





FREND
Therm INC.

Extreme Portable Heat Solution

- Introduce Team
- Company History
- Introduce both Heaters
- TD 500 GSE Flameless Cabin Heater
(Gas / Diesel)
- TD 500 IDF Heater (Indirect Fired)
- Conclusion
- Questions

- Joe Frend
 - President / Owner (CDN)
- Richard Youdell
 - Sales Marketing Mgr
- Rich Koopmann
 - President / Owner (USA)
- Curtis Kallhoff
 - Operation Mgr



- Global leader producing Flameless Heaters for 18 years. We sell and manufacture over 800 commercial heaters annually “World Wide” to the Gas n Oil industry in High Risk ~ Extreme Environments (-45)
- Quickly became the heater of choice due to our safety, reliability, simple design and durability.
- 5 years ago the airline industry in Canada approached Therm Dynamics and asked if this technology could be used in a GSE heater application. The TD500 GSE – Cabin Heater was created & tested with the input from Air Canada.



Gas and Oil Industry
Servicing for 18+ years



Known Risk



No Risk

FLAMELESS PORTABLE HEAT



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Heater Applications

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The heaters pictured provided temporary heat during a construction project in the Canadian Tar Sands.



More temporary heat provided during a construction project in Fort McMurray Alberta.



In Alaska, heaters were used to keep employees and the instrumentation gauges warm while doing periodic maintenance to the well.



This heater is getting heat to an oil rig in North Dakota.



Produced a Prototype
with Air Canada in 2012



TD 500 GSE Flameless Cabin Heater



Engine Options:

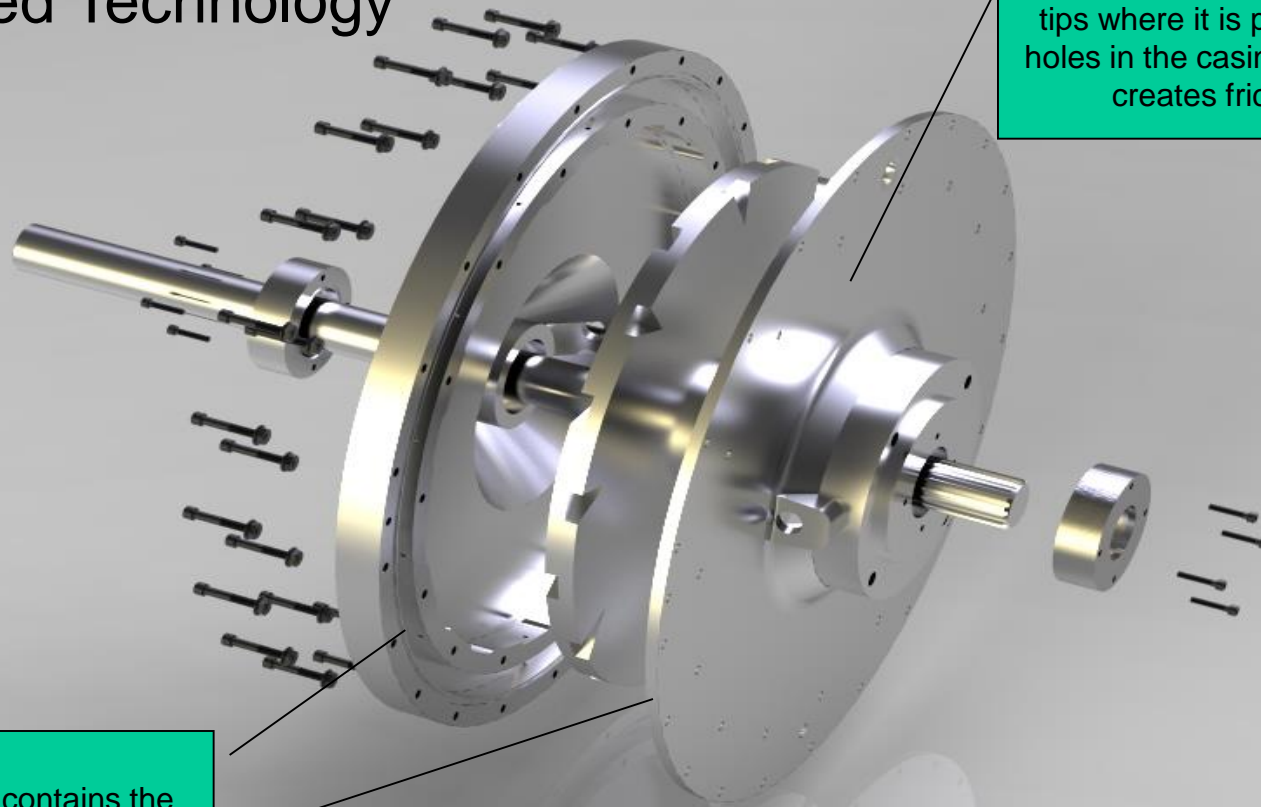
- 3.7 L Certified Ford Gas Engine
- 3.4 L CAT Diesel (Tier 4 Final)

What Makes Them Unique?

- Patented heat plate technology
- Fully automated design with “set and forget” feature for the outlet temperature
- Patent pending Carbon Monoxide detector in heat chamber
 - programmable with time delay shutdown
- Exhaust gas isolated from the heat chamber

Heat Plate

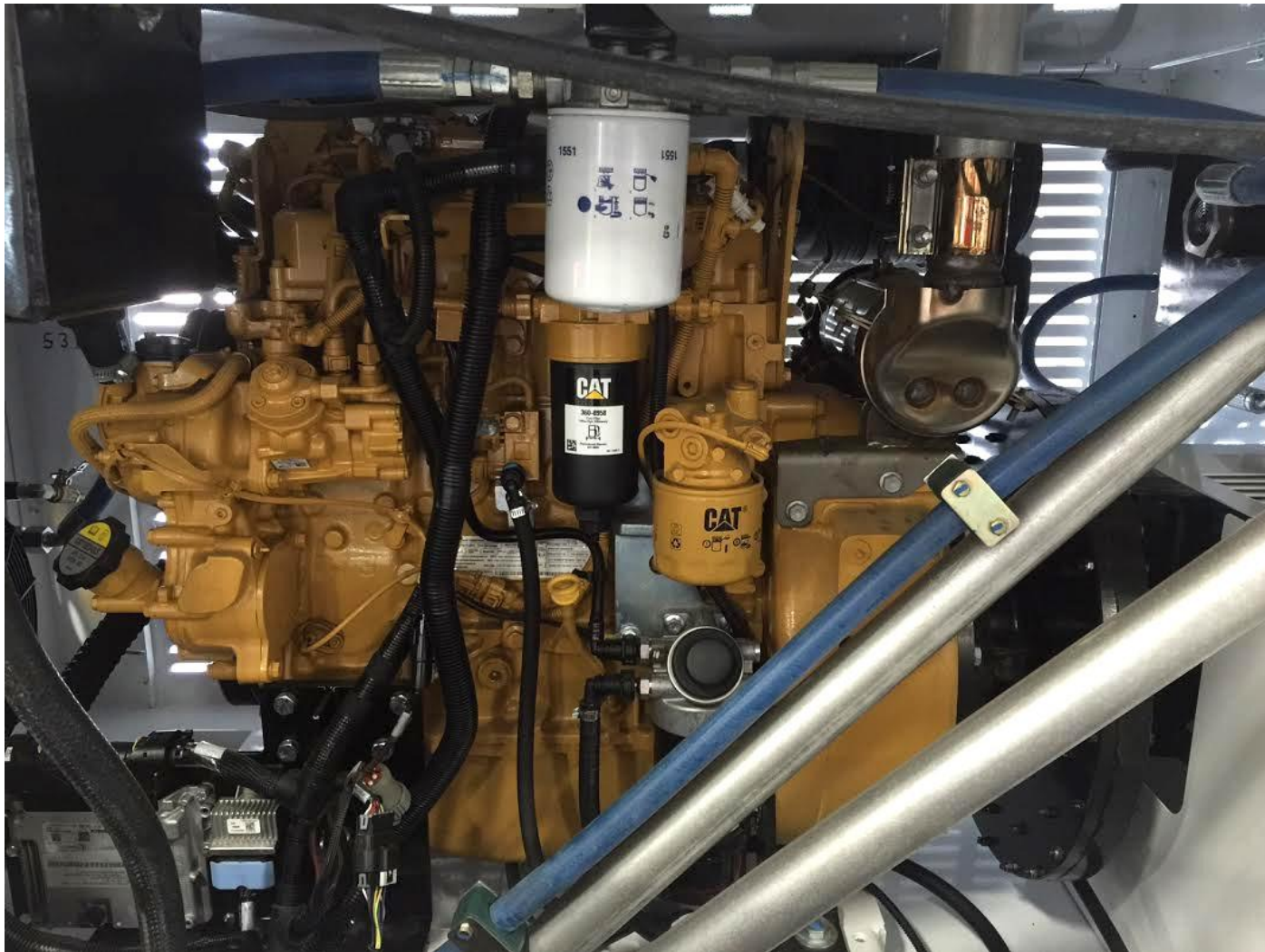
Patented Technology



The impeller draws oil out to the tips where it is pushed through holes in the casing. This process creates friction heat.

The casing contains the impeller and the oil

3.4L CAT Diesel (Tier 4 Final)

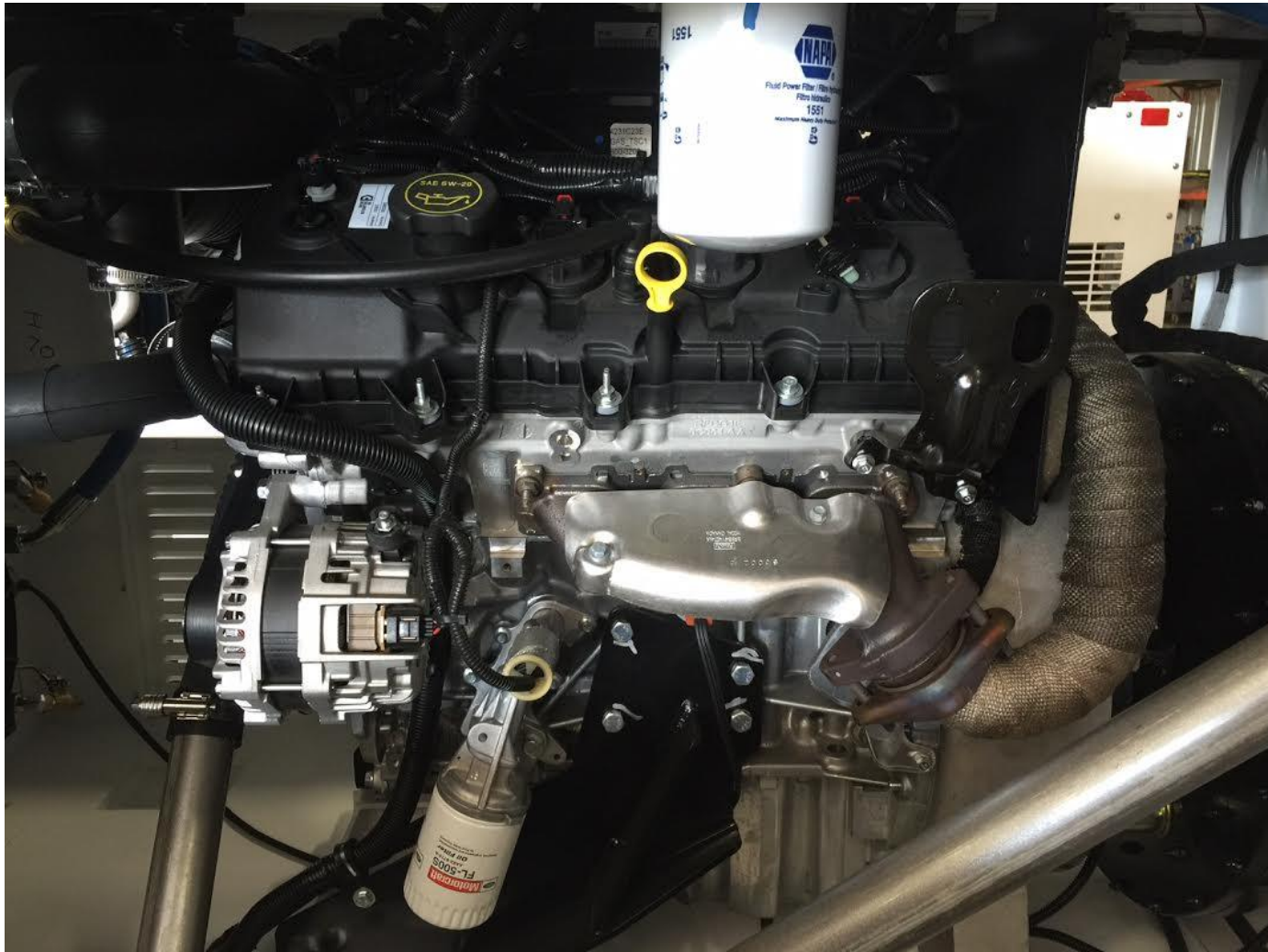




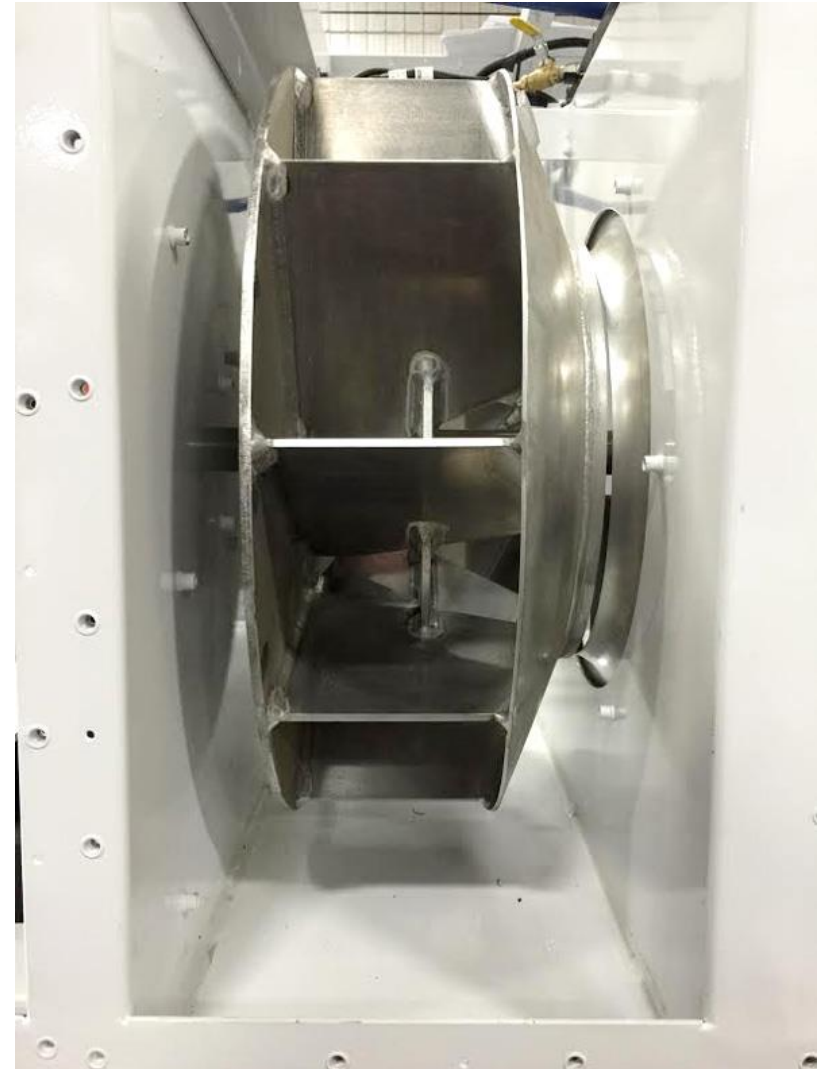
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3.7L Certified Ford Gas Engine

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Fan





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Outlet and Dump Valve

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Heat Exchangers – ATF Oil and Engine Radiator



Control Panel





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Starting Instructions



Starting the Engine

Pull Emergency Stop out.

1. Move the ON-OFF toggle switch to the ON Position
2. Put the Idle/Run switch to idle mode
3. Press and hold the START button for no more than 10-seconds or until the engine starts (if the engine does not start, switch the ON-OFF toggle to the OFF position, wait 30 seconds and repeat step 1)

Maintain low idle for several minutes allowing engine temperature warm up to approximately 140 degrees Fahrenheit

Operation Guidelines

On initial startup allow engine to warm up in **IDLE** mode for approximately 15 minutes for engine temperature of approximately 140 degrees Fahrenheit. Open dump valve.

Connect duct to airplane

Close dump valve

Select RUN mode. Heater outlet temperature setting will be at the default temp.

If necessary adjust outlet temperature to outside air conditions or aircraft type by rotating knob on control panel

When shutting the heater down put the heater in **IDLE** mode and let the unit idle with unrestricted air flow (OPEN DUMP VALVE) for 15 minutes.

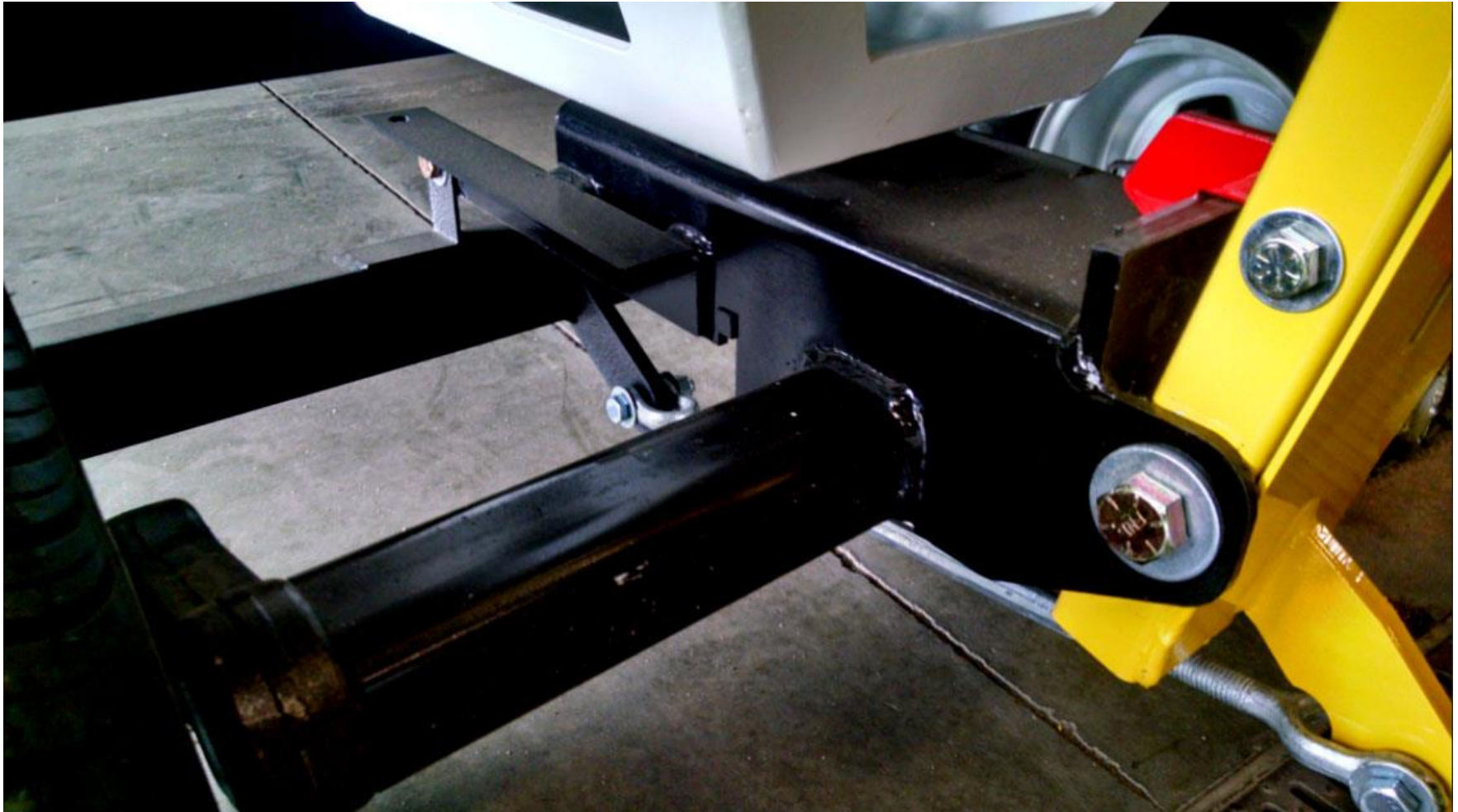
Shut engine off.

P/N 700-0166

Block Heater



Torsion Axle



Our Customers



Air Canada



West Jet



Spirit Airlines



Our Customers



Delta Air Lines



United Airlines



American Airlines



“Therm Dynamics has produced a great heat cart for our operation. It is simple to use and maintain, while supplying plenty of clean heat for our cold weather operations. After market service is very important to us and it has been great as well.”

--- Jazz Airline

















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China Southern Airlines

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Eastern China Airlines

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TD 500 IDF - Indirect Fired Maintenance Heater

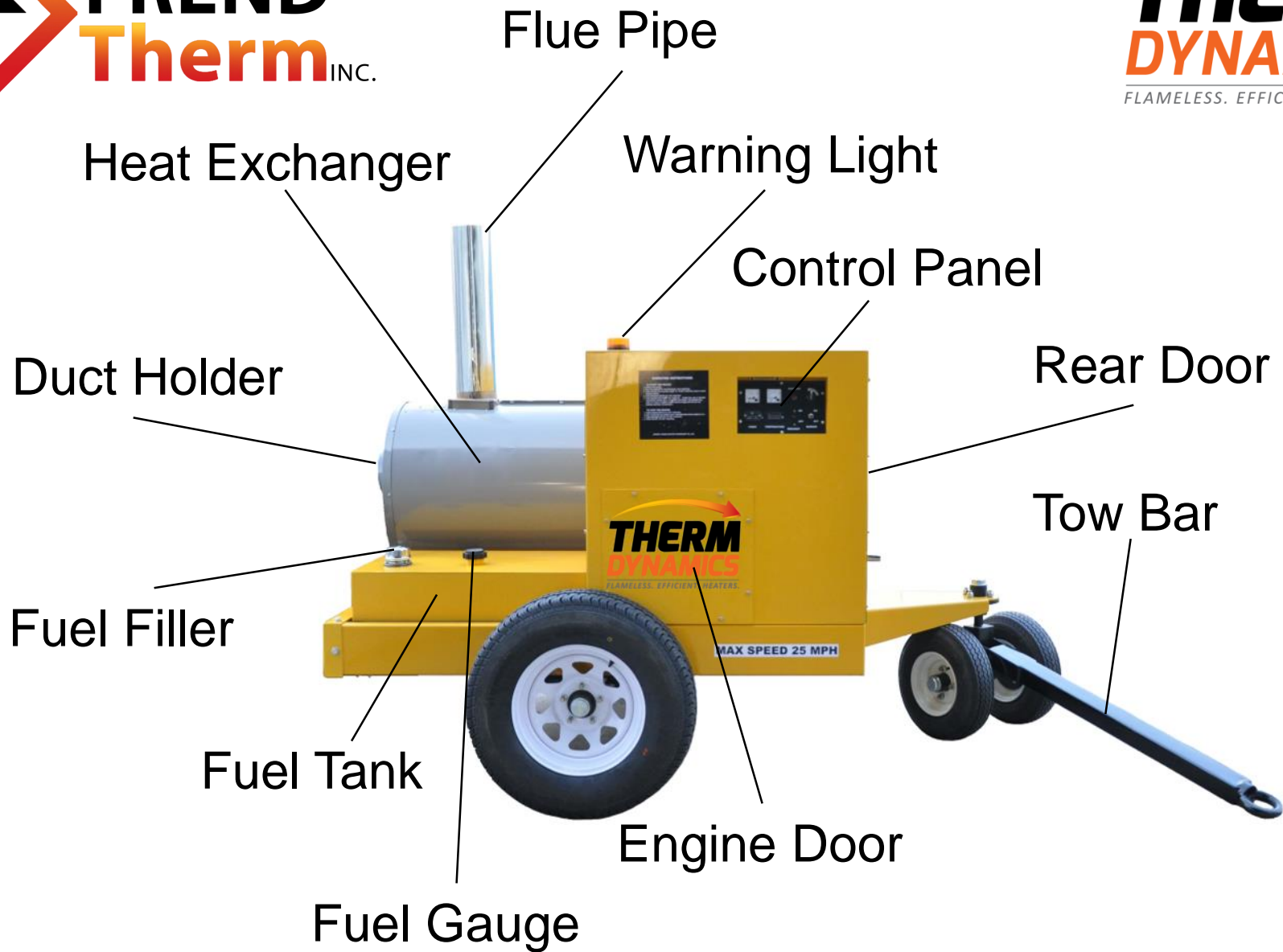


- We were challenged by the aviation industry to create the “next generation” Herman Nelson heater.
- Therm Dynamics worked cooperatively with the #1 CANADIAN manufacturer of Flamed Indirect Fired Heaters to create the IDF500 for the Aviation Industry.



- The heater core is produced in Winnipeg by Frost Fighter and final assembly is done in the USA ~ 80% Canadian Content!!!
- Frost Fighter produces 4,000 commercial “Flamed” heaters annually.

- Portable 500,000 BTU heater powered by either
 - 9.5 HP 6 KW Diesel Generator
 - or
 - Whisper Quiet SHORE POWER
- High Static Pressure
- Thermostatically Controlled Heat
- Operates in Extreme Cold
- Burns Diesel JP4,JP5,JP8 and Diesel





TD500 IDF





Ducting Options:
1 X 16" or 2 X 12"





Portable Generator Whisper Quiet Shore Power





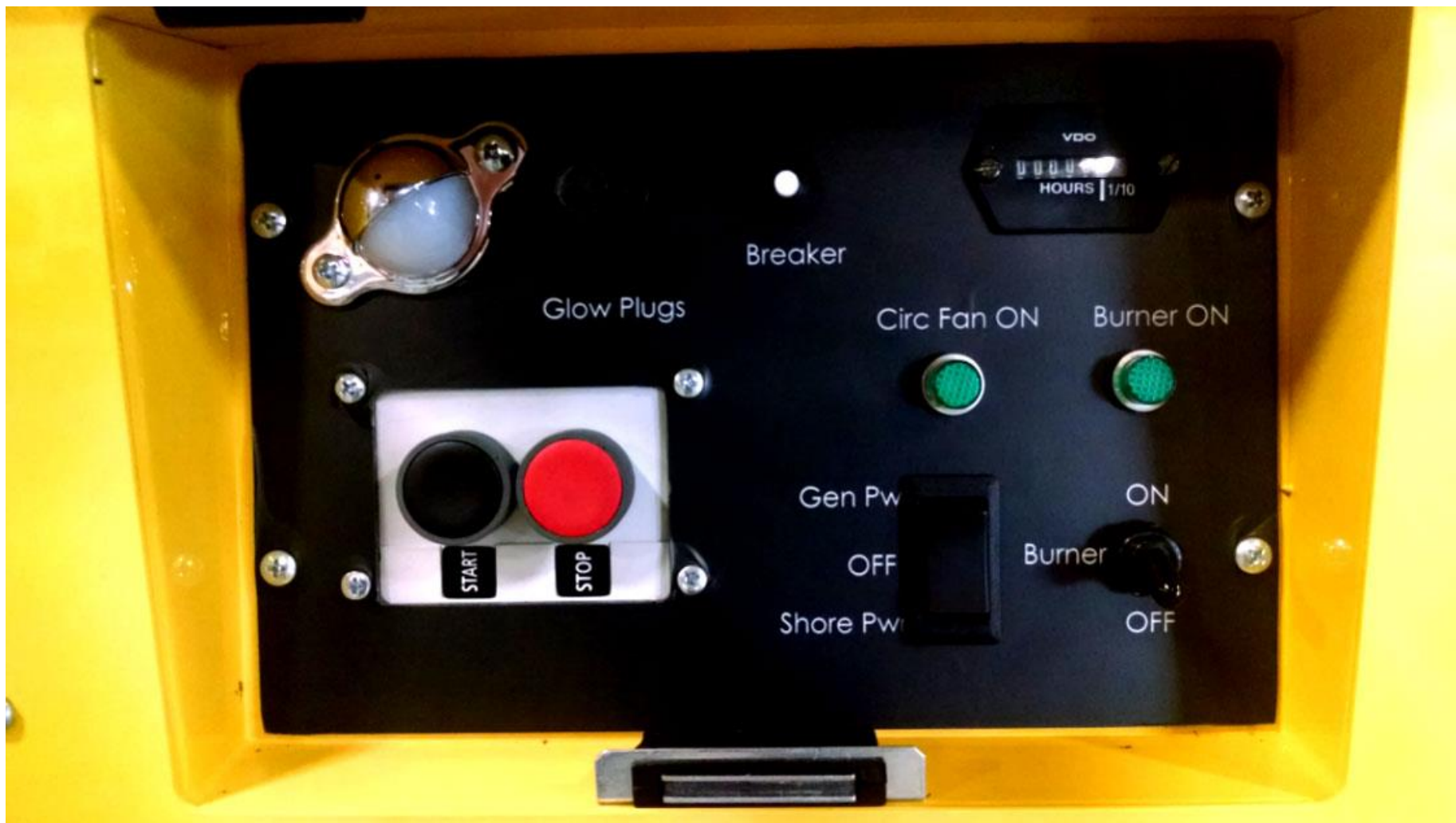
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Starting Instructions

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Control Panel



- Pre-heat engines
- De-ice wings
- Thaw frozen hydraulic lines
- Thaw frozen lavatories
- Portable maintenance work station with high spot heat and generator to run tools etc.
- Heat Cargo Compartment while loading

Door Damn Cargo Heater





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Heater Comparison



SPECIFICATIONS	TD500 IDF	AeroTech BT400
HEATING CAPACITY	500,000 BTU	330,000 BTU
MAX. AIR DELIVERY	3,500 CFM	1,500 CFM
MAX OUTLET TEMP	290 DEGREE F	250 DEGREE F
FUEL CAPACITY	35 US GALLONS	35 US GALLONS
FUEL TYPE	JP4, JP5, JP8, 2 DIESEL	JP4, JP5, JP8, 2 DIESEL
MAX. FUEL CONSUMPTION	4.5 GPH	2.5 GPH
NOZZLE	2.75" GPH 60 DEGREE	2.0" GPH 45 DEGREE
STATIC PRESSURE	2.3" W.C.	0.65" W.C.
IGNITION	ELECTRIC	ELECTRIC
DUCTABILITY	30' DISCHARGE	30' DISCHARGE
ENGINE	KOHLER KD 420 9.5HP DIESEL	KUBOTA OC60 DIESEL
GENERATOR	GILLETTE EDTD 60E 6.0 KW	NA
AUX. POWER OUTLET	YES	NA
SHORE POWER	120/240 V	NA
OUTLET DUCT	2 X 12" OUTLET	1 X 12" OUTLET
CSA CERTIFICATION	YES	NO
TIRES	4	2
WARM UP TIME	45 SECS.	4 MIN
RUN TIME	8 HRS.	14 HRS.
MANUAL START OPTION	YES	NA
EFFICIENCY	81%	83%
HITCH SETUP	PINTLE	PINTLE
CERTIFICATION	CSA CERTIFIED	O-TL
DUCT STORAGE	YES	NA
LIGHTED CONTROL PANEL	YES	NA
WEIGHT (DRY)	1,300 LBS.	745 LBS.
DIMENSIONS	82" L X 60" W X 52" H	71" L X 50" W X 48" H

Conclusion

- Our goal is simple; to provide heaters that can be used safely and efficiently with controllable high BTU and CFM to meet the demands of modern aircraft fleets.
- Our reputation is built on partnering with our customers to design and manufacture heaters that our customers want; not sell what we have.
- Our customer-focused service goes further with exemplary after sales service and continual product improvements to meet changing market conditions.



Contact Us



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