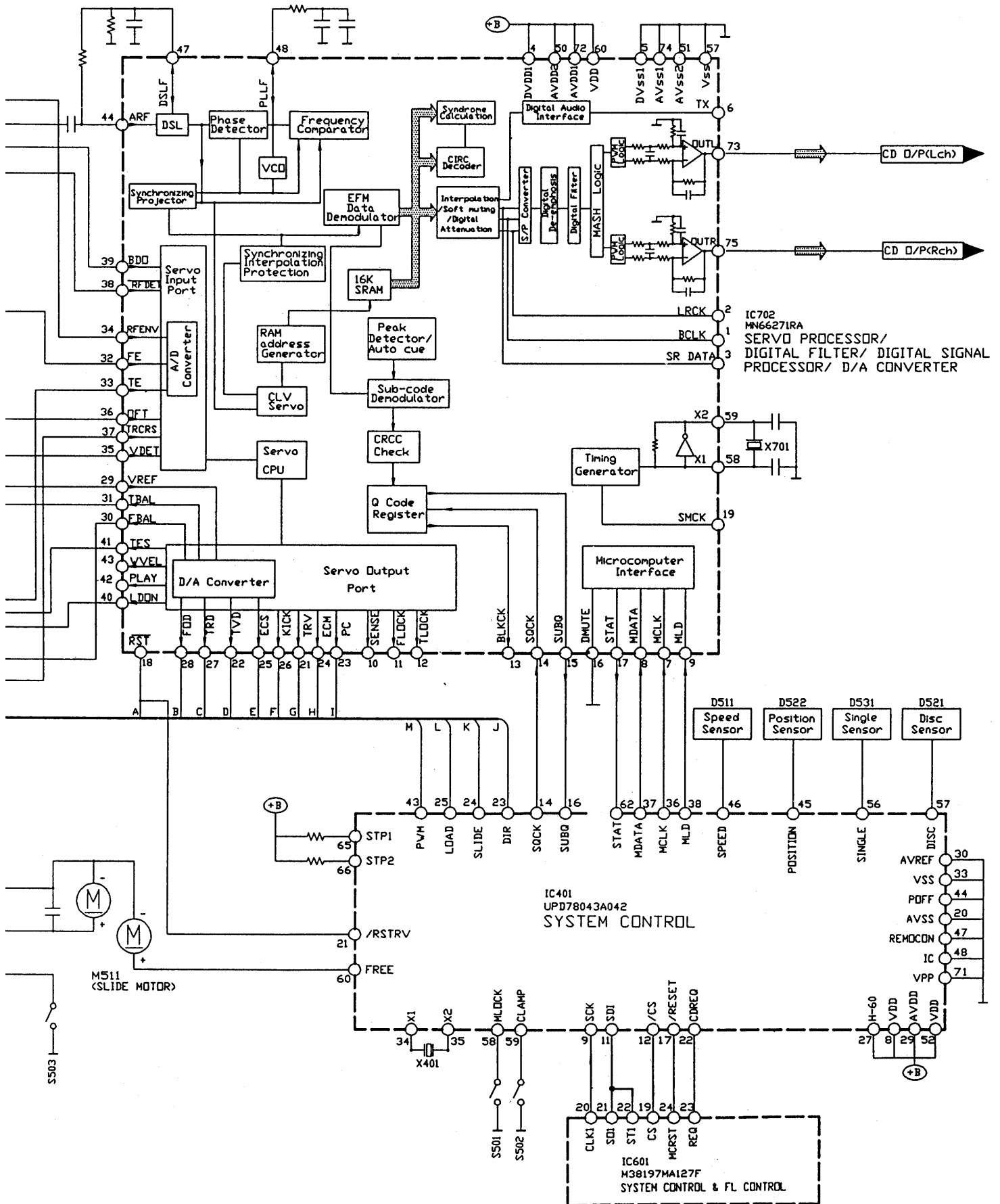
Power consumption	120W
	10W (Power standby)
Power supply	AC 120V, 60Hz
Dimensions (W x H x D)	270 x 347 x 424mm
	(10 <sup>5</sup> / <sub>8</sub> " x 13 <sup>21</sup> / <sub>32</sub> " x 16 <sup>11</sup> / <sub>16</sub> " )
Weight	10.3kg (22.7lb.)

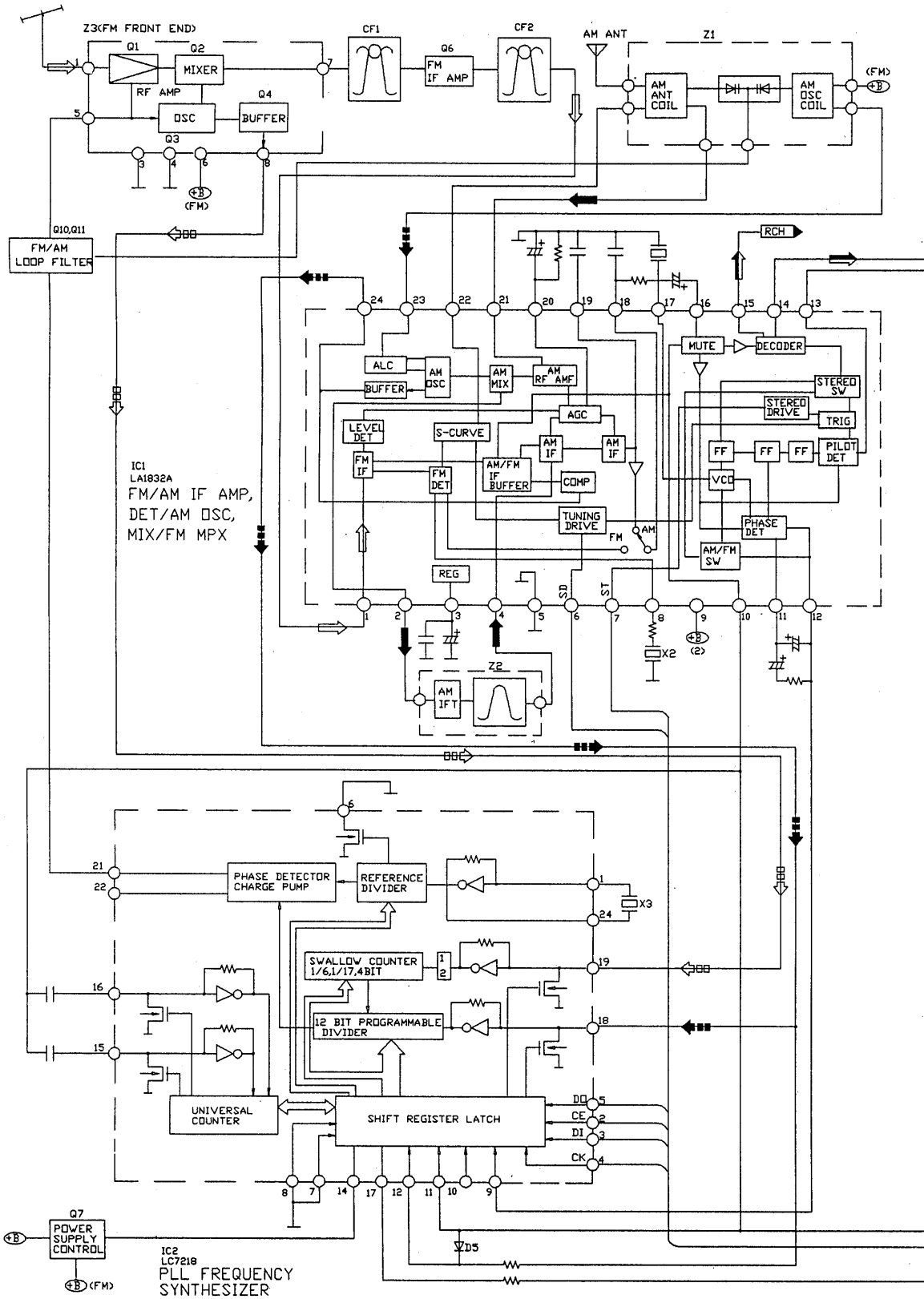
#### Notes :

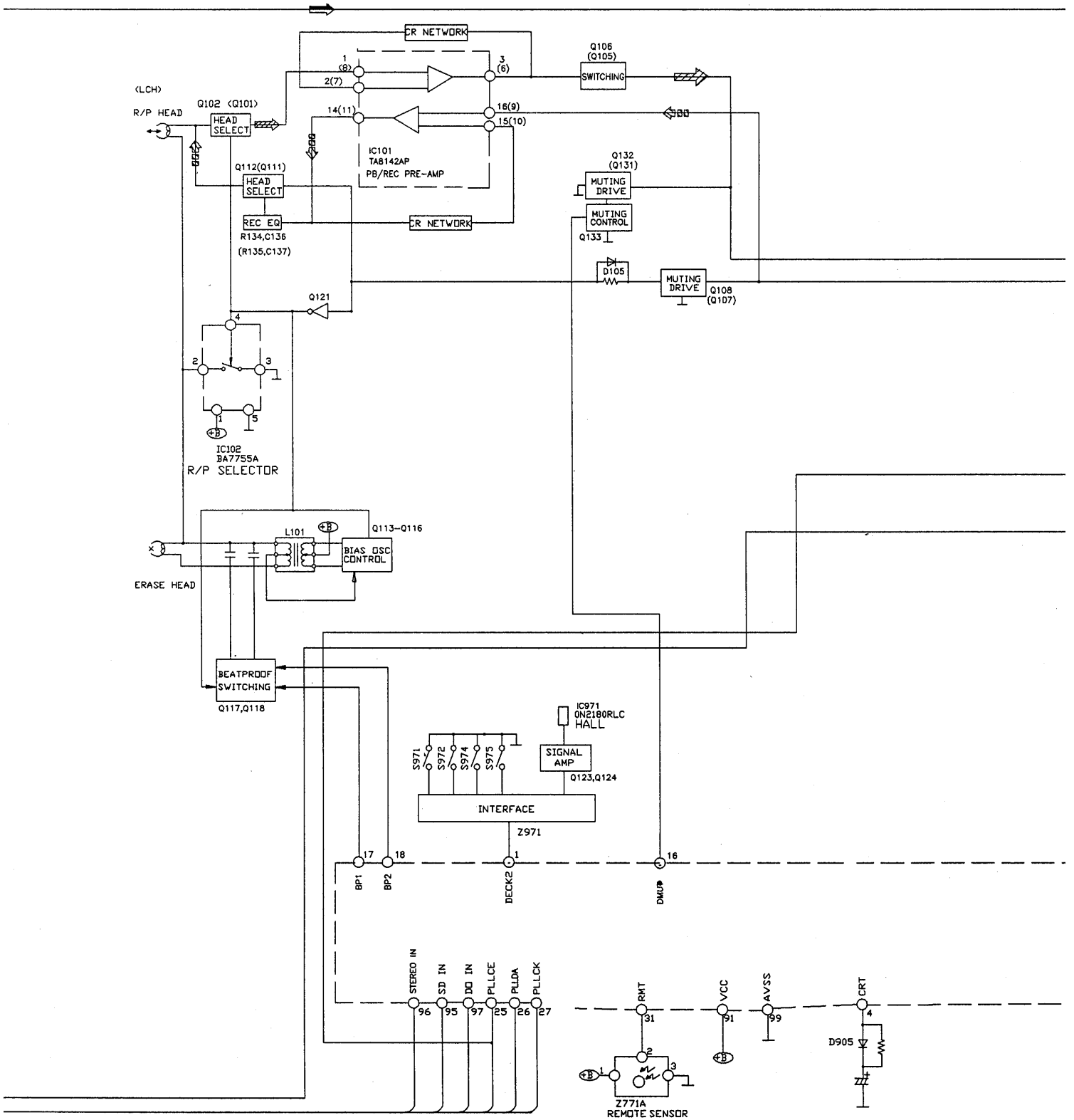
- Specifications are subject to change without notice. Weight and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer.

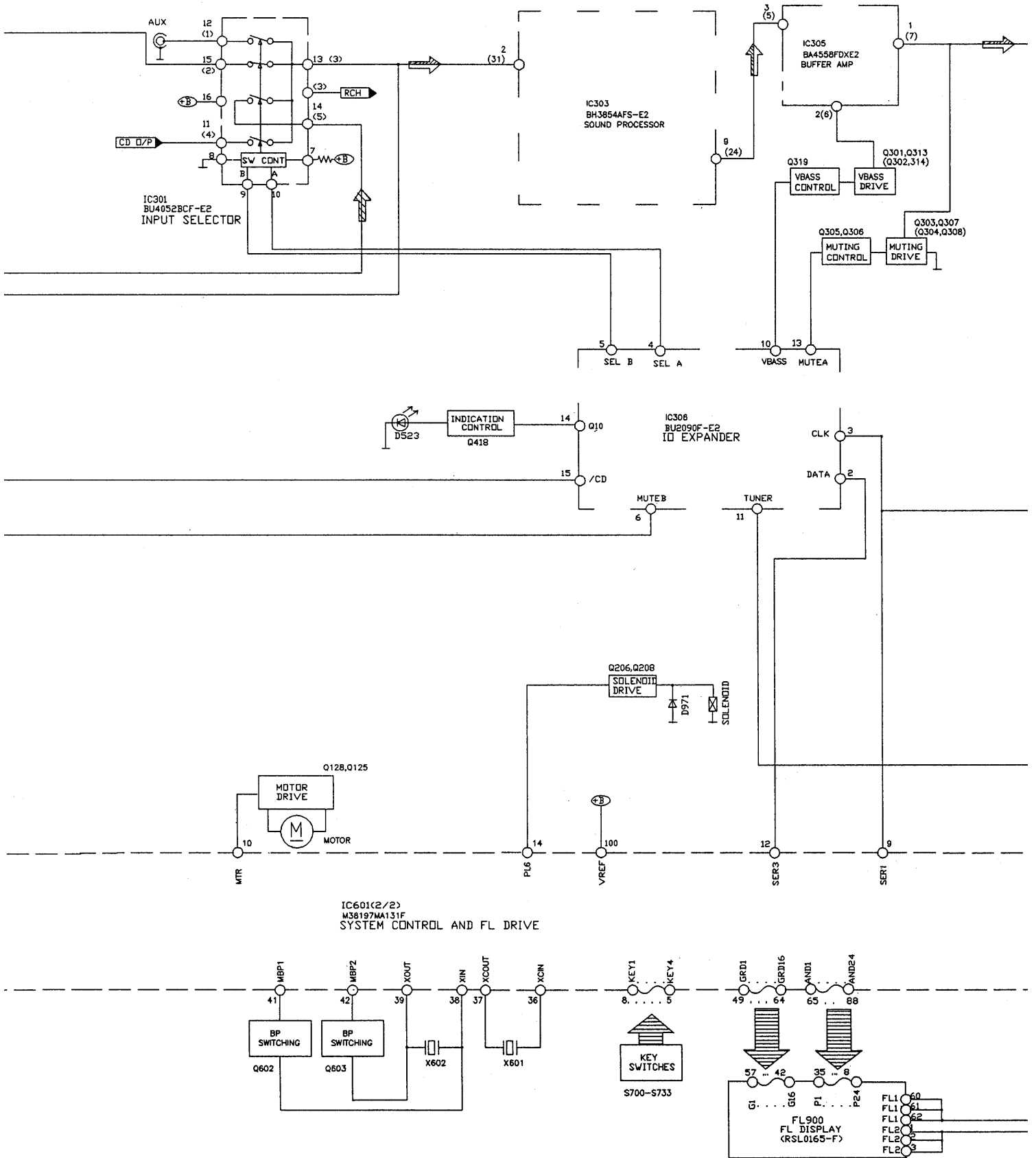
Block Diagram

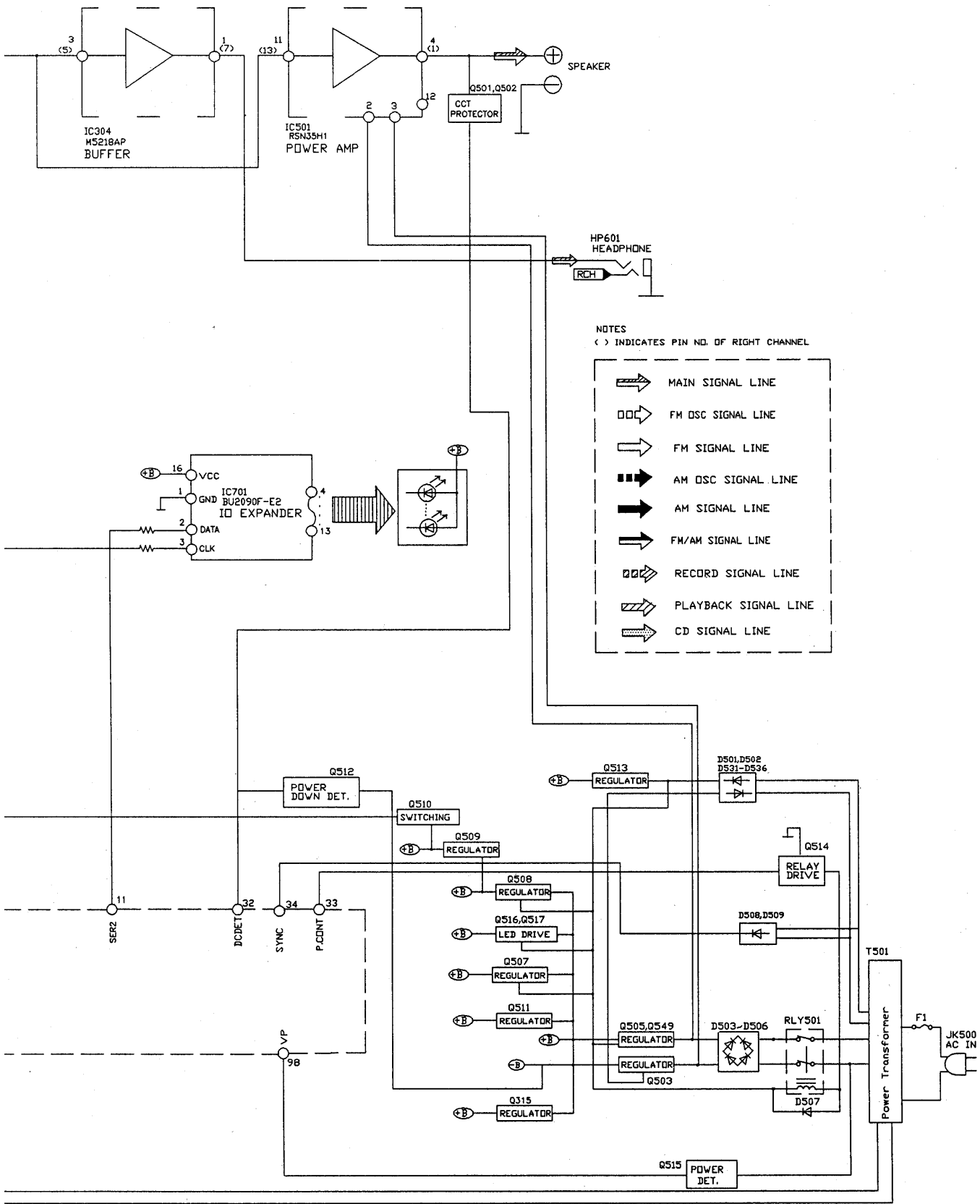




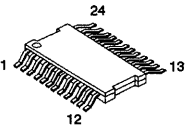
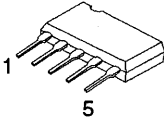
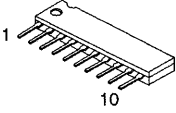
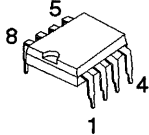

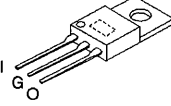
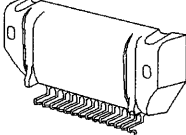
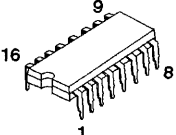
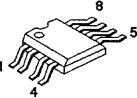
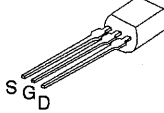
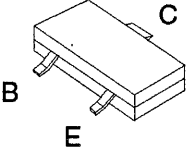
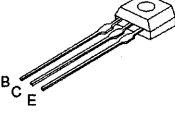
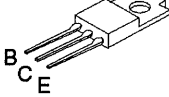
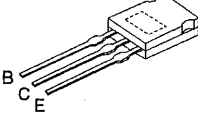

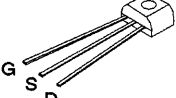
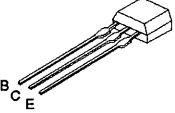
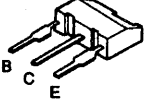
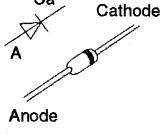
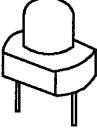
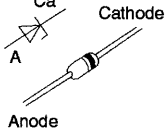
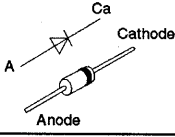
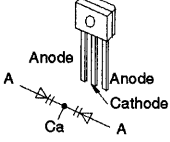
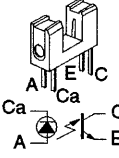
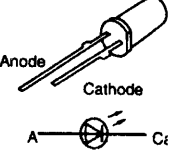
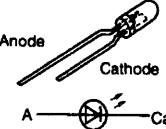
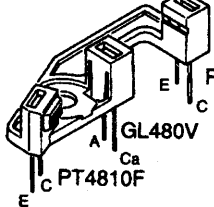






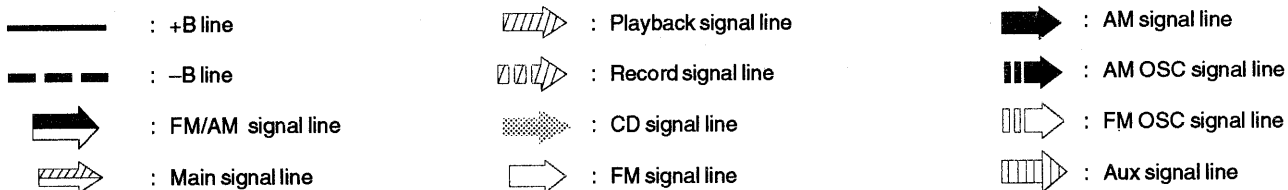


## Terminal Guide of ICs, Transistors and Diodes

<p>AN8389SE1</p> 	<p>AN8835SBE1 (28P) BU2090F-E2 (16P) BU4052BCF-E2 (16P) LA1832A (24P) LC7218 (24P) BH3854AFS-E2 (32P)</p>		<p>BA7755A</p> 	<p>M38197MA131F(100P) MN662741RPA (80P) UPD78043A042 (80P)</p>	
<p>BA6247N</p> 	<p>M5218AP</p> 	<p>0N2180RLC</p> 	<p>AN78M05</p> 	<p>RSN35H1</p> 	<p>TA8142AP</p> 
<p>BA4558FDXE2</p> 	<p>2SB621RTA 2SB621ARTA 2SC2001KTA 2SA1534AQRTA</p>		<p>2SK301QTA</p> 	<p>2SD1302STA 2SJ40CDTA</p> <p>2SB709S</p> 	
	<p>2SC2785FETA 2SC2786MTA 2SD1020HTA 2SC2785FTA 2SC2787FL1TA 2SC2787LTA BN1L3NTA</p>	<p>2SB1185E 2SD1762E</p> 	<p>2SD2037ETA</p> 	<p>2SC2784FTA BA1L4ZTA BA1F4MTA 2SC3311AIQST</p>  <p>2SK544F-AC</p> 	
	<p>RVTDTA143XST RVTDTC143TST 2SA933SSTA RVTDTA114EST</p> <p>RVDTDC114TST RVTDTC124EST RVTDTA124EST RVDTDC114EST</p>		<p>2SB1320AQRTA</p> 	<p>RVD1SS133TA 1SS291TA MA165TA 1SS254TA MA167TA MA4330LTA</p> 	
	<p>LN301MPUJAD SLR-325MC SLR-325VC</p>	<p>MTZJ12BTA MTZJ13ATA MTZJ15CTA MTZJ5R6CTA MTZJ6R8ATA MTZJ6R8BTA MTZJ5R1BTA</p> 		<p>MTZJ5R6BTA MTZJ10BTA MTZJ3R6BTA MTZJ5R1CTA MTZJ7R5CTA MTZJ9R1CTA</p> <p>1N5402BM21 1D3E</p> 	
<p>SVC211SPA-AL</p> 	<p>RSQGP1S53V</p> 	<p>LN66S</p> 	<p>BR3433S</p> 	<p>PT480F GL480V PT4810F</p> 	




• Signal line



•The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.  
Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

No mark : Playback << >>.....Tape Recording (( )): CD ( )..... AM < > ..... FM

•Importance safety notice:

Components identified by  mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Caution !

- IC, LSI and VLSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminium foil.
- Ground the soldering iron.

- Do not touch the pins of IC, LSI or VLSI with fingers directly.
- Put a conductive mat on the work table.

ADDITIONAL FUSE CAUTION


Caution : Replace fusible resistor with the same type  
**R598, R599**  
**RSFMB40KT-L**  
fusible resistor


CAUTION : FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE **F1 2.5A 125V FUSE**.



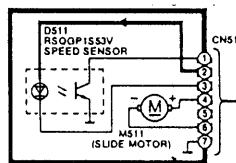
RISK OF FIRE-REPLACE FUSE AS MARKED.

FUSE CAUTION

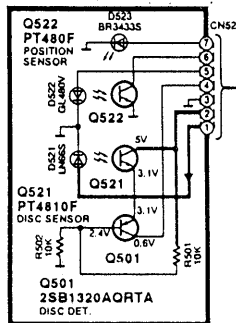
 These symbols located near the fuse indicates that the fuse used is a fast operating type. For continued protection against fire hazard, replace with the same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

 Ce symbole indique que le fusible utilisé est à rapide. Pour une protection permanente, n' utiliser que des fusibles de même type. Ce dernier est indiqué là où le présent symbole est apposé.

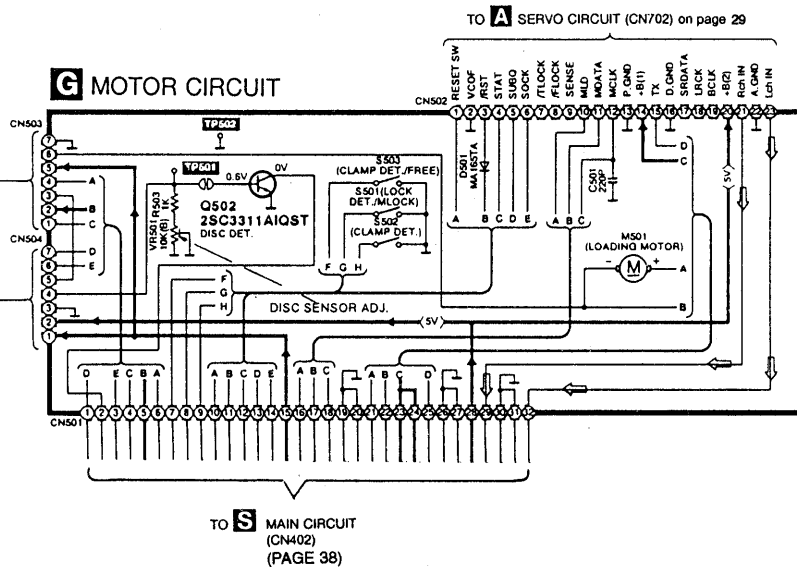
C SLIDE MOTOR CIRCUIT



D PHOTO TR.(1) CIRCUIT

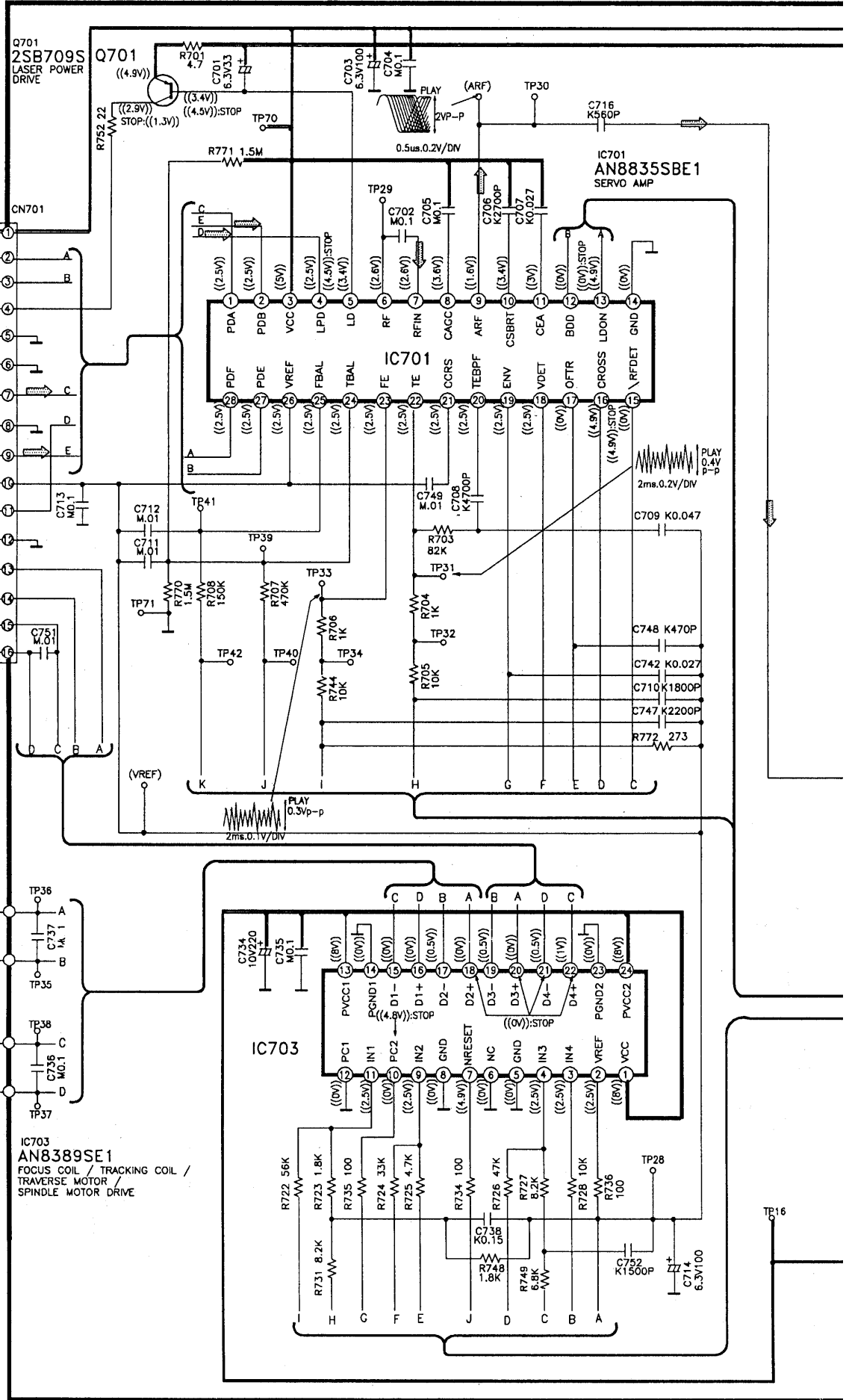
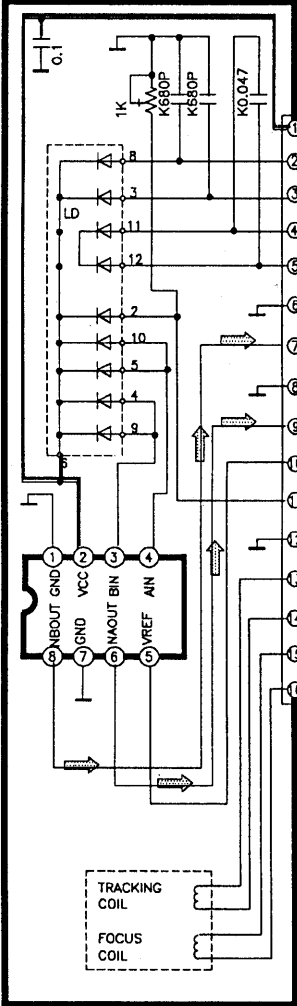


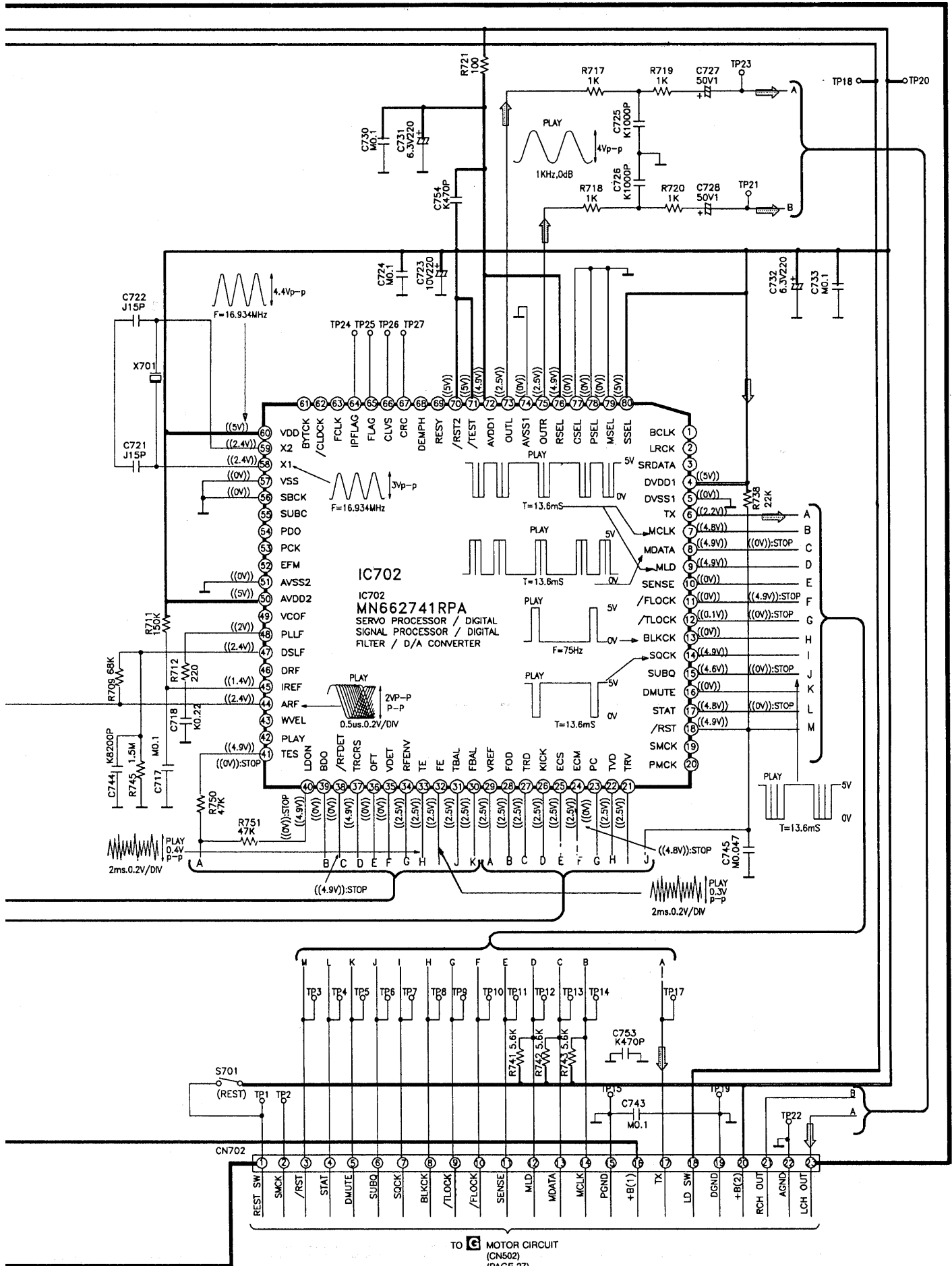
G MOTOR CIRCUIT



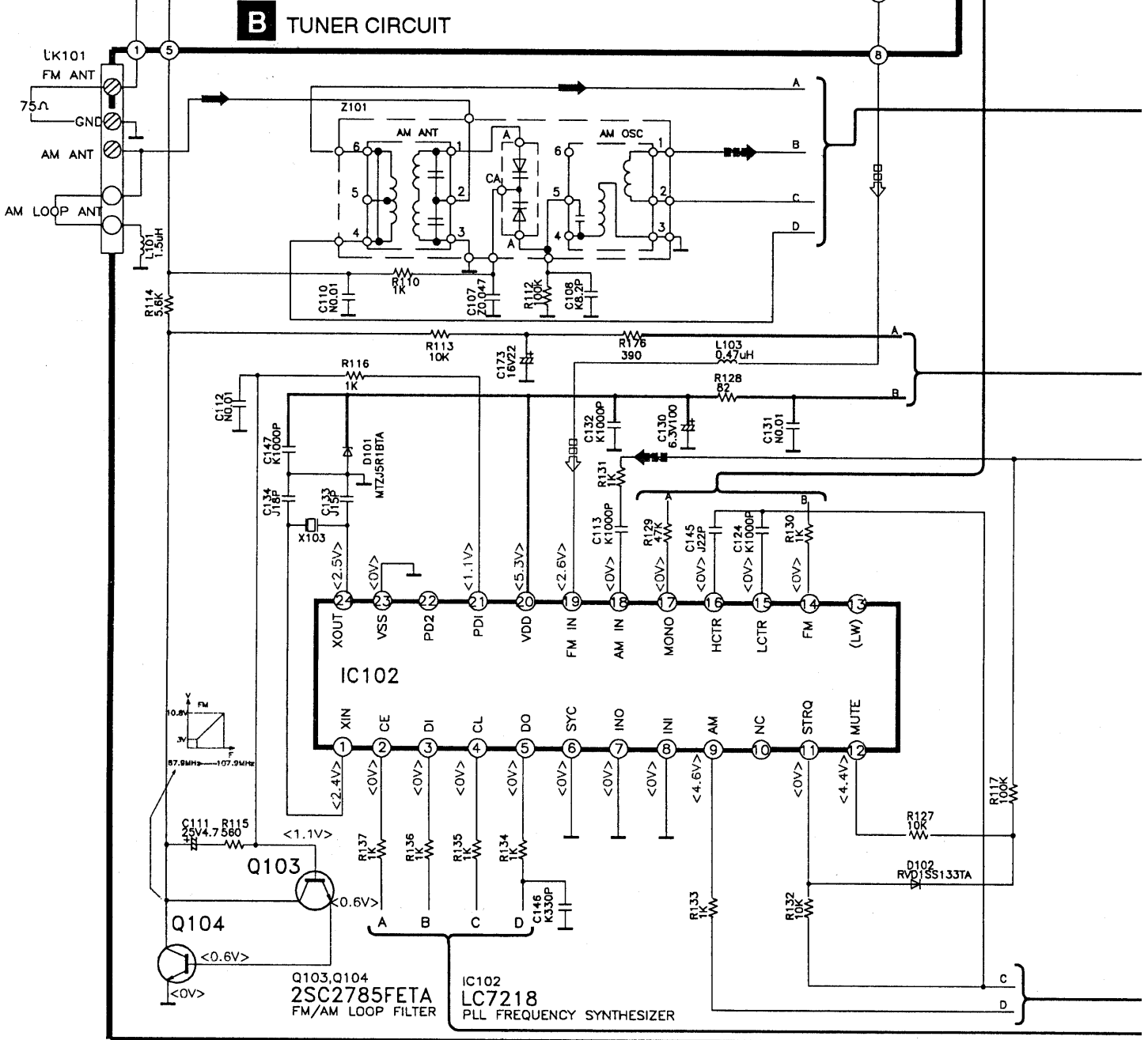
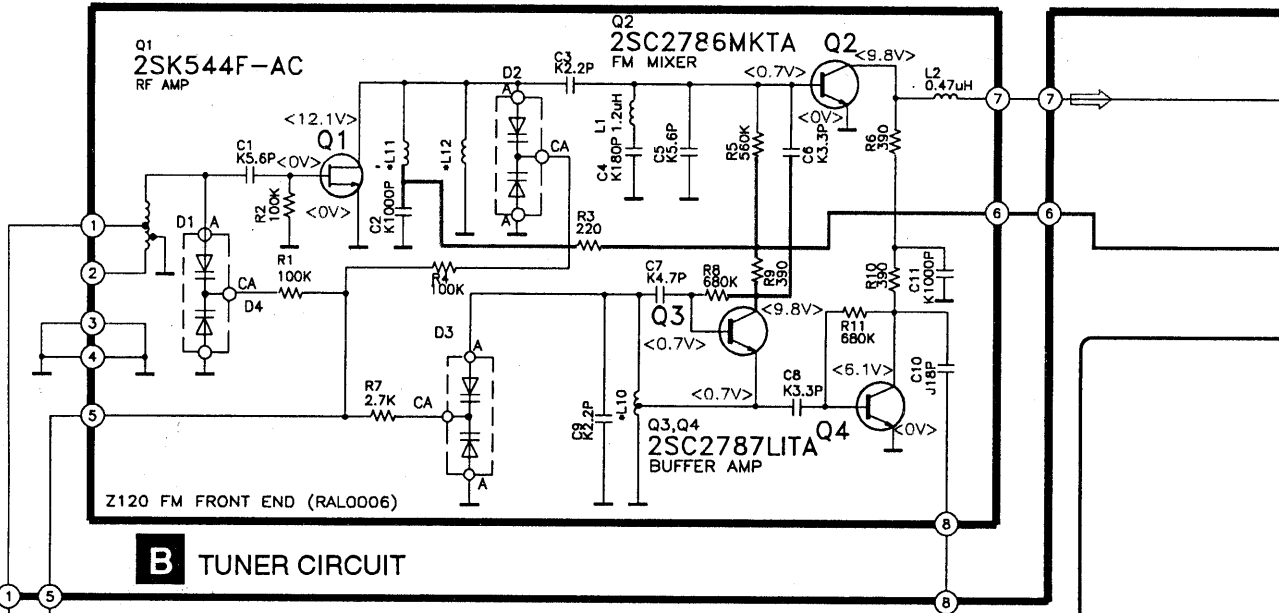
**A** SERVO CIRCUIT

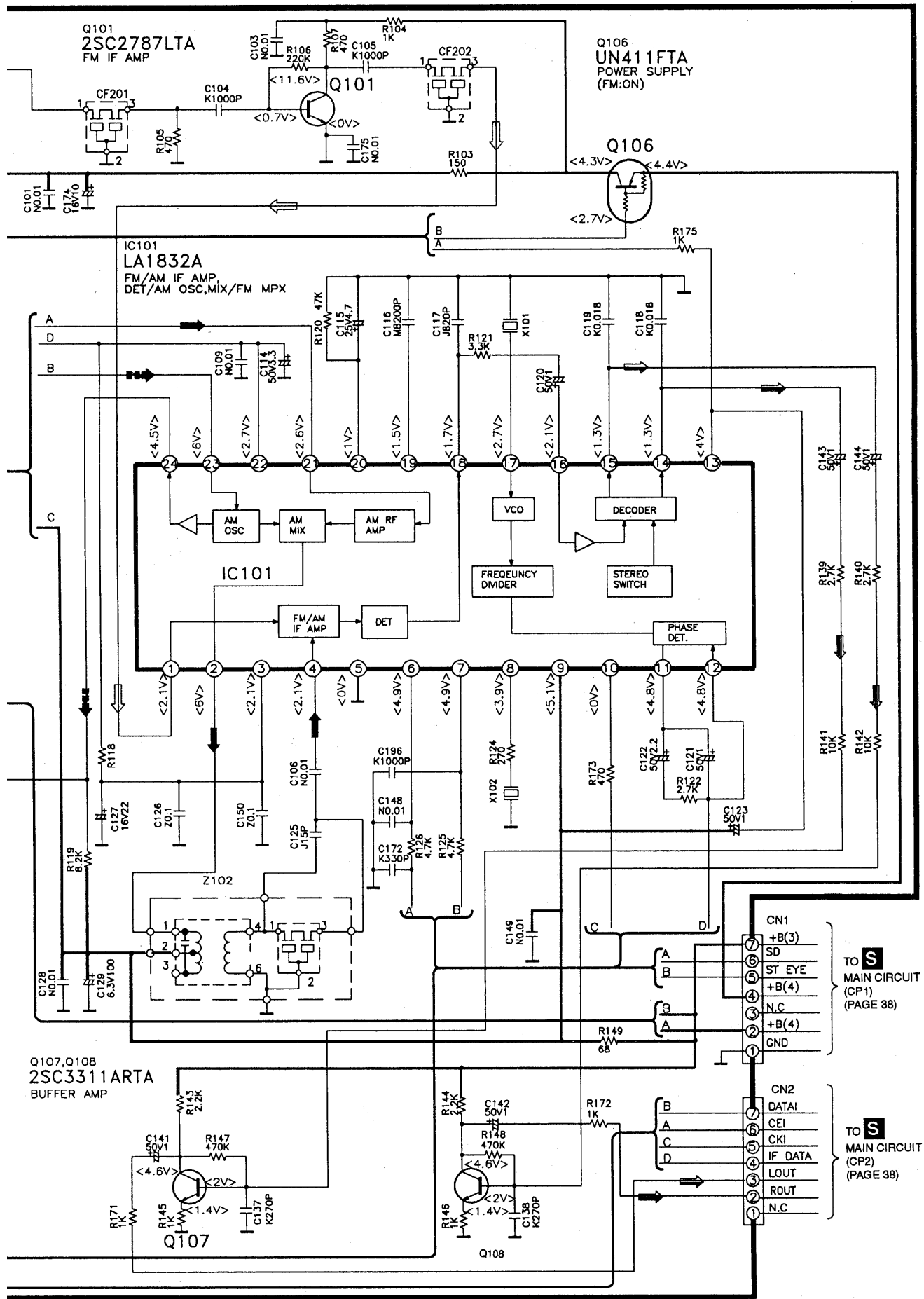
OPTICAL PICKUP



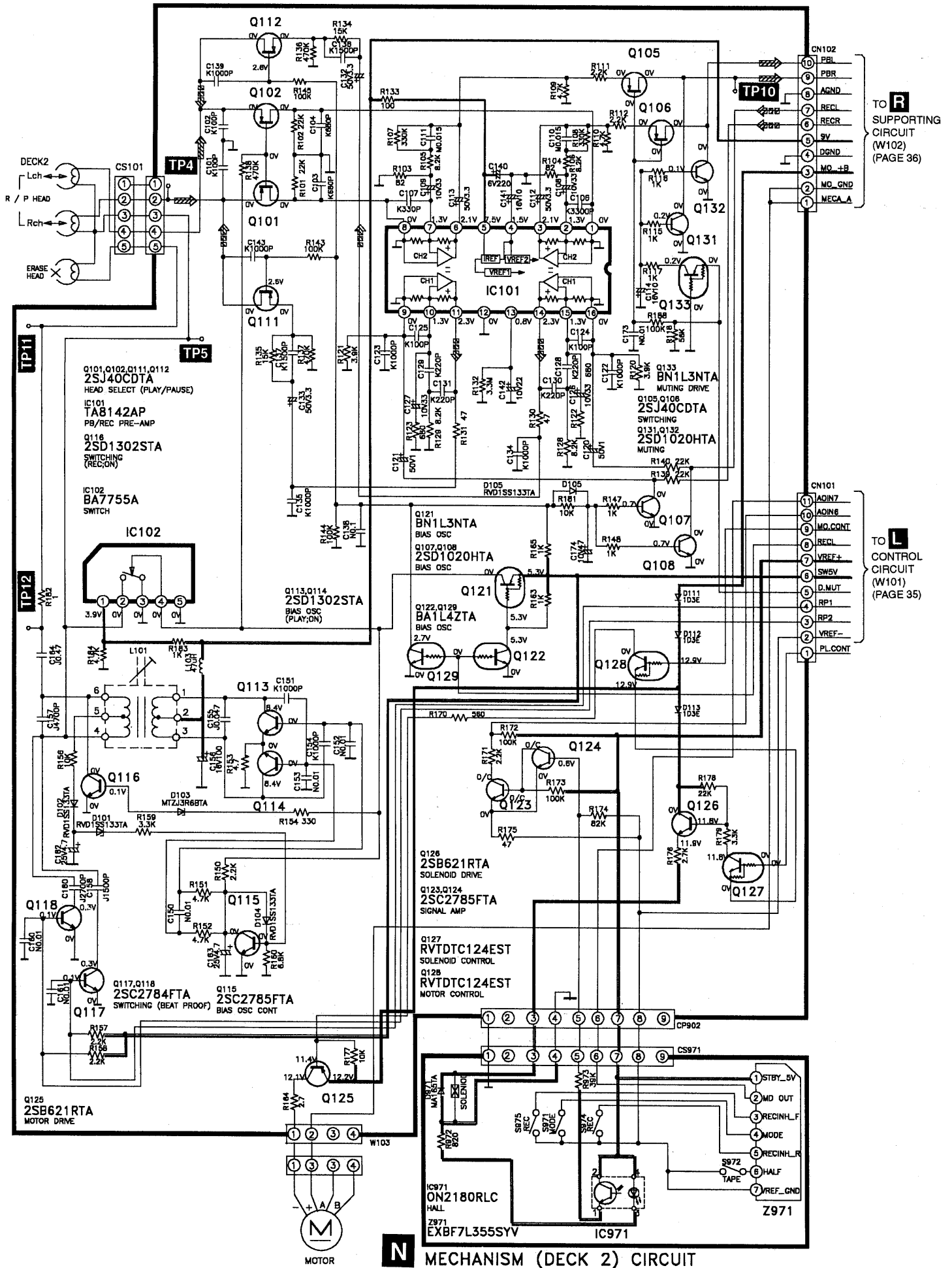


**T** TUNER PACK CIRCUIT

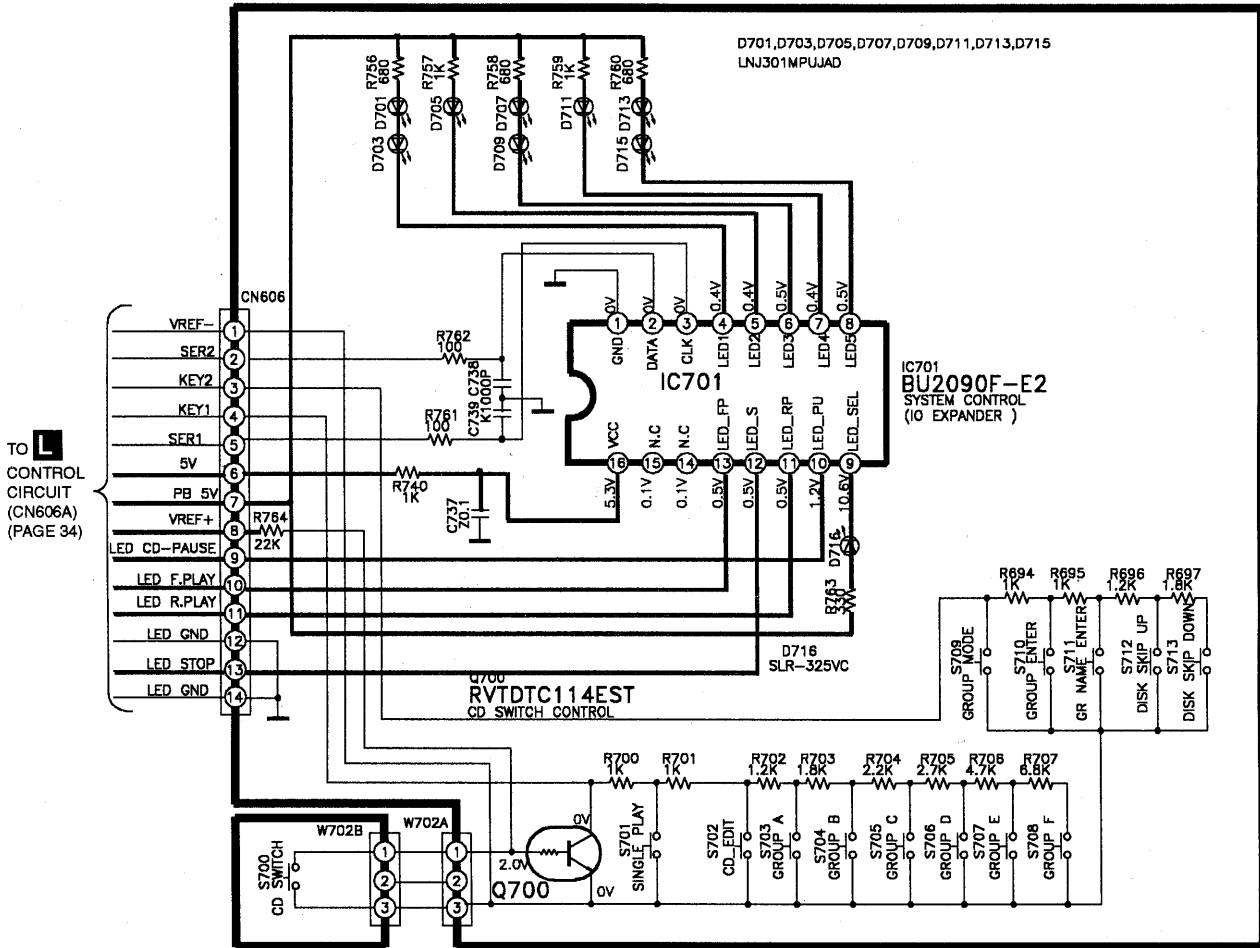




**O** DECK CIRCUIT



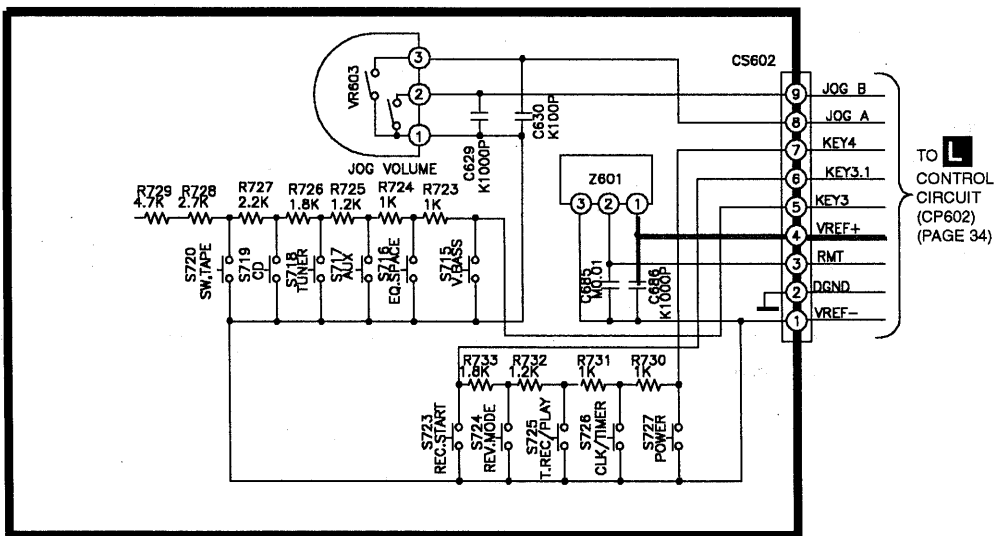
**F** OPERATION (1) CIRCUIT



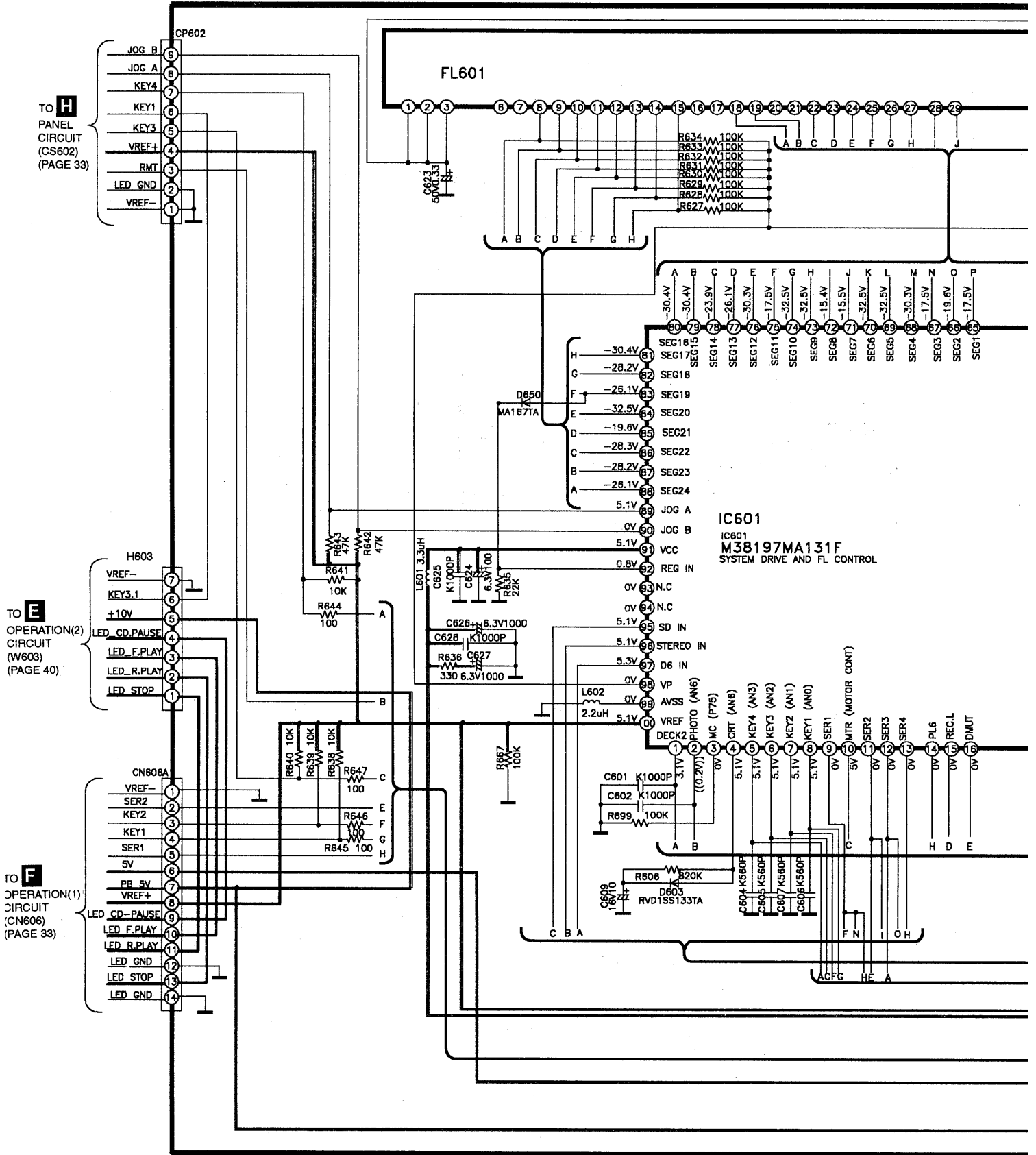
TO **L**  
CONTROL  
CIRCUIT  
(CN606A)  
(PAGE 34)

**Q** CD SWITCH  
CIRCUIT

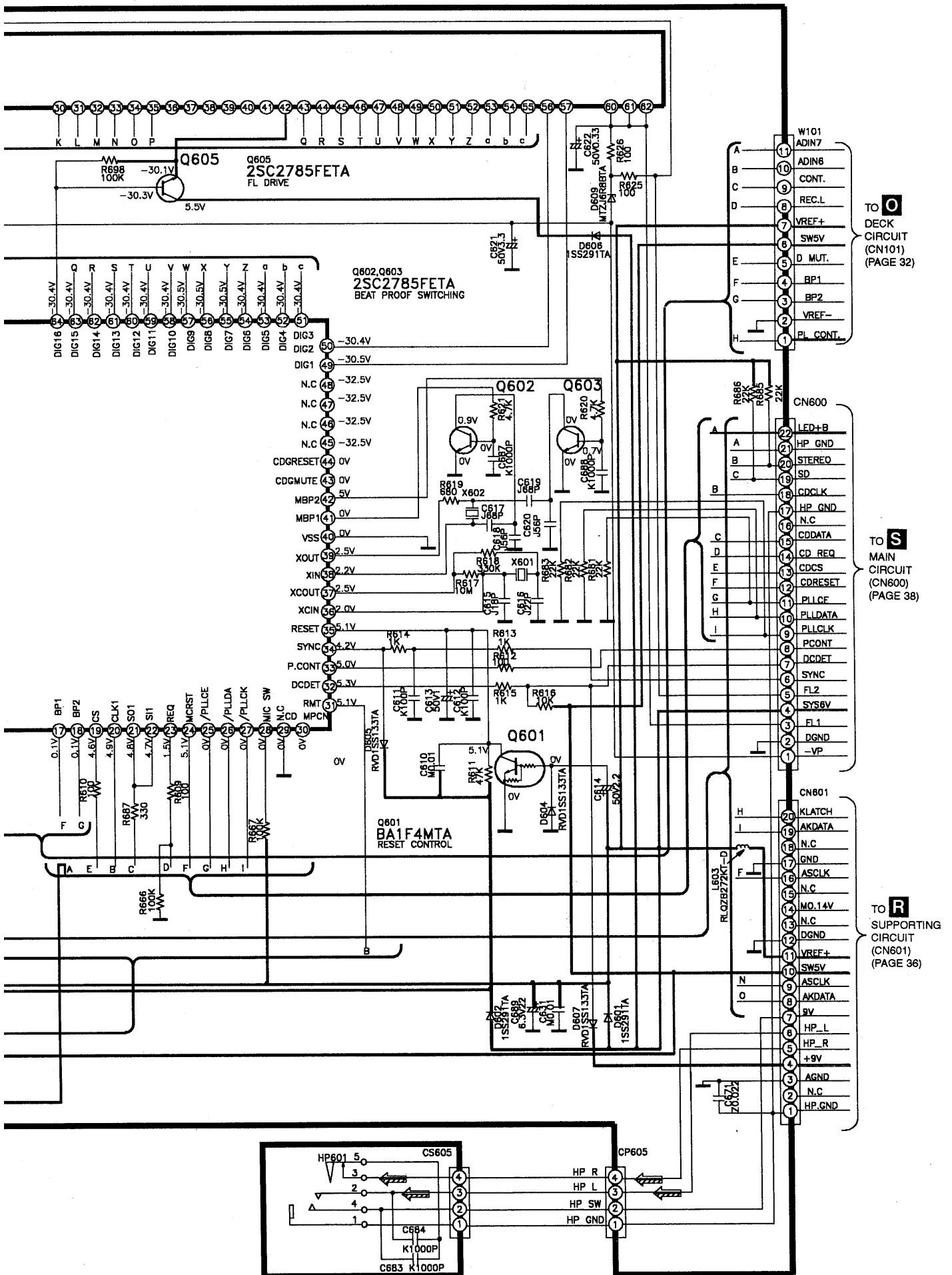
**H** PANEL CIRCUIT



TO **L**  
CONTROL  
CIRCUIT  
(CP602)  
(PAGE 34)





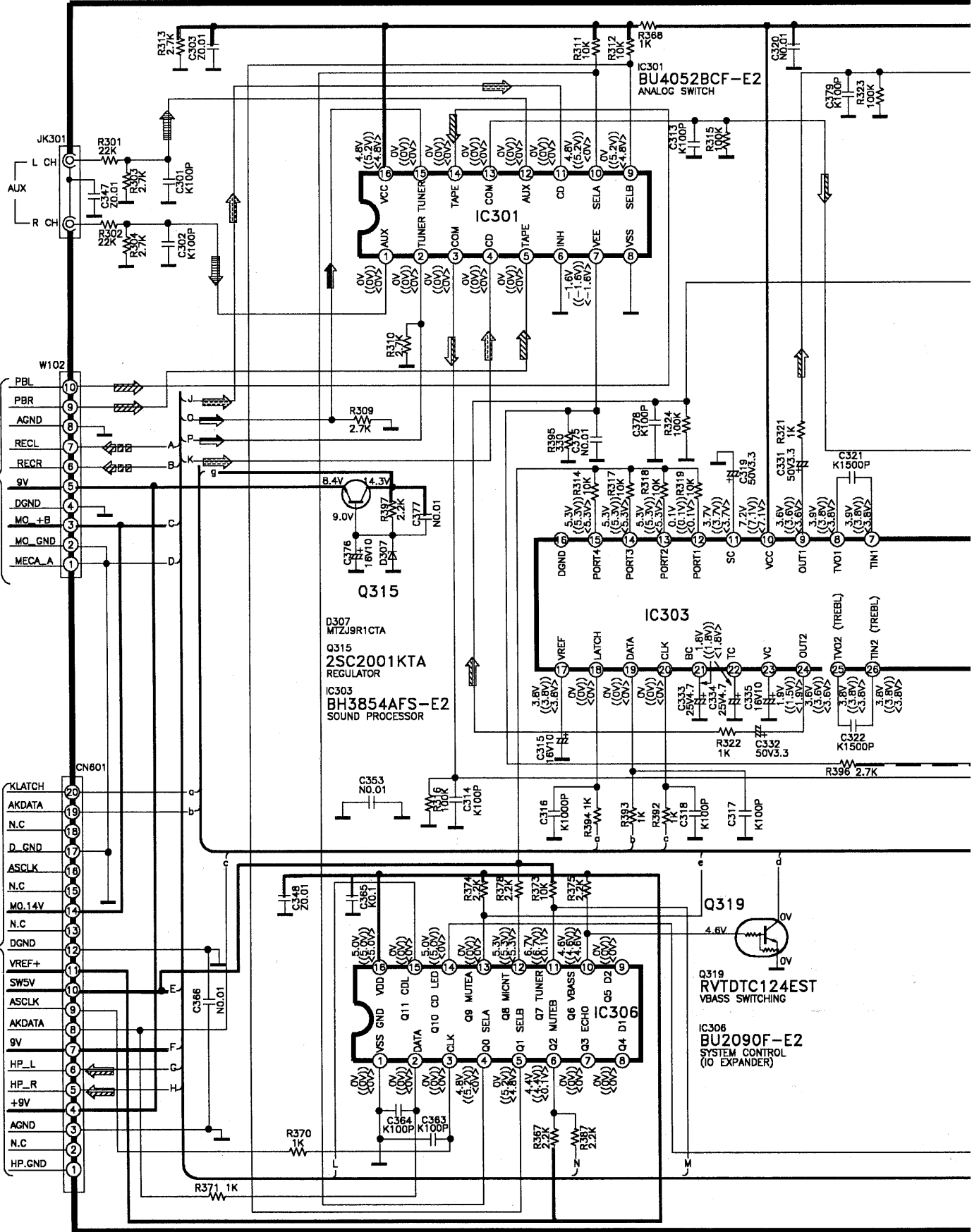


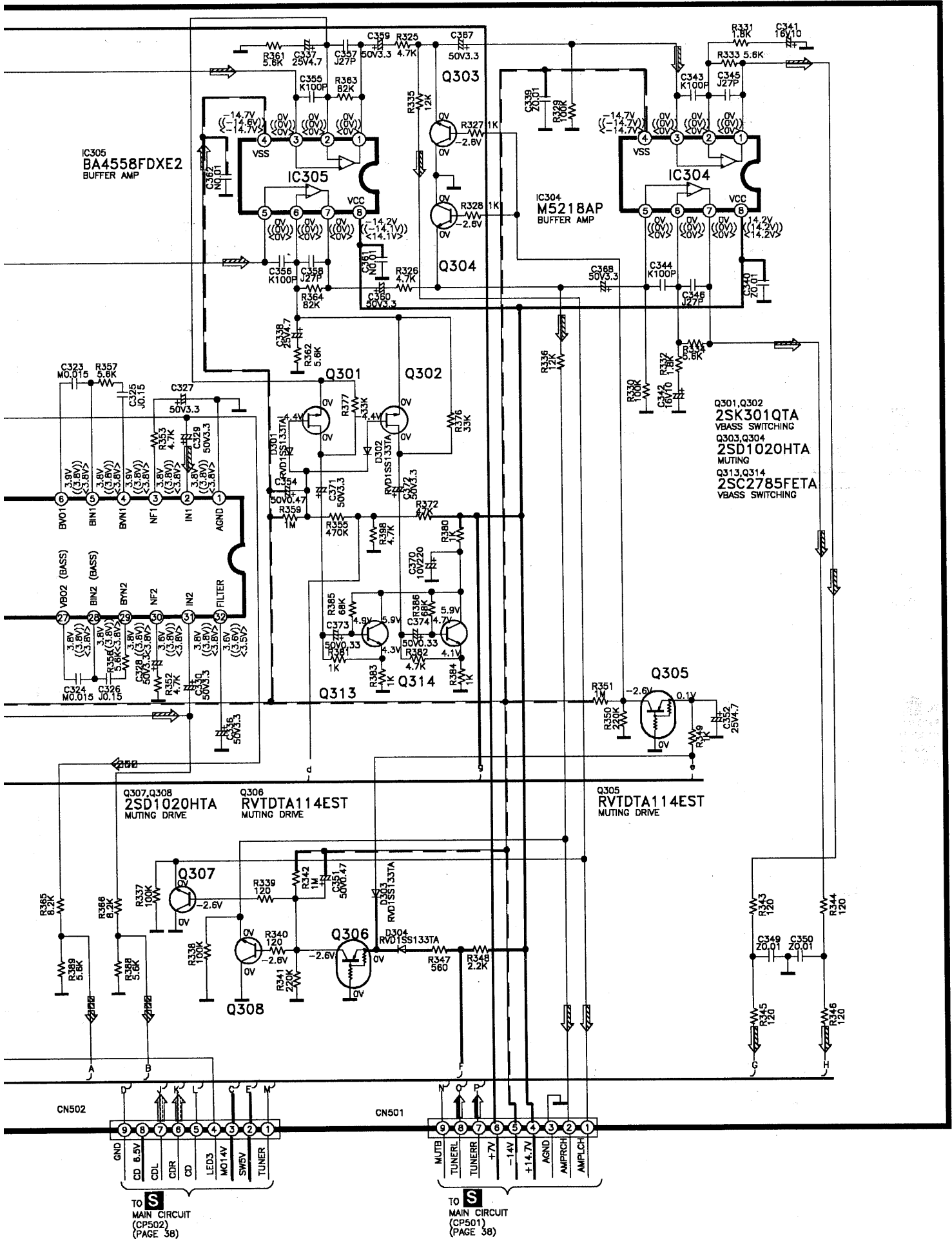
**K HEADPHONE CIRCUIT**

**R** SUPPORTING CIRCUIT

TO DECK CIRCUIT (CN102) (PAGE 32)

TO CONTROL CIRCUIT (CN601) (PAGE 35)





**S** MAIN CIRCUIT

TO **R**  
SUPPORTING  
CIRCUIT  
(CN501)  
(PAGE 37)

TO **R**  
SUPPORTING  
CIRCUIT  
(CN502)  
(PAGE 37)

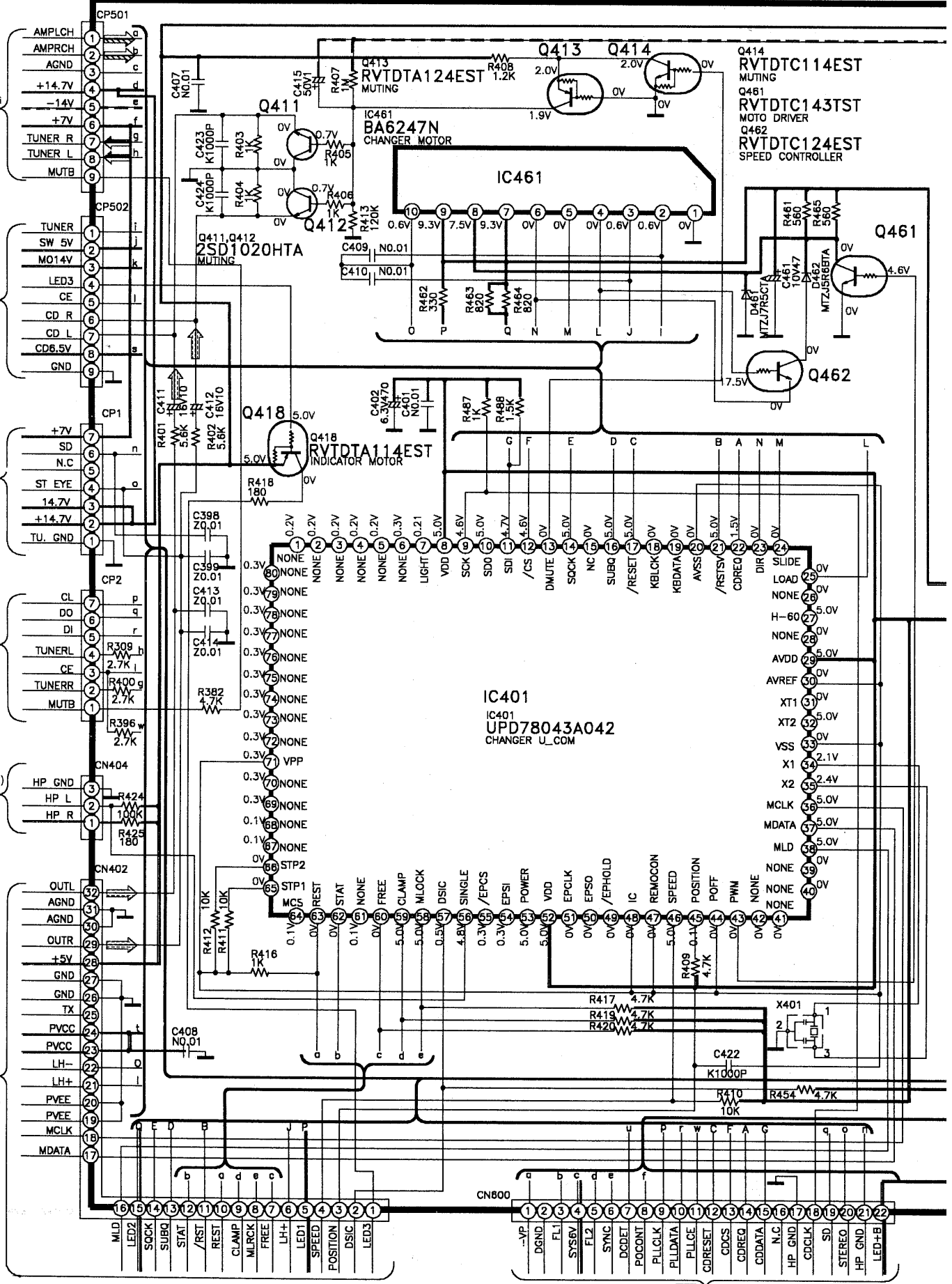
TO **B**  
TUNER  
CIRCUIT  
(CN1)  
(PAGE 31)

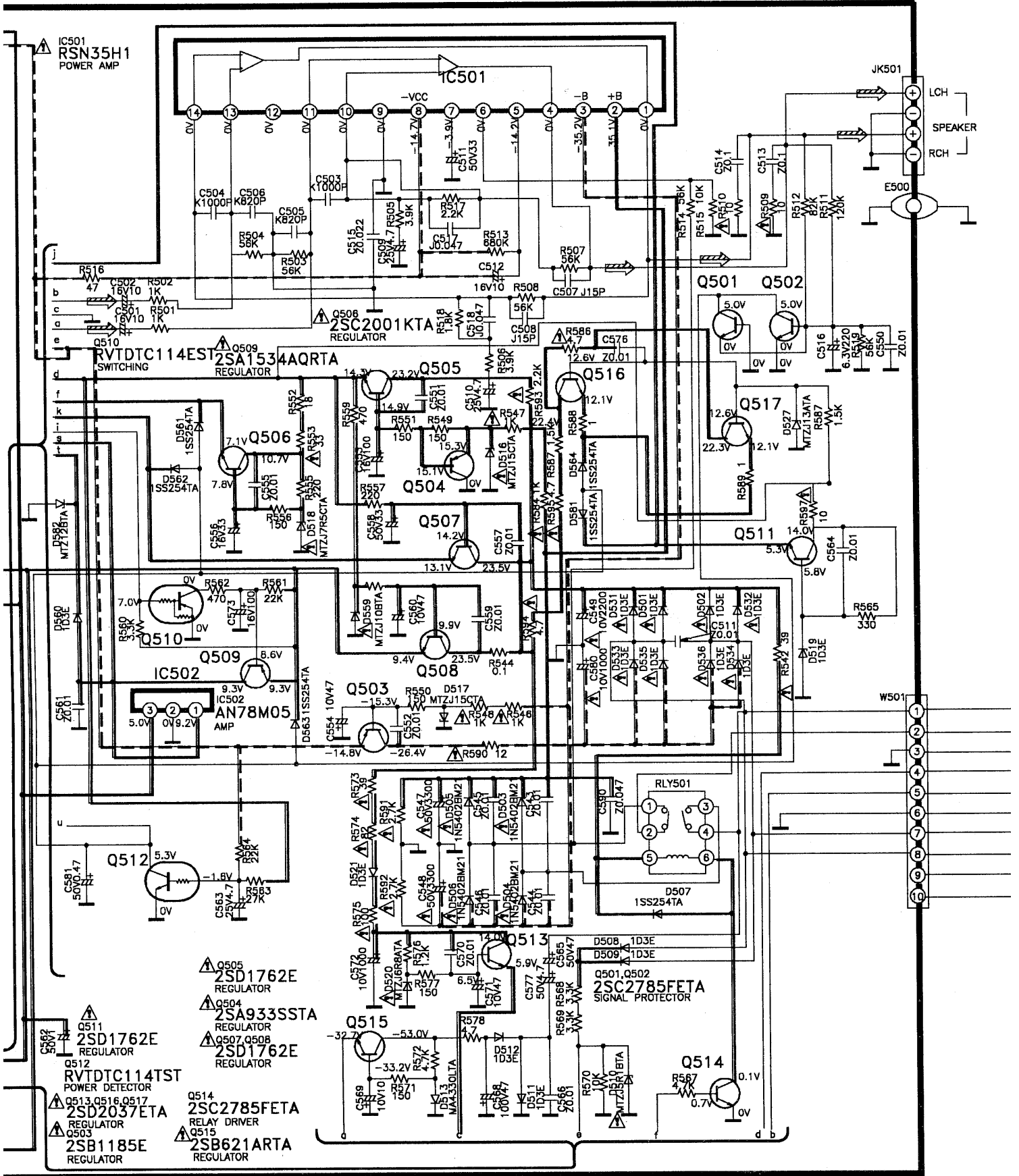
TO **B**  
TUNER  
CIRCUIT  
(CN2)  
(PAGE 31)

TO **I**  
PHOTO TR(2)  
CIRCUIT  
(CN531)  
(PAGE 40)

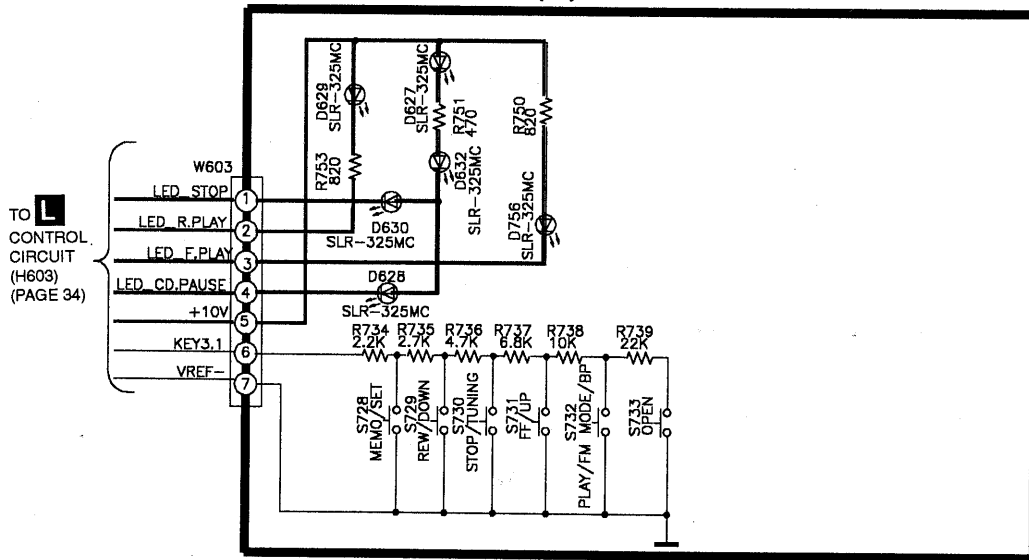
TO **G**  
MOTOR  
CIRCUIT  
(CN501)  
(PAGE 27)

TO **L**  
CONTROL  
CIRCUIT  
(CN600)  
(PAGE 35)

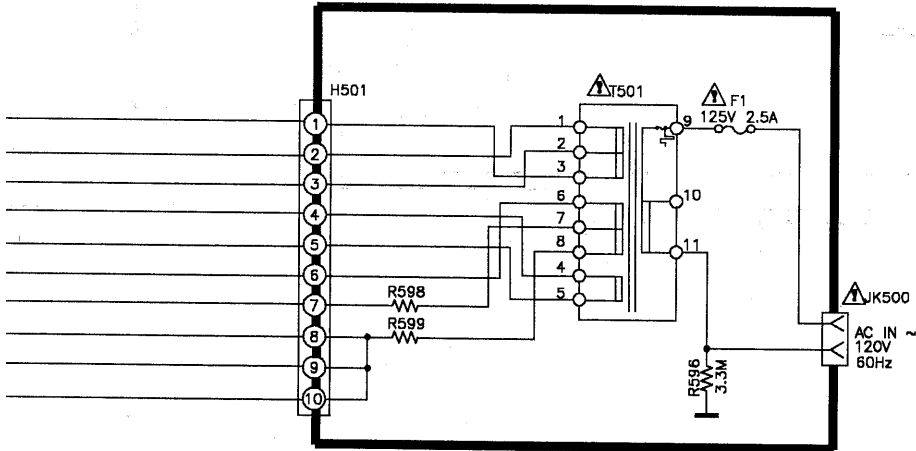




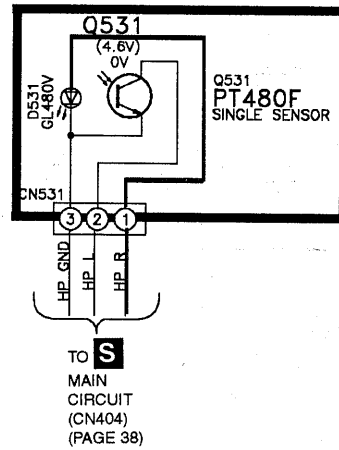
**E** OPERATION (2) CIRCUIT



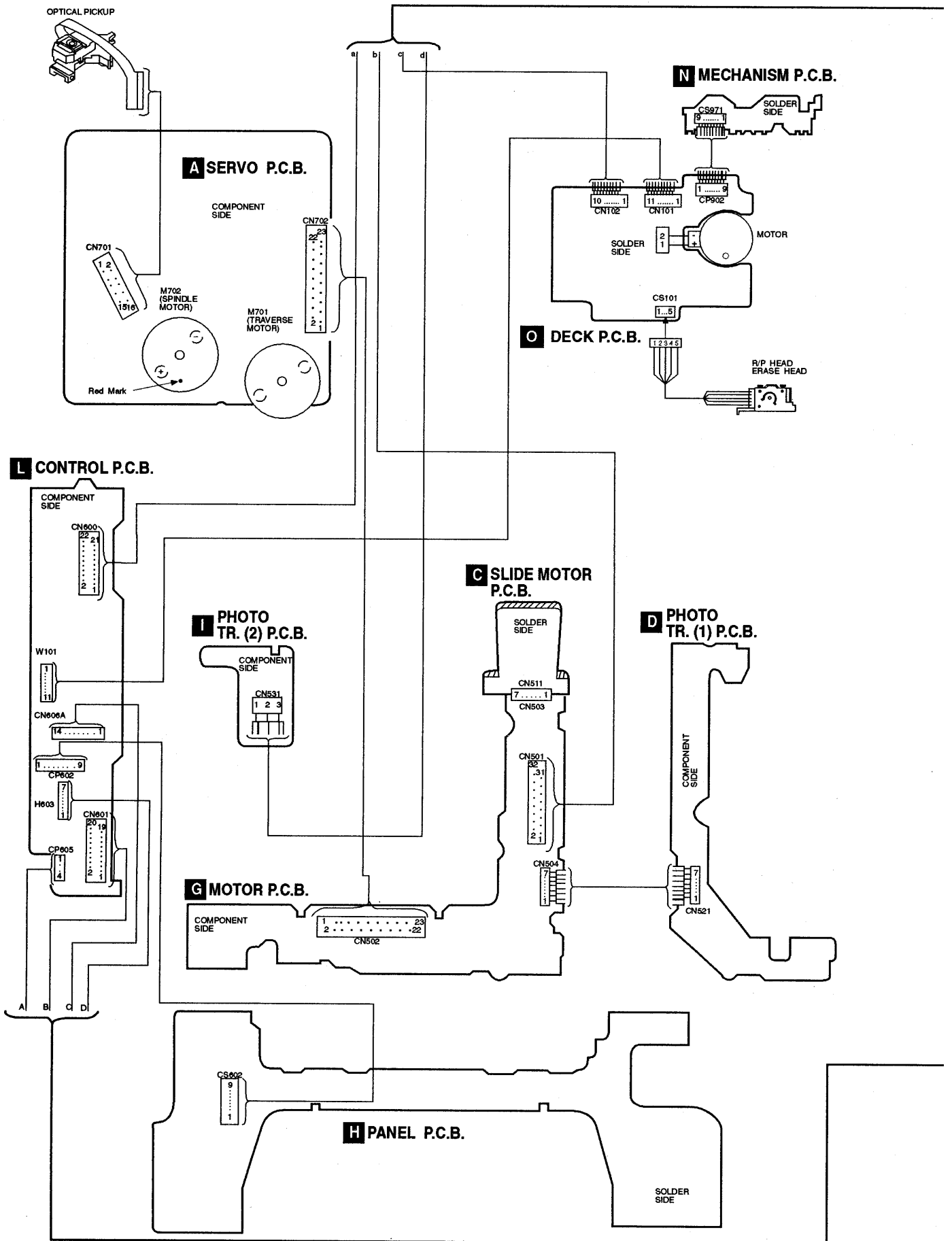
**J** POWER CIRCUIT

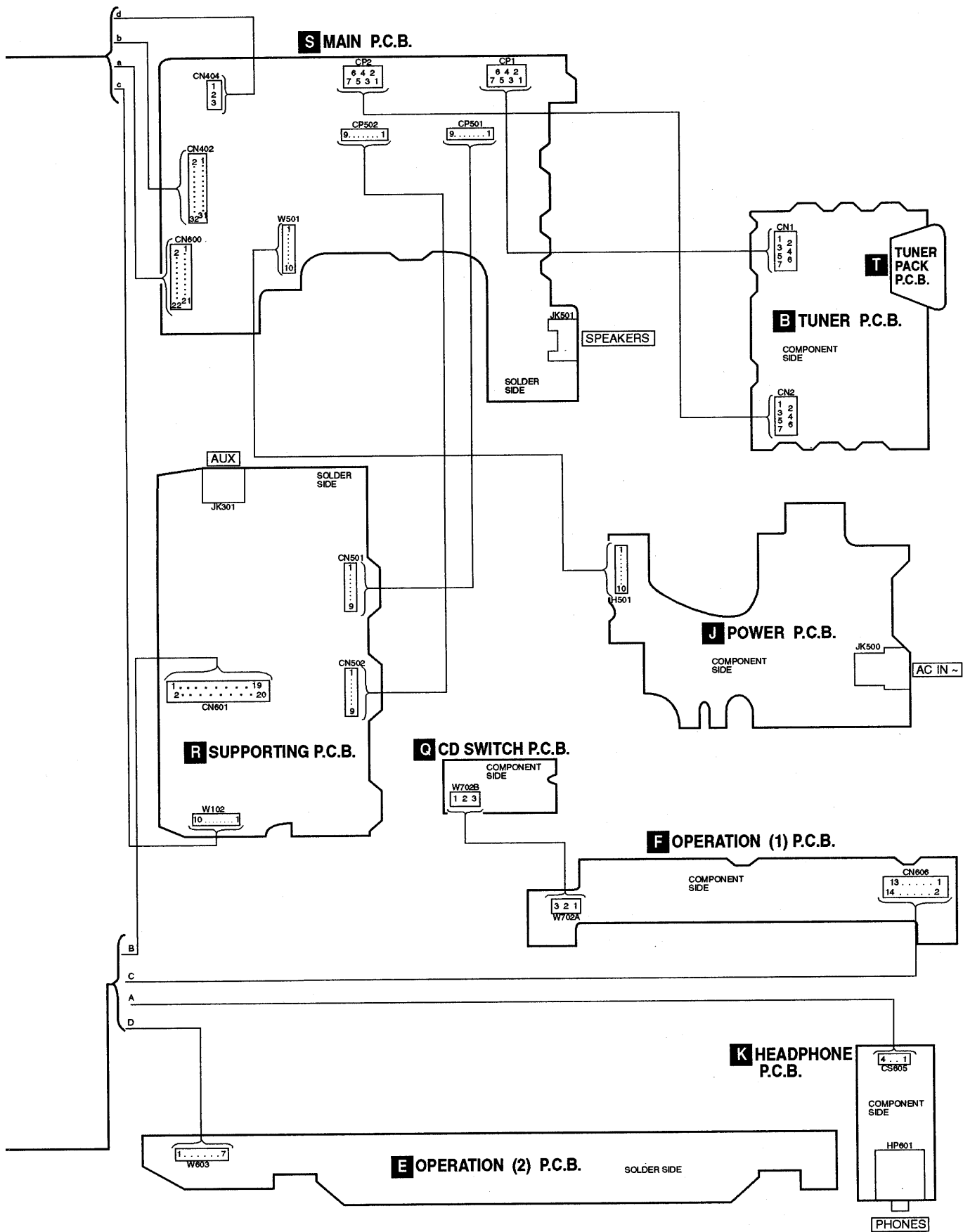


**I** PHOTO TR2 CIRCUIT



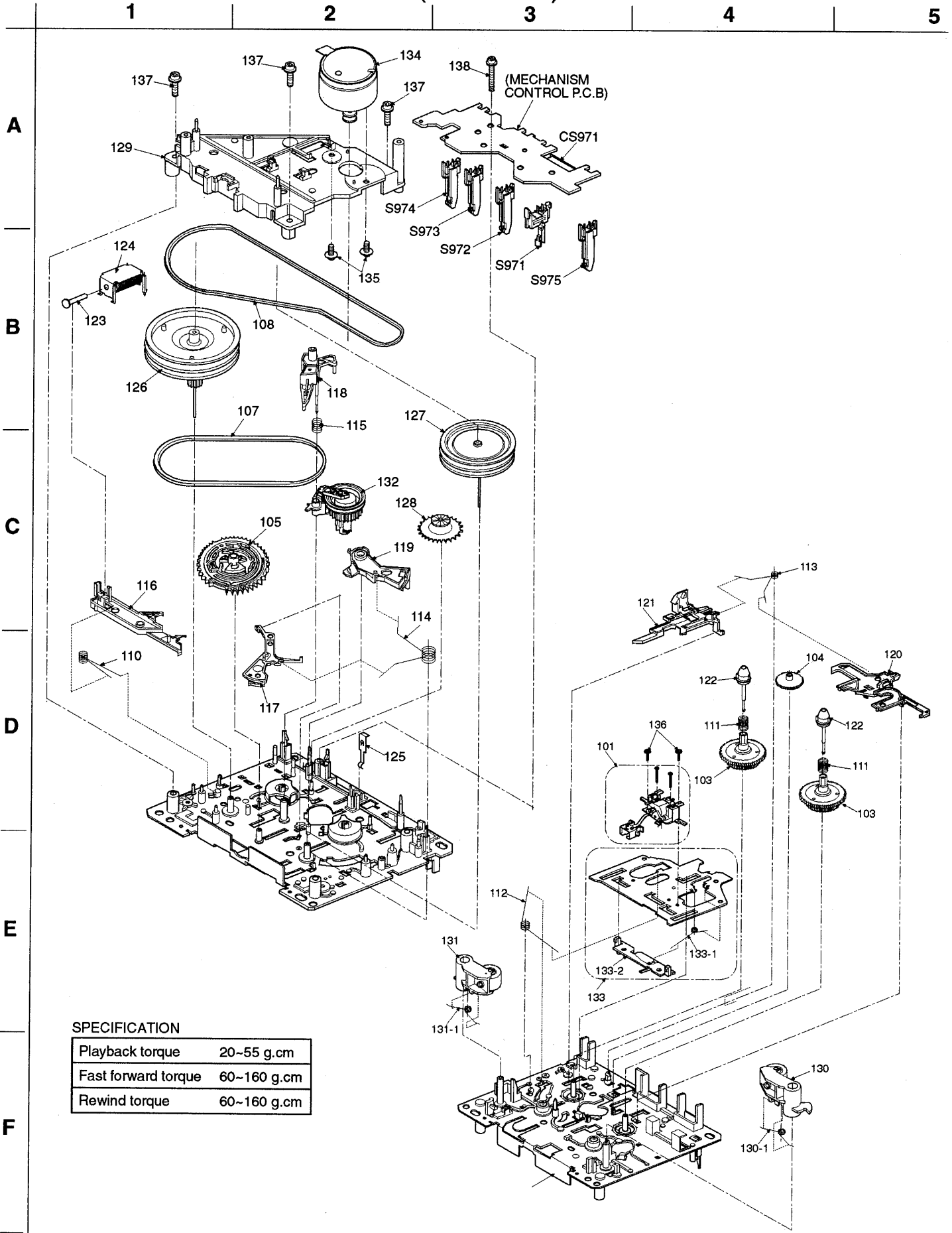
# Wiring Connection Diagram







# Mechanism Parts Location (RAA4105)



**SPECIFICATION**

Playback torque	20~55 g.cm
Fast forward torque	60~160 g.cm
Rewind torque	60~160 g.cm







