RADIO CORPORATION PTY. LTD.
21 STURT STREET, SOUTH MELBOURNE.

AUTO RADIO SERVICE BULLETIN.

SUBJECT -- ANTENNA INSTALLATION.

A good antenna is one of the most important parts of a car radio installation. The purpose of this bulletin is to outline certain points which should be observed in the matter of antenna construction for different types of automobile tops. An antenna, to perform its function satisfactorily, must be constructed of the proper material, must be well insulated from the car body, and must be as large as possible without coming within four inches of the metal parts of the car.

In the following paragraphs will be discussed various types of antenna installation; both car-top and under-car (sub-antenna). No particular problem is involved in the case of the sub-antenna, but where any type of car-type antenna is to be installed the services of a good upholsterer should be employed ---- to remove and replace the car headlining in a neat and workmanlike manner. This is a most important point since few things can do more to sour the car owner on an otherwise excellent radio installation than to turn his car back with improperly or carelessly replaced headlining and body trim.

HAS THE CAR AN ANTENNA?

Many of the newer cars are factory-equipped or may be ordered with antenna and lead-in for car radio installation. If the car owner is not certain whether or not his automobile is already equipped with an antenna, feel in back of the instrument panel, at both ends. Where the car is factory-equipped with an antenna, the lead-in will usually be found coiled at the corner post just back of the instrument panel.

If the car already has an antenna, this part of your prob - lem is solved. However, if it has not, your next step will be to determine the top construction of the car, and proceed as follows:-

TOP WITH SLAT CONSTRUCTION:

In these cars the head-lining should be lowered, working from inside from the front to rear. This can be accomplished by removing the moulding between the wind-shield and the top of the car. This moulding is usually held in place by two or three screws. Next remove the moulding on both sides of the car running from the front of the car to the back of the rear door. When this is removed, you will see the head-lining is tacked to the trim rail. Remove the tacks from this and the headlining will drop. When replacing the lining, if care is taken to put the tacks in their original holes and replace the moulding as it was originally, it will be hard to tell that it has been taken down.

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After the headlining is down, if the top is of slat construction, the aerial wire provided with the receiver Part No. 1003, about sixty or seventy feet may be strung back and forth from front to rear between the slats as shown in Fig. 1. These wires which run parallel to each should not be less than 1½" apart.

Be sure to keep the wire at least 5 in. from the metal front or sides of the top, which is called the "Quarter deck".

The shielded lead-in should be brought neatly down the corner post on the side furtherest from the driver.

No part of the Aerial must come within 6 in. of the dome light or dome light leads, and if the dome light leads cross the space required for the aerial, they must be re-routed.

SCREEN ANTENNA:

A wire screen antenna Part No.A1002 may be installed in the following manner. Galvanised fly wire or chicken wire may be used, and the aerial secured after the head-lining has been dropped as described in section headed "Slat Construction".

Six inches should be maintained as clearance between the screen and all metal work of the top of the car body.

The wiring in the top to the dome light and switch must be run along the side of the top frame and then along the top edge of the side of a bow to the dome light fixture.

Tack the screen to the bow which is farthest in the rear but which will still give the required six inches clearance from the rear metal apron. With the end of the screen lined up with the bottom front edge of the bow, the screen is tacked against the face of the bow, close to the top, as shown in Fig. ~~6~~ 2. It is necessary to tack the screen in this manner so that the listing strip used to support the headlining can also be tacked to the face of the bow.

On bows on which the listing stip is not tacked, the screen may be tacked along the bottom of the bow ~~as shown in Fig. 6~~. The screen should be tacked to each bow from the back to the front.

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Do not allow the screen to come closer than six inches to the metal aprons along the sides and the metal frame above the windshield.

If the receiver is to be located at the left-hand side of the car, the shielded lead-in should be connected to that side of the antenna. If the types of screen recommended (tinned or galvanised) are used, it will only be necessary to make the lead- in connection to one corner of the antenna. If an untinned or ungalvanised screen is used, it is desirable to solder a bond across the entire front edge of the screen antenna.

After the antenna and lead-in have been installed, they should be tested for grounds. A high resistance voltmeter and a 200 volt B battery should be used, testing between the antenna proper and the body of the car. The meter should not read more than 2 volts even on a damp day. The test connections should not be held with the fingers as the leakage due to the body will cause a meter reading.

If the system is free from grounds, the headlining and trim may be replaced. After this is done, check the antenna again for grounds.

TOPS WITH POULTRY WIRE REINFORCEMENT.

When cleared of grounds, the chicken wire netting used in some automobile tops may be used as an antenna. This may be done in one of two ways. The top deck may be removed and the netting cut away from where the edges ground on the car body, but the more practical method is to drop the headlining for the entire length of the car. The netting can then be cleared of grounds from underneath.

The netting is cleared of grounds by cutting a strip three inches wide around the four sides of it. The portion of the poultry screen used for the antenna is then laced securely to the portions remaining attached to the car by a strong waxed cord. The cords used should be pulled tight enough to hold up the centre portion of the screen, and thus prevent the top from sagging. Be sure to bend the sharp ends of the wire so that they will not puncture the top or headlining. The lead-in is attached in the same manner as described above. The dome light wires may have to be rearranged so that there is a minimum of coupling between them and the antenna.

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TOPS WITH FABRIC CONSTRUCTION.

In a few cases this top construction will be encountered; it is similar to the slat type except that the wood slats are replaced with strips of muslin stretched over the wooden bows. If these strips are not tacked to the bows, the antenna screen may be slipped in between the strips and the bows. In such cases, the screen need only be tacked to the front and back bows used to support the antenna. In case the strips are tacked to the bows, the antenna should be installed and the lead connected in the same manner as with the slat type construction. The edges of the antenna screen should be kept five inches away from the metal parts of the top.

TOPS WITH METAL BRACES.

In case there are diagonal metal braces in the top, these braces must be freed of grounds so that the efficiency of the antenna will not be impaired. Usually the rear ends of the braces are fastened to the wood top frame while the front ends are fastened by brackets to the front corner posts. The headlining should be lowered and the work done from the inside of the car. First, release the front ends of the braces. Next, ream out the holes to insulate the cross brace bolts from the brackets. The dome light is usually connected to one of the braces. Disconnect it from the brace and run a new lead to the car body for the dome light ground. When both braces have been insulated, the antenna should be installed as detailed above.

OTHER TYPES OF TOPS.

Metal bows may be encountered in a few cars. In this type of top a wire antenna is used. The headlining should be lowered and screw eyes or staples securely fastened around the wood top frame of the car. These staples should be separated from the metal bows by about three inches, but as so spaced that wire threaded through them will be parallel to the bows, and the loops will be about two inches apart. A No. 18 gauge stranded rubber covered and braided wire ("lamp cord") should be used. The end of the wire after the lacing is completed is brought over to one of the corner posts (depending on the location of the receiver) for connection to the shielded lead. This antenna system should be carefully tested for grounds before replacing the headlining.

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OPEN AND CONVERTIBLE MODELS.

These constitute a different type of antenna problem. There are two types in general use; the wire antenna and the under-car antenna. The wire antenna is the more efficient when the top is kept up, but its operation is impaired when the top is down. In cars where the top is folded into a metal compartment, the wire antenna is useless when this is done. While the under-car antenna is not as efficient as the wire antenna in the top, it will be preferred if the top is kept folded a considerable portion of the time.

As the tops of open and convertible models are made to fold back, the wire antenna cannot in any way interfere with the operation. Such an antenna is installed as follows:-

Remove the top material and lay it back, leaving the side flaps in place. Secure a piece of top fabric matching that just removed, and fasten it properly in place over the cross ribs and over the side flaps. Next cut a piece of drill cloth or muslin approximately three inches smaller than the width of the top and about the length of it. Holes should be punched in the drill cloth in rows three inches apart, parallel to the cross ribs. Space the holes about ten inches apart in each row. Now weave a stranded rubber covered and braided wire ("lamp cord") back and forth through the holes in the cloth. When this is completed the cloth is fastened to the front and rear bows only.

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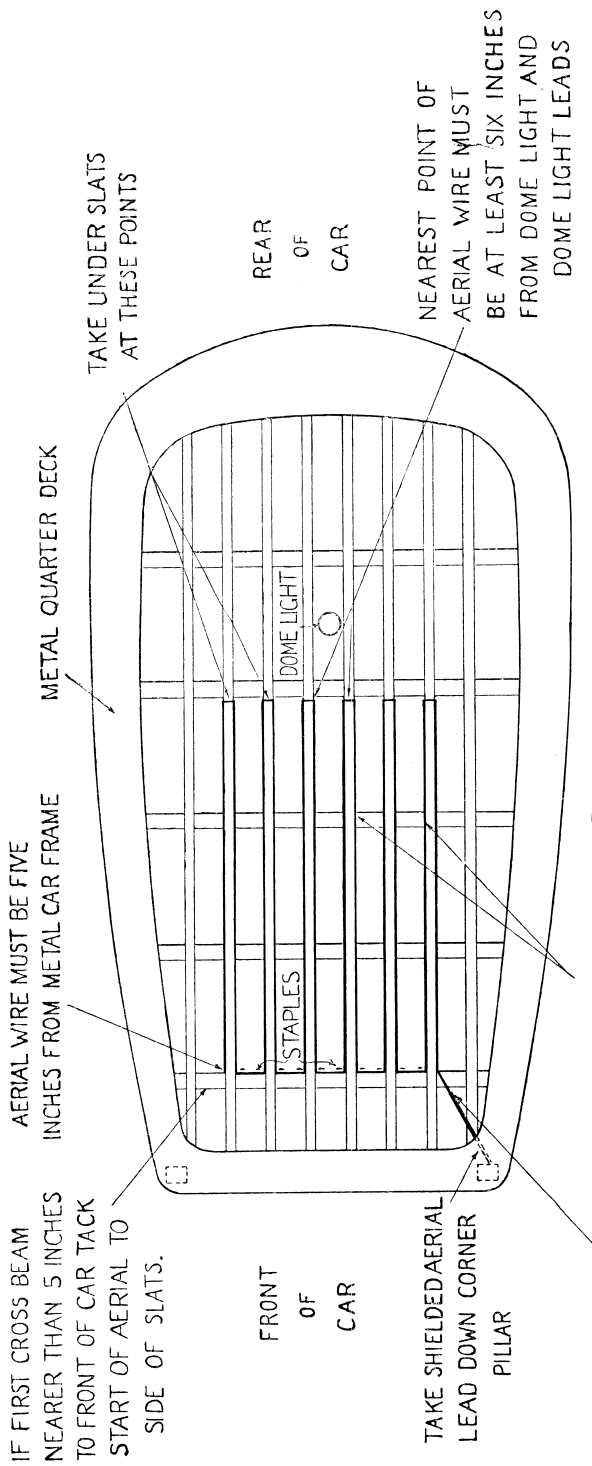

Fig. 1.

Note.—Never use less than 60 feet of aerial wire. Long-distance results will be poor if a shorter aerial is used.

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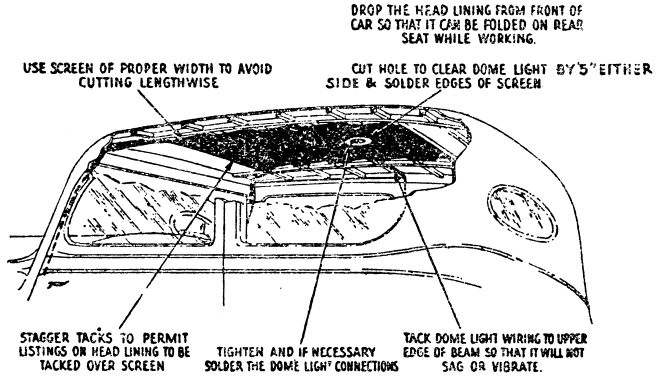

Fig. 2.
Method of Installing Screen Antenna.

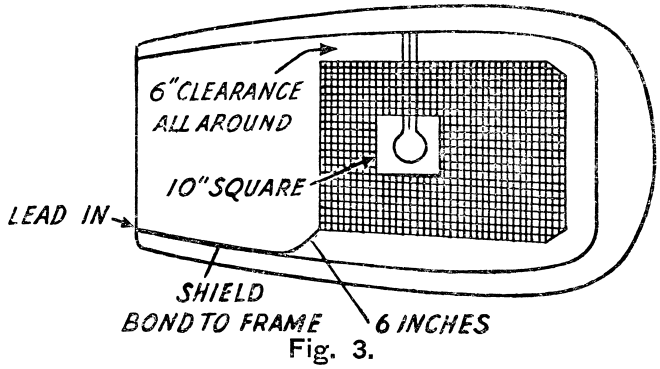

Fig. 3.
Method of Connecting Shielded Antenna Lead.