SERIAL NO. 3003

ONKYO SERVICE MANUAL

SOLID STATE AM/FM STEREO TUNER

model T-4055

INDEX

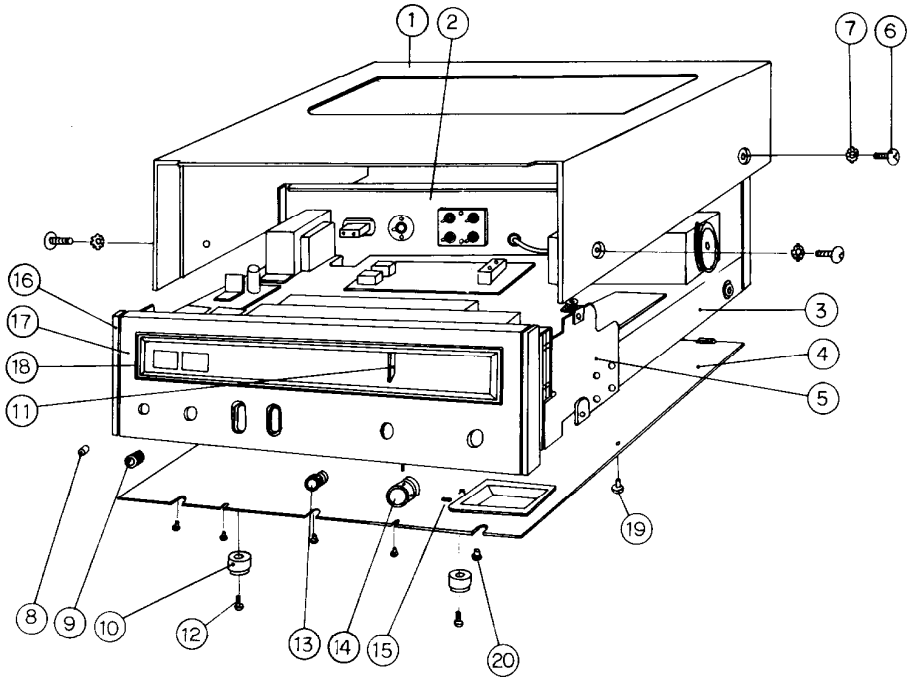
ONKYO®
AUDIO COMPONENT

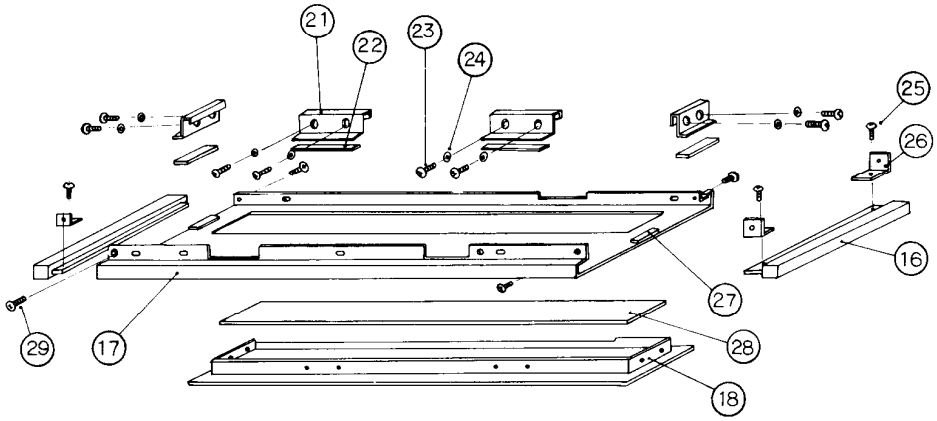
model T-4055

SPECIFICATIONS

Tuning Range	FM:88–108MHz AM:530–1605kHz
Sensitivity	FM:1.7μV(IHF) AM:20μV,150μV/m
Intermediate Frequency	FM:10.7MHz AM:455kHz
Capture Ratio	FM:1.2dB
Image Rejection Ratio	FM:90dB(108MHz) AM:50dB(1MHz)
IF Rejection Ratio	FM:95dB(98MHz) AM:33dB(1MHz)
AM Suppresion Ratio	FM:55dB
Signal to Noise Ratio	FM:70dB(IHF) AM:50dB(30%,1mV input)
Alternate Channel Att.	FM:80dB
Harmonic Distortion	FM MONO:0.2% AM:0.5%
	FM ST :0.5%
Frequency Response	FM:20–15,000Hz(+0,−2dB)
MPX Separation	FM:40dB(400Hz),35dB(100−10,000Hz)
Carrier Leakage	FM:−70dB
Output Impedance	2,5kΩ(Fixed),1.5kΩ(Variable Max)
Output Variable	FM:0–2V AM:0–0.6V
Fixed	FM:0.75V AM:0.2V
Power Supply Rating	AC110/120/220/240V 50/60Hz
Controls	POWER
	TUNING
	SELECTOR(AM–FM AUTO–FM MONO)
	LEVEL
	MUTING
	NOISE FILTER
	AUDIBLE SWITCH(MULTIPATH)
Antenna	FM:300 & 75ohm AM:Ferrite Core antenna
Outputs	OUTPUT FIXED & VARIABLE
	FM DET
	MULTIPATH–OSCILLOSCOPE VERT. HOR.
Inputs	FM ANTENNA 300ohm, 75ohm, 75ohm M type Connector
	AM ANTENNA
Special Features	2 MOS FET, 4 Ganged Variavle Capacitor and
	Linear Scale Front End
	2 Tuning Meters(Strength and Center tuning)
	Multipath Terminal W/Audible Switch
	Blight Dial and Iluminated Pointer
	75ohm M type Connector
	FM DET terminal for 4 Channel receiving
Semiconductors	39 TR.(2 FET) 36 Diode
Dimension	423W×355D×136Hmm 7.6kgr.
	(16 5/8"W×14"D×5 3/8"H 16.7lbs.)

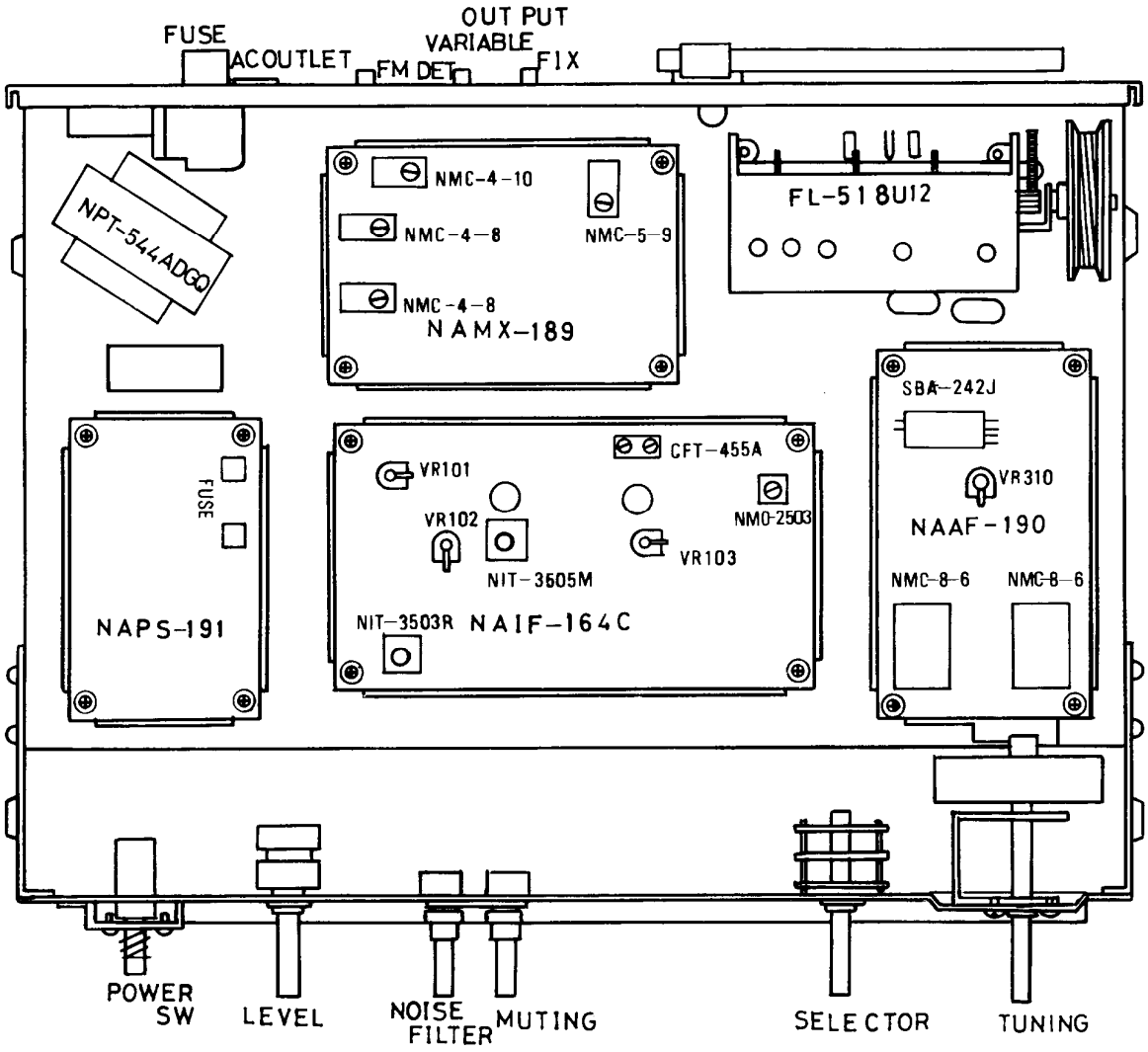
1. COMPONENT LOCATIONS



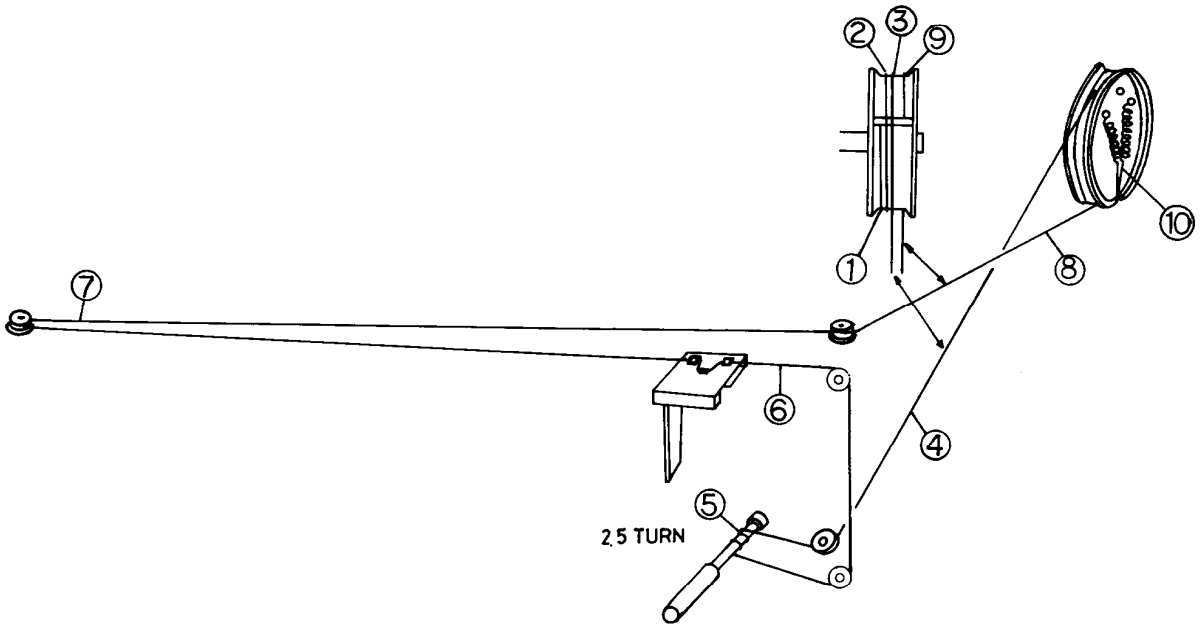


KEY NO.	DESCRIPTION	KEY NO.	DESCRIPTION
1	Amp Box assembly	16	End Cap
2	Rear Panel	17	Front Panel
3	Chassis	18	Dial Flame
4	Bottom Cover	19	Toothed Lock Screw(8W3P+6F)
5	Side Bracket	20	Binder Screw(3B+6F−N)
6	Truss Screw(3T+10F−N)	21	Flame Holder
7	Toothed Lock Washer(M5×AB)	22	Neoprene Sheet
8	Knob-Push Switch	23	Pan Screw(3P+4−N)
9	Knob-Tone(LEVEL)	24	Washer(W3×8B)
10	Rubber Cushion	25	Pan Screw(3P+8F−N)
11	Dial Pointer	26	Joiner
12	Tapping Screw	27	Fiber Board
13	Knob-Selector	28	Glass Plate
14	Knob-Tuning	29	Flat Screw(3S+5F−N)
15	Screw(M4×10)		

2. CHASSIS LAYOUT



3. DIAL CORD ARRANGEMENT



4. ALIGNMENT PROCEDURE

INSTRUMENT REQUIRED

1. AM and FM sweep generator
2. AM and FM signal generator
3. Vacuum tube voltmeter (V.T.V.M.) AC.DC
4. Oscilloscope
5. Distortion meter
6. Stereo Modulator

GENERAL ALIGNMENT CONDITIONS

1. Signal input should be kept low as possible.
2. Standard modulation is 400Hz 30% (AM)
   400Hz 100% (FM.MONO), pilot 10% Sub & Main 90% (FM. ST)
3. Standard output is 500mW (2.0V, 8Ω)

STEP	CONNECT SIGNAL SOURCE TO-	SET SIGNAL TO-	CONNECT OUTPUT INDICATOR TO-	SET RADIO DIAL TO-	ADJUST	ADJUST FOR	REMARKS	STEP
1	Set Radio Selector Switch to "AM"							1
2	AM Sweep Generator to- AM Ant.	455KHz	Oscilloscope to- across "AM OUT" terminal (NAIF-164C)	Quiet Point on Band	CFT-455A	Maximum Symmetrical response	Usually not necessary to adjust	2
3	AM Signal generator to- AM Ant. through a standard radiating loop	515KHz (modulated)	V. T. V. M. or osilloscope to- across "VARIABLE" terminal	Lower end	NMO-2503 (Red)	Maximum	Repeat steps 3 and 4 as necessary to obtain Maximum sensitivity on stations	3
4		1680KHz (modulated)		Upper end	AM Trimmer (OSC. side)	Maximum		4
5	〃	600KHz (modulated)	〃	600KHz (Tuned to Signal)	NMA-2507 (Coil Antenna)	Maximum	Repeat steps 5 and 6 as necessary	5
6		1400KHz (modulated)		1400KHz (Tuned to Signal)	AM Trimmer (Ant. side)	Maximum		6
7	Set Radio Selector Switch to "FM"			Set Muting Switch to "OFF"				7
8	FM Sweep Generator to- TP terminal on FM Tuner	±0.3MHz Sweep Centered at 10.7MHz	Osilloscope to- across FMOUT" terminal (NAIF-164C)	Quiet Point on Band	NIT-3503R Top Bottom	Maximum "S" curve Lineality	Not necessary to adjust for Symmetrical response or Zero Voltage	8
9	〃	〃	Osilloscope to- across "SQL" terminal (NAIF-164C)	〃	NIT-3505M Top	Symmetrical response		9
10	FM Signal Generator to- across FM Ant. terminal through a matching network	88MHz (100% Mod.)	V. T. V. M. to- across "VARIABLE" terminal	88MHz	LO on FM Tuner	Maximum	Repeat Steps 10 and 11 as necessary	10
11		108MHz (100% Mod.)		108MHz	TCO on FM Tuner	Maximum		11
12		90MHz (100% Mod.)		Tuned to Signal	LA LR (2 points) on FM Tuner	Maximum	Repeat Steps 12 and 13 as necessary	12
13		106MHz (100% Mod.)		〃	TCA TCR (2 points) on FM Tuner	Maximum		13
14	No Signal		Tuning Indicator may be used as the output indicator	Quiet Point Where FM Signals are not received	NIT-3503R Top	The needle of tuning indicator comes to the center		14
15	FM Signal Generator to- across FM Ant. terminal through a matching network	98MHz (100% Mod.)	Distortion meter to- across "VARIABLE" terminal	Tuned to Signal	NIT-3503R Bottom	Minimum Distortion	Less than 0.2%	15
16			V. T. V. M (D. C) to- across "SOL" terminal		NIT-3505M	Minimum		16

STEP	CONNECT SIGNAL SOURCE TO-	SET SIGNAL TO-	CONNECT OUTPUT INDICATOR TO-	SET RADIO DIAL TO-	ADJUST	ADJUST FOR	REMARKS	STEP
17	Set Radio Selector Switch to "FM"		Set Muting Switch to "ON"					17
18	〃	〃	Osilloscope to across "VARIABLE" terminal	Tuned and Detuned to Signal	Variable Resistor VR102	No noise when Detuned but less effective for Signal Output when tuned	Signals are not necessarily Squelching by turning VR102 counterclockwise	18
19	Set Radio Selector Switch to "FM AUTO"		Set Muting Switch to "OFF"					19
20	〃	98MHz (Pilot Sig. 19KHz 10%) 1mV input	V. T. V. M. to- across TP terminal (NAMX 189)	Tuned to Signal	NMC 4-8 (2 points) NMC-4 10	Maximum		20
21		98MHz (Piot Sig. 19KHz 10%) 10KHz R ch 90%	V. T. V. M. to- across "VARIABLE" terminal (R ch)	〃	NMC-4-8 NMC 4-10 NMC5 9	Maximum		21
22	〃	98MHz (Pilot Sig. 19KHz 10%) 1KHz R ch 90%	〃	〃	NMC-5-9	Maximum		22
23	〃	98MHz (Pilot Sig. 19KHz 10% Main & Sub Sig. 1KHz L ch 90%	〃 (R ch)	〃	Variable Resistor R310	Minimum	Retouch slightly Repeat Steps 23 and 24 as necessary	23
24	〃	〃 R ch 90%	〃 (L ch)	〃	〃	〃		24

The movement of Signal Indicator may be adjusted by Variable Resistor VR101 (AM) or VR103 (FM)

5. CAUTION

(1) Muting relay (S7)

The muting relay switch (S7) is stored in the slender glass tube. Any twisting of leads will easily damage the relay and can easily cause the glass tube to crack. It is important to isolate the relay from shock and lead twists.

Do not cut the lead wire as it causes undesirable effects to the function of muting switch at actuating current.

(2) Tuning meter adjustment.

Adjust the Tuning meter to the center position using the variable transformer (NIT-3503R).

When changing or adjusting this variable transformer, check distortion factor, separation and muting balance.

(3)

This tuner has been factory set a de-emphasis rating of 50μs.

If the local de-emphasis rating is 75μs (mainly in the USA), open the bottom cover and push the slide switch is adjacent to the front end to 75μs.

For USA shipment, this tuner has been set a de-emphasis rating of 75 μs before shipment.

6. PARTS LIST

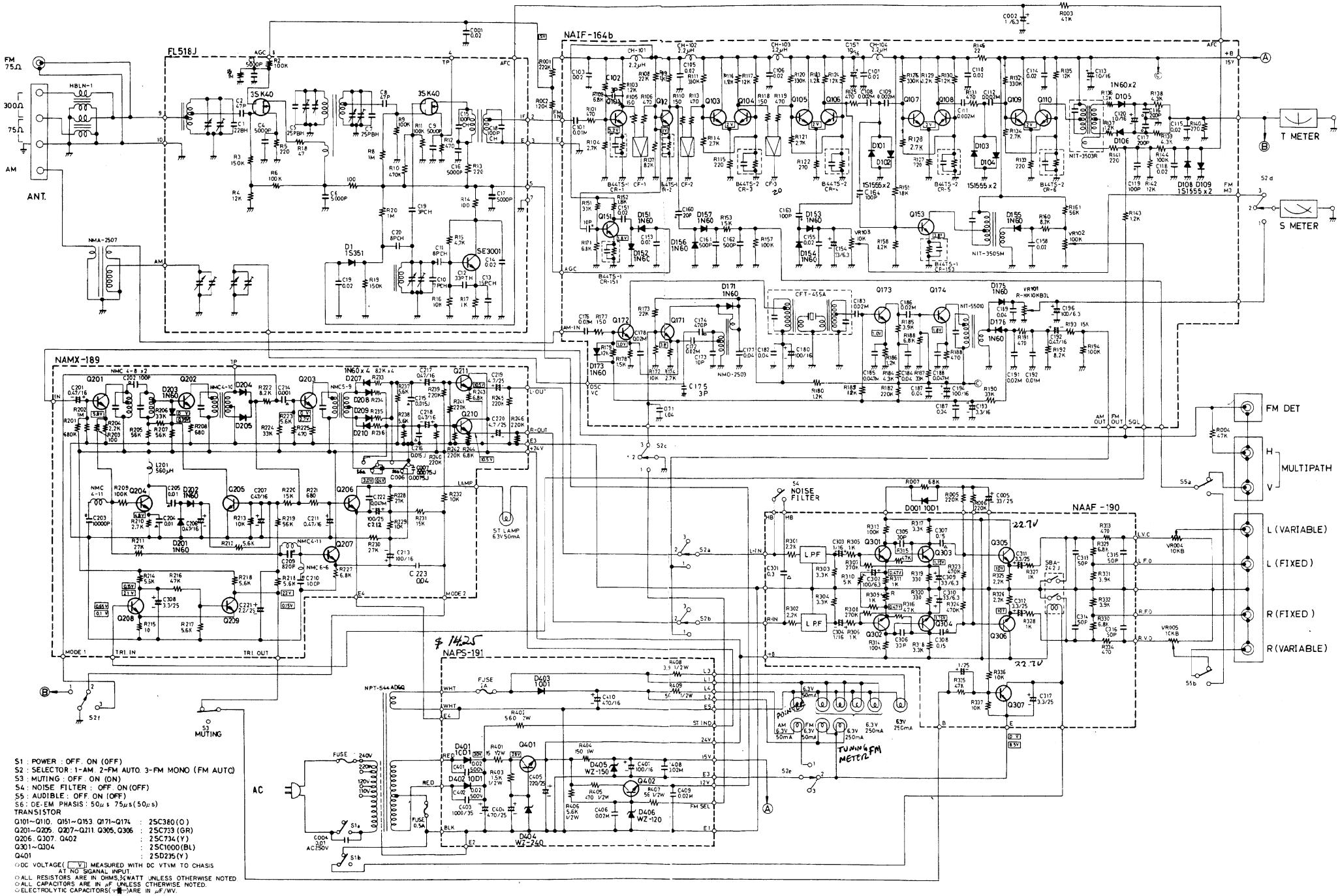
CIRCUIT NO.	DESCRIPTION	SPECIFICATION	Q'TY	STOCK NO.	
U 1	FM Front End	FL-518U12	1	240017	
U 2	IF Amp assembly	NAIF-164C	1	13969564C	
U 3	MPX assembly	NAMX-189	1	13969589	
U 4	Audio Amp assembly	NAAF-190	1	13969590	
U 5	Power Supply assembly	NAPS-191	1	13969591	
D001	Silicon Diode	10D1	1	223801	
	Pilot lamp	6.3V0.25A	6	210001	
	〃	6.3V0.05AW-2	1	210014	
	〃	6.3V0.05AW-3	2	210015	
	〃	6.3V0.05AW-3S	1	210016	
T901	Transformer-Power	NPT-544ADGQ	1	230047	
T002	Coil-Antenna	NMA-2507(UL	1	232018	
T001	Transformer-Balloon	NBLN-1	1	233026	
C002	Electrolytic	CE02D16V1〃F	1	351340101A	
C005	〃	CE02D25V33〃F	1	351353301A	
VR004 VR005	Variable Resistor	N24RG10KB35	1	5172010	
S 2	Switch-Rotary	NRS-263-35-Y-A	1	250135	(Selector)
S 3, 4	Switch-lever	NLS-122-29-SL	2	250119-1	(Muting Noise Filter)
S 5, S 6	Switch-Slide	NSS-2225	2	250142	(Audible De-emphasis)
S 1	Switch-Power	NPS-122LN2	1	250149	(Power)
	Socket-Pilot Lamp	PLS-G1	6	213002	
	Fuse	0.5A-T	2	252023	(AC line)
	〃	2A-T	1	252002	(Lamp)
	〃	0.5A T	1	252030	
	Tuning Indicator	NIND-0200S21	1	243012	S METER
	〃	NIND-0200S22	1	243013	T METER
	Dial Drum		1	270220-1	
	Drive Shaft assembly	G-3	1	270349	
	Slide Switch Bracket		1	270536	
	Dial Plate		1	270537	
	Back Plate		1	270321-1	
	Rating Plate				
	Dial Pointer		1	270273	
	Dial Pointer Case		1	270172-2	
	Front Panel		1	280692	
	Glass Plate		1	280395	
	Dial Flame		1	280394	
	End Cap		2	280367	
	Bottom cover		1	270324-1	
	Rubber Cushion		4	280379	
	Knob-Tone(LEVEL)		2	283061	
	Knob-Tuning		1	280420	
	Knob-Push Switch		1	283066	
	Amp Box assembly		1	280693	
	Master Carton Box		1	290331	
	Side Pad		2	290203	
	FM ANT AS	TFD-2US	1	253071	
	Fuse	1A-T	2	252001	
					(AC line)

NAIF-164C					
Q101～Q110 Q151, Q153 Q171～Q174	Transistor	2SC380(0)	16	2210122	
D101～D104 D108～D109	Silicon Diode	1S1555	6	223105	
D105～D106 D151～D157 D171, D173, D175, D176	Germanium Diode	1N60(N)FM	13	2231031	

PARTS LIST

CIRCUIT NO.	DESCRIPTION	SPECIFICATION	Q'TY	STOCK NO.	
	Transformer-IF	NIT-3503R	1	233022	
	〃	NIT-3503M	1	233023	
	〃	NIT-5501D	1	232012	
	Coil-OSC	NMO-2503	1	232013	
CH101～CH104	Coil-Choke	NCCH-1501	4	233024	
	Ceramic Filter	CFT-455A	1	3010001	
CF1～CF3	〃	CF-10M-12	3	3010002	
C180,C194	Capacitor-Electrolytic	CE04W16V100μF	2	358341011	
C113 C120,C157	〃	〃 16V10μF	3	358341001	
C192	〃	〃 16V0.47μF	1	358344791	
C196	〃	〃 6.3V100μF	1	358321011	
C154	〃	〃 6.3V33μF	1	358323301	
C193	〃	〃 16V3.3μF	1	352740331A	
CR-1,CR-2 CR-151,CR-153	CR Composite	B44TS-1	4	3020001	
CR-3～CR-6	〃	B44TS-2	4	3020002	
VR101 VR103	Resistor-Semi Fixed	R-HK10KB3L	2	5245002	
VR102	〃	R-HK100KB3L	1	5245003	
NAMX-189					
Q201～Q205 Q207～Q211	Transistor	2SC733(GR)	10	2210082	
Q206	〃	2SC734(Y)	1	2210064	
D201～D205 D207～D210	Germanium Diode	1N60(N)FM	9	2231031	
	Coil-MPX	NMC-4-8	2	233016	
	〃	NMC-4-10	1	233017	
	〃	NMC-4-11	2	233018	
	〃	NMC-5-9	1	233019	
	〃	NMC-6-6	1	233020	
L201	Coil-Choke	NCCH-1503	1	233025	
C222	Capacitor-Electrolytic	CE04W25V100μF	1	358351011	
C308	〃	〃 3.3μF	1	358350331	
C213	〃	CE04W16V100μF	1	358341011	
C201,C206,C207 C211,C217,C218	〃	〃 0.47μF	6	35834791	
C219,C220	〃	〃 4.7μF	2	358340471	
C221	〃	〃 2.2μF	1	358340221	
NAAF-190					
Q301～Q304	Transistor	2SC1000(BL)	4	2210282	
Q305,Q306	〃	2SC733(GR)	2	2210082	
Q307	〃	2SC734(Y)	1	2210064	
	Low pass Filter	NMC-8-6	2	233030	
C303,C304	Capacitor-Electrolytic	CE04W16V1μF	2	358340101	
C302	〃	〃 6.3V100μF	1	358321011	
C309,C310	〃	〃 33μF	2	358320631	
C311,C312 C317	〃	〃 25V3.3μF	3	358350331	
C318	〃	〃 1μF	1	358350101	
R310	Resistor-Semi Fixed	R-HK5KB3L	1	5245004	
	Lead Relay	SBA-242J	1	250138	
NAPS-191					
Q401	Transistor	2SD235(Y)	1	2200014	
Q402	〃	2SC734(Y)	1	2210064	
D401～D403	Silicon Diode	10D1	3	223801	
D404	Zener Diode	WZ-240	1	223916	
D405	〃	WZ-150	1	223915	
D406	〃	WZ-120	1	223910	
C403	Capacitor-Electrolytic	CE04W35V1000μF	1	358361021	
C404	〃	CE04W25V470μF	1	358354711	
C405	〃	〃 220μF	1	358352211	
C410	〃	〃 16V470μF	1	358344711	
C407	〃	〃 100μF	1	358341011	
	Radiator		1	270187	
	Fuse Holder	S-N5051	2	250113	

model T-4055



S1 : POWER : OFF. ON (OFF)
S2 : SELECTOR : 1-AM. 2-FM AUTO. 3-FM MONO (FM AUTO)
S3 : MUTING : OFF. ON (ON)
S4 : NOISE FILTER : OFF. ON (OFF)
S5 : AUDIBLE : OFF. ON (OFF)
S6 : DE-EM PHASIS : 50μs 75μs(50μs)

TRANSISTOR

Q101~Q110. Q151~Q153 Q171~Q174	:	2SC380(O)
Q201~Q205. Q207~Q211 Q305, Q306	:	2SC733 (GR)
Q206. Q307. Q402	:	2SC734(Y)
Q301~Q304	:	2SC1000(BL)
Q401	:	2SD235(Y)

○DC VOLTAGE(V) MEASURED WITH DC VTVM TO CHASIS AT NO SIGANAL INPUT.
○ALL RESISTORS ARE IN OHMS,¼WATT UNLESS OTHERWISE NOTED
○ALL CAPACITORS ARE IN μF UNLESS CTHERWISE NOTED.
○ELECTROLYTIC CAPACITORS(+▓-)ARE IN μF/WV.

LINE VOLTAGE AND FUSE

Model T-4055 and Model A-7055 operate on one of the four line voltages, 110V, 120V, 220V and 240V.
Set the unit to the proper line voltage by following the procedure described below.

CHANGING LINE VOLTAGE SETTING AND FUSE

To remove the fuse, turn the fuse cap located on the line voltage selector in the direction of the arrow.
Then remove the fuse plug from the unit. Put the fuse plug back so that the proper line voltage marking can be seen through the cut in the edge of the plug.
Whenever the position of the selector is changed, check the rating of the fuse. A 0.5A fuse is to be used for either 220V or 240V operation and a 1A fuse for 110V or 120V operation. (Model T-4055)
A 2A fuse is to be used for either 220V or 240V operation and a 4A fuse for 110V or 120V operation. (Model A-7055)
If the rating of the fuse is correct, replace cap.

FUSE REPLACEMENT

When the fuse blows, remove the fuse cap and replace the fuse with a new one.
See Fig. 1.

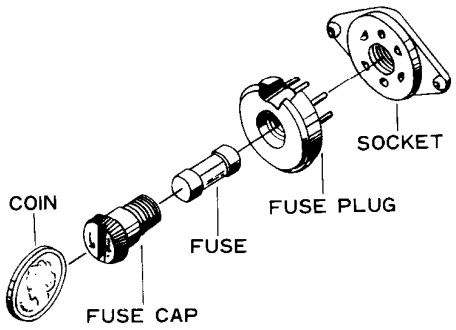


Fig 1

REPACKING PROCEDURE

Packing procedure is as follows.

(1) Wrap the power cord with AC cord wrapper and bind it with rubber band.
(2) Make sure to write serial number on the carton, to same as unit coincide with S.N on bottom or back of unit.
(3) Wrap unit with the special plastic cover wrapper (AMP COVER) and attach foamed plastic pads (SIDE PAD) to both sides.
(4) Place in carton box, make sure the front marks of the carton matches the unit front.
(5) Put the accessory bag with all parts included into the box.
(6) Close the carton box and seal.