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## Model TMD/TRD-250 Aircraft Air Start Unit

The TUG Model TMD-250 air start unit represents our 250 ppm variant of our family of air start units. Designed from a clean sheet of paper, these units offer lower operating costs and decreased environmental impact. The TMD-250 unit will handle the engine starting needs of all wide-bodied aircraft engines requiring 250 ppm of continuous airflow with the exception of the B-777.

One of the many standard features of the TMD-250 Air Start unit is the dual-pressure regulators with an "On Demand" automatic engine throttle control system. The operator simply selects either the air start or the air packs mode and the control system automatically adjusts the pressure and throttle settings. Benefits of the "On Demand" system include fuel economy, decreased maintenance, and noise control.

Safety, reliability, and maintainability are key ingredients of our design; decades of experience with both commercial and military GSE provide practical and efficient products. Standard features such as large access doors, remote lube oil drains, and maintenance-free batteries ensure ease of service. These exceptional features, combined with our famous worldwide parts and support make the TMD-250 air start unit the best choice for your operations.

**50% - Quieter Operation**  
Improved operator environment and lower overall ramp noise level.

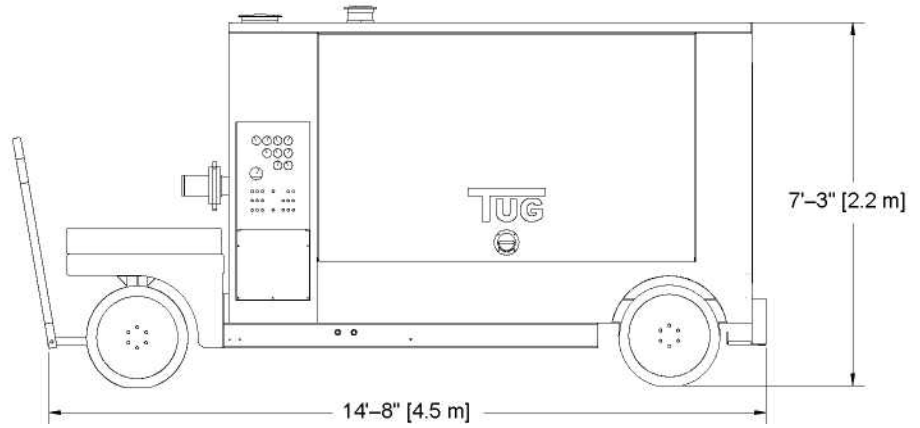
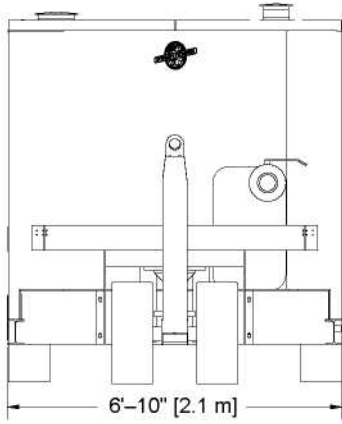
**10% - Smaller Package**  
Enhanced maneuverability and operational safety.

**95% - Parts Commonality**  
Our air start units share running gear, body, consumables, and electrical components ensuring lower life-cycle cost and logistics requirements.

**8% - More Fuel Efficient**  
Fuel efficiency and cleaner burning with electronically controlled four-cycle engine,

### Standard features include:

- Dual discharge air outlet with manual shutoff valves
- Automatic discharge air pressure safety relief system to protect aircraft
- Discharge hose manual bleed-down valve
- On Demand automatic engine throttle control
- Leaf spring rear suspension
- Remote lube oil drains
- Maintenance-free batteries
- Large full-length "gullwing" module access doors
- Engine lube oil magnetic sump plug
- Sound and vibration dampening material
- Illuminated operator control panel with complete gauge set
- Rust proof engine/compressor heat exchanger



# Specifications Model TMD/TRD-250 Aircraft Air Start Unit

### General

Vehicle type..... Continuous-flow, turbine engine air starter  
 Application..... All wide-body aircraft engines with exception of B-777

### Engine

Manufacturer..... Detroit Diesel  
 Model..... Series 60 14 liter DDEC IV ECM  
 Type..... 6-cylinder, direct injection, four-cycle, turbocharged  
 Horsepower..... 630 bhp (470 kW)

### Compressor

Manufacturer..... GHH-RAND  
 Model..... CD42S (single element)  
 Type..... Rotary dry screw oil free air  
 Output at 68 F (20 C) 60% RH, sea level..... 250lbs./min. (113 kg./min.)  
 Discharge air temperature..... 390°F (200°C) nominal

### Engine and Compressor Protection System

Operating conditions below are factory set for operator warning and/or automatic shutdown in "UNLOAD" and "AIR PACK" mode only. All safety shutdowns are inoperative in "JET START" modes with the exception of a manual operator emergency stop.

Engine high coolant temperature..... 217°F(103°C)  
 Engine low oil pressure..... 10 psig (69 kPag)  
 Compressor high air temperature..... 450°F(232°C)  
 Compressor high oil temperature..... 176°F(80°C)  
 Compressor low oil pressure..... 10 psig (69 kPag)

### Aircraft Protection System

Discharge air regulating valve..... 42 psig (289 kPag)  
 Discharge air safety valve..... 50 psig (345 kPag)

### Electrical System

Starting System..... 24V DC  
 Alternator..... 70A  
 Batteries..... Maint. Free 750CCA

### Dimensions and Weights

	TMD-250 (trailer mounted)	TRD-250 (truck unit)
Length	14'-8" (4.5 m)	10'-9" (3.3 m)*
Width	6'-10" (2.1 m)	109(3m)6-10(21m)*
Height	7'-3" (2.2 m)	6'-10" (2.1 m)*
Weight (dry)	12,600 lbs. (5,590 kg)	11,600 lbs. (5,273 kg) plus truck GVW

\* Overall dimensions vary by truck manufacturer

### Standard Instrumentation Panel

Tachometer  
 Fuel pressure  
 Water temperature  
 Engine oil pressure  
 Panel mounted electric and tank mounted mechanical fuel level gauges  
 Voltmeter  
 Air output temperature  
 Air output pressure  
 Compressor oil temperature  
 Compressor oil pressure  
 Safety warning and shutdown indicators

### Automatic Control System

Demand air throttle control  
 Dual-pressure regulation  
 Engine protection warning lamps and unit shutdown for high coolant temperature, low engine oil pressure  
 Compressor warning lamps and unit shutdown for high compressor oil temperature, low compressor oil pressure and high output air temperature.

### Partial list of options

Truck mounting (TRD)  
 30', 40', & 50' air discharge hoses (includes ground air connector)  
 Unit running beacon  
 Low fuel level warning beacon  
 Low fuel shutdown circuit  
 Engine and/or compressor filter indicators  
 Engine coolant - Engine lube oil - Compressor lube oil and Battery heater circuits  
 Rub rails  
 General mechanics tool set  
 Fire extinguisher  
 Wheel chocks  
 Maximum sound attenuation kit  
 Low ambient start kit to -40°F



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