DESCRIPTION AND MAINTENANCE INSTRUCTIONS

IGNITION SYSTEMS

DIELECTRIC PARTS-CLEANING AND TREATING

(This EO replaces interim publication)

1 Nitric acid, formed by a union of nitrogen, oxygen and moisture in the presence of an electric spark, is a very good electrical conductor and will cause flashover and leakage across the dielectric if deposited in a film over the surface. Even with proper ventilation, there is a tendency for this acid to form around high tension connections and the jump gaps of the distributor, especially when the unit is operated in damp weather. This action is not the fault of the dielectric but is a natural consequence of the conditions under which the magneto is operated. All dielectric materials are to some extent subject to this action under certain conditions. It is therefore necessary to treat the surface of the dielectric in some manner to retard the formation of this conductive nitric acid film.

2 In the past, various oils, greases and varnishes have been used on dielectric surfaces to combat the formation of conducting films. Some of these coatings are applicable for some dielectrics but not for others, and with the increasing number of dielectrics in use, it is difficult to determine the proper treatment for each material. Bendix-Scintilla No. 72 Wax Compound, which is available in pint containers (10-55219) and in gallon containers (10-55222), has been found effective on dielectric materials now in use. This results from two characteristics that the wax possesses:-

(a) Being water repellent, it causes some moisture to accumulate in isolated droplets instead of in a conducting film.

(b) Because it is impervious to acids, it is not easily dissolved and washed off but instead remains effective for a considerable period of time.

3 Before applying the wax, the dielectric parts must be cleaned thoroughly to remove all oils, varnishes, or conducting films of moisture and nitric acid. The following table lists the solvents to be used in removing foreign material.

CAUTION

Never immerse coils or condensers or parts which incorporate integral coils or condensers in any kind of liquid, as the liquid might penetrate the part and affect the insulating material. Such parts should be cleaned with a cloth moistened with the desired solvent.

TO REMOVE	SOLVENTS TO USE
Oil, Grease, or No. 47 Compound	Cleaner Fluid 3GP8(33C/182)
Glyptol, Shellac or similar insulating varnishes	* Acetone, AN-0-A-51(33C/417)

* SOLVENTS SO MARKED HAVE EXPLOSIVE VAPORS. USE ONLY IN A WELL VENTILATED AREA WHERE NO FIRE OR FLAME IS PRESENT. AIR DRY PARTS BEFORE PLACING IN AN OVEN.

(a) Clean the parts thoroughly with a solvent listed in the table above. A small, stiff, non-metallic brush is useful for this purpose. A spiral brush is effective for cleaning the cable holes of the distributor block. If paint and varnish remover is used, cleaner fluid should be applied to remove the resulting gummy deposits.

(b) After all varnishes, greases or oils have been removed, the parts should be cleaned with acetone to remove any traces of conducting films. Gasoline, naptha, carbon tetrachloride, and similar oily substances are not effective for removing these films.

4 All traces of solvents used for cleaning the parts must be removed before applying

wax. To dry the solvents place the parts in an oven at 54.4° to 65.6°C. (130° to 150°F.) for one half hour. If solvents having explosive vapors were used, allow the parts to dry as long as time will permit before placing in oven.

5 Before applying the Bendix-Scintilla No. 72 Wax Compound, it should be thinned with carbon tetrachloride (33C/425). About one part by volume of wax compound to five parts of carbon tetrachloride is usually satisfactory. Heat the wax to 54.4°C. (130°F.) for mixing with the carbon tetrachloride. It is suggested that the mixture be heated to 54.4° to 60°C. (130° to 150°F.) for application, to allow it to penetrate all crevices of the dielectric. The mixture works best if kept warm so that it can be applied to the part with a small brush. The wax should be applied to the parts while they are still warm. This permits the wax to penetrate more effectively into the pores of the dielectric. The wax can be applied with a soft paint brush. If the parts have become cool, they should be reheated in an oven at 71.1° to 76.7°C. (160° to 170°F.) until they are thoroughly warmed before application of the wax.

NOTE

Inasmuch as carbon tetrachloride evaporates very quickly, the mixture will become thick if left exposed to air. When treating a large number of parts it may be necessary to thin the mixture with carbon tetrachloride to bring it back to its desired consistency.

6 It is very important that all solvents be dried from the wax before using the parts. After applying wax coating, place the parts in an oven at 71.1° to 76.7°C. (160° to 170°F.) for 1 1/2 to 2 hours to dry off all solvents in the wax. Do not attempt to dry the wax to a hard glossy finish, as the wax is soft even when dry. If an excess of wax remains on the parts, it should be removed with a clean cloth so that only a thin film remains. Such deposits of wax indicate that the compound was not thinned sufficiently for application. These deposits of wax should not be allowed to remain on the dielectric, as they might cause carbon tracks due to some of the solvents being trapped beneath the wax. When parts have cooled to room temperature after removal from the oven, they are ready for use. Inasmuch as the wax compound is soft, the treated parts should be covered with a clean piece of paper to keep them free from dust and dirt until they are installed in the magneto.

ISSUED ON AUTHORITY OF THE CHIEF OF THE AIR STAFF

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