



FP Series
Direct Immersion
Engine Heaters

CUA-101F**CUA-102F****FP531-003****FP532-003**

FP401-000

FP531-004

FP532-004

FP401-001

FP751-000

FP752-000

FP401-002

FP101-001

FP102-001

FP531-000

FP532-000

FP101-002

FP102-002

FP531-001

FP532-001

FP151-001

FP152-001

FP531-002

FP532-002

FP151-003

FP152-003

INT9-101F**INT9-102F****WARNING****READ CAREFULLY FOR PROPER INSTALLATION & OPERATION**

Customer Support: 509-536-8660
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I. LOCATING THE PROPER AREA OF INSTALLATION

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

Engine	120 Volt	240 Volt	Watts	Application
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 front core plug on left side of engine
3034	FP531-001	FP532-001	530	Replaces core plug located at rear of 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
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
Mitsubishi				
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 on back of head. Element points to 4 O'clock
4M40	FP401-002		400	Replaces front core plug on right side of engine
Navistart/International				
9L V8 D150 D170 D190 D550	INT9-101F	INT9-102F	1000	Replaces any core plug
Perkins				
103.15 104.22 404.22	FP531-003	FP532-003	530 530	Replaces core plug on left side of engine
704.30	FP531-000 FP531-001	FP532-000 FP532-001	530	Replaces core plug located at rear of head

II. MOUNTING THE IN-BLOCK DIRECT IMMERSION 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 DIRECT IMMERSION 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.