

# DM Advantage<sup>®</sup> and DriveMaster<sup>®</sup>

## On/Off and Two-Speed Fan Drive Inspection Procedures



**NOTE: All Inspection Procedures to be conducted with the engine off.**

Recommended 25,000-mile (40,000 Km) or 300-hour preventive maintenance (whichever comes first).

### 1. Check for Air Leaks

Apply air pressure to the fan drive. Confirm that the vehicle's air system reservoir and air lines are clean and dry and without restrictions. Check solenoid valve for proper operation.

- Listen for air leaks around the solenoid valve, filter assembly, air lines and fittings.
- Look for air leaks. Using a spray bottle, spray soapy water around the spring housing, sheave and bleed hole. Look for bubbles.

### Maintenance Procedure

If an air leak is present, repair the fan drive with the appropriate Horton repair kit, or replace the fan drive with a remanufactured Horton fan drive, or new fan drive. Clean and repair vehicle air system as required.

### 2. Check the Fan Drive Friction Surfaces

Check air pressure to the fan drive. A minimum of 90 psi [6.2 bar] is required to fully disengage the fan drive.

- Inspect the fan drive friction facing for wear by measuring the thickness of the friction facing material. A new friction facing is 11/32 inch [8.51 mm] thick. Replace the friction facing material if it has worn to 1/4 inch [6.35 mm] thick or smaller. The fan mounting friction disc (FMFD) may need to be removed to check liner wear on the two-speed version.
- Check the FMFD surface for wear, discoloration or other signs of overheating.

### Maintenance Procedure

If excess wear is present, check engine control module (ECM) and air-conditioning (AC) run times. The fan and AC run time should be set at 60-90 seconds or greater to reduce friction wear and engagement. Check ECM programming of engine brake. The engine brake should be set to "Fan Off" when the engine brake is applied. Check for fan obstruction or shroud interference.

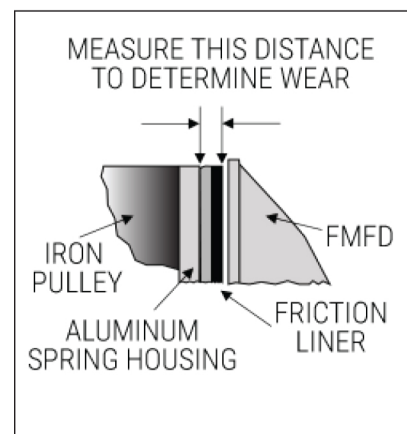
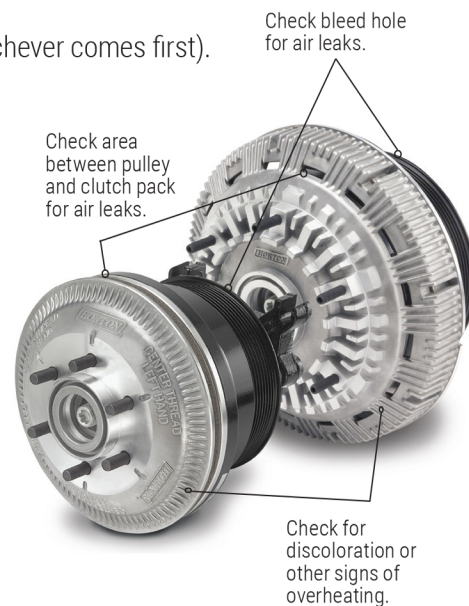
### 3. Check the Fan Drive for Proper Engagement and Disengagement

Set the ignition switch to "On" for the following procedures. But DO NOT start the engine.

- Manually engage and disengage the fan drive by disconnecting the electrical connector at the solenoid valve, opening and closing the solenoid valve.
- Remove the air supply to engage the fan drive by following the instructions above. Attempt to move the fan. If the fan rotates with minimal force, the friction surfaces are worn beyond use. Repair with the appropriate Horton repair kit or remanufactured or new fan drive.
- Check the electrical wiring at the thermal switch, air-conditioning pressure switch and the solenoid valve. Make sure there are no loose wires or connections.

### Maintenance Procedure

If excess friction wear is present, repair the fan drive with the appropriate Horton repair kit, or remanufactured, or new fan drive. If over-cycling of an on/off fan drive is resulting in excessive friction wear, a Horton DM Advantage<sup>®</sup> Two-Speed or PolarForce<sup>®</sup> Two-Speed Conversion Kit should be considered to replace an on/off fan drive when making the repair.



## 4. Check the Fan Drive Bearings While Disengaged

All DM Advantage® and DriveMaster® Fan Drives are spring-engaged/air-disengaged. For the following procedures, apply air pressure to the fan drive.

- Remove the belts and check both the pulley and clutch pack bearings.
- Rotate the pulley in both directions (independent from the clutch pack).
- Check for smooth rotation of the fan in both directions (independent from the pulley).

### Maintenance Procedure

If the bearings are rough, repair the fan drive with the appropriate Horton repair kit, or with a remanufactured Horton fan drive, or new fan drive.

## 5. Magnet Inspections for Two-Speed Fan Drives

While air is applied to the fan drive, check the two-speed magnetic coupling mechanism.

- Rotate the fan and clutch pack in both directions (independent from the pulley).
- Check for damaged or broken magnets and for interference between the magnet assembly and the FMFD.

### Maintenance Procedure

If the magnet assemblies are damaged or broken, repair the fan drive with the appropriate Horton repair kit, or with a remanufactured Horton fan, drive or new fan drive.

## 6. Visually Check for External Signs of Wear or Damaged Components

Look for an obstructed, cracked or damaged fan shroud and/or ring by doing the following:

- Check for belt slippage by looking for a polished belt pulley on the fan drive or accessory drives.
- Check for external damage to the fan drive components, including the sheave grooves, fan studs, etc.
- Examine the general condition of the belts and belt tensioner.

### Maintenance Procedure

Correct the interference problem and replace belts and tensioners as needed.

## 7. Visually Check for Damaged Fan Components

Any of the defects listed below can cause the fan to become unbalanced or unsafe, possibly resulting in premature fan drive bearing wear, fatigue damage or separation at the fan or fan blades. Check for:

- Cracked fan blades
- Excessive tip wear
- Missing balance weights (rivets)
- Cracked fan center disk
- Bent, deformed metal blades

### Maintenance Procedure

Replace the fan with a Horton fan, if any of the above defects are present.

For further maintenance information see Horton literature #22901, warranty component evaluation for Horton on/off fan clutch and hub.



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