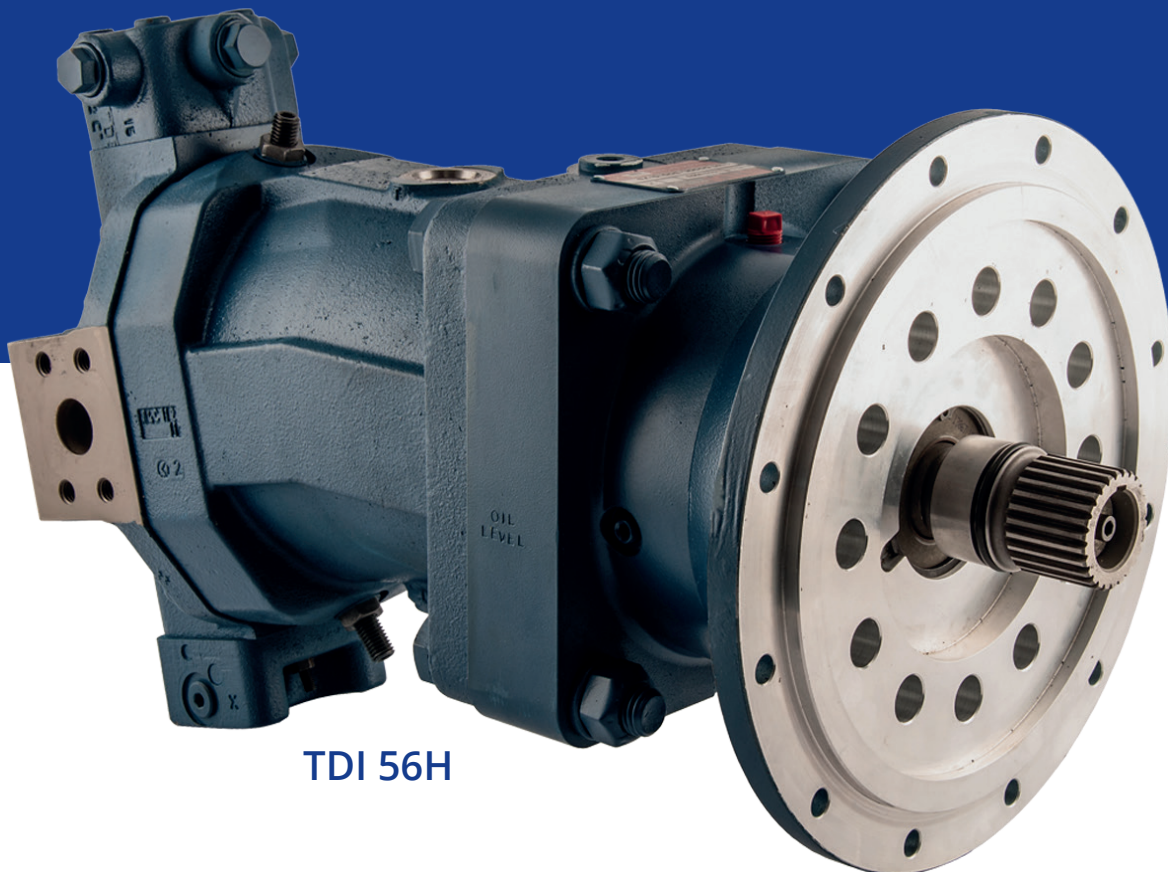


GE® LM2500 & LM6000 STARTER CLUTCH UPGRADE



TDI 56H

The TDI® STARTER CLUTCH UPGRADE
is also suitable for other turbines.

22 contact points



TDI Sprag Clutch

3 contact points



Pawl & Ratchet Clutch

13 contact points



Roller Clutch

TDI 56H STARTER CLUTCH UPGRADE

Improves reliability, reduces costs and extends inspection intervals from 10.000hrs to 25.000hrs.

Extended inspection intervals

Periodic inspections of widely used turbine starter clutches are often recommended every 8,000 to 10,000 hours of turbine operation if there is no clutch monitoring system in place. A turbine inspection and overhaul should be conducted every 20,000 to 25,000 hours of operation and it is recommended the unit to be returned to the manufacturer for overhaul and test.

The TDI® 56H Clutch periodic maintenance interval is synchronized with the LM* turbine maintenance intervals, and therefore no longer requires additional inspections on site. The inspection or overhaul is typically performed during the LM* Hot Section repair or Major Overhaul together with other accessories on the engine.

There is a comparison calculation made by GE® stating:

- *after 50K hours the operator saved 3 extra inspections with the TDI 56H clutch.*

Stronger, More Reliable Clutch Assures Less Downtime

Clutch failure due to control malfunctions and long term wear are one of the most common sources for starter/engine failure. 56H's sprag clutch virtually eliminates these problems by evenly dispersing torque to 22 separate points.

The many contact points eliminate the requirement for precise ramping speeds for successful clutch engagement. The 22 points of contact on TDI's unique sprag clutch deliver unequalled load transfer from the starter to the frame which promotes better shaft alignment and reduced wear on gear box couplings unlike just 3 contact points on a pawl and ratchet design. The result is a simpler, much more forgiving clutch system for reducing downtime and assuring starter reliability. While the roller clutch has 13 contact points, it's lack of resistance to internal dirt and contaminants poses reliability concerns.

WHAT CAN UPGRADING DO FOR YOU?

“This upgrade to the hydraulic starter clutch allows the existing starting system to operate with improved reliability and availability. It replaces the Hilliard® clutch with a new, TDI® sprag clutch.

- Reduce wear by over 400% through increased number of contact points (22 vs 3)
- Increase starting reliability - multiple contact points reduce the requirement for precise ramping speeds for successful clutch engagement
- Improved safety with a more robust design
- Increase availability by extending maintenance intervals from approximately 10,000 hours to 25,000 hours
- 60% weight reduction over Hilliard® clutch”

Source:
<https://www.ge.com/power/services/gas-turbines/upgrades/starter-clutch>

Date checked: July 2020

1 on 1 DROP IN REPLACEMENT

Clutch, Tubing and Flexibles

TDI® uses a shared lubrication with the gearbox of the gas turbine, like other competitors do. This always assures the right oil quality and temperature in the clutch. By means of the hoses and prefabricated tubing that comes along with the clutch, the oil supply, oil drain and purge air can be connected with the gearbox and 9th stage of the compressor. In most installations this is all done by a combination of tubing and flexibles.

Having the same fit and function as other clutches mentioned, makes the TDI® Clutch + Kit interchangeable. Based on the engine model and setup, a suitable kit will be provided.

Thanks to the prefabrication of the tubing and the use of flexibles, a pipefitter is not needed.

Connections on the clutch:

1. Oil supply
2. Oil return drain
3. Purge air
4. Oil drain
5. RTD port

Exchange program

Buying new assets and parts for upgrades inevitably creates extra stock. The uncertainty of owning excess stock decreases the value of the asset, which can result in dead capital.

To minimize these extra costs and inconveniences for our customers we offer the option to exchange their current starter clutch against the TDI® clutch for a nominal fee. Depending on the conditions of the product a refund can be issued upon exchange of the used product.

Where can you buy a TDI® starter clutch

The new TDI® starter clutch can be bought at Hatraco in the Netherlands. Periodic inspections, maintenance and overhauls can also be provided through Hatraco®. Whenever the turbine is taken offline for a major overhaul, the clutch can be sent to Hatraco® for maintenance or overhaul by certified technicians.

For more information please [contact our sales department](#).

Suitable for harsh environments

example: Oil and gas extraction at sea

Any undertaking at sea requires high quality and heavy duty products. The TDI® starter clutch is specifically designed for stationary gas turbine engines working in harsh environments, meeting the requirements that relieve you from unpredicted downtime and safety issues.



* LM1600, LM2500 & LM6000 turbines

About Hatraco

Hatraco® is manufacturer, European distributor and worldwide supplier of customized industrial engine equipment supported by world leading suppliers and manufacturers.

Hatraco® provides equipment for stationary gas-, diesel engines and gas turbines for the industry, marine, oil & gas and power generation in all sorts of applications.

With a wide range of engine parts and control systems, we help customers run their engine, improve their engine efficiency and contribute to a cleaner environment.

About TDI® (Tech Development)

TDI® is recognized worldwide by every OEM and significant system packager as a leader for highly reliable starting of reciprocating engines since 1979 and turbines since 1984.

Some of the most advanced turbine systems for the aerospace industry are designed and continue to drive the development of even more reliable and efficient starting products.

TDI® is a 100% GE® company.

**For custom advice,
please contact us.**

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