

In-block Heaters

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Allis Chalmers						
670T & I 685T & I 6138LT, T & I 25000 (844 CID)	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Replaces 1" thread-in plug on the oil cooler at rear of the engine on right side. Not all of the engines have this opening.		
Case/IH – Agricultural						
ALL 4 CYL 390 ALL 6 CYL 590	CUB-751FP CUB-101FP CUB-151FP	CUB-752FP CUB-102FP CUB-152FP	750 1000 1500	Inserts in any of the core plugs on right side of engine.		
ALL 6 CYL 830	CUC-151FP	CUC-152FP	1500	Inserts in the core plug at right rear of engine block.		
Caterpillar						
C-10 C-12	TF121-000	TF122-000	1250	Replaces the threaded plug in the oil cooler bonnet on the right side of engine.	YES	
C-9 Non ACERT C-15 Non ACERT C-16 Non ACERT	CATV-151	CATV-152	1500	C-9: Replaces 1" NPT plug in the right rear of engine block. C-15, C-16: Replaces the threaded plug in the back of the oil cooler.		
C7 ACERT 3126	FP101-001 FP151-001	FP102-001 FP152-001	1000 1500	Replaces the 44mm core plug on right side of engine just below the turbo charger.	YES	
C7 ACERT rear port	TL101-000	TL102-000	1000	Replaces the threaded 1-1/16" (1.0625") plug in the rear of engine block.		
C9 ACERT	CATV-151	CATV-152	1500	Replace 1" NPT plug in the right rear of engine block.		
C11 ACERT C13 ACERT	TF151-008	TF152-008	1500	Replace any 1-5/16" (1.3125") plug in the rear of the oil cooler on right side of engine.	Check Exhaust Routing	
C15 ACERT w/o breaksaver	TF151-009	TF152-009	1500	Replace 1-3/16" (1.1875") plug in rear of oil cooler on right side of engine.		
C15 ACERT with breaksaver	TF151-008	TF152-008	1500	Replace any 1-5/16" (1.3125") plug in the oil cooler on right side of engine.		
C9 2007 ACERT C13 2007 ACERT C15 2007 ACERT	TF151-012	TF152-012	1500	Replace any 1-3/16" (1.1875") plug in rear of oil cooler on right side of engine.		
1674	CATB-151	CATB-152	1500	Replace the 1-1/2" (1.5") plug on right side of engine.		
1693 & D343	CATC-151	CATC-152	1500	Replaces the water jacket access plate on left side of engine.		
1693T & 1693TA	CATC-151-S	CATC-152-S	1500	Replaces the water jacket access plate on left side of engine.		
3013 1.5L 3014 2.0L	FP531-003	FP532-003	530	Replaces 40mm core plug on the front left side of engine.		

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Caterpillar — Continued						
3024 2.22L	FP531-003	FP532-003	530	Replaces 40mm core plug on the front left side of the engine.		
3034 2.95L	FP531-001	FP532-001	530	Replaces 50mm core plug located at rear of head.		
3044 3.3L	PF531-001	PF532-001	530	Replaces the plate in oil cooler case on left side of engine.		
3046 5.0L	PF531-000	PF532-000	530	Replaces 35mm core plug located at rear of engine, left side.		
3054 3.99L 3054B 4.23L	PER-751FP PER-101FP	PER-752FP PER-102FP	750 1000	Mounts in the 1-1/4" (1.25") core plug opening on left side of engine.		
3054C	PER-751FP	PER-752FP	750	Mounts in 1-1/4" (1.25") core plug at right rear of engine with element oriented in the 12 O'clock position.		
3056 6.0L	PER-151FP	PER-152FP	1500	Mounts in the 1-1/2" (1.5") core plug on right side of engine.		
3114 3116	FP101-001 FP151-001	FP102-001 FP152-001	1000 1500	Replaces the 44mm core plug on right side of engine just below the turbocharger.	YES	
3176 10.3L through 1995	DD8L-101 CAT-12015 TF151-001	DD8L-102 CAT-12023 TF152-001	1000 1250 1500	Replaces the 3/4" (0.75") threaded plug on the right side of engine just below the head.		
3176 10.3L 1996 and later	TF121-000	TF122-000	1250	Replaces the 1" threaded plug in the oil cooler bonnet on right side of engine.	YES	
3196 12.0L	TF121-000	TF122-000	1250	Replaces the 1" threaded plug in oil cooler bonnet on right side of engine.	YES	
3204 all 1100 series	CATX-751 CATX-101	CATX-752 CATX-102	750 1000	Replaces 44mm core plug on right rear side of engine.		
3208 — 2 heaters with a single cord	CATX-2-751-Y	CATX-2-752-Y	1500 total	Use on industrial engines when clear access is available. Replaces any core plug - one on each side of engine.		
3208 Recommended aftermarket installation	JD3/4-101IN JD1-101IN JD3/4-151IN JD1-151IN	JD3/4-102IN JD1-102IN JD3/4-152IN JD1-152IN	1000 1000 1500 1500	Replaces any of the 3/4" (0.75") or 1" plugs on the water transfer casting (right front of engine). 3/4" use JD3/4 — 1" use JD1		
3304 3306	DD8L-101 CAT-12015 TF151-001	DD8L-102 CAT-12023 TF152-001	1000 1250 1500	Replaces the 3/4" (0.75") plug on left side of engine.		
3406C/E 14.6L	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Replaces 1" threaded plug in the rear of the oil cooler bonnet on right side of engine.		



In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Caterpillar — Continued						
3406 & 3408 except 1998 ADEM 2	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Replaces 1" threaded plug in the rear of the oil cooler bonnet on right side of engine.		
3406E 1998 ADEM 2 engines only	TF151-002	TF152-002	1500	Replaces the 1" threaded plug that points downward on the top of the rear of the oil cooler bonnet.	YES	
3406E ADEM 3 and ADEM 2000 engines	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Replaces 1" threaded plug in the rear of the oil cooler bonnet on right side of engine.		
3456 15.8L	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Replaces 1" threaded plug in the rear of the oil cooler bonnet on right side of engine.		
Cummins						
6 Cylinder Engines: H, NT, NH, N Family 743 CID, 855 CID, 927 CID, "N14"						
1. Cummins engines are often referred to by their horsepower rating "i.e. 350 Cummins"						
2. Cummins engines are often referred to as Big Cam, Big Cam2, 3, 4, full flow cooling, etc.						
All refer to engines of 855 CID Size – listed below						
Group I						
Flat plate design	CUN-151B	CUN-152B	1500	6 bolt flat plate on the right side of the engine. May use either the forward or rear opening depending on clearance.		
Flat plate design when the 1/2" NPT opening is used	CUN-151BH	CUN-152BH	1500			
Group II						
When an external oil cooler is used..		Note: When a 4 bolt flat plate element design is encountered, remove the next two bolts on the casting, remove the whole casting, and replace the casting and element with either CNT-151B/CNT-152B OR CNT151B90/CNT152B90				
When connection is 1 1/2" rubber hose Engines produced Aug. 1975 thru June 1982	CNT-151B-90	CNT-152B-90	1500	6 bolt, flat plate design with an elbow that will rotate 360 degrees to connect with any hose or casting.		
Uses an "O" ring for the 1 1/4" water tube connection Engines produced prior to August '75	CNT-151B	CNT-152B	1500	6 bolt, flat plate design with an elbow that will rotate 360 degrees to connect with any hose or casting.		
Group III						
For industrial engines with hole pattern reversed	CUN-151BREV	CUN-152BREV	1500	Six bolt flat plate on the right side of engine block.		
Group IV						
1998 and later N14 Industrial	PF151-002	PF152-002	1500	Six bolt flat plate on the right side of engine block.		

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Cummins — Continued						
Cummins A 4 cyl & 6 cyl	CUA-101F	CUA-102F	1000	Inserts in any of the core plugs on right side of engine. Element points down.		
ISC/QSC 8.3L ISL/QSL 9.0L	DD8L-101 TF751-002	DD8L-102 TF752-002	1000 750	Replaces 3/4" (0.75") NPT plug in right front side of engine.		
L10, M11 ISM 2007	CUL-151	CUL-152	1500	Inserts in the forward opening of the heater casting on the right rear of engine block.		
QSB 3.9L, 5.9L ISB 5.9	TF751-002	TF752-002	750	Replaces 3/4" (0.75") NPT plug in the front of the oil cooler casting.		
ISM/QSM 11.0L Flat Plate Design	PF151-003	PF152-003	1500	Right rear. Replaces plate.		
ISX, QSX Signature 600 Pre 2007	PF151-004	PF152-004	1500	Mounts in the oval shaped plate on the right side of engine block.		
4BT 3.9L	CUB-751FP CUB-101FP	CUB-752FP CUB-102FP	750 1000	Replaces 57.8mm core plug on right side of engine.	Check Exhaust Routing	
6BT 5.9L	CUB-751FP CUB-101FP CUB-151FP	CUB-752FP CUB-102FP CUB-152FP	750 1000 1500	Replaces 57.8mm core plug on right side of engine.	Check Exhaust Routing	
6CT 8.3L	CUC-151FP	CUC-152FP	1500	Replaces 57.8mm core plug on right rear side of engine.		
Detroit Diesel						
SERIES 10 4 cylinder Phaser engines	PER-751FP PER-101FP	PER-752FP PER-102FP	750 1000	Mounts in the 1-1/4" (1.25") core plug opening on either side of engine.		
SERIES 10 6 cylinder Phaser engines	PER-151FP	PER-152FP	1500	Mounts in the 1-1/4" (1.25") core plug on right side of engine.		
SERIES 30	DD8L-101 TF751-002	DD8L-102 TF752-002	1000 750	Mounts in the 3/4" (0.75") NPT opening in engine block.		
SERIES 40 all versions	PER-751FP INTA-121 FR151-001	PER-752FP INTA-122 FR152-001	750 1250 1500	Mounts in the core plug opening on right side of engine.		

In-block Heaters

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Detroit Diesel – continued						
SERIES 50 SERIES 60 Pre 2007	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Mounts in the 1" NPT opening in either water pick up pipe (up to 1991) or in the 1" NPT opening on the oil cooler housing after 1991.	Yes on 1991 and later	
SERIES 55	PF151-000	PF152-000	1500	Mounts in the triangle plate on the side of engine block.		
3-53, 4-53, 3-71, 4-71 with water cooled air compressor	DD-751-S	DD-752-S	750	Mounts in the oval shaped plate on engine block. Check clearance.		
3-53, 4-53, 3-71, 4-71 without water cooled air compressor	DD-751	DD-752	750	Mounts in the oval shaped plate on engine block. Check clearance.		
6-71 with water cooled air compressor	DD-151-S	DD-152-S	1500	Mounts in the oval shaped plate on engine block. Check clearance.		
6-71 without water cooled air compressor	DD-151	DD-152	1500	Mounts in the oval shaped plate on engine block. Check clearance.		
8.2 L V-8 Diesel	DD8L-101 TF751-002	DD8L-102 TF752-002	1000 750	Threads into the 3/4" (0.75") NPT opening on engine block.		
6V-53 with water cooled air compressor	DD6V-751-S	DD6V-752-S	750	Mounts in the oval shaped plate on engine block. Check clearance.		
6V-53 without water cooled air compressor	DD6V-751	DD6V-752	750	Mounts in the oval shaped plate on engine block. Check clearance.		
6V71 & 8V71 Alternate location	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Threads into 1" NPT plug in the front face of engine block.		
6V-71 & 8V-71 6V-92 & 8V-92 except GMC General models	DDV-151B	DDV-152B	1500	Mounts in the square plate on engine block.		
6V92 & 8V92 alternate location - threads into oil cooler	DD8L-101 TF751-002	DD8L-102 TF752-002	1000 750	Threads into the 3/4" (0.75") NPT opening in the oil cooler housing. Note - not all engines have this opening.		
Deutz						
BF4L913 BF6L913 F3L912 F3L913 F6L913 1011 SERIES oil cooled engines	OLT221515 and A22M48M (adapter)	n/a	150	Use adapter kit to mount the 22mm heater in the 48mm opening.		

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Deutz – continued						
1012 — 4 & 6 cyl 1013 — 4 cyl	PF751-000 PF121-001	PF752-000 PF122-001	750 1250	Mounts in the oval shaped plate opening on the oil cooler casting.		
1013 6 cyl	PF121-001 PF751-000	PF122-001 PF752-000	1250 750	Mounts in the oval shaped plate opening on the top of the oil cooler.		
1015 6 & 8 cyl	TL151-004	TL152-004	1500	Replaces 30mm plug in water elbow on front of engine.		
2012 — 4 & 6 cyl without electric fuel injection	PF751-002	PF752-002	750	Replace oval shaped plate on the top of the oil cooler.		
Ford						
7.3L V-8 diesels from 1994 on	TF751-002 DD8L-101	TF752-002 DD8L-102	750 1000	Mounts in the 3/4" (0.75") NPT plug in the engine's block.		
Hino						
3.8L, 5.8L, 6.0L, 6.4L, 6.7L, H06C-T, H07C-B, W04C-T, W06E	DD8L-101 TF751-002	DD8L-102 TF752-002	1000 750	Threads into 3/4" (0.75") NPT opening in engine block.	YES	
Isuzu						
4BD1 6HE1 6BD1 6SA1 6BG1	TF401-001	NONE	400	Replaces 1" NPT plug on left rear of engine.		
Iveco						
NEF 4 cyl NEF 6 cyl	PF751-001	PF752-001	750	Mount in front opening on right side of engine block.		
John Deere						
With 3/4" plug in the back of the block	JD3/4-101IN JD3/4-151IN	JD3/4-102IN JD3/4-152IN	1000 1500	3/4" (0.75") NPT opening in the rear face of engine block.	Check Exhaust Routing	
With 1" plug in the back of the block	JD1-101IN JD1-151IN	JD1-102IN JD1-152IN	1000 1500	1" NPT opening in the rear face of engine block.		
With 1-5/8" opening on the side of the water jacket	JDS-101 JDS-151	JDS-102 JDS-152	1000 1500	1-5/8" (1.625") threaded opening on the side of the block in the water distribution channel.		

In-block Heaters

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
John Deere – continued						
6105 (10.5L) 6125 (12.5L)	AC-101 CATV-151	AC-102 CATV-152	1000 1500	1" NPT opening in the oil cooler casting.		
Komatsu						
L10 (10L) M11(11L)	CUL-151	CUL-152	1500	Inserts in the forward opening of the heater casting on the right rear of engine block.		
SA6D125	MA-151	MA-152	1500	Threads into the core plug opening in engine block.		
Kubota						
B, L, M Series D905 V1205 D1005 V1305 D1105 V1505 D3000B V4000B D3200B V4300B DH905 VH1205 DH1005 VH1305	TF401-001	NONE	400	Replaces 1" NPT plug on left front of engine.		
Mack						
Mid liner E3 MS200 & MS250	MAM-101	MAM-102	1000	Mounts in rear face of block.		
Mid liner E5 MS300	MAM-151	MAM-152	1500	Mounts in the oil cooler bonnet.		
E6 engines "smooth bore" 1981 and later	MASB-151	MASB-152	1500	Replaces 1-3/4" (1.75") core plug on side of engine.		
E6 engines threaded core plug opening Pre-1981 END 465, 711, EN438, 504, 707, 673, 675, 676 (1957 through 1981)	MA-151	MA-152	1500	Mounts in any threaded core plug opening.		
E7 Engines Except E-Tech water pump mount	PF151-001 PF101-000	PF152-001 PF102-000	1500 1000	Mounts in the plate in either the front or rear face of the block in the water jacket passage. For 2002 engine – mounts in rear face of block.		
E9, ENDT865, 866 and 1000 series V8 engines Use two heaters	DD8L-101	DD8L-102	2000 total	Threads into the 3/4" (0.75") NPT opening on each side of engine block.		

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
 For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
MAN						
D2840 D2842 D2848	PF121-003	PF122-003	1250	Replace oval shaped plate in lower water pipe on right side of engine.		
D2866 D2876	PF151-006	PF152-006	1500	Replace 3 bolt plate on left side of engine. May require adapter if 3 bolt opening is not available on engine. Consult customer service.		
Massey Ferguson						
3 cylinder 4 cylinder 6 cylinder	PER-751FP PER-101FP	PER-752FP PER-102FP	750 1000	Mounts in any of the 1-1/4" (1.25") core plug openings in the engine.	YES	
Mercedes Benz						
MBE904 MBE906 MBE924 MBE925	PF101-001	PF102-001	1000	Replaces 60mm core plug on right rear of engine.		
Navistar/International						
V800 (796 CID)	AC-101 CATV-151	AC-102 CATV-152	1000 1500	Threads into a 1" NPT opening in the oil cooler bonnet.		
INLINE 6 CYLINDER — all series — 312, 360, 414, 436, 466 & 530	INTA-121 INTA-101	INTA-122 INTA-102	1250 1000	Replaces third or fourth core plug on left side of engine. Element should point toward 1 O'clock position.		
7.3L & T444 1994 and later	TF751-002 DD8L-101	TF752-002 DD8L-102	750 1000	Mounts in the 3/4" (0.75") NPT plug in the engine's block.		
9.0L — V8 diesel	INT9-101F	INT9-102F	1000	Mounts in a core plug.		
Oliver						
ALL EXCEPT 1265, 1365 & 1900	TF751-002 DD8L-101	TF752-002 DD8L-102	750 1000	Threads into a 3/4" (0.75") NPT opening in the block.		
Onan — See Cummins "A" Series						
Perkins						
3.152 4.236 6.354	PER-751FP PER-101FP	PER-752FP PER-102FP	750 1000	Mounts in the 1-1/4" (1.25") core plug opening on right side of engine.		
103.15 104.22 404.22	FP531-003	FP532-003	530	Replaces core plug on left front of engine.		

In-block Heaters

In-block heaters are complete with 2-wire w/ground 6' (1.8m) HPN cord and plug.
For cord replacements or "Y" Thermocord energy saver, please reference page 48.



Engine Model	Part Number 120V	Part Number 240V	Watts	Application Information	Heat Shield Required	Photo
Perkins – continued						
700 Series 704.30	FP531-001	FP532-001	530	Replaces 50mm core plug located at rear of head.		
800 Series	PF531-001	PF532-001	530	Mounts in oval shaped plate on the left front of the block.		
1004 (right side)	FR751-002 FR101-000 PER-151FP	FR752-002 FR102-000 PER-152FP	750 1000 1500	Mounts in the 1-1/2" (1.5") core plug opening on right side of engine.		
1004 (left side)	PER-751FP PER-101FP	PER-752FP PER-102FP	750 1000	Mounts in the 1-1/4" (1.25") core plug opening on left side of engine.		
1006 (6 Cyl) A & B	PER-151FP	PER-152FP	1500	Mounts in the 1-1/2" (1.5") core plug on right side of engine.		
1103C	FR531-000- WOC	FR532-000- WOC	530	Replaces 1-1/4" (1.25") core plug on right rear of engine. Element should point towards 1 O'clock position.		
1104 (4 Cyl) C & D	PER-751FP PER-101FP	PER-752FP PER-102FP	750 1000	Mounts in 1-1/4" (1.25") core plug opening on right side of engine.		
2506 2508	CATV-151	CATV-152	1500	Mounts in 1" NPT at right rear of engine		
Volvo						
D9	PF151-007	PF152-007	1500	Replaces oval shaped plate on right side of engine.		
D12C Prior to Serial #250502	PF151-005	PF152-005	1500	Replaces oval shaped plate on right side of engine.	YES	
D12C After Serial #250502	PF121-002	PF122-002	1250	Replaces oval shaped plate on right side of engine.	YES	
TD60, TD61, TD70, TD71, TD100, TD101, VE10, TD120, TD121	VT6-101	VT6-102	1000	Mounts into threaded opening on left side of engine.		
Yanmar						
3T72HLE 4TN82E D4T YYDXL4.41	TF401-001	NONE	400	1" NPT No replacement cord available.		

NOTE: The only replacement part for in-block heaters is the power cord. Please see the power cord section on page 48 for the proper replacement cord set. For thermostat control of in-block heaters, see page 48. The energy saver Thermocord is available in various temperature ranges. Supplemental heat for engines using in-block heaters can be achieved by the installation of lube-oil heaters in the oil pan. Reference pages 20 and 21 of this catalog or consult factory.

Instructions for:
In-block heaters
Please refer to specific instructions that accompany heater.

THREADED PLUG TYPE HEATERS



- Drain the cooling system.
- Remove the recommended core plug. (See instructions with heater)
- Apply teflon tape to pipe threads or grease to O-ring.
- Thread heater into engine.

Please follow these steps to ensure proper operation of your HOTSTART in-block heater.

- Align cord with pins on the heater and press the cord into the heater. Place clamp around cord & heater. **DO NOT PLUG IN HEATER YET!**
- Route the cord, keeping away from hot or moving surfaces.
- Re-fill the cooling system. Run engine until engine thermostat opens and continue running for another 20 minutes to eliminate air.
- Stop engine and let cool. Check for leaks. Check coolant level.
- Plug heater into power supply and test for proper operation. Block should feel warm near heater.

PLATE TYPE HEATERS



- Drain the cooling system.
- Remove the recommended plate. (See instructions with heater)
- Clean the gasket area.
- Apply gasket sealant to plate and engine surfaces.
- Insert heater into engine. Tighten bolts.

Please follow these steps to ensure proper operation of your HOTSTART in-block heater.

- Align cord with pins on the heater and press the cord into the heater. Place clamp around cord & heater. **DO NOT PLUG IN HEATER YET!**
- Route the cord, keeping away from hot or moving surfaces.
- Re-fill the cooling system. Run engine until engine thermostat opens and continue running for another 20 minutes to eliminate air.
- Stop engine and let cool. Check for leaks. Check coolant level.
- Plug heater into power supply and test for proper operation. Block should feel warm near heater.

FREEZE (CORE) PLUG TYPE HEATERS



- Drain the cooling system.
- Remove the recommended core plug. (See instructions with heater)
- Clean, smooth and dry core plug opening.
- If retaining ring style, apply a light coat of grease to the O-ring and core plug opening. If press-in style, apply a light coat of high-temperature, high-strength retaining compound (Loctite 640 recommended).
- Insert heater into engine and position properly. Push the heater into the engine by hand, then tap in using a suitable tool until flange is even with engine block.

Please follow these steps to ensure proper operation of your HOTSTART in-block heater.

- Align cord with pins on the heater and press the cord into the heater. Place clamp around cord & heater. **DO NOT PLUG IN HEATER YET!**
- Route the cord, keeping away from hot or moving surfaces.
- Re-fill the cooling system. Run engine until engine thermostat opens and continue running for another 20 minutes to eliminate air.
- Stop engine and let cool. Check for leaks. Check coolant level.
- Plug heater into power supply and test for proper operation. Block should feel warm near heater.