INDUSTRIAL GAS TURBINE STARTER

- The TDI Turbostart Series turbine powered starter motor is designed for application to industrial gas turbines derived from aviation engines. The Model 56A has a mounting flange and output shaft spline that will mate with any engine utilizing an AND 20002 Type XII-S engine accessory drive pad. The 56A will crank the Rolls Royce Spey and Avon gas turbine engines. The 56A is also ideally suited for cranking the Pratt & Whitney GG3, GG4, FT4, and FT8 gas turbine engines. These engines are widely used for electrical power generation, industrial drives, and marine propulsion.

- The 56A uses a robust turbine drive motor design. Properly installed, the turbine motor is highly resistant to damage caused by wet or hard contaminants in the drive air/gas.

- For natural gas operation the starter is fitted with Marman V-band adapters on both the inlet and exhaust ports. For operation on compressed air, a turbine guard screen is supplied. A variety of inlet and exhaust adapters are available on request.

- The Model 56A provides significantly lower life cycle costs when compared to both the acquisition and operating costs of aviation derived starters. For industrial turbine engine application, the Model 56A provides superior performance and reliability at substantial savings over other starter alternatives.

- The starter can be operated using compressed air or natural gas pressures up to 150 psig (10 BAR). The 56A produces up to 180 HP on natural gas. See performance data.

- The Model 56A starter incorporates the TDI low mass turbine rotor designed to fracture in a precisely engineered and inherently safe manner should the starter ever over speed.

- The Model 56A features an internal (vented) oil sump, which functions as a stand-alone method of starter lubrication. The Model 56A also provides pressure lubrication ports which permit optional extension of the engine oil system to facilitate starter lubrication. This option is preferred by some operators when using the Model 56A.
An axial flow turbine coupled to an integral planetary gear reduction set powers the Model 56A starter. The turbine power combined with the planetary gear reducer results in a very efficient and compact unit. The Model 56A incorporates a sprag type overrunning clutch in the starter gearbox drive train to provide a means of disengaging the starter from the gas turbine engine once the starter cutout speed has been reached. The Model 56A starter can be operated using either compressed air or natural gas.

Tech Development Inc. introduced the first turbine technology for starting industrial engines in 1979. The TurboStart 56 series air starters feature an innovative and more reliable turbine motor than any other gas turbine starter on the market today. The 56A is the result of TDI's continuing turbine starter design innovations.

**DESCRIPTION OF OPERATION**

**DEVELOPMENT HISTORY**

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**NOTES:**

1. TO OBTAIN THE BEST RELIABILITY TDI RECOMMENDS THE 56 SERIES STARTER BE INSTALLED WITH A SHARED LUBRICATION SYSTEM SIMILAR TO WHAT IS SHOWN EVERY STARTER IS EQUIPPED WITH TWO (2) OIL SUPPLY PORTS.

2. REMOVE THE HOLLOW HEX PLUG INSTALLED IN THE SPRAG HOUSING PORT AND THE CAP PLUG FROM "OIL SUPPLY" PORT #2. THE BREATHENER CHAMBERED BUT NOT INSTALLED MAY BE THROWN AWAY. IT IS USED FOR SPLASH LUBE APPLICATIONS ONLY. (THE HOLLOW HEX PLUG IN PORT #1 IS TO BE LEFT IN; THESE PORTS ARE DESIGNED TO DIRECT THE OIL (UNDER PRESSURE) TO THE PROPER LOCATIONS WHEN USED IN THE SHARED LUBRICATION MODE.

3. INSTALL OIL SUPPLY LINES TO THE 1/4" NPT PORTS (PORT #2 & SPRAG PORT) AS SHOWN.

4. REMOVE THE OIL DRAIN PLUG IN PORT #2 AND INSTALL A 1/2" NPT RETURN LINE TO A SEPARATE OIL FILTER OR THE ENGINE OIL FILTER SYSTEM. THIS DRAIN PORT SHOULD BE POSITIONED AT A 30° ROTATION FROM THE LOWEST POINT. THIS IS TO ENSURE SOME OIL WILL BE IN THE GEARBOX AT *START UP*.

5. FOLLOW THE TURBINE MANUFACTURERS OIL TYPE RECOMMENDATIONS.

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from TECH DEVELOPMENT
6800 Poe Avenue • Dayton, OH 45413
Tel: 937-898-9600 • Fax: 937-898-8431
Model: 56A
21 Nozzles
70°F Compressed Air
11.4:1 Gear Ratio

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<th>INLET</th>
<th>FLOW (Scfm)</th>
<th>FLOW (Nm3/h)</th>
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Model: 56A
21 Nozzles
70°F Methane Gas
11.4:1 Gear Ratio

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