

# Service Manual

Stereo Cassette Deck

Cassette Deck

 **DOLBY B NR** \*1

## RS-TR180

Colour

(K) : Black

Please file and use this manual together with the service manual for Model No. RS-TR280, Order No. AD9601015C1.

- Notes:**
- This service manual is provided to indicate the main differences between the original No. RS-TR280 and the subsequent model No. RS-TR180.
  - The DOLBY NOISE REDUCTION P.C.B. was cut off and the MECHANISM CONTROL P.C.B. in the model No. RS-TR280 was partly changed. This is the way the model No. RS-TR280 has been completed.

**Areas**

Suffix for Model No.	Area	Colour
(PP)	U.S.A.	(K)

\*1 : Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

## AR-2 MECHANISM SERIES

### Specifications (IHF '78)

#### ■ Cassette Deck Section

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Recording system	AC bias
Bias frequency	80 kHz (approx.)
Erasing system	AC erase
Heads	
DECK 1	Playback head (Permalloy) × 1
DECK 2	Recording/Playback head (Permalloy) × 1 Erasing head (Double-gap ferrite) × 1
Motors	
DECK 1	Capstan/Reel table drive (DC servo motor) × 1
DECK 2	Capstan/Reel table drive (DC servo motor) × 1
Tape speed	4.8 cm/sec. (1-7/8 ips)
Wow and flutter	0.18% (WRMS)
Fast forward and rewind times	Approx. 120 seconds with C-60 cassette tape
Frequency response (Dolby NR off)	
TYPE I (NORMAL)	40 Hz-14 kHz, ±3 dB 20 Hz-17 kHz
TYPE II (HIGH POSITION)	40 Hz-14 kHz, ±3 dB 20 Hz-17 kHz
TYPE IV (METAL)	40 Hz-15 kHz, ±3 dB 20 Hz-18 kHz

S/N (signal level = max recording level, TYPE II type tape)

NR off 54 dB (A weighted)  
Dolby B NR on 64 dB (A weighted)

#### Input sensitivity and impedance

REC (IN) 320 mV/47 kΩ

#### Output voltage and impedance

PLAY (OUT) 320 mV/500 Ω

#### ■ General

Power consumption 18 W

Power supply AC 120 V, 60 Hz

Dimensions (W × H × D) 430 × 131 × 286 mm

(16-15/16" × 5-5/32" × 11-1/4")

Weight 3.8 kg (8.9 lb)

#### Notes:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

#### ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general 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.

# Technics®









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## ■ Schematic Diagram

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● This schematic diagram may be modified at any time with the development of new technology.


### Notes:

- S701 : Power switch (STAND BY ) (ON)
- S707 : DECK 1 cassette holder open switch ( OPEN)
- S708 : Dolby noise-reduction switch (DOLBY NR)
- S709 : Reverse-mode select switch (REVERSE MODE)
- S710 : Synchro-start switch (SYNCHRO START)
- S711 : Tape-to-tape recording-speed switch (SPEED)
- S714 : Stop switch ()
- S715 : Forward-side playback switch ()
- S716 : Reverse-side playback switch ()
- S717 : Fast forward switch ()
- S718 : Rewind switch ()
- S719 : DECK 2 cassette holder open switch ( OPEN)
- S720 : Record pause switch (● REC PAUSE)
- S721 : Tape deck select switch (DECK 1/2)
- S723 : Counter reset (COUNTER RESET)
- S951 : DECK 1 mode detect switch
- S952 : DECK 1 half detect switch
- S953 : DECK 1 CrO<sub>2</sub> tape detect switch
- S971 : DECK 2 mode detect switch
- S972 : DECK 2 half detect switch
- S973 : DECK 2 CrO<sub>2</sub> tape detect switch
- S974 : DECK 2 reverse side record prevention tab detect switch
- S975 : DECK 2 forward side record prevention tab detect switch
- S976 : DECK 2 METAL tape detect switch

● Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

No mark : Playback ( ) : Recording

### ● Important 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 and LSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.


Cover the parts boxes made of plastics with aluminum foil.


Ground the soldering iron.


Put a conductive mat on the work table.


Do not touch the legs of IC or LSI with the fingers directly.

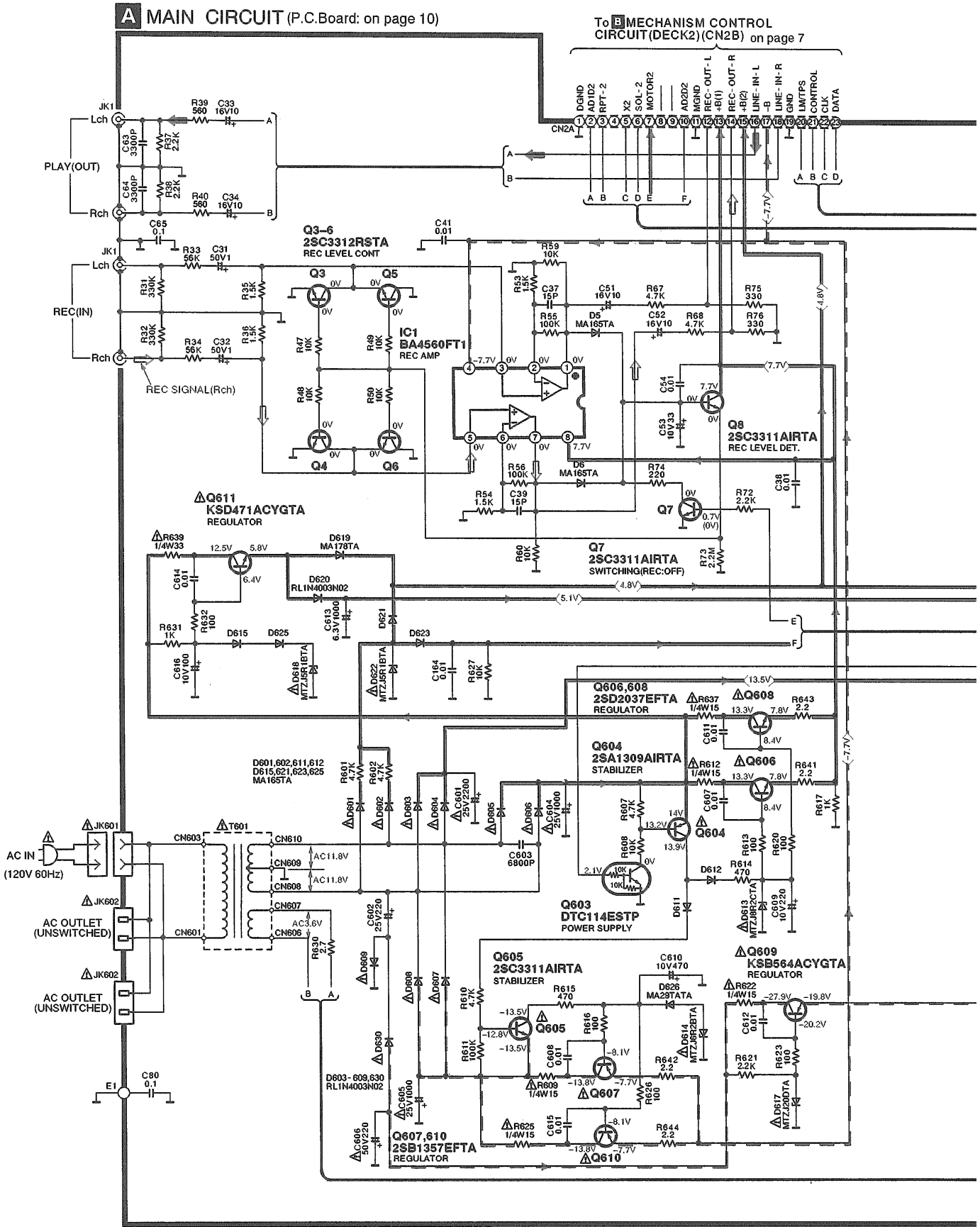
### ● Voltage and signal line

 : Positive voltage line

 : Negative voltage line

 : Playback signal Line

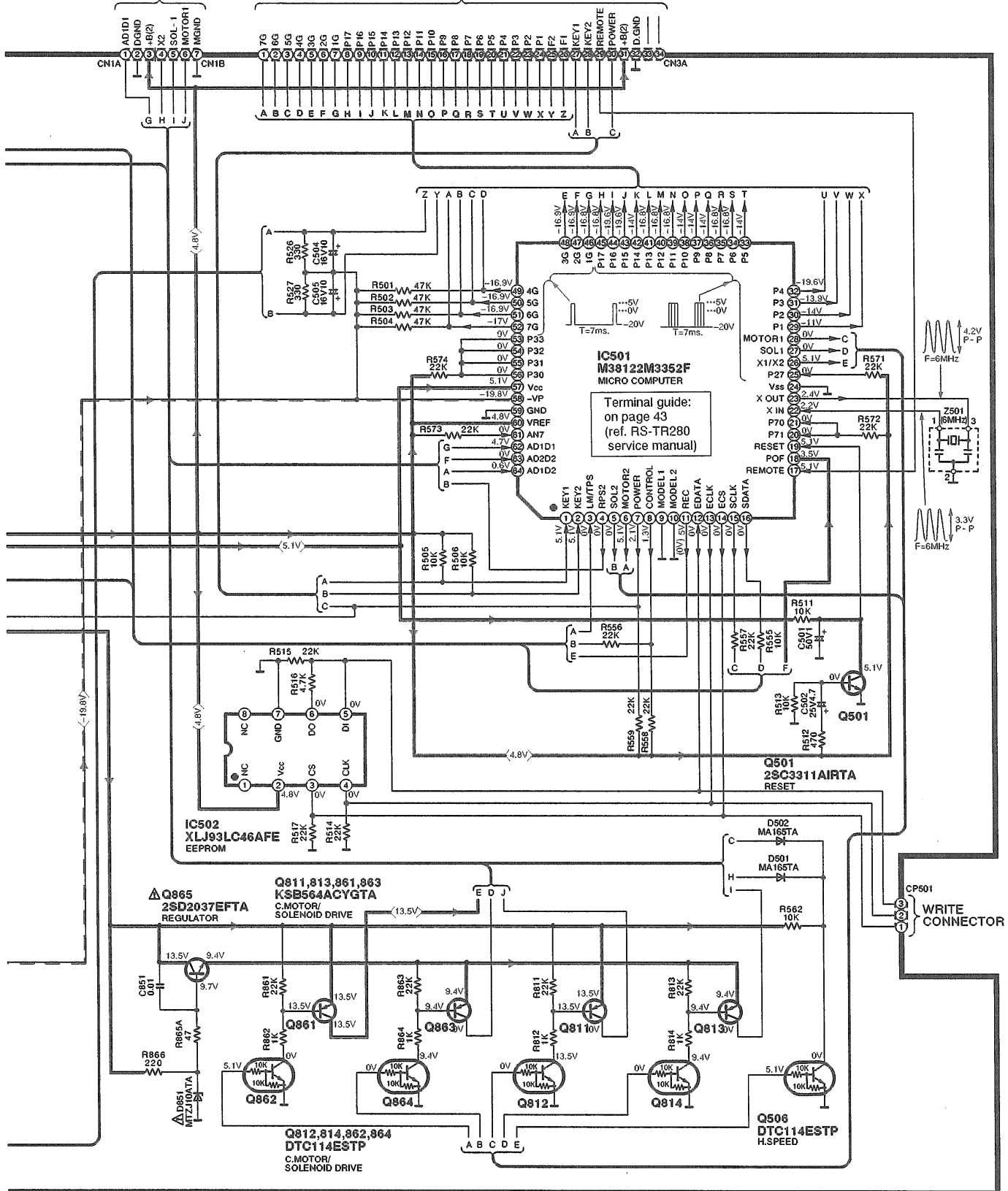
 : Recording signal Line





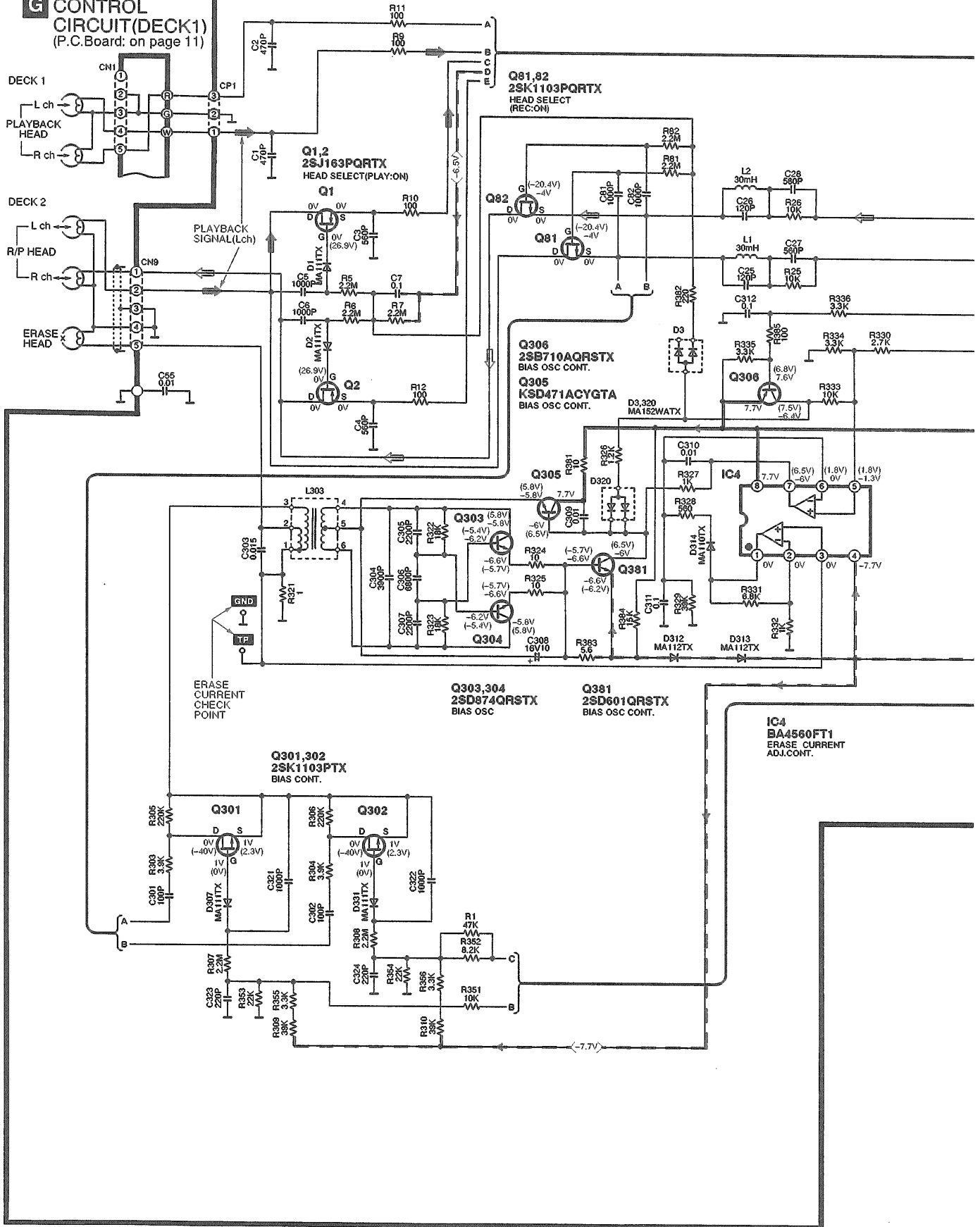
To **MECHANISM CONTROL CIRCUIT (DECK1)** (W801) on page 8

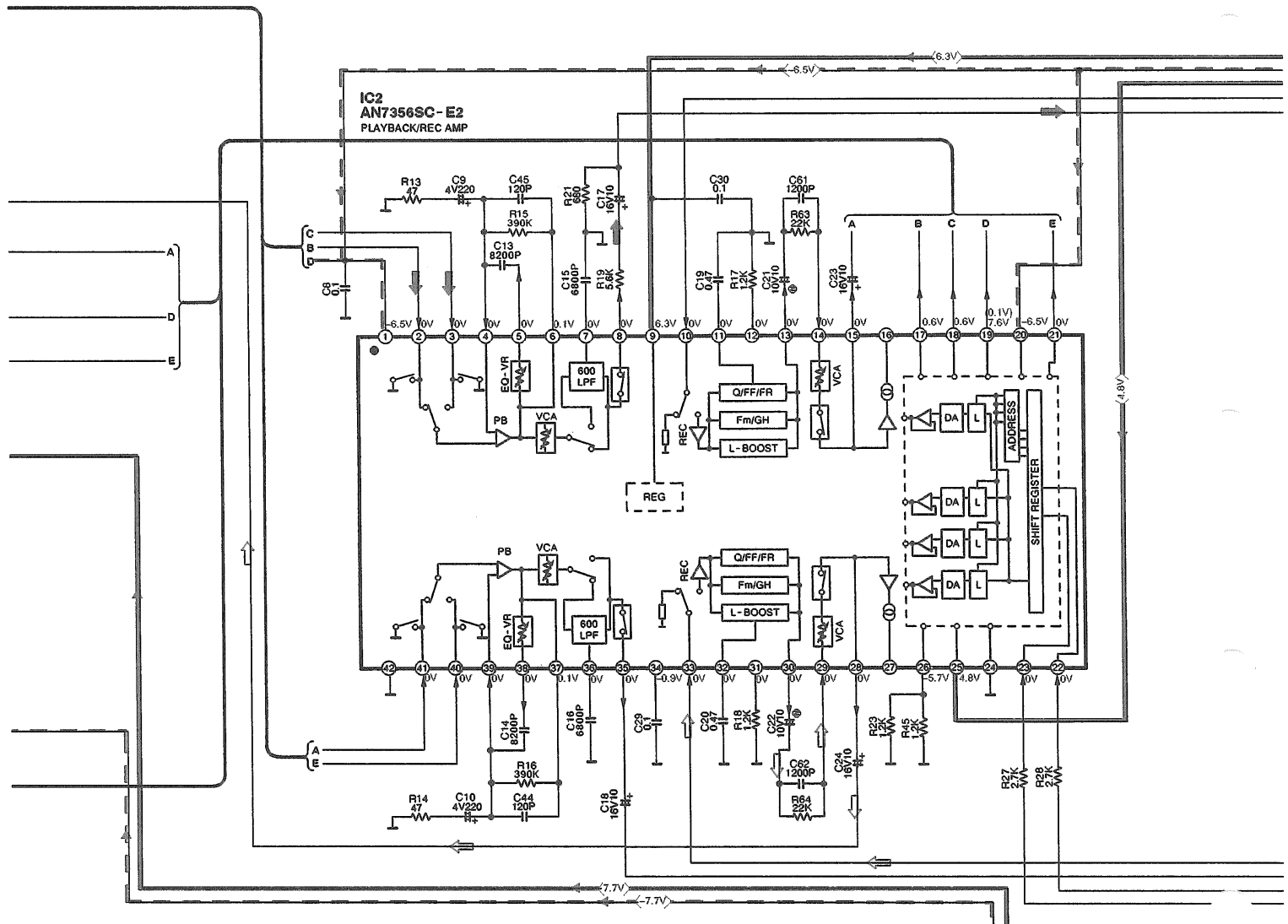
To **FL CIRCUIT (CN3B)** on page 8



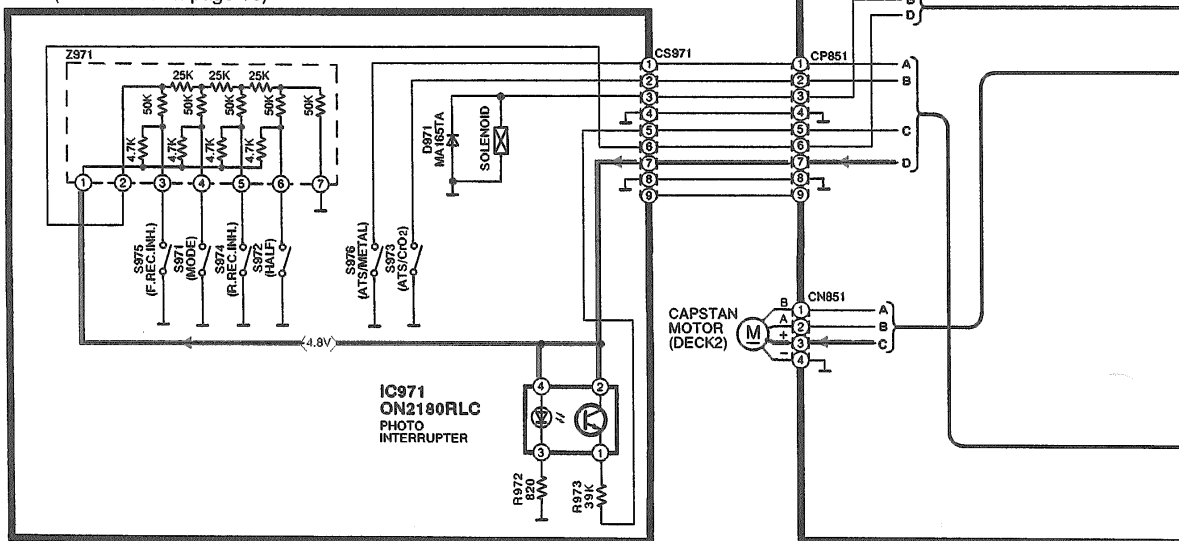
**B** MECHANISM CONTROL CIRCUIT(DECK2) (P.C.Board: on page 9)

**G** MECHANISM CONTROL CIRCUIT(DECK1) (P.C.Board: on page 11)

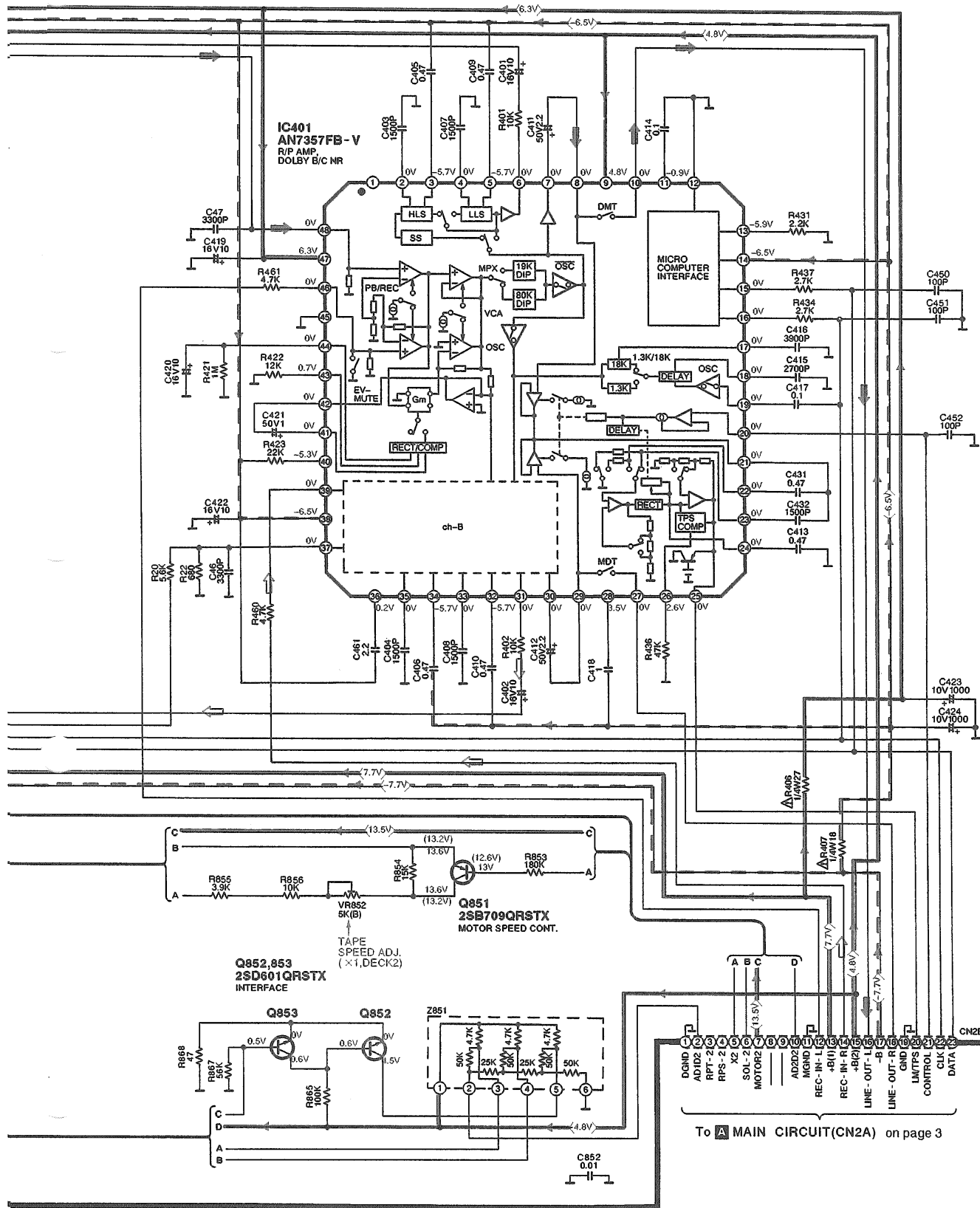


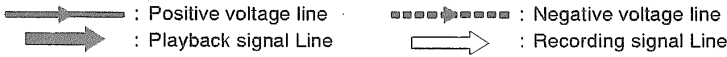


**C MECHANISM CIRCUIT (DECK2)**  
(P.C. Board: on page 10)

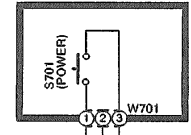


**B** MECHANISM CONTROL CIRCUIT(DECK2) (P.C.Board: on page 9)

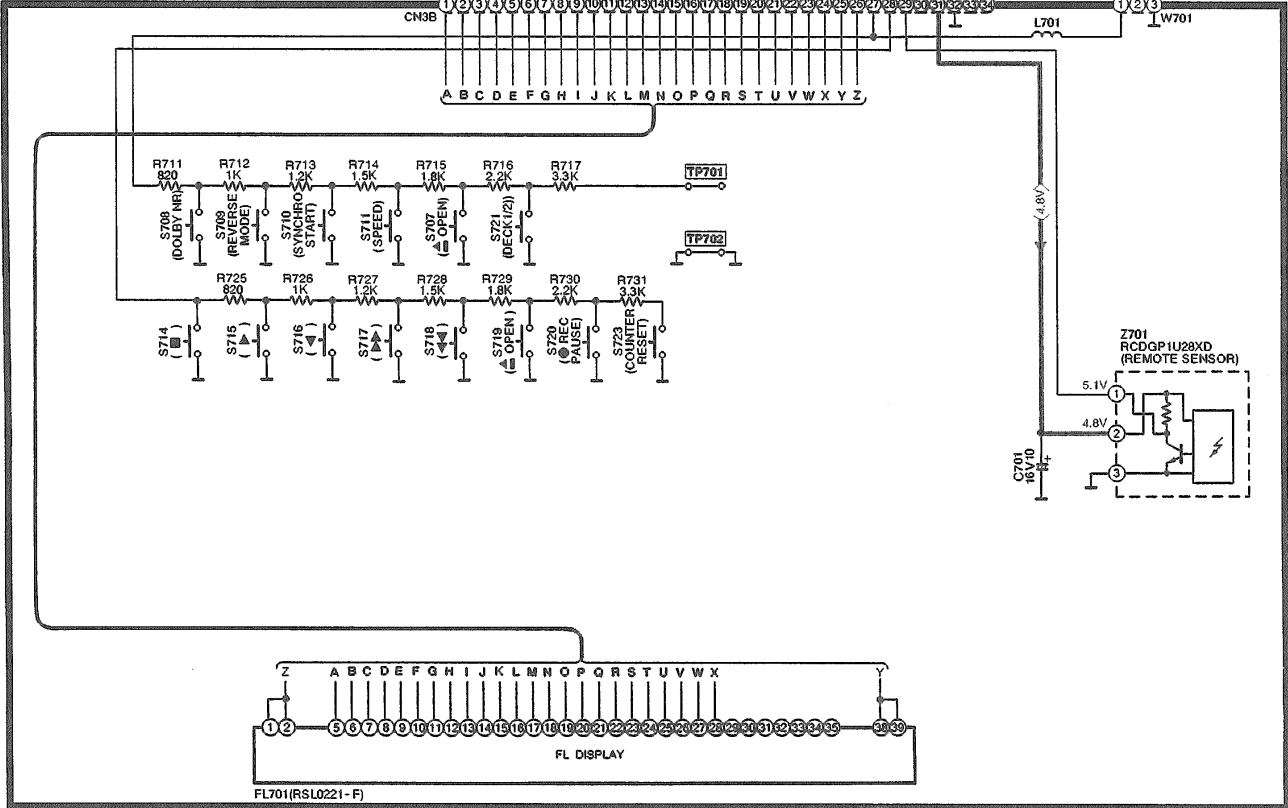




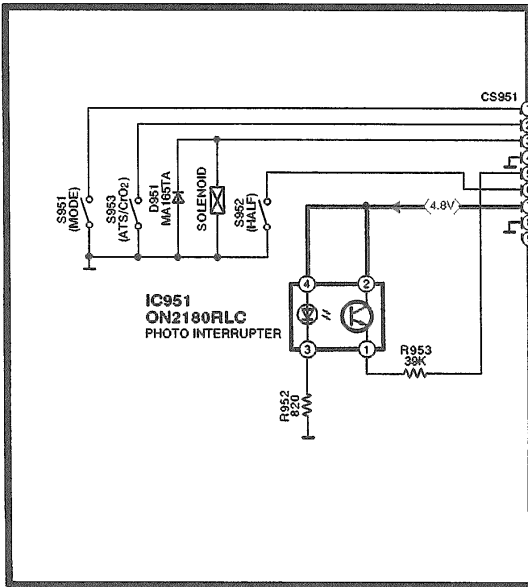
**E POWER SWITCH CIRCUIT**  
(P.C. Board: on page 11)



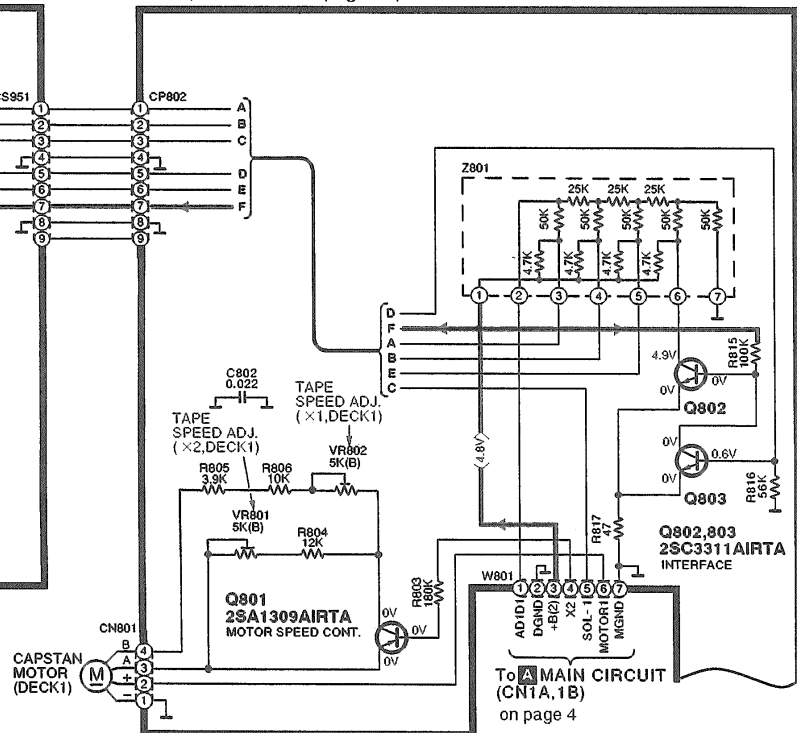
**D FL CIRCUIT**  
(P.C. Board: on page 11)



**F MECHANISM CIRCUIT(DECK1)**  
(P.C. Board: on page 10)



**G MECHANISM CONTROL CIRCUIT(DECK1)**  
(P.C. Board: on page 11)

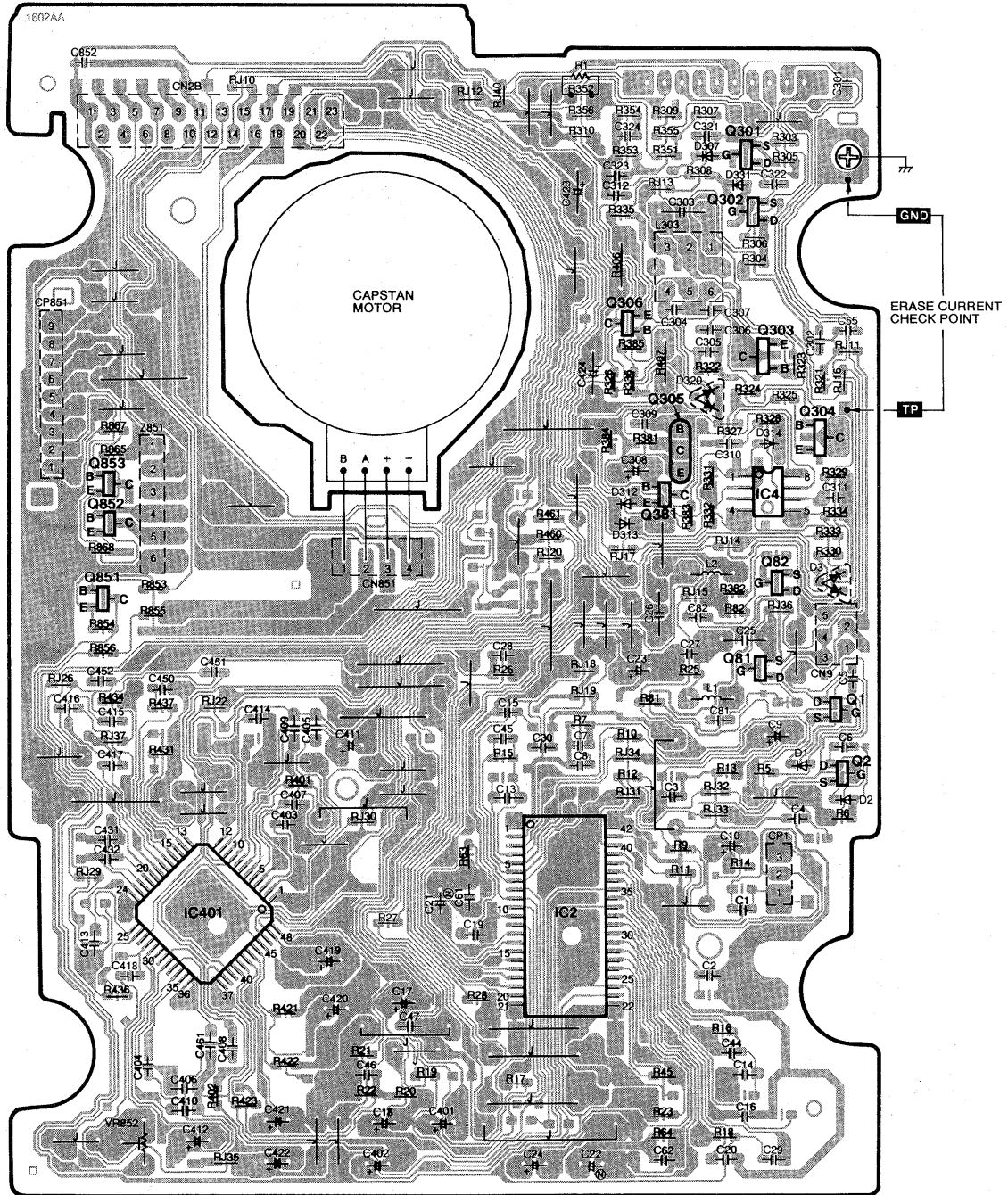




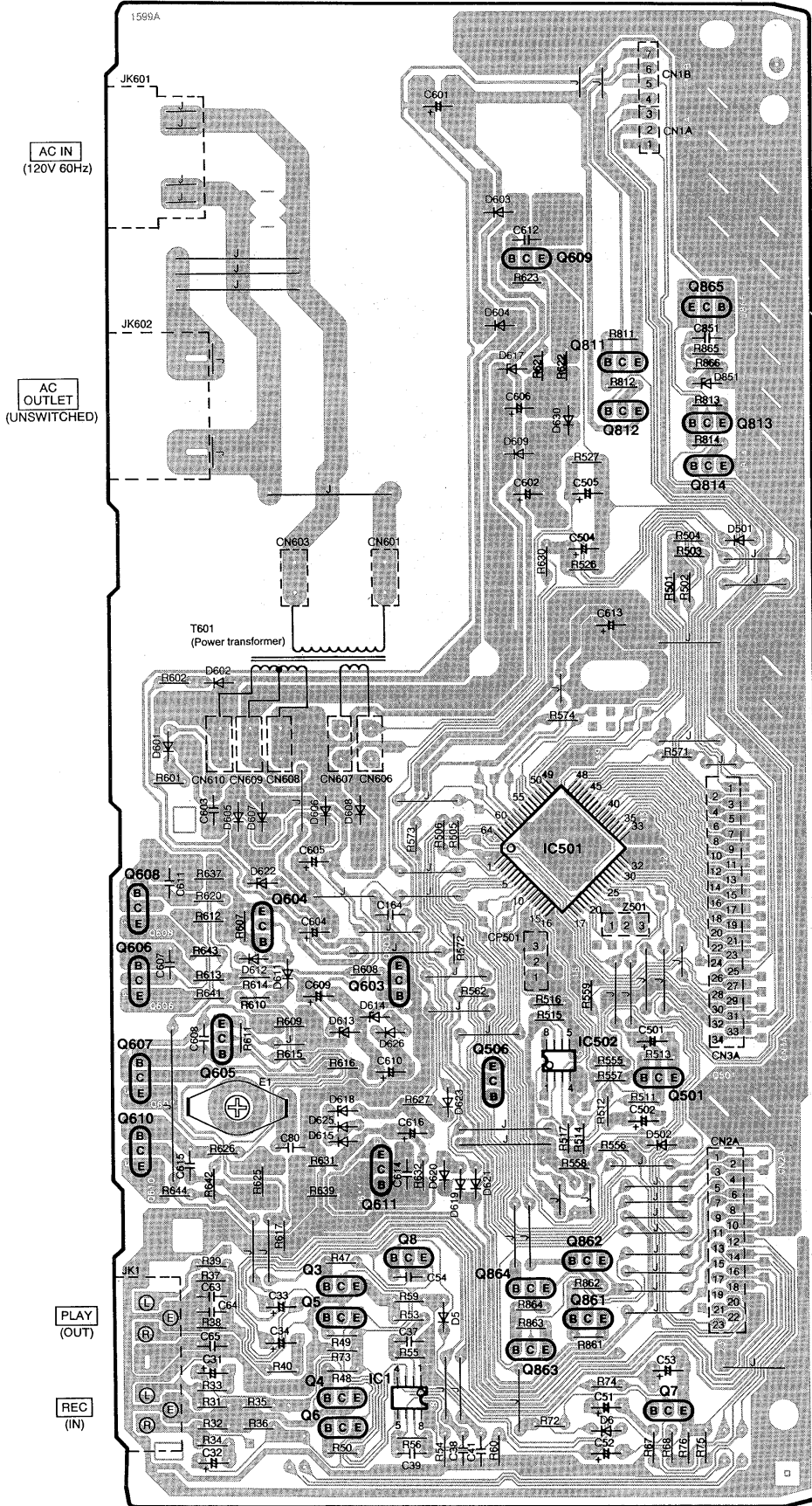
# Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

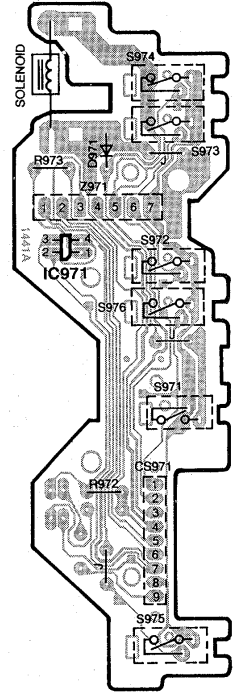
## **B** MECHANISM CONTROL P.C.B.(DECK2) (REP2262A-T)



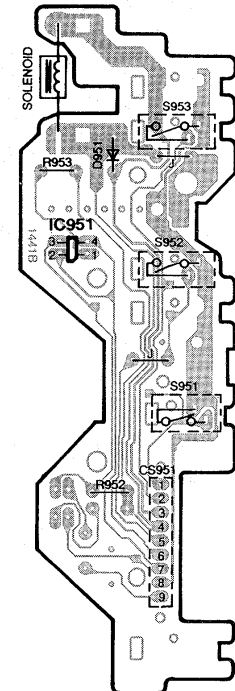
**A** MAIN P.C.B. (REP2259A-M)



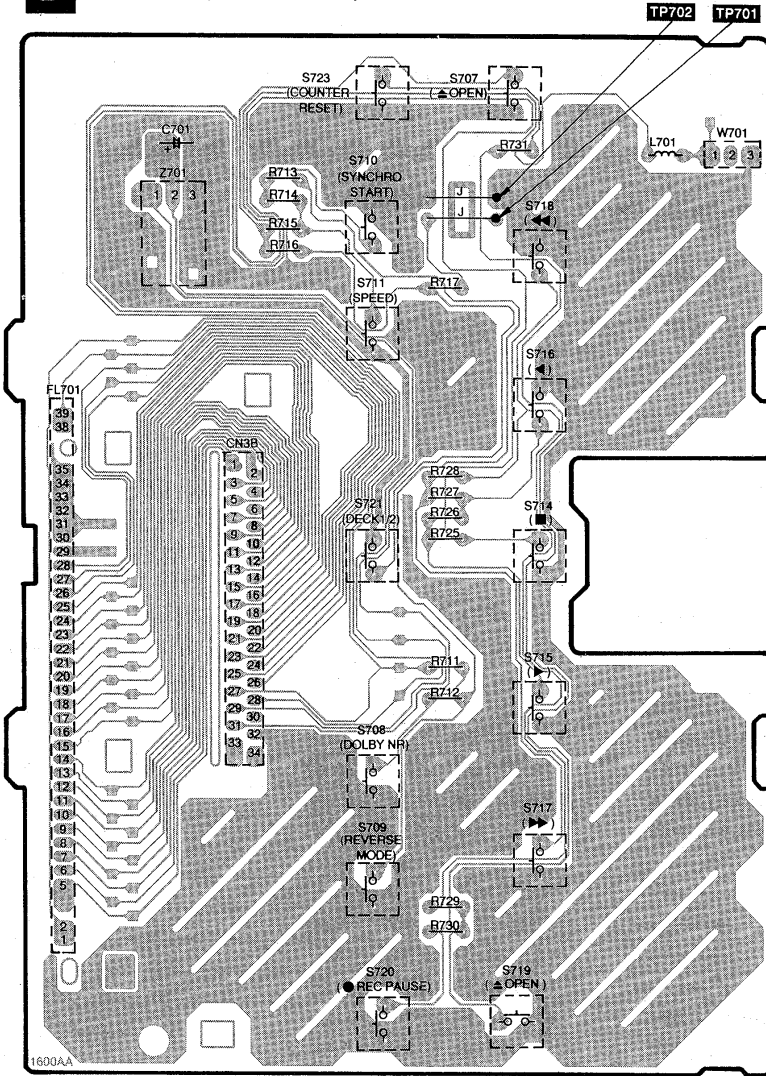
**C** MECHANISM P.C.B.(DECK2) (REP2131CZ)



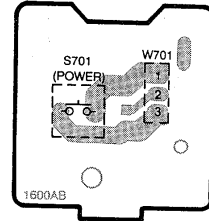
**F** MECHANISM P.C.B.(DECK1) (REP2132AZ)



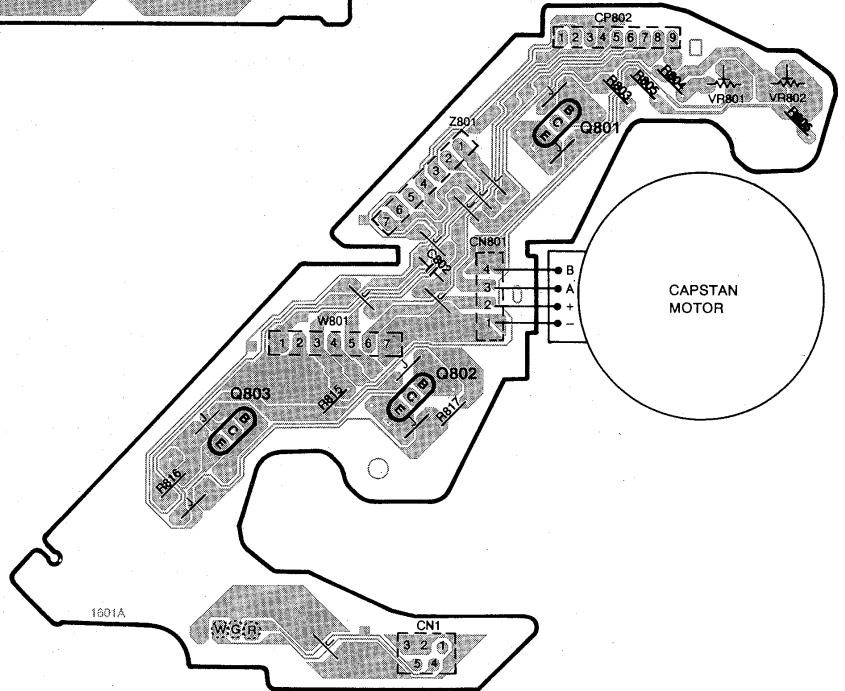
**D** FL P.C.B. (REP2260A-S)



**E** POWER SWITCH P.C.B. (REP2260A-S)



**G** MECHANISM CONTROL P.C.B. (DECK1) (REP2261A-T)



## Changes in Replacement Parts List

(Ref; pages 47~50 and 58 of RS-TR280 service manual)

**Notes:** \*Important safety notice:Components identified by  $\Delta$  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.

\*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part Number		Part Name & Description	Remarks
	RS-TR280 (PP)	RS-TR180 (PP)		
<b>INTEGRATED CIRCUIT</b>				
IC302	UPC1297CA	—————	IC, DOLBY HX PRO.	Deleted
<b>TRANSISTOR (S)</b>				
Q301, Q302	—————	2SK1103PTX	TRANSISTOR	Added
Q307	KSB564ACYGTA	—————	TRANSISTOR	Deleted
<b>DIODE (S)</b>				
D301, D302	MA8056MTX	—————	DIODE	Deleted
D303	MA110TX	—————	DIODE	Deleted
D307, D331	—————	MA111TX	DIODE	Added
<b>COIL (S)</b>				
L301, 302	SL09B1-Z	—————	COIL	Deleted
<b>CONNECTOR (S)</b>				
CN301	RJU057W010	—————	SOCKET (10 pin)	Deleted
CP301	RJT057W010-1	—————	CONNECTOR (10 pin)	Deleted
<b>RESISTORS</b>				
R1	—————	ERJ6GEYJ473V	RESISTOR, 1/10 W 47 k $\Omega$	Added
R303, R304	—————	ERJ6GEYJ392V	RESISTOR, 1/10 W 3.9 k $\Omega$	Added
R305, R306	—————	ERJ6GEYJ224V	RESISTOR, 1/10 W 220 k $\Omega$	Added
R307, R308	—————	ERJ6GEYJ225V	RESISTOR, 1/10 W 2.2 M $\Omega$	Added
R309, R310	—————	ERJ6GEYJ393V	RESISTOR, 1/10 W 39 k $\Omega$	Added
R341, R342	ERJ6GEYJ153V	—————	RESISTOR, 1/10 W 15 k $\Omega$	Deleted
R343, R344	ERJ6GEYJ103V	—————	RESISTOR, 1/10 W 10 k $\Omega$	Deleted
R345, R346	ERJ6GEYJ154V	—————	RESISTOR, 1/10 W 150 k $\Omega$	Deleted
R347, R348	ERJ6GEYJ100V	—————	RESISTOR, 1/10 W 10 $\Omega$	Deleted
R349	ERJ6GEYJ471V	—————	RESISTOR, 1/10 W 470 $\Omega$	Deleted
R351	—————	ERJ6GEYJ103V	RESISTOR, 1/10 W 10 k $\Omega$	Added
R352	—————	ERJ6GEYJ822V	RESISTOR, 1/10 W 8.2 k $\Omega$	Added
R353, R354	—————	ERJ6GEYJ223V	RESISTOR, 1/10 W 22 k $\Omega$	Added
R355, R356	—————	ERJ6GEYJ332V	RESISTOR, 1/10 W 3.3 k $\Omega$	Added
<b>CAPACITORS</b>				
C301, C302	—————	ECUV1H101KCN	CAPACITOR, 50 V 100 pF	Added
C321, C322	—————	ECUV1H102KCN	CAPACITOR, 50 V 1000 pF	Added
C323, C324	—————	ECUV1H221KCN	CAPACITOR, 50 V 220 pF	Added
C341, C342	ECUV1H122KBN	—————	CAPACITOR, 50 V 1200 pF	Deleted
C343, C344	ECUV1H103KBN	—————	CAPACITOR, 50 V 0.01 $\mu$ F	Deleted
C345, C346	ECUV1E473KBN	—————	CAPACITOR, 25 V 0.047 $\mu$ F	Deleted
C347, C348	ECUV1H121KCN	—————	CAPACITOR, 50 V 120 pF	Deleted
C349, C350	ECKR2H821KB5	—————	CAPACITOR, 500 V 820 pF	Deleted
C351, C352	ECUV1E473ZFN	—————	CAPACITOR, 25 V 0.047 $\mu$ F	Deleted
C353, C354	ECUV1H220KCN	—————	CAPACITOR, 50 V 22 pF	Deleted
C355	ECUV1H103ZFN	—————	CAPACITOR, 50 V 0.01 $\mu$ F	Deleted
C356	ECEA1AKS470	—————	CAPACITOR, 10 V 47 $\mu$ F	Deleted
C357, C358	ECUV1E473ZFN	—————	CAPACITOR, 25 V 0.047 $\mu$ F	Deleted
C360, C361	ECUV1E223KBN	—————	CAPACITOR, 25 V 0.022 $\mu$ F	Deleted
C362	RCE1CKA100BG	—————	CAPACITOR, 16 V 10 pF	Deleted
<b>CABINET PARTS</b>				
4	RYF0391B-K	RYF0391A-K	CASSETTE LID (DECK 2)	Changed
6	RGR0228D-B	RGR0228D-A	REAR PANEL	Changed
10	RFKGSTR280PP	RFKGSTR180PP	FRONT PANEL ASS'Y	Changed