ORDER NO. MD9504048C2

Service Manual

MASH*
multi-stage noise shaping

COMPACT disc DIGITAL AUDIO

Portable Stereo Component CD System

RX-DT650

Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(EG)	F.R. Germany/Italy	(K)

* MASH is a trademark of NTT.

TAPE DECK : SG-20W MECHANISM SERIES
TRAVERSE DECK : RAE0113Z MECHANISM SERIES

■ Specifications

■RADIO

Frequency range	
FM	87.5 – 108.0 MHz
MW	522 – 1611 kHz
LW	144 – 288 kHz
Intermediate Frequency	
FM	10.7 MHz
AM	459 kHz
Sensitivity	
FM	14.5 dB/50 mW
MW	53 dB/m/50 mW
LW	61 dB/m/50 mW

■CD PLAYER

Sampling frequency	44.1 kHz
Decoding	16 bit linear
Beam source	Semiconductor laser (wavelength 780 nm)
No. of channels	2 channels, stereo
Frequency Response	20 Hz – 20 kHz(0, –2 dB)
S/N ratio	95 dB (JIS. A)
Dynamic Range	86 dB
Digital Filter	4 fs
Wow and flutter	Less than possible measurement data
D/A converter	MASH (1 bit DAC)

■TAPE RECORDER

Track system	4 track, 2 channel, stereo
Recording system	AC bias
Erasing system	Multi Pole Magnet
Monitor system	Variable sound monitor
Frequency range	
Normal	80 – 14000 Hz

■GENERAL

Power requirement	
AC	230 – 240 V, 50 Hz
	Power consumption: 52 W
Battery	15V (Ten R20/LR20, UM-1 batteries)
Memory back-up for computer/clock	6V (Four R6/LR6, UM-3 batteries)
Speakers	
	2 Woofers; 12cm
	2 Tweeters; 1.5cm
Jacks	
Input	MIX MIC; 5mV (600Ω)
Output	Speaker; 2.7Ω
	Headphones; 32 Ω
Dimensions (W x H x D)	643 x 251 x 239 mm
	Main unit; 313 x 251 x 223 mm
	Speaker box; 170 x 240 x 201 mm
Weight	6.9 kg without batteries

Notes :
Specifications are subject to change without notice.
Weight and dimensions shown are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the gerenal public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

■ Schematic Diagrams

(All schematic diagrams may be modified at any time with the development of new technology)

Note :

< for Control circuit > (Page 26 - 27)

- **S821** : Edit HIGH/NORMAL speed switch
- **SW801** : Power switch
- **SW802** : Easy CD record switch
- **SW803** : Memory switch
- **SW804** : Reverse search switch
- **SW805** : Forward search switch
- **SW806** : Repeat switch
- **SW807** : Stop/clear switch
- **SW808** : Play/pause switch
- **SW809** : Volume down switch
- **SW810** : Volume up switch
- **SW811** : Preset down switch
- **SW812** : Preset up switch
- **SW813** : Tuning down switch
- **SW814** : Tuning up switch
- **SW815** : Tape switch
- **SW816** : Tuner/band switch
- **SW817** : CD switch
- **SW818** : XBS switch
- **SW819** : Tuning memory switch
- **SW820** : FM mode/B.P. switch
- **VR301-1 ~ VR301-2** : Equaliser control (330Hz)
- **VR302-1 ~ VR302-2** : Equaliser control (1kHz)
- **VR303-1 ~ VR303-2** : Equaliser control (3.3kHz)
- **VR304-1 ~ VR304-2** : Equaliser control (10kHz)
- **VR305** : Balance control

< for Servo circuit > (Page 28 - 29)

- **S701** : Reset switch

< for Main circuit & Power circuit> (Page 30 - 34)

- **SW901** : AC IN switch (JK901)

< for Deck circuit and Connector circuit > (Page 35)

- **S601** : Deck 1 play switch.
- **S602** : Deck 2 playswitch.
- **S603** : Rec switch.
- **SW870** : CD open/close switch.
- **SW871** : CD loading switch.
- **VR601** : Tape speed control.

< Gerenal >

•Battery Current

Vol. min	200mA (FM)	Vol. max	430mA (FM)
	200mA (MW)		410mA (MW)
	200mA (LW)		400mA (LW)
	277.4mA (Tape)		490mA (Tape)
	380mA (CD)		920mA (CD)
Recording	320mA		

(Measurement condition:
Radio : FM 60 dB, 30%mod
AM 74 dB/m, 30%mod
Tape : 315 Hz, 0dB
CD : 400Hz, -10dB)

•Signal line

: +B line
: Playback signal line
: AM signal line
: FM OSC signal line
: Record signal line
: AM OSC signal line
: FM/AM signal line
: CD signal line
: Main signal line
: FM 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 { } : Tuner

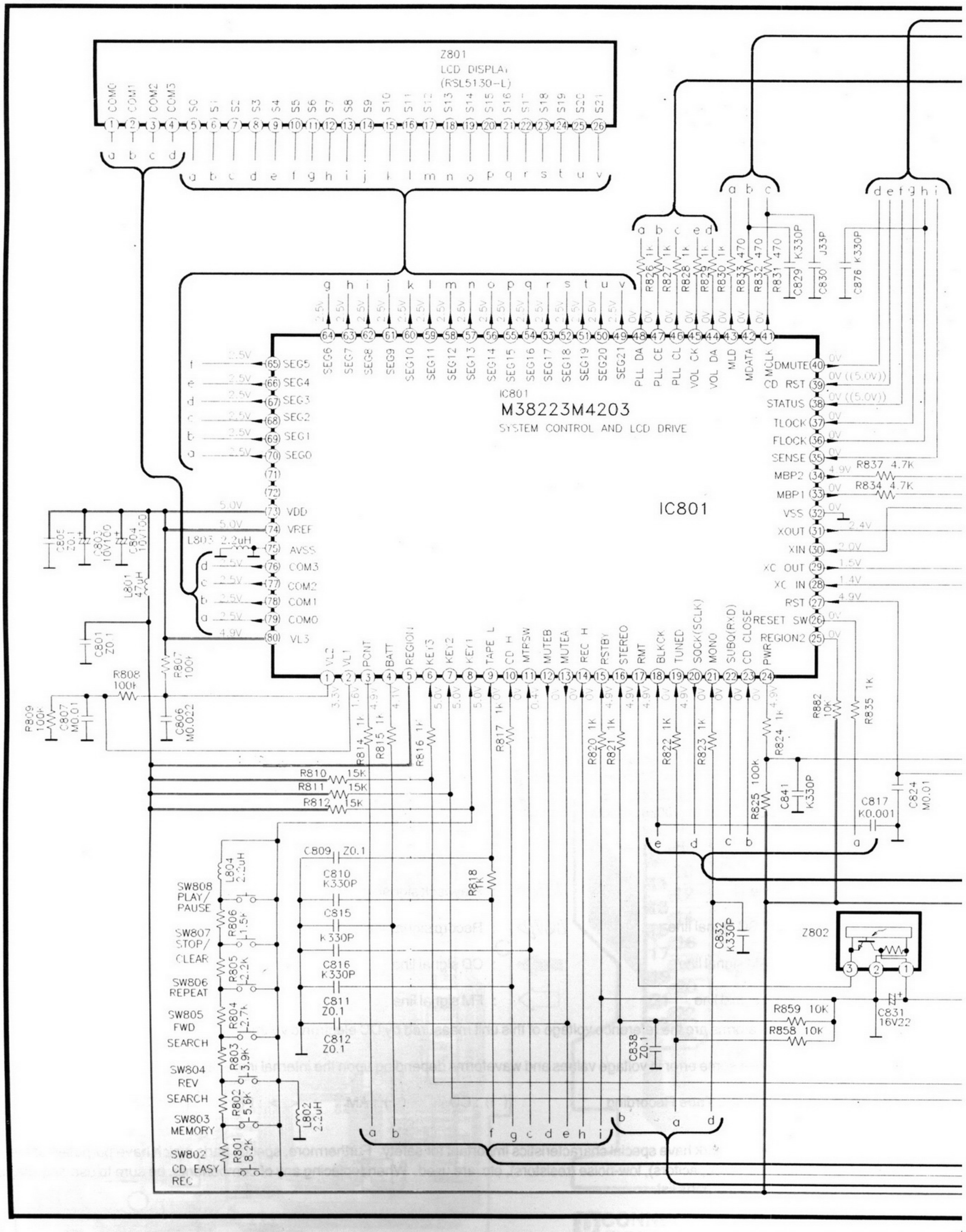
•Importance safety notice:

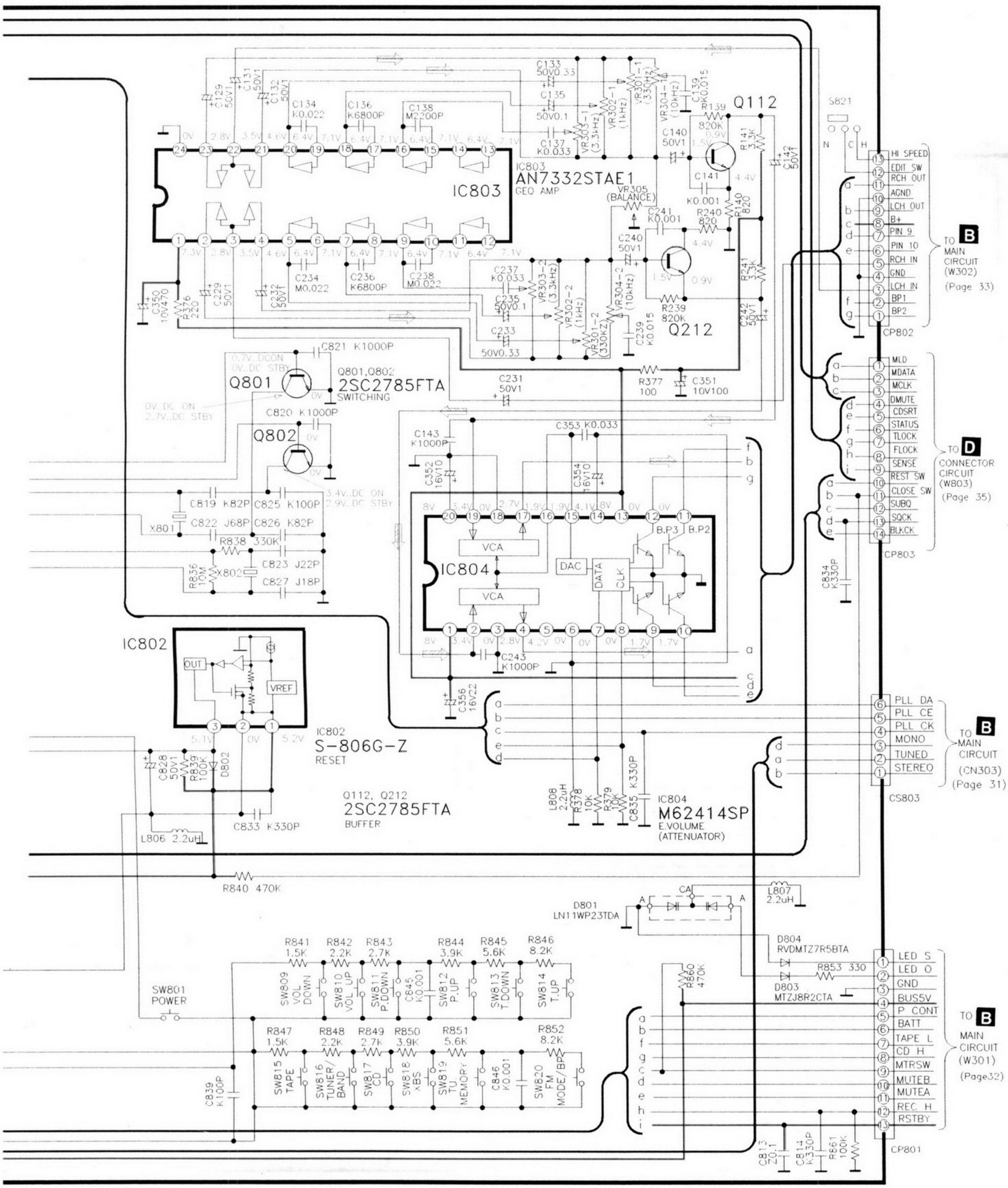
Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's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

Caution !

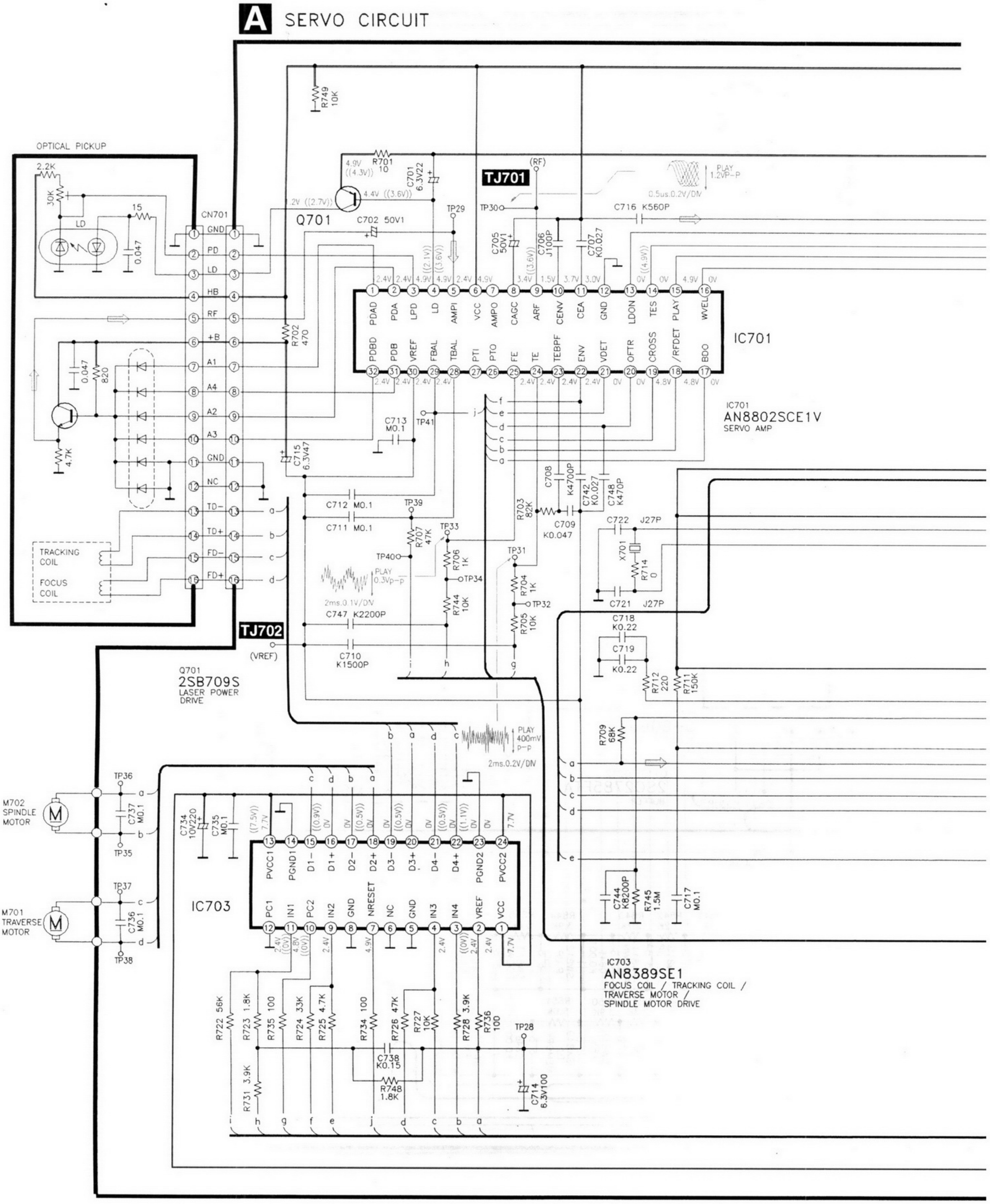
IC, LSI and VLSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
•Cover the parts boxes made of plastics with aluminium foil.
•Ground the soldering iron.
•Put a conductive mat on the work table.
•Do not touch the pins of IC, LSI or VLSI with fingers directly.

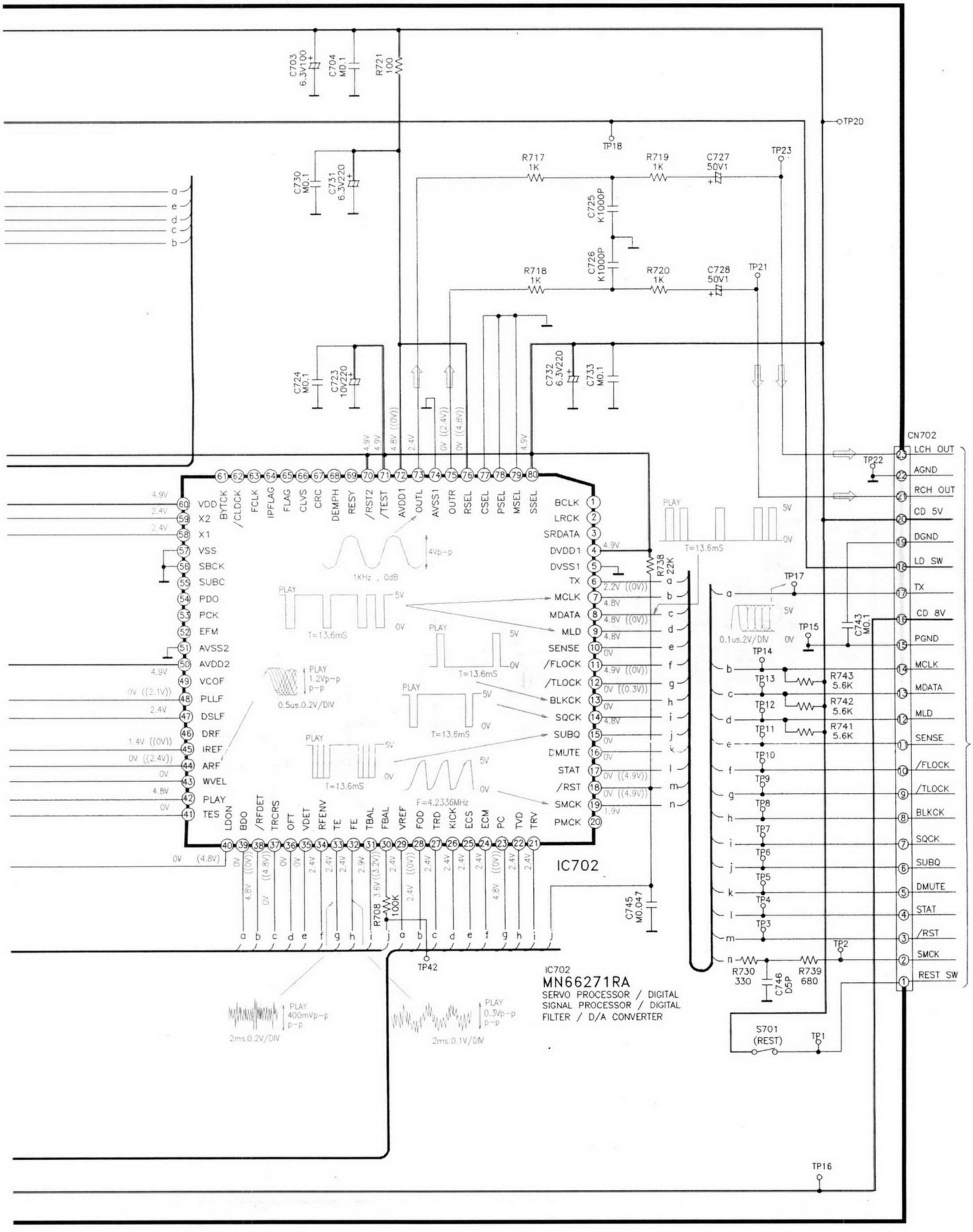
C CONTROL CIRCUIT



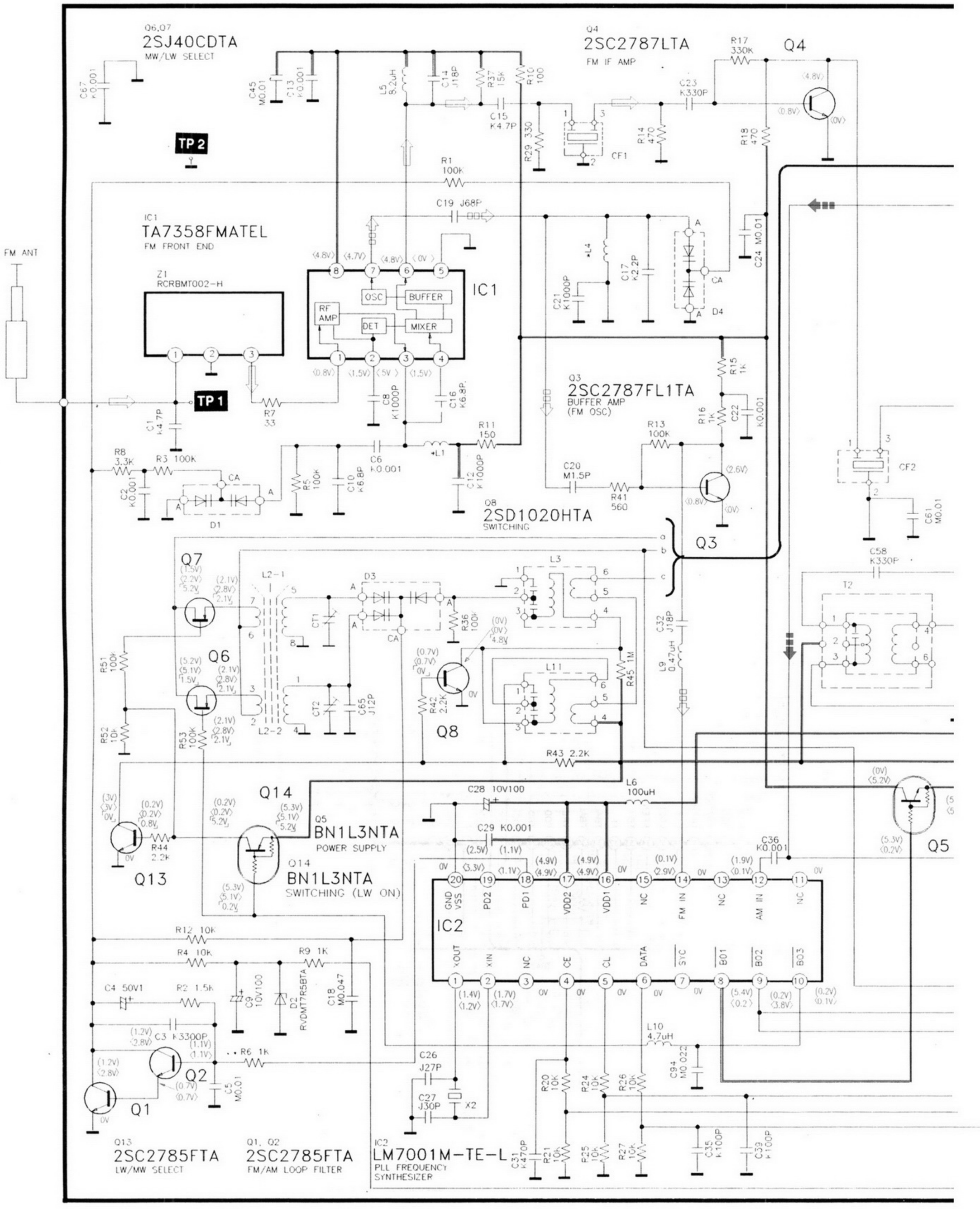


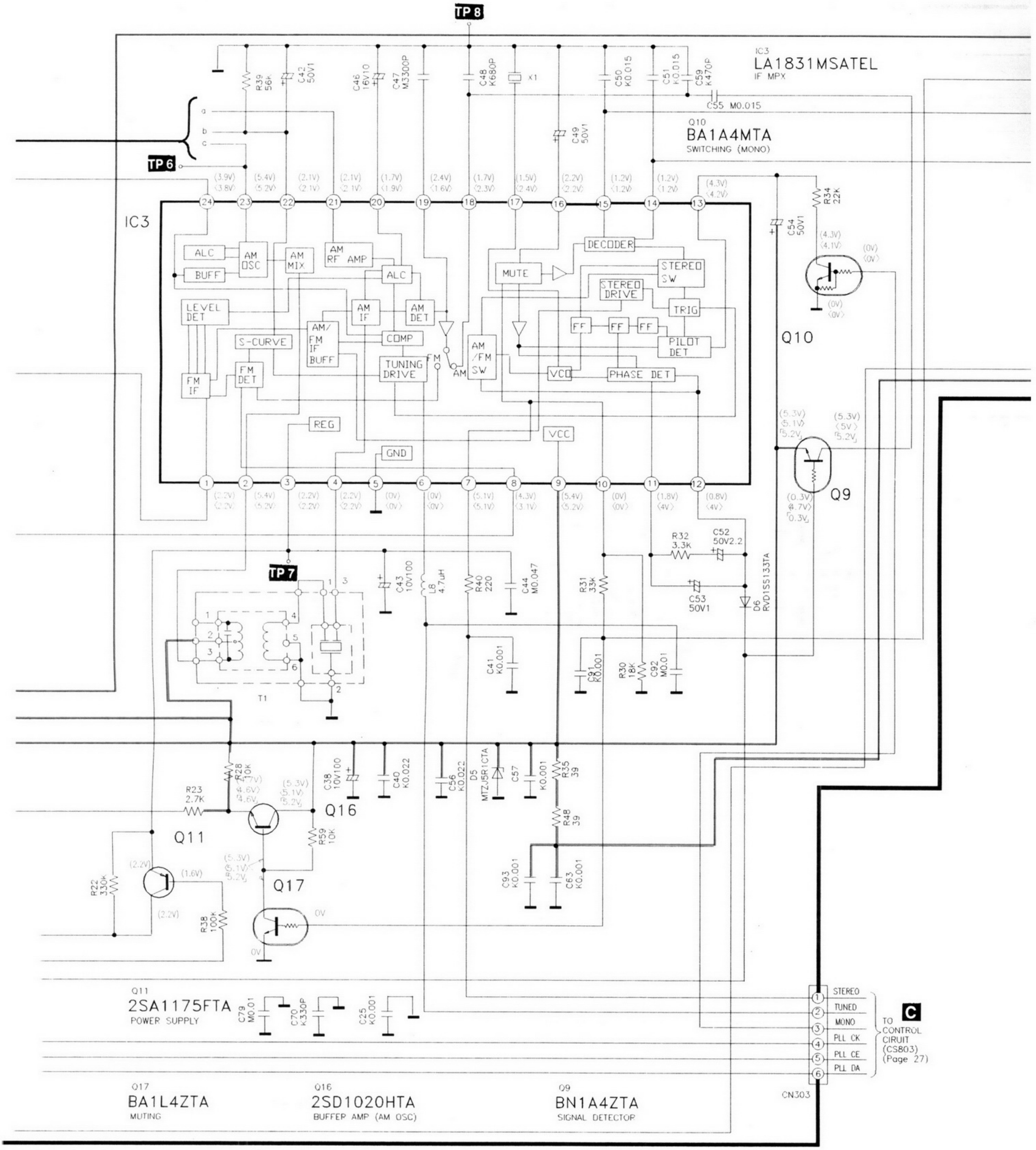
A SERVO CIRCUIT

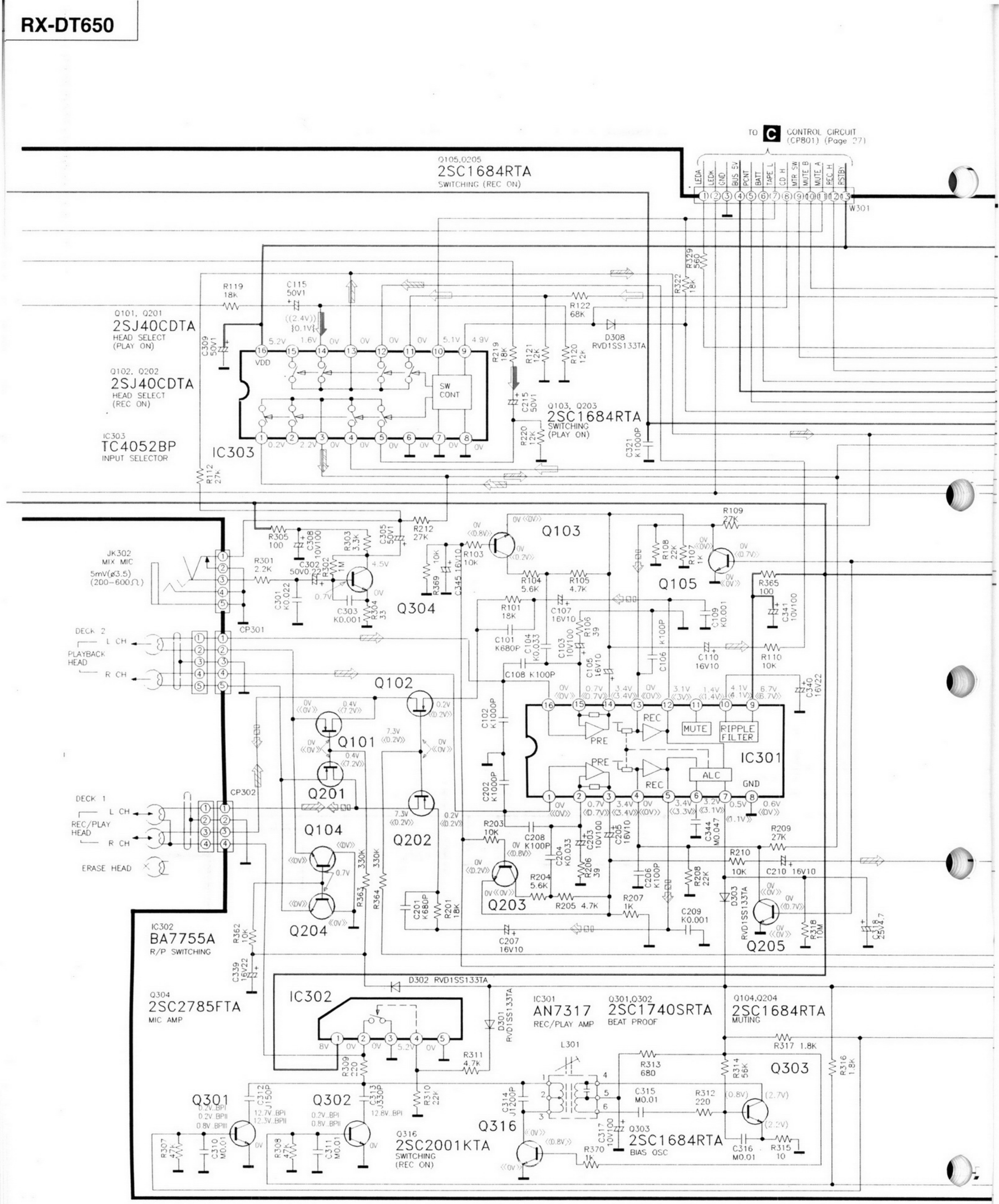




B MAIN CIRUIT







TO D CONNECTOR CIRCUIT (W801) (Page 35)

TO C CONTROL CIRCUIT (CP802) (Page 27)

CN302 — PGND, DGND, CD 8V, CD 5V, CD RCH, CD GND, CD LCH

W302 — HI SPEED, EDIT SW, RCH OUT, AGND, LCH OUT, B+, PIN 9, PIN 10, RCH IN, GND, LCH IN, BP1, BP2

Q107,Q108 & Q109
2SC2785FTA
SWITCHING
(XBS)

Q314
2SA1680TPE6
POWER SUPPLY

Q207,Q208 & Q209
2SC2785FTA
SWITCHING
(XBS)

Q315
2SC1684RTA
POWER SUPPLY

Q308
2SC2785FTA
POWER SUPPLY CONTROL

Q306
RVTDTC114EST
SWITCHING
(EDITING SPEED)

Q307
BN1A4MTA
POWER SUPPLY

Q307
15.3V..DC STBY
15.3V..DC ON

Q308

Q207

Q208

Q209

Q309

Q309
BN1A4MTA
POWER SUPPLY

Q310
BA1A4MTA
POWER SUPPLY CONTROL

Q310

IC304
BA3936
REGULATOR

IC304 — CD 5V, CD 8V, AUDIO 8V, FILTER, TUNER 5V, VREF (+), MODE SW, 8V LIN, VCC, STBY, P.CNT, GND

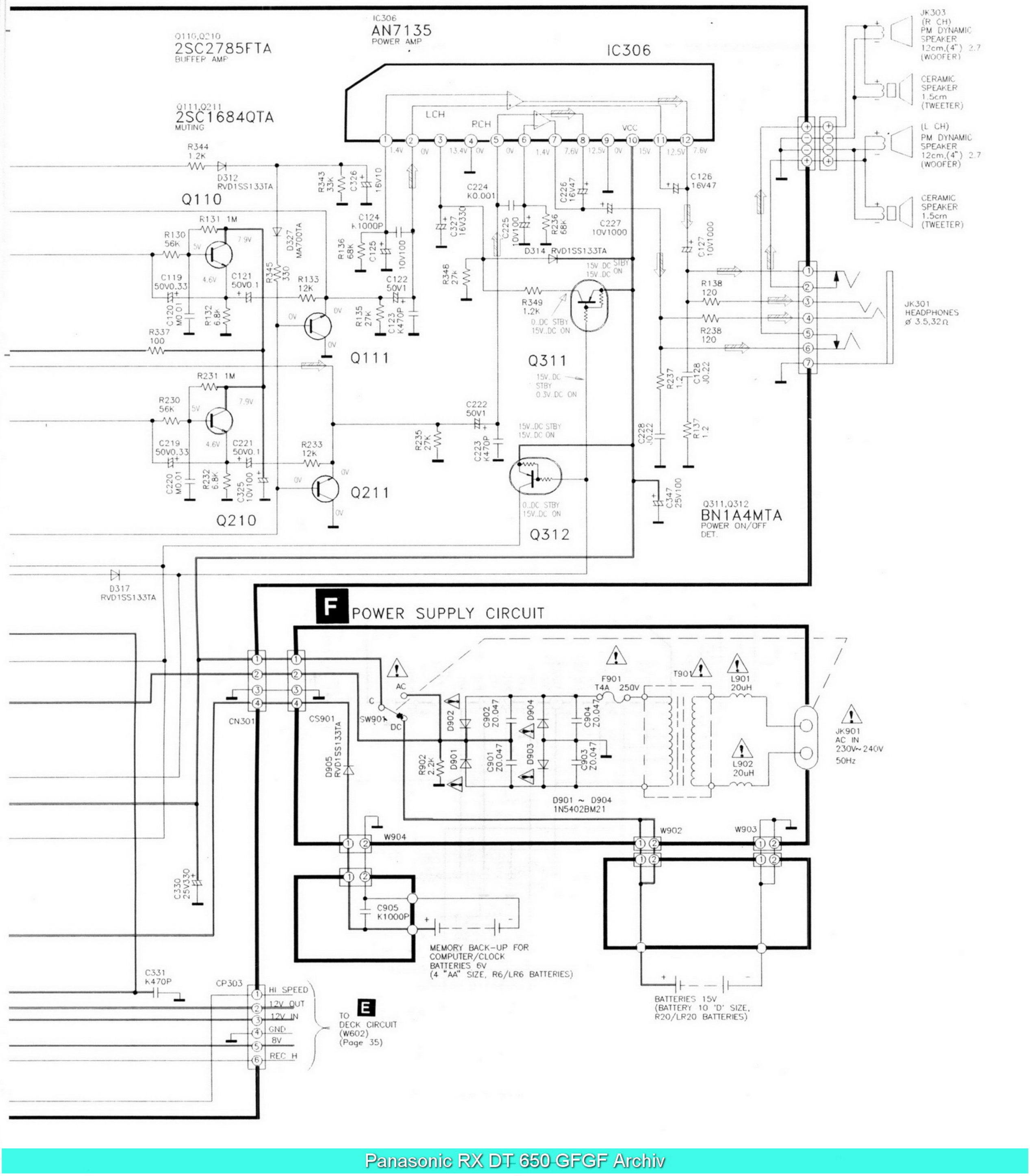
IC305
S81250PG-T
REGULATOR

IC305 — GND, IN, OUT

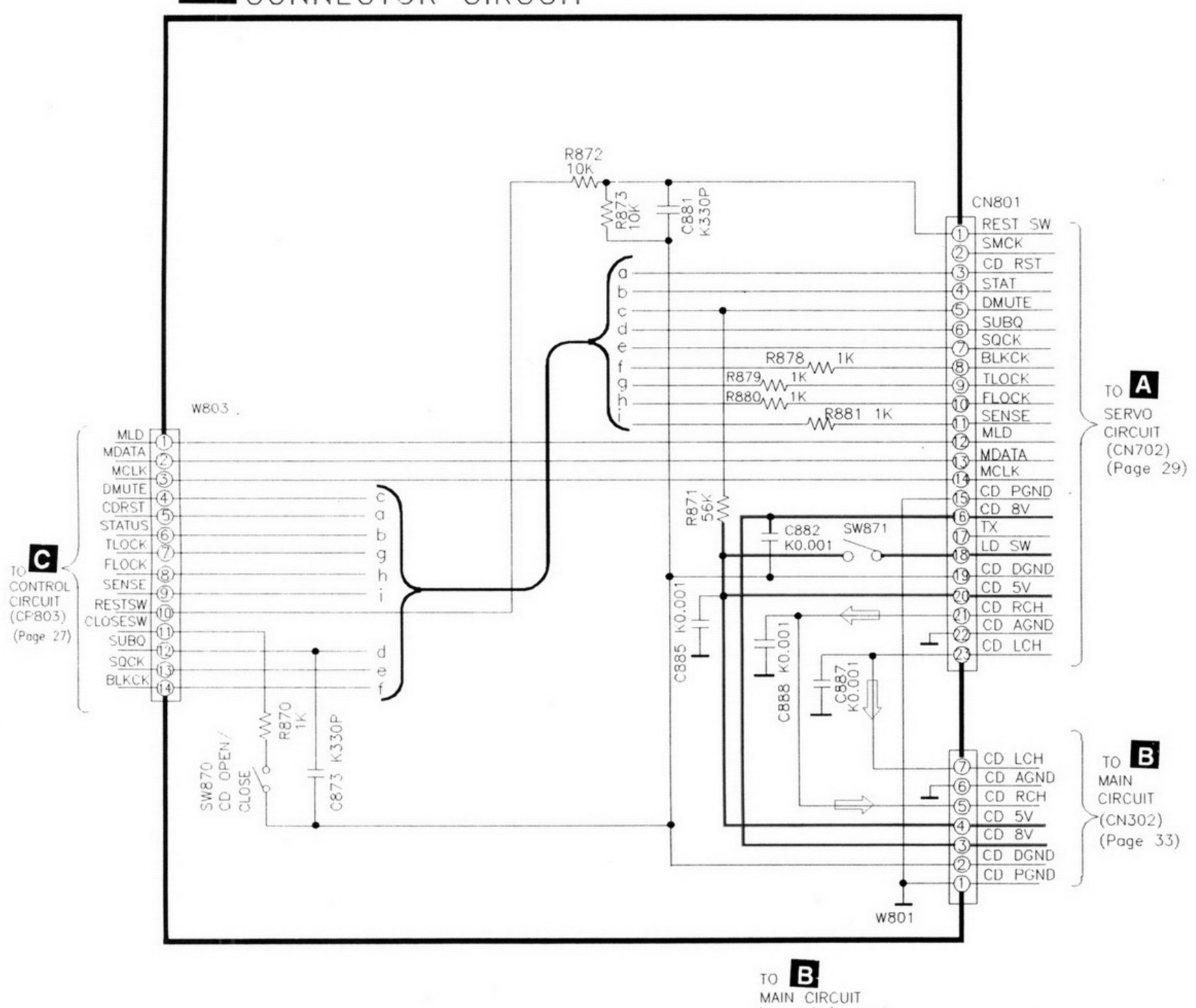
Q305
RVTDTC114EST
SWITCHING
(REC ON)

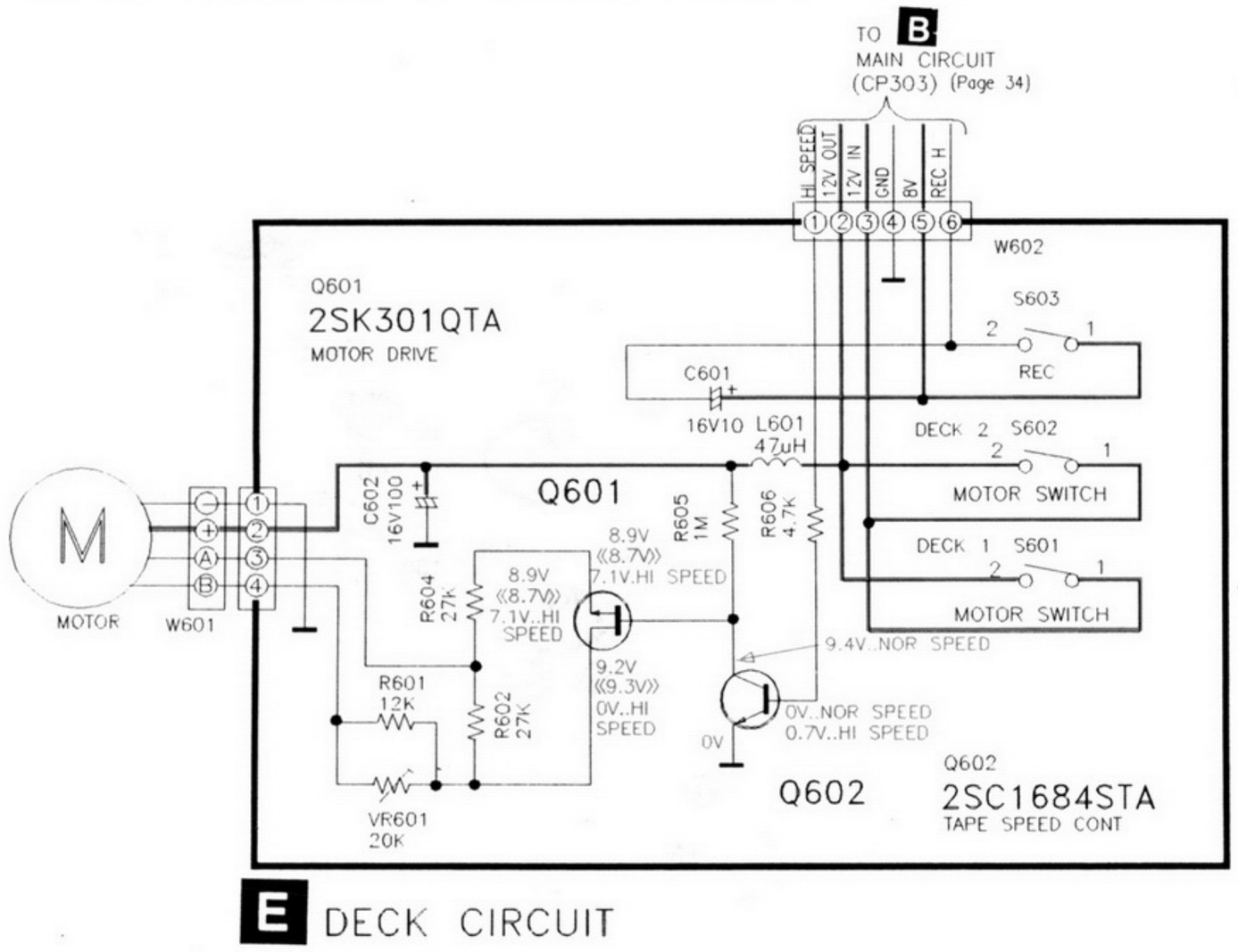
Q306

Q317
RVTDTC114EST
SWITCHING



D CONNECTOR CIRCUIT





E DECK CIRCUIT