



HORTON,

South Africa Horton Fan Clutch Warranty Policy.

Probe Corporation S.A. (Pty) Ltd. warrants that its products (the product) will be free from defects in material and workmanship until the earliest to occur of the months in service or distance travelled, as specified for the appropriate Product, Application and Market on the Warranty Coverage Matrix (see Appendix 1), for the first vehicle on which the Product has been installed. The start date for warranty coverage shall be defined as:

- A. For a new vehicle, the date shown as in-service date on the vehicle certification label, or**
- B. For a used vehicle, the date which can be verified to the satisfaction of as the date on which the product was installed, if not so verified, the date on which the Product was sold to the original purchaser.**

In alliance with Horton's warranty policy, Probe shall, at its sole discretion, choose to repair or replace any defective components. Specifically this means that Probe warranty repairs must be limited only to the affected components in the clutch assembly.

Consistent with current and past Horton/Probe Warranty Policy/Statements, Probe will not warrant or cover claims submitted where the alleged defect is attributable to normal wear and tear, including but not limited to, friction material, air cartridge or wear surfaces on the DriveMaster FMFD or HTS/S PFD components, unless the alleged defect is found to be due to defects in the material or workmanship at Probe sole discretion.

Probe has a complete line of repair kits available in all the necessary configurations. Probe will only authorize warranty repairs utilizing the specific repair kit necessary on the HT/S or DriveMaster product line, as specified.

Probe will pay only for the level of repair necessary, regardless of the part number or **RAND** amount submitted in the warranty claim. Repair kits are the primary source for a repair of any failed clutch. A full clutch is to be only supplied when irreparable damage to the Sheave and/or Journal

Bracket has occurred due to the failure. Probe reserves the right to void this warranty if a non-approved or nonstandard OEM fan blade is used with any Probe fan drive.

Potential failure modes and the required repair kits for warranty repair are as follows:

- If there is a liner failure, a Friction Liner Kit must be used
- If there is a friction disc and liner failure, use a Friction Disc Kit.
- If there is a seal and/or air cartridge failure, a Minor (seal) Kit must be used.
- If there is a bearing failure, use a Bearing Kit.
- If there are multiple components that have failed any combination of the above mentioned kits may be utilized and in the case of failure of the liner, friction disc, clutch pack and bearings, use a DriveMaster Major Kit or HT/S Supa Kit.
- If, in addition to the above-mentioned failures, one or both of the casting components (Sheave, Journal Bracket) has been damaged due to the failure and cannot be re-used, then and only then, Horton authorizes the use of a new clutch assembly to complete the warranty repair.

A complete listing of the HT/S & DriveMaster Kits available can be found on the website: www.probegroup.co.za . In no event shall Probe be liable for any consequential, indirect, incidental or special damages of any nature whatsoever, including without limitation, lost profits arising from the failure of the Product, including but not limited to delivery penalties, driver down time, lodging, food, call out fees or towing.

In addition, any Warranty issues involving Horton products sourced from Horton, Inc. USA must be directed back to Probe Corporation S.A. (Pty) Ltd., through the original supply source. In order for the warranty to be honored the client is required to ensure product undergoes the **standard maintenance / servicing procedure (40,000km or every 3 Months)** as prescribed below. Failure to do so will result in warranty being null and void.

Please contact Probe or visit our website: www.probegroup.co.za or more information or clarification on any of the above.

Appendix I :

Warranty Coverage Matrix

Product Group	On-Hwy	Off-Hwy
HTS/S Fan Drives	12 months 160,000kms	12 months 80,000kms
Drive Master / DM Advantage Fan Drives	12 months 160,000kms	12 months 80,000kms
All other Fan Drives / Fans (1)	12 months 160,000kms	12 months 80,000kms
Fan Drive Control System Parts	6 months 80,000kms	6 months 40,000kms

Notes:

1. "All other Fan Drives/Fans" Product Group includes ALL other Fan Drives as well as Fan Blades, Direct Drive Hubs and Repair Kits.
2. Coverage Period begins with START DATE as defined in paragraph 1 on page 1 of South African Horton Fan Clutch Warranty Policy Statement.
3. The Warranty Coverage is limited to whichever occurs first, kms or time and is directly linked to the servicing procedure every 40 000km or every 3month

Example of standard maintenance / servicing procedure (40,000km or every 3 Months):

Learning Objectives

- State 25,000-mile (40,000 km) preventive maintenance requirements
- Describe how to manually test fan drive engagement and a engagement

NOTE:
If an air leak is not repaired, the fan drive may slip and overheat

11.3 25,000-Mile (40,000 Km) 13-month PM

Every 25,000 miles (40,000 km) or 3 months, whichever comes first, when performing an oil drain, conduct a quick check of the fan drive.

Check for air leaks around the fan drive while applying air to the fan drive.

1. Listen for leaks at the solenoid valve, filter assembly and in the air hoses and fittings.
2. Feel for a leak with a wet finger or by applying soapy water and looking for

Check the fan drive for discoloration or any other signs of slipping or overheating.
The fan drive may slip if incoming air pressure is below 90 psi (0-21 bar) or if an air leak exists inside the fan drive. Never let a leak remain unattended.

Check the fan **drive bearing**.

1. Turn the fan blade in both directions and feel for worn hub bearing.
2. If the fan belts can be easily removed, remove the belts and check for worn sheave bearing.
3. Turn the sheave in both directions. If either the hub or sheave bearing is worn, repair or replace the fan drive with a Horton **DM Advantage** Super Repair Kit, a Horton remanufactured DM Advantage Fan Drive or a new DM Advantage Fan Drive.

Check the fan **drive friction facing** for wear by measuring the thickness of the friction material. A new facing is 8.51 mm (-1 ± 0.32) thick. Replace the friction material if it has

Area between sheave and FM F

Check discoloration or other signs of --- overheating

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DM Advantage and Waster On/Off and Two-Speed Fan Drives and Horton Fans

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.

- a) Listen for air leaks around the solenoid valve, filter assembly, air lines and fittings.
- b) 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.

- a) Inspect the fan drive friction facing for wear by measuring the thickness of the friction facing material. A new friction facing is 3/32 inch 18.51 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 finer wear on the two-speed version.
- b) 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) runtimes. The fan and AC runtime should be set at 60-90 seconds or greater to reduce friction wear and engagements.

- 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.

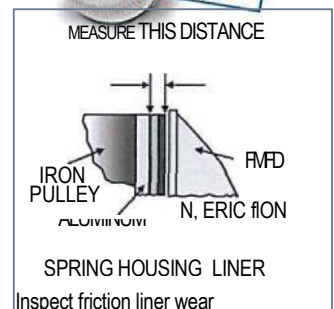
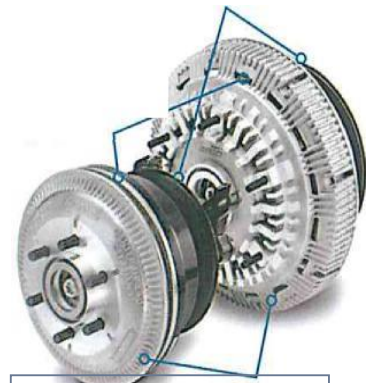
3. Check the Fan Drive for Proper Engagement and Disengagement

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

- a) Manually engage and disengage the fan drive by disconnecting the electrical connector at the solenoid valve, opening and closing the solenoid valve.
- b) 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.
- c) 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 Advantage² Two-Speed or PolarForce² Two-Speed Conversion Kit should be considered to replace an on/off fan drive when making the repair



Signs of overheating



DM Advantage® and DriveMaster®

On/Off and Two-Speed Fan Drives and Horton Fans

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.

- a) Remove the belts and check both the pulley and clutch pack bearings.
- b) Rotate the pulley in both directions (independent from the clutch pack).
- c) 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.

- a) Rotate the fan and clutch pack in both directions (independent from the pulley).
- b) 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:

- a) Check for belt slippage by looking for a polished belt pulley on the fan drive or accessory drives.
- b) Check for external damage to the fan drive components, including the sheave grooves, fan studs, etc.
- c) 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:

- a) Cracked fan blades.
- b) Excessive tip wear.
- c) Missing balance weights (rivets).
- d) Cracked fan center disk.
- e) 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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