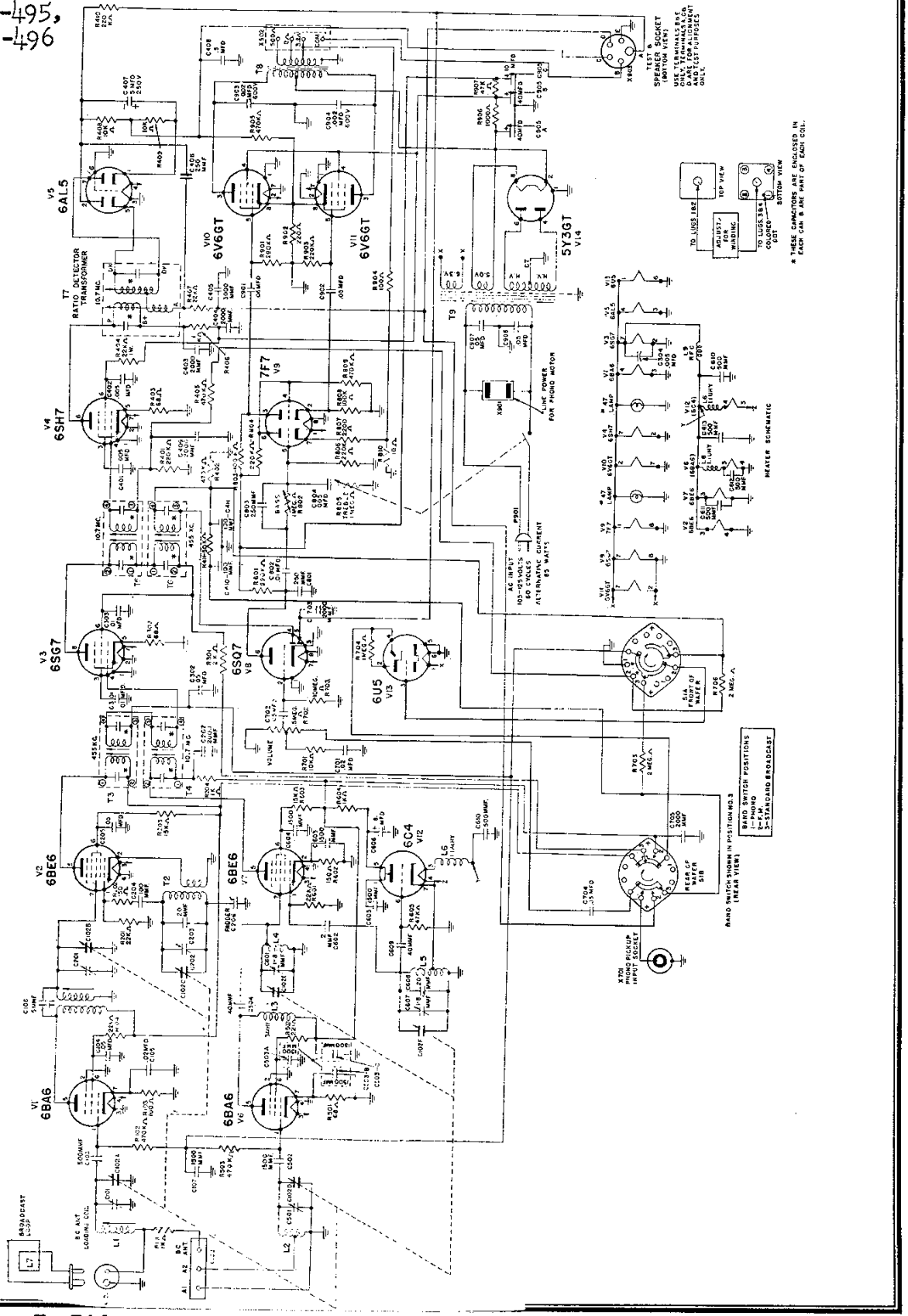
Allied Radio Corp.

Model: 14F-490	Chassis:	Year: Pre 1950
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 19 - ALLIED 19-10
Riders Volume 19 - ALLIED 19-11
Riders Volume 19 - ALLIED 19-12
Riders Volume 19 - ALLIED 19-13
Riders Volume 19 - ALLIED 19-14

MODELS 14F-490, 14F-495, 14F-496

ALLIED RADIO CORP.



ALLIED RADIO CORP.

MODELS 14F-490, 14F-495, 14F-496

This AM-FM superheterodyne radio receiver is designed to operate on 105-125 volts, 60 cycles AC.

The Tuning Ranges are:

AM 525 kc to 1720 kc
FM 88 mc to 108 mc

Tube Complement:
1 Type 6BA6 FM R.F. Amplifier
1 Type 6BA6 AM R.F. Amplifier
1 Type 6BE6 FM Mixer
1 Type 6BE6 AM Oscillator, converter
1 Type 6C4 FM Oscillator
1 Type 6SG7 I.F. Amplifier
1 Type 6SH7 FM Detector Driver
1 Type 6AL5 FM Ratio Detector
1 Type 6SQ7 AM Detector, A.V.C., 1st Audio Amplifier
1 Type 7F7 2nd Audio Amplifier and Phase Inverter
1 Type 6U5 Electron Ray Tuning Indicator
2 Type 6V6/GT Push Pull Power Amplifiers
1 Type 5Y3/GT Full Wave Rectifier

SERVICE NOTES:

Failure of Receiver to Operate May Be Due To:

1. No current at power socket
2. All tubes not firmly in sockets
3. Band switch in wrong position
4. Output impedance jumper on rear of chassis not connected or missing
5. Low signal strength in the particular location. Change position (rotate) of loop, or "folded dipole" antenna, or use an outside antenna
6. Speaker or loop antenna not plugged into sockets

ALIGNMENT PROCEDURE

Alignment Procedure for AM

Equipment Required:
Broadcast Band Signal Generator
Audio Output Meter

A) 1. Set Band Switch to "AM". Advance Volume Control to maximum, set "BASS" Control at minimum, set Treble Control at maximum.

2. Connect output meter across speaker voice coil.

NOTE: During all of these tests it is necessary to reduce the signal generator output so that the receiver output level is maintained at .5 watt.

B) I. F. ALIGNMENT

1) Set signal generator to 455 kc. Connect a .05 mfd condenser in series with the "high" side of the generator output lead to pin #4 of the 6SG7 (V3) I.F. amplifier tube. Peak bottom and top cores of 2nd I.F. (T-6).

2) Connect signal generator ("high" side in series with a .05 mfd condenser) across C201 on variable condenser, peak bottom and top cores of 1st I.F. Transformer (T-3).

C) R. F. ALIGNMENT

1) Connect signal generator to the AM antenna terminal ("high" side in series with a 50 mmf condenser) and ground. Open variable condenser to minimum capacity, set signal generator to 1720 kc, adjust broadcast oscillator trimmer C202 to tune in signal.

2) Close variable condenser to maximum capacity, set signal generator to 535 kc and adjust broadcast band padder (C206) to tune in signal.

3) Repeat step (1).

4) With variable condenser fully meshed move dial pointer to small white line slightly to left of "55" on broadcast band dial scale.

5) Set signal generator to 1500 kc. Tune in signal with Tuning Control. Peak antenna trimmer (C101) and interstage trimmer (C201).

6) Set signal generator to 600 kc, tune in signal with receiver Tuning Control, peak antenna loading coil (L1). Peak interstage transformer (T1).

7) Repeat step (5).

MODELS 14F-490, 14F-495, 14F-496

ALLIED RADIO CORP.

Alignment Procedure for FM

NOTE: Contacts A, C, and D of the speaker socket at the rear of the chassis have been provided for connection to V.T.-V.M. for the alignment of the FM circuits.

Equipment Required:

High Frequency Signal Generator 87.5 mc to 108.5 mc.
Signal Generator capable of delivering .1 volt at 10.7 mc.
Audio Output Meter.
D.C. Vacuum Tube Voltmeter with zero center scale.
Tuning Wand.

A) RATIO DETECTOR ALIGNMENT

1) Connect V.T.V.M. across speaker socket terminals "A" and "C", (A.V.C. Voltage).

2) Feed 10.7 mc unmodulated R.F. signal into 6SH7 (V4) grid, pin #4, through .01 mfd condenser. This signal should be .1 volt.

3) Adjust primary of ratio detector transformer (T-7) for maximum indication on V.T.V.M.

4) Connect zero centered V.T.V.M. across speaker socket terminals "D" and "C".

5) Adjust secondary of ratio detector transformer (T-7) for zero indication.

6) Tune 10.7 mc Signal Generator higher in frequency (about 200 kc) until maximum voltage reading is obtained on V.T.V.M.

Note this voltage, then tune signal generator lower in frequency until maximum voltage of the opposite polarity is obtained. Note this voltage, then if necessary re-adjust primary of the detector (T-7) until the maximum detector voltages are about equal on either the high or low side of 10.7 mc.

B) FM 10.7 Mc I. F. ALIGNMENT

1) Shunt a 100 ohm carbon resistor across the primary of the detector (T-7) lugs "B+" and "P".

2) Connect output meter across speaker.

3) Set volume controls at maximum, bass at minimum.

4) Connect 10.7 mc signal generator (modulated 30%) to the grid (pin #4) of the 6SG7 (V-3) thruogh a .01 mfd condenser and ground.

5) Peak bottom and top cores of (T-5) 2nd I.F.

6) Connect 10.7 mc signal generator (modulated 30%) across the FM interstage trimmer (C601) and ground.

7) Peak bottom and top cores of 1st I.F. (T-4).

8) Remove 1000 ohm shunting resistor from (T17).

NOTE: during all of these tests it is necessary to reduce the signal generator output so that the receiver output level is maintained at .5 watts.

C) FM OSCILLATOR ALIGNMENT

1) Connect the high frequency signal generator across the FM antenna terminals. The ground side of the generator output cable is attached to terminal "A1", a 270 ohm carbon resistor is connected from the "high" side of the generator cable to terminal "A2".

2) Open variable condenser to minimum capacity; set signal generator to 108.5 mc, tune in signal with FM oscillator trimmer (C607).

3) Close variable condenser to maximum capacity: set signal generator to 87.5 mc. To adjust oscillator to signal it may be necessary to spread or squeeze the FM oscillator coil L5 slightly.

4) Repeat steps (2) and (3) if necessary.

D) FM R. F. ALIGNMENT

NOTE: When making the following tests keep the signal generator output at a level that will not cause A.V.C. voltage to rise above 1.5 volts DC.

1) Connect V.T.V.M. across test socket terminals "A" and "C" (A.V.C. Voltage).

2) FM antenna terminal connections as in "C-1".

3) Set signal generator to 108 mc. Tune in signal with the receiver Tuning Control. Peak FM antenna trimmer (C501), peak FM interstage trimmer (C601) for maximum voltage on V. T. V. M.

4) Set signal generator to 88 mc. Tune in signal with the receiver Tuning Control. Check FM antenna coil L2 and FM interstage coil L4 with a tuning wand; if any adjustment is necessary; spread or squeeze the coil turns slightly for maximum indication on V.T.V.M.

5) Repeat steps (3) and (4) if necessary.

PARTS LIST

Schematic No.	*Description*
C101	Trimmer Cond. (Part of C102)
C102	Variable Cond. Gang.* B6.070.
C103	500mmf ±20%.
C104	.05 mf 400V.
C105	.02 mf 150V.
C106	5mmf ±10%.
C107	1500 mmf ±20%.
C201	Trimmer Cond. (Pa t of C102).
C202	Trimmer Cond. (Part of C102)
C203	20 mmf ±20%.
C204	100 mmf ±20%.
C205	.05 mf 400V.
C206	Padder Cond. 500-1000 mmf*C13518.
C207	2000 mmf ±20%.
C301	.01 mf 400V.
C302	.05 mmf 200V.
C303	.01 mf 400V.
C304	.005 mf 400V.

ALLIED RADIO CORP.

MODELS 14F-490, 14F-495, 14F-496

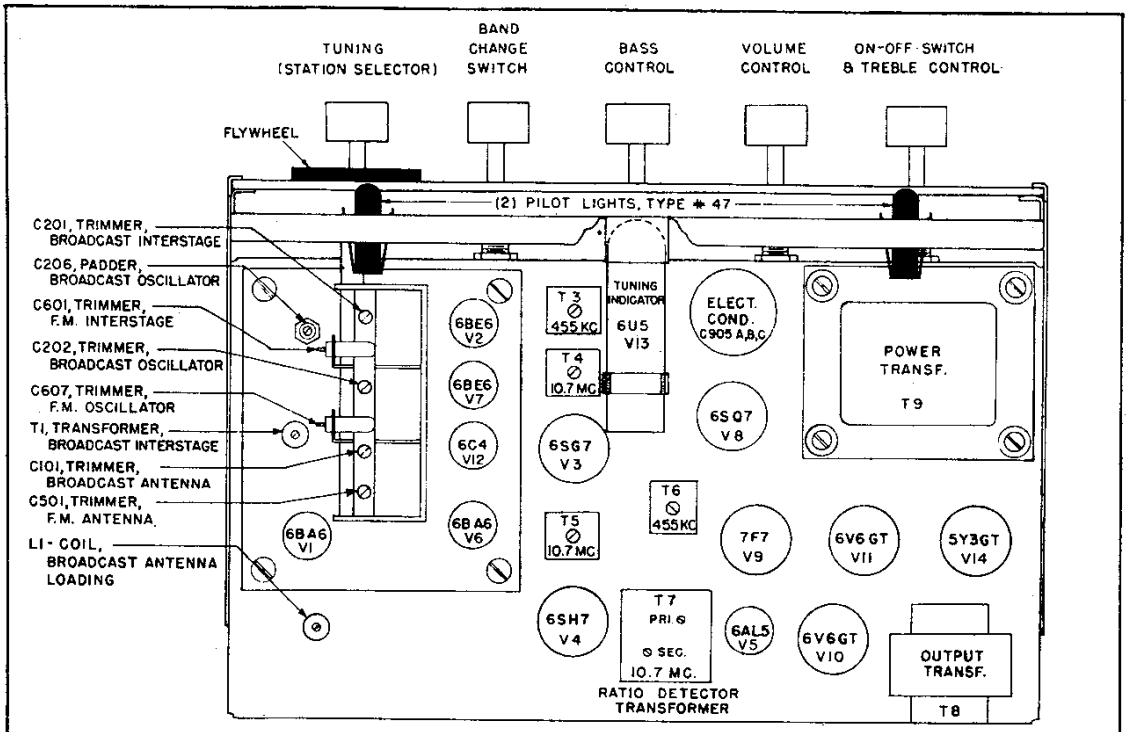
PARTS LIST

Schematic No.	Description
C401	.005 mf 400V.
C402	.005 mf 400V.
C403	2000 mmf ±20%.
C404	2000 mmf ±20%.
C405	3000 mmf ±20%.
C406	250 mmf ±20%.
C407	5. mf 250V.* Electrolytic Cond.*N25.206
C408	.5 mf 200V
C409	2000 mmf ±20%.
C410	100 mmf ±20%.
C411	100 mmf ±20%.
C501	Trimmer Cond. (Part of C102)
C502	1500 mmf ±20%.
C503	A, B, C, 1500 mmf each*N25.211.
C504	40 mmf ±10% NPO
C601	Trimmer Cond. 1-8 mmf*N20.022.
C602	2 mmf ±10% NPO
C603	1500 mmf ±20%.
C604	1500 mmf ±20%.
C605	1500 mmf ±20%.
C606	8 mf 450V
C607	Trimmer Cond. 1-8 mmf*N20.022
C608	20 mmf ±10% N130* N25.220
C609	40 mmf ±10% NPO.
C610	500 mmf ±20%.
C611	500 mmf ±20%.
C612	500 mmf ±20%.
C613	500 mmf ±20%.
C701	.02 mf 150V.
C702	.05 mf 200V.
C703	2,000 mmf ±20%.
C704	.05 mf 200V.
C705	2,000 mmf ±20%.
C801	250 mmf ±20%.
C802	.01 mf 400V.
C803	250 mmf ±20%.
C804	.005 mf 400V.
C901	.05 mf 400V.
C902	.05 mf 400V.
C903	.002 mf 600V.
C904	.002 mf 600V.
C905	A, B, C, 40 mf x 40 mf x 10 mf Electrolytic Cond. 450V,*N25.205
C906	.05 mf 400V. Bakelite
C907	.05 mf 400V. Bakelite.
R101	1 K ohm ¼W. ±20%.
R102	470 K ohm ¼W. ±20%.
R103	100 ohm ¼W. ±10%.
R104	22 K ohm 1 W. ±10%.
R201	22 K ohm ¼W. ±10%.
R202	150 ohm ¼W. ±10%.
R203	15 K ohm 2W. ±10%.
R204	1 K ohm ½W. ±10%.
R301	2 K ohm ½W. ±10%.
R302	68 ohm ½W. ±10%.
R401	220 K ohm ¼W. ±10%.
R402	470 K ohm ¼W. ±10%.
R403	68 ohm ½W. ±10%.
R404	22 K ohm 1 W. ±10%.
R405	470 K ohm ¼W. ±10%.
R406	1 K ohm ½W. ±20%.
R407	22 K ohm ¼W. ±10%.
R408	10 K ohm ¼W. ±5%.
R409	10 K ohm ¼W. ±5%.
R410	220 K ohm ½W. ±10%.
R411	50 K ohm ¼W. ±20%.
R501	68 ohm ½W. ±10%.
R502	22 K ohm 1 W. ±10%.
R503	470 K ohm ¼W. ±10%.
R601	22 K ohm ¼W. ±10%.
R602	150 ohm ½W, ±10%.
R603	15 K ohm 2W. ±10%.
R604	1 K ohm ½W. ±10%.
R605	47 Kohm ¼W.±10%.
R701	10 K ohm ¼W. ±20%.
R702	.5 Meg ohm volume control*A9.127.
R703	10. Meg ohm ¼W. ±20%.
R704	1. Meg ohm ¼W. ±20%.
R705	2. Meg ohm ¼W. ±20%.
R706	2. Meg ohm ¼W. ±20%.
R801	220 K ohm ¼W. ±20%.
R802	1. Meg ohm potentiometer*A9.129.
R803	100 K ohm ¼W. ±20%.
R804	220 K ohm ¼W. ±220%.
R805	1. Meg ohm potentiometer with S.P.S.T. Switch* A9.128
R806	220 K ohm ¼W. ±20%.
R807	2,200 ohm ¼W. ±10%.
R808	100 K ohm ½W. ±20%.
R809	470 K ohm ¼W. ±20%.
R810	10 ohm ¼W. ±10%.
R901	220 K ohm ¼W. ±20%.
R902	220 ohm 2 Watt ±10%.
R903	220 K ohm ¼W. ±20%.
R904	100 ohm ¼W. ±10%.
R905	470 K ohm ¼W. ±20%.
R906	1000 ohm 15 W. ±10%* N14.087.
R907	47 K ohm ¼W. ±20%.
T1	Interstage R.F. transf., AM*B2.409.
T2	Oscillator Coil, AM* A2.410.
T3	I.F. Transfer. 455KC* N2.414.
T4	I.F.Transf. 10.7MC* N2.415.
T5	I.F. Transf. 10.7MC* N2.415.
T6	I.F. Transf. 455 KC* N2.414.

MODELS 14F-490, 14F-495, 14F-496

ALLIED RADIO CORP.

T7	Ratio Det. Transf. 10.7MC* C2.278.	L9	R.F. Choke* N2.439.
T8	Outut Transf.* A15.036.	X101	Socket, AM Loop* X13.852.
T9	Power Transf.* B18.076.	X102	Ant. Terminal Strip* A32.329.
S1	Band Switch* A12.102.	X701	Socket, Phono input* N32.163.
L1	Ant. Loading Coil, AM* B2.423.	X901	Socket, Phono Motor* N32.072.
L2	Ant. Coil, FM* N2.411.	X902	Output taps terminals* A32.312.
L3	R.F. Choke 3uhy* A2.402.	X903	Speaker & test socket* N32.109.
L4	Interstage R.F. Coil, FM* N2.412.	P1	Power Cord and Plug set* N10.049.
L5	Oscillator Coil, FM* N2.413.		
L6	R.F. Choke 1.1uhy* N2.416.	Pilot Lamps, No. 47 6-8V. Bayonet* I12301.	
L7	Loop Ant. AM* C5.027.	FM Folded dipole Ant.* A5.010.	
L8	R.F. Choke 1.1uhy* N2.416.		



TUBE LAYOUT & PARTS PLACEMENT