



Installation Instructions

216061-043 rev-4



FP Series In-Block Engine Heaters

WARNING READ CAREFULLY FOR PROPER INSTALLATION & OPERATION

Customer Support: 509-536-8660
www.hotstart.com

I. LOCATING THE PROPER AREA OF INSTALLATION

A. This in-block engine heater replaces a similar core plug on the engine.

| Engine | 120 Volt | 240 Volt | Watts | Installation |
|----------------------------------|-------------------------------------|-------------------------------------|--------------------|--|
| CATERPILLAR | | | | |
| C7 Acert | FP101-001 FP151-001 | FP102-001 FP151-001 | 1000 1500 | Replaces core plug below turbo charger on right side of engine |
| 3013 3024 | FP531-003 | FP532-003 | 530 | Replaces core plug on front left side of engine |
| 3034 | FP531-001 | FP532-001 | 530 | Replaces core plug located at rear of cylinder head |
| 3114 3116 3126 | FP101-001 FP151-001 | FP102-001 FP152-001 | 1000 1500 | Replaces core plug below turbo charger on right side of engine |
| CUMMINS | | | | |
| A Series 4, 6 cyl | CUA-101F | CUA-102F | 1000 | Replaces any core plug on right side of engine. Element points down. |
| B Series 3.3L | FP531-004 | FP532-004 | 530 | Replaces core plug at left rear of engine |
| FORD LEHMAN | | | | |
| 4 cylinder 6 cylinder | FP531-002 FP751-000 FP101-002 | FP532-002 FP752-000 FP102-002 | 530 750 1000 | Replaces any core plug on left side of engine |
| HINO | | | | |
| J08E | FP151-003 | FP152-003 | 1500 | Replaces front core plug on right side of engine. Element points to 6 O'clock |
| INTERNATIONAL by NAVISTAR | | | | |
| 9.0L V8 | INT9-101F | INT9-102F | 1000 | Replaces any core plug |
| MAZDA | | | | |
| L3E | FP401-000 | | 400 | Replaces front core plug on right side of engine. Element points to 9 O'clock |
| S3L | FP401-001 | | 400 | Replaces core plug in rear of cylinder head. Element points to 4 O'clock |
| 4M40 | FP401-002 | | 400 | Replaces a core plug on left rear side of engine, directly behind oil level dip-stick. |
| PERKINS | | | | |
| 103.15 104.22 404.22 | FP531-003 | FP532-003 | 530 530 | Replaces core plug on left front of engine |
| 704.30 | FP531-000 FP531-001 | FP532-000 FP532-001 | 530 | Replaces core plug located at rear of head |

See reverse side for further installation instructions.

II. MOUNTING THE IN-BLOCK ENGINE HEATER

- A. Drain the cooling system.
- B. Remove the existing plug.
- C. Clean and dry the walls of the core plug opening. Remove any burrs, sharp edges or debris from the machined surfaces of the hole. **Do not nick or scar the mounting surface of engine.**
- D. Apply a thin film of high temperature/high strength retaining compound (Loctite 640 recommended).
- E. Insert heater into the core plug opening so that the element is centered in cavity.

NOTICE The element should not touch any cavity walls.

- F. Using a suitable sleeve, insert the heater into the core plug opening. The sleeve must fit the outer rim. **Do not pound on the recessed section.**
- D. When correctly installed, the adapter should seat flush against the second step on the engine block. The extended lip is used to remove the heater.

III. ATTACHING THE CORD

- A. Align cord with element pins and press on. If thread-on style plug, tighten nut "hand tight". If push-on style plug, position clamp around plug and tighten "hand tight" plus two clicks with the help of pliers.
- B. Route the cord to any convenient point and tie cord down to prevent damage and strain. Keep cord away from hot surfaces, moving objects, abrasion points and road hazards.

NOTICE Do not plug heater into power supply prior to filling the engine with coolant and bleeding the coolant system of trapped air. Premature element failure can occur (within minutes) if all of the trapped air is not bled from the cooling system. Premature element continuity failure is not warrantable.

IV. TESTING THE IN-BLOCK ENGINE HEATER

- A. Refill the coolant system. Run engine until internal thermostat opens and continue running engine for 15 to 20 minutes to eliminate air pockets. Allow engine to cool. Check for leaks and proper coolant level.
- B. Plug heater into power supply and test for proper operation. The block near the heater should get hot.

V. OPERATION & MAINTENANCE

- A. Plug heater into appropriate power supply based on wattage and voltage listed on heater label.

CAUTION Use appropriate type and size extension cord based on extension cord manufacturer's recommendation.

CAUTION To avoid possibility of electrical or fire hazard, inspect power plug and exposed cord for damage or wear before each use.

- B. To avoid heater damage, disconnect power to heater before starting engine.