AUTO RADIO SERVICE BULLETIN.

SUBJECT - WHEEL AND TYRE STATIC.

The sounds developed in a radio from wheel or tyre static may be an intermittent rasping or clicking, with the time intervals varying with the speed of the car, or, may be a steady hissing developed after the car reaches a given speed and will change only on the conditions about to be described.

Wheel and tyre static occur only with the car in motion along the road and will occur whether the ignition is turned on or off. It will be most pronounced on asphalt or cement pavement but may be noticed in some cases on brick pavement or on a dry gravel road. During periods of high humidity, or if the pavement or wheels become wet from water or rain, the noise will cease until they again become dry. To drive off of the pavement onto the dirt shoulders or dirt side roads will stop the noise.

Friction, then between the dry pavement and the rubber tyres of the car apparently generates static electricity which collects on isolated conductive substances in the tyres or on the metal wheels which may be isolated from the body of the car by grease and oil; then discharges to the car body or roadbed, depending upon the potential developed and the distance to either. The (usual) distinguishing sympton between wheel and tyre static is that if on application of brakes the noise disappears, the noise is attributed to wheel static; if not, to tyre static.

Wheen static, we shall say, is static occurring on the insulated metal wheels and discharging to the stationary axle and may happen in either front or rear wheels. It seems then that the logical thing to do would be to make constant contact between the movable wheel and the stationary axle, to prevent potential differences from developing between the two.

This is done in front wheels by removing the large decorative outer hub caps, then prying off the grease caps, which are connected to the movable wheel and we shall then have exposed the stationary axle end. Insert in the grease cap a circular cone brass spring with the large turns into the cap. When the grease cap is pressed back into position the point then will ride on the axle end, thereby giving the necessary contact between moving wheel and axle. Do this in both front wheels, This condition, if occurring in

the rear wheels, may be removed by taking off these wheels and placing around the axle two turns of heavy spring brass wire to make contact between stationary brake housing and movable wheel.

Metal slivers protruding from metal based brake lining and loose metal rivets holding brake shoes in place that might intermittently contact the metal moving wheel may cause wheel static, so it would be well to check for these conditions while the wheels are removed.

Tyre static we have said is caused by friction of tyres to dry road bed creating a static charge which collects on conductive isolated substances within the tyres. The greatest percentage of cases have been caused by the use of metallic (zinc oxide) balances in the bottom of the casing by some manufacturers as a valve stem balance. (Other means are now employed as a balance in tyres). Where this occurs it may be corrected by removing the casings and buffing out the inside with a wire brush and then wiping the casing thoroughly with benzine and a cloth. Sometimes this may be reduced to a negligible amount by changing the tyres about from wheel to wheel.

Vulcanized spots or patches with a metallic glue base on tube or casing will also cause this condition. In some few cases the metallic bead in either clincher of the casing will collect static charges. This may be corrected by inserting through the clincher into the metal bead a brass screen with enough of the screw protruding to make contact to the rim when the tyre is again placed on the wheel. Metal valve stems from the tubes that are insulated from the rim of the wheel have in some extreme cases caused this condition and have been bonded to the rim of the wheel to correct the trouble.

Removable metal rims insulated from the rest of the wheel by paint and rust which are, of course, good insulators at extremely high frequency have been known to cause noise of the type described, but may be easily remedied by ensuring good contact to the rest of the wheel.
