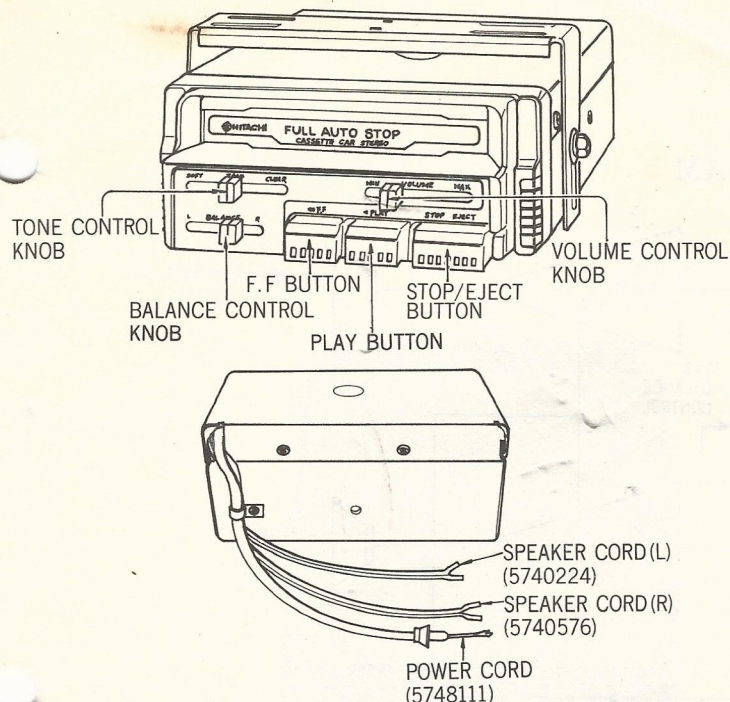




**HITACHI**  
Hitachi, Ltd. Tokyo Japan



## CASSETTE CAR STEREO PLAYER

**MODEL CS-220**

# SERVICE MANUAL

No. 763

1975

## SPECIFICATIONS

PLAYBACK SYSTEM .....	4-track 2-channel 2-program (for stereo) 2-track 1-channel 2-program (for monaural)
TAPE .....	Compact cassette
TAPE SPEED.....	4.75 cm/s
IC.....	4
TRANSISTOR.....	3
DIODE.....	2
FREQUENCY RANGE .....	50~10,000 Hz
AUDIO OUTPUT.....	12W (2-speaker 4Ω)
MOTOR .....	DC motor
POWER SUPPLY.....	DC 12V, negative ground (car battery)
CURRENT CONSUMPTION .....	0.5A
DIMENSIONS .....	5.5cm(H)×14cm(W)×18.8cm(D)
WEIGHT .....	1.5 kg

## ACCESSORIES

Installation parts .....	1 set
Connecting cord.....	1 set
Head cleaning stick .....	1 set
Spare fuse.....	1



## BLOCK DIAGRAM

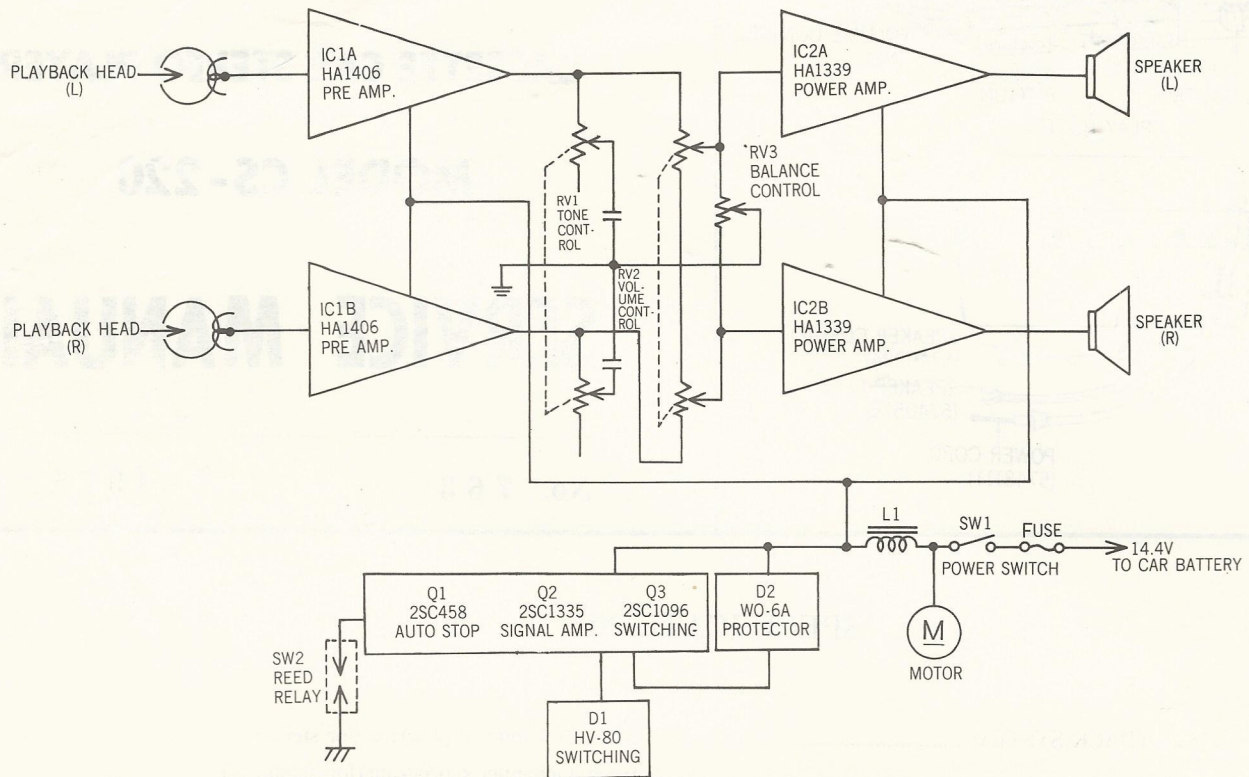


Fig. 1

## DISASSEMBLY

Remove screws or knobs marked with  when disassembling

### 1. Sub panel

### 2. Escutcheon

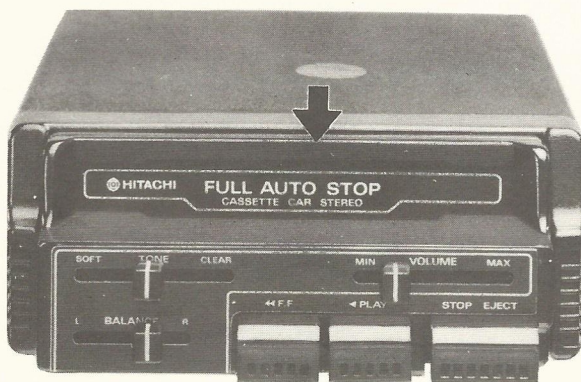


Fig. 2



Fig. 3



3. Upper cover

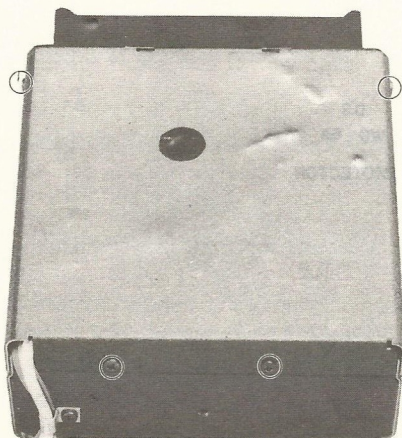


Fig. 4

4. Bottom cover

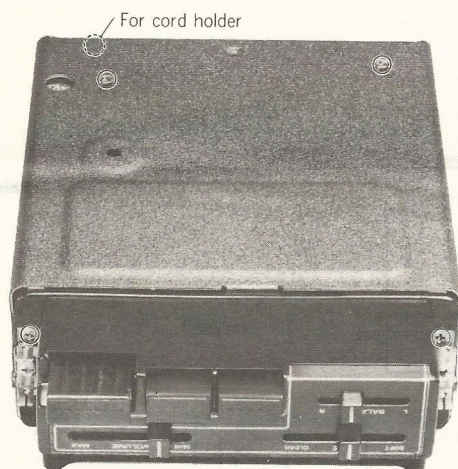


Fig. 5

5. Main P.W.B

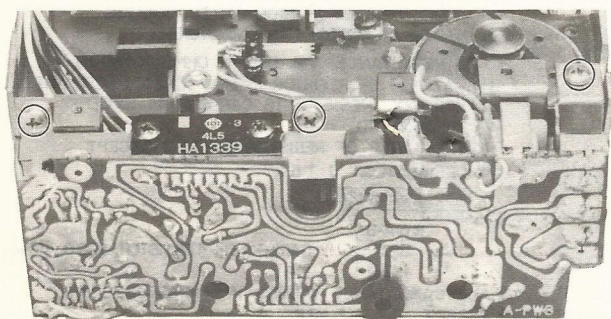


Fig. 6

6. Control P.W.B

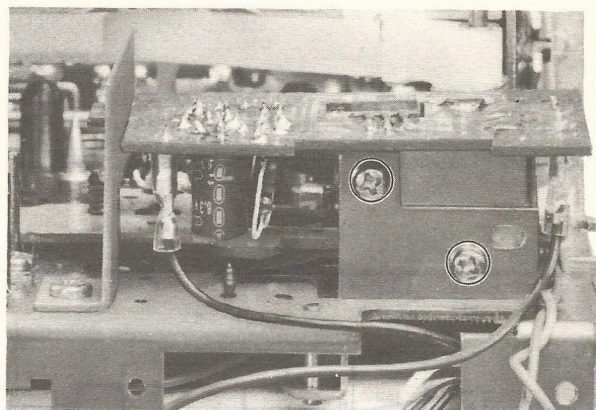


Fig. 7

7. Volume holder

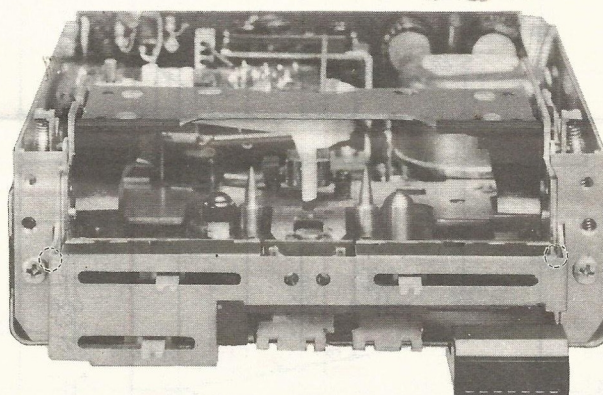


Fig. 8

NOTE : When the solenoid is changed during repairs, check that the auto-stop operates in both the playback and fast-forward modes. When it does not stop automatically, adjust the position in which the solenoid is installed so that the auto-stop operates correctly.



## EXPLANATION OF AUTO STOP MECHANISM

This explanation explains what happens when the Auto-stop mechanism is activated from the playback mode.

1. The reed relay detects the end of the tape and the solenoid operates. When the stop lever moves in the direction of the arrow, the lock plate also moves in this direction ①.
2. When the lock plate moves, the lock of the PLAY slider is released, it moves in the direction of arrow ② and the leaf switch is turned off.
3. When the PLAY slider has moved in the direction of the arrow, the head function plate rotates in the direction of arrow ③, returning the head plate and stopping automatically.

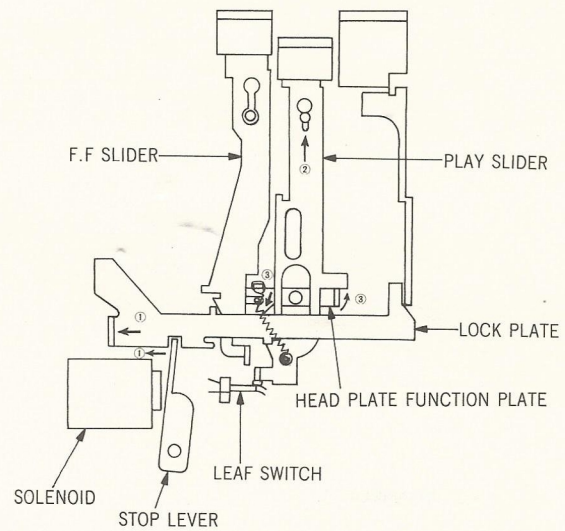


Fig. 9

## LUBRICATION

Before lubrication, thoroughly clean shafts and metallic parts of turning mechanisms.

During lubrication, be careful not to accidentally oil the tape contacting face of pressure roller and capstan, and the rubber portion of belts and idler.

- (H) ..... Hitasol (MO-138) or equivalent
- (P) ..... Pan motor oil (10W-40) or equivalent
- (W) ..... White grease or equivalent

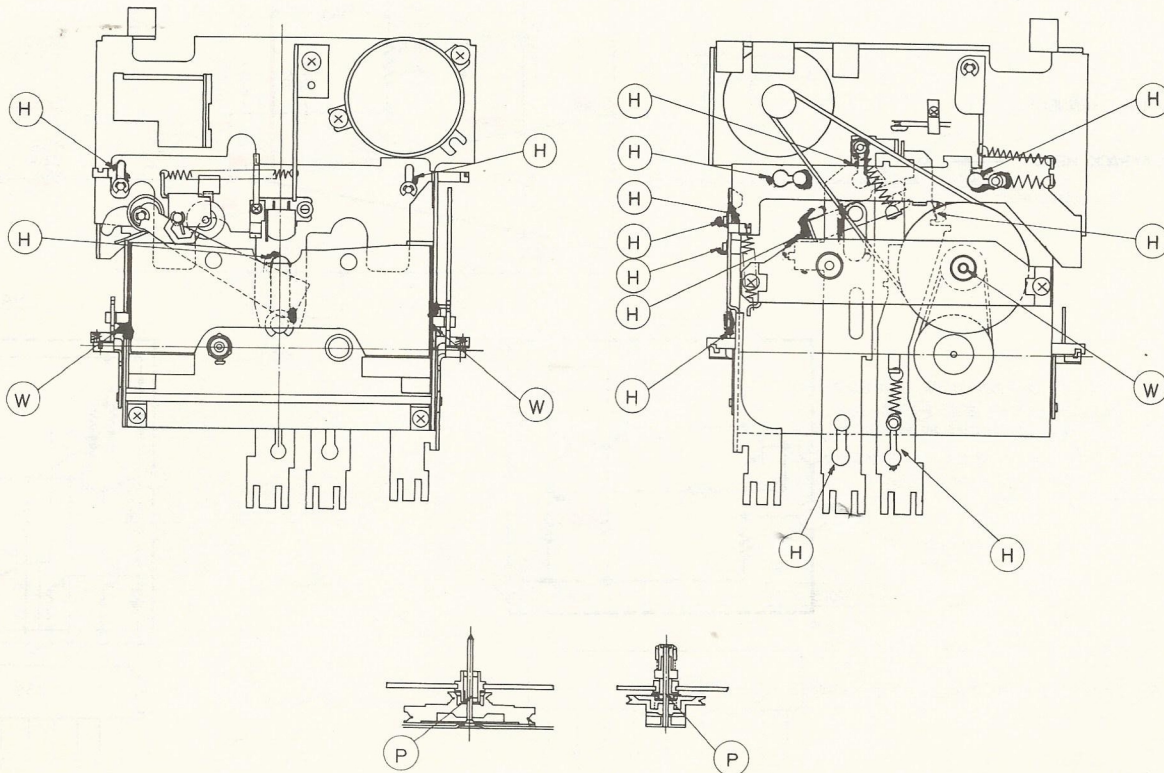


Fig. 10



## ADJUSTMENT AND INSPECTION

## 1. Adjustment of head azimuth

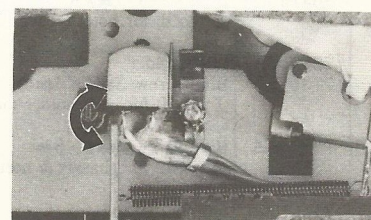
Tone control ; Maximum

Balance control ; Center

Playback the test tape and adjust head azimuth adjustment screw to be maximum.

## 2. Inspection of pressure and torque

- (1) Pressure of pinch roller.....250~400gr  
 (2) Take-up torque.....50~75gr-cm  
 (3) Fast forward torque .....More than 50gr-cm



## REPLACEMENT PARTS

Symbol No.	Stock No.	Description			Symbol No.	Stock No.	Description	
CAPACITORS :					Q 1	5320064	Transistor	2SC458D
C 1A, B	0249521	Ceramic, disc	470pF±10%	25V	Q 2	5321033	Transistor	2SC1335F
C 2A, B	0252615	Electrolytic	4.7μF		Q 3	5321632	Transistor	2SC1096
C 3A, B	0252231	Electrolytic	100μF		COILS			
C 4A, B	0256071	Electrolytic	10μF	16V	L 1	5220001	Choke	1.5mH
C 5A, B	0248711	Ceramic, disc	30pF±10%		for Final assembly			
C 6A, B	0275111	Mylar	0.01μF±20%					
C 7A, B	0256071	Electrolytic	10μF	16V		8821117	Nut 5mmφ	(3 req'd)
C 8A, B	0275115	Mylar	0.047μF±20%			8813117	Spring washer 5mmφ	(4 req'd)
C 9A, B	0275611	Electrolytic	1μF			8811117	Washer 5mmφ	(4 req'd)
C10A, B	0252525	Electrolytic	47μF	10V		7778251	Bolt 5mmφ×7mm	(1 req'd)
C11A, B	0252322	Electrolytic	22μF			8832116	Bolt 5mmφ×16mm	(3 req'd)
C12A, B	0248724	Ceramic, disc	100pF±10%			8785720	Tapping screw-5mmφ×20mm	(3 req'd)
C13A, B	0248720	Ceramic, disc	68pF±10%	16V			for Set mounting screw	
C14A, B	0275111	Mylar	0.01μF±20%			7206831	Support strap	
C15A, B	0276113	Mylar	0.0022μF±20%		for Case assembly			
C16A, B	0252525	Electrolytic	47μF	16V	①	6219193	Sub panel	
C17A, B	0256083	Electrolytic	470μF		②	7275891	Holder	
C18A, B	0276111	Mylar	0.1μF±20%			8711612	Pan head screw-4mmφ×12mm	
C19A, B	0256083	Electrolytic	470μF	16V			(2 req'd) for holder mounting	
C20A, B	0275111	Mylar	0.01μF±20%		③	6241381	Escutcheon assembly	
C21A	0275114	Mylar	0.033μF±20%			8721406	Flat screw-3mmφ×6mm	
RESISTORS :							(2 req'd) for escutcheon mounting	
RV 1, 2	5020041	Variable			④	6295162	Slide knob	
RV 3	5027001	Variable			⑤	6259221	Program button	
SEMI- CONDUCTOR					⑥	6259211	Eject button	
IC 1A, B	5350251	IC	HA1406		⑦	6097251	Cassette lid	
IC 2A, B	5350321	IC	HA1339		⑧	7532264	Cartridge shaft	
D 1	5330261	Diode	HV80		⑨	6307223	Door spring	
D 2	5330341	Diode	WO6A		⑩	6144051	Bottom cover	
					⑪	6144042	Upper cover	
						8648405	Bind screw-3mmφ×5mm	
							(4 req'd) for upper cover & bottom cover mounting	



Symbol No.	Stock No.	Description	Symbol No.	Stock No.	Description
	8641405	Bind screw- $3mm\phi\times5mm$ (2 req'd) for bottom cover & volume holder mounting	27	6324811	Spring for switch lever (1 req'd) for head plate mounting
12	7207052 7780192	Cord holder Bind screw- $3mm\phi\times4mm$ (1 req'd) for cord holder mounting	28	7275301 7230901	Eject slider Ering (3 req'd) for eject slider mounting
	8744405	Bind screw- $3mm\phi\times5mm$ (2 req'd) for chassis & bottom cover mounting	29	6322471	Door spring (1 req'd) for eject slider mounting
13	7150613 7778251 8813117 8811117	Support strap Bolt $5mm\phi\times7mm$ Spring washer $5mm\phi$ Washer $5mm\phi$ (2 req'd) for support strap mounting	30	6372352	Flywheel assembly
14	7632741	Blind	31	7778855	Poly slider washer (1 req'd) for flywheel mounting
for Chassis assembly			32	6354211	Belt 1.2
	8721104	Flat screw- $2mm\phi\times4mm$ (3 req'd) for slide volume mounting	33	6354302	Belt 1.2
15	5070172	Cylindric assembly	34	5632681	Leaf switch
16	5748111	Power cord	35	5572292	DC Motor assembly
17	5740576	Speaker cord (R)	36	6411981	Pulley assembly
18	5740224	Speaker cord (L)	37	6411971	Take up pulley assembly
	8641405	Bind screw- $3mm\phi\times5mm$ (1 req'd) for cord assembly mounting	38	7277182	Head plate assembly
	7780193	Bind screw- $3mm\phi\times4mm$	39	6383081	Pressure roller assembly
	8641405	Bind screw- $3mm\phi\times5mm$ (1 req'd) for A P.W.B assembly mounting	40	5444181	Cassette stereo head
19	5643011	Electro magnet	41	6321734	Head spring
	8741405	Bind screw- $3mm\phi\times5mm$ (1 req'd) for transistor mounting		8811111	Washer- $2mm\phi$
	8650405	Screw with spring- $3mm\phi\times5mm$ (2 req'd) for electro magnet assembly mounting		7780554	Screw
for Chassis assembly				8653105	Locking washer with screw- $2mm\phi\times5mm$
20	7277172	Play slider		7230904	Ering
21	7277141	Fast forward slider		7230901	Ering
22	7277191	Stop lever	42	6319702	Spring for pressure roller mounting
23	6303071	Lock spring		8641412	Bind screw- $3mm\phi\times12mm$
24	7277161	Lock plate	43	7276364	Cassette holder assembly
	7230901	Ering (3 req'd) for stop lever mounting	44	7275332	Eject rod assembly
25	6300372	Spring for recording plate (1 req'd) for lock plate mounting	45	6303077	Lock spring
26	6300381	Spring for function plate (1 req'd) for fast forward mounting	46	6323761	Fast forward spring
			47	6329451	Spring for plate
				8641405	Bind screw- $3mm\phi\times5mm$
			48	6736131	Eject arm
			49	6307312	Spring for eject arm
				7230901	E ring
			50	6421002	Pulley
			51	6320731	Back tension spring
			52	0948832	Polyester washer
				7786115	Washer



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Codes : All Codes Used

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IC1A,B  
HA1406 X 2  
PRE AMP.

IC2A,B  
HA1339 X 2  
POWER AMP.

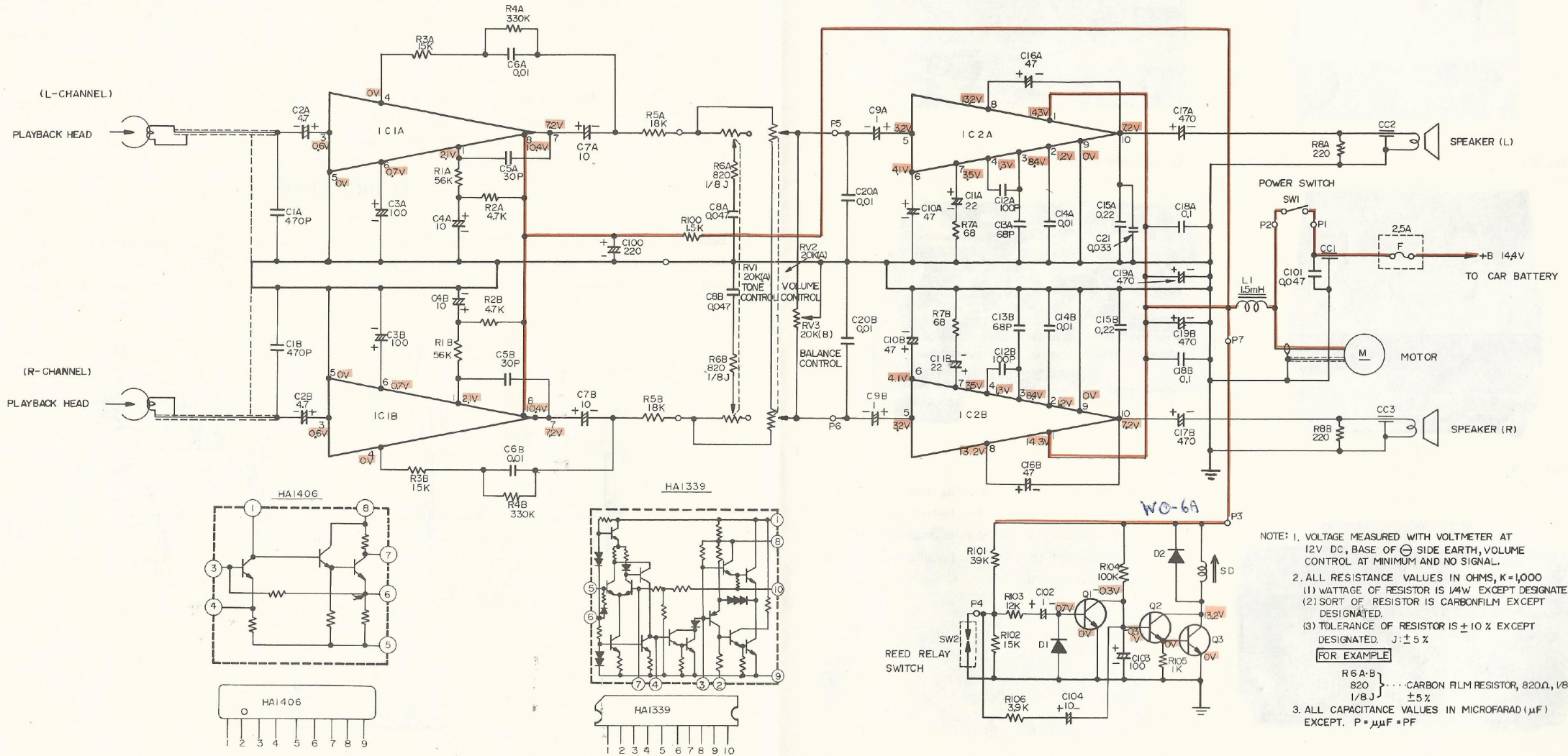
D1  
HV-80  
SWITCHING

Q1  
2SC458  
AUTO STOP

Q2  
2SC1335  
SIGNAL AMP.

Q3  
2SC1096  
SWITCHING

D2  
WO-6A  
PROTECTOR





CIRCUIT BOARD DIAGRAM

