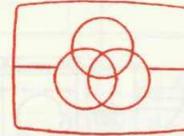




SERVICE MANUAL

AM/FM TUNER

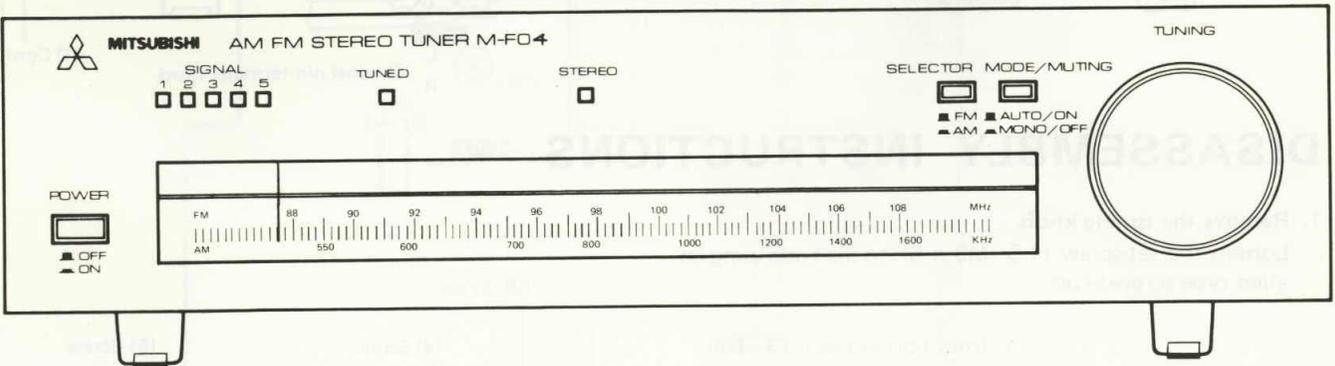
MODEL M-F04



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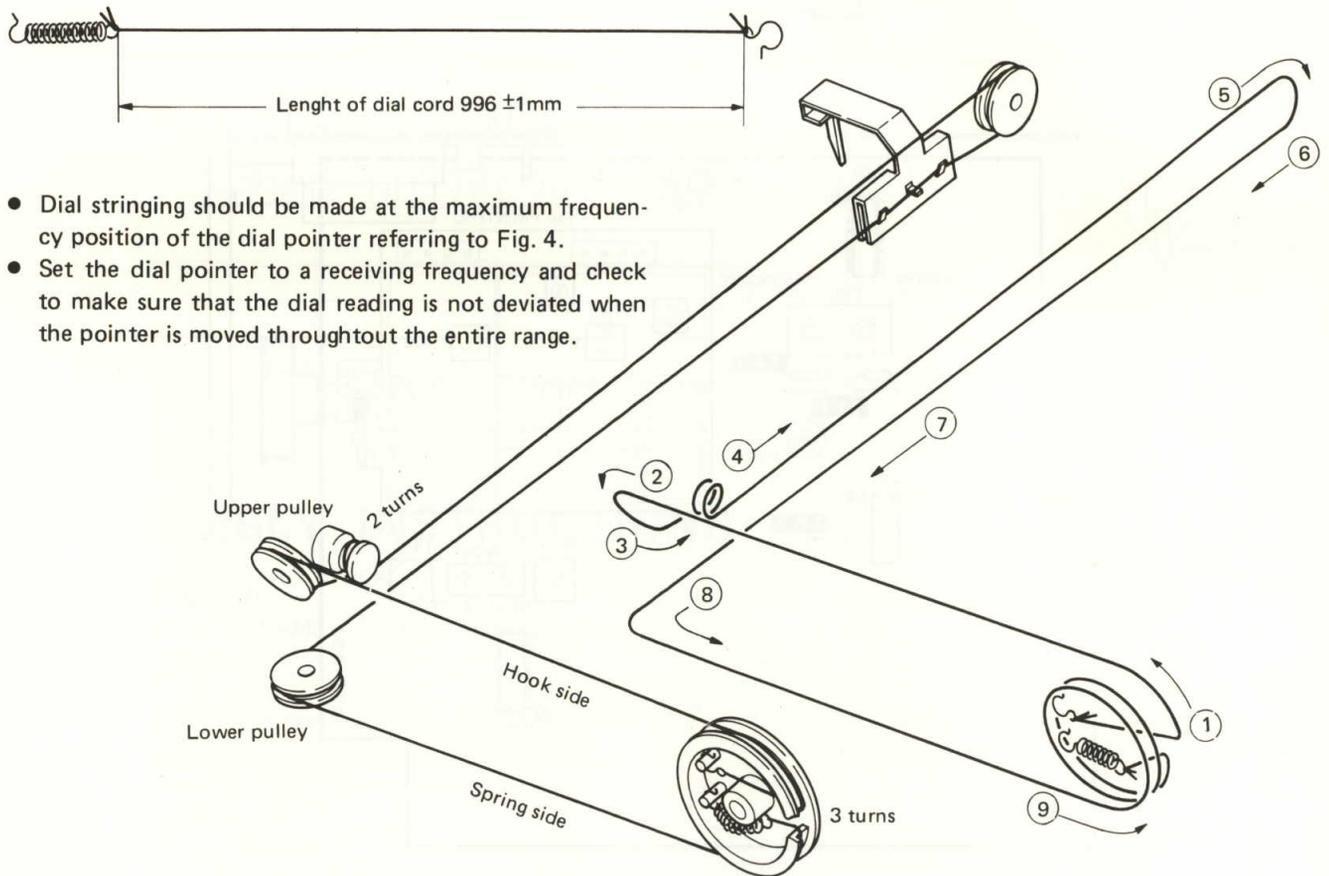
SPECIFICATIONS

	AM	FM
Usable Sensitivity	$\leq 200\mu V$	$\leq 10.8 \text{ dBf (1.9}\mu V)$
Image Rejection	$\geq 40 \text{ dB}$	$\geq 60 \text{ dB}$
IF Rejection	$\geq 50 \text{ dB}$	$\geq 90 \text{ dB}$
		Spirious Rejection $\geq 80 \text{ dB}$
		Frequency Response 30 – 15 kHz ($\pm 3 \text{ dB}$)
Signal to Noise Ratio	$\geq 55 \text{ dB}$	Monaural $\geq 75 \text{ dB}$
		Stereo $\geq 72 \text{ dB}$
		Capture Ratio $\leq 1.0 \text{ dB}$
Selectivity	$\geq 30 \text{ dB}$	$\geq 60 \text{ dB}$
		AM Suppression Ratio $\geq 55 \text{ dB}$
Harmonic Distortion	$\leq 0.8\%$	Monaural $\leq 0.2\%$
		Stereo $\leq 0.3\%$
Semiconductors	Diodes 18, Transistors 17, ICs 15	
Power Supply	AC220V 50Hz	
Power Consumption	7W	
Dimmension	270(W) x 70(H) x 257(D) mm	
Weight	3 kg	
Accessories	T Type FM Conventional Antenna	

Specifications of this unit are subject to change without notice for improvement.



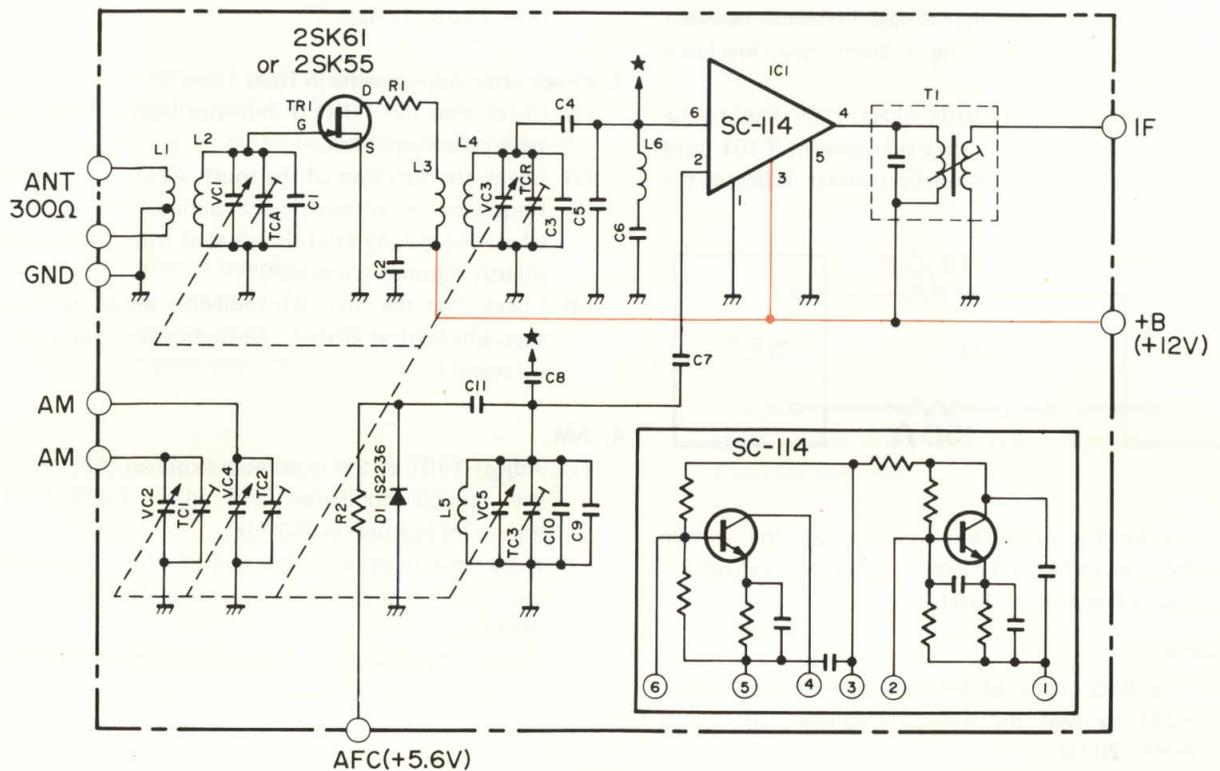
DIAL CORD STRINGING



- Dial stringing should be made at the maximum frequency position of the dial pointer referring to Fig. 4.
- Set the dial pointer to a receiving frequency and check to make sure that the dial reading is not deviated when the pointer is moved throughout the entire range.

Figure 4.

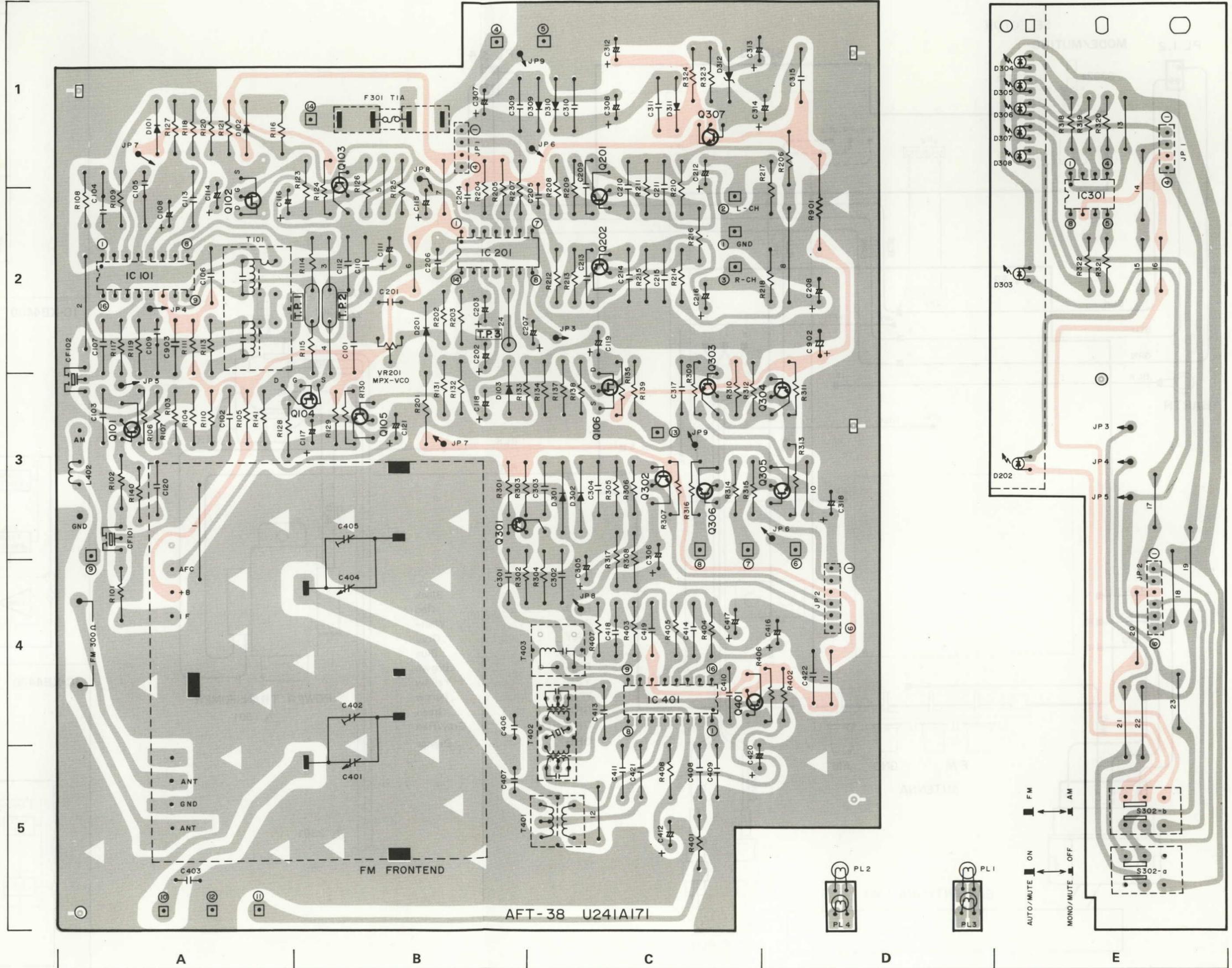
RF FRONT END



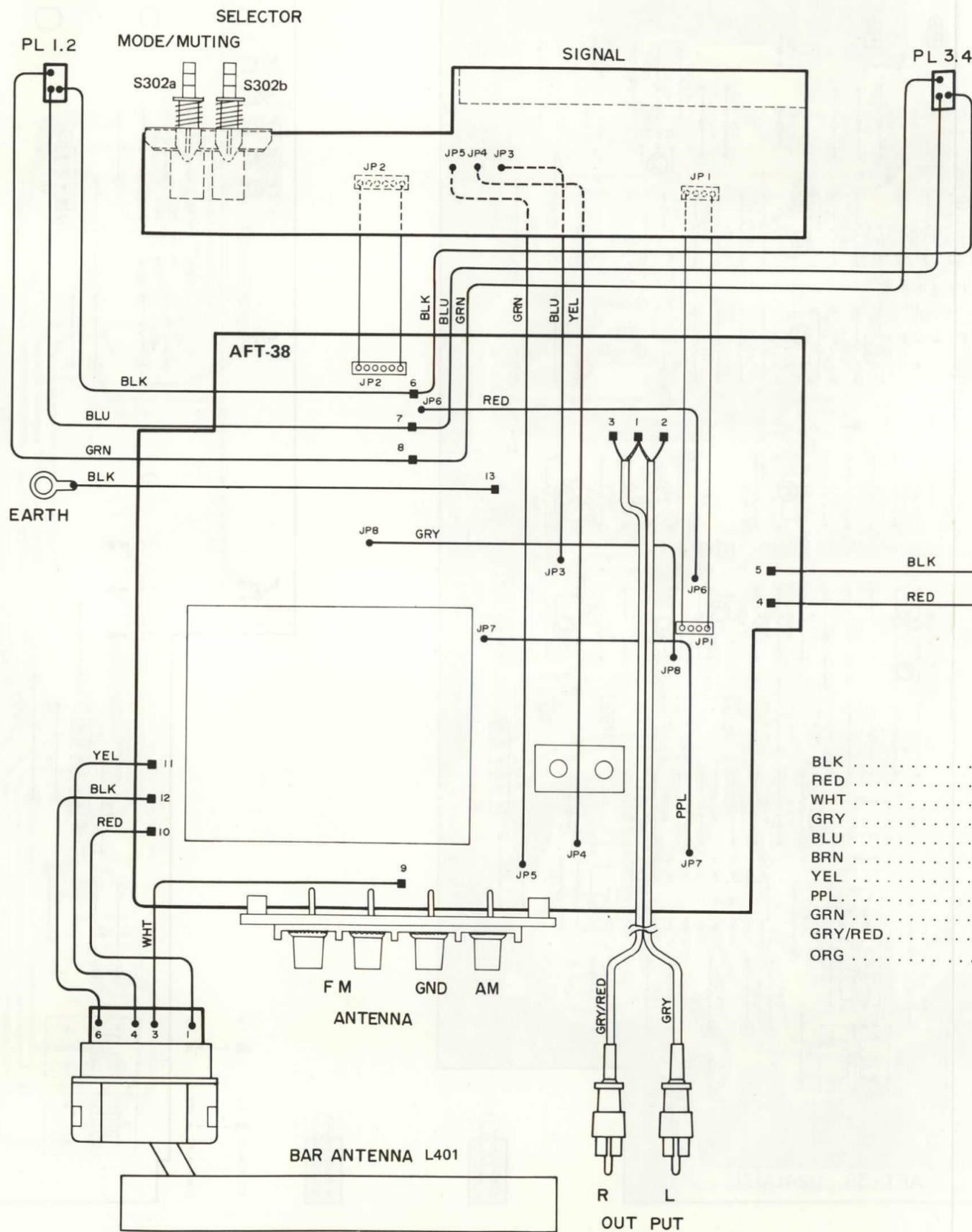
PRINTED CIRCUIT BOARD

Symbol & Address

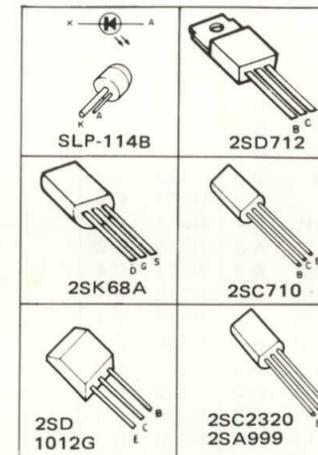
D101	A-1	C211	C-2	L402	A-3	R309	C-3
D102	A-1	C213	C-1	PL1	D-5	R310	C-3
D103	B-3	C214	C-2	PL2	D-5	R311	D-3
D201	B-2	C215	C-2	PL3	D-5	R312	C-3
D202	E-3	C216	C-2	PL4	D-5	R313	D-3
D301	C-3	C301	C-4			R314	C-3
D302	C-3	C302	C-4	R101	A-4	R315	C-3
D303	E-2	C303	C-3	R102	A-3	R316	C-3
D304	E-1	C304	C-3	R103	A-3	R317	C-4
D305	E-1	C305	C-4	R104	A-3	R318	E-1
D306	E-1	C306	C-4	R105	A-3	R319	E-1
D307	E-1	C307	B-1	R106	A-3	R320	E-1
D308	E-1	C308	C-1	R107	A-3	R321	E-2
D309	C-1	C309	B-1	R108	A-2	R322	E-2
D310	C-1	C310	C-1	R109	A-2	R323	C-1
D311	C-1	C311	C-1	R110	A-3	R324	C-1
D312	C-1	C312	C-1	R111	A-2	R401	C-5
		C313	C-1	R113	A-2	R402	D-4
Q101	A-3	C314	D-1	R114	B-2	R403	C-4
Q102	A-2	C315	D-1	R115	B-2	R404	C-4
Q103	B-1	C317	C-3	R116	A-1	R405	C-4
Q104	B-3	C318	D-3	R117	A-2	R406	D-4
Q105	B-3	C401	B-5	R118	A-1	R407	C-4
Q106	C-3	C402	B-4	R119	A-2	R408	C-5
Q201	C-2	C403	A-5	R120	A-1	R901	D-2
Q202	C-3	C404	B-4	R121	A-1	S302-a	E-5
Q301	C-3	C405	B-3	R123	B-2	S302-b	E-5
Q302	C-3	C406	B-4	R124	B-2		
Q303	C-3	C407	B-5	R125	B-2	T101	A-2
Q304	D-3	C408	C-5	R126	B-2	T401	C-5
Q305	D-3	C409	C-5	R127	A-1	T402	C-4
Q306	C-3	C410	C-4	R128	A-3	T403	C-4
Q401	C-4	C411	C-5	R129	B-3		
		C412	C-5	R130	B-3	VR201	B-2
IC101	A-2	C413	C-4	R131	B-3		
IC201	B-2	C414	C-4	R132	B-3		
IC301	E-2	C415	C-4	R133	B-3		
IC401	C-4	C416	D-4	R134	C-3		
		C417	C-4	R135	C-3		
C101	B-2	C418	C-4	R137	C-3		
C102	A-3	C419	C-4	R138	C-3		
C103	A-3	C420	C-5	R139	C-3		
C104	A-2	C421	C-5	R140	A-3		
C105	A-2	C422	D-4	R141	A-3		
C106	A-2	C902	C-2	R201	B-3		
C107	A-2			R202	B-2		
C108	A-2	CF101	A-3	R203	B-2		
C109	A-2	CF102	A-3	R204	B-2		
C110	B-2			R205	B-2		
C111	B-2	F301	B-1	R206	D-1		
C112	B-2			R207	B-2		
C113	A-2	JP1	B-1	R208	C-2		
C114	A-2			R209	C-2		
C115	B-2	JP2	D-4	R210	C-2		
C116	A-2			R211	C-2		
C117	B-3	JP3	E-3	R212	C-2		
C118	B-3			E213	C-2		
C119	C-2	JP4	E-3	R214	C-2		
C120	B-3			R215	C-2		
C121	B-3	JP5	E-3	R216	C-2		
C201	B-2			R217	D-2		
C202	B-2	JP6	C-1	R218	D-2		
C203	B-2			R301	C-3		
C204	B-2	JP7	B-3	R302	C-4		
C205	C-2			R303	C-3		
C206	B-2	JP8	B-1	R304	C-4		
C207	C-2			R305	C-3		
C208	C-2	JP9	B-1	R306	C-3		
C209	C-1			R307	C-3		
C210	C-2			R308	C-4		



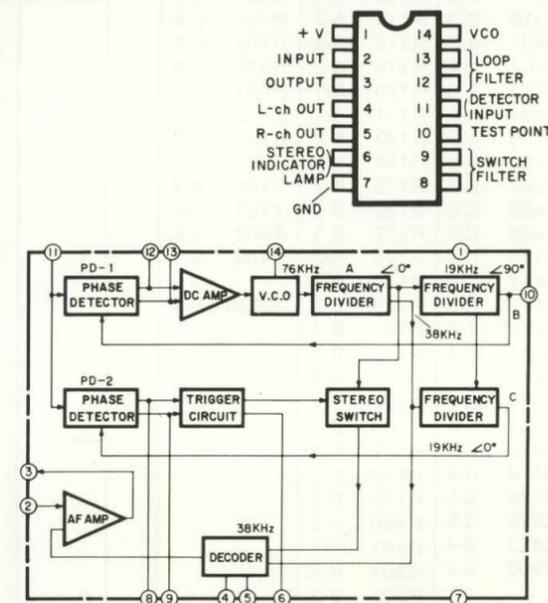
WIRING DIAGRAM



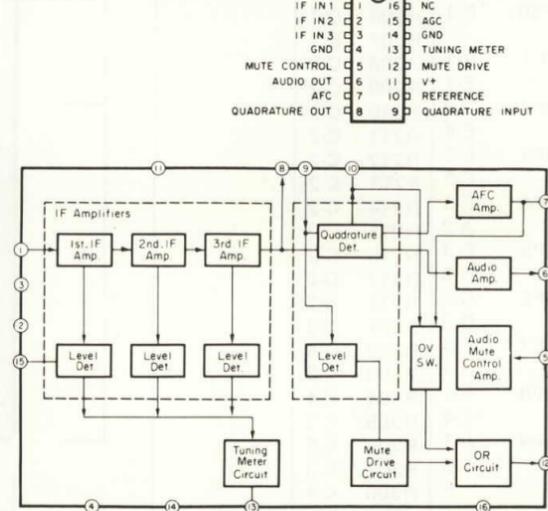
- BLK Black
- RED Red
- WHT White
- GRY Gray
- BLU Blue
- BRN Brown
- YEL Yellow
- PPL Purple
- GRN Green
- GRY/RED Gray/Red
- ORG Orange



IC-KB4400

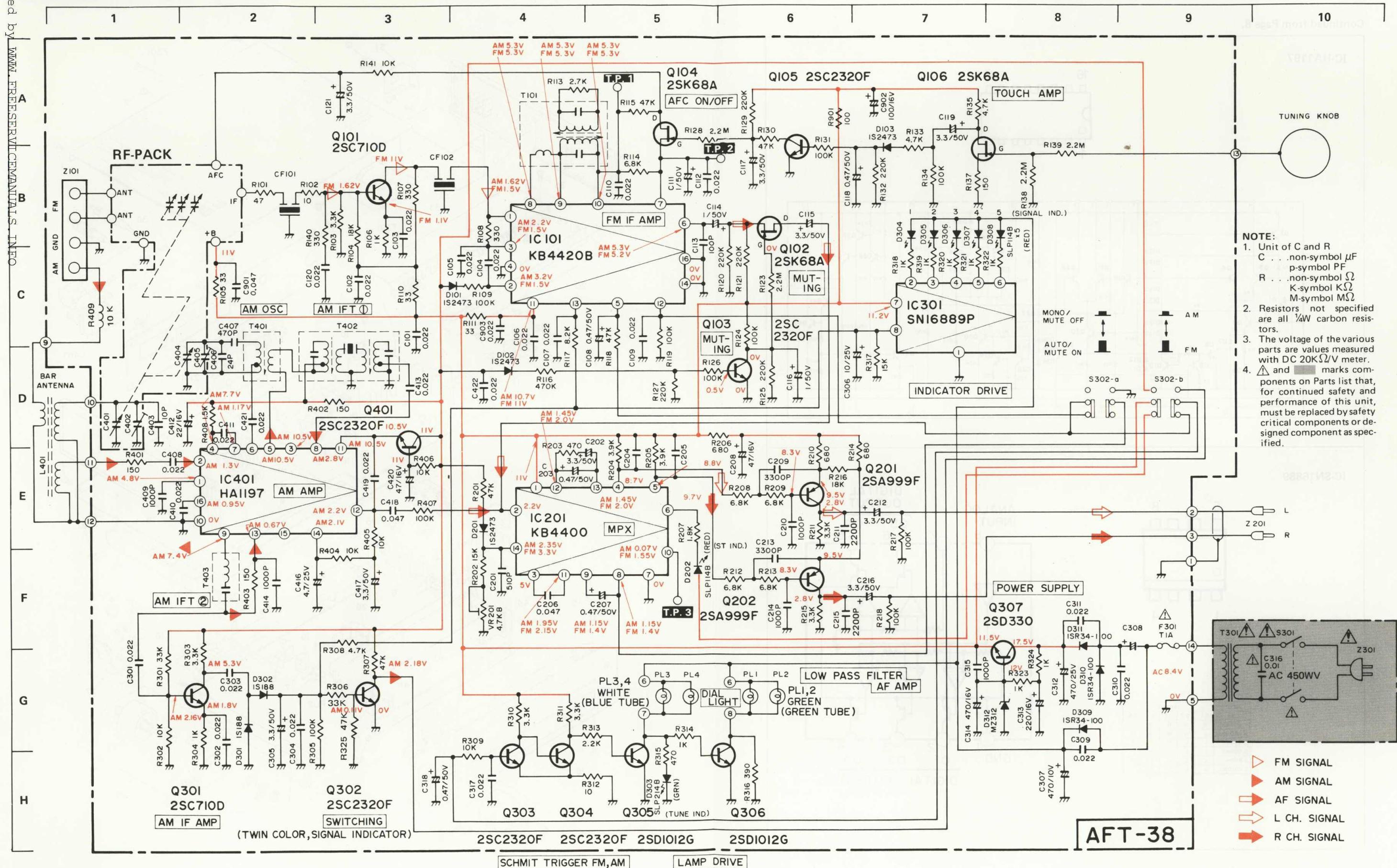


IC-KB4420



Continued on Page 11.

SCHEMATIC DIAGRAM



NOTE:

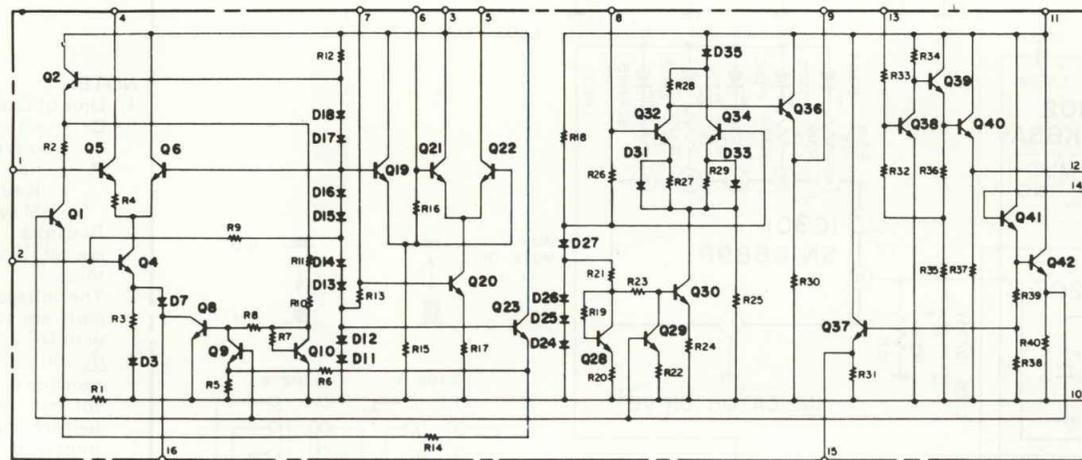
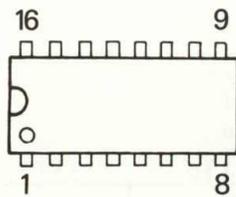
- Unit of C and R
 C . . . non-symbol μF
 p-symbol PF
 R . . . non-symbol Ω
 K-symbol K Ω
 M-symbol M Ω
- Resistors not specified are all $\frac{1}{4}\text{W}$ carbon resistors.
- The voltage of the various parts are values measured with DC 20K Ω /V meter.
- Δ and \square marks components on Parts list that, for continued safety and performance of this unit, must be replaced by safety critical components or designed component as specified.

▶ FM SIGNAL
▶ AM SIGNAL
▶ AF SIGNAL
▶ L CH. SIGNAL
▶ R CH. SIGNAL

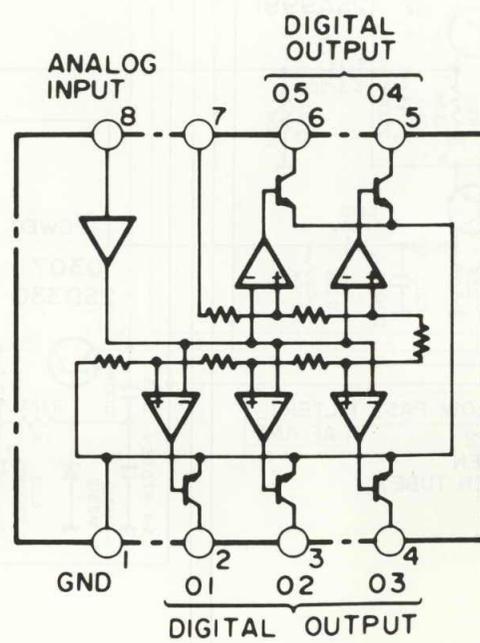
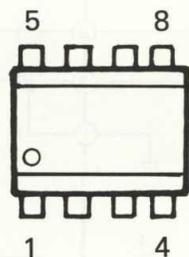
IC LEAD IDENTIFICATIONS

Continued from Page 8.

IC-HA1197

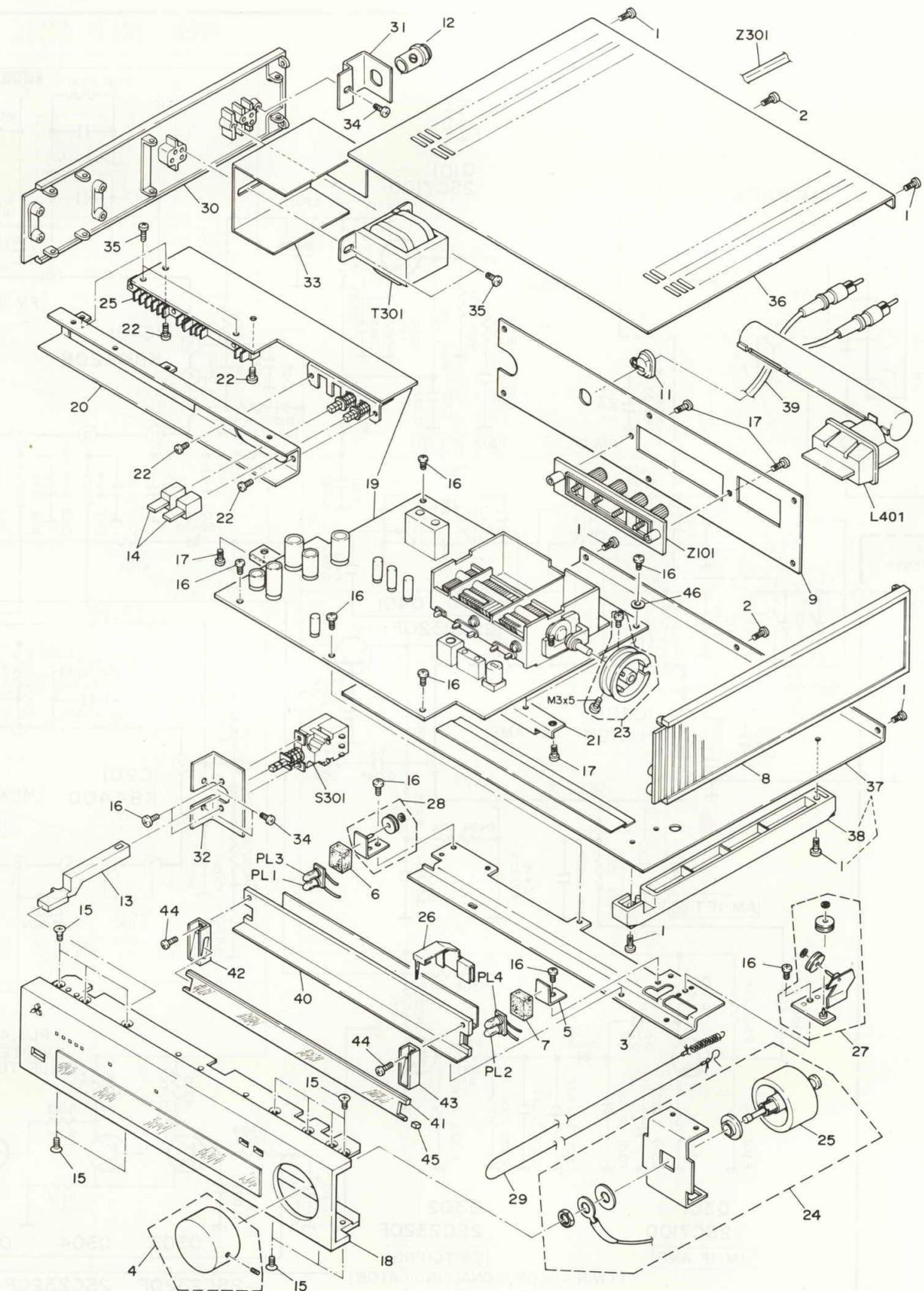


IC-SN16889



INPUT	OUTPUT				
	A	O1	O2	O3	O4 O5
< 200mV	H	H	H	H	H
≥ 200mV	L	L	L	L	L
≥ 400mV	L	L	L	L	L
≥ 600mV	L	L	L	L	L
≥ 800mV	L	L	L	L	L
≥ 1000mV	L	L	L	L	L

EXPLODED VIEW



PARTS LIST

NOTE:  and  marks components on Parts list are for performance of this unit, replace them, uses safety critical components or designed component as specified.

Symbol No.	Parts No.	Description
Diodes		
D101	M05200320	1S2473
D102	M05200320	1S2473
D103	M05200320	1S2473
D201	M05200320	1S2473
D202	M05129321	SLP114B (Red)
D301	M07496320	1S188 AM
D302	M07496320	1S188 AM
D303	M07357320	SLP214B (Green)
D304	M05129321	SLP114B (Red)
D305	M05129321	SLP114B (Red)
D306	M05129321	SLP114B (Red)
D307	M05129321	SLP114B (Red)
D308	M05129321	SLP114B (Red)
D309	M07391320	1SR34-100
D310	M07391320	1SR34-100
D311	M07391320	1SR34-100
D312	M07496321	MZ312
Transistors		
Q101	M04070304	2SC710
Q102	M07139304	2SK68A
Q103	M07390303	2SC2320
Q104	M07139304	2SK68A
Q105	M07390303	2SC2320
Q106	M07139304	2SK68A
Q201	M07390304	2SA999
Q202	M07390304	2SA999
Q301	M04070304	2SC710
Q302	M07390303	2SC2320
Q303	M07390303	2SC2320
Q304	M07390303	2SC2320
Q305	M07454303	2SD1012
Q306	M07454303	2SD1012
Q307	M07061304	2SD330
Q401	M07390303	2SC2320
IC's		
IC101	M07361345	KB4420B
IC201	M07361344	KB4400
IC301	M07236344	SN16889P
IC401	M07387343	HA1197
Electrical Parts		
C316	M07470360	C-Paper-450V 103M
CF101, 102	M07470380	Ceramic Filter
L401	M07497540	Coil-Ant.
PL-1, 2	M07357250	Lamp
PL-3, 4	M07357251	Lamp
RF	U929Y034H01	RF-Pack

Symbol No.	Parts No.	Description
S301	M05113430	SW-Push (Power) 
S302-a, b	M07454453	SW-Push (Selector, Mode, Muting)
T101	M07482510	Trans, IF
T301	M07505549	Trans-Power 
T401	M07085527	Coil-OSC
T402	M07470511	Trans-IF
T403	M07470512	Trans-IF
VR201	M07115352	VR-Semi B-4.7K
Z101	M07470575	Terminal-Board
Z301	M05205700	Mains Lead 
Cabinet Parts		
1		T-Screw 2-3 x 10
2		Screw-Metal
3		Holder-Z
4	U714D174H02	Knob-Metal
5		Holder-L
6		Cushion
7		Cushion
8	U712B160H36	Panel-Side -Right
9	U582C041H31	Panel-Back
11		Clamper
12		Clamper
13	U704D443H02	Knob
14	U704D442H02	Knob
15		Screw-F M3 x 6
16		Screw-B M3 x 6
17		T-Screw 2-3 x 8
18	U712C192G02	Panel- Assy-Front
19		P.C.B-Assy
20		Holder-Z
21		Holder-U
22		Screw-B M3 x 5
23		Drum
24	U524D047H01	Flywheel-Assy
25		Flywheel
26		Pointer-Assy
27		Pulley-Assy
28		Pulley-Assy
29		Dialcord-Assy
30	U712B160H31	Panel-Side -Left
31		Holder-U
32		Holder-Z
33		Shield
34		T-Screw 2-3 x 6
35		T-Screw 2-3 x 8
36	U564C021G06	Cover (Cabinet-Top)
37	U564C022G27	Cover-Assy (Cabinet Bottom)
38		Leg-Assy
39		Lead
40		Holder

Symbol No.	Part No.	Description
41		Dial
42		Bush-Mold
43		Bush-Mold
44		Screw-B M3 x 8
45		Cushion
46		Washer

PACKING INSTRUCTION

