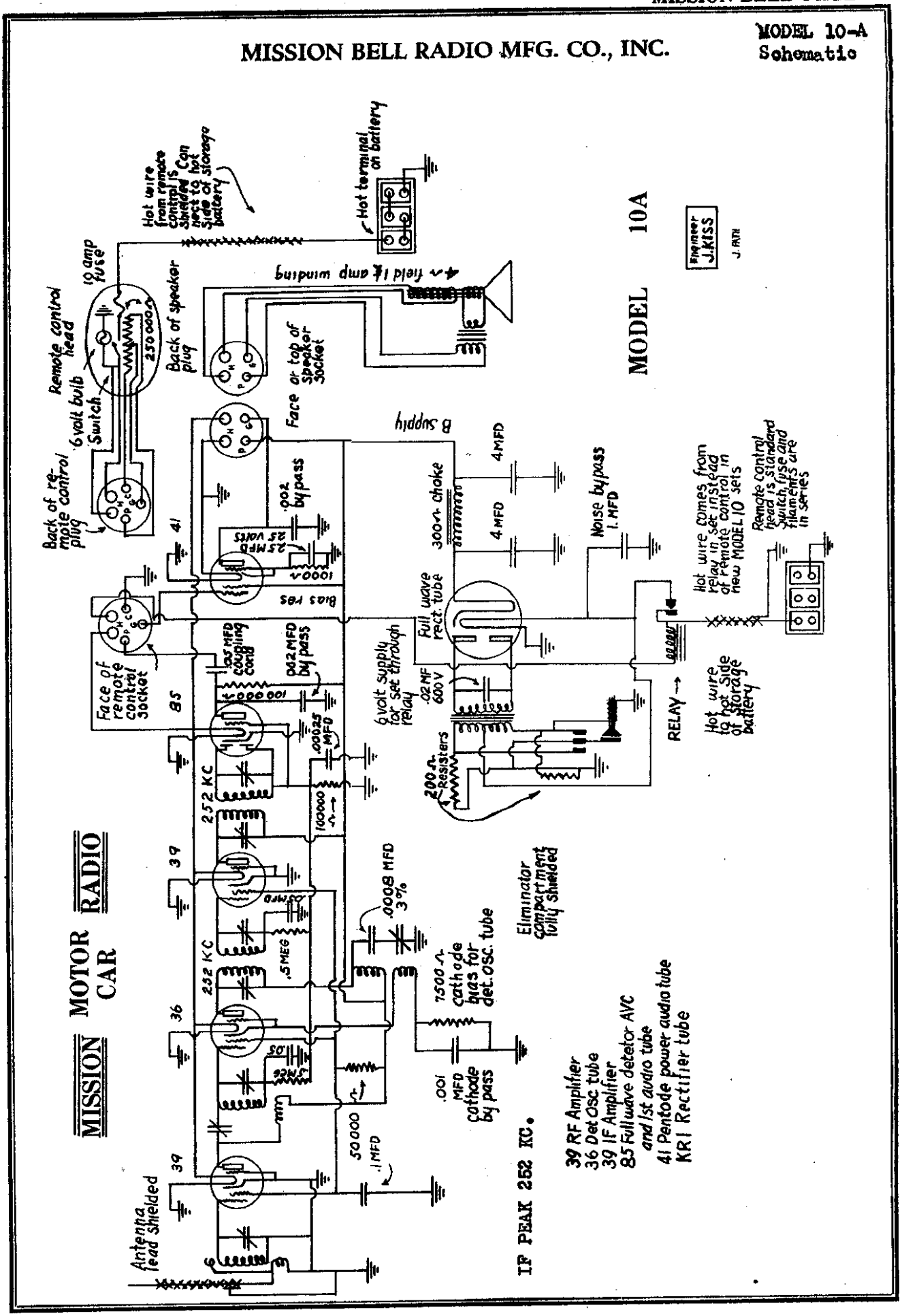
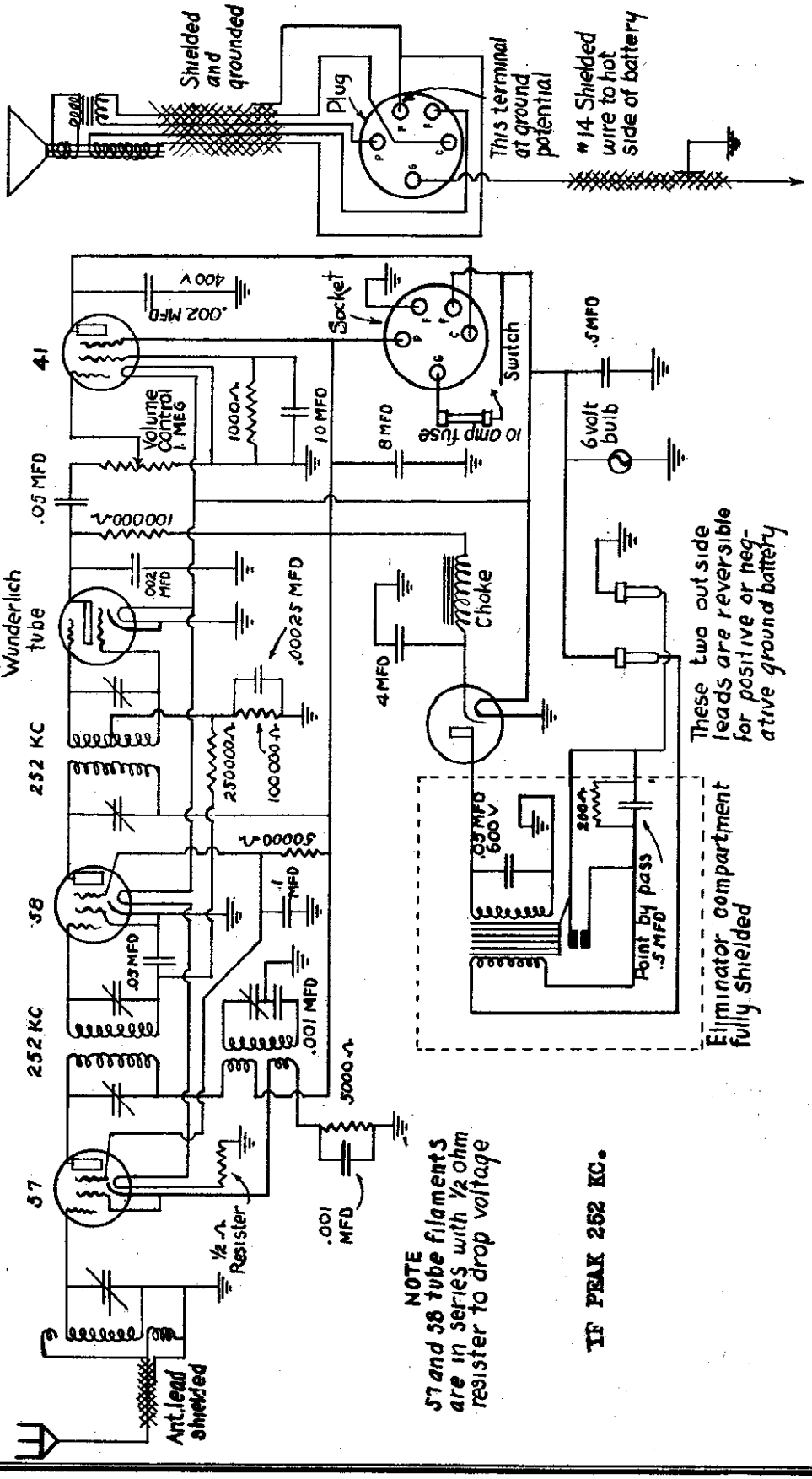
MISSION BELL RADIO MFG. CO., INC.

MODEL 10-A
Schematic



MODEL 19,19-A
Schematic

MISSION BELL RADIO MFG. CO., INC.



MISSION MOTOR CAR RADIO

MODEL 19 AND 19A

NOTE
57 and 58 tube filaments are in series with ½ ohm resister to drop voltage

IF PEAK 252 KC.

Mission Bell Radio Mfg. Inc.
1455 Venice Blvd., Los Angeles

SERVICE DATA ON FULL-WAVE INTERRUPTOR

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An 0 to 5 Ammeter is absolutely necessary in servicing.
The Model 10A and 19-A and Model 5 should draw approximately 5½ to 5¾ amps. There is no voltage regulator, Your reading of output voltage can be secured most conveniently from the adjusting screws on top of intermediate frequency coil.
If the set draws 5½ to 5¾ amps. with no resulting output voltage, then check AC volts from transformer. Test rectifier tube - a shorted filter condenser will increase the drain approximately 2 amps. A shorted buffer condenser will increase drain 5 amps. Either of which cause the points to labor and heat up. Visually, this is indicated by excessive arc-ing and small movement of armature (weight on end of center spring). Shorted rectifier tube will show 8 amps short.
If transformer primary is shorted, due to contact points failing to move apart, you will receive a reading of from 18 to 26 amps - which will blow the fuse inside the set on Model 10A, 19A and 5, or in remote control on Model 19B. Usually, tightening the 2 6/32 nuts on the assembly, or giving the inside point next to the starting coil a gap of ten thousandths (.010), either by bending metal stop to push the points apart, or bending spring stock away from center point is all that is necessary.

If above conditions are normal and the vibrator fails to start, the points are spaced too far apart, or the armature is too far from the magnet or core - providing you have battery voltage to the poimts.

Bench Adjustment:- Weight on center spring (call Armature) should not be closer than 1/8"to magnet or core. The copper rivet fastening weight to spring should keep the weight from touching the core. The outside point should have a tension of not more than five thousandths (.005). The inside point should be open about eight to twelve thousandths (.008 to.012). The main consideration is to secure as wide a spacing as possible on the inside point, and yet not so wide that when set is turned off and on continuously there would be failube to start (or point make contact). It is also satisfactory to adjust so that the outside point has a small gap - but a closed contact on the outside point will assist in starting.

Adjustment of Interruptor of Open Frame Type: -(This frame is not a closed or complete rectangle). If the points work vigorously, of if the weight is pulled all the way to the core when switch is turned on, it is advisable to bend the frame to bring the weight farther away from the magnet. This can be accomplished with a large pair of pliars. If the weight is too far away and magnet will not pull weight down enough to contact lower point, bend opposite way. In either operation make the bend at the top end of frame. Other spacing and adjustments same as above directed.

ADJUSTMENT HALF-WAVE POINTS MODEL 10

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Battery voltage should be not less than 5½ volts at terminals on the outside of Junction Block. (This is the small fiber strip attached to the side of Eliminator Box).
Put an 0 to 5 Ammeter in series with the hot or ungrounded wire on the Junction Block.

Second: - The lower spring should rest close to the transformer, 1/32 of an inch, no more, above the transformer. The lamentations at the groove should be level, and can be made so by tapping with a hammer. When installing a new assembly, see that adjusting screw does not touch the transformer until the point assembly is securely fastened down. On new assemblies as received from the factory, noto carefullythe tonsion and movement of the points, in case it should be necessary to bend the lower spring to secure right distance from transformer - you can then bend the upper spring enough to get this same tension again.

Third:-It is absolutely necessary to have an ammeter hooked in series with the hot wire on junction block, as the input voltage reading should never exceed a maximum of more than 2 amps. This voltage and also the output voltage can be regulated to some extent with the adjusting screw. If the points should be drawing more than two amps, they will get hot and pit and burn.
Fourth:- The tension on the top point is very important. These should be adjusted for maximum swing or up and down movement of both points when in operation.

Fifth:-With lower point adjusted to 1/32" from transformer, the upper spring should have enough tension to follow mor move down approximately 30/1000ths as the lower spring is pulled down to the core or lamentations. There should be a ± 30/1000ths gap between the points when the lower point reaches its maximum downward movement. Either decreasing or increasing the tension of the springs regulates the INPUT and OUTPUT VOLTAGE. The output voltage can be secured most conveniently from the upright intermediate frequency coil. One of the brass screws is B positive - B negative being the ground.

NOTE:-In case the negative of the car storage battery is grounded, then you must make the same polarity hook-up on the bench. Should the set be changed from a negative grounded car to a positive grounded car, then the two wires on the outside, and the same side of the junction block, must be reversed.
Should the points have been run backwards from hooking up wrong polarity, a few strokes of a thin file between the points will remove excess metal on surface of points, and then can be re-adjusted - unless they have been so hot that the temper is out of the metal.
To bend the springs use long nose pliars at the back end of spring, twisting either down or up, depending on desired effect.

Discussion of R. F. DISTURBANCE IN RELATION TO GROUNDS.

With reference to R. F. noise or disturbance created by the interruptor or eliminator, as applied to demonstrating boards and bench installation for testing and demonstrating.

Inasmuch as all transmitting stations use a good ground or counterpoise ground to properly dissipate R.F. energy - and the best of the receiving systems employ good ground or counter-poise for proper reception - it is quite evident that when a set of this nature is hooked up on a display board or on the bench, that the chassis or set connected to the battery or to the shielded cable forms a very poor ground - especially when the source of the interference is located inside of the set. Therefore, if proper dissipation of the R.F. disturbanse is not provided in the form of a ground, the antenna will pick up considerable interference from the set, battery and battery leads.

For installation on boards and bench testing, it has been found, after exhaustive tests, that a ground must be provided in the form of an outside type, or one of counter-poise effect constructed sufficient to offset the antenna pickup of this interference. An antenna of from three feet not to exceed ten feet is recommended, as it is generally possible to secure an outside ground sufficient to counteract this pickup of R.F. interference.

An antomobile has proven to be one of the best counter-poise ground systems obtainable, and Mission Automobile Receivers have been designed for this type of ground system. The outside ground corresponds to the ground system in the car. The bolting of the receiver to the dash with the three studs gives considerably more ground effect than fastening an outside ground to one stud of the case when operating on the bench.
Do not confuse the car battery as your ground system; it is merely your six-volt source of supply. The car-frame, motor and body become a very large and efficient counter-poise ground - and being situated right under the antenna input , becomes the dissipating agency for the R.F. noise that is created by the interruptor. That is the reason that the antenna in the car does not pick up the R.F. interference when the set is properly mounted in the car - but the same set would, no doubt, appear to be producing considerable amount of R.F. on the bench.