MODEL 7C73, Chassis 9A1

ADMIRAL CORPORATION

ADMIRAL 9A1 RECEIVER CIRCUIT

Due to the unusual nature of some portions of the circuit, and the fact that their function may not be too apparent, examination of the circuit prior to servicing will simplify the task of locating trouble. This is the purpose of the following information on the function of various portions of the circuit.

Grounded-Grid R.F. Amplifier

The input signal is introduced between grid and cathode in any amplifier circuit. It is conventional to apply the signal between grid and ground. The cathode is then grounded at signal frequencies. If the grid is grounded, the signal can just as well be applied between cathode and ground. This is the circuit arrangement of a grounded-grid RF amplifier.

Since the cathode circuit of a vacuum tube has a low characteristic impedance, the grounded-grid amplifier has a low input impedance and provides a satisfactory match for a folded dipole antenna. This eliminates complicated antenna coupling devices.

Due to the low impedance and inverted nature of the input circuit of the grounded-grid amplifier, feedback which might result in oscillation, is unlikely. This permits the use of a triode tube. The use of a triode tube greatly reduces circuit noise in comparison to that present in a pentode amplifier stage. A triode RF amplifier circuit provides excellent circuit stability without the use of tricky circuits or adjustments.

Band-Switching

There is little that is unusual about the operation of the band switch in the FM position. Due to the fact that some of the FM components are not removed from the circuit in the AM setting of the switch, it is rather difficult to trace the operation of the circuit. For AM operation, C7 is still in the circuit. Due to a relatively low capacity, it does not bypass the signal around the RF amplifier grid (but acts as a small portion of the tuned circuit capacity). L4 is also left in the circuit and is in series with the feed to the RF grid. It, like C7, has no appreciable effect due to its low electrical value. A shunt feed system is used on the RF amplifier grid, R3 being the grid return resistor.

C13 and L5 remain in series across the signal grid of the converter stage for AM operation. They have no appreciable effect on the circuit since C13 has a very low capacity. C14 is also across this grid circuit but it is also a very small capacity. The effect of these circuit components is merely that of added capacity.

The band switch shorts the primary of the first IF transformer that is not in use (the FM first IF transformer primary is shorted out for AM operation). This prevents the production of undesired frequencies in the plate circuit of the converter. The unused IF transformer windings which remain in the circuit have a very low impedance at the operating frequency since this frequency is far removed from the resonant frequency of the unused windings. Therefore, they have little effect on the operation of the circuit.

Although it does not cause difficulty in tracing the operation of the circuit, it is important to note that CH4 and C10 form a series resonant circuit at 10.7 Mc. Since this series resonant circuit is effectively connected from plate to ground on the RF amplifier, it acts as an IF wave trap for FM operation. This provides excellent rejection of any strong 10.7 Mc. signals which might be present in the input circuit of the receiver. (It is desirable to detune this trap for FM-IF alignment.)

FM Second IF Amplifier, AM Second Detector

A 6BA6 tube is used as a second IF amplifier for FM operation. Self-bias is developed in the grid resistor (R15 and R16 in series) of this stage. Since this DC bias voltage is dependent on signal strength, it is used for AVC purposes.

In the AM setting of the band switch, plate and screen voltages are removed from this tube. The grid and cathode of this tube then function as an AM second detector (diode) and AVC tube in a conventional manner.

Ratio Detector

In AM reception, the transmitter signal varies in amplitude in accordance with the sound being transmitted. The second detector of the receiver converts these amplitude variations into an audio signal that is a duplicate of that used to modulate the transmitter. In the case of FM, the transmitter frequency is made to vary in accordance with the sound to be transmitted. These frequency variations are again converted into an audio signal by the discriminator or ratio detector in an FM receiver.

The conventional discriminator has the disadvantage of being sensitive to amplitude variations as well as to variations in frequency. Amplitude variations, such as might be introduced by noise signals, can be removed by the use of a limiter circuit ahead of the discriminator. However, the input signal to the limiter must exceed a certain minimum amplitude before limiter action takes place. Therefore, the limiter-discriminator type circuit does not provide noise rejection on weak signals.

Since the ratio detector is relatively insensitive to amplitude variations, it can be used without a limiter stage. It provides noise rejection on weak as well as strong signals. This is the reason for the use of the ratio detector in preference to the limiter-discriminator type circuit.

F.M. SERVICE

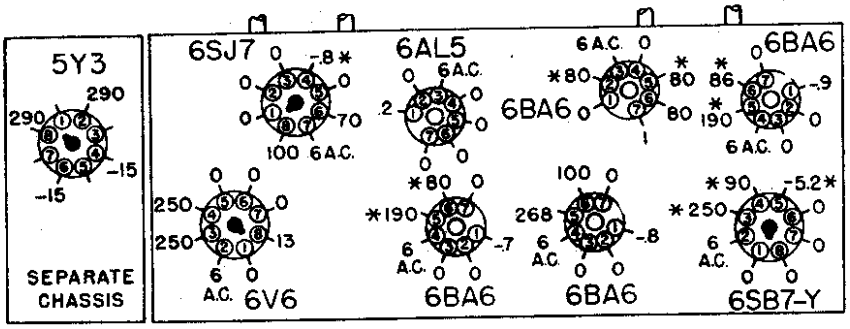
Much of F.M. service is similar to the usual service necessary for A.M. receivers such as voltage analysis, parts replacement, etc. The chief differences arise because of the considerably higher frequencies used in F.M. operation, and because of the different type of second detector needed in F.M.

The higher frequencies involved means that more care must be exercised in location and length of leads. Leads tend to act as small inductances or capacities at high frequency and hence may appreciably alter the electrical characteristics of a circuit. For this reason, ground connections should always be maintained as originally made in the set. Also note that in certain circuits, the type by-pass condenser used is critical at the high F.M. frequencies. When replacing condensers it is important that they be replaced with condensers of identical capacity values, tolerances, temperature coefficients and construction. For example: C10 is a 40 MMFD ± 2%, zero temperature coefficient, ceramic capacitor. If defective it should be replaced with a 40 MMFD ± 2%, zero temperature coefficient, ceramic capacitor.

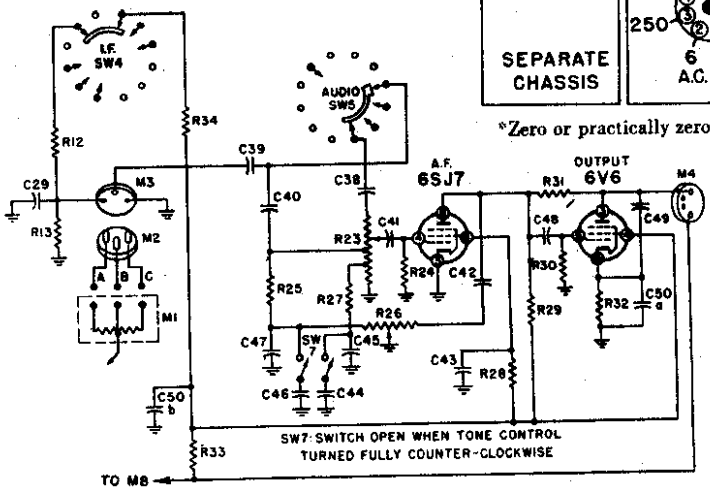
For Schematic, see P. 16-3

Fig. 8. VOLTAGE DATA

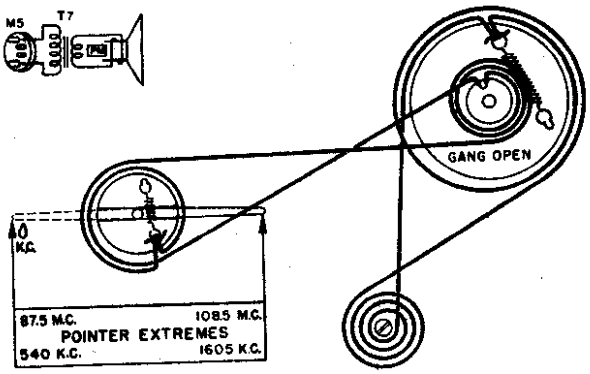
- Measured on 117 Volt A.C. line.
- No station tuned in. Dial turned to high frequency end.
- Voltages measured with a vacuum-tube voltmeter.
- Voltages measured between point indicated and chassis.
- Readings with bandswitch in F.M. position.



*Zero or practically zero if measured with band switch in phono position.



Simplified Schematic, Phono only



POINTER SETTING

With the gang closed, the lower edge of the pointer should be set at the upper tip of the pear-shaped opening (in the dial scale) on the A.M. range

FM ALIGNMENT

The model 9A1 chassis should be aligned only with an AM signal generator and a vacuum tube voltmeter. Any standard brand vacuum tube voltmeter with a DC scale of not over 5 volts is suitable. A 3-volt zero center scale is desirable. A signal generator with a frequency range up to 110 MC. is desirable. It is possible however, to align the receiver with a signal generator going to 20 or 30 megacycles, by using the harmonics of these lower frequencies. To do this merely set the signal generator dial as follows and align exactly as explained in the alignment instructions.

Where alignment chart specifies 108.5 *MC.*, set signal generator to highest available frequency of the following:

108.5 MC	27.13 MC
54.25 MC	21.7 MC
36.17 MC	18.08 MC

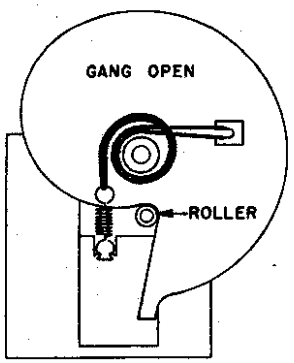
Where alignment chart specifies 102 *MC.*, set signal generator to highest available frequency of the following:

102. MC	25.5 MC
51.0 MC	20.4 MC
34.0 MC	17.0 MC

Signal generators which do not tune to 110 MC or whose harmonics are not strong enough, cannot be used for FM alignment.

In FM alignment, it is essential that every step be followed. Especially important is picking the center of the I.F. curve (step 4 in the FM-IF alignment instructions). During this portion of the alignment it is necessary to tune the signal generator very carefully; it may necessitate having to estimate the dial readings to a tenth of a division.

Alignment of the FM-RF section will require re-alignment of the AM-RF section due to common trimmer capacities during AM operation.



REPLACING TUNING SLUG

If it becomes necessary to change a tuning slug proceed in the following manner: Set the gang to its wide open position, unsolder and remove the old slug. Set the slug adjusting screw about half way down. Place the new slug in such a position that 1¼ inches of its length is above the coil form (or 1" above the chassis top). Solder it in this position making sure that it does not slip during the operation and that the slug wire is straight.

MODEL 7C73

ADMIRAL CORPORATION

IMPORTANT PRELIMINARY ALIGNMENT STEPS

- With the gang closed, the lower edge of the pointer should be at the dotted position shown in Fig. 1. That is, the lower edge of the pointer should be at the upper tip of the AM pear-shaped opening in the dial scale. If the pointer is in different position, move it by hand while keeping the gang closed.
- Check the set screws that hold the tuning drum to the shaft to see that they are tight and that the drum has not slipped on the shaft. See Fig. 1 for correct drum position.
- In the wide open position, the roller on the slug tuning platform must be as shown in dial stringing diagram, Fig. 2.
- With the gang wide open, all slugs should be 1¼ inches out of their coil forms. If there is any serious deviation or if there has been any tampering, turn the adjusting screws until this distance is corrected. (See "Replacing Tuning Slug" on p. 1.)

FM IF AND RATIO DETECTOR ALIGNMENT

- Solder output indicator leads in place and keep them well separated from signal generator leads and chassis wiring.
- While peaking IF's, keep reducing signal generator output so VTVM reading is approximately +1.5 volts DC with exception of Step #5
- FM antenna disconnected during alignment
- Band switch in FM position (red signal at MC on dial)
- Speaker must be connected during alignment

I.F. SLUG INFORMATION

To avoid splitting the slotted head of the powdered iron core tuning slug in the I.F. transformers, use a screw-driver with a blade ⅛" wide for I.F. alignment.

Under normal operating conditions, mis-alignment of slug-tuned circuits with age is slight. Therefore, re-alignment of the I.F. transformers should be accomplished by only a slight adjustment of the slugs. Do not turn a slug in an extreme amount or it will fall into the center of the coil form. Always try to adjust by first turning slug out. Should an I.F. tuning slug be turned in too far and fall into the center of the coil form, it will be necessary to remove the other tuning slug on the opposite side of the I.F. can. Then, using a thin rod and screw-driver, "jockey" the dislocated slug until it re-engages the threads in the coil form. Since this is a difficult operation, care should be exercised as outlined above in paragraph and this difficulty will be avoided.

If the iron core slug should become stripped or if the slotted head should become rounded or cracked, it may be removed by removing the opposite slug and forcing the defective slug out with a thin screw-driver.

Steps 1 and 2 may be omitted if set is not badly out of alignment so signal comes through in Step 3
Before proceeding, be sure to follow all steps listed above, under "Important Preliminary Alignment Steps."

	Connect Signal Generator	Generator Frequency	Receiver Dial Setting	Output Indicator and Special Connections	Adjust as Follows (very carefully)
1	Thru .01 cond. to 2nd IF grid (Pin #1 of 6BA6 2nd I.F.).	10.7 MC unmodulated.	Tuning gang wide open	Connect 3300 ohm carbon resistor across secondaries of both FM-IF transformers. Connect VTVM (DC probe) from point "W" to ground. (See Figure 19.)	"A" (ratio detector primary) for maximum reading on VTVM.
2	Thru .01 cond. to 1st IF grid (Pin #1 of 6BA6 1st I.F.).	"	"	Same as above.	Iron cores "B" and "C" (2nd IF trans.) for maximum reading on VTVM.
3	To FM antenna terminals. (Do not feed signal into converter grid.)	"	"	Same as above. In addition, connect a 50 mmfd. condenser in parallel with C10 to detune the IF rejection trap consisting of CH4 and C10. (See note at bottom of page.) This condenser MUST be removed after step 5.	Iron cores D and E for maximum on VTVM. Re-adjust A, B, C, D, E for maximum. (Keep reducing generator output to keep VTVM at 1.5 volts.)
4	"	a. Remove 3300 ohm resistors from IF transformers. b. Reduce output of signal generator until VTVM reads **exactly** +1.5 volts DC. c. Tune generator frequency above 10.7 MC until VTVM reads **exactly** +1.0 volt. Note **exact** generator frequency. Extreme care in reading this is essential. d. Tune generator frequency below 10.7 MC until VTVM reads **exactly** +1.0 volt. Note **exact** generator frequency. Extreme care in reading this is essential. e. Add generator frequency in step c to generator frequency in step d and divide by 2. The result is the center frequency of the IF curve to be used in step 5. See example on page 10. f. Tune generator frequency above and below 10.7 MC and note voltage reading on VTVM at different frequency points until you have a good impression of the shape of the selectivity curve. If you have two peaks as in Figures 17 or 18, note readings (voltage) of both peaks. A selectivity curve that would require realignment is illustrated by Figure 18.			
5	"	Center of IF selectivity curve per step 4e above. See "EXAMPLE" on p. 10	Set pointer to upper limit on dial.	Connect VTVM (DC probe) from point "X" to ground. (See Figure 19.)	Iron core "F" (detector secondary) for zero voltage reading on VTVM. (The correct zero point is located between a positive and a negative maximum.)

If any adjustments were very far off, it is desirable to repeat steps 3, 4 and 5.

Note: Condenser C10 is mounted parallel to the chassis on the bakelite terminal board. Connect added 50 mmfd. condenser between the terminal board lug (junction of CH4 and R5) and pin #1 of the 6BA6 (GG RF stage). With the chassis in the position shown in figure 19, the correct terminal board lug is located on the corner nearest trimmer "G", and on the left side of the terminal board.

MODEL 7C63
MODEL 7C73

ADMIRAL CORPORATION

PARTS LIST - 7C63

RESISTORS

SYMBOL	DESCRIPTION	PART NO.
R1	12,000 Ohms, 5 Watt	61A 1-1
R2	2.2 Megohms, Carbon, ½ Watt	60B 8-225
R3	470,000 Ohms, ½ Watt	60B 8-474
R4	10,000 Ohms, 2 Watt	60B 20-103
R6	22,000 Ohms, ½ Watt	60B 8-223
R7	10 Megohms, ½ Watt	60B 8-106
R8	1 Megohm, ½ Watt	60B 8-105
R9	2 Megohms Tone Control	75B 1-8
R10	27,000 Ohms, ½ Watt	60B 8-273
R11	1 Megohm Volume Control and Switch SW4 Tapped at 500,000 Ohms	75B 2-2
R12	470,000 Ohms, ½ Watt	60B 8-474
R13	470,000 Ohms, ½ Watt	60B 8-474
R14	3.3 Megohms, ½ Watt	60B 8-335
R15	390 Ohms, 1 Watt	60B 14-391
R16	10 Megohms, ½ Watt	60B 8-106
R17	100 Ohms, ½ Watt	60B 8-101
R18	220,000 Ohms, ½ Watt	60B 8-224
R19	100,000 Ohms, ½ Watt	60B 8-104
R20	100,000 Ohms, ½ Watt	60B 8-104
R22	100 Ohms, ½ Watt	60B 8-101
R23	100,000 Ohms, 1 Watt	60B 14-104
R24	47,000 Ohms, ½ Watt	60B 8-473
R25	470 Ohms, ½ Watt	60B 8-471

CONDENSERS

C1	1000 mmfd., Mica	65B 7-33
C2	35 mmfd., Silver Mica 3%	65B 1-31
C3	25 mmfd., Silver Mica 3%	65B 1-28
C4	100 mmfd., Mica	65B 7-17
C5	50 mmfd., Ceramic	65B 6-4
C6	.05 mfd., 400 V.D.C., Paper	64B 1-22
C7	65 mmfd., Silver Mica 3%	65B 1-27
C8	420 mmfd., Silver Mica	65B 1-13
C9	1000 mmfd., Mica	65B 7-33
C10	200 mmfd., Mica 2%	65B 7-5
C11	65 mmfd., Silver Mica 3%	65B 1-27
C12	200 mmfd., Silver Mica, 2%	65B 1-14
C13	.1 mfd., 400 V.D.C., Paper	64B 1-20
C14	250 mmfd., Mica	65B 7-22
C15	1000 mmfd., Mica	65B 7-33
C16	.02 mfd., 400 V.D.C., Paper	64B 1-24
C17	.01 mfd., 400 V.D.C., Paper	64B 1-25
C18	.005 mfd., 600 V.D.C., Paper	64B 1-12
C19	.01 mfd., 600 V.D.C., Paper	64B 1-10
C20a	30 mfd., 350 V.D.C., Elec.	67C 6-25
C20b	30 mfd., 350 V.D.C., Elec.	
C20c	20 mfd., 25 V.D.C., Elec.	
C21a	3-40 mmfd., Dual Trimmer	66A 1-5
C21b	3-40 mmfd., Dual Trimmer	
C22a	3-40 mmfd., Trimmer	66B 8-1
C22b	3-40 mmfd., Trimmer	66B 8-1
C23a	3-40 mmfd., Trimmer	66B 8-1
C23b	3-40 mmfd., Trimmer	66B 8-1
C24	100 mmfd., Mica	65B 7-17
C26	1,200 mmfd., Mica	65B 5-34
C27	.05 mfd., 200 V.D.C., Paper	64B 1-32
C28	.25 mfd., 200 V.D.C., Paper	64B 1-28
C29	.1 mfd., 400 V.D.C., Paper	64B 1-20
C30	.20 mmfd., Mica	65B 7-5
C31	500 mmfd. ± 20%, Ceramic	65B 6-6

CHOKES, COILS, TRANSFORMERS, Etc.

L1	Loop Antenna, (Record Support Side)	AD120
L1	Loop Antenna, (Pickup Arm Side)	AD117
L2	Coil, S.W. Antenna	AD116-1
L3	Coil, B. C. Antenna	AC105-2
L4	Coil, S.W., R.F.	AD116-2
L5	Coil, B. C., R.F.	AB100-1
L6	Coil, S.W., Oscillator	AD116-3
L7	Coil, B.C., Oscillator	AC101-1
CH1	Choke, Filter	74A 3
CH2	Coil, Oscillator Choke	AB103-1
T1	Transformer, 1st I.F.	72B 7
T2	Transformer, 2nd I.F.	72B 8
T3	Transformer, Power	80B 1
T4	Transformer, Output	98A 20
	Speaker 10" and Transformer.	78B 6

When Ordering Slugs Specify Color Code

Slug, Tuning (B.C.—Osc. & R.F.)	71B	1-3
Slug, Tuning (S.W.—Ant., R.F. & Osc.)	71B	1-9
Slug, Tuning (B.C. Ant.)	71B	1-13

SWITCHES, PLUGS AND SOCKETS

SYMBOL	DESCRIPTION	PART NO.
P1	Plug, Pickup	88A 5-7
P2	Plug, Speaker	88A 4
S1	Phono Socket, Shielded	88A 5-9
S2	Socket, Speaker	87A 6-1
S3	Phono-Motor Socket & Leads	89A 6-8
SW1	Switch, Antenna	76B 1-3
SW2	Switch, Oscillator	76B 1-2
SW3	Switch, R.F.	76B 1-1
SW4	Part of Volume Control R11	

PHONOGRAPH PARTS

Note: See record changer manual for complete parts list.

DESCRIPTION	PART NO.
Cartridge and Needle, Pickup	A1372
Centerpost	G400B 137-1
Drive Disc Assembly	G400A 179
Idler Wheel (407B 3 Motor)	G400A 23
Idler Wheel (407B 1 Motor)	G400A 57
Motor	407B 3-2
Pickup Cable and Plug	A1305
Tilt Out Hinge Assembly (Record Support Side)	AC118-1
Tilt Out Hinge Assembly (Pickup Arm Side)	AC118-2
Tilt Out Spring	190A 15-1
Tilt Out Tie Bar	15B 126

MISCELLANEOUS

*Cabinet (7C63), Wood	35D 51
Compression Ring-Pointer	18A 5-2
Cord, Dial	50A 1-3
Dial Background Assembly	A1357
Dial Window—Plastic	24B 1
Drum and Hub Assembly, Pointer	A1355
Drum and Hub Assembly, Tuner	A1356
Escutcheon—Plastic Dial	23C 22-1
Handle, Door	37B 10-1
Knob	33A 19-2
Pilot Light No. 47	81A 1-8
Pilot Light Socket	82A 3-8
Pointer, Dial	25B 22
Screw, Escutcheon Mounting	1A 15-6-58
Spring, Dial Cord Tension	19B 1-10
Spring, Tension	19B 1-11
Transmission Line (43")	95A 16-1
Transmission Line (54")	95A 16-2

*Supplied only if old cabinet cannot be repaired. When ordering, describe condition of old cabinet in detail.

PARTS LIST (CONTD.) - 7C73-9A1

Symbol	COILS, TRANSFORMERS, ETC.	Part No.
CH1	Choke, F.M. Antenna	AB 103-33
CH2	Choke, Grounded Grid Cathode	AB 103-36
CH3	Choke, Grounded Grid Plate	AB 103-35
CH4	Choke, R.F. Plate	AB 103-36
CH5	Choke, A.M. Oscillator Cathode	AB 103-1
CH6	Choke, F.M. Oscillator Cathode	AB 103-34
CH7	Choke, R.F. Filament...Consists of approximately 8 turns of #20 solid hookup wire wound around condenser C51	
CH8	Choke, Filter	74A 9
L1	Antenna, F.M. Folded Dipole	AB 128
L2	Antenna, A.M. (18')	95A 18
L3	Coil, A.M. Antenna (less slug)	AC 105-2
L4	Coil, F.M.-R.F. (less slug)	AA 122
L5	Coil, F.M. Converter (less slug)	AA 122
L6	Coil, A.M. Converter (less slug)	AB 100-1
L7	Coil, F.M. Oscillator (less slug)	AA 123
L8	Coil, A.M. Oscillator (less slug)	AC 101-2
SW1	Switch, Antenna (Second from chassis front)	76C 11-3
SW2	Switch, R.F. (Fourth from chassis front)	76C 11-5
SW3	Switch, Oscillator (Third from chassis front)	76C 11-4
SW4	Switch, I.F. (Farthest from chassis front)	76C 11-6
SW5	Switch, Audio (Closest to chassis front)	76C 11-2
SW6	Switch (ON-OFF)	Part of R-25
SW7	Switch (Tone Control)	Part of R-26
	Band-Switch Shaft Assembly	76C 11-1
	Set Screw, #6-32 x 1/4	1A 5-54
	Spacers for Shaft Assembly	29A 4-4
T1	Transformer, 1st I.F. (F.M.)	72B 24
T2	Transformer, 2nd I.F. (F.M.)	72B 26
T3	Transformer, Ratio Detector	72B 27
T4	Transformer, 1st I.F. (A.M.)	72B 25
T5	Transformer, 2nd I.F. (A.M.)	72B 25
T6	Transformer, Power	80B 2
T7	Transformer, Output	98A 22
	Speaker (12"P.M.) and Output Transformer	78B 21
	When Ordering Slugs Specify Color Code	
	Slug, Iron Core (F.M.-Osc., Conv., & R.F.)	71B 1-19
	Slug, Iron Core (A.M.-Osc., Conv.)	71B 1-20
	Slug, Iron Core (A.M.-Antenna)	71B 1-21

Description	TUNER PARTS	Part No.
Tuning Shaft		28A 17
Slug Travel Bracket, Bushing and Roller Assy. (front)		A1396
Slug Travel Bracket, Bushing and Roller Assy. (rear)		A1398
Brass Guide Rod (Tuner)		28A 7-2
Cam and Hub for Tuner (front)		A1400
Cam and Hub for Tuner (rear)		A1487
Spring, Bearing Takeup		19A 16
Cable, Drive (for Cam and Hub)		95A 15
Spring, Coil (for Cam and Hub)		19B 1-14
Bakelite Plate for slug mounting (1-15/16" x 2-3/8")		32A 36
Slug-Adjusting Screw		27A 4
Drum and Hub on Tuner Shaft (includes 1" drum and 3-11/32"drum)		A1401

Description	DIAL PARTS	Part No.
Pointer Shaft		28A 19
Drum and Hub Assembly (Pointer Shaft)		A1388
Dial Cord (100 inches)		50A 1-5
Spring, Dial Cord (2 used)		19B 1-5
Dial Scale & Indicator Assembly		A1404
Indicator Link		15A 176
Indicator Arm & Hub (on Band Switch Shaft)		A1405
Dial Bulb #47		81A 1-8
Socket, Dial Bulb		82A 3-9
Dial Pointer		A1477
Dial Escutcheon (less rectangular insert)		25E 20
Dial Escutcheon insert (Approx. 2-1/2" x 3-3/4")		23C 25

Description	PHONOGRAPH PARTS	Part No.
M1	Cartridge and Needle, Pickup	A1372
M2	Pickup Cable & Plug Assembly	A1415
Centerpost		G400B 137-1
Drive Disc Assembly (under turntable)		G400A 179
Idler Wheel (407B 3 Motor)		G400A 23
Idler Wheel (407B 1 Motor)		G400A 57
Motor		407B 3-2
Pickup Cable and Plug		A1305
Tilt Out Hinge Assembly (Record Support Side)		AC118-1
Tilt Out Hinge Assembly (Pickup Arm Side)		AC118-2

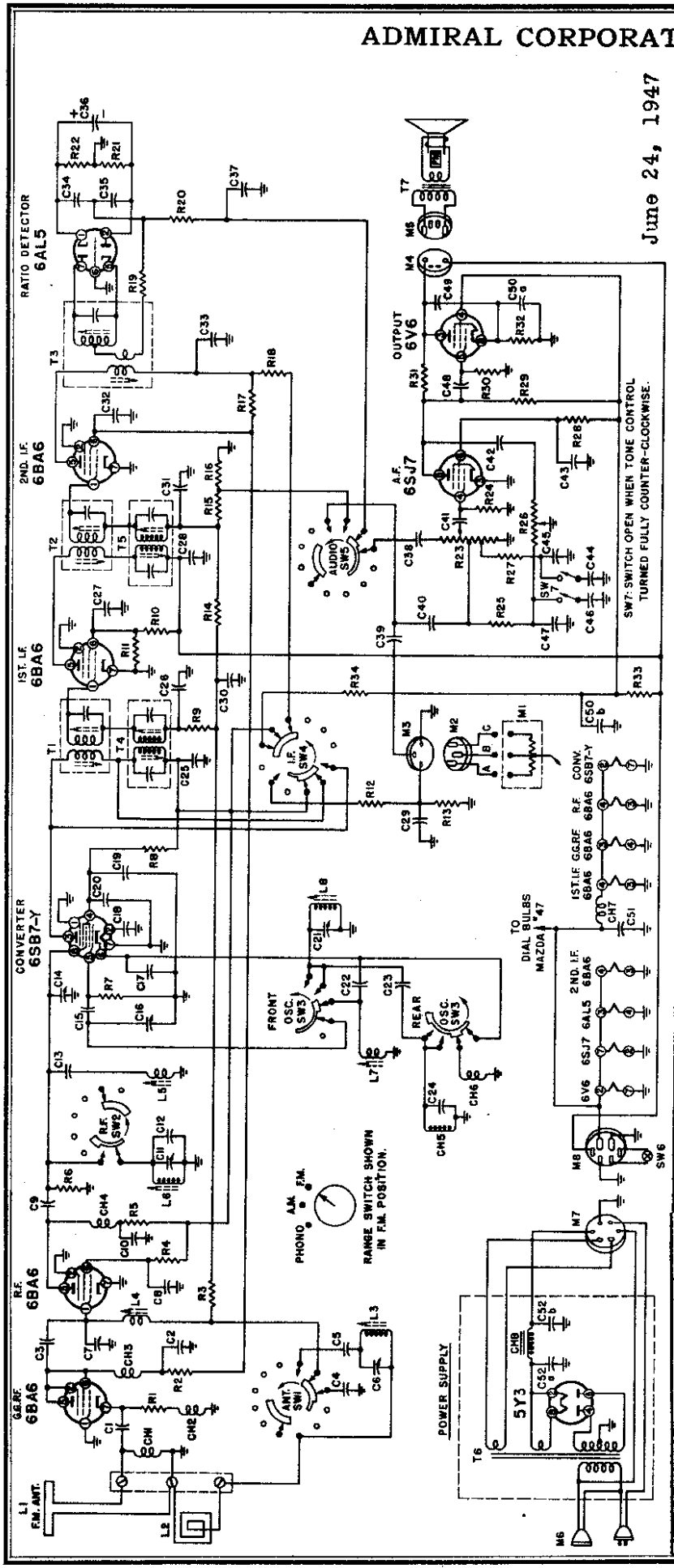
Description	PHONOGRAPH PARTS	Part No.
Tilt Out Spring (2-1/4" long)		19A 15-1
Shoulder Eye Bolt (For Tilt Out Spring)		1A 87-1
Tilt Out Tie Bar		15B 126

Description	MISCELLANEOUS	Part No.
M3	Socket and Shield, Phono	88A 5-9
M4	Speaker Socket	87A 6-1
M5	Plug, Speaker	86A 4-4
M6	Phono Motor Plug & Leads	89A 6-5
M7	Power Cable & Socket	87A 16-1
M8	Plug, Power Supply (includes retainer ring)	86A 9
Bumper, Rubber		12A 3-6
Door Bracket (left)		A1438
Door Bracket (right)		A1439
Door Arm (left)		A1440
Door Arm (right)		A1441
Grommet, Rubber (for mounting chassis)		12A 1-11
Knob		33A 13-2
Set Screw (#6-32x1/4, for Drum & Hub, For Indicator Arm & Hub; and for Pointer Shaft)		1A 5-54
Shoulder Eye Bolt (for adjusting spring)		1A 87-2
Snap Button (used with Indicator Link)		13A 1-4-47
Socket (octal)		87A 5-2
Socket (Miniature Tube)		87A 3-6
Speed Nut (for Guide Rod)		2A 10-1-59
Speed Nut (for trimmers C7,C14, C16)		2A 10-11
Spring, Adjusting (for chassis mounting)		19A 15-2
Spring, Hairpin (for mounting coils)		19A 3-1
Spring, Hairpin (for Pointer Shaft)		19A 2-2-0
Tie Bar (for receiver chassis mounting)		16B 160
Transmission Line (F.M.-300 Ohms; order length needed)		95A 16-5
Washer, "C" (for Tuning Shaft)		4A 4-1-0
Washer, Felt (for Knobs)		5A 4-2
Washer, Spring (for Pointer Shaft and for Cam & Hub)		4A 6-11-0
Washer, Spring, (used with Indicator Link)		4A 6-2-0
Washer, Spring (for Tuning Shaft)		4A 6-6-0
Sponge Rubber Strip (3/4"x7/16"x5-1/2")		12A11
Sponge Rubber Stripping (1/8" x 3/8" x 14")		12A5-3
Sponge Rubber Stripping (1/8" x 3/4" x 3/4")		12A5-4

ADMIRAL CORPORATION

MODEL 7C73, Chassis 9A1, Preliminary

June 24, 1947



Symbol	RESISTORS	Part No.
R1...	100 Ohms, 1/2 Watt	60B 8-101
R2...	330 Ohms, 1/2 Watt	60B 8-331
R3...	470,000 Ohms, 1/2 Watt	60B 8-474
R4...	39,000 Ohms, 1 Watt	60B 14-393
R5...	4,700 Ohms, 1 Watt	60F 14-472
R6...	33,000 Ohms, 1/2 Watt	60B 8-333
R7...	47,000 Ohms, 1/2 Watt	60B 8-473
R8...	10,000 Ohms, 2 Watt	60B 20-103
R9...	120,000 Ohms, 1/2 Watt	60B 8-124
R10...	18,000 Ohms, 1 Watt	60B 14-183
R11...	22,000 Ohms, 1 Watt	60B 14-223
R12...	120,000 Ohms, 1/2 Watt	60B 8-124
R13...	100,000 Ohms, 1/2 Watt	60B 8-104
R14...	470,000 Ohms, 1/2 Watt	60B 8-474
R15...	220,000 Ohms, 1/2 Watt	60B 8-224
R16...	82,000 Ohms, 1/2 Watt	60B 8-823
R17...	8,200 Ohms, 2 Watt	60B 20-822
R18...	2,200 Ohms, 1 Watt	60B 14-222
R19...	390 Ohms, ±5%, 1/2 Watt	60B 7-391
R20...	27,000 Ohms, 1/2 Watt	60B 8-273
R21...	6,800 Ohms, ±5%, 1/2 Watt	60B 7-682
R22...	6,800 Ohms, ±5%, 1/2 Watt	60B 7-682
R23...	1 Megohm Volume Control & on-off switch SW6. Tapped at 500,000 and 600,000 Ohms	75B 3-4
R24...	4.7 Megohms, 1/2 Watt	60B 8-475
R25...	47,000 Ohms, 1/2 Watt	60B 8-473
R26...	2 Megohms Tone control & D.P.S.T. switch SW7	75B 1-14
R27...	10,000 Ohms, 1/2 Watt	60B 8-103
R28...	470,000 Ohms, 1/2 Watt	60B 8-474
R29...	100,000 Ohms, 1/2 Watt	60B 8-104
R30...	470,000 Ohms, 1/2 Watt	60B 8-474
R31...	2.2 Megohms, 1/2 Watt	60B 8-225
R32...	390 Ohms, 1 Watt	60B 14-391
R33...	390 Ohms, 2 Watt	60B 20-391
R34...	100 Ohms, 1/2 Watt	60B 8-101

Symbol	CONDENSERS	Part No.
C1...	1000 mmfd., Mica	65B 5-33
C2...	.01 mfd., 400 Volts, Paper	64B 1-26
C3...	35mmfd., Ceramic	66B 6-14
C4...	2fmmfd., Ceramic	66B 6-17
C5...	500 mmfd., Mica	65B 5-27
C6...	3-40 mmfd., Trimmer	66A 12-5
C7...	3-12 mmfd., Trimmer	66A 22-1
C8...	200 mmfd., Mica	65B 5-21
C9...	35 mmfd., Ceramic	66B 6-14
C10...	40 mmfd., Ceramic	66B 6-22
C11...	12-170 mmfd., Trimmer	66A 12-1
C12...	300 mmfd., Silver Mica	65B 1-24
C13...	25mmfd., Ceramic	66B 6-15
C14...	3-12 mmfd., Trimmer	66A 22-1
C15...	50 mmfd., Ceramic	66B 6-13
C16...	3-12 mmfd., Trimmer	66A 22-1
C17...	200 mmfd., ±5% Ceramic	66B 6-20
C18...	.005 mfd., 600 Volts, Paper	65B 1-12
C19...	100 mmfd., Ceramic	65B 6-19
C20...	5000 mmfd., Ceramic	65B 9-65
C21...	3-40 mmfd., Trimmer	66A 12-5
C22...	27 mmfd., Ceramic	66B 6-17
C23...	180 mmfd., ±5% Ceramic	66B 6-23
C24...	2000 mmfd., Mica	65B 5-37
C25...	.01 mfd., 400 Volts, Paper	64B 1-26
C26...	.01 mfd., 400 Volts, Paper	64B 1-26
C27...	.01 mfd., 400 Volts, Paper	64B 1-26
C28...	.10 mfd., 400 Volts, Paper	64B 1-20
C29...	.2 mfd., 400 Volts, Paper	64B 1-19
C30...	.05 mfd., 400 Volts, Paper	64B 1-32
C31...	200 mmfd., Mica	65B 5-21
C32...	.05 mfd., 200 Volts, Paper	64B 1-22
C33...	.05 mfd., 200 Volts, Paper	64B 1-22
C34...	100 mmfd., Ceramic	65B 6-19
C35...	100 mmfd., Ceramic	65B 6-19
C36...	4 mfd., 150 Volts, Electrolytic	67A 4-2
C37...	.002 mfd., 600 Volts, Paper	64B 1-14
C38...	.005 mfd., 600 Volts, Paper	64B 1-12
C39...	1000 mmfd., Mica	65B 5-35
C40...	500 mmfd., Mica	65B 5-27
C41...	.005 mfd., 600 Volts, Paper	64B 1-12
C42...	.005 mfd., 600 Volts, Paper	64B 1-12
C43...	.05 mfd., 200 Volts, Paper	64B 1-22
C44...	.05 mfd., 400 Volts, Paper	64B 1-32
C45...	.01 mfd., 400 Volts, Paper	64B 1-26
C46...	.005 mfd., 600 Volts, Paper	64B 1-12
C47...	.005 mfd., 600 Volts, Paper	64B 1-12
C48...	.01 mfd., 400 Volts, Paper	64B 1-26
C49...	.002 mfd., 600 Volts, Paper	64B 1-14
C50a..	20mfd., 250 Volts) Electrolytic	67C 7-7
C50b..	30 mfd., 350 Volts)	
C51...	.01 mfd., 400 Volts, Paper	64B 1-26
C52a..	30 mfd., 350 Volts) Electrolytic	67C 6-22
C52b..	30 mfd., 350 Volts)	

For additional Parts list, see P.16-6

ADMIRAL CORPORATION

MODEL 7C73

SETTING SIGNAL GENERATOR TO CENTER OF IF SELECTIVITY CURVE

CAUTION: Due to the difficulty of setting a signal generator to the accuracy required by this operation, extreme care must be exercised in making each setting. Otherwise improper alignment of the radio detector and consequent audio distortion will result.

EXAMPLE: (See Figs. 13 and 14)

Voltage reading in Step 4b is + 1.5 volts.

Generator frequency on low side of 10.7 MC for a reading of +1 volt DC = 10.640 MC.

Generator frequency on high side of 10.7 MC for a reading of +1 volt DC = 10.800 MC.

Center frequency is obtained by adding 10.640 and 10.800, then dividing by 2. For these readings it will be 10.72 MC.

Set generator frequency to 10.72 MC as this is center of selectivity curve as shown in Figure 14.

Note: Numerical vernier dial readings may be used instead of MC.

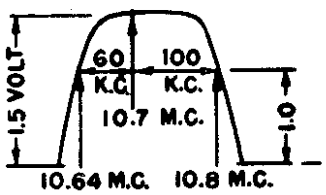


FIGURE 13.

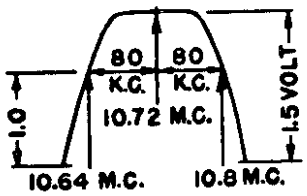


FIGURE 14.

TYPICAL SELECTIVITY CURVES

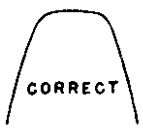


FIGURE 15.

FIGURE 16.

FIGURE 17.

FIGURE 18.

TRIMMER LOCATION

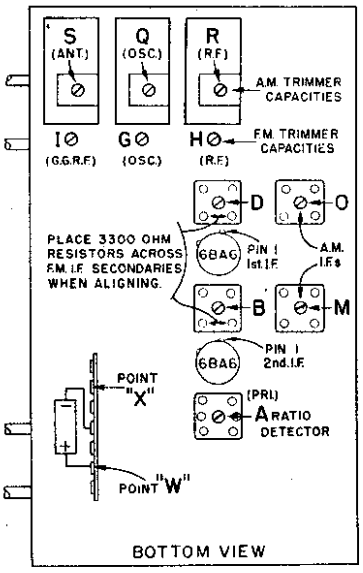


FIGURE 19.

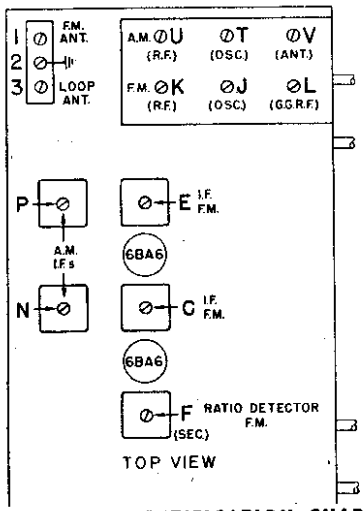
FM RF ALIGNMENT PROCEDURE

Alignment of FM RF section will require re-alignment of AM RF section due to common trimmer capacities during AM operation. AM RF section can be aligned, however, without affecting FM alignment.

	Connect Signal Generator	Generator Frequency	Receiver Dial Setting	Output Indicator and Connections	Adjust as follows
6	Thru 270 ohms to FM ant. terminal.	108.5 MC† (unmodulated).	Tuning gang wide open	Connect VTVM (DC probe) from point "W" to ground.	*Capacity trimmers "G", "H" and "I" for maximum reading on VTVM.
7	"	102 MC† (unmodulated).	102 MC	"	*Iron slugs "J", "K" and "L" for maximum reading on VTVM.
8	"	108.5 MC† (unmodulated).	Tuning gang wide open	"	*Repeat Step #6.
9	Alignment of the FM RF section will affect the AM band also so the AM RF section must be realigned after the FM RF alignment.				

* It is advisable that generator output be adjusted so that VTVM readings do not exceed approximately +1.5 volts DC after peaking.

† If your signal generator does not reach this frequency, use harmonics as described in paragraph on "FM Alignment" on front page.



AM ALIGNMENT PROCEDURE

- Use regular output meter connected across speaker voice coil.
- Be sure both the set and the signal generator are thoroughly warmed up before starting alignment.
- Turn receiver Volume Control full on.
- Use lowest output setting of signal generator that gives a satisfactory reading on meter.
- Proceed in sequence as outlined below.

	Connect Signal Generator	Dummy Antenna Between Radio and Signal Generator	Signal Generator Frequency	Receiver Dial Setting	Adj. Trimmers in Following Order to Max.
	Set Band Switch to Broadcast position (center) and be sure to follow instructions under heading "Important Preliminary Alignment Steps." (See page 9). Loop antenna can be disconnected from chassis in Steps 1, 2 and 3.				
1	6SB7-Y (Pin #8)	.1 MFD	455 KC	Tuning gang wide open	M, N, O, P
2	To loop ant. terminal #3	Direct connection	1605 KC	Tuning gang wide open	Q, R
3	To loop ant. terminal #3	Direct connection	1300 KC	1300 KC	T, U
	Set Receiver Chassis on table next to back of cabinet. Connect Loop Antenna to Receiver.				
4	To loop ant. terminal #3	10 MMFD (Or wrap several turns of generator lead around white loop lead.)	1605 KC	Tune in signal	S
5	To loop ant. terminal #3		1300 KC	Tune in signal	V

TRIMMER IDENTIFICATION CHART

TRIMMER	SYMBOL	FUNCTION
A,F	T3	Ratio Detector
B,C	T2	2nd I.F. Transformer (FM)
D,E	T1	1st I.F. Transformer (FM)
G	C16	FM Oscillator Trimmer
H	C14	FM Converter Trimmer (RF)
I	C7	FM-RF Trimmer
J	L7	FM Oscillator Coil
K	L5	FM Converter Coil (RF)
L	L4	FM-RF Coil
M,N	T5	2nd I.F. Transformer (AM)
O,P	T4	1st I.F. Transformer (AM)
Q	C21	AM Oscillator Trimmer
R	C11	AM Converter Trimmer (RF)
S	C6	AM Antenna Trimmer
T	L8	AM Oscillator Coil
U	L6	AM Converter Coil (RF)
V	L3	AM Antenna Coil

MODEL 7C73 **ADMIRAL CORPORATION**

CHASSIS REMOVAL (For Servicing)

Due to the type of chassis mounting used, removal of the entire tilt-out door assembly (with receiver chassis attached) simplifies removal of the receiver chassis. The receiver chassis can then be easily removed from its shock mountings. Removal is a little "tricky" but can be done most readily as described below:

Disconnect all cabinet wiring and cables from the chassis. Difficulty may be experienced in removing the phono pickup plug due to the tight fit in the socket shield. This plug can best be removed with long-nose pliers.

Remove the screw and washer (#1 in figure 5) from both tilt-out spring studs (2), one on each side of the tilt-out assembly. Slip the tilt-out springs (3) off their respective studs. Unscrew the ends of the tie-bar (4). The tie-bar then hangs free on the copper braid used to bond it to the chassis.

Stand at the end of the cabinet (next to the radio compartment) and hold the tilt-out door open slightly with the left hand. Use a screwdriver to pry both tilt-out arms (#5 in figure 6) off their studs (#6). **Then push the tilt-out arms toward the front of the cabinet (against bracket #7).** The tilt-out assembly can now be removed from the front of the cabinet by tipping it forward and then pulling it straight out. CAUTION: In models having record storage compartments below the receiver, the record storage compartment door MUST be closed during the actual process of removing the radio tilt-out door assembly.

CHASSIS REPLACEMENT

Install chassis on the tilt-out assembly, making sure the chassis shock mounting is assembled exactly as shown in Fig. 7. The chassis bracket must not touch the tilt-out arm.

Make sure the rubber bumpers (#9, Fig. 5) and rubber strips (#8) are in place.

To replace the radio tilt-out door assembly in the cabinet, set the assembly in so that the tilt-out arms (#5) are in back of the studs (#6) they normally hinge on. Use your left hand to hold the assembly in the proper position in the same manner as was done in removing the tilt-out assembly. Use a screwdriver (in your right hand) to spring the tilt-out arm clear of its stud (#6). **Push it forward as far as possible (as shown in figure 6).** When both tilt-out arms are in this position, the assembly can be lifted up and the tilt-out arms slipped into place on their respective studs. The tilt-out assembly will now support itself (in the open position).

Replace the tie-bar (#4). Replace the tilt-out springs (#3. See figure 5). Reconnect the cabinet wiring and cables to the receiver chassis. Check to see that the rubber bumper (#9) and rubber strips (#8) are in place. The assembly should now appear as shown in figure 5.

CABINET DOOR ADJUSTMENT

If the door on the radio tilt-out assembly is shifted to one side, readjustment of the tilt-out arm will correct the difficulty. If the tilt-out door is too far to the right, the right-hand tilt-out arm can be sprung. If the door is too far to the left, the left-hand arm can be sprung. The tilt-out arms are sprung by holding the lower end of the arm against its bracket and prying the arm toward the chassis with a screwdriver. The screwdriver is used as a lever between the tilt-out arm and the side of the radio compartment.

In the event that the bottom edge of the radio tilt-out door rubs, it can be planed off slightly. Care must be exercised in doing this in order that the door is not marred. Hold the plane flat against the beveled bottom edge of the door while planing off a small amount.

If the door on the record tilt-out assembly is shifted to one side, open the tilt-out door and spring the door arms in the opposite direction. This can be done by exerting pressure against the side of the door.

RECORD CHANGER REMOVAL (For Servicing)

Removal of the record changer unit can be accomplished as follows: Disconnect the inter-connecting cables from the changer unit. Unscrew the tie-bar and tie rod on underside of changer unit. Hold the changer unit with one hand and spring each of the four tilt-out hinge arms away from the sides of the changer unit. As this is done, the four pivot studs will come out of their sockets and free the changer unit for removal from the cabinet.

To replace the changer unit, place it back in the cabinet. Spring the tilt-out arms out so that the changer will drop down between them. Guide the studs back into their sockets. Replace the tie-bar, tie rod, and interconnecting cables.

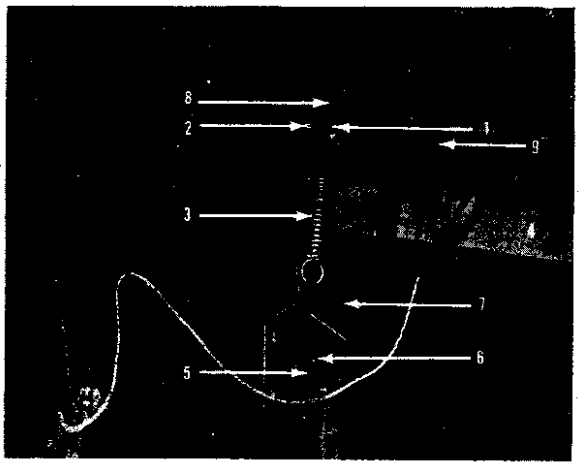


Fig. 5. Receiver Tilt-Out Mounting

Ref. No.	Description	Part. No.
1	#6—32 x ¼" Screw	———
2	Stud	Part of #5
3	Spring, Adjusting (for chassis mtg.)	19A 15-2
4	Tie Bar (for receiver chassis mtg.)	15B 160
5	Door Arm, left (near center of cab.)	A1440
	Door Arm, right (nearest side of cab.)	A1441
6	Stud	Part of #7
7	Door Bracket, left (near center of cab.)	A1438
	Door Bracket, right (nearest side of cab)	A1439
8	Rubber Channel (⅜ x 1¼ x 2⅜" over-all)	12A 9-1
9	Bumper, Rubber (For radio chassis)	12A 3-6

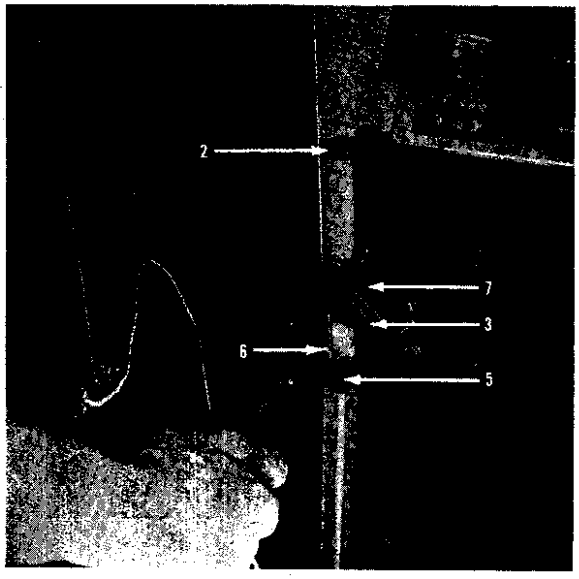


Fig. 6. Receiver Tilt-Out Mounting

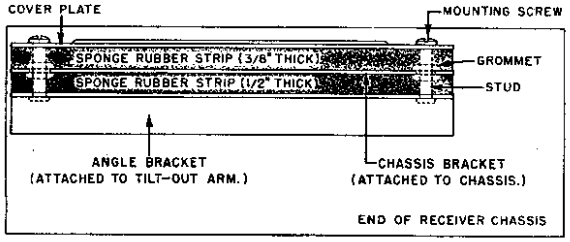


Fig. 7. Chassis Shock-Mounting

"clarified schematics"

MODEL 7C73

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