

AIWA® SERVICE MANUAL

S/M Code No. 86-026

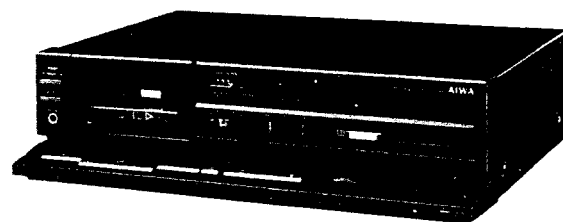
DATE OF ISSUE 6/1986-Z

340

STEREO CASSETTE DECK

MODEL NO.

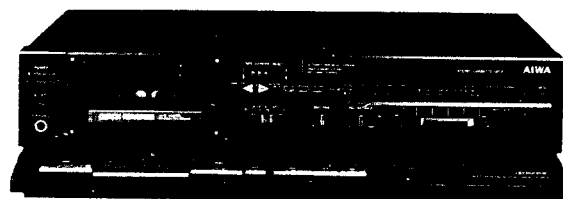
AD-F360, S15



STEREO CASSETTE DECK

MODEL NO.

AD-R460, R30



Basic mechanism 2ME-1 (AD-R460/R30), 2ME-4 (AD-F360/S15)

TYPE. HB,HJB,CB,EB,KB,GB,ZB(AD-F360)
UB(AD-S15)
HB,HJB,CB,EB,KB,GB,ZB(AD-R460)
UB(AD-R30)

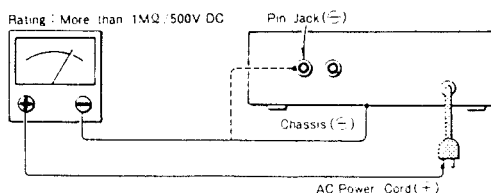
Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. After repaired, the insulation resistance or leakage current shall be measured with $500 \pm 5V$ D.C and shall be not less than $1M\Omega$.
6. General instructions for mechanism repair
 - 1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
 - 2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
 - 3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
 - 4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
 - 5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, malfunction and damage.

Measuring Point

Connect to Chassis or Outside of Pin Jack

Rating : More than $1M\Omega$: 500V DC



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SPECIFICATIONS

AD-F360, S15

Type	Stereo cassette tape deck	Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 k Ω)
Track format	4 tracks 2 channels		DIN max sensitivity (Z model only): 0.1 mV/k Ω (3.3 k Ω)
Power supply	AD-F360 E, Z AC 220 V, 50/60 Hz AD-F360 K, G AC 240 V, 50/60 Hz AD-S15 U, AD-F360 C AC 120 V, 60 Hz AD-F360 H AC 120 V/220 V—240 V switchable, 50/60 Hz	Outputs	LINE OUT standard output level: 0.41 V (0 VU); suitable load impedance: over 50 k Ω ; DIN standard level (Z model only): 0.41 V (0 VU) Headphones: 8~1 k Ω
Power consumption	17 W	Dimensions	420(W) $\times$ 110(H) $\times$ 295(D) mm
Frequency response	METAL tape: 20~17,000 Hz CrO ₂ position tape: 20~16,000 Hz NORMAL tape: 20~15,000 Hz	Weight	4.0 kg
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)	Accessories	Stereo pin cord (2)
Wow and flutter	According to DIN 45 500 0.18% 0.065% (WRMS)		
Tape speed	4.8 cm/sec. (1-7/8 ips)		
Rewind time	90 sec. (C-60)		
Fast forward time	90 sec. (C-60)		
Recording system	AC bias (frequency 85 kHz)		
Erase system	AC erase		
Motor	DC Servomotor		
Head	Record/playback head $\times$ 1 Erase head $\times$ 1		

AD-R460, R30

Type	Stereo cassette tape deck	Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 k Ω)
Track format	4 tracks 2 channels		DIN max sensitivity (Z model only): 0.1 mV/k Ω (3.3 k Ω)
Power supply	AD-R460 E, Z AC 220 V, 50/60 Hz AD-R460 K, G AC 240 V, 50/60 Hz AD-R460 C, AD-R30 U AC 120 V, 60 Hz AD-R460 H AC 120 V/220 V—240 V switchable, 50/60 Hz	Outputs	LINE OUT standard output level: 0.4 V (0 VU); suitable load impedance: over 50 k Ω ; DIN standard level (Z model only): 0.4 V (0 VU) Headphones: 8 Ω —1 k Ω
Power consumption	17 W	Dimensions	420(W) $\times$ 110(H) $\times$ 295(D) mm
Frequency response	METAL tape: 20—17,000 Hz CrO ₂ position tape: 20—16,000 Hz NORMAL tape: 20—15,000 Hz	Weight	4.0 kg
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)	Accessories	Stereo pin cord $\times$ 2
Wow and flutter	According to DIN 45 500 0.18% 0.065% (WRMS)		
Tape speed	4.8 cm/sec. (1-7/8 ips)		
Rewind time	90 sec. (C-60)		
Fast forward time	90 sec. (C-60)		
Recording system	AC bias (frequency 85 kHz)		
Erase system	AC erase		
Motor	DC Servomotor $\times$ 1		
Head	Record/playback head $\times$ 1 Erase head $\times$ 1		

- Design and specifications are subject to change without notice.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the  symbol are trademarks of Dolby Laboratories Licensing Corporation.

ELECTRICAL MAIN PARTS LIST (AD-R460, R30U)

CAPACITORS

No mark, U, UF: μ F
P, PF : pF

COILS

MMH: mH
UH : μ H

FUSE

MMA: mA

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- *mark means less required items and availabilities may be limited.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
--- IC ---			C652	★ 87-010-374	CAP,ELECT 47/10
	87-020-454	IC,DM6851	C653	★ 87-010-374	CAP,ELECT 47/10
	87-020-489	IC,IR2E19	D201	★ 87-027-376	DIODE 1N4B41
	87-020-080	IC,L78N12	D301	87-020-110	DIODE 1SS177
	87-020-261	IC,LA6358S			
	82-146-642	IC,LM6402G-572	D302	87-020-110	DIODE 1SS177
	87-027-895	IC,M5218L	D401	87-020-110	DIODE 1SS177
	87-027-554	IC,UPD4066	D402	87-020-110	DIODE 1SS177
			D406	87-020-110	DIODE 1SS177
--- TRANSISTOR ---			D602	87-020-123	DIODE DS446
	89-109-521	TRANSISTOR,2SA952 K	D603	87-020-123	DIODE DS446
	89-109-705	TRANSISTOR,2SA970 GR,BL	D604	87-020-123	DIODE DS446
	89-110-154	TRANSISTOR,2SA1015 Y,GR	△ FR201	★ 87-029-066	RES,FUSIBLE 1.5 1/2W
	89-309-457	TRANSISTOR,2SC945 L,K			
	89-309-455	TRANSISTOR,2SC945 PQ	L351	★ 82-135-631	COIL FILTER TRAP 85K
	89-309-452	TRANSISTOR,2SC945 Q,R	L352	★ 82-135-631	COIL FILTER TRAP 85K
	89-318-155	TRANSISTOR,2SC1815 GR	L353	★ 87-003-128	COIL MICRO INDUCTOR 5.6MMH
	89-318-154	TRANSISTOR,2SC1815 Y,GR	L354	★ 87-003-128	COIL MICRO INDUCTOR 5.6MMH
	89-320-011	TRANSISTOR,2SC2001 K			
	89-322-405	TRANSISTOR,2SC2240 GR,BL	L401	★ 82-194-632	COIL OSC BIAS 85K
	89-408-805	TRANSISTOR,2SD880 GR	L402	★ 87-005-214	COIL MICRO INDUCTOR 330UH
	89-413-023	TRANSISTOR,2SD1302 S,T	L601	★ 82-189-642	COIL OSC LM6400
			R303	★ 87-025-402	RES,MFO 100K 1/8W
--- MAIN CIRCUIT BOARD SECTION ---			R304	★ 87-025-402	RES,MFO 100K 1/8W
PCB-A	82-148-609	MAIN CIRCUIT BOARD	RY401	87-045-237	RELAY GSA-237P
C202	★ 89-663-815	CAP,CERA-SOL 0.01 (EXCEPT Z)	SFR301★	87-021-739	SFR 2.2K
C203	★ 89-663-815	CAP,CERA-SOL 0.01 (EXCEPT Z)	SFR302★	87-021-739	SFR 2.2K
C205	★ 87-010-232	CAP,ELECT 220/16			
C206	★ 87-010-049	CAP,ELECT 330/25 (105)	SFR303★	87-021-738	SFR 1K
C207	★ 87-010-263	CAP,ELECT 100/10	SFR304★	87-021-738	SFR 1K
C208	★ 87-010-379	CAP,ELECT 22/16 SME	SFR351★	87-021-741	SFR 4.7K
C209	★ 87-010-379	CAP,ELECT 22/16 SME	SFR352★	87-021-741	SFR 4.7K
C301	★ 87-018-039	CAP,CERA-SOL 390P			
C302	★ 87-018-039	CAP,CERA-SOL 390P	SFR401★	87-021-746	SFR 100K
C303	★ 87-018-040	CAP,CERA-SOL 470P	SFR402★	87-021-746	SFR 100K
C304	★ 87-018-040	CAP,CERA-SOL 470P			
C307	★ 87-010-374	CAP,ELECT 47/10	--- DISPLAY CIRCUIT BOARD SECTION ---		
C308	★ 87-010-374	CAP,ELECT 47/10	PCB-B	*	DISPLAY CIRCUIT BOARD
C309	★ 87-018-039	CAP,CERA-SOL 390P	C805	★ 87-010-401	CAP,ELECT 1/50
C310	★ 87-018-039	CAP,CERA-SOL 390P	C806	★ 87-010-401	CAP,ELECT 1/50
C313	★ 87-010-404	CAP,ELECT 4.7/50 SME	C807	★ 87-010-379	CAP,ELECT 22-16 SME
C314	★ 87-010-404	CAP,ELECT 4.7/50 SME			
C331	★ 87-010-112	CAP,ELECT 100/16	C808	★ 87-010-379	CAP,ELECT 22-16 SME
C351	★ 87-010-263	CAP,ELECT 100/10	C809	★ 87-010-403	CAP,ELECT 3.3/50 SME
C353	★ 87-010-374	CAP,ELECT 47/10	D801	★ 87-027-542	LED LN217RP (PEAK METER,+10)
C354	★ 87-010-374	CAP,ELECT 47/10	D802	★ 87-027-542	LED LN217RP (PEAK METER,+10)
C365	★ 87-010-404	CAP,ELECT 4.7/50 SME	D803	★ 87-027-542	LED LN217RP (PEAK METER,+6)
C366	★ 87-010-404	CAP,ELECT 4.7/50 SME	D804	★ 87-027-542	LED LN217RP (PEAK METER,+6)
C401	★ 87-018-034	CAP,CERA-SOL 150P	D805	★ 87-027-542	LED LN217RP (PEAK METER,+3)
C402	★ 87-018-034	CAP,CERA-SOL 150P	D806	★ 87-027-542	LED LN217RP (PEAK METER,+3)
C403	★ 87-014-071	CAP,PP 3900P			
C404	★ 87-010-379	CAP,ELECT 22/16 SME	D807	★ 87-027-543	LED LN317GP (PEAK METER,0)
C407	★ 87-010-404	CAP,ELECT 4.7/50 SME	D808	★ 87-027-543	LED LN317GP (PEAK METER,0)
C408	★ 87-010-404	CAP,ELECT 4.7/50 SME	D809	★ 87-027-543	LED LN317GP (PEAK METER,-3)
C501	★ 87-010-231	CAP,ELECT 220/10 KS	D810	★ 87-027-543	LED LN317GP (PEAK METER,-3)
C502	★ 87-010-231	CAP,ELECT 220/10 KS			
C505	★ 87-010-379	CAP,ELECT 22/16 SME	D811	★ 87-027-543	LED LN317GP (PEAK METER,-7)
C506	★ 87-010-379	CAP,ELECT 22/16 SME	D812	★ 87-027-543	LED LN317GP (PEAK METER,-7)
C531	★ 87-010-379	CAP,ELECT 22/16 SME	D813	★ 87-027-543	LED LN317GP (PEAK METER,-20)
C601	★ 87-018-044	CAP,CERA-SOL 1000P	D814	★ 87-027-543	LED LN317GP (PEAK METER,-20)
C602	★ 87-010-429	CAP,ELECT 680/16 SME			
C603	★ 87-010-429	CAP,ELECT 680/16 SME	D815	★ 87-027-543	LED LN317GP (PEAK METER,∞)
C651	★ 87-010-400	CAP,ELECT 0.47/50 SME	D816	★ 87-027-543	LED LN317GP (PEAK METER,∞)
			D817	★ 87-020-686	LED SG232D (DOLBY B-TYPE)
			D818	★ 87-020-684	LED SR632D (DOLBY C-TYPE)
			D819	★ 87-020-684	LED SR632D (TAPE TYPE-METAL)
			D820	★ 87-020-685	LED SY432D (TAPE TYPE-CO)
			D821	★ 87-020-686	LED SG232D (TAPE TYPE-NORMAL)
			D822	★ 87-020-142	LED SLP984A-51 (REVERSE MODE ≡)
			D823	★ 87-020-142	LED SLP984A-51 (REVERSE MODE ≡)
			D824	★ 87-020-142	LED SLP984A-51 (REVERSE MODE ≡)
			D825	87-020-110	DIODE 1SS177
			D826	★ 87-020-744	LED 350GP-LS (DIRECTION ◀)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
D827	★ 87-020-744	LED 350GP-LS (DIRECTION ►)	C959	★ 87-010-401	CAP,ELECT 1/50 (Z ONLY)
D830	87-020-110	DIODE 1SS177	C960	★ 87-010-401	CAP,ELECT 1/50 (Z ONLY)
D831	87-020-110	DIODE 1SS177	D901	87-020-110	DIODE 1SS177
D832	87-020-110	DIODE 1SS177	D902	87-020-110	DIODE 1SS177
L801	★ 87-008-318	COIL MPX FILTER	D951	87-020-123	DIODE DS446 (Z ONLY)
S801	87-031-807	SLIDE SW 2-2-3 (DOLBY B-C NR)	J901-1	87-049-055	JACK PIN 4P-17 (LINE IN/REC)
VR801	82-148-620	VOLUME SR 50KA X2 L5 (REC LEVEL)	J901-2	+++	JACK PIN 4P-17 (LINE IN/REC)
VR802	82-199-632	VOLUME 250KW (BALANCE)	J901-3	+++	JACK PIN 4P-17 (LINE OUT/PLAY)
VR803	82-197-632	VOLUME HO 50KB CC (BIAS FINE)	J901-4	+++	JACK PIN 4P-17 (LINE OUT/PLAY)
=== POWER CIRCUIT BOARD SECTION ===			J951	87-049-079	JACK DIN 5P (REC/PLAY) (Z ONLY)
PCB-C	*	POWER CIRCUIT BOARD	RY951	87-045-202	RELAY LEAD (Z ONLY)
C551	★ 87-010-381	CAP,ELECT 330/16 SME	S951	87-031-752	SLIDE SW (INPUT SELECT.)(Z ONLY)
C552	★ 87-018-134	CAP,CERA-SOL SS 0.01	=== TERMINAL CIRCUIT BOARD SECTION ===		
C553	★ 87-012-105	CAP,CERA-SOL 0.022	PCB-F	*	TERMINAL CIRCUIT BOARD (E,K,Z,G ONLY)
C554	★ 87-012-105	CAP,CERA-SOL 0.022	=== DECK CIRCUIT BOARD SECTION ===		
C555	★ 87-010-374	CAP,ELECT 47/10	PCB-G	*	DECK CIRCUIT BOARD
C556	★ 87-010-374	CAP,ELECT 47/10	S101	86-517-621	LEAF SW (CAST)
C557	★ 87-010-400	CAP,ELECT 0.47/50 SME	S102	86-517-621	LEAF SW (ENA A)
C558	★ 87-010-400	CAP,ELECT 0.47/50 SME	S103	86-517-612	LEAF SW (ENA B)
J551	87-049-394	JACK 6.3 (PHONES)	S104	87-031-374	LEAF SW (DIRECT)
S551	82-148-621	PUSH SW 2-2-2 (POWER)	S105	86-517-621	LEAF SW (MT)
=== KEY SWITCH CIRCUIT BOARD SECTION ===			S106	86-517-621	LEAF SW (CO)
PCB-D	*	KEY SWITCH CIRCUIT BOARD	SOL101	86-517-611	SOLENOID 2ME-1A
D851	87-020-110	DIODE 1SS177	SOL102	86-517-612	SOLENOID 2ME-1B
D852	87-020-110	DIODE 1SS177	=== SENSOR CIRCUIT BOARD SECTION ===		
D853	87-020-110	DIODE 1SS177	PCB-H	*	SENSOR CIRCUIT BOARD
D854	87-020-110	DIODE 1SS177	CP101	87-020-457	PHOTO SENSOR NJL-5144L-B
D855	87-020-110	DIODE 1SS177	=== DOLBY-NR CIRCUIT BOARD SECTION ===		
D856	87-020-110	DIODE 1SS177	87-020-132 DOLBY UNIT HA-12058J (W/PCB-I)		
D857	87-020-110	DIODE 1SS177	=== MISCELLANEOUS ===		
D858	87-020-110	DIODE 1SS177	△	★ 87-085-184	AC CORD BUSHING D (H,U,C ONLY)
D859	87-020-110	DIODE 1SS177	△	★ 87-085-185	AC CORD BUSHING E (E,K,Z G ONLY)
D860	87-020-110	DIODE 1SS177	△	★ 87-034-732	AC CORD H (H ONLY)
D861	87-020-110	DIODE 1SS177	△	★ 87-034-578	AC CORD U (U,C ONLY)
D862	87-020-110	DIODE 1SS177	△	★ 82-187-797	AC CORD EE (E,Z ONLY)
D863	87-020-110	DIODE 1SS177	△	★ 82-187-796	AC CORD K (K ONLY)
D864	★ 87-020-169	LED SLP277B (REVERSE PLAY)	△	★ 82-187-795	AC CORD AS (G ONLY)
D865	★ 87-020-169	LED SLP277B (PLAY)		87-033-140	SPLICE CONNECTOR (H,U,C ONLY)
D866	★ 87-020-170	LED SLP477B (PAUSE)		82-146-633	CONNECTOR ASSY RVS HEAD
D867	★ 87-020-168	LED SLP177B (REC MUTE)	M101	87-045-238	MOTOR DC MMA-6BZLA
D868	★ 87-020-168	LED SLP177B (RECORD)	△PT1	82-143-611	POWER TRANSFORMER H (H ONLY)
S851	87-031-771	TACT SW (◀▶)	△PT1	82-143-612	POWER TRANSFORMER (U,C ONLY)
S852	87-031-771	TACT SW (REVERSE PLAY)	△PT1	82-143-613	POWER TRANSFORMER E (E,Z ONLY)
S853	87-031-771	TACT SW (PLAY)	△PT1	82-143-614	POWER TRANSFORMER K (K,G ONLY)
S854	87-031-771	TACT SW (▶▶)	RPEH	87-046-259	RP/E HEAD HD425820
S855	87-031-771	TACT SW (STOP)	S1	87-031-353	ROTARY SW (AC VOLTAGE) (H ONLY)
S856	87-031-771	TACT SW (PAUSE)			
S857	87-031-771	TACT SW (REC MUTE)			
S858	87-031-771	TACT SW (RECORD)			
S859	87-031-807	SLIDE SW 2-2-3 (REVERSE MODE)			
S860	87-031-807	SLIDE SW 2-2-3 (TIMER)			
=== DIN PIN CIRCUIT BOARD SECTION ===					
PCB-E	*	DIN PIN CIRCUIT BOARD			
C951	★ 87-010-260	CAP,ELECT 47/25 (Z ONLY)			
C953	★ 87-010-400	CAP,ELECT 0.47/50 SME (Z ONLY)			
C954	★ 87-010-400	CAP,ELECT 0.47/50 SME (Z ONLY)			
C955	★ 87-018-012	CAP,CERA-SOL 15P J (Z ONLY)			
C956	★ 87-018-012	CAP,CERA-SOL 15P J (Z ONLY)			
C957	★ 87-018-089	CAP,CERA-SOL 470P (Z ONLY)			
C958	★ 87-018-089	CAP,CERA-SOL 470P (Z ONLY)			

CAPACITORS COILS FUSE
 No mark, U, UF: μ F MMH: mH MMA: mA
 P, PF : pF UH : μ H

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- * -mark means less required items and availabilities may be limited.

ELECTRICAL MAIN PARTS LIST(AD-F360, F15U)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
--- IC ---			D302	87-020-110	DIODE 1SS177
	87-020-454	IC,DM6851	D401	87-020-110	DIODE 1SS177
	87-020-489	IC,IR2E19	D402	87-020-110	DIODE 1SS177
	87-020-080	IC,L78N12	D406	87-020-110	DIODE 1SS177
	82-146-642	IC,L6402G-572	D602	87-020-123	DIODE DS446
	87-027-895	IC,M5218L	D603	87-020-123	DIODE DS446
	87-027-554	IC,UPD4066	D604	87-020-123	DIODE DS446
--- TRANSISTOR ---			△FR201	* 87-029-066	RES,FUSIBLE 1.5 1/2W
	89-109-521	TRANSISTOR,2SA952 K	L351	* 82-135-631	COIL FILTER TRAP 85K
	89-109-705	TRANSISTOR,2SA970 GR,BL	L352	* 82-135-631	COIL FILTER TRAP 85K
	89-110-154	TRANSISTOR,2SA1015 Y,GR	L353	* 87-003-128	COIL MICRO INDUCTOR 5.6MMH
	89-309-457	TRANSISTOR,2SC945 L,K	L354	* 87-003-128	COIL MICRO INDUCTOR 5.6MMH
	89-309-455	TRANSISTOR,2SC945 PQ	L401	* 82-194-632	COIL OSC BIAS 85K
	89-309-452	TRANSISTOR,2SC945 Q,R	L402	* 87-005-214	COIL MICRO INDUCTOR 330UH
	89-318-155	TRANSISTOR,2SC1815 GR	L601	* 82-189-642	COIL OSC LM6400
	89-318-154	TRANSISTOR,2SC1815 Y,GR	R303	* 87-025-402	RES,MFO 100K 1/8W
	89-320-011	TRANSISTOR,2SC2001 K	R304	87-025-402	RES,MFO 100K 1/8W
	89-322-405	TRANSISTOR,2SC2240 GR,BL	RY401	87-045-237	RELAY GSA-237P
	89-408-805	TRANSISTOR,2SD880 GR	SFR301*	87-021-739	SFR 2.2K
	89-413-023	TRANSISTOR,2SD1302 S,T	SFR302*	87-021-739	SFR 2.2K
--- MAIN CIRCUIT BOARD SECTION ---			SFR303*	87-021-738	SFR 1K
PCB-A	82-148-609	MAIN CIRCUIT BOARD	SFR304*	87-021-738	SFR 1K
C202	* 89-663-815	CAP,CERA-SOL 0.01	SFR351*	87-021-741	SFR 4.7K
C203	* 89-663-815	CAP,CERA-SOL 0.01	SFR352*	87-021-741	SFR 4.7K
C205	* 87-010-232	CAP,ELECT 220/16	SFR401*	87-021-746	SFR 100K
C206	* 87-010-049	CAP,ELECT 330/25 (105)	SFR402*	87-021-746	SFR 100K
C207	* 87-010-263	CAP,ELECT 100/10	--- DISPLAY CIRCUIT BOARD SECTION ---		
C208	* 87-010-379	CAP,ELECT 22/16 SME	PCB-B	*	DISPLAY CIRCUIT BOARD
C209	* 87-010-379	CAP,ELECT 22/16 SME	C805	* 87-010-401	CAP,ELECT 1/50
C301	* 87-018-039	CAP,CERA-SOL 390P	C806	* 87-010-401	CAP,ELECT 1/50
C302	* 87-018-039	CAP,CERA-SOL 390P	C807	* 87-010-379	CAP,ELECT 22-16 SME
C303	* 87-018-040	CAP,CERA-SOL 470P	C808	* 87-010-379	CAP,ELECT 22-16 SME
C304	* 87-018-040	CAP,CERA-SOL 470P	C809	* 87-010-403	CAP,ELECT 3.3/50 SME
C307	* 87-010-374	CAP,ELECT 47/10	D801	* 87-027-542	LED LN217RP (PEAK METER,+10)
C308	* 87-010-374	CAP,ELECT 47/10	D802	* 87-027-542	LED LN217RP (PEAK METER,+10)
C309	* 87-018-039	CAP,CERA-SOL 390P	D803	* 87-027-542	LED LN217RP (PEAK METER,+5)
C310	* 87-018-039	CAP,CERA-SOL 390P	D804	* 87-027-542	LED LN217RP (PEAK METER,+5)
C313	* 87-010-404	CAP,ELECT 4.7/50 SME	D805	* 87-027-542	LED LN217RP (PEAK METER,+3)
C314	* 87-010-404	CAP,ELECT 4.7/50 SME	D806	* 87-027-542	LED LN217RP (PEAK METER,+3)
C331	* 87-010-112	CAP,ELECT 100/16	D807	* 87-027-543	LED LN317GP (PEAK METER,0)
C351	* 87-010-263	CAP,ELECT 100/10	D808	* 87-027-543	LED LN317GP (PEAK METER,0)
C353	* 87-010-374	CAP,ELECT 47/10	D809	* 87-027-543	LED LN317GP (PEAK METER,-3)
C354	* 87-010-374	CAP,ELECT 47/10	D810	* 87-027-543	LED LN317GP (PEAK METER,-3)
C365	* 87-010-404	CAP,ELECT 4.7/50 SME	D811	* 87-027-543	LED LN317GP (PEAK METER,-7)
C366	* 87-010-404	CAP,ELECT 4.7/50 SME	D812	* 87-027-543	LED LN317GP (PEAK METER,-7)
C401	* 87-018-034	CAP,CERA-SOL 150P	D813	* 87-027-543	LED LN317GP (PEAK METER,-20)
C402	* 87-018-034	CAP,CERA-SOL 150P	D814	* 87-027-543	LED LN317GP (PEAK METER,-20)
C403	* 87-014-071	CAP,PP 3900P	D815	* 87-027-543	LED LN317GP (PEAK METER,-20)
C404	* 87-010-379	CAP,ELECT 22/16 SME	D816	* 87-027-543	LED LN317GP (PEAK METER,-20)
C407	* 87-010-404	CAP,ELECT 4.7/50 SME	D817	* 87-020-686	LED SG232D (DOLBY B-TYPE)
C408	* 87-010-404	CAP,ELECT 4.7/50 SME	D818	* 87-020-684	LED SR632D (DOLBY C-TYPE)
C501	* 87-010-231	CAP,ELECT 220/10 KS	D819	* 87-020-684	LED SR632D (TAPE TYPE-METAL)
C502	* 87-010-231	CAP,ELECT 220/10 KS	D820	* 87-020-685	LED SY432D (TAPE TYPE-CO)
C505	* 87-010-379	CAP,ELECT 22/16 SME	D821	* 87-020-686	LED SG232D (TAPE TYPE-NORMAL)
C506	* 87-010-379	CAP,ELECT 22/16 SME	D830	87-020-110	DIODE 1SS177
C531	* 87-010-379	CAP,ELECT 22/16 SME	D831	87-020-110	DIODE 1SS177
C601	* 87-018-044	CAP,CERA-SOL 1000P	D832	87-020-110	DIODE 1SS177
C602	* 87-010-429	CAP,ELECT 680/16 SME	L801	* 87-008-318	COIL MPX FILTER
C603	* 87-010-429	CAP,ELECT 680/16 SME	S801	87-031-807	SLIDE SW 2-2-3 (DOLBY B-CNR)
D201	* 87-027-376	DIODE 1N4B41	VR801	82-148-620	VOLUME SR 50KA X2 L5 (REC LEVEL)
D301	87-020-110	DIODE 1SS177	VR802	82-199-632	VOLUME 250KW (BALANCE)
			VR803	82-197-632	VOLUME HO 50KB CC (BIAS FINE)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
--- POWER CIRCUIT BOARD SECTION ---			--- DECK CIRCUIT BOARD SECTION ---		
PCB-C	*	POWER CIRCUIT BOARD	PCB-G	*	DECK CIRCUIT BOARD
C551	★ 87-010-381	CAP,ELECT 330/16 SME	S101	86-517-621	LEAF SW (CAST)
C552	★ 87-018-134	CAP,CERA-SOL SS 0.01	S102	86-517-621	LEAF SW (ENA A)
C553	★ 87-012-105	CAP,CERA-SOL 0.022	S105	86-517-621	LEAF SW (MT)
C554	★ 87-012-105	CAP,CERA-SOL 0.022	S106	86-517-621	LEAF SW (CO)
C555	★ 87-010-374	CAP,ELECT 47/10	SOL101	86-517-611	SOLENOID 2ME-1A
C556	★ 87-010-374	CAP,ELECT 47/10	SOL102	86-517-612	SOLENOID 2ME-1B
C557	★ 87-010-400	CAP,ELECT 0.47/50 SME	--- MISCELLANEOUS ---		
C558	★ 87-010-400	CAP,ELECT 0.47/50 SME	△	★ 87-085-184	AC CORD BUSHING D (H,U,C ONLY)
J551	87-049-394	JACK 6.3 (PHONES)	△	★ 87-085-185	AC CORD BUSHING E (E,K,Z,G ONLY)
S551	82-148-621	PUSH SW 2-2-2 (POWER)	△	★ 87-034-732	AC CORD H (H ONLY)
--- KEY SWITCH CIRCUIT BOARD SECTION ---			△	★ 87-034-578	AC CORD U (U,C ONLY)
PCB-D	*	KEY SWITCH CIRCUIT BOARD	△	★ 82-187-797	AC CORD EE (E,Z ONLY)
D806	★ 87-020-170	LED SLP477B (PAUSE)	△	★ 82-187-796	AC CORD K (K ONLY)
D851	87-020-110	DIODE 1SS177	△	★ 82-187-795	AC CORD AS (G ONLY)
D853	87-020-110	DIODE 1SS177	△	82-149-641	CONNECTOR ASSY HEAD 9P
D854	87-020-110	DIODE 1SS177	M101	87-045-238	MOTOR DC MMA-6BZLA
D855	87-020-110	DIODE 1SS177	△ PT1	82-143-611	POWER TRANSFORMER H (H ONLY)
D856	87-020-110	DIODE 1SS177	△ PT1	82-143-612	POWER TRANSFORMER UC (U,C ONLY)
D857	87-020-110	DIODE 1SS177	△ PT1	82-143-613	POWER TRANSFORMER E (E,Z ONLY)
D858	87-020-110	DIODE 1SS177	△ PT1	82-143-614	POWER TRANSFORMER K (K,G ONLY)
D861	87-020-110	DIODE 1SS177	RPH	87-046-243	RP HEAD
D862	87-020-110	DIODE 1SS177	EH	87-046-196	E HEAD
D863	87-020-110	DIODE 1SS177	△ S1	87-031-853	ROTARY SW (AC VOLTAGE) (H ONLY)
D865	★ 87-020-169	LED SLP277B (PLAY)	Note; Combination Circuit Board		
D867	★ 87-020-168	LED SLP177B (REC MUTE)	The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.		
D868	★ 87-020-168	LED SLP177B (RECORD)	Combination circuit board 82-148-610		
S851	87-031-771	TACT SW (◀)	PCB-B	82-148-613	
S853	87-031-771	TACT SW (PLAY)	PCB-C	82-148-612	
S854	87-031-771	TACT SW (▶)	PCB-D	82-148-611	
S855	87-031-771	TACT SW (STOP)	PCB-E	82-148-614	
S856	87-031-771	TACT SW (PAUSE)	PCB-F	82-148-615 (E, K, Z ONLY)	
S857	87-031-771	TACT SW (REC MUTE)	Combination circuit board 86-517-601		
S858	87-031-771	TACT SW (RECORD)	PCB-G	86-517-602	
S860	87-031-807	SLIDE SW 2-2-3 (TIMER)	PCB-H	86-517-603 (AD-R460/R30U ONLY)	
--- DIN PIN CIRCUIT BOARD SECTION ---			IC handling precaution		
PCB-E	*	DIN PIN CIRCUIT BOARD	IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.		
C951	★ 87-010-260	CAP,ELECT 47/25 (Z ONLY)	1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.		
C953	★ 87-010-400	CAP,ELECT 0.47/50 SME (Z ONLY)	2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.		
C954	★ 87-010-400	CAP,ELECT 0.47/50 SME (Z ONLY)	3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.		
C955	★ 87-018-012	CAP,CERA-SOL 15P J (Z ONLY)	△ Safety component symbol		
C956	★ 87-018-012	CAP,CERA-SOL 15P J (Z ONLY)	This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.		
C957	★ 87-018-089	CAP,CERA-SOL 470P (Z ONLY)			
C958	★ 87-018-089	CAP,CERA-SOL 470P (Z ONLY)			
C959	★ 87-010-401	CAP,ELECT 1/50 (Z ONLY)			
C960	★ 87-010-401	CAP,ELECT 1/50 (Z ONLY)			
D901	87-020-110	DIODE 1SS177			
D902	87-020-110	DIODE 1SS177			
D951	87-020-123	DIODE DS446 (Z ONLY)			
J901-1	87-049-055	JACK PIN 4P-17 (LINE IN/REC)			
J901-2	+++	JACK PIN 4P-17 (LINE IN/REC)			
J901-3	+++	JACK PIN 4P-17 (LINE OUT/PLAY)			
J901-4	+++	JACK PIN 4P-17 (LINE OUT/PLAY)			
J951	87-049-079	JACK DIN 5P (REC/PLAY) (Z ONLY)			
RY951	87-045-202	RELAY LEAD (Z ONLY)			
S951	87-031-752	SLIDE SW (INPUT SELECT.)(Z ONLY)			
--- TERMINAL CIRCUIT BOARD SECTION ---					
PCB-F	*	TERMINAL CIRCUIT BOARD (E,K,Z,G ONLY)			
--- DOLBY-NR CIRCUIT BOARD SECTION ---					
87-020-132 DOLBY UNIT HA-12058J (W/PCB-I)					

• ADJUSTMENT (AD-F360/S15U, AD-R460/R30U)

A MAIN C.B

2. Playback Sensitivity Adjustment

Settings: • Test tape: TTA-161
 • Test point: J 901-3 (Lch)
 J 901-4 (Rch)
 • Dolby NR SW: OFF
 • Adjustment location:
 SFR301 (Lch)
 SFR302 (Rch)

Method: Playback the test tape, then adjust so that the output is $490\text{mV} \pm 10\text{mV}$.

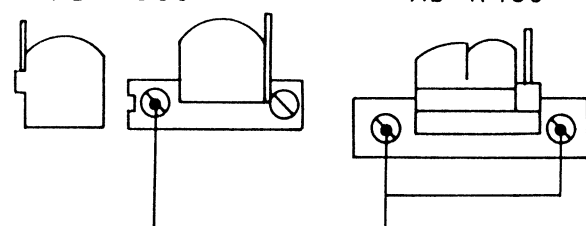
5. REC/PB Frequency Response Adjustment

Settings: • Test tape: TTA-119 J
 • Test point: J 901-3 (Lch)
 J 901-4 (Rch)
 • Dolby NR SW: OFF
 • Input level: -20dB
 • Adjustment location:
 SFR401 (Lch)
 SFR402 (Rch)

Method: Record and Playback the 1kHz and 10kHz signals, and adjust so the output difference becomes $-0.5 \pm 0.5\text{dB}$.

AD-F360

AD-R460



1. Head Azimuth Adjustment

Settings: • Test tape: TTA-317 E
 • Test point: LINE OUT
 (EXCEPT Z)
 DIN OUT (Z ONLY)
 • Adjustment location:
 REC, PB, E head
 azimuth adjustment screw
 (AD-R460/R30U)
 azimuth adjustment screw
 (AD-F360/S15U)

3. Playback Frequency Response Adjustment

Settings: • Test tape: TTA-317 E
 • Test point: J 901-3 (Lch)
 J 901-4 (Rch)
 • Dolby NR SW: OFF
 • Adjustment location:
 SFR303 (Lch)
 SFR304 (Rch)

Method: Playback the test tape, then adjust so that the output difference of 1kHz and 10kHz becomes $+0.5 \pm 0.5\text{dB}$

4. Bias Trap Coil Adjustment

Settings: Adjustment location:
 L351 (Lch)
 L352 (Rch)

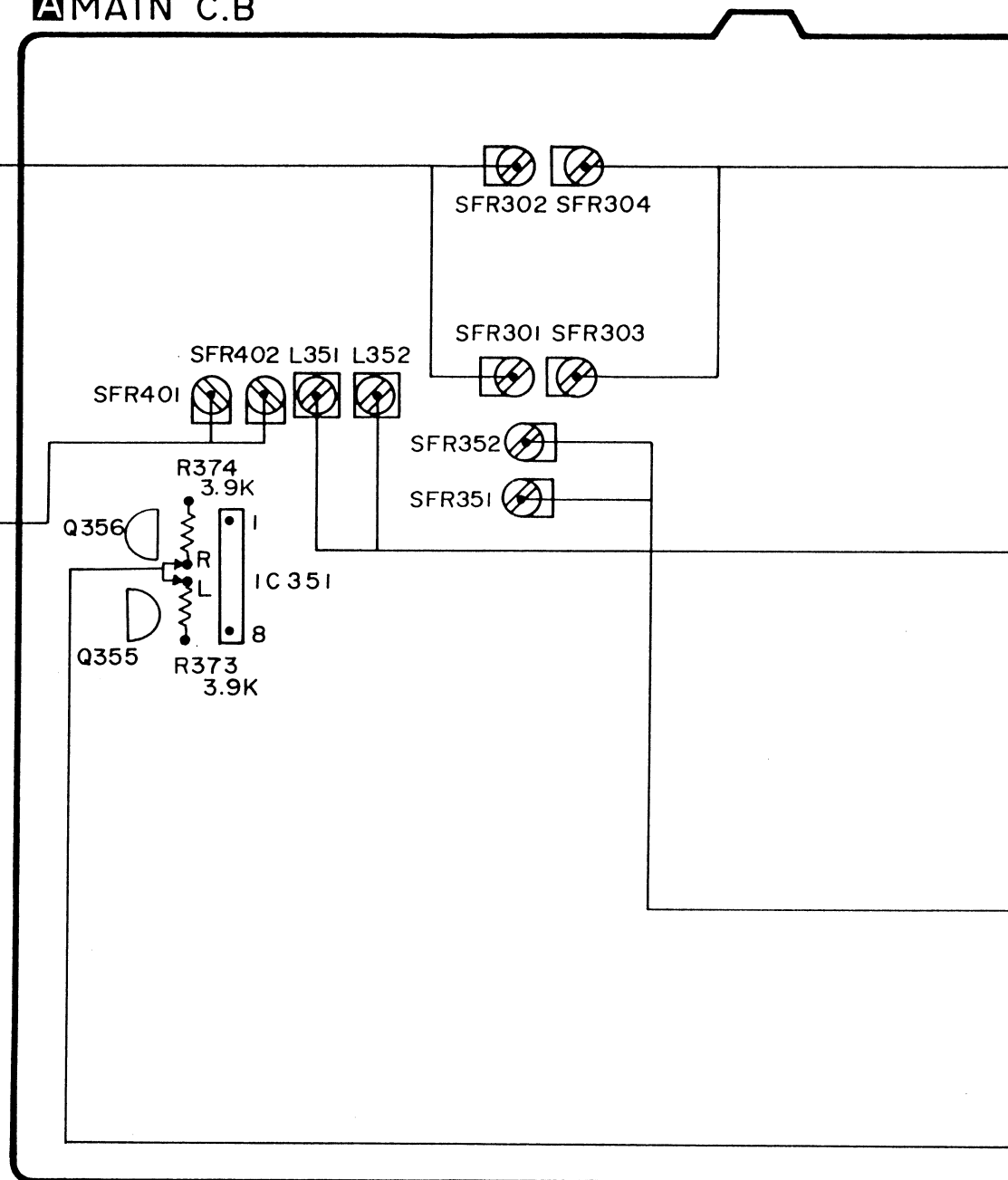
Method: Adjust L351, 352 for minimum leakage.

6. REC/PB Sensitivity Adjustment

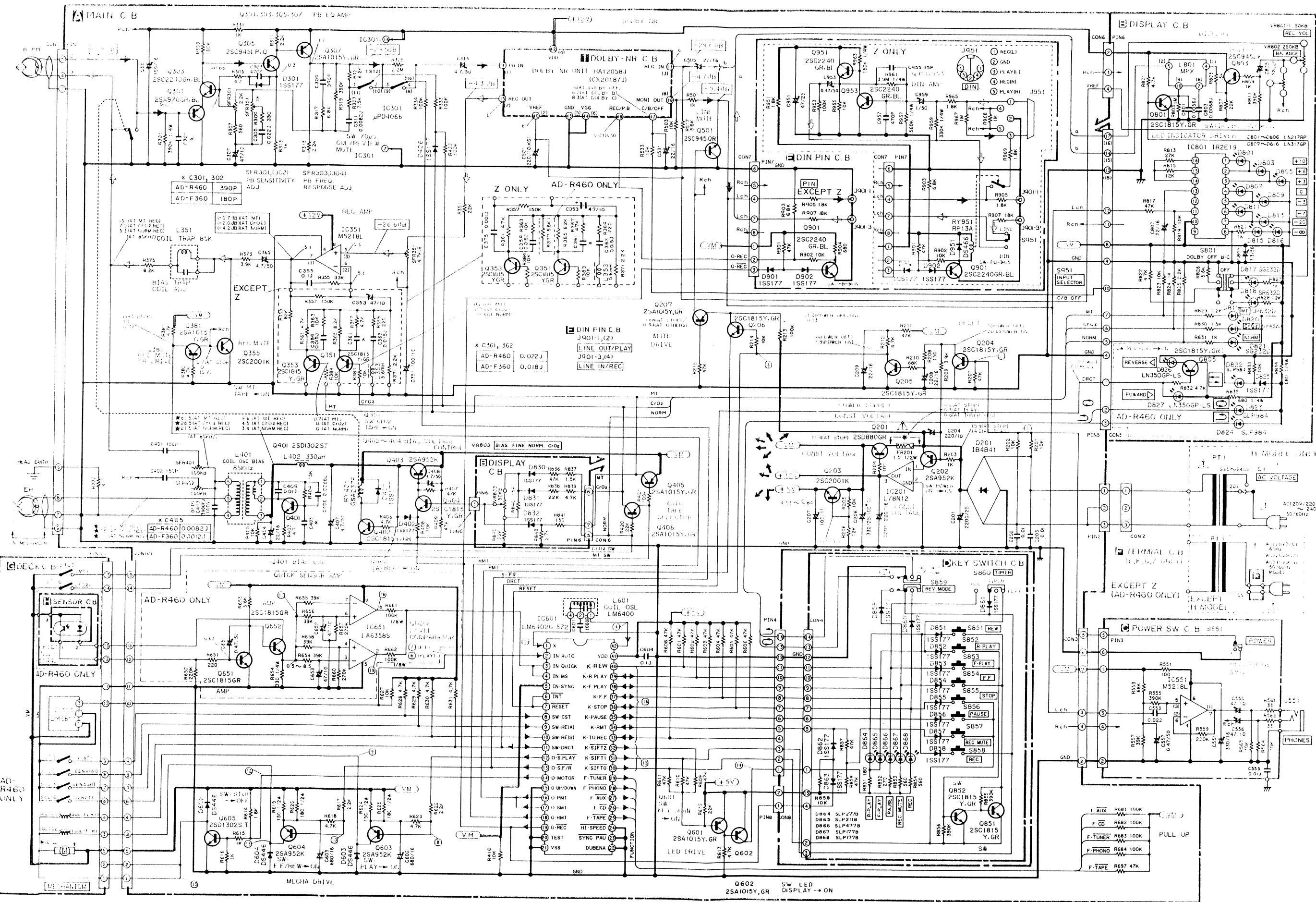
Settings: • Test tape: TTA-119 J
 • Test point: J 901-3 (Lch)
 J 901-4 (Rch)
 • Dolby NR SW: OFF
 • Adjustment location:
 SFR351 (Lch)
 SFR352 (Rch)

Method: Record and Playback a 1kHz signal and adjust so that the play output difference becomes $0 \sim 0.5\text{dB}$.

Bias Trap Coil Test Point



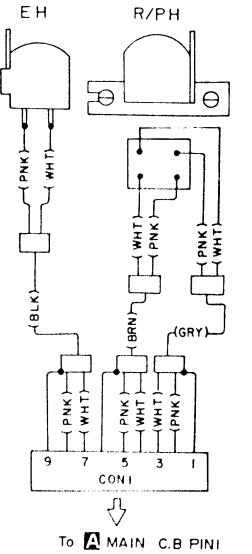
* J901-3(L)
 J901-4(R) } on the **E** DIN PIN C.B



 B (+) power supply
 Signal path
 Rec path

 **Safety component symbol**

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

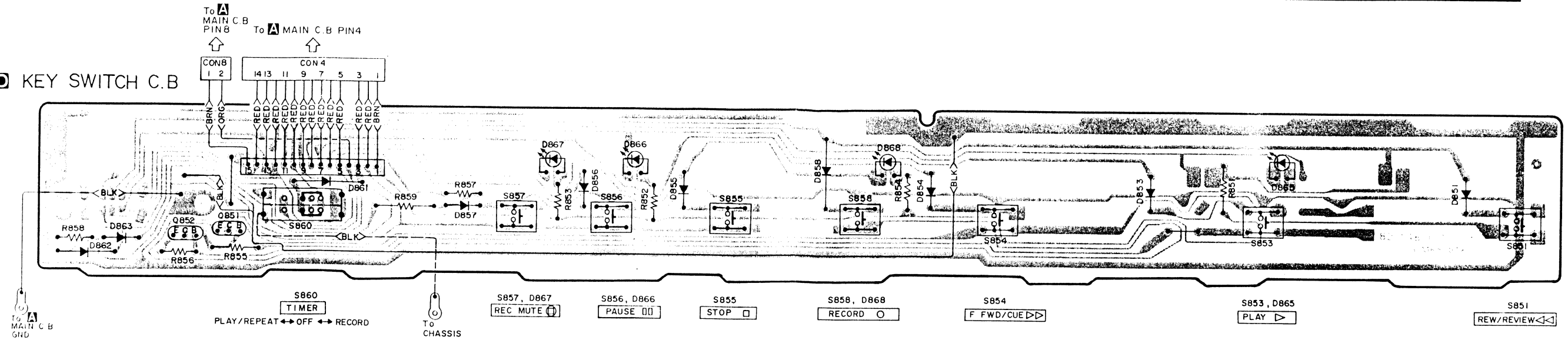


H MODEL ONLY

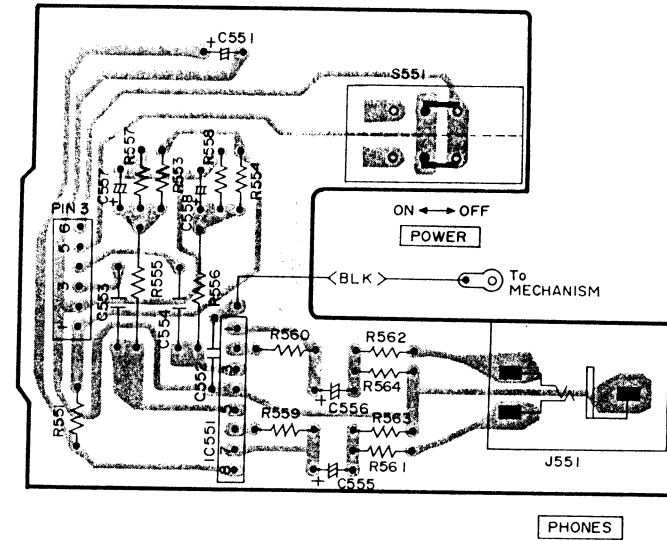
EXCEPT H MODEL

TERMINAL C.B. (E, K, Z, G ONLY)

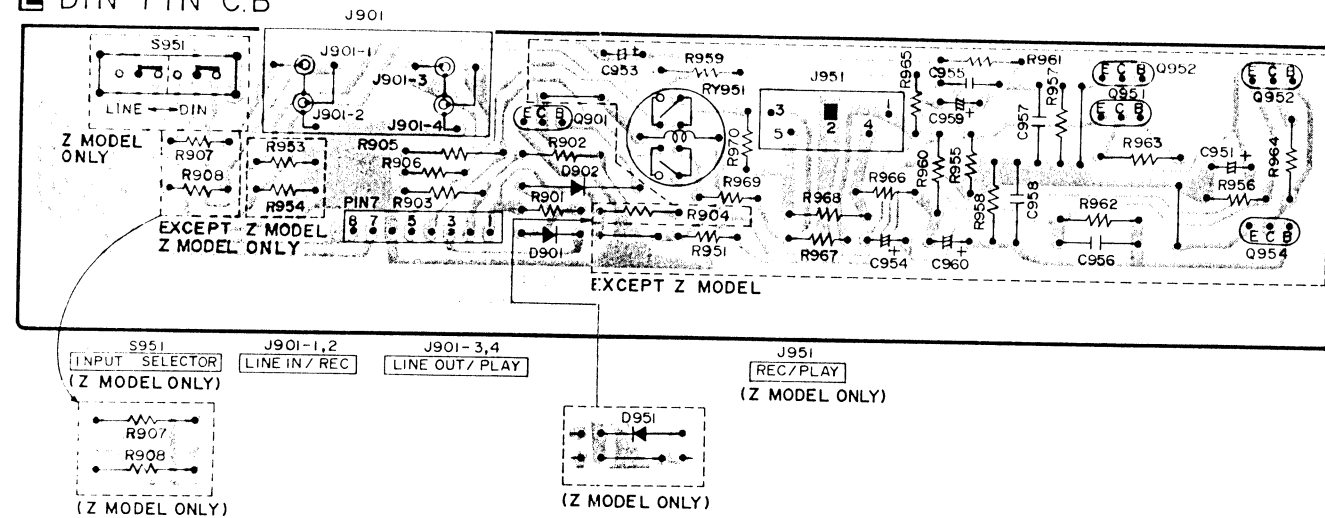
D KEY SWITCH C.B



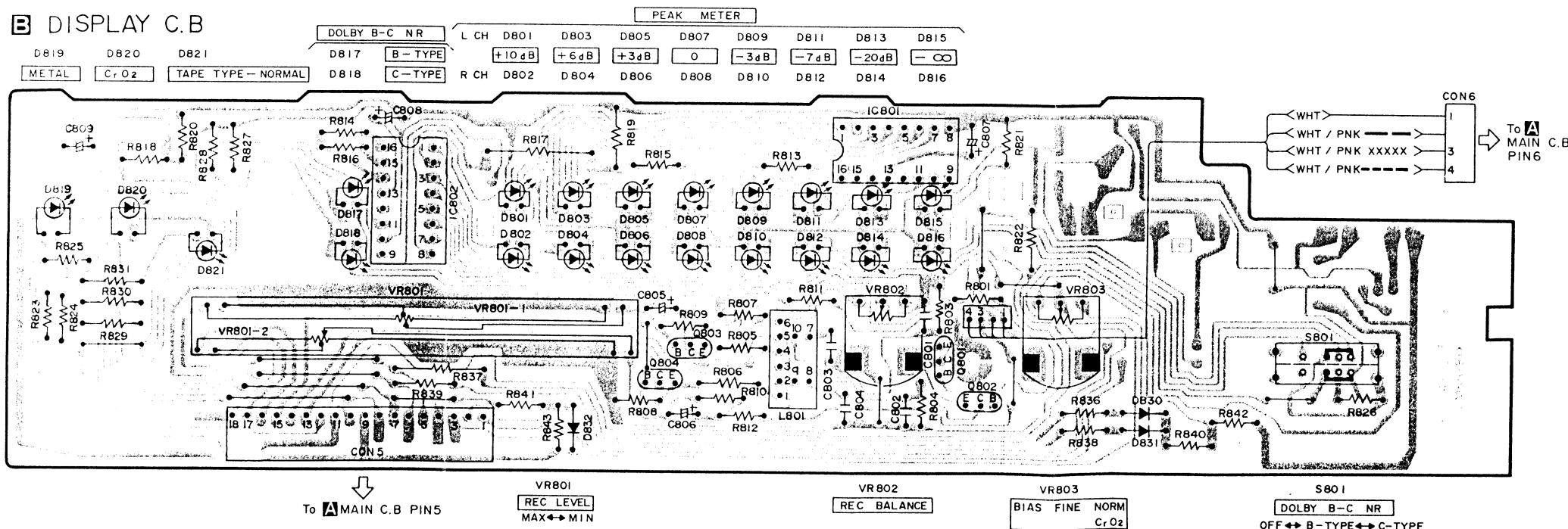
C POWER C.B



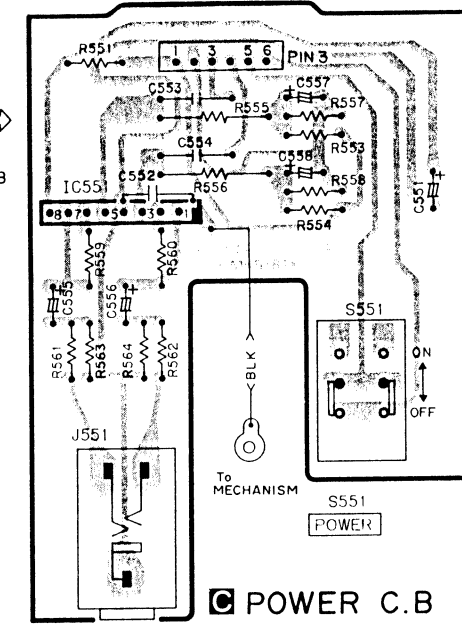
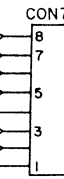
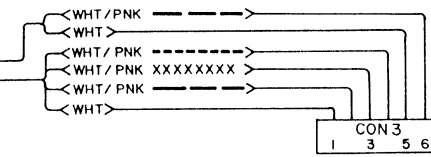
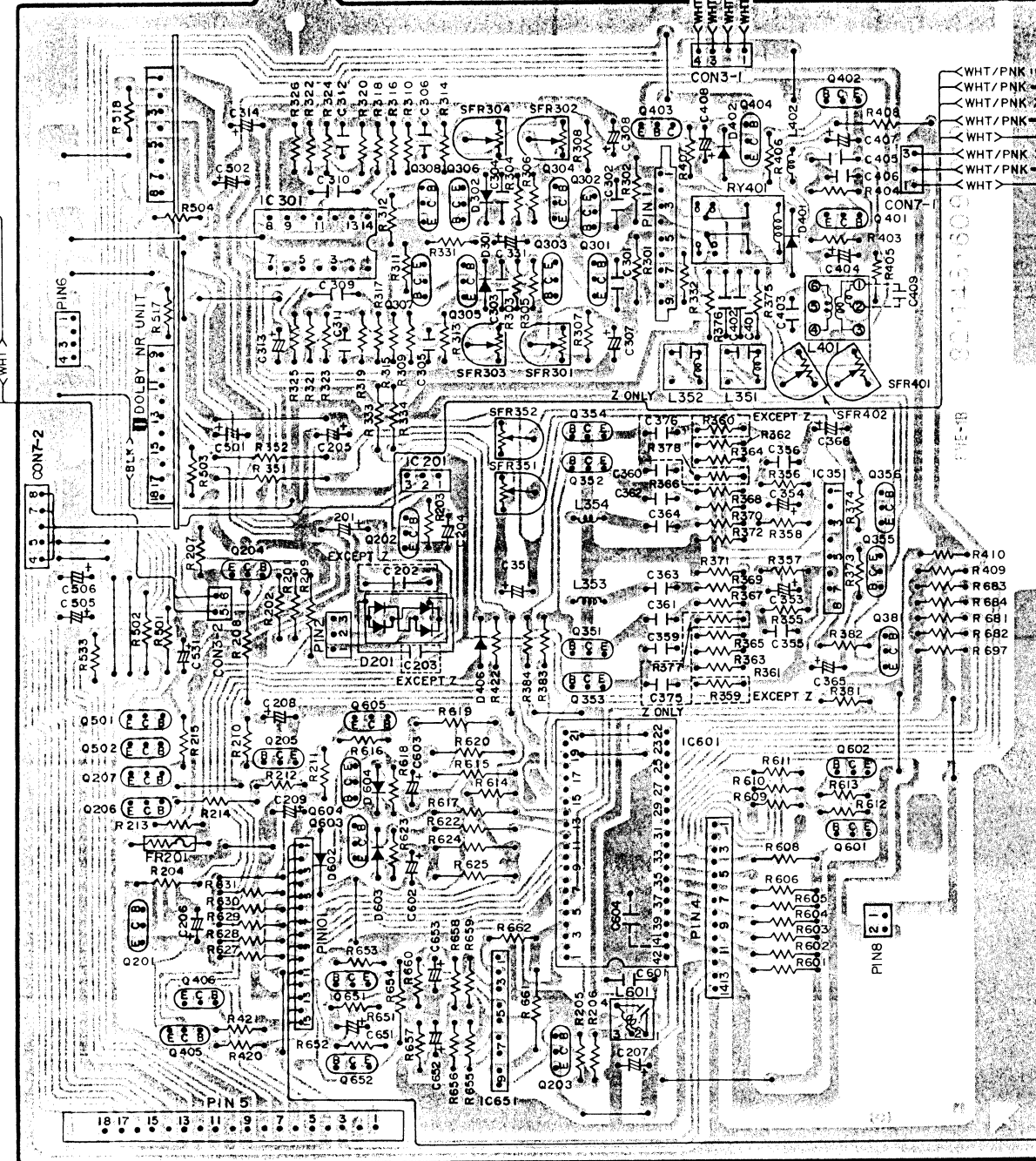
E DIN PIN C.B



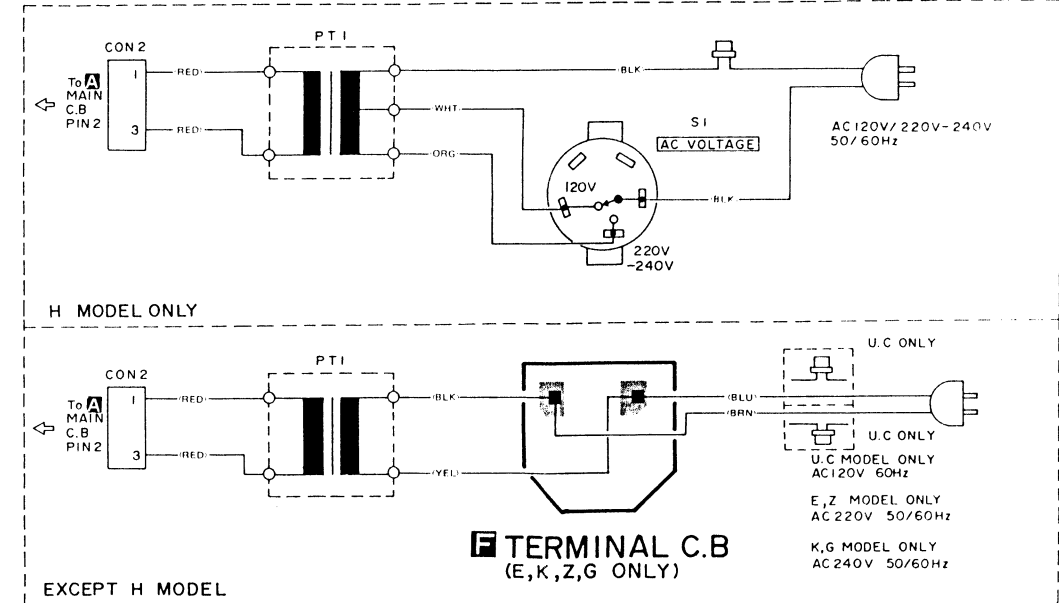
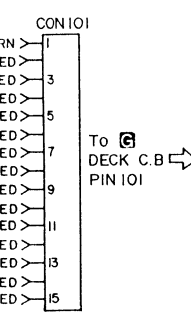
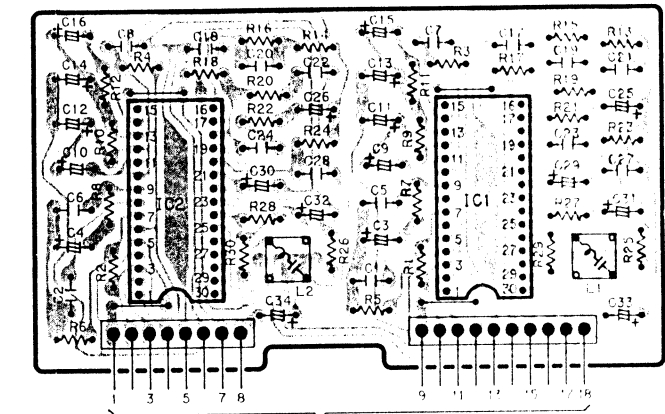
B DISPLAY C.B



A MAIN C.B

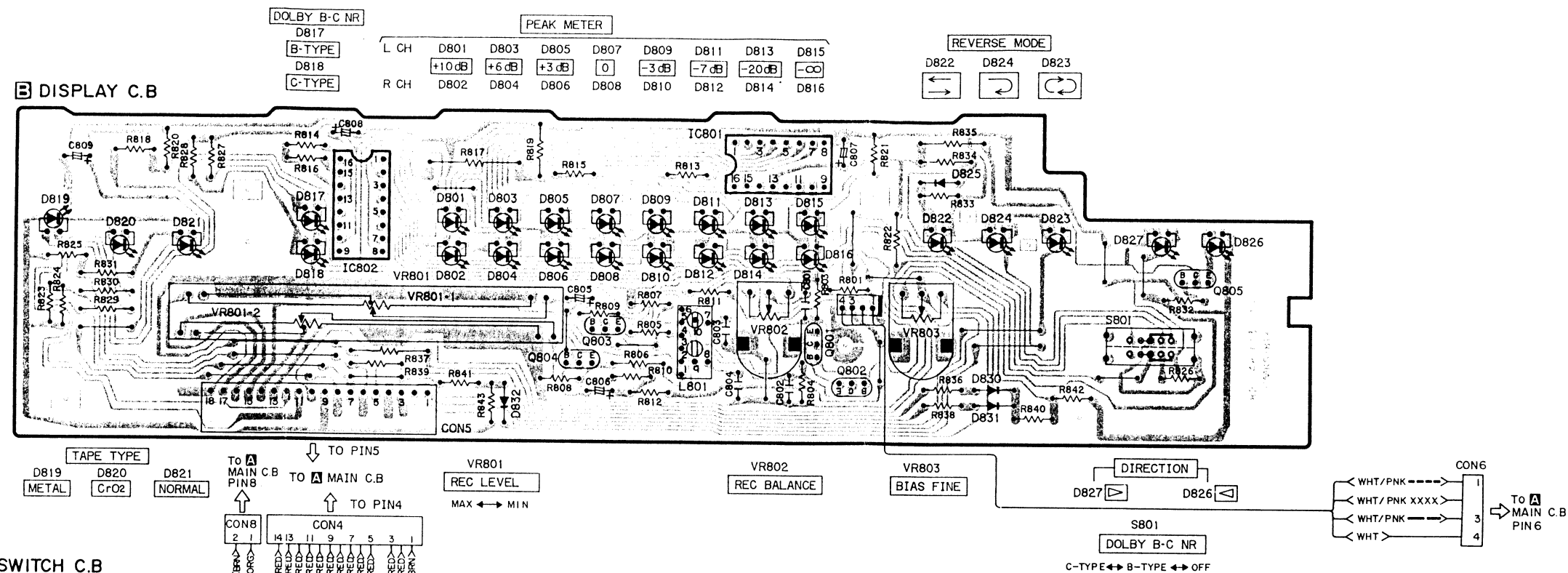


DOLBY-NR C.B

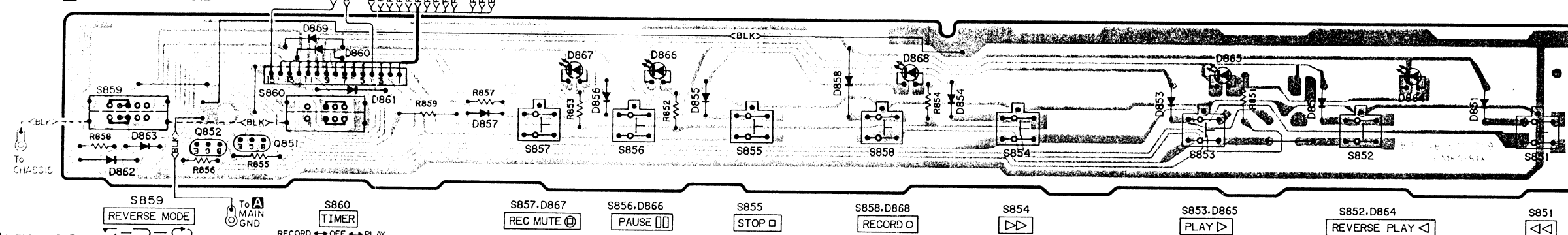


TERMINAL C.B (E,K,Z,G ONLY)

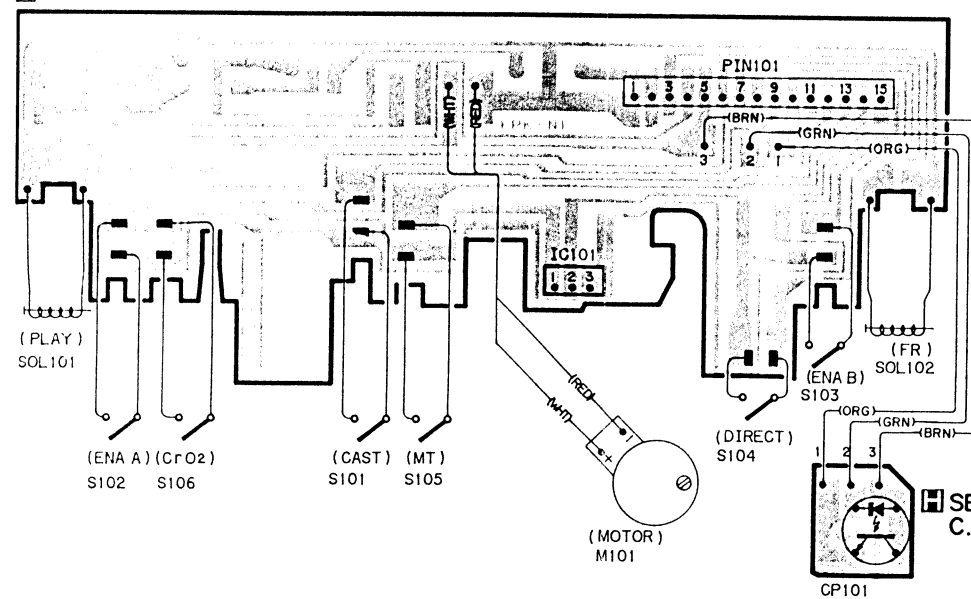
A
B
C
D
E
F
G
H
I
J
K



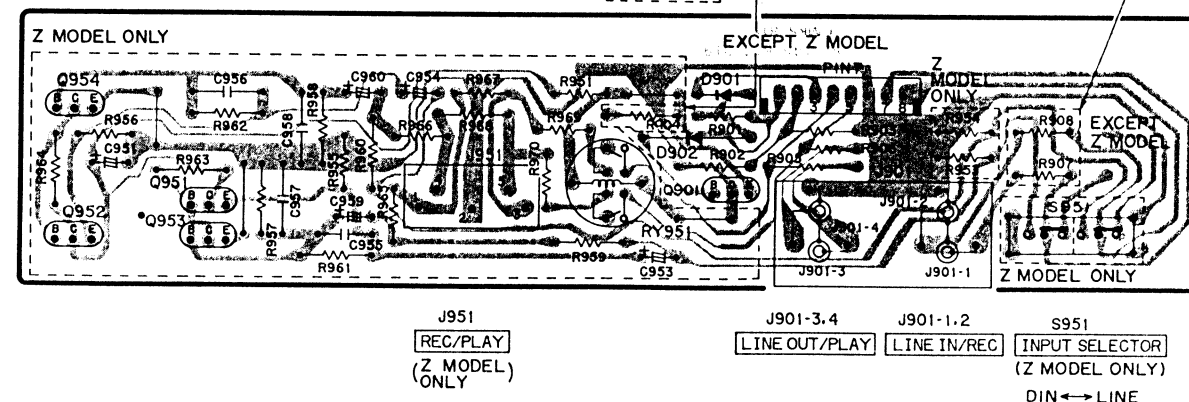
D KEY SWITCH C.B.



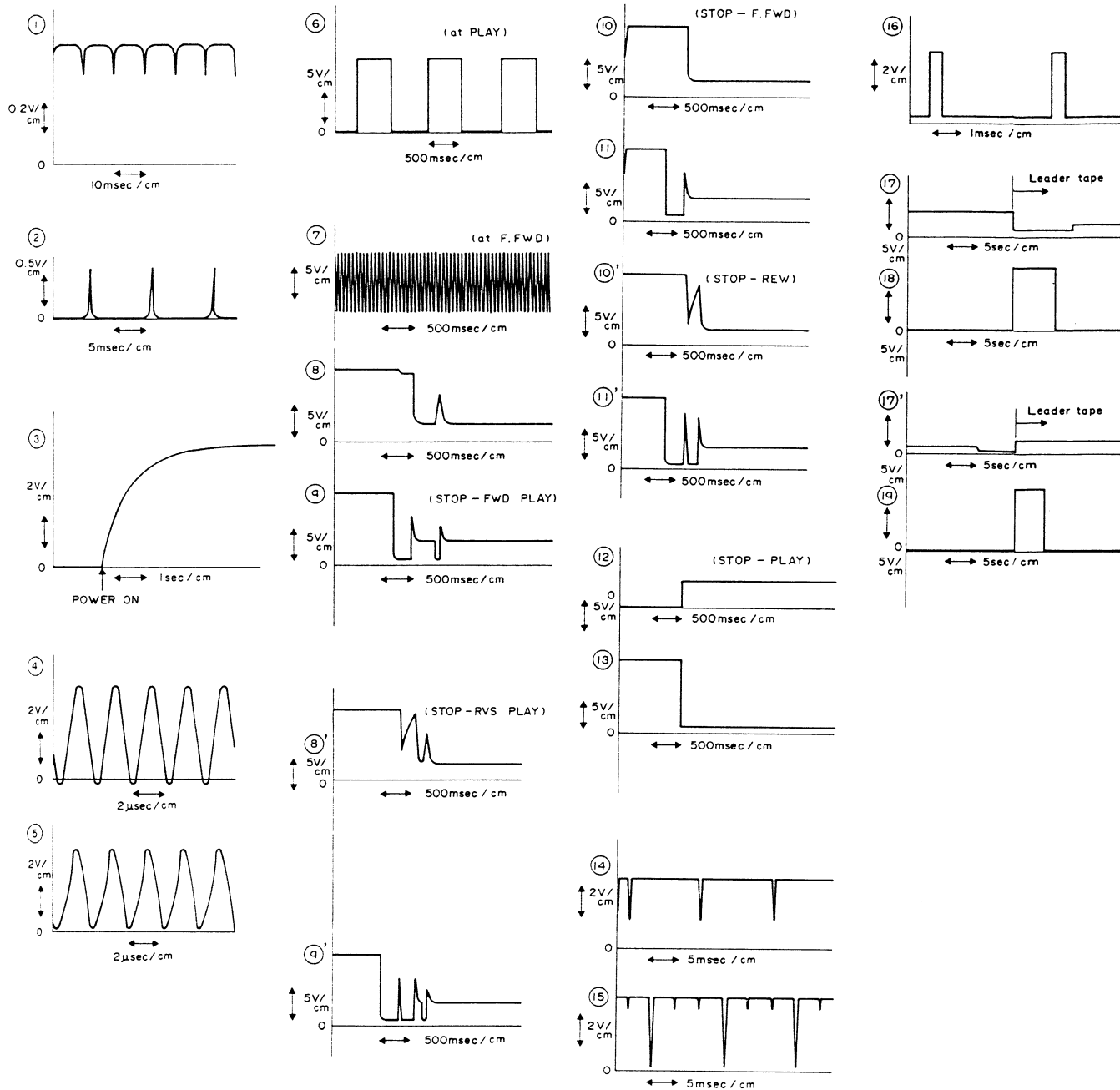
G DECK C.B.



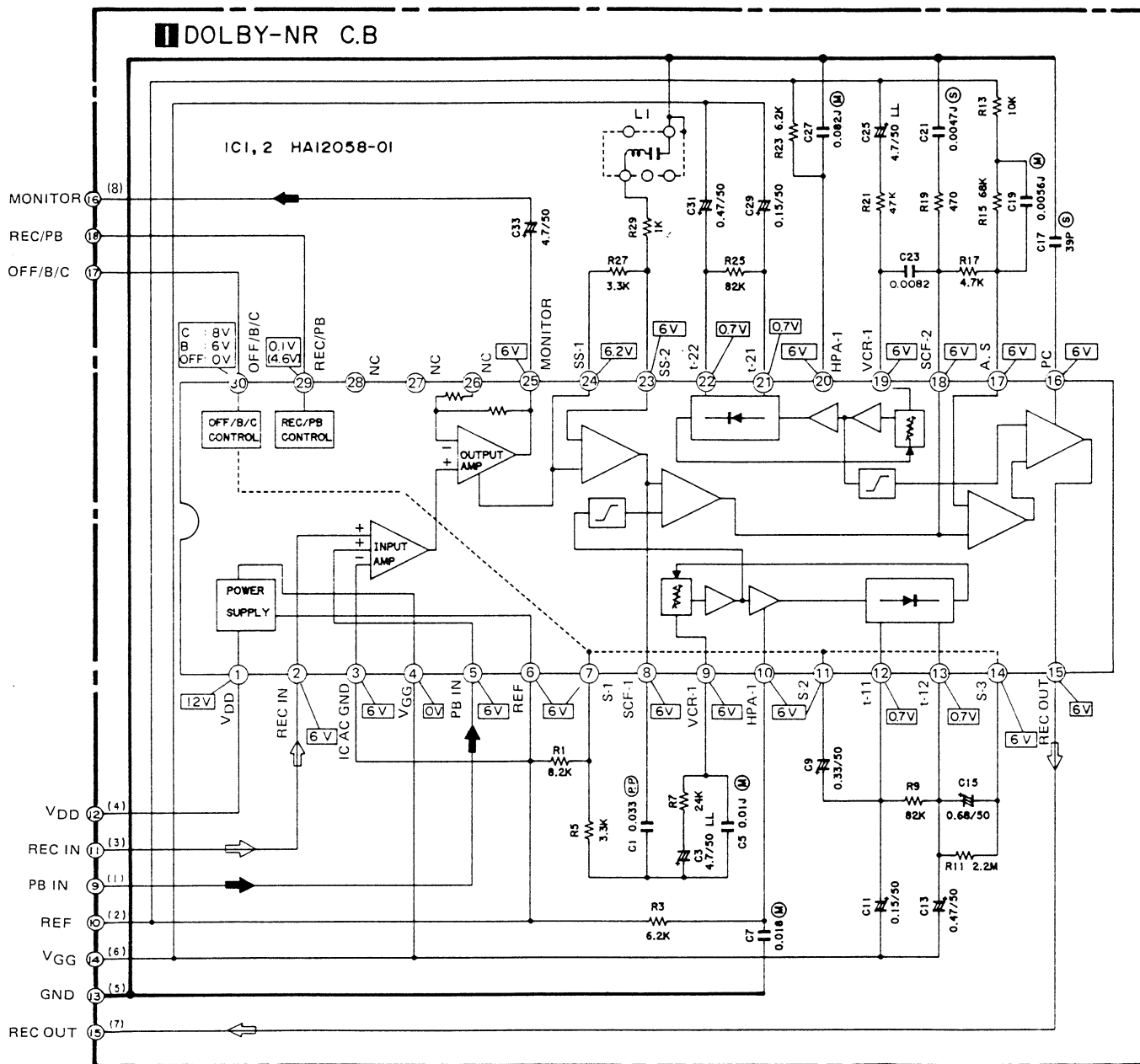
E DIN PIN C.B.



• WAVEFORMS (AD-F360/S15U, R460/R30U)

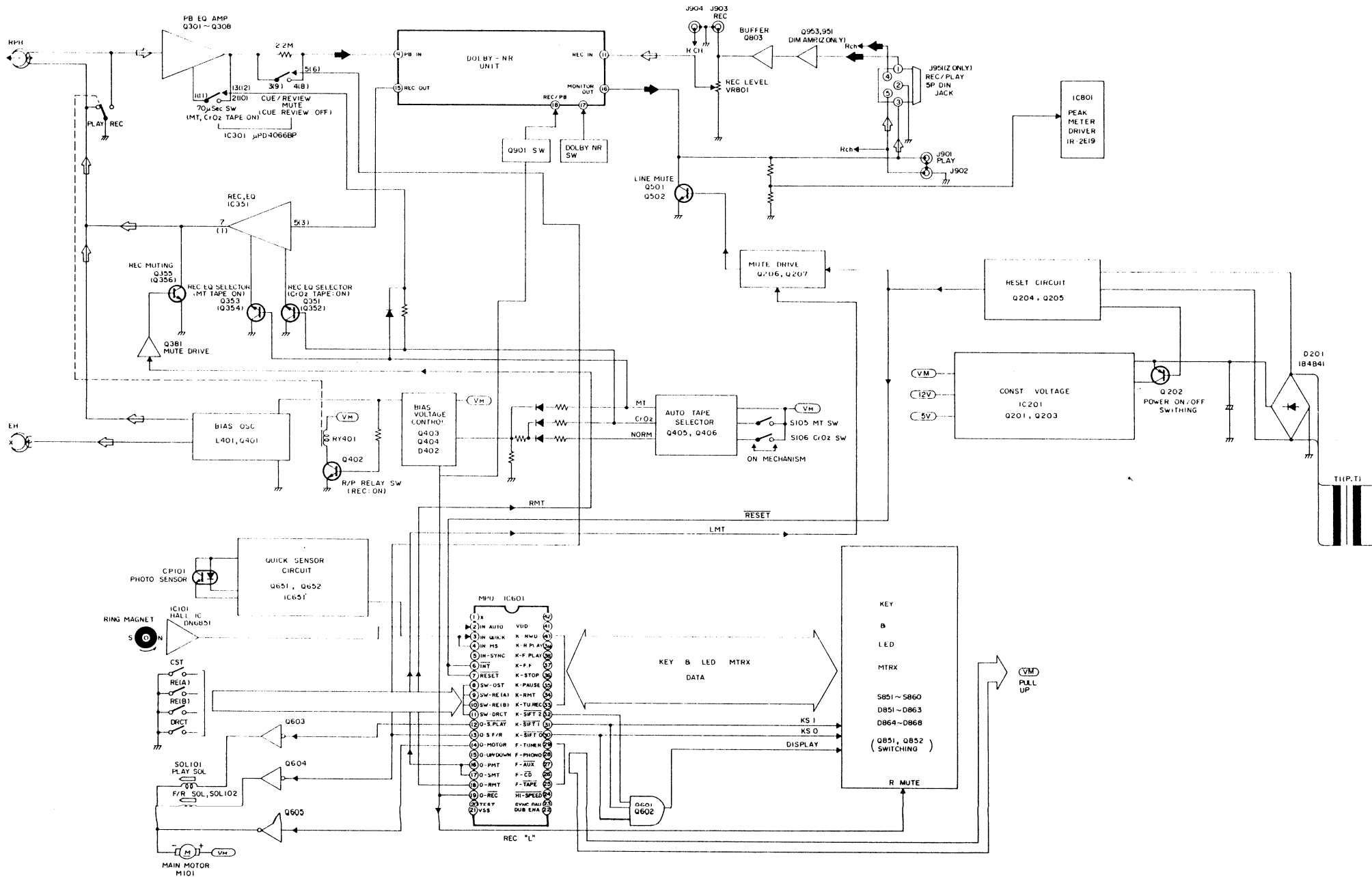


SCHEMATIC DIAGRAM-2 (AD-F360/S15U, AD-R460/R30U)

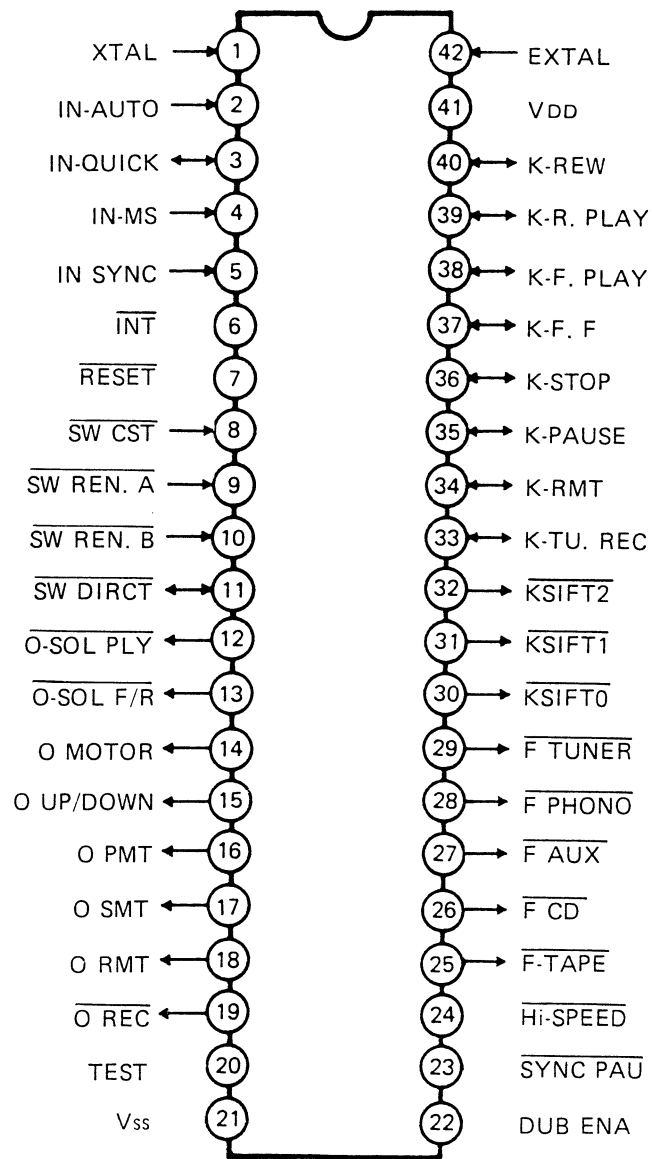


NOTES:

- 1) Signal path
- Rec path



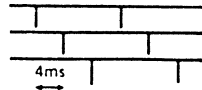
IC LM6402G-572



Signal flow in the direction indicated by the arrow.

IC LM6402G-572 PIN DESCRIPTION

Pin No.	Symbol	Function
1	XTAL	Input for MPU clock.
2	IN-AUTO	Input for auto-stop detection.
3	IN-QUICK	Input for tape-end sensor. (Not used AD-F360/S15)
4	IN-MS	Not used.
5	IN-SYNC	Not used.
6	$\overline{\text{INT}}$	Not used.
7	$\overline{\text{RESET}}$	Input for MPU reset. Turning the level to "L" causes the MPU to reset.
8	$\overline{\text{SW CST}}$	Input for cassette tape detection. Installing a cassette tape turns the level to "L".
9	$\overline{\text{SW REN.(A)}}$	Input for erasing protection of forward side. Turning the level to "L" enables to set up REC mode.
10	$\overline{\text{SW REN.(B)}}$	Input for erasing protection of reverse side. Turning the level to "L" enables to set up REC mode.
11	$\overline{\text{SW-DIRECT}}$	Input and output for direction detection of head. Turning the level to "L" sets the head to direction of forward side.
12	$\overline{\text{O-SOL PLY}}$	Output for PLAY solenoid. Turning the level to "L" causes the solenoid to energize. (Refer to timing chart)
13	$\overline{\text{O-SOL F/R}}$	Output for FF/RWD solenoid. Turning the level to "L" causes the solenoid to energize. (Refer to timing chart)
14	O-MOTOR	Output for motor on/off. Turning the level to "L" causes the motor to stop.
15	O-UP/DOWN	Not used.
16	O-PMT	Output for PLAY mute. PLAY mode only turns the level to "L".
17	O-SMT	Not used.
18	O-RMT	Output for REC mute. REC-PLAY mode only turns the level to "L".
19	$\overline{\text{O-REC}}$	Output for REC. REC-PLAY and REC-PLAY + PAUSE modes turns the level to "L".
20	TEST	} Not used.
21	Vss	
22	DUB ENA	} Not used.
23	SYNC PAUSE	
24	HI-SPEED	
25	$\overline{\text{F-TAPE}}$	Not used.

Pin No.	Symbol	Function			
26	$\overline{\text{FCD}}$	} Not used.			
27	$\overline{\text{FAUX}}$				
28	$\overline{\text{FPHONO}}$				
29	$\overline{\text{FTUNER}}$				
30	$\overline{\text{KSIFT0}}$	Input for matrix key. Output for display assortment. $\overline{\text{KSIFT0}}$ $\overline{\text{KSIFT1}}$ $\overline{\text{KSIFT2}}$  Waveform at pins			
31	$\overline{\text{KSIFT1}}$				
32	$\overline{\text{KSIFT2}}$				
		Matrix key input			LED display output (Turns on by "L")
		$\overline{\text{KSIFT0}} : "L"$	$\overline{\text{KSIFT1}} : "L"$	$\overline{\text{KSIFT2}} : "L"$	$\overline{\text{KSIFT0, 1, 2}} : "H"$
33	K-TU.REC	N.C.	N.C.	One Way switch input	N.C.
34	K-RMT	REC MUTE key input	N.C.	N.C.	N.C.
35	K-PAUSE	PAUSE key input	N.C.	N.C.	N.C.
36	K-STOP	STOP key input	REV. Mode  ※ switch input	N.C.	REC display
37	K-F.F	FF key input	REV. Mode  ※ switch input	N.C.	REC MUTE display
38	K-F.PLAY	FWD PLAY key input	Timer REC switch input	N.C.	PAUSE display
39	K-R.PLAY	REV. PLAY ※ key input	Timer PLAY switch input	N.C.	FWD PLAY display
40	K-REW	REW key input	REC key input	N.C.	REV. PLAY display ※
41	V_{cc}	+ 5 [V] connection pins.			
42	EXTAL	Input for MPU clock.			

※: AD-R460/R30 ONLY

NOTES:

- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But () is with AM reception or recording. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
- 2) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
- 3) Capacitors with no designation have a dielectric strength of less than 50WV.
- 4) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
- 5) Ceramic capacitor symbols:
 -  For temperature compensation (SL)
 -  High dielectric constant system (YY)
 -  High dielectric constant system (YW, YP, YZ)
 -  Semiconductor ceramic
 -  For temperature compensation (SH)

6) Explanation of symbols

-  Mylar capacitor
-  Polypropylene film capacitor
-  Bi-polarized capacitor
-  Low-leakage capacitor
-  Fuse resistor



Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

Practical Service Figure

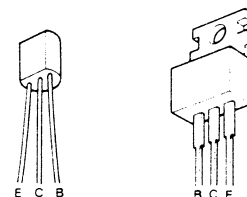
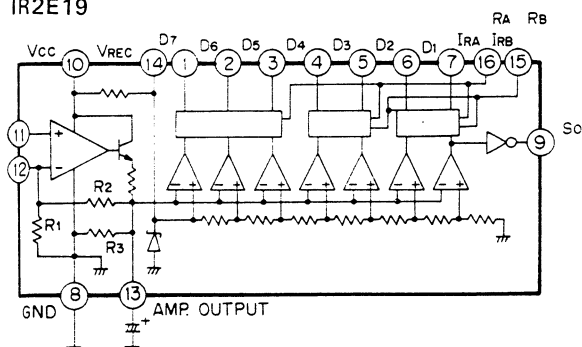
AD-R460/R30U

Wow & Flutter:	Less than 0.075% (FWD.) Less than 0.085% (REV.)
Take-up torque:	30~50 g-cm (0.29~0.49 mN·m)
FF & rewind torque:	100~160 g-cm (0.98~1.57 mN·m)
Back tension:	3~5 g-cm (0.03~0.05 mN·m) (FWD./REV.)
PB output:	EXCEPT Z 520±20 mV (TTA-161, LINE OUT) Z MODEL 520±20 mV (TTA-161, DIN OUT)
REC/PB output:	EXCEPT Z 0±1dB (LINE OUT) Z MODEL 0±1dB (DIN OUT)
REC/PB distortion:	Less than 2.5% (METAL) Less than 2.5% (CrO ₂) Less than 2% (NORMAL)
Playback noise: (Unweighted)	Less than 3.0 mV (NORMAL, DOLBY-NR OFF) Less than 2.5 mV (CrO ₂ , DOLBY-NR OFF) Less than 2.0 mV (METAL, DOLBY-NR C)
REC/PB SN ratio: (Unweighted)	More than 47dB (METAL, DOLBY-NR OFF) More than 45dB (CrO ₂ , NORMAL, DOLBY-NR OFF)
Erasing ratio(125Hz):	More than 55dB
Bias frequency:	8.5kHz
Test tape:	METAL TTA-119MX NORMAL TTA-119J CrO ₂ TTA-119G (EXCEPT Z) TTA-119D (Z MODEL)

AD-F360/S15U

Take-up torque:	40 ⁺²⁰ ₋₁₀ g-cm
FF & rewind torque:	130±30 g-cm
Back tension:	4±1 g-cm
PB output:	EXCEPT Z 490±10 mV (TTA-161, LINE OUT) Z MODEL 490±10 mV (TTA-161, DIN OUT)
REC/PB output:	EXCEPT Z 0±1dB (LINE OUT) Z MODEL 0±1dB (DIN OUT)
REC/PB distortion:	Less than 2.5% (METAL) Less than 2.5% (CrO ₂) Less than 2% (NORMAL)
Playback noise: (Unweighted)	Less than 2.5 mV (NORMAL, DOLBY-NR OFF) Less than 2.5 mV (CrO ₂ , DOLBY-NR OFF) Less than 2.0 mV (METAL, DOLBY-NR C)
REC/PB SN ratio: (Unweighted)	More than 47dB (METAL, DOLBY-NR OFF) More than 45dB (CrO ₂ , NORMAL, DOLBY-NR OFF)
Erasing ratio(125Hz):	More than 55dB
Bias frequency:	8.5kHz
Test tape:	METAL TTA-119MX NORMAL TTA-119J CrO ₂ TTA-119G (EXCEPT Z) TTA-119D (Z MODEL)

IR2E19



2SA952
2SA970
2SA1015
2SC945
2SC1815
2SC2001
2SC2240
2SD1302

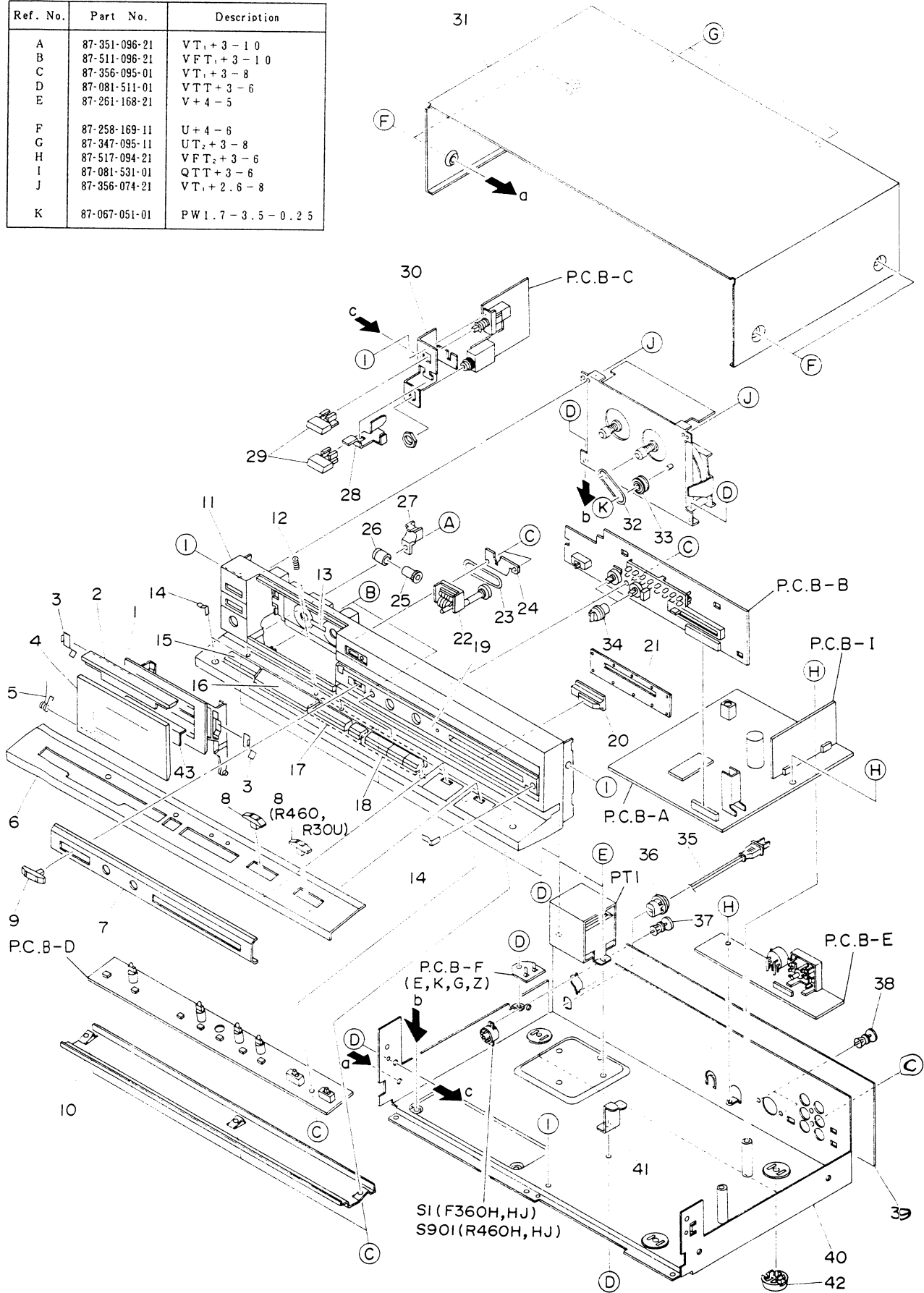
2SD880

	STOP	PLAY	F.F/ RWD	CUE/ REVIEW	PLAY PAUSE	REC	REC PAUSE
O-S-PLAY		○		○	○	○	○
O-S-F/R			○	○			
O-MOTOR	○						
O-PMT.SMT		○		○		○	○
O-RMT						○	
O-REC						○	○

○:LOW ACTIVE

EXPLODED VIEW - I (AD-F360/S15U, R460/R30U)

Ref. No.	Part No.	Description
A	87-351-096-21	VT,+3-10
B	87-511-096-21	VFT,+3-10
C	87-356-095-01	VT,+3-8
D	87-081-511-01	VTT+3-6
E	87-261-168-21	V+4-5
F	87-258-169-11	U+4-6
G	87-347-095-11	UT,+3-8
H	87-517-094-21	VFT,+3-6
I	87-081-531-01	QTT+3-6
J	87-356-074-21	VT,+2.6-8
K	87-067-051-01	PW1.7-3.5-0.25



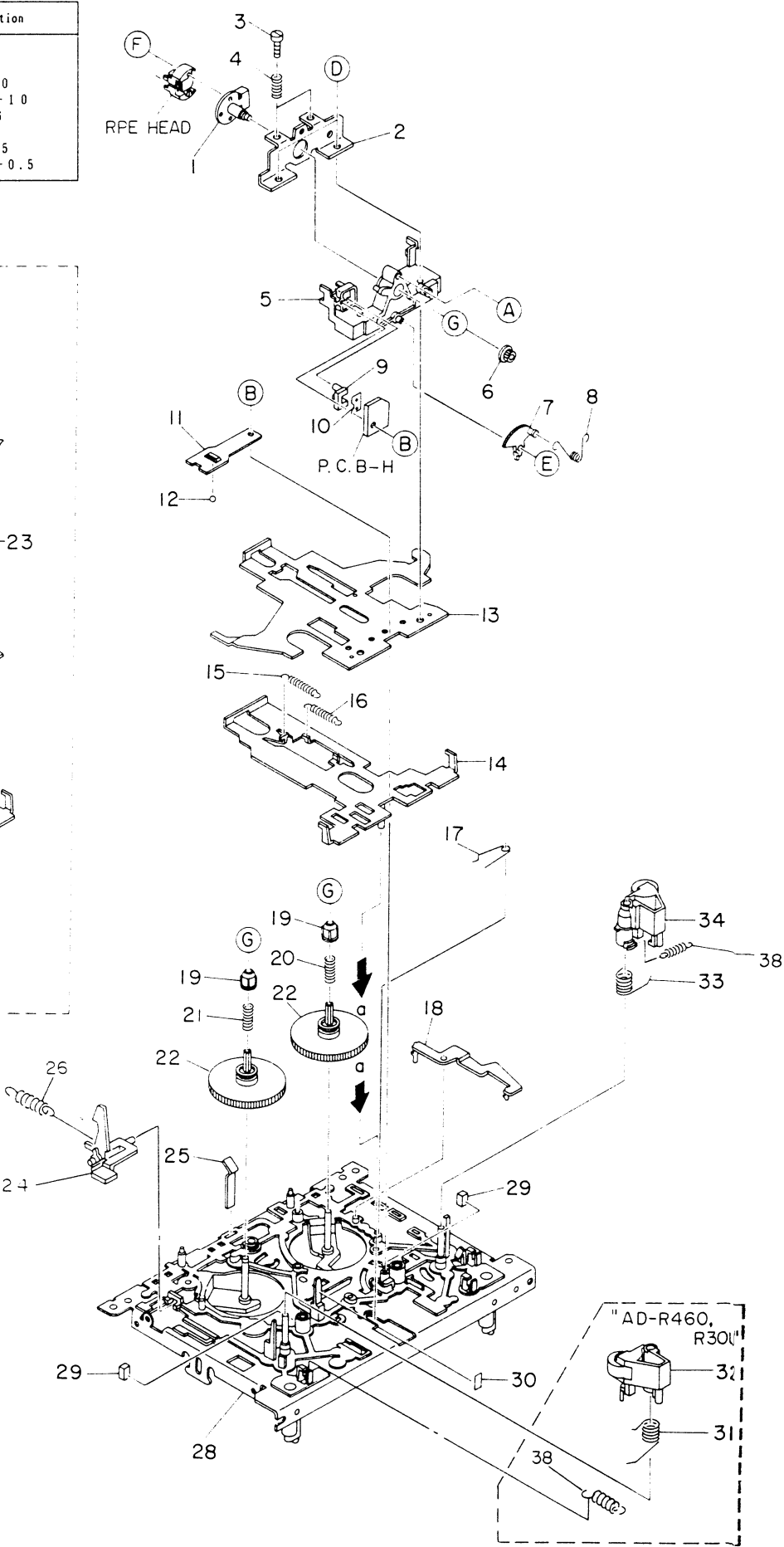
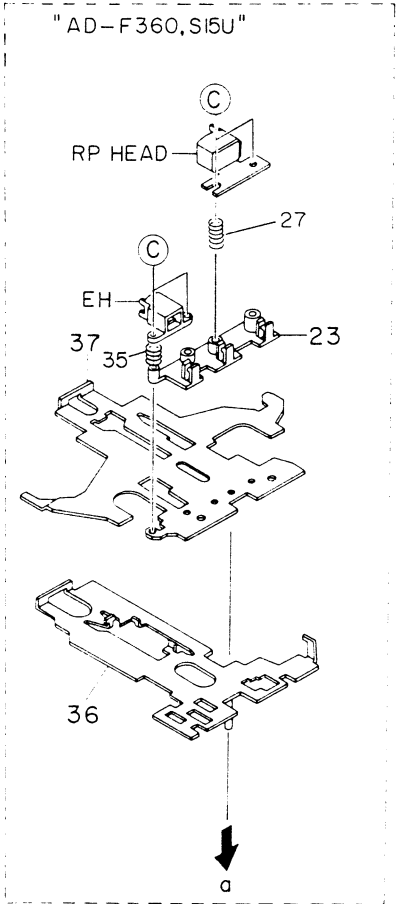
MECHANICAL PARTS LIST
(AD-F360/S15U, R460/R30U)

- ※-mark in this part list shows exclusive part.
- ★-mark means less required items availabilities may be limited.
- No availability part is marked with --- in Part No. list.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1-1	82-197-079	CASSETTE BOX	FX-90	1	
	1-2	★82-148-016	TOP PANEL, CASSETTE	※	1	
	1-3	★82-192-218	P-SPRING, CASSETTE SUPPORT	FX-30	2	
	1-4	★82-148-014	WINDOW, CASSETTE	※	1	
	1-5	★82-100-209	T-SPRING, EJECT	AD-640	1	
	1-6	★82-149-003	PANEL, CONTROL (AD-F360)	※	1	
		★82-149-015	PANEL, CONTROL (AD-S15U)	※	1	
		★82-148-003	PANEL, CONTROL (AD-R460)	※	1	
		★82-148-028	PANEL, CONTROL (AD-R30U)	※	1	
	1-7	★82-148-005	PANEL, FRONT	※	1	
	1-8	★82-148-010	SLIDE KNOB, TIMER BM	※	AD-F360:1	
	1-9	★82-148-011	SLIDE KNOB, DOLBY BM	※	AD-R460:2	
	1-10	---	CABINET, BOTTOM		1	
	1-11	★82-149-002	CABINET, FRONT (AD-F360)	※	1	
		★82-149-014	CABINET, FRONT (AD-S15U)	※	1	
		★82-148-002	CABINET, FRONT (AD-R460)	※	1	
		★82-148-026	CABINET, FRONT (AD-R30U)	※	1	
	1-12	★82-148-211	C-SPRING, PUSH-KEY	※	4	
	1-13	---	LABEL TAPE INDICATOR		1	
	1-14	---	TERMINAL, EARTH		5	
	1-15	★82-148-019	TOUCH-KEY, REW	※	1	
	1-16	★82-149-005	TOUCH-KEY, PLAY (AD-F360, S15U)	※	1	
		★82-148-006	TOUCH-KEY, PLAY (AD-R460, R30U)	※	1	
	1-17	★82-148-007	TOUCH-KEY, REC	※	1	
	1-18	★82-148-008	TOUCH-KEY, STOP	※	1	
	1-19	★82-149-004	WINDOW, METER (AD-F360, S15U)	※	1	
		★82-148-004	WINDOW, METER (AD-R460, R30U)	※	1	
	1-20	★82-148-009	KNOB, REC BM	※	1	
	1-21	★82-148-027	PLATE, REC VR	※	1	
	1-22	★87-040-185	COUNTER		1	
	1-23	82-446-205	RUBBER BELT, COUNTER		1	
	1-24	---	HOLDER, COUNTER		1	
	1-25	★82-534-264	GEAR, OIL-DAMP		1	
	1-26	★82-148-208	BEARING, OIL-DAMP	※	1	
	1-27	★82-683-212	HOLDER, OIL-DAMP		1	
	1-28	★82-100-206	LEVER, EJECT	AD-640	1	
	1-29	★82-188-012	KNOB, POWER	AD-F990	2	
	1-30	★82-100-205	HOLDER, POWER	AD-640	1	
	1-31	★82-148-020	STEEL CABINET	※	1	
	1-32	82-142-203	BELT, COUNTER		1	
	1-33	82-146-202	PULLEY COUNTER	FX-W60	1	
	1-34	82-148-012	KNOB, BIAS	※	2	
	1-35	★87-034-732	AC CORD (H, HJ only)		1	
		★87-034-578	AC CORD (AD-S15U, R30U) (C only)		1	
		★82-187-797	AC CORD (E, Z only)		1	
		★82-187-796	AC CORD (K only)		1	
		★82-187-795	AC CORD (G only)		1	
	1-36	★87-085-184	CORD BUSHING (H, HJ, C only) (AD-S15U, R30U)		1	
		★87-085-185	CORD BUSHING (E, K, G, Z only)		1	
	1-37	★87-085-090	NYLON RIVET #3-6.5 (H, HJ only)		2	
	1-38	★87-084-063	NYLON RIVET #3-5.5 (Z only)		2	
	1-39	---	NAME PLATE, JACK		1	
	1-40	---	AMP. CHASSIS Ass'y		1	
	1-41	---	HOLDER, PCB		1	
	1-42	★87-055-055	FOOT		1	
	1-43	★82-148-015	PLATE, CASSETTE	※	1	

EXPLODED VIEW-2

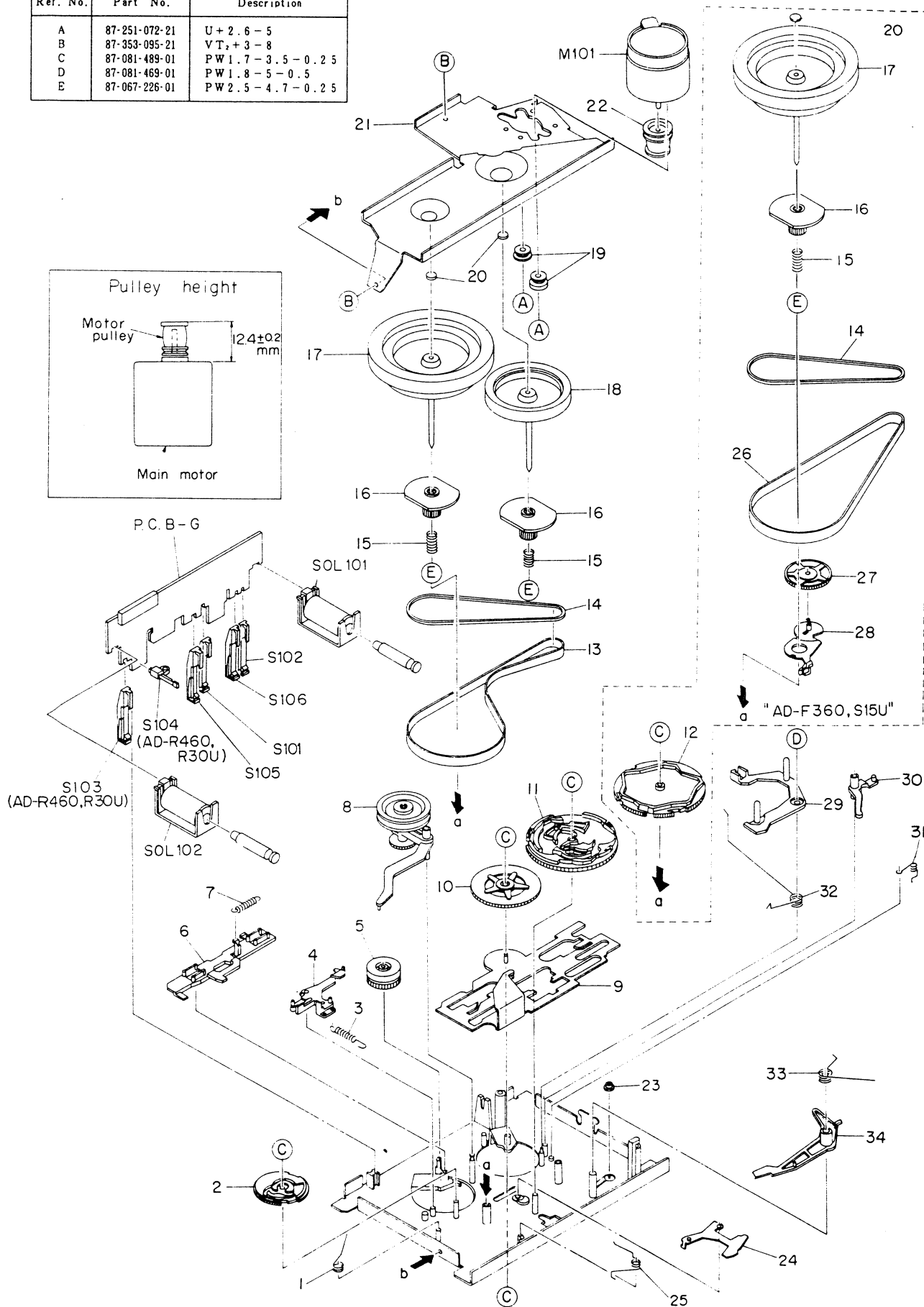
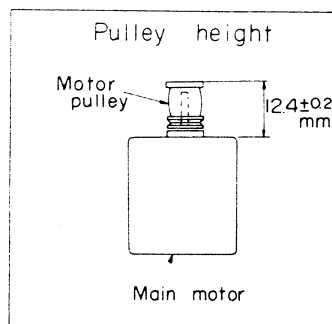
Ref. No.	Part No.	Description
A	87-251-036-21	U+2-8
B	87-351-033-21	VT,+2-4
C	87-067-218-01	VTT+2-10
D	87-081-504-01	VTT+2.6-10
E	87-067-217-01	VFT,+2-6
F	87-067-177-01	V+1.6-5.5
G	87-067-105-01	PW3.4-8-0.5



Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	2-1	86-513-267	HEAD HOUSING Ass'y (AD-R460)		1	
	2-2	★86-517-268	HOLDER, AZIMUTH SCREW(AD-R460)		1	
	2-3	86-517-296	AZIMUTH SCREW (AD-R460)		2	
	2-4	★86-517-291	C-SPRING, AZIMUTH (AD-R460)		2	
	2-5	★86-517-269	HEAD BASE Ass'y (AD-R460)		1	
	2-6	86-513-299	GEAR, HEAD HOUSING (AD-R460)		1	
	2-7	86-517-273	GEAR, HEAD ROLLING A (AD-R460)		1	
	2-8	★86-517-282	T-SPRING, ROLLING (AD-R460)		1	
	2-9	★86-517-297	SENSOR LENS (AD-R460)		1	
	2-10	---	SHEET, SENSOR LENS (AD-R460)		1	
	2-11	★86-517-275	P-SPRING, ACTUATING CHASSIS		1	
	2-12	★87-073-008	STEEL BALL 2.5φ		1	
	2-13	★86-517-305	ACTUATING CHASSIS R (AD-R460)		1	
	2-14	★86-517-308	MOVEMENT REVERSE LEVER Ass'y (AD-R460)		1	
	2-15	★86-517-283	E-SPRING, LEVER MOVEMENT S (AD-F360)		1	
		★86-517-312	E-SPRING, LEVER MOVEMENT (AD-R460)		1	
	2-16	★86-519-230	E-SPRING, ACTUATING CHASSIS (AD-F360)		1	
		★86-519-370	E-SPRING, ACTUATING CHASSIS R (AD-R460)		1	
	2-17	★86-517-310	T-SPRING, QUICK LEVER (AD-R460)		1	
	2-18	★86-517-258	LEVER, DIRECTION (AD-R460)		1	
	2-19	86-517-236	STOPPER, REEL PLATFORM		2	
	2-20	★86-517-349	C-SPRING, REEL PLATFORM B (AD-R460)		1	
		★86-519-234	C-SPRING, REEL PLATFORM S (AD-F360)		1	
	2-21	★86-519-234	C-SPRING, REEL PLATFORM S		1	
	2-22	86-517-235	REEL PLATFORM		2	
	2-23	★86-519-209	HEAD BASE S (AD-F360)		1	
	2-24	★86-517-256	LEVER, EJECT		1	
	2-25	★86-517-276	P-SPRING, CASSETTE		1	
	2-26	★86-519-241	E-SPRING, EJECT LEVER		1	
	2-27	★86-519-211	C-SPRING, AZIMUTH (AD-F360)		1	
	2-28	---	OUTSERT Ass'y		1	
	2-29	---	CUSHION, ACTUATING CHASSIS		2	
	2-30	---	SHEET, QUICK (AD-R460)		1	
	2-31	★86-517-289	T-SPRING, PINCH LEVER R (AD-R460)		1	
	2-32	86-517-250	PINCH LEVER R Ass'y (AD-R460)		1	
	2-33	★86-517-210	T-SPRING, PINCH LEVER F (AD-F360)		1	
		★86-517-277	T-SPRING, PINCH LEVER F (AD-R460)		1	
	2-34	86-517-248	PINCH LEVER F Ass'y		1	
	2-35	★81-505-285	C-SPRING, EH (AD-F360)		1	
	2-36	★86-519-215	LEVER MOVEMENT SIGNAL Ass'y (AD-F360)		1	
	2-37	★86-519-217	ACTUATING CHASSIS S (AD-F360)		1	
	2-38	★86-513-340	E-SPRING, AUTO BLOCKING		3	

EXPLODED VIEW-3

Ref. No.	Part No.	Description
A	87-251-072-21	U+2.6-5
B	87-353-095-21	VT ₂ +3-8
C	87-081-489-01	PW1.7-3.5-0.25
D	87-081-469-01	PW1.8-5-0.5
E	87-067-226-01	PW2.5-4.7-0.25



Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	3-1	★86-517-278	T-SPRING, FR CAM		1	
	3-2	86-517-215	GEAR, FR CAM C		1	
	3-3	★86-517-346	E-SPRING, TRIGGER LEVER FR		1	
	3-4	★86-517-257	TRIGGER LEVER FR		1	
	3-5	86-517-238	GEAR, FF		1	
	3-6	★86-517-254	LEVER, SLIDE BRAKE		1	
	3-7	★86-517-284	E-SPRING, SLIDE BRAKE		1	
	3-8	86-517-239	FR PULLEY A Ass'y		1	
	3-9	★86-517-263	SLIDE PLATE R Ass'y (AD-R460)		1	
	3-10	86-517-225	GEAR PLAY R Ass'y (AD-R460)		1	
	3-11	86-517-336	GEAR MAIN CAM R Ass'y (AD-R460)		1	
	3-12	86-519-202	GEAR MAIN CAM S (AD-F360)		1	
	3-13	86-517-355	MAIN BELT R-A (AD-R460)		1	
	3-14	86-517-295	BELT FR		1	
	3-15	★86-517-323	C-SPRING, FLYWHEEL		3	
	3-16	86-517-317	GEAR, FLYWHEEL		3	
	3-17	86-517-314	FLYWHEEL DC, F Ass'y		2	
	3-18	86-517-318	FLYWHEEL DC, R Ass'y (AD-R460)		1	
	3-19	★86-513-441	COLLAR		2	
	3-20	★86-517-348	FLYWHEEL BEARING		3	
	3-21	---	MOTOR HOLDER DC		1	
	3-22	86-517-292	MOTOR PULLEY (AD-F360)		1	
		86-517-351	MOTOR PULLEY (AD-R460)		1	
	3-23	86-517-345	COLLAR SLIDE PLATE R (AD-R460)		1	
	3-24	86-517-306	LEVER QUICK Ass'y (AD-R460)		1	
	3-25	★86-519-222	T-SPRING, MAIN LEVER (AD-F360)		1	
	3-26	86-519-232	MAIN BELT S-A (AD-F360)		1	
	3-27	86-519-203	GEAR PLAY S Ass'y (AD-F360)		1	
	3-28	★86-519-208	LEVER, MAIN GEAR (AD-F360)		1	
	3-29	★86-517-255	LEVER, SWITCH		1	
	3-30	★86-517-253	TRIGGER LEVER, PLAY-B		1	
	3-31	★86-517-281	T-SPRING, SLIDE LEVER R (AD-R460)		1	
	3-32	★86-517-332	T-SPRING, LEVER SWITCH		1	
	3-33	★86-517-280	T-SPRING, TRIGGER LEVER PLAY		1	
	3-34	★86-517-252	TRIGGER LEVER, PLAY-A		1	

■ ACCESSORIES/PACKAGE LIST

AD-F360/S15

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★82-149-907	INSTRUCTION BOOKLET	※	1	

AD-R460/R30

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★82-148-904	INSTRUCTION BOOKLET	※	1	

AIWA Co., Ltd. Tokyo Japan