

United Motors Service - Delco

Model: 3201 Delco

Chassis:

Year: Pre November 1935

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

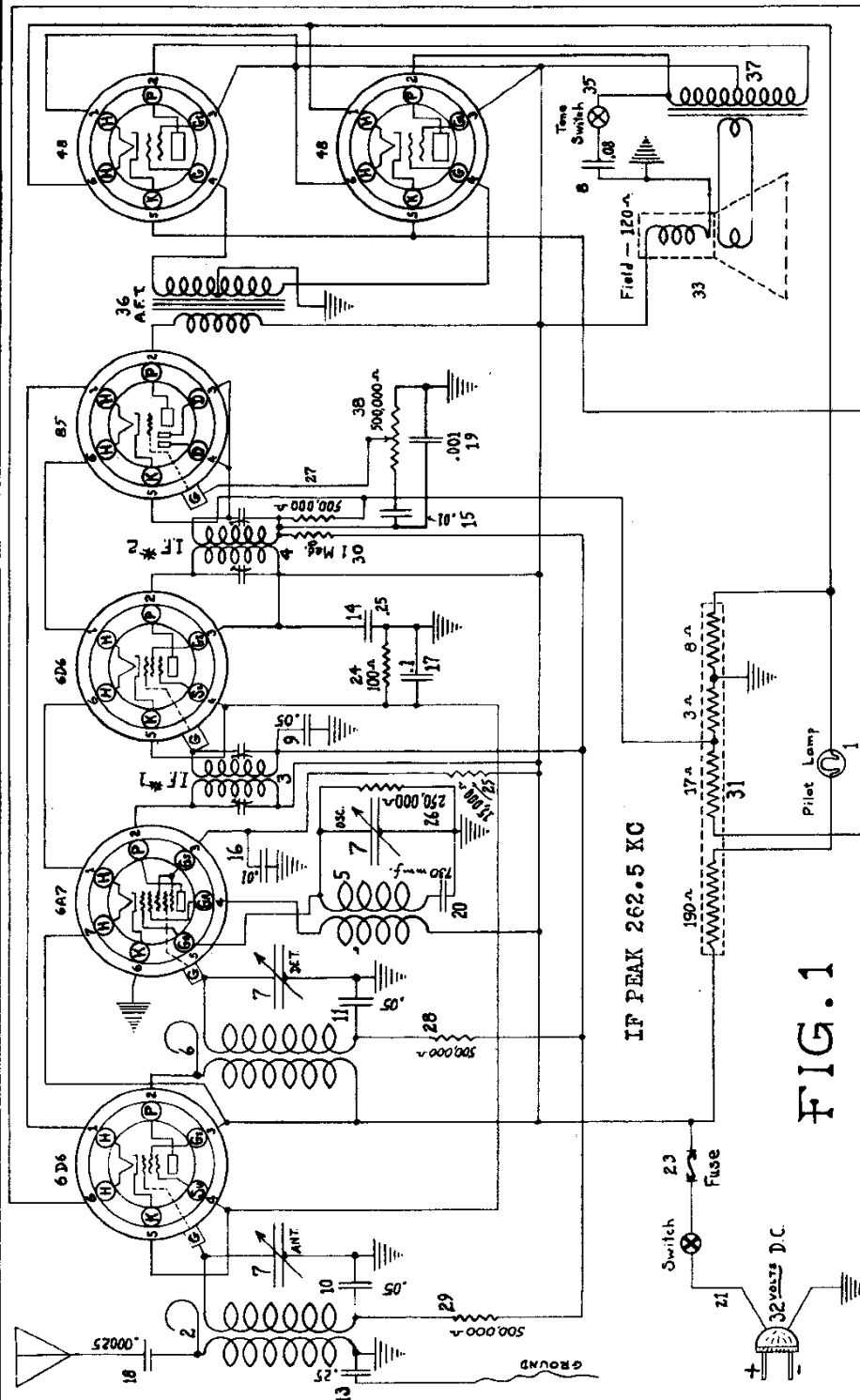
[Riders Volume 6 - UNITED MOTORS 6-13](#)

[Riders Volume 6 - UNITED MOTORS 6-14](#)

[Riders Volume 6 - UNITED MOTORS 6-15](#)

[Riders Volume 6 - UNITED MOTORS 6-16](#)

UNITED MOTORS SERVICE, INC Below Serial 800,000
 MODELS 3201, 3202 Delco
 Schematic, Voltage



TYPE	FUNCTION	H	F	Gs	Su	G	K	P-OSC.
6D6	R.F. Amp.	6.3	52	32	.5	0	.5	-
6A7	1st Det. - osc.	6.3	52	20	-	0	0	32
6D6	I.F. Amp.	6.3	52	32	.5	0	.5	-
85	2nd Det. - AVC	6.3	50	-	-	0	1	-
48	Power Amp.	26.0	51.5	32	-	0	7	-
48	Power Amp.	26.0	51.5	32	-	0	7	-

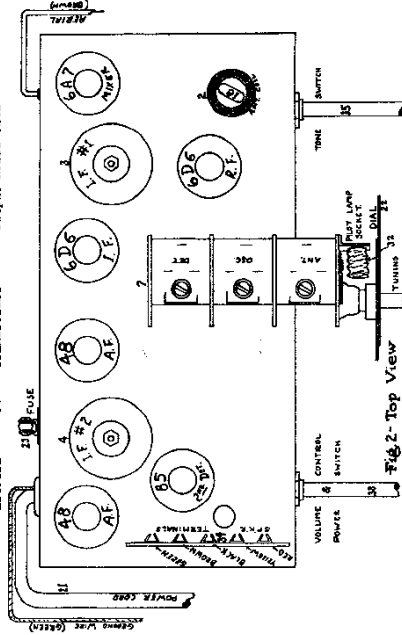
FIG. 1

Model 3201, table set with 6" speaker and Model 3202, console with 8" speaker

NOTE: The types 6D6, 6A7 and 85 tubes have the heater elements connected in series. If any one of these tube heaters should burn out, the others will fail to light.

MODELS 3201, 3202 Delco
Below Serial 800,000 UNITED MOTORS SERVICE, INC.
Alignment, Socket
Trimmers, Parts

Part No.	Part Name	Description
1208978	Bracket	Pilot light mounting
1203952	Bulb	Dial light 6-8 volt
1208979	Cabinet	Table model #3201
1208980	Cabinet	Console model #3202
1208981	Coil	Antenna
1208781	Coil	1st I.F.
1208782	Coil	2nd I.F.
1208953	Coil	Oscillator
1208954	Coil	Detector
1208955	Coil	Tuning
1208956	Condenser	
1208956	Condenser	.08 Mfd., 200 volt
1208748	Condenser	.05 Mfd., 200 volt
1208957	Condenser	.25 Mfd., 200 volt
1208749	Condenser	.01 Mfd., 200 volt
1208958	Condenser	.1 Mfd., 25 volt
1208959	Condenser	.00025 Mfd.
1207760	Condenser	.001 Mfd., 400 volt
1208744	Condenser	.00075 Mfd.
1208743	Condenser	Power
1208182	Dial	Station selector
1208950	Fuse	3 ampere
1208951	Fuse	All
1208979	Knob	
1208989	Plate	Escutcheon
1208909	Resistor	100 ohms, 1/3 watt
1208958	Resistor	15,000 ohms, 1/3 watt
1208756	Resistor	250,000 ohms, 1/3 watt
1204158	Resistor	500,000 ohms, 1/3 watt
1208144	Resistor	1,000,000 ohms, 1/3 watt
1208991	Resistor	Tapped carbon
1208992	Resistor	5" for Table Model 3201
1208993	Resistor	6" for Console Model 3202
1208994	Switch	Slide
1208995	Switch	Spk'r-Connection on chassis
1208997	Terminal	Audio
1208744	Transformer	Vol. Control
1208998	Transformer	Vol. Control
1209010	Transformer	Includes switch
1209011	Transformer	Output-Model 3201
		Output-Model 3202



Connecting Output Meter

Connect one terminal of the output meter to the plate prong of one of the 48 tubes and the other to the plate prong of the other 48 tube or to the chassis frame. Make sure that the output meter is protected with a series condenser to prevent D.C. from flowing through the meter circuit. If the meter is not protected, connect a .1 mfd. condenser in series with the lead to the chassis frame.

Peaking I.F. Stages at 262 1/2 KC

- (a) Connect the output of the signal generator to the grid cap of the 6A7 tube (leave 6A7 grid lead clip in place) and to the chassis frame.
- (b) Turn the tuning condenser until the plates are entirely out of mesh.
- (c) Set the signal generator on 362 1/2 KC and feed this signal through the I.F. stages of the set.
- (d) Peak the I.F. trimmer located on the top of the 1st I.F. coil, Fig. 2. Then peak the trimmer located on the bottom of the same coil Fig. 3. Due to the detuning effect the primary winding starts over the secondary it will then be necessary to reset the top trimmer for maximum output.
- (e) Peak the I.F. trimmer located on the top of the 2nd I.F. coil, Fig. 2. Then peak the trimmer located on the bottom of the same coil Fig. 3. Then reset trimmer on top of the 2nd I.F. coil making all adjustments for maximum output.

NOTE: In the event that the I.F. stages are badly out of alignment at 262 1/2 KC the operation outlined in paragraphs (d) and (e) should be repeated.

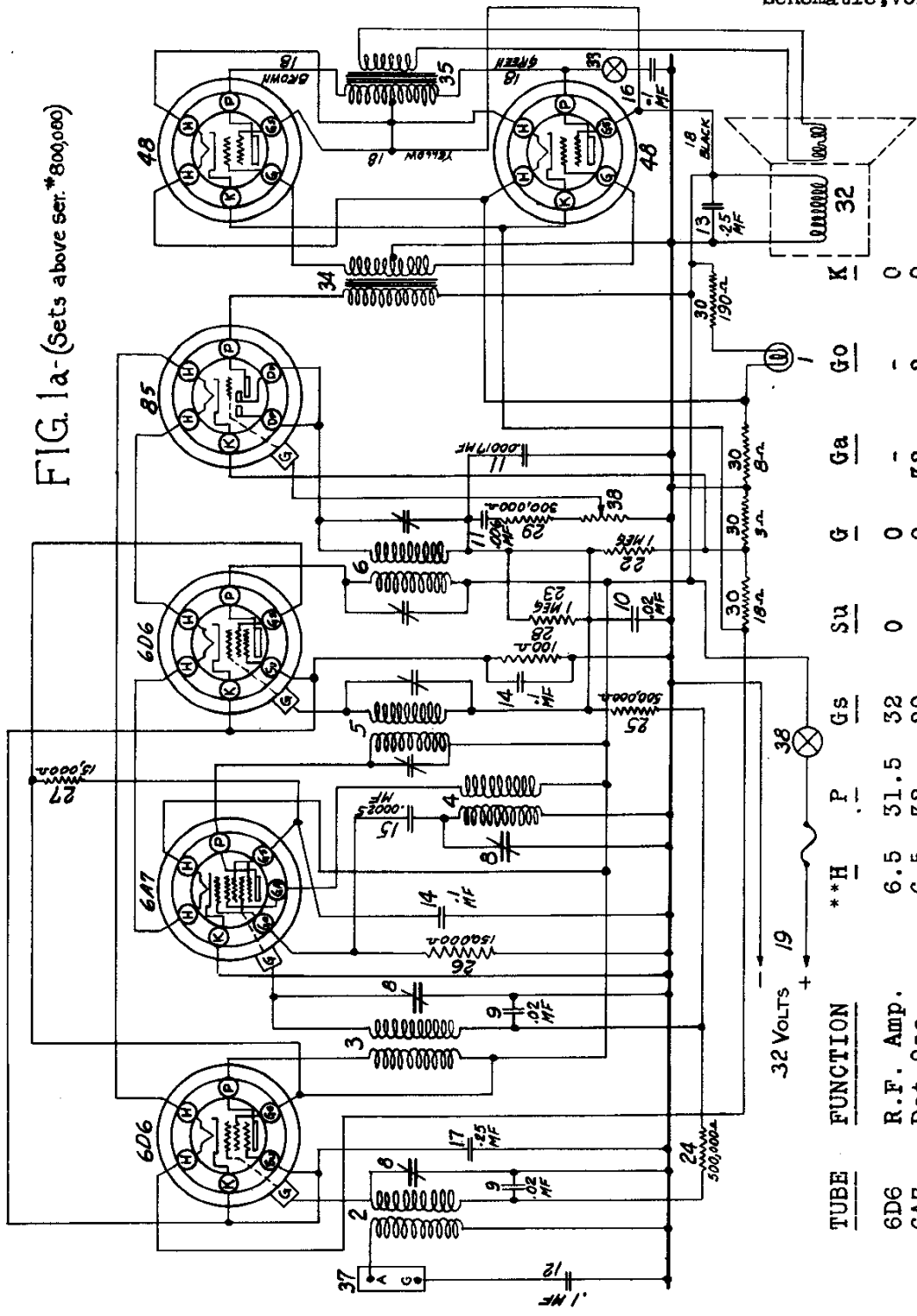
PEAKING GANG CONDENSER AT 1400 KC

- (a) With the condenser plates completely out of mesh, the 1600 KC indicator line should be exactly in the upper vertical position. If it is not, loosen the two set screws in the selector dial hub and make the necessary adjustment. Then rotate the dial until the 1400 KC indicator line is exactly in the upper vertical position.
- (b) Coil up the antenna lead to within a foot of the chassis and set the oscillator at 1400 KC. Feed the signal generator output into the antenna wire. This may be done by connecting the shielding on the signal generator output lead to the chassis ground wire (green) and by simply wrapping a few turns of the portion of this antenna wire nearest the chassis around the signal generator output lead. This will ordinarily provide sufficient coupling between the signal generator and the antenna circuit of the set. A direct connection with the antenna wire can be made by inserting a pin into the wire close to the chassis. Care should be taken, however, not to permanently damage the insulation.
- (c) Peak the osc. trimmer condenser, Fig. 2, until the oscillator output can be heard in the speaker, then the "Ant." and "Det." trimmers located on the gang tuning condenser, making all adjustments for maximum deflection on the output meter scale. Repeat the adjustment several times until no further improvement can be made.

NOTE: To avoid AVC action and to insure sharp peaking of all trimmers, reduce the signal generator output to the lowest level that will give a reasonable deflection on the output meter scale.

UNITED MOTORS SERVICE, INC. MODELS 3201, 3202 Delco
Above Serial 800,000
Schematic, Voltage

FIG. 1a-(Sets above ser. *800,000)



TUBE	FUNCTION	**H	P	Gs	Su	G	Ga	Go	K
6D6	R.F. Amp.	6.5	31.5	32	0	0	-	-	0
6A7	Det-Osc.	6.5	32	20	-	0	32	2	0
6D6	I.F. Amp.	6.5	32	32	.5	0	-	-	.5
85	A.F. Amp.-Det.	6.5	31	-	-	0	-	-	1.2
48	Output	25.0	31.5	32	-	-	-	-	6.5
48	Output	25.0	31.5	32	-	-	-	-	6.5

** The filament voltages shown are measured across the filament prongs of each tube and not from filament to chassis frame.

MODELS 3201, 3202 Delco
Above Serial 800,000 UNITED MOTORS SERVICE, INC.
Alignment, Data
Socket, Trimmers, Chassis

GENERAL DESCRIPTION

The Models 3201 and 3202 are both 32 volt 6 tube superheterodyne receivers with A.V.C. The only difference between the two receivers is that the Model 3201 has a table type cabinet and a 6" speaker, while the Model 3202 has a console cabinet and an 8" speaker. The frequency range of these sets is from 540 to 1700 kilocycles.

Power Supply System

The unique feature of these receivers is that the maximum plate or screen voltage used is 32 volts, as the positive lead of the power cord connects directly to the plates and screens of the tubes and the negative lead connects to the chassis.

The filaments of the two type 6D6 tubes, the type 6A7 and the type 85 are connected in series and are lighted by being connected directly across the 32 volt power supply in series with the 18 and 3 ohm sections of the resistor strip (Illus. #30, Fig. 1a). The filaments of the two type 48 output tubes are each connected in parallel across the 32 volt power supply in series with the 6 ohm section of the resistor strip (Illus. #30, Fig. 1a).

METHOD OF BIASING

The 6D6 R.F. and I.F. tubes obtain their residual bias from a common bias resistor of 100 ohms (Illus. #28) and the control grids of both of these tubes receive a negative voltage from the A.V.C. circuit depending on the strength of the signal tuned in. The 6A7 tube has its cathode connected directly to ground and its control grid also receives a negative voltage for grid bias from the A.V.C. circuit when a signal is tuned in. The bias on the 85 tube is obtained by connecting the cathode to a point that is positive with respect to ground and returning the grid circuit to ground through the volume control. The bias on the two type 48 output tubes is also obtained by connecting their cathodes to a positive point with respect to ground and returning the center tap on the input transformer to ground.

CIRCUIT GROUND

DO NOT ground the chassis except through the use of the "GND" terminal of the terminal strip located on back of the chassis. This terminal connects to the chassis frame through a series condenser in order to prevent a short circuit when operating the receiver on a 32 volt system with the positive side grounded.

OSCILLATION

A few receivers below Serial No. 866175 may have a tendency to oscillate due to the lack of capacity by-passing the common bias resistor (Illus. #28, Fig. 2a) for the two 6D6 tubes. The majority of these sets were corrected in the field through the use of an additional condenser of a .25 mfd. capacity connected from the 6D6 R.F. tube cathode to the chassis. In cases where this condenser has not been included in the chassis and the receiver oscillates, it will be necessary to connect a part #1208130 condenser from the 6D6 R.F. tube cathode to the chassis. This condenser has been included in production on all sets above Serial #866175 (Illus. #17, Fig. 2a) and should eliminate all cases of oscillation from low capacity.

PEAKING PROCEDURE

All of the adjustable condensers, commonly called "trimmer" condensers, are very accurately adjusted at the factory and will not need any further adjustment unless they are tampered with in the field or a defective coil has been replaced. DO NOT attempt to change the setting of any trimmer condensers unless it is definitely known that the adjustment is necessary. If realignment is found necessary, the circuits can be properly adjusted only with the use of a test oscillator and an output meter.

Connecting Output Meter

Connect one terminal of the output meter to the plate prong of one of the 48 tubes and the other to the plate prong of the other 48 tube or to the chassis frame. Make sure that the output meter is protected with a series condenser to prevent D.C. from flowing through the meter circuit. If the meter is not protected, connect a .1 mfd. condenser in series with the lead to the chassis frame.

Peaking I.F. Stages at 456 K.C.

- Connect the output of the test oscillator to the grid cap of the 6A7 tube (leave 6A7 grid lead clip in place) and to the chassis ground.
- Turn the tuning condenser rotor plates until they are completely out of mesh.
- Set the test oscillator on 456 kilocycles.
- Peak the I.F. trimmers located on the top of the 2nd I.F. coil (Illus. #6, Fig. 3a) for maximum output.
- Then peak the I.F. trimmers located on the top of the 1st I.F. coil (Illus. #5, Fig. 3a) for maximum output.
- In order to insure accurate setting of the I.F. trimmers the above adjustments should be repeated using the lowest test oscillator output that will give a reasonable deflection of the output meter pointer. Make all adjustments for maximum output.

Peaking Gang Condenser at 1400 K.C.

- Connect the output of the test oscillator to the "ANT" and "GND" terminals of the receiver chassis with the ground connection of the oscillator connecting to the "GND" terminal of the receiver chassis.
- Set the receiver dial on 1400 K.C. This position can be determined with the chassis out of the cabinet by moving the dial so that the 1400 K.C. mark is in a vertical position.
- Set the test oscillator on 1400 K.C.
- Adjust the parallel trimmer for the oscillator section (3rd section from receiver dial with the small rotor plates) of the condenser gang for maximum output.
- Then adjust the parallel trimmers for the other two sections of the gang condenser for maximum output.
- To insure accurate setting of the trimmer condensers the above adjustments should be repeated using the lowest test oscillator output that will give a reasonable deflection of the output meter pointer. This is necessary in order to prevent the A.V.C. from leveling out the output as the adjustments are made.
- Place a few drops of Duco Cement over the adjusting screws and trimmer blades to prevent the adjustments from shifting. Do not allow any cement to get on the mica insulators.

