

Water Chilled/Electric Powered Test Stand Skid Unit



Model PAO/CAS Test Stand Skid



F-22 A Raptor

PERFORMANCE FEATURES:

Controls

- Simple, Single Button Operation
- Fault Monitoring and Diagnosis for Aircraft Protection

Frame Assembly

- Welded Steel Construction

PAO/Chilled Water System

- Liquid-To Liquid Heat Exchange
- PAO Fluid Reservoir Assembly with vacuum pump
- 3-Way Diverter Valve w/ Actuator
- Input and Output Valves (manual operation)
- Flow, Pressure and Temperature Sensors

Chilled Air/Chilled Water System

- Liquid-To Air Heat Exchange
- Input and Output Valves (manual operation)
- Flow, Pressure and Temperature Sensors
- Chilled Air Blower with Inlet Filter

Hydraulic Fluid System

- Air-To-Liquid Heat Exchange
- Hydraulic Fluid Reservoir Assembly

ITW MILITARY GSE:

ITW Military GSE is the industry leader in product design and innovation. The best combination of experience, new technology and customer input has resulted in a product line you can trust for your aircraft's needs.

APPLICATION:

The PAO liquid cooling skid is a water chilled electric powered ground support unit used to supply chilled air and temperature conditioned MIL-C-87252 Polyalphaolefin (PAO) liquid coolant to the aircraft's Environmental Control System, for the purpose of servicing and avionics cooling.

The skid has 2 operational modes:

- 1) "Open Loop" uses the skid's pumps for re-circulating the PAO fluid through the skid and aircraft.
- 2) "Closed Loop" uses the aircraft pumps for re-circulating the PAO fluid through the aircraft and skid.



Model	Cooling Capacity-PAO	Cooling Capacity-Air	Length	Width	Height	Weight (Dry)
PAO/CAS Test Stand Skid Unit	49.9 MBH Net (14.6 kW)	47.3 MBH Net (13.9 kW)	66" (168 cm)	110" (279 cm)	81" (206 cm)	7,500 lbs (3,402 kg)

PAO/CAS Test Stand Skid Unit Specifications

ENVIRONMENTAL

- Storage temperature: -65°F to +160°F
- Storage pressure: 14.7 to 8.3 PSIA (0 to 15,000 feet)
- Operating temperature: -40°F to +120°F
- Operating pressure: 14.7 to 11.3 PSIA (0 to 7,000 feet)

AIRCRAFT INTERFACE

- Conditioned air duct is 30' of 8" diameter insulated duct, transitioning to 4" diameter for the final 52", and is terminated with a MS16051 compatible connector, the aircraft termination is compatible with a MS16051 connector (typical for F-16, and F-22).
- The 30', 1" diameter PAO liquid supply line is terminated with a quick disconnect connector compatible with an AEROQUIP style 2055, AE89406M. The 30', 1" diameter PAO return line is terminated with a quick disconnect connector compatible with an AEROQUIP style 2055, AE89407M connector.

CONDITIONED AIR

- Ambient conditions: Pressure: 14.7 PSIA
- Ambient temperature: +120°F
- Conditions at aircraft: Pressure: 15.4 PSIA (-0.3/+0 PSI) (19.4"wg)
- Temperature: 50.0° (-2.5/+0)°F
- Flow: 42.2 PPM

PAO SYSTEM

- Designed for use with MIL-C-87252 coolant fluid, Hydrolytically stable, dielectric (PAO)

Controls

- Automatic mode for normal operation
- Manual mode for maintenance and troubleshooting of aircraft

Forward and Aft Loop:

- Cooling capacity: 40kW
- Temperature regulation: +75 (-5/+5)°F at the aircraft interface
- Pressure regulation: 195 PSIG (-2/+5 PSI) at the aircraft interface
- Flow: 206 lbs./min (31 GPM)
NOTE: Flow based on 175 PSID aircraft system pressure drop
- Filtering: PAO supply fluid filtered at 10 microns absolute
- Coolant reservoir: minimum of 19 gallons deliverable fluid available to service dry aircraft systems, and vacuum pump to remove entrained water.

FACILITY POWER REQUIREMENTS

- 480-440 Vac, 60 Hz, 3-phase, 100 amp service or
- 400-360 Vac, 50 Hz, 3-phase, 120 amp service

FACILITY CHILLED WATER SYSTEM REQUIREMENTS

- Cold Air System: 50 GPM Flow 45°F @ Skid inlet
- Total System pressure drop: 0.75 PSIG
- PAO System: 55 GPM Flow 45°F @ Skid inlet
- Total System pressure drop: 0.75 PSIG

Fault Annunciation

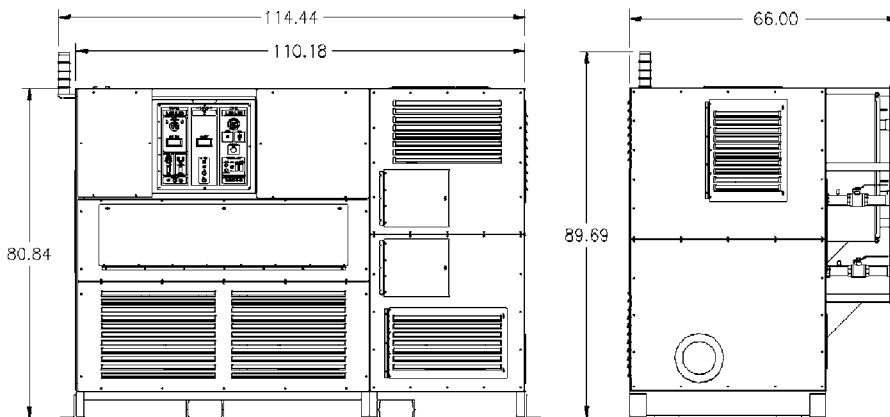
- Low Water Pressure
- Low Water Flow
- High Water Temperature

APPLICABLE DOCUMENTS:

Government specifications:

- MIL-A-8243 Anti-Icing and Deicing-Defrosting fluids
- MIL-C-85285 Top Coat
- MIL-C-85570 Cleaning compound, aircraft exterior
- MIL-C-87252 Coolant fluid, Hydrolytically stable, dielectric (PAO)
- MIL-D-83411 Deicer/Anti-icer fluid (for runways and taxiways)
- MIL-F-24385 Fire extinguishing agent, aqueous film-forming foam (AFFF) liquid concentrate, for fresh and sea water.
- MIL-H-5606 Hydraulic fluid, petroleum base; aircraft, missile and ordnance.
- MIL-H-83282 Hydraulic fluid, fire resistant, synthetic hydrocarbon base Aircraft, metric, NATO code number H-537
- MIL-I-46058 Insulating compound, electrical (for coating printed circuit assemblies)
- MIL-P-116 Preservation, methods of
- MIL-P-53030 Primer coat
- MIL-P-85582 Primer coat

For additional applicable documents, consult factory. Specifications subject to change without notice.



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