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 Service Instruction M 20-9
 per Service Instruction M20-15.

MOONEY AIRCRAFT, INC.
 APRIL 15, 1965

TO: DISTRIBUTORS - DEALERS - SERVICE CENTERS

FROM: CUSTOMER SERVICE

SUBJECT: CORROSION PROTECTION

MODELS AFFECTED: All

SERIAL NUMBERS AFFECTED: ALL

All ferrous and non-ferrous construction materials are susceptible to corrosion under certain conditions. Corrosion may occur on aircraft in any climate but is most prevalent in areas where they are exposed to salt air and fog or areas of high humidity with industrial contaminants in the atmosphere. The inspection and care of aircraft, in order to prevent serious corrosion, is an ordinary problem which all aircraft owners face. Knowledge of a few facts can simplify this maintenance problem and assure protection in the field.

Corrosion normally appears in one or more of four forms. Each of these forms is controlled or prevented by a proper maintenance program. These four forms of corrosion are:

1. Chemical Corrosion
2. Local Cell Corrosion
3. Concentration Cell Corrosion
4. Galvanic Corrosion

Chemical Corrosion is independent of the climate and occurs mainly from battery acid or from exhaust gas deposits. It can be prevented by a few simple precautions.

1. Be sure that the battery vent is free from obstruction and properly oriented at all times.
2. Keep areas that are painted with acid resistant paint in a completely painted condition at all times.
3. If acid is spilled on metal surfaces, flush entire area with sodium bicarbonate and water. Rinse this away with clear water. Dry the area by wiping and by blowing all water from crevices with an air hose.
4. Clean exhaust gas deposits from metal surfaces frequently.

The presence of Local Cell Corrosion is easy to detect. On bare metal it is evidenced by a light, whitish powder deposit on the surface of the metal in the early stages of corrosion, followed by pits in the surface as corrosion advances. If the surface is painted, the first hint of corrosion will be the appearance of blisters in the paint. After corrosion is detected, it should be removed immediately. If it is necessary to remove paint, approved aircraft quality paint remover should be used. (Take care that this remover is not allowed to run or be washed into crevices as this will cause further corrosion). Corrosion may be removed by treatment with Turco 2662C or 3002 which removes corrosion and treats surface against further corrosion in one step.

Concentration Cell Corrosion occurs in such places as skin laps and under rivet heads. It is more difficult to detect than Local Cell Corrosion. Close inspection should reveal corrosion forming under the edges of rivet heads or along the edges of faying surfaces. Concentration Cell Corrosion removal requires removal of rivets or other fasteners and opening of skin laps. It may be removed by rubbing with aluminum wool and kerosene. After all corrosion has been removed, paint both faying surfaces with zinc chromate primer before closing the skin lap. This paragraph also applies to contact surfaces of stringers, longerons, etc., with skins.

Galvanic Corrosion is fairly well precluded by factory precautions. However, if this type of corrosion should occur between dissimilar metals such as stainless steel and aluminum, separate the parts, remove the corrosion, and paint surfaces with zinc chromate primer before reassembly.

Further recommended procedures on corrosion control are outlined in the Technical Data Bulletin #184 of Turco Products, Inc., P. O. Box 1055, Wilmington, California.

The following hints are offered to help retard corrosion of all types.

1. Thoroughly check unpainted surfaces and touch up at each inspection period. Carefully check seams, lap joints, crevices and other areas where moisture or dirt can collect. Areas subject to exhaust gases require close scrutiny and frequent cleaning.
2. Cover vent scoops when airplane is being washed.
3. Since moisture energizes corrosion action, thoroughly inspect areas where water is apt to collect after washdown. Wipe these areas dry, or dry with an air hose.
4. Keep aircraft hangared when not in use to prevent contaminated fall-outs, dew, etc.
5. Corrosion may attack metal even though it is painted. Inspect painted areas for a blistered or scaly appearance. This is an indication of corrosion.
6. If battery acids are spilled, wash immediately with a solution of sodium bicarbonate in water. Rinse this away with clear water and dry the area.
7. Rinse all aircraft exposed to severe salt conditions after every flight.
8. Never wash aircraft with common detergents. Use only aircraft detergents.

As a final note, keep in mind that the key to controlling corrosion is a clean, dry airplane. The best way is to hangar the aircraft. Follow the instructions for detecting, removing and preventing corrosion, and serious corrosion will not be a problem.

Further information can be obtained by contacting the Customer Service Department, Mooney Aircraft, Inc., Box 72, Kerrville, Texas, in regard to this subject.