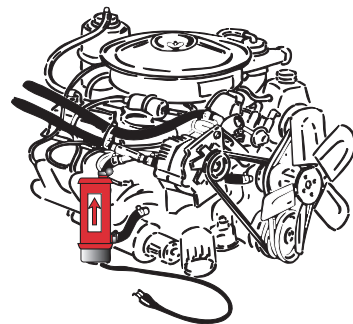




DC18
566
Weatherly Index



A PRE-HEATED ENGINE..

SAVES FUEL COSTS
STARTS QUICKER
RUNS SMOOTHER
WARMS CAB QUICKER
AIDS DEFROSTING
SAVE ENGINE WEAR
AND TEAR

2018 APPLICATION GUIDE

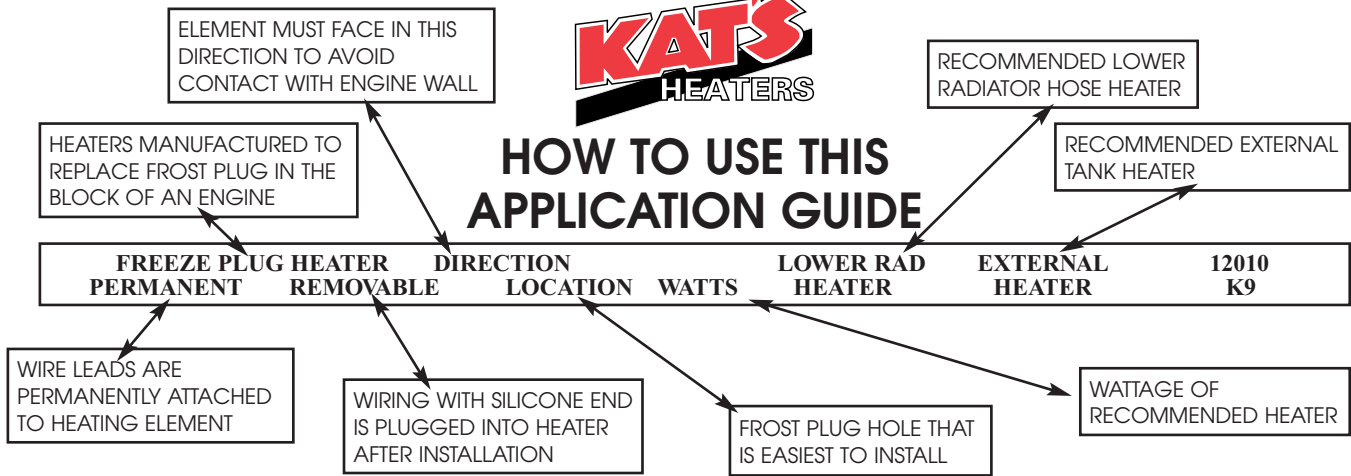


**ENGINE BLOCK HEATER • LOWER RADIATOR HOSE HEATER
DIESEL HEATER • EXTERNAL TANK HEATER
MAGNETIC HEATER • FLEXIBLE HOT PAD • DIP STICK HEATER
BATTERY PAD HEATER • BATTERY BLANKETS
AUXILIARY INTERIOR HEATER • CORD SETS • DEFROST FANS**

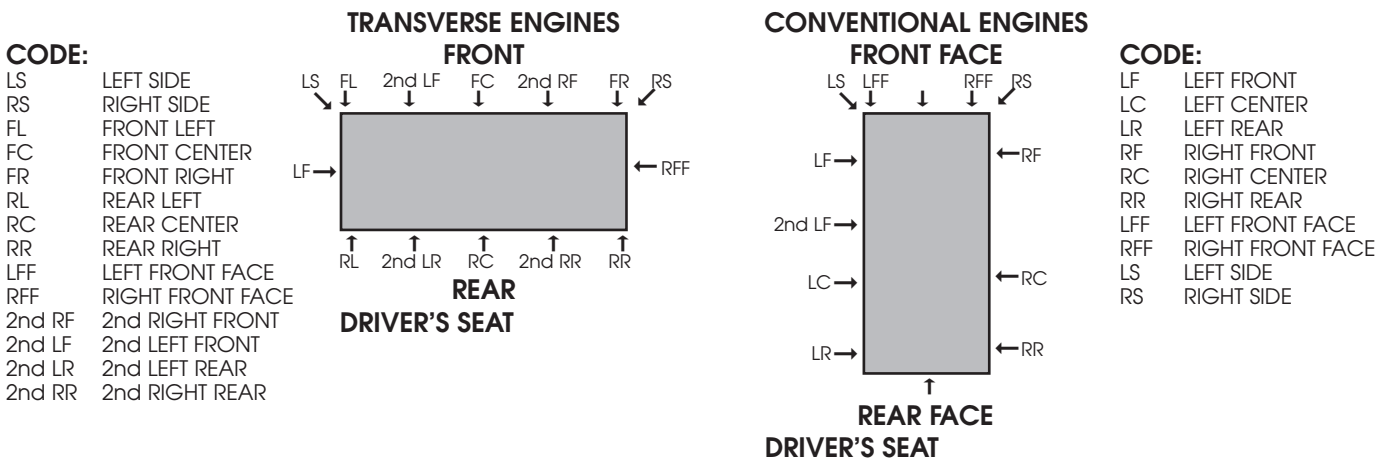
Manufactured by
FIVE STAR MANUFACTURING GROUP, INC.
TEL: 1-888-872-7278 FAX: 1-800-793-4806
www.fivestarmanufacturing.com



HOW TO USE THIS APPLICATION GUIDE



LOCATION OF BLOCK HEATER INSTALLATION POINTS



IF REQUIRED VIN CODE IS 8TH CHARACTER IN VEHICLE IDENTIFICATION NUMBER.

5

MOST COMMON FAILURE CAUSES FROM INSTALLATION OR OPERATOR ERRORS

- Pre-heater plugged in while engine is running.
- Air not bled from system (run engine until maximum system pressure is reached before plugging it in).
- Plugged in before it is installed to see if it gets hot (trust us IT WILL).
- Tank style heater installed in the wrong physical location.
- Tank style heater not connected to the right locations.



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IMPORTANT...

To obtain satisfactory results from your engine heater, please read the following information carefully:

DO NOT USE A KAT'S ENGINE HEATER WHEN USING A 100% SOLUTION OF ANTIFREEZE.

- A. These heaters are equipped with a three prong (grounding) plug and should be connected to a properly grounded circuit.
- B. If an extension cord is used in conjunction with this heater, be certain that the wire size of the extension cord is of adequate size for the wattage of the heater and distance from the receptacle to the heater. Consult a licensed electrician if further information is required.
- C. Do not start engine with heater plugged in. Element hot spots could occur causing the element to burn out.



AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

		FROST PLUGS		DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD	EXTERNAL	12010
CORD	HEATER		HEATER					HEATER		
ACURA										
4 CYLINDER										
2018-04	2.4	28500	11419	THD	28	RL	400	NO	NO	NO
2010-07	2.3 RDX	28500	11419	THD	28	RL	400	NO	NO	NO
1999-98	2.3 CL Coupe	28500	11419	THD	28	RL	400	NO	NO	NO
1997-95	2.2 CL Coupe	28500	11419	THD	28	RL	400	NO	NO	NO
2011-02	2.0 RSX, CSX	28500	11419	THD	28	RR	400	NO	NO	NO
2001-90	1.8	28500	11419	THD	28	FR	400	NO	NO	NO
2005-02	1.7	28500	11419	THD	28	RL	400	NO	NO	NO
2001-90	1.7	28500	11419	THD	28	FR	400	NO	NO	NO
2001-97	1.6	28500	11419	THD	28	FL	400	NO	NO	NO
5 CYLINDER										
1999-92	2.5	28500	11419	THD	28	FR	400	NO	NO	NO
6 CYLINDER										
2014-07	3.7	28500	11419	THD	28	FL	400	NO	NO	NO
2017-96	3.5	28500	11419	THD	28	FL	400	NO	NO	NO
2007-93	3.2 NSX, TL, CL	28500	11428	-----	35	RC	400	NO	NO	NO
2007-99	3.2	28500	11419	THD	28	LF	400	NO	NO	NO
1999-91	3.0 NSX	28500	11428	-----	35	RC	400	NO	NO	NO
2003-97	3.0	28500	11419	THD	28	FL	400	NO	NO	NO
1990-87	2.7 Legend	28400	11428	-----	35	RC	400	NO	NO	NO
1990-86	2.5 Legend	28400	11428	-----	35	RC	400	NO	NO	NO
AMC										
4 CYLINDER										
1987-83	2.5 AMC	28400	11609	11	44.5	LR	600	14600/16600	13080	NO
1983-80	2.5 Pontiac	28400	11603	12	41	LR	600	14600/16600	13080	YES
1979-77	2.0	28400	11420	12	36.5	RC	400	NO	NO	NO
6 CYLINDER										
1987-71	4.2 258	28400	11611	12	51	LF	600	14600/16600	13100	NO
1988-87	4.0 242	28400	11611	12	51	LF	600	14600/16600	NO	NO
1987-71	3.8 232	28400	11611	12	51	LF	600	14600/16600	13100	NO
1986-84	2.8 173	28400	11425	12	34	RFF	400	14600/16600	13100	NO
1987-64	199	28400	11611	6	51	LR	600	NO	13100	NO
8 CYLINDER										
1978-71	6.6 401	28400	11610	7	38	RR	600	14600/16600	13150	NO
1987-71	5.9 360	28400	11610	7	38	RR	600	14600/16600	13150	NO
1987-71	5.0 304	28400	11610	7	38	RR	600	14600/16600	13150	NO
1980-66	390, 343, 290	28400	11610	6	38	RR	600	14600/16600	13150	NO
1962-56	327	28400	11610	6	38	LC	600	14600/16600	13150	NO
AUDI										
4 CYLINDER										
1990-86	2.0	28400	11420	6	36.5	RC(11)	400	NO	NO	NO
1990-86	1.6	28400	11420	6	36.5	RC(11)	400	NO	NO	NO
1988-73	1715	28400	11420	6	36.5	RC(11)	400	NO	13080	NO
1988-73	1588	28400	11420	6	36.5	RC(11)	400	NO	13080	NO
1988-73	1471	28400	11420	6	36.5	RC(11)	400	NO	13080	NO
5 CYLINDER										
1996-95	S6	28400	11429	4	36.5	RF	400	NO	NO	NO
1994-92	S4	28400	11429	3	36.5	RF	400	NO	NO	NO
6 CYLINDER										
2018-92	ALL	28400	11429	9	36.5	LC	400	NO	NO	NO
AUSTIN										
4 CYLINDER										
1976-59	ALL		-----	--		--	--	NO	13080	NO
6 CYLINDER										
1959-UP	ALL	28400	11607	9	44.5	LC	600	NO	13100	NO
BMW										
4 CYLINDER										
1998-91	1.8 318I	28400	11430	3	36	RR	400	NO	NO	NO
1988-77	1.8 318I, 320I	28400	11403	6	36	RF	400	NO	13080	NO
1998-97	1.9 318	28400	11430	3	36	RR	400	NO	NO	NO
1991-88	2.3	28400	11404	10	36	RF	400	NO	13080	NO

(11) Must pry or pull core plug outward.

FROST PLUGS		mm		LOWER RAD		EXTERNAL		12010	
CORD	HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER		
BMW (CONTINUED)									
6 CYLINDER									
1993-85	3.5 ALL	28400	11431	9	44.5	2nd RF	400	NO	NO
1998-97	3.2 24V	28400	11431	1	44.5	RC	400	NO	NO
1984-78	3.2 533,633,&733	28400	11431	9	44.5	RC	400	NO	13100
2018-01	3.0	28400	11431	1	44.5	RC	400	NO	NO
2000-95	2.8	28400	11431	1	44.5	RC	400	NO	NO
1991-82	2.7 325 & 528	28400	11431	1	44.5	2nd RF	400	NO	13100
1982-76	2.7 528	28400	11403	3	36	LF	400	NO	13100
2006-92	2.5 325 & 525	28400	11431	1	44.5	RC	400	NO	13100
1991-88	2.5 325 & 525	28400	11431	7	44.5	2nd RF	400	NO	NO
1986-84	2.4 Diesel 524	28400	11431	11	44.5	RF	400	NO	NO
1995-92	2.0 325 & 525	28400	11431	1	44.5	RC	400	NO	NO
BUICK									
4 CYLINDER									
1992-90	2.5 (Code U)	28400	11406 (7)	1	41	FL	400	NO	13080
1992-90	2.5 (Code R)	28400	11603	6	41	FL	600	NO	13080
1993-80	2.5 (153)	28400	11603	6	41	LR	600	14600/16600	13080
2017-11	2.4	28216	24150	Silicone Pad	4X5	Oil Pan	150	NO	NO
2001-96	2.4 Twin Cam	28216	11423	THD	1/2" NPT	Water Pump	400	NO	NO
1996-94	2.3 Quad IV	28216	11423	THD	1/2" NPT	Water Pump	400	NO	NO
1993-88	2.3 Quad IV	28216	11409 (19)	THD	3/4" NPT	Water Pump	400	NO	NO
2004-85	2.2 Except Vin K&M	28400	11435	5	42.5	FL	400	NO	13080
1993-85	2.2 Vin K&M	28400	11415	5	34	2nd FL	400	NO	13080
1996-85	2.0 Except Vin K&M	28400	11435	5	42.5	FL	400	NO	13080
1993-85	2.0 Vin K&M	28400	11415	1	34	2nd FL	400	NO	13080
1986-82	2.0 Except Vin O&J	28400	11413	12	34	FL	400	NO	13080
1984-83	2.0	28400	11413	12	34	FL	400	NO	13080
1989-82	1.8 Vin O&J	28400	11415	1	34	FC(11)	400	NO	13080
1986-82	1.8 Except Vin O&J	28400	11413	12	34	FL	400	NO	13080
1986	1.8	28400	11425	1	34	FC	400	NO	13080
2016	1.8	-----	24150	Silicone Pad	4X5	Oil Pan	150	NO	NO
2016-15	1.4	-----	24150	Silicone Pad	4X5	Oil Pan	150	NO	NO
6 CYLINDER									
1985-82	4.3 Diesel	28400	11606	12	38	RR OR RF	600	14600/16600	13100
2007-05	4.2	28510	11484 (23)	THD	28	LF	400	NO	NO
2004-03	4.2	28500	11455	THD	28	LF	400	NO	NO
1987-75	4.1	28400	11606	12	38	RR (1)	600	14600/16600	13100
2012-09	3.9	28510	11484 (23)	THD	28	RC	400	NO	NO
2009-06	3.8 L26	28510	11484 (23)	THD	28	RC	400	NO	NO
2005-88	3.8 L32	28400	11416	12	38	FL (12)	400	14600/16600	NO
1987-84	3.8 (Transverse)	28400	11416	12	38	RR	400	NO	13100
1987-75	3.8 (Conventional)	28400	11606	12	38	RR (1)	600	14600/16600	13100
2018-05	3.6	28811	11811 (24)	Cartridge	.885	RL	400	NO	NO
2004	3.6	28810	11810	Cartridge	.885	RR	400	NO	NO
2006-02	3.4	28400	11425	3	34	RC (11,15)	400	NO	NO
1996-93	3.4	28400	11415	9	34	FC (15)	400	NO	NO
1998-89	3.3	28400	11416	12	38	FR	400	14600/16600	NO
1979-78	3.2 (196)	28400	11610	12	38	RR	600	14600/16600	13100
1985-80	252	28400	11604	12	38	RR (1)	600	14600 /16600	13100
1976-75	250	28400	11613	12	41	LR	600	14600/16600	13100
1974-68	250	28400	11607	6	41	LF	600	14600/16600	13100
2007-93	3.1 LG8	28400	11415	9	34	RC (15)	400	NO	NO
1992-89	3.1	28400	11415	11	34	RC (11,13)	400	NO	NO
2012-10	3.0	28811	11811 (24)	Cartridge	.885	LR	400	NO	NO
1989-82	3.0	28400	11416	3	38	FR	400	14600/16600	13100
1996-93	2.8	28400	11415	9	34	FC (15)	400	NO	NO
1992-80	2.8	28400	11425	11	34	RC (1,6)	400	14600/16600	NO
8 CYLINDER									
2007-06	6.0	28500	11455	THD	28	LR	400	NO	NO
1996-91	5.7	28400	11612	9	41	LR	600	14600/16600	13150
1991-75	5.7	28400	11610	9	38	LR	600	14600/16600	13150
1985-80	5.7 Diesel	28400	11610	12	38	LR	600	NO	13150
2009-05	5.3 LS4	28510	11484 (23)	THD	28	FR	400	NO	NO
2004-03	5.3	28500	11455	THD	28	LR	400	NO	NO
1996-91	5.0	28400	11612	9	41	LR	600	14600/16600	13150
1981-77	4.9 (301)	28400	11608	11	49	LC	600	14600/16600	13150
2012-06	4.6 LD8	28510	11484 (23)	THD	28	FR	400	NO	NO
2005	4.6 T37	28500	11455	THD	28	RC	400	NO	NO
1982-81	4.4 (267)	28400	11607	9	41	LR	600	14600/16600	13150
1981-80	4.3 (265)	28400	11608	11	49	LC	600	14600/16600	13150
1976-71	455	28400	11611	12	51	RR (1)	600	14600 /16600	13150
1977-75	400	28400	11608	12	49	LF	600	14600/16600	13150
1989-75	403, 307, 260	28400	11610	12	38	LC	600	14600 (17)/16600	13150
1970-67	455, 430, 401, 340, 500	28400	11610	12	38	LF	600	14600/16600	13150

(1) May be necessary to remove starter or radiator fan to get to frost plug. (6) Remove RF wheel for access to plug hole. (7) 10406 produced after November of 1988. (11) Must pry or pull plug outward. (12) May be necessary to remove AC compressor (13) GM 3.1 litre may require transmission removal. (15) Use front freeze plug hole if available. (17) Heavy duty cooling packages require a 16700. (19) May require steel tube from GM. (23) OEM is thermostatically controlled. 11455 is heater without thermostat. (24) OEM is thermostatically controlled. 11810 is heater without thermostat.

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

		FROST PLUGS CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
CADILLAC										
4 CYLINDER										
2016	2.5	28510	11484 (23)	THD	28	RL	400	NO	NO	NO
1987-85	2.0	28400	11418	3	42	FL	400	NO	13080	NO
1984-83	2.0	28400	11413	6	34	FL	400	NO	13080	NO
1985-87	1.8	28400	11425	1	34	FC	400	NO	13080	NO
1982	1.8	28400	11413	12	34	FL	400	NO	13080	NO
6 CYLINDER										
1985-84	4.3 Diesel	28400	11606	12	38	RR	600	NO	13100	NO
1984-80	4.1	28400	11604	12	38	RR (1)	600	14600/16600	13100	NO
2018-05	3.6	28811	11811 (24)	Cartridge	.885	RR	400	NO	NO	NO
2004	3.6	28810	11810	Cartridge	.885	RR	400	NO	NO	NO
2005-02	3.2	28500	11455	THD	28	LR	400	NO	NO	NO
2014-10	3.0	28811	11811 (24)	Cartridge	.885	RR	400	NO	NO	NO
2001-97	3.0	28500	11419	THD	28	RL	400	NO	NO	NO
2007-05	2.8	28811	11811 (24)	Cartridge	.885	RR	400	NO	NO	NO
1989-85	2.8	28400	11425	11	34	RC (6,11)	400	14600/16600	13100	NO
8 CYLINDER										
2018-09	6.2	28510	11484 (23)	THD	28	FL	400	NO	NO	NO
2009-06	6.2 LSA	28510	11484 (23)	THD	28	FL	400	NO	NO	NO
2005-07	6.2	28500	11455	THD	28	FL	400	NO	NO	NO
2013-09	6.0	28510	11484 (23)	THD	28	FL	400	NO	NO	NO
2004-01	6.0 MPV	28500	11455	THD	28	LR	400	NO	NO	NO
2008-05	5.7	28510	11484 (23)	THD	28	LF	400	NO	NO	NO
2004	5.7	28500	11455	THD	28	FL	400	NO	NO	NO
1996-90	5.7	28400	11612	9	41	LR	600	14600/16600	NO	NO
1985-78	5.7 DIESEL	28400	11606	6	38	RR	600	NO	13150	NO
1985-76	5.7	28400	11606	6	38	RR	600	14600/16600	13150	NO
2006-05	5.3	28811	11811 (24)	THD	28	RL	400	14600/16600	13150	NO
2004-01	5.3 MPV	28500	11455	THD	28	LR	400	NO	NO	NO
1996-90	5.0	28400	11612	9	41	LR	600	14600/16600	NO	NO
1992-86	5.0	28400	11610	6	38	RC	600	14600/16600	13150	NO
1999-82	4.9	-----	NO	-----	-----	-----	-----	14600/16600	NO	NO
2011-06	4.6 LH2	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2005-04	4.6	28500	11455	THD	28	RC	400	NO	NO	NO
2002-82	4.5	-----	NO	-----	-----	-----	-----	14600/16600	NO	NO
2009-05	4.4	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
1995-82	4.1	-----	NO	-----	-----	-----	-----	14600/16600	NO	NO
1984-68	500,472,425	28400	11609	12	44.5	RC	600	14600/16600	13150	NO
1967-64	429	28400	11606	12	38	LC	600	14700/16700	13150	NO
1984-80	368	28400	11609	12	44.5	RC	600	14600/16600	13150	NO
CHEVROLET										
3 CYLINDER										
1988-86	1.0	-----	-----	---	---	---	---	14400/16400	NO	NO
2002-01	1.0	-----	-----	---	---	---	---	14400/16400	NO	NO
4 CYLINDER										
2018-14	2.5	28510	11484 (23)	THD	28	RL	400	NO	NO	NO
2005-04	2.5	28500	11419	THD	28	LF	400	NO	NO	NO
1993-91	2.5 Vin code U	28400	11406(7)	1	41	FL	400	NO	NO	NO
1993-90	2.5 Vin code R	28400	11603	6	41	2nd FL	600	NO	13080	NO
1993-80	2.5 Conventional	28400	11603	6	41	LR	600	NO	13080	NO
1993-80	2.5 Transvers	28400	11603	12	41	FL	600	NO	13080	NO
1970-62	2.5 (153)	28400	11603	6	41	LR	600	14600/16600	13080	YES
2016-11	2.4	24150	11415	Silicone Pad	4X5	Oil Pan	150	NO	NO	NO
2003-96	2.4 Twin Cam	28216	11423	THD	1/2" NPT	Water Pump	400	NO	NO	NO
1997-93	2.3 Quad IV	28216	11423	THD	1/2" NPT	Water Pump	400	NO	NO	NO
1993-90	2.3 Quad IV	28216	11409(19)	THD	3/4" NPT	RC	400	NO	NO	NO
2003-93	2.2	28400	11435	4	42.5	FL(1)	400	NO	NO	NO
1995	2.2 Conventional	28400	11418	4	42	LR(9)	400	NO	NO	NO
1992-87	2.2	28400	11418	2	42	FL	400	NO	13080	NO
2010-05	2.0	28400	11405	THD	36	RC	400	NO	NO	NO
1992-87	2.0	28400	11435	2	42.5	FL	400	NO	13080	NO
1986-85	2.0 (122)	28400	11418	4	42	LF	400	NO	NO	NO
1984-83	2.0	28400	11413	6	34	LF	400	14500/16500	13080	NO
1985-82	1.9 Isuzu	28400	11421	12	35	LF	400	NO	13080	NO
2018-11	1.8	24150	11415	Silicone Pad	4X5	Oil Pan	150	NO	NO	NO
2002-98	1.8 Toyota	28813	11813	Cartridge	.683	LR	400	NO	NO	NO
1987-82	1.8 Diesel	28400	11421	12	35	RR	400	NO	NO	NO
1985-83	1.8	28400	11425	4	34	FC	400	NO	13080	NO
1982	1.8	28400	11413	12	34	FL	400	NO	13080	NO
1981-76	1.8	28400	11421	12	35	LF	400	14500/16500	13080	NO
2014-04	1.6 LXV	28400	11405	THD	36	FL	400	NO	NO	NO
1999	1.6	28400	11401	12	40	2nd RR	400	NO	NO	NO
1996	1.6	-----	-----	---	---	---	400	14500/16500	13080	NO
1993-90	1.6 Prism	28400	11401	3	40	2nd FL	400	NO	13080	NO

(1) May be necessary to remove starter or radiator fan to get to frost plug. (6) Remove RF wheel for access to plug hole. (7) 10406 produced after November of 1988. (9) May be necessary to move wheel well liner. (11) Must pry or pull core plug outward. (19) May require steel tube from GM. (23) OEM is thermostatically controlled. 11455 is heater without thermostat. (24) OEM is thermostatically controlled. 11810 is cartridge heater without thermostat.

		FROST PLUGS CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
CHEVROLET (CONTINUED)										
4 CYLINDER (CONTINUED)										
1991	1.6 Storm	28400	11411	8	35	RC	400	14500/16500	13080	NO
2002-99	1.3	— — — —	— — — —	— —	— —	— —	— —	14400/16400	NO	NO
2018-04	1.6	— — — —	24150	Silicone Pad	4x5	Oil Pan	150	NO	NO	NO
1988-85	1.6	28400	11401	12	40	FC	400	NO	13080	NO
1987-76	1.6	28400	11425	6	34	RF	400	14600/16600	13080	NO
1988-85	1.5	28400	11411	6	34	CR	400	14600/16600	13080	NO
2018-11	1.4	— — — —	24150	Silicone Pad	4x5	Oil Pan	150	NO	NO	NO
1987-86	1.4	28400	11425	6	34	RF	400	14600/16600	13080	NO
6 CYLINDER										
1996-55	4.3 262	28400	11612	6	41	LF	600	14600/16600	13100	NO
1984-82	4.3 Diesel	28400	11610	12	38	RR	600	NO	13100	NO
2012-06	3.9	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2011-05	3.8	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2003-96	3.8 Camaro	28400	11432	9	38	RR	400	NO	NO	NO
2005-86	3.8 231	28400	11416	12	38	FL(12)	400	14600/16600	13100	NO
1986	3.8 231	28400	11426	6	38	RR	400	NO	13100	NO
1985-82	3.8 231	28400	11604	12	38	FR(1)	600	14600/16600	13100	NO
1981-80	3.8 Buick	28400	11604	12	38	RR	600	14600/16600	13100	NO
1980-78	3.8 (231)	28400	11604	12	38	RR	600	14600/16600	13100	NO
2018-08	3.6 (Transverse)	28811	11811 (24)	Cartridge	.885	RL	400	NO	NO	NO
2018-10	3.6 Conv.	28811	11811 (24)	Cartridge	.885	RR	400	NO	NO	NO
2012-05	3.5 LZE	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2004-00	3.5	28500	11455	THD	28	RC	400	NO	NO	NO
1996-89	3.4 Conv.	28400	11415	3	34	LR(11,12,15)	400	NO	13100	NO
2005-89	3.4 Transvers	28400	11425	3	34	RC(11,15)	400	NO	NO	
1980-78	3.2 (196)	28400	11604	12	38	RR	600	14600/16600	NO	NO
2003-89	3.1 Transvers	28400	11425	3	34	RC(11,12,15)	400	NO	NO	NO
1996-89	3.1 Conv	28400	11415	3	34	LR(11,12,15)	400	NO	13100	NO
1985-82	3.0	28400	11416	12	38	FR	400	14600/16600	13100	NO
1996-93	2.8	28400	11425 (2)	3	34	FC(11,15)	400	NO	NO	NO
1992-82	2.8 Conv	28400	11415	9	34	RFF	400	14500/16500	13100	NO
1992-82	2.8 Transvers	28400	11415	11	34	RC(6)	400	14600/16600	13100	NO
1984-80	252	28400	11604	12	38	RR(1)	600	14600/16600	13100	NO
1984-75	250	28400	11613	12	41	LR	600	14600/16600	13100	NO
1974-68	250	28400	11607	12	41	LF	600	14600/16600	13100	NO
1984-78	229, 200	28400	11607	6	41	LR	600	14600/16600	13100	NO
8 CYLINDER										
1999-91	7.4	28400	11607	3	41	LR	600	14600/16600	13150	NO
1990-73	7.4	28400	11609	6	44.5	RC	600	14700/16700	13150	NO
2015-06	7.0	28510	11484 (23)	THD	28	LF	400	NO	NO	NO
2018-08	6.2	28510	11484 (23)	THD	28	LF	400	NO	NO	NO
2007-06	6.0	28510	11484 (23)	THD	28	RL	400	NO	NO	NO
1992-91	6.0	28400	11607	12	41	LF	600	NO	13150	NO
2005-74	5.7 LS6	28400	11612	9	41	LR	600	14600(3)/16600	13150	NO
2005-98	5.7 LS1	28500	11455	THD	28	LR	400	NO	13150	NO
2013-12	5.3	28510	11484 (23)	THD	28	RF	400	NO	NO	NO
2010-06	5.3	28510	11484 (23)	THD	28	RF	400	NO	NO	NO
1997-74	5.0 (307)	28400	11610	12	38	RF	600	14600/16600	13150	NO
1996-74	5.0 (305,302)	28400	11612	9	41	LR	600	14600(3)/16600	13150	NO
1993-65	402, 427	28400	11609	6	44.5	LF	600	14600/16600	13150	NO
1973-70	400 (2bbl)	28400	11607	6	41	LC	600	14700(3)/16700	13150	NO
1973-70	400 (4bbl)	28400	11609	6	44.5	LC	600	14700/16700	13150	NO
1993-65	396, 366	28400	11609	6	44.5	LF	600	14600/16600	13150	NO
1986-80	350,260 Diesel	28400	11610	6	38	Any	600	NO	13150	NO
1994-55	327,282,267,262	28400	11612	9	41	LR	600	14700(3)/16700	13150	NO
1981-77	301, 265	28400	11608	6	49	LF	600	14500/16500	13150	NO
1996-55	283,307,350	28400	11612	9	41	LR	600	14600/16600	13150	NO
CHEVROLET GMC TRUCK										
4 CYLINDER										
2012-07	2.9	28510	11484 (23)	THD	28	LC	400	NO	NO	NO
2006-05	2.8	28510	11484 (23)	THD	28	LC	400	NO	NO	NO
2004	2.8	28500	11455	THD	28	LC	400	NO	NO	NO
2018-15	2.5	28510	11484	THD	28	LR(9)	400	NO	13080	NO
1993-80	2.5	28400	11603	6	41	RL	400	NO	NO	NO
2018-11	2.4	— — — —	24150	Silicone Pad	4x5	Oil Pan	150	NO	NO	NO
2008-90	2.2	28400	11435	2	42.5	LR(9)	400	NO	13080	NO
1985-81	2.2 Diesel	28400	11433	12	45	LF	400	NO	13080	NO
1992-85	2.0	28400	11418	3	42	FL	400	NO	13080	NO
1984-83	2.0	28400	11425	12	34	RF	400	14500/16500	13080	NO
1985-82	1.9	28400	11421	12	35	LF	400	NO	13080	NO
1985-83	1.8	28400	11425	1	34	LC	400	NO	13080	NO

(1) May be necessary to remove starter or radiator fan to get to frost plug. (2) 10425 will not fit flush against this engine block due to the taper of the steel section of the heater. (6) Remove RF wheel for access to plug hole. (9) May be necessary to remove wheel liner. (11) Must pry or pull plug outward. (12) May be necessary to remove A/C compressor/alternator/oil filter dipstick tube. (15) Use front center freeze plug hole if available. Front center is behind starter in some models open in others. Some GM vehicles with transverse engines require removal of transmission and or exhaust system for access to rear freeze plug hole. (16) Except 1989. (23) OEM is thermostatically controlled heater 11455 is heater without thermostat. (24) OEM is thermostatically controlled. 11810 is cartridge heater without thermostat.

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

		FROST PLUGS CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
CHEVROLET GMC TRUCK (CONTINUED)										
4 CYLINDER (CONTINUED)										
1982	1.8	28400	11413	12	34	FL	400	NO	13080	NO
1981-76	1.8	28400	11421	12	35	LF	400	14500/16500	13080	NO
1988	1.6	---	---	---	---	---	---	14400/16400	NO	NO
1987	1.6	28400	11401	12	40	FC	400	NO	13080	NO
1986	1.6	28400	11424	3	35	FC	400	NO	13080	NO
1964-62	153	28400	11603	12	41	LF	600	14600/16600	13080	NO
5 CYLINDER										
2012-08	3.7	28510	11484 (23)	THD	28	LC	400	NO	NO	NO
2007-04	3.5	28510	11484 (23)	THD	28	LC	400	NO	NO	NO
6 CYLINDER										
2018-06	4.3	28510	11626	12	41	LR	600	NO	NO	NO
2005-85	4.3	28400	11612	6	41	LR	600	14600/16600	13100	NO
1984-82	4.3 Diesel	28400	11610	12	38	RR	600	NO	13100	NO
2008-05	4.2 LL8	28510	11484 (23)	THD	28	LF	400	NO	NO	NO
2004-02	4.2	28500	11455	THD	28	LF	400	NO	NO	NO
2011-06	3.9	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
1996-92	3.8	28400	11416	3	38	LF	400	14600/16600	NO	NO
2018-09	3.6	28811	11811 (24)	Cartridge	.885	RR	400	NO	NO	NO
2008-04	3.5	28500	11455	THD	28	RC	400	NO	NO	NO
2009-05	3.4 LNS	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2004-89	3.4	28400	11425	9	34	RC	400	NO	13100	NO
1996-89	3.1	28400	11415	11	34	RC(11)	400	NO	13100	NO
2012-10	3.0	28510	11811 (24)	Cartridge	.885	RR	400	NO	13100	NO
1993-82	2.8 Trans	28400	11425	3	34	RF	400	14600/16600	13100	NO
1993-82	2.8 Conv.	28400	11425	9	34	RFF	400	14600/16600	13100	NO
1993-73	292, 250	28400	11607	6	41	LF	600	14600/16600	13100	NO
1974-55	292,261,250,235	28400	11607	6	41	LF	600	14700/16700	13100	YES
1984-80	252	28400	11604	12	38	RR(1)	600	14600/16600	13100	NO
1973-60	248,230,194	28400	11607	12	41	LF	600	14700/16700	13100	NO
1985-82	231	28400	11604	12	38	FR(1)	600	14600/16600	13100	NO
1981-78	231	28400	11606	12	38	RR(1)	600	14600/16600	13100	NO
1982-78	229, 200	28400	11607	6	41	LR	600	14600/16600	13100	NO
1995-84	W7H, W7T Forward Tiltmaster	28216	11602	THD	1" NPT	RS	600	NO	NO	NO
1995-84	W4,W5,W6,W7 Forward Tiltmaster	28216	11602	THD	1" NPT	LS	600	NO	NO	NO
8 CYLINDER										
2018-05	8.1 GEN 3&4	28510	11484 (23)	THD	28	LR or LF	400	NO	13150	NO
2004-00	8.1	28500	11455	THD	28	LF	400	NO	13150	NO
2002-91	7.4	28400	11607	3	41	LC	600	14600/16600	13150	NO
1990-69	7.4	28400	11609	6	44.5	RC	600	14700/16700	13150	NO
1997-90	7.0	28400	11612	6	41	LC	600	NO	13150	NO
2018-07	6.6 Diesel Duramax	28510	30517	12	40	RF	750	NO	13150	NO
2006-01	6.6 Diesel Duramax	28400	30510	12	40	RF	750	NO	13150	NO
2002-93	6.5 Diesel	28400	11612	12	41	LC	600	14700/16700	13150	NO
2018-05	6.2	28510	11484 (23)	THD	28	LR or LF	400	NO	NO	NO
1993-82	6.2 Diesel	28400	11612	12	41	LC	600	14700/16700	13150	NO
2018-05	6.0	28510	11484 (23)	THD	28	LR or LF	400	NO	NO	NO
2004-98	6.0 LQ4	28500	11455	THD	28	LR	400	NO	NO	NO
2004-90	6.0 LQ9	28400	11612	6	41	LC	600	NO	13150	NO
2002-99	5.7 LS1	28400	11612	9	41	LR	600	14600/16600	13150	NO
2018-05	5.3	28510	11484 (23)	THD	28	LR or LF	400	NO	NO	NO
2004-98	5.3 LM7	28500	11455	THD	28	LR	400	NO	NO	NO
2018-05	4.8	28510	11484 (23)	THD	28	LR or LF	400	NO	NO	NO
2004-98	4.8 LR4	28500	11455	THD	28	LR	400	NO	NO	NO
1996-94	4.3	28400	11607	11	41	LR	600	14600/16600	NO	NO
1989-69	427,402,396,366	28400	11609	6	44.5	RC	600	14700/16700	13150	NO
1973-70	400 (2 bbl)	28400	11607	6	41	LC	600	14700/16700	13150	NO
1973-70	400 (4bbl)	28400	11609	6	44.5	LC	600	14700/16700	13150	NO
1998-74	400,350,305,302	28400	11612	9	41	LR	600	14600/16600	13150	NO
2000-55	350,327,305 282,267,262	28400	11612	3	41	LR	600	14700/16700	13150	NO
1965-58	348,409	28400	11609	12	44.5	LR	600	14700/16700	13150	YES
1986-79	350,260 Diesel	28400	11610	6	38	Any	600	NO	13150	NO
1981-77	301,265	28400	11608	6	49	LF	600	14600/16600	13150	NO
CHRYSLER - DODGE										
4 CYLINDER										
1987-84	2.6 Conv	28400	11401	3	40	RR	400	14600/16600	13080	NO
1989-83	2.6 Transverse	28400	11401	9	40	RR	400	14500/16500	13080	NO
Thru 1984	2.6 Conv	28400	11401	9	40	RF	400	14500/16500	13080	NO

(1) May be necessary to remove starter or radiator fan to get to frost plug. (2) 10425 will not fit flush against engine plate due to the steel section of heater. (7) 10406 produced after November of 1988. (11) Must pry or pull plug outward. (23) OEM heater is thermostatically controlled. 11455 heater without thermostat. (24) OEM heater is thermostatically controlled. 11810 is cartridge without thermostat.

		FROST PLUGS		DIRECTION	mm	LOCATION	WATTS	LOWER RAD	EXTERNAL	12010
CORD	HEATER		SIZE		HEATER			HEATER		
CHRYSLER - DODGE (CONTINUED)										
4 CYLINDER (CONTINUED)										
1997-81	2.5 Transverse	28400	11612	3	41	FL	600	NO	NO	NO
1992	2.5 Vin code K	28400	11612	3	41	FL	600	14500/16500	13080	NO
2018-06	2.4	28812	11812	Cartridge	.703	FL	400	NO	NO	NO
2006-90	2.4	28400	11482	3	35	RL	400	NO	13080	NO
1993	2.4 AWD	28400	11401	3	40	RS	400	NO	NO	NO
1997-81	2.2	28400	11406 (7)	6	41	RC	400	NO	NO	NO
2018-06	2.0	28812	11812	Cartridge	.703	FL	400	NO	NO	NO
2005-95	2.0 Neon	28400	11411	3	35	RL	400	NO	NO	NO
1993-84	2.0 Turbo	— — — —	— — — —	— —		— —	— —	14600/16600	13080	NO
1993-84	2.0 Transverse	28400	11411	3	35	FR	400	NO	13080	NO
1988-86	2.0	28400	11402	3	35	RL	400	NO	13080	NO
1982-74	2.0	28400	11401	6	40	RF	400	14500/16500	13080	NO
2011-06	1.8	28812	11812	Cartridge	.703	FL	400	NO	NO	NO
1983-76	1.7 Transverse	28400	11420	6	36.5	RC	400	NO	13080	NO
1993-79	1.6 Transverse	28400	11402	5	35	2ndLR	400	14500/16500	13080	NO
1989-85	1.6	28400	11402	12	35	RC	400	14500/16500	13080	NO
1979-78	1.6 Conv	28400	11402	6	35	RR	400	14500/16500	13080	NO
1977-72	1.6	28400	11402	6	35	LC	400	NO	NO	NO
1996-85	1.5 Transverse	28400	11402	6	35	FL	400	NO	13080	NO
2016-15	1.4	28400	11487	— —	30	— —	400	NO	NO	NO
1993-79	1.4 Transverse	28400	11402	6	35	2ndLR	400	14500/16500	13080	NO
6 CYLINDER										
1997-94	3.8	28400	11613	12	41	RL	600	NO	13100	NO
2018-11	3.6 Pentastar	28814	11814	Cartridge	.688	RR	400	NO	NO	NO
2018-11	3.6 Pentastar Transverse	28814	11814	Cartridge	.688	LR	400	NO	NO	NO
2011-97	3.5	28814	11814	Cartridge	.688	RL/RR	400	NO	NO	NO
1998-93	3.5	28400	11613	12	41	RR	600	NO	NO	NO
1999-88	3.3 Transverse	28400	11613	12	41	RL	600	NO	13100	NO
1997-93	3.3 Conv	28400	11613	12	41	RR	600	NO	NO	NO
2015	3.2	28814	11814	Cartridge	.688	RL	400	NO	NO	NO
2008-04	3.2	28400	11483	THD	38	LF	400	NO	NO	NO
2011-98	3.2	28814	11814	Cartridge	.688	RL	400	NO	NO	NO
2005-01	3.0	28400	11607	12	41	RR	600	NO	NO	NO
1998-87	3.0 Transverse	28400	11607	11	41	RL	600	NO	13100	NO
1991-88	3.0	28400	11427	9	36	RRF	400	NO	NO	NO
2011-98	2.7	28814	11814	Cartridge	.688	RL/RR	400	NO	NO	NO
2002-95	2.5	28400	11612	9	41	RL	600	NO	NO	NO
1983-61	170,198,225	28400	11613	12	41	LF	600	14600/16600	13100	NO
8 CYLINDER										
2018-05	5.7 HEMI	28816	11816	Cartridge	1.068	LR	400	NO	NO	NO
1994-91	5.2	28400	11603	6	41	RR	600	14700/16700	13150	NO
2002-64	All other V8's	28400	11612	12	41	RC	600	14600/16600	13150	NO
10 CYLINDER										
2009-94	8.3	28400	11601	1	41	RR	600	NO	13150	NO
DODGE TRUCK										
4 CYLINDER										
1990-84	2.6	28400	11401	3	40	RR	400	14500/16500	13080	NO
Thru 1983	2.6	28400	11401	9	40	RF	400	14500/16500	13080	NO
2002-87	2.5	28400	11406 (7)	12	41	RC(9)	400	14500/16500	13080	NO
2004-87	2.4	28400	11411	3	35	RR	400	NO	13080	NO
1985-83	2.3 DIESEL	28400	11401	9	40	LR	400	NO	NO	NO
1997-82	2.2	28400	11406	12	41	RC(9)	400	14500/16500	13080	NO
1991-83	2.0	28400	11402	3	35	RR	400	NO	13080	NO
1982-78	2.0	28400	11401	6	40	RC	400	NO	13080	NO
1996-92	1.8	28400	11414	3	35	RF	400	NO	NO	NO
5 CYLINDER										
2007-04	2.7 Diesel	28400	11483	THD	38	LF	400	NO	NO	NO
6 CYLINDER										
2018-07	6.7	28216	30115	THD	3/4" NPT	RS	750	NO	13150	NO
2007-98	5.9 6BTCummins	28216	30115	THD	3/4" NPT	RS	750	NO	13150	NO
1997-89	5.9 Cummins	28216	30107	6	58	RF	750	14700/16700	13150	NO
2004-89	3.9	28400	11607	12	41	RR	600	14700/16700	13100	NO
2010-87	3.8	28400	11486	12	41	RL	600	NO	NO	NO
2008-02	3.7	28400	11618	6	35	2ndRR	600	NO	NO	NO
2018-11	3.6 Pentastar	28814	11814	Cartridge	.688	RL/RR	400	NO	NO	NO
2010-87	3.3	28400	11613	12	41	RL	600	NO	NO	NO
2017-14	3.0 DIESEL	28500	11455	THD	28	RC	400	NO	NO	NO
2011-07	3.0 SPRINTER	— — — —	— — — —	— — — —	— — — —	— — — —		— — — —	13150 (25)	NO
1999-88	3.0	28400	11607	12	41	RR	600	NO	13100	NO
1987-61	225,198,170	28400	11613	12	41	LF	600	14600/16600	13100	NO
8 CYLINDER										
Thru 2003	5.9	28400	11603	6	41	LR	600	14600/16600	13150	NO
2018-05	5.7 HEMI	28816	11816	Cartridge	1.068	LR	400	NO	NO	NO
2003-91	5.2	28400	11603	6	41	RR	600	NO	13150	NO

(7) 10406 produced after November 1988. (9) May be necessary to remove wheel liner. (25) See special installation instructions at fivestarmanufacturing.com

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		FROST PLUGS			mm			LOWER RAD	EXTERNAL	
		CORD	HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER	12010
DODGE TRUCK (continued)										
8 CYLINDER (CONTINUED)										
2013-00	4.7	28400	11618	1	35	RR	600	NO	NO	NO
1992-65	All V8'S	28400	11607	1	41	RC	600	14600/16600	13150	NO
10 CYLINDER										
2004-94	8.0	28400	11601	1	41	RR	600	NO	13150	NO
2007-05	8.3	28400	11601	1	41	RR	600	NO	13150	NO
DAEWOO										
4 CYLINDER										
2002-99	2.2	28400	11415	6	34	FR	400	NO	13080	NO
2002-99	2.0	28400	11415	6	34	FR	400	NO	13080	NO
2002-99	1.6	28400	11415	6	34	FR	400	NO	13080	NO
6 CYLINDER										
2002-01	3.2	28216	11460	THD	38	RS	400	NO	13100	NO
EAGLE										
4 CYLINDER										
1988	4.2	28400	11611	12	51	LR	600	14600/16600	13080	NO
1996-88	2.5	28400	11609	11	44.5	LR	600	NO	NO	NO
1996-92	2.4	28400	11411	3	35	RF	400	NO	NO	NO
1989-88	2.2	28216	11407	THD	1" NPT	RF	400	NO	13080	NO
1997-89	2.0 (incl. Turbo)	28400	11411	3	35	RL	400	NO	NO	NO
1996-89	1.8	28400	11411	3	35	RF	400	NO	NO	NO
1990-89	1.6	28400	11411	4	35	2ndLR	400	NO	NO	NO
1996-89	1.5	28400	11411	9	35	2ndRL	400	NO	13080	NO
6 CYLINDER										
1997-93	3.5	28400	11607	12	41	RR	600	NO	NO	NO
1997-93	3.3	28400	11607	12	41	RR	600	NO	NO	NO
1993-88	3.0	28400	11427	12	36	RFF	400	NO	NO	NO
FIAT										
4 CYLINDER										
1983-79	2.0	28400	11401	12	40	RF	400	NO	13080	NO
1983-68	1.8 1800, 1756CC	28400	11401	12	40	RF	400	NO	13080	NO
1983-79	1.5 1500 X1/9	28400	30501	5	32	RR	750	NO	NO	NO
1983-68	1.5 1498cc	28400	11401	6	40	RF	400	NO	13080	NO
2016-11	1.4	28400	11487		30		400	NO	NO	NO
1983-68	1.3 1290cc	28400	11401	6	40	RF	400	NO	13080	NO
1983-68	1.2 1197cc	28400	11401	6	40	RF	400	NO	13080	NO
1983-71	1.2 1166cc	28400	11401	8	40	LS	400	NO	13080	NO
FORD MOTOR CO.										
4 CYLINDER										
1995-84	2.5 HSC Trans	28400	11609	6	44.5	RR	600	NO	13080	NO
2018-08	2.5 Duratec (Trans)	28216	11409	THD	3/4" NPT	LR	400	NO	NO	NO
2018-16	2.3	28216	11490	THD	3/4" NPT	RC	400	NO	NO	NO
2012-05	2.3 HSC Trans	28216	11409	THD	3/4" NPT	RC	400	NO	NO	NO
2007-04	2.3 Duratec (Trans)	28216	11409	THD	3/4" NPT	LR	400	NO	NO	NO
1995-93	2.3 OHC Conv	28400	11416	6	38	RR(9)	400	14700/16700	13080	NO
1995-84	2.3 HSC Trans	28400	11609	6	44.5	RR	600	NO	13080	NO
1995-74	2.3 OHC Conv	28400	11610	6	38	RR	600	14500/16500	13080	NO
1992-91	2.2 Mazda	28400	11421	12	35	2ndRF	400	NO	13080	NO
1992-89	2.2 Turbo	28400	11447	12	35	2ndRF	400	NO	NO	NO
1985-83	2.2 Perkins Diesel	28400	11424	12	35	RF	400	14600/16600	13080	NO
2018-13	2.0 Focus	28216	11409	THD	3/4" NPT	LR	400	NO	NO	NO
2016-04	2.0 Duratec	28216	11409	THD	3/4" NPT	RL	400	NO	NO	NO
1996-95	2.0 14 Probe	28400	11417	12	30	lowerFL	400	NO	NO	NO
2004-97	2.0 Zetec	28400	11456	3	35	RR	400	14600/16600	NO	NO
2006-95	2.0	28400	11411	12	35	RR	400	NO	NO	NO
1988-83	2.0	28400	11610	6	38	RR	600	14500/16500	13080	NO
1987-84	2.0 Diesel	28400	11402	12	35	2ndRF	400	NO	13080	NO
1974-72	2.0	28400	11610	6	38	RF	600	NO	13080	NO
1996-91	1.9	28400	11421	12	35	RR	400	NO	13080	NO
1990-81	1.9	28400	11406	1	41	FL	400	NO	13080	NO
1996-91	1.8	28400	11411	12	35	2ndRF	400	NO	13080	NO
2018-10	1.6	28400	11488		35		400	NO	NO	NO
1997-88	1.6	28400	11402	12	35	2ndFR	400	NO	13080	NO
1987-81	1.6	28400	11406	11	41	FL	400	NO	NO	NO
1980-71	1.6 96.6CID	28400	11612	11	41	FL	600	NO	13080	NO
2018-14	1.5	28400	11488		35	LR	400	NO	NO	NO
2009-02	1.4 Diesel	28400	11488		35		400	NO	NO	NO
1998-88	1.3	28400	11411	12	35	2ndRF	400	14400/16400	13080	NO
1990-71	1.3	28400	11406	11	41	FL	400	NO	13080	NO
6 CYLINDER										
1995-90	4.9	28400	11416	6	38	RF(9)	400	14600/16600	13100	NO
1997	4.2	28400	11606	12	38	LR	600	14600/16600	13100	NO

(9) May be necessary to remove wheel liner.

		FROST PLUGS			mm			LOWER RAD	EXTERNAL	
		CORD	HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER	12010
FORD MOTOR CO. (CONTINUED)										
6 CYLINDER (CONTINUED)										
2009-05	4.0	28400	11416	7	38	RR	400	NO	NO	NO
2005-82	3.8 Conv	28400	11416	12	38	RR	400	14600/16600	13100	NO
1996-88	3.8 Transverse	28400	11416	12	38	FL	400	NO	13100	NO
2018-10	3.7 Conv	28815	11815	Cartridge	.805	RF	400	NO	NO	NO
2018-09	3.7 Transverse	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
2018-08	3.5	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
1998-96	3.4 SHO	28216	11409	THD	3/4" NPT	FR	400	NO	NO	NO
1994-89	3.2	28400	11421	6	35	LF	400	NO	NO	NO
2012-00	3.0 Duratec	28216	11409	THD	3/4" NPT	RR	400	NO	13100	NO
1999-93	3.0 SHO	28216	11409	THD	3/4" NPT	FR	400	NO	NO	NO
2006-86	3.0	28400	11416	6	38	FC	400	14600/16600	13100	NO
1991-86	3.0	28400	11416	6	38	FC	400	NO	13100	NO
1990-86	2.9	28400	11426	3	38	LFF	400	14600/16600	NO	NO
1986-83	2.8	28400	11426	8	38	LFF	400	14500/16500	13100	NO
1981-72	2.8	28400	11426	7	38	LFF	400	14500/16500	13100	NO
1981-72	2.6	28400	11426	7	38	LFF	400	14500/16500	13100	NO
2003-93	2.5 Duratec	28216	11409	THD	3/4" NPT	FR	400	NO	NO	NO
1997-93	2.5 Probe	28400	11402	8	35	RR(1)	400	NO	NO	NO
1983-64	250,200,170,144	28400	11609	12	44.5	RC	400	14600/16600	13100 thru 80	NO
1979-65	240	28400	11607	12	41	2ndRF	600	14600/16600	13100	NO
8 CYLINDER										
2013-07	5.4	28400	11610	9	38	LR	600	NO	NO	NO
1999-91	5.4 EFI OHC	28400	11610	6	38	LR	600	NO	NO	NO
2018-11	5.0	28216	11409	THD	3/4" NPT	LR	400	NO	NO	NO
2011-91	4.6 SFI OHC	28400	11610	9	38	LR	600	NO	13150	NO
2011-01	4.6 Mustang	28400	11610	9	38	LR	600	NO	NO	NO
2004-99	4.6 Mustang	28400	11610	9	38	LR	600	NO	NO	NO
2006-00	3.9	28500	11463	THD	30	LR	400	NO	NO	NO
1994-63	490	28400	11606	12	38	Any	600	14600/16600	13150	NO
1994-63	460	28400	11606	12	38	Any	600	14600/16600	13150	NO
1994-63	429	28400	11606	12	38	Any	600	14600/16600	13150	NO
1976-54	390	28400	11609	6	44.5	LR	600	14600/16600	13150	NO
1976-54	352	28400	11609	6	44.5	LF	600	14600/16600	13150	NO
1996-66	351M	28400	11610	12	38	RR	600	14600/16600	13150	NO
1996-66	351W, 351C	28400	11606	12	38	RR	600	14600/16600	13150	NO
1976-54	332	28400	11609	6	44.5	LF	600	14600/16600	13150	NO
1976-54	330	28400	11609	6	44.5	LR	600	14600/16600	13150	NO
1996-66	5.0 302, 289	28400	11610	12	38	RR(1)	600	14600/16600	13150	NO
1976-54	292	28400	11609	6	44.5	LF	600	14600/16600	13150	NO
1994-63	260	28400	11606	12	38	Any	600	14600/16600	13150	NO
1982-69	255	28400	11610	12	38	RR	600	14600/16600	13150	NO
FORD TRUCK										
4 CYLINDER										
2018-09	2.5	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
2002-98	2.5	28400	11416	3	38	LR	400	NO	NO	NO
1993	2.5	28400	11402	8	35	RR	400	NO	13080	NO
2018-16	2.3	28216	11490	THD	3/4" NPT	— —	400	NO	NO	NO
2012-05	2.3 Transverse	28400	11409	THD	3/4" NPT	RL	400	NO	NO	NO
2007-01	2.3 Conventional	28400	11409	THD	3/4" NPT	RR	400	NO	NO	NO
1997-95	2.3	28400	11416	3	38	LR	400	NO	NO	NO
1988-85	2.3 Mitsu. Diesel Turbo	28400	11401	9	40	LR	400	NO	NO	NO
1995-74	2.3 OHC	28400	11416	6	38	RR(1)	400	14500/16500	13080	NO
2009-02	2.0	28400	11456	3	35	RR	400	14600/16600	13080	NO
1988-83	2.0	28400	11610	6	38	RR	600	14500/16500	13080	NO
1984	2.0 Diesel	28400	11402	12	38	3ndRF	400	NO	13080	NO
1983-72	2.0 2000cc	28400	11410	9	50	LF	400	NO	13080	NO
1983-72	1.8 1800cc	28400	11410	9	50	LC	400	NO	13080	NO
2018-15	1.6	28400	11488		35		400	NO	NO	NO
6 CYLINDER										
1989-86	7.8 Diesel	28216	30406	— —	38	2ndRR	1500	NO	13150	NO
1989-86	6.6 Diesel	28216	30406	— —	38	2ndRR	1500	NO	13150	NO
1997-65	4.9	28400	11603	6	41	2ndRF	600	14700/16700	13100	NO
2010-04	4.2	28400	11416	12	38	LR	400	NO	NO	NO
2003-96	4.2	28400	11610	12	38	LR	600	NO	NO	NO
2011-98	4.0	28400	11458	6	38	RF	— —	14600/16600	13100	NO
2003-90	4.0 OHV	28400	11416	6	38	RF(9)	400	14600/16600	13100	NO
2010-04	3.9 Transverse	28400	11606	6	1 1/2"	LF	600	NO	NO	NO
1997-65	3.9	28400	11603	6	41	RF	600	14700/16700	13100	NO
2003-95	3.8	28400	11610	12	38	FL	600	NO	NO	NO
1996-82	3.8	28400	11416	12	38	RR	400	14600/16600	13100	NO
2018-11	3.7 (Conventional)	28815	11815	Cartridge	.805	RF	400	NO	NO	NO
2018-11	3.5 (Conventional) (Ecoboost)	28815	11815	Cartridge	.805	RF	400	NO	NO	NO
2002-99	3.3 Villager	28400	11417	6	30	FL	400	NO	NO	NO
1999-93	3.0 Villager	28400	11417	6	30	FL	400	NO	NO	NO

(1) May be necessary to remove starter or radiator fan to get to frost plug. (9) May be necessary to remove wheel well liner.

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

		FROST PLUGS CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
FORD TRUCK (CONTINUED)										
6 CYLINDER (CONTINUED)										
2003-86	3.0 Inc Aerostar	28400	11416	6	38	FL	400	14600/16600	13100	NO
2012-01	3.0 Duratec	28216	11409	THD	3/4NPT	RF	400	NO	NO	NO
1992-86	2.9	28400	11426	3	38	LFF	400	14600/16600	NO	NO
1986-83	2.8	28400	11426	7	38	RFF	400	14500/16500	13100	NO
2018-16	2.7	28216	11491	THD	3/4NPT	— —	400	NO	NO	NO
1983-64	250,200,170,144	28400	11609	12	44.5	RC	600	14600/16600	13100	NO
8 CYLINDER										
1998-64	7.5	28400	11606	12	38	Any	600	14800/16800	13150	NO
2003-93	7.3 Diesel	28400	11416 (20)	12	38	LR and RR	400	14800/16800	13150	NO
2003-93	7.3 Diesel	28216	30307	THD	3/4NPT	RS	1000	14800/16800	13150	NO
1992-83	7.3 Diesel	28400	11605	12	38	RR	600	14800/16800	13150	NO
1992-83	7.3 Diesel	28200	30403	11	38	RR	1000	14800/16800	13150	NO
1998-83	6.9 Diesel	28400	11605	12	38	RR	600	14800/16800	13150	NO
1998-83	6.9 Diesel	28200	30403	11	38	RR	1000	14800/16800	13150	NO
2016-11	6.8 Diesel	28216	30513	THD	27	LR	1000	NO	NO	NO
2018-11	6.7 Diesel	28216	30513	THD	27	LR	1000	14800/16800	13150	NO
2011-07	6.4 Diesel	28216	30513	THD	27	RR	1000	NO	NO	NO
2018-11	6.2	28216	11409	THD	3/4 NPT	LR	400	NO	NO	NO
2011-03	6.0 Diesel	28216	30513	THD	27	RR	1000	NO	NO	NO
1998-66	5.8 400, 361M	28400	11610	12	38	RR	600	14800/16800	13150	NO
2018-00	5.4	28216	11409	THD	3/4 NPT	LR	400	NO	NO	NO
2000-96	5.4	28400	11610	6	38	LR	600	NO	13150	NO
2018-11	5.0	28216	11409	THD	3/4"NPT	LR	400	NO	NO	NO
1999-66	5.0 302, 289	28400	11610	12	38	RR	600	14600/16600	13150	NO
2010-96	4.6	28400	11606	12	38	LR(1)	600	14700/16700	13150	NO
1981-60	534,477,475,401	28400	11609	6	44.5	RR	600	NO	13150	NO
1993-64	490	28400	11606	12	38	Any	600	14600/16600	13150	NO
1992-64	460	28400	11606	12	38	Any	600	14600/16600	13150	NO
1993-64	429	28400	11606	12	38	Any	600	14600/16600	13150	NO
1979-54	428,391,389 361,360,330	28400	11609	6	44.5	RC	600	14800/16800	13150	NO
1982-69	400	28400	11610	12	38	RR	600	14600/16600	13150	NO
1979-54	390,352,332,292	28400	11609	6	44.5	LF	600	14600/16600	13150	NO
1993-64	370	28400	11606	12	38	Any	600	14600/16600	13150	NO
1974-60	292	28400	11609	6	44.5	LR	600	14700/16700	13150	NO
1993-64	260	28400	11606	12	38	Any	600	14600/16600	13150	NO
1982-69	255	28400	11610	12	38	RR	600	14600/16600	13150	NO
10 CYLINDER										
2010-97	6.8	28400	11606	12	38	LR	600	NO	NO	NO
GEO										
3 CYLINDER										
1997-89	1.0 Metro	— — — —	— — — — —	— —		— —	— —	14400	— — — — —	— —
4 CYLINDER										
1999-92	1.8 Storm	28400	11402	12	35	2ndRR	400	NO	NO	NO
1999-89	1.6 Prism	28400	11401	12	40	FC	400	NO	NO	NO
1997-90	1.6 Storm	28400	11402	12	35	2ndRR	400	14500/16500	13080	NO
1999-88	1.6 Tracker	— — — —	— — — — —	— —		— —	— —	14400/16400	NO	NO
1999-89	1.5	28400	11424	12	35	CR	400	NO	NO	NO
1999-89	1.3	— — — —	— — — — —	— —		— —	— —	14400/16400	NO	NO
HONDA										
4 CYLINDER										
2018-02	2.4	28500	11419	THD	28	RR	400	NO	NO	NO
2002-92	2.3	28500	11419	THD	28	RC	400	NO	NO	NO
2009-05	2.2	28500	11419	THD	28	RC	400	NO	NO	NO
2001-92	2.2 Prelude	28500	11419	THD	28	RC	400	NO	NO	NO
1997-90	2.2 Accord	28500	11419	THD	28	RL	400	NO	NO	NO
1991-88	2.1	28400	11428	— —	35	RR	400	NO	NO	NO
2014-97	2.0	28500	11419	THD	28	FR	400	NO	NO	NO
1989-79	2.0 Accord	28400	11411	9	35	RFF	400	NO	NO	NO
2018-05	1.8	28500	11419	THD	28	RC	400	NO	NO	NO
1987-79	1.8	28400	11411	9	35	RFF	400	NO	NO	NO
1994	1.8 112 CID	28400	11424	8	35	RL	400	NO	NO	NO
2005-01	1.7	28500	11419	THD	28	RL	400	NO	NO	NO
2000-88	1.6	28500	11419	THD	28	FR	400	NO	NO	NO
1987-79	1.6	28400	11411	9	35	RFF	400	NO	NO	NO
2018-06	1.5	28500	11419	THD	28	RC	400	NO	NO	NO
1999-88	1.5	28500	11419	THD	28	RR	400	NO	NO	NO
2014-03	1.3	28500	11419	THD	28	RR	400	NO	NO	NO
6 CYLINDER										
2018-99	3.5	28500	11419	THD	28	FL	400	NO	NO	NO
2008-94	3.2	28500	11455	THD	28	RL	400	NO	NO	NO
2007-98	3.0	28500	11419	THD	28	FL	400	NO	NO	NO

(1) May be necessary to remove starter or radiator fan to get to frost plug. (20) 2 heaters required. (22) Transverse location FR conventional location FL.

		FROST PLUGS				mm	LOWER RAD				EXTERNAL	
		CORD	HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER	12010		
HONDA												
6 CYLINDER (CONTINUED)												
1996-95	2.7	28500	11419	THD	28	RL	400	NO	NO	NO		
HUMVEE												
2007-06	6.6 Diesel	28400	30510	3	38	LC	750	NO	NO	NO		
2011-07	5.3	28510	11484 (23)	THD	28	LR	400	NO	NO	NO		
2009-07	3.7	28510	11484 (23)	THD	28	LC	400	NO	NO	NO		
HYUNDAI												
4 CYLINDER												
2018-06	2.4	28812	11812	CARTRIDGE	.703	FL	400	NO	NO	NO		
2005-88	2.4	28400	11402	9	35	2ndLR	400	NO	NO	NO		
2018-09	2.0 Turbo Conv	28812	11812	CARTRIDGE	.703	RR	400	NO	NO	NO		
2009-88	2.0	28400	11402	9	35	2ndLR	400	NO	NO	NO		
1988-86	2.0 Conv	28400	11402	9	35	2ndLF	400	NO	NO	NO		
1999-92	1.8	28400	11411	3	35	2ndRR	400	NO	NO	NO		
2018-12	1.8 Elantra	28812	11812	CARTRIDGE	.703	RF	400	NO	NO	NO		
2018-12	1.6 Accent, Velostar	28812	11812	CARTRIDGE	.703	RF	400	NO	NO	NO		
2011-06	1.6	28500	11485	— —	35	FL	400	NO	NO	NO		
2005-01	1.6	28400	11402	4	35	2ndLR	400	NO	NO	NO		
1999-92	1.6	28400	11411	3	35	2ndRR	400	NO	NO	NO		
1987-85	1.6	28400	11402	9	35	LC	400	NO	NO	NO		
2005-95	1.5 Accent	28400	11448	9	35	2ndLR	400	NO	NO	NO		
1998-88	1.5 Excel	28400	11402	9	35	2ndLR	400	NO	NO	NO		
1987-83	1.4	28400	11402	12	35	LC	400	NO	NO	NO		
6 CYLINDER												
2018-09	3.8	28812	11812	CARTRIDGE	.703	RR	400	NO	NO	NO		
2007-06	3.6	28500	11479	THD	24	RC	400	NO	NO	NO		
2012-10	3.5 transverse	28812	11812	CARTRIDGE	.703	RR	400	NO	NO	NO		
2018-05	3.3	28500	11479	THD	24	RC	400	NO	NO	NO		
2002-89	3.0	28400	11603	12	41	RF	600	NO	NO	NO		
2009-03	2.7	28400	11402	12	35	RL	400	NO	NO	NO		
2002-99	2.5	28400	11402	6	35	RL	400	NO	NO	NO		
2001-91	2.0	28400	11412	THD	30	LR	400	NO	NO	NO		
8 CYLINDER												
2011-09	4.6	28812	11812	CARTRIDGE	.703	RR	400	NO	NO	NO		
2008-06	3.8	28500	11479	THD	24	RC	400	NO	NO	NO		
2006-02	3.5	28400	11607	12	41	RL	600	NO	NO	NO		
INFINITI												
4 CYLINDER												
2001-91	2.0	28500	11412	THD	30	LR	400	NO	NO	NO		
6 CYLINDER												
2018-07	3.7	28500	11412	THD	30	RL	400	NO	NO	NO		
2018-02	3.5 VQ35DE	28500	11412	THD	30	LR or RF	400	14600/16600	NO	NO		
2001-97	3.3 VG33	28400	11417	6	30	RL	400	14600/16600	NO	NO		
2001-96	3.0 I30 VQ30	28500	11412	THD	30	FR	400	14600/16600	NO	NO		
1992-89	3.0 I30 VG30	28400	11417	6	30	LF	400	14600/16600	NO	NO		
8 CYLINDER												
2018-04	5.6 VK56DE	28500	11412	THD	30	Rear	400	NO	NO	NO		
2009-01	4.5 VH45DE	28500	11412	THD	30	Rear	400	NO	NO	NO		
1996-90	4.5 VK45DE	28500	11412	THD	30	Rear	400	NO	NO	NO		
2001-97	4.1 VH41DE	28500	11412	THD	30	Rear	400	NO	NO	NO		
INTERNATIONAL HARVESTER												
4 CYLINDER												
ALL	196, 152	28400	11607	12	41	RF	600	14800/16800	13080	NO		
6 CYLINDER												
ALL	265, 264, 241, 240, 220	28400	11607	12	41	LF	600	14800/16800	13100	NO		
ALL	258, 232	28400	11611	12	51	LR	600	NO	13100	NO		
ALL	225	28400	11613	12	41	LF	600	NO	13100	NO		
ALL	198 3.2 Diesel	28400	11421	12	35	2ndLF	400	NO	13100	NO		
ALL	DT360, DT466	28400	30502	12	32	LS	1250	NO	13100	NO		
8 CYLINDER												
2000-95	7.3 T44E	28216	30307	THD	3/4" NPT	LR	1000	NO	13150	NO		
1995-93	7.3 Diesel	28400	11416 (20)	12	38	RR and LR	400	14800/16800	13150	NO		
1992-83	7.3 Diesel	28200	30403	12	38	RR	1000	14800/16800	13150	NO		
1995-93	6.9 Diesel	28400	11416 (20)	12	38	RR and LR	400	14800/16800	13150	NO		
1992-83	6.9 Diesel	28400	11605	12	38	RR	600	14800/16800	13150	NO		
ALL	550,549,478, 462,461,401	28400	11604	12	38	Any	600	NO	13150	NO		
ALL	401 AMC	28400	11610	5	38	RR	600	NO	13150	NO		
ALL	400,392,345, 304,266	28400	11607	12	41	RF	600	14800/16800	13150	NO		

(20) 2 heaters required. (23) OEM is thermostatically controlled heater. 11455 is heater without thermostat

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FROST PLUGS		CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
ISUZU										
4 CYLINDER										
ALL	4BD1	28216	11407	THD	1" NPT	LR	400	14500/16500	13080	NO
2011-07	2.9	28510	11484 (23)	THD	— —	LC	400	NO	NO	NO
1995-88	2.6	28400	11402	6	35	RF	400	NO	NO	NO
1995-85	2.3	28400	11414	3	35	RF	400	NO	13080	NO
2002-98	2.2	28400	11435	9	42.5	LR	400	NO	NO	NO
1986-82	2.2 Diesel	28400	11433	6	45	LF	400	NO	13080	NO
1988-81	2.0	28400	11402	12	35	LC	400	NO	13080	NO
1988-81	1.9	28400	11402	12	35	LC	400	NO	13080	NO
1993-81	1.8	28400	11402	12	35	LC	400	NO	13080	NO
1985-81	1.8 DIESEL	28400	11411	12	35	RR	400	NO	13080	NO
1993-90	1.6	28400	11402	12	35	RR	400	NO	NO	NO
1989-85	1.5	28400	11411	3	35	RF	400	14600/16600	13080	NO
1985-82	1.1 116CC	28400	11402	12	35	LC	400	NO	13080	NO
5 CYLINDER										
2011-08	3.7	28500	11455	THD	28	LC	400	NO	13080	NO
6 CYLINDER										
1993-89	6.5	28400	11602	THD	1" NPT	LR	— —	NO	13100	NO
1993-89	5.8	28400	11602	THD	1" NPT	LR	— —	NO	13100	NO
1993-89	4.8	— — — —	— — — — —	— —		— —	— —	NO	13100	NO
2009-04	4.2	28500	11455	THD	28	FL	400	NO	NO	NO
2004-92	3.2	28500	11455	THD	28	LR	400	NO	13100	NO
1993-91	3.1	28400	11415	3	34	LC	400	NO	NO	NO
1991-89	3.1	28400	11425	3	34	RFF	400	14500/16500	NO	NO
1993-89	2.8	28400	11425	3	34	RFF	400	14500/16500	NO	NO
ALL	6SA1	28400	11602	THD	1"NPT	RS	600	NO	13150	NO
8 CYLINDER										
2011-06	5.3	28510	11484 (23)	THD	28	LR	400	NO	NO	NO
2005-03	5.3	28500	11455	THD	28	LR	400	NO	NO	NO
2015-10	5.0	28500	11463	THD	30	LR	400	NO	NO	NO
JAGUAR										
BEFORE 1997 6 & 12 Cyl		28216	11407	THD	1" NPT	— —	400	NO	NO	NO
2008-01	3.0 6 Cyl	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
2005-02	2.5 6 Cyl	28216	11409	THD	3/4" NPT	RR(21)	400	NO	13100	NO
2009-05	4.2 8 Cyl	28500	11463	THD	30	LR	400	NO	NO	NO
2005-98	4.0 8 Cyl	28500	11463	THD	30	LR	400	NO	NO	NO
2017-10	5.0	28500	11463	THD	30	LR	400	NO	NO	NO
JEEP										
4 CYLINDER										
2018-07	2.4	28812	11812	Cartridge	.703	FL	400	NO	NO	NO
2006-02	2.4	28400	11414	12	35	RS	400	NO	NO	NO
2001-84	2.4	28400	11609	6	44.5	RR	600	NO	13080	NO
1983-80	2.5 Pontiac	28400	11603	6	41	LR	600	NO	13080	NO
1987-85	2.1 Diesel	28216	11407	THD	1" NPT	— —	400	14600/16600	NO	NO
2018-10	2.0	28812	11812	Cartridge	.703	FL	400	NO	NO	NO
1979-77	2.0 2000CC	28400	11420	6	36.5	RC	400	NO	13080	NO
6 CYLINDER										
1990-68	4.2	28400	11611	12	51	LR	600	NO	13100	NO
2006-87	4.0	28400	11611	6	51	LR	600	14600/16600	13100	NO
2011-07	3.8	28400	11486	12	42	RL	400	NO	13100	NO
1990-68	3.8	28400	11611	12	51	LR	600	NO	13100	NO
2012-02	3.7	28400	11618	12	35	2nd RR	600	NO	13100	NO
2018-11	3.6 Pentastar	28814	11814	Cartridge	.688	RL/RR	400	NO	NO	NO
2018-15	3.2	28812	11812	Cartridge	.703		400	NO	NO	NO
2009-07	3.0 Diesel	28500	11455	THD	28	RR	400	NO	NO	NO
1989-80	2.8	28400	11425	11	34	RC	400	14600/16600	13100	NO
1990-64	258,232,199	28400	11611	6	51	LR	600	NO	13100	NO
1971-63	230	28400	11612	6	41	LS	600	NO	13100	NO
1971-66	225	28400	11604	2	38	LR	600	NO	13100	NO
8 CYLINDER										
1999-98	5.9	28400	10607	6	41	RR	600	NO	13150	NO
1991-88	5.9	28400	11610	7	38	RR	600	NO	13150	NO
2018-05	5.7 HEMI	28816	11816	Cartridge	1.068	LR	400	NO	NO	NO
1999-93	5.2	28400	11603	6	41	RR	600	NO	NO	NO
2011-99	4.7	28400	11618	12	35	RR	400	NO	NO	NO
1991-72	401,360,304	28400	11610	6	38	RR	600	14500/16500	13150	NO

(23) OEM is thermostatically controlled heater. 11455 is heater without thermostat.

FROST PLUGS				mm	LOWER RAD		EXTERNAL		12010
CORD	HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER		
KIA									
2011-09	4.6	28500	11479	THD	24	RR	400	NO	NO
2012-10	3.8 Sedona	28812	11812	Cartridge	.703	LR	400	NO	NO
2012-09	3.8 Borrego	28812	11812	Cartridge	.703	RR	400	NO	NO
2009-06	3.8	28500	11479	THD	24	RR	400	NO	NO
2005-02	3.8	28400	11480	9	41.5	RL	400	NO	NO
2016-10	3.5	28812	11812	Cartridge	.703	LR	400	NO	NO
2006-02	3.5	28400	11607	12	41	FR	600	NO	NO
2018-07	3.3	28500	11479	THD	24	RR	400	NO	NO
2006-02	2.7	28400	11607	12	41	FR	600	NO	NO
2018-06	2.4	28812	11812	Cartridge	.703	2ndRR	400	NO	NO
2006-02	2.4	28400	11411	6	35	RL	400	NO	NO
2006-04	2.0	28400	11448	9	35	2ndRR	400	NO	NO
2018-09	2.0 Forte	28812	11812	Cartridge	.703	FL or RR	400	NO	NO
2012-95	2.0	28400	11402	12	35	2nd LS	400	NO	NO
2003-98	1.8	28400	11402	12	35	2nd LS	400	NO	NO
2018-09	1.6 Rio, Soul, Forte	28812	11812	Cartridge	.703	RR	400	NO	NO
2012-06	1.6	28500	11485	-----	35	FL	400	NO	NO
2003-01	1.5	28400	11411	6	35	FR	400	NO	NO
LADA									
4 CYLINDER									
1993-87	1.3	28400	11451	3	36	LF	400	NO	NO
1993-87	1.5 Trans	28400	11451	3	36	LF	400	NO	NO
1993-78	1.5	28400	11401	9	40	LF	400	NO	NO
1993-81	1.6	28400	11401	9	40	LS	400	NO	NO
LANDROVER									
4 CYLINDER									
1958-UP 120.8 Cu.In.gas/diesel	28400	11608	6	1-15/16"	LC	600	14500	NO	
6 CYLINDER									
1958-UP 161, 182.7 Cu.In	28216	11407	THD	1" NPT	NA	400	NO	NO	
2008-04	4.0	28400	11606	6	1-1/2"	RF	600	NO	NO
8 CYLINDER									
2004-1987 3.9, 4.0, 4.2, 4.6	28400	11606	12	1-1/2"	LC	600	NO	NO	
2009-2005 4.2	28500	11463	THD	30	LR	400	NO	NO	NO
2009-2005 4.4	28500	11463	THD	30	LR	400	NO	NO	NO
2017-2010 5.0	28500	11463	THD	30	LR	400	NO	NO	NO
LEXUS									
2018-08	5.7	28813	11813	Cartridge	.683	FL	400	NO	NO
2010-99	4.7	28400	11414	12	35	FR	400	NO	NO
2018-11	4.6 1URFSE, 1URFS,2YR-F5XE	28813	11813	Cartridge	.683	RL	400	NO	NO
2007-02	4.3	28400	11414	12	35	FR	400	NO	NO
2018-07	3.5 2GRFR Trans	28813	11813	Cartridge	.683	LF	400	NO	NO
2012-10	3.5 1URFSE	28813	11813	Cartridge	.683	RL	400	NO	NO
2006-04	3.3	28400	11414	3	35	FR	400	NO	NO
2004-93	3.0 2JZ-GE	28400	11401	12	40	FL	400	NO	NO
1992-91	3.0 Transverse	28400	11414	12	35	PC	400	NO	NO
1992	3.0 Conv	28400	11414	12	35	Any	400	NO	NO
1991-90	2.5 Transverse	28400	11414	5	35	FC	400	NO	NO
2018-09	2.5 ARFE	28813	11813	Cartridge	.683	RL	400	NO	NO
MAZDA									
4 CYLINDER									
1995-92	2.6	28400	11414	9	35	2ndLS	400	14500/16500	NO
1991-87	2.6	28400	11401	6	40	RF	400	14600/16600	NO
2018-09	2.5	28216	11409	THD	3/4" NPT	RL	400	NO	NO
2012-03	2.3	28216	11409	THD	3/4" NPT	RL	400	NO	NO
1995-88	2.2	28400	11402	9	35	2ndRF	400	NO	NO
1987-83	2.2	28400	11402	12	35	2ndRF	400	NO	13080
2018-12	2.0 Skyactive (Mazda 3&6)	28216	11409	THD	3/4" NPT	LR	400	NO	NO
2014-04	2.0	28216	11409	THD	3/4" NPT	RR	400	NO	NO
2004-93	2.0 Transverse	28400	11411	8	35	RR	400	NO	NO
1992-88	2.0 Transverse	28400	11402	8	35	RR	400	NO	NO
1987-86	2.0 Conv.	28400	11402	12	35	2ndLF	400	NO	13080
1987-85	2.0 Diesel	28400	11402	12	35	2ndRF	400	NO	NO
1984-80	2.0 Conv	28400	11608	12	49	LC	600	NO	13080
2004-90	1.8	28400	11414	6	35	2ndRF	400	NO	13080
1978-71	1.8	28400	11410	12	50	LC	400	NO	13080
2002-99	1.6	28400	11414	6	35	2ndRF	400	NO	13080
1997-89	1.6 Conv	28400	11402	12	35	2ndLF	400	NO	NO
1998-88	1.6 Transverse	28400	11402	12	35	2ndRF	400	NO	NO
1989-86	1.6	28400	11402	12	35	2ndRF	400	NO	NO
1980-71	1.6	28400	11402	6	35	LC	400	NO	13080
1989-88	1.6 Turbo	28400	11447	12	35	2ndRF	400	NO	NO
1999-95	1.5	28400	11411	12	35	2ndRF	400	NO	NO
1985-81	1.5 OHC	28400	11414	6	35	RL	400	NO	13080
1980-76	1.4 OHC	28400	11402	6	35	LF	400	NO	13080
1980-76	1.3 OHC	28400	11402	6	35	LF	400	NO	13080

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

		FROST PLUGS CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
MAZDA (CONTINUED)										
6 CYLINDER										
2016-09	3.7	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
2011-03	3.0	28216	11409	THD	3/4" NPT	FR	400	NO	NO	NO
2005-88	3.0	28400	11402	6	35	RF	400	NO	13100	
2009	2.5	28216	11409	THD	3/4" NPT	RL	400	NO	NO	NO
1997-92	2.5 Transverse	28400	11402	8	35	Rear	400	NO	NO	NO
2003-92	2.5	28400	11402	1	35	Rear	400	NO	NO	NO
2001-00	2.5	28216	11409	THD	3/4" NPT	RF	400	NO	NO	NO
1993-92	2.5	28216	11402	8	35	Rear	400	NO	NO	NO
1998-92	2.3	28216	11402	8	35	Rear	400	NO	NO	NO
1996-92	1.8	28216	11402	8	35	Rear	400	NO	NO	NO
MAZDA TRUCKS										
4 CYLINDER										
2012-09	2.5 (Tribute)	28216	11409	THD	3/4" NPT	LR	400	NO	NO	NO
1995-89	2.6 Mazda	28400	11414	9	35	2ndLF	400	14500/16500	13080	NO
1988-86	2.6 Mitsubishi	28400	11401	6	40	RF	400	14600/16600	13080	NO
2002-98	2.5 Ford	28400	11604	3	38	RR	600	NO	NO	NO
2012-01	2.3	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
1999-94	2.3 Ford	28400	11604	12	38	RR	600	NO	NO	NO
1993-86	2.2 Conv.	28400	11402	12	35	2ndLF	400	NO	13080	NO
1993-89	2.2	28400	11402	6	35	2ndLS	400	NO	13080	NO
1987-82	2.2 Diesel	28400	11421	12	35	2ndRF	400	NO	13080	NO
2018-12	2.0	28216	11409	THD	3/4" NPT	RL	400	NO	NO	NO
1993-86	2.0	28400	11402	12	35	2ndLF	400	NO	13080	NO
1985-79	2.0	28400	11402	12	35	2ndLF0	400	NO	13080	NO
1993-92	1.8	28400	11402	8	35	Rear	400	NO	13080	NO
1984-71	1.8	28400	11410	12	50	LF	400	NO	NO	NO
1997-88	1.6 Transverse	28400	11402	9	35	2ndRF	400	NO	NO	NO
1997-89	1.6 Conv.	28400	11402	6	35	2ndLS	400	NO	13080	NO
1980-71	1.6	28400	11410	6	50	LC	400	NO	13080	NO
1999-95	1.5	28400	11411	6	35	2ndRF	400	NO	13080	NO
1985-81	1.5 Trans.	28400	11414	6	35	RL	400	NO	13080	NO
1980-76	1.4 OHC	28400	11402	6	35	LF	400	NO	13080	NO
1980-76	1.3 OHC	28400	11402	6	35	LF	400	NO	13080	NO
6 CYLINDER										
2011-91	4.0 Ford	28400	11604	12	38	RF	600	NO	NO	NO
2018-09	3.7	28216	11409	THD	3/4" NPT	RR	400	NO	NO	NO
2012-02	3.0 MPV	28216	11409	THD	3/4" NPT	RF(6)	400	NO	NO	NO
2012 -94	3.0 FORD	28400	11604	12	38	RR	600	NO	NO	NO
2005-88	3.0 83000	28400	11402	6	35	RF	400	NO	13100	NO
2001-00	2.5	28216	11409	THD	3/4" NPT	RF	400	NO	NO	NO
1993-92	2.5	28400	11402	8	35	REAR	400	NO	NO	NO
MERCEDES										
ALL	230 Gas	28216	11460	THD	38	Right Lower	400	14500/16500	13100	NO
ALL	Diesel 1984&Newer	28216	11460	THD	38	Right Hose	400	NO	13100	NO
MITSUBISHI										
4 CYLINDER										
1989-83	2.6	28400	11401	3	40	RR	400	14600/16600	13080	NO
1999-96	2.4 4G64 Spyder	28400	11411	3	35	RF	400	NO	NO	NO
2007-04	2.4 4G64 Galant	28400	11411	4	35	2ndLF	400	NO	NO	NO
2018-08	2.4 Lancer GTS Outlander	28812	11812	Cartridge	.703	FL	400	NO	NO	NO
2007-04	2.4 JT41 MVEC	28400	11414	3	35	2nd LF	400	NO	NO	NO
1985-83	2.3 Diesel	28400	11401	9	40	LR	400	NO	NO	NO
1985-83	2.3 Diesel	28400	11401	9	40	LR	400	NO	NO	NO
2018-07	2.0 Lancer	28812	11812	Cartridge	.683	FL	400	NO	NO	NO
2007-04	2.0	28400	11411	3	35	2nd LF	400	NO	NO	NO
1993-83	2.0 Galant	28400	11411	3	35	LR	400	NO	NO	NO
1986	2.0	28400	11402	3	35	RF(Con) RR(Trans)	400	NO	13080	NO
2006-05	1.8	28216	11409	THD	3/4 NPT	FR	400	NO	NO	NO
2002-89	1.8	28400	11411	3	35	FR	400	NO	NO	NO
1992-89	1.6	28400	11411	4	35	2ndRR	400	NO	NO	NO
1995-86	1.5 Percis	28400	11402	9	35	2ndLR	400	NO	NO	NO
2002-86	1.5 Ex Percis	28400	11402	12	35	RC	400	NO	13080	NO
6 CYLINDER										
2012-04	3.8 Galant	28400	11607	12	41	LR	600	NO	NO	NO
2011-03	3.8	28400	11607	12	41	RR	600	NO	NO	NO
2006-97	3.5	28400	11603	6	41	LR	600	14600/16600	NO	NO
2012-08	3.5 Outlander	28500	11412	THD	30	RC	400	NO	NO	NO

(6) Remove R.F. wheel for access to plug hole.

		FROST PLUGS			mm			LOWER RAD	EXTERNAL	
CORD		HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER	12010	
MITSUBISHI										
2005-90	3.0 Ex 3000GT	28400	11603	12	41	RF	600	NO	NO	NO
1999-90	3.0 3000 GT	----	-----	--	--	--	--	14600/16600	13100	NO
2003-89	3.0 Truck	28400	11603	12	41	RR	600	14600/16600	NO	NO
1989-88	3.0	28400	11607	7	41	RR(Con) RL(Tran)	600	NO	NO	NO
1996-95	2.5	28400	11603	9	41	RF	600	NO	NO	NO
2013-08	2.4 Outlander	28812	11812	Cartridge	.703	LF	400	NO	NO	NO
NISSAN (DATSUN)										
4 CYLINDER										
2018-02	2.5	28400	11412	THD	30	FR	400	NO	NO	NO
1985-84	2.5 Diesel	28400	11422	6	35	LF	400	NO	13080	NO
2002-93	2.4 Altima	28400	11401	12	40	RC	400	NO	NO	NO
1998-85	2.4 Ex Altima	28400	11401	12	40	LF	400	NO	13080	NO
1999-89	2.4 240SX	28400	11401	12	40	RR	400	NO	NO	NO
1984-81	2.4 Maxima	28400	11402	11	35	3rdRS	400	NO	13080	NO
1985-80	2.2	28400	11401	12	40	LF	400	NO	NO	NO
1983-81	2.2 Diesel	28400	11401	12	40	LF	400	NO	NO	NO
2002-91	2.0	28500	11412	THD	30	RR	400	14600/16600	NO	NO
1989-82	2.0 Transverse	28400	11417	7	30	FL	400	NO	NO	NO
1988-84	2.0 Conv	28400	11417	6	30	LF	400	NO	NO	NO
1985-80	2.0 710, 200SX	28400	11401	12	40	LF	400	NO	13080	NO
1980-68	2.0	28400	11401	12	40	RR	400	NO	13080	NO
2018-01	1.8	28400	11417	9	30	FR	400	NO	13080	NO
1991-83	1.8 Transverse	28400	11417	8	30	RR(1)	400	NO	13080	NO
1988-84	1.8	28400	11417	3	30	RC	400	14500/16500	NO	NO
1980-68	1.8	28400	11401	12	40	RR	400	NO	13080	NO
1987-83	1.7 Diesel	28400	11417	7	30	LF	400	NO	13080	NO
1999-92	1.6 GA160DE	28400	11417	9	30	FR(12)	400	NO	13080	NO
1991-89	1.6	28400	11417	11	30	FR(12)	400	NO	13080	NO
1988-83	1.6 Transverse	28400	11417	8	30	RR(1)	400	NO	13080	NO
1980-68	1.6 Conv.	28400	11401	12	40	RR	400	NO	13080	NO
1984-82	1.5 Sentra, 310	28400	11417	8	30	RR	400	NO	13080	NO
1982-72	1.5 210	28400	11402	12	35	LF	400	NO	13080	NO
1981-79	1.5 310	28400	11402	12	35	FL	400	NO	13080	NO
1982-72	1.4 210	28400	11402	12	35	LF	400	NO	13080	NO
1981-79	1.4 310	28400	11402	12	35	FL	400	NO	13080	NO
1976-69	1.3	28400	11422	4	35	LF	400	NO	13080	NO
1982-72	1.2 210	28400	11402	12	35	LF	400	NO	13080	NO
1980-69	1.2	28400	11422	4	35	LF	400	NO	13080	NO
1980-69	1.0	28400	11422	4	35	LF	400	NO	13080	NO
6 CYLINDER										
2018-02	3.5	28500	11412	THD	30	FL	400	14600/16600	NO	NO
2002-95	3.0 VQ30DE	28500	11412	THD	30	FR	400	14600/16600	NO	NO
1995-84	3.0 VG30, 300ZX	28400	11417	6	30	RL	400	NO	NO	NO
1995-84	3.0 VG30, 300ZX	28400	11417	6	30	RL	400	NO	NO	NO
1994-86	3.0 VG30	28400	11417	6	30	FL	400	NO	NO	NO
1983-81	2.8 Turbo 280ZX	28400	11402	12	35	FR	400	NO	13100	NO
1983-75	2.8 280ZX	28400	11421	12	35	FR	400	14500/16500	13100	NO
1984-81	2.8 Diesel 810	28400	11424	12	35	LR	400	NO	13100	NO
1983-81	2.6 Diesel	28400	11402	12	35	5thLS	400	NO	13100	NO
1980-74	2.6	28400	11421	12	35	3rdRS	400	NO	NO	NO
1984-80	2.4 2393cc 810	28400	11421	12	35	RF	400	NO	13100	NO
NISSAN TRUCK										
4 CYLINDER										
2016-04	2.5	28500	11412	THD	30	FR	400	NO	13080	NO
1988-81	2.5 Diesel	28400	11421	6	35	LF	400	NO	13080	NO
1988-81	2.5 Diesel	28400	11421	6	35	LF	400	NO	13080	NO
2004-90	2.4	28400	11401	12	40	LR	400	NO	13080	NO
2004-90	2.4	28400	11401	12	40	LR	400	NO	13080	NO
1989-81	2.4	28400	11401	12	40	LR	400	NO	13080	NO
1989-81	2.2	28400	11401	12	40	LR	400	NO	13080	NO
1983-81	2.2 Diesel	28400	11402	6	35	LF	400	NO	13080	NO
1989-81	2.0	28400	11401	12	40	LR	400	NO	13080	NO
1989-82	2.0 Transverse	28400	11417	9	30	FL	400	NO	13080	NO
1989-82	2.0 Conv	28400	11417	8	30	LF	400	NO	13080	NO
1980-74	2.0	28400	11401	12	40	3rdRS	400	NO	13080	NO
1976	2.0 1952cc	28400	11401	12	40	LF	400	NO	13080	NO
1980-74	1.8	28400	11401	12	40	3rdRS	400	NO	13080	NO
1973-70	1.6	28400	11401	12	40	LF	400	NO	13080	NO

1) May be necessary to remove starter or radiator fan to get to frost plug. (6) Remove RF wheel for access to plug hole. (12) May be necessary to remove AC compressor.

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

		FROST PLUGS			mm				LOWER RAD	EXTERNAL	
		CORD	HEATER	DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER	12010	
NISSAN TRUCK (CONTINUED)											
6 CYLINDER											
2018-05	4.0	28500	11412	THD	30	LR	400	NO	NO	NO	
2018-01	3.5 VQ35DE Conv	28500	11412	THD	30	LF	400	NO	NO	NO	
2004-91	3.3 Conv	28400	11417	6	30	LR	400	NO	NO	NO	
2004-99	3.3 Trans	28400	11417	6	30	FL	400	NO	NO	NO	
1997-84	3.0 Conv	28400	11417	6	30	LR	400	NO	NO	NO	
1997-93	3.0 Transverse	28400	11417	6	30	FL	400	NO	NO	NO	
8 CYLINDER											
2018-04	5.6	28500	11412	THD	30	FR	400	NO	NO	NO	
2018-15	5.0 Diesel	28216	11628	THD	27	— —	600	NO	NO	NO	
OLDSMOBILE											
4 CYLINDER											
1992-80	2.5 Transverse	28400	11603	6	41	FL	600	14600/16600	13080	NO	
1991-90	2.5 Trans Code U	28400	11406 (7)	1	41	FL	400	NO	13080	NO	
1990	2.5 Trans Code R	28400	11603	6	41	FL	600	NO	13080	NO	
1981-78	2.5 Conv	28400	11603	12	41	LR	600	14600/16600	NO	NO	
2001-96	2.4 Twin Cam	28216	11423	THD	1/2" NPT	RC	400	NO	NO	NO	
1995-94	2.3	28216	11423	THD	1/2" NPT	RC	400	NO	NO	NO	
1993-87	2.3	28216	11409(19)	THD	3/4" NPT	RC	400	NO	NO	NO	
1992-85	2.2 Ex VIN K, M	28400	11435	3	42.5	FL	400	NO	13080	NO	
1993-85	2.0 VIN K, M	28400	11415	3	34	FL(11)	400	NO	13080	NO	
1984-83	2.0	28400	11425	9	34	FL	400	NO	13080	NO	
1986-83	1.8	28400	11425	1	34	FC	400	NO	13080	NO	
1982	1.8	28400	11413	12	34	FL	400	NO	13080	NO	
6 CYLINDER											
1996-91	4.3 Conv	28400	11612	6	41	LR	400	14600/16600	NO	NO	
1985-82	4.3 Diesel	28400	11610	12	38	RR	600	NO	13100	NO	
1987-75	4.1 Conv	28400	11416	12	38	RR(1)	400	NO	NO	NO	
1999-84	3.8 Trans	28400	11416	12	38	FL(12)	400	14600/16600	NO	NO	
1988-75	3.8 Conv	28400	11416	12	38	RR(1)	400	NO	13100	NO	
1995-92	3.4 Conv	28400	11415	8	34	LR	400	14500/16500	NO	NO	
2004-93	3.4 Trans	28400	11425	9	34	RC	400	NO	NO	NO	
1992-89	3.4 Trans	28400	11425	11	34	RC(11)	400	NO	13100	NO	
1998-89	3.3 Trans	28400	11416	12	38	FR	400	14600/16600	13100	NO	
2001-93	3.1 Trans	28400	11415	9	34	RC	400	NO	NO	NO	
1992-89	3.1 Trans	28400	11425	11	34	RC(11)	400	NO	13100	NO	
1989-82	3.0 Trans	28400	11416	3	38	FR	400	NO	13100	NO	
1995-93	2.8 Trans	28400	11425	9	34	FC	400	NO	NO	NO	
1992-80	2.8 Trans	28400	11425	11	34	RC(2,6)	400	NO	13100	NO	
1984-80	252	28400	11604	12	38	RR(1)	400	14600/16600	13100	NO	
Thru 76	250	28400	11607	12	41	RF	600	14700/16700	13100	NO	
1985-82	231	28400	11606	12	38	RR(1)	600	14600/16600	13100	NO	
1981-78	231	28400	11604	12	38	FR(1)	600	14600/16600	13100	NO	
8 CYLINDER											
1995-91	5.7	28400	11612	6	41	LR	600	14600/16600	13150	NO	
1990-64	5.7	28400	11610	12	38	LF	600	14600/16600	13150	NO	
1995-91	5.0	28400	11612	6	41	LR	600	14600/16600	13150	NO	
1990-64	5.0	28400	11610	12	38	LF	600	14600/16600	13150	NO	
1996-91	4.3	28400	11612	6	41	LR	600	14600/16600	13150	NO	
1990-64	455,400,260	28400	11610	6	38	LC	600	14600/16600	13150 (18)	NO	
1967-65	425	28400	11610	12	38	RF	600	14700/16700	13150	NO	
1992-74	400,350,305,302	28400	11612	9	41	LR	600	14600/16600	13150 (18)	NO	
1979-64	403,330	28400	11610	12	38	AnyES	600	14600/16600	13150	NO	
1985-80	350,260 Diesel	28400	11610	6	38	Any	600	NO	13150	NO	
1981-77	301,265	28400	11608	6	49	AnyLS(1)	600	14600/16600	13150	NO	
PLYMOUTH											
4 CYLINDER											
1989-84	2.6 Conv	28400	11401	3	40	RR	400	14600/16600	13080	NO	
1987-83	2.6 Transverse	28400	11401	9	40	RR	400	14500/16500	13080	NO	
Thru 82	2.6 Conv	28400	11401	9	40	RF	400	14500/16500	13080	NO	
1997-81	2.5 Transverse	28400	11612	3	41	FL	600	NO	NO	NO	
1992	2.5 VIN Code K	28400	11612	3	41	FL	600	14500/16500	13080	NO	
2001-90	2.4	28400	11411	3	35	FR	400	NO	13080	NO	
1993	2.4 AWD	28400	11401	3	40	RS	400	NO	NO	NO	
1997-81	2.2	28400	11406 (7)	6	41	RC	400	NO	NO	NO	
2001-95	2.0 Stratus	28400	11411	3	35	RL	400	NO	NO	NO	
1993-84	2.0 Turbo	— — — —	— — — —	— —	— —	— —	— —	14600/16600	13080	NO	
1991-89	2.0 Transverse	28400	11411	3	35	FR	400	NO	13080	NO	
1988-86	2.0	28400	11402	3	35	RF	400	NO	13080	NO	
1979-74	2.0	28400	11401	6	40	RF	400	14600/16600	13080	NO	
1996-89	1.8	28400	11411	3	35	FR	400	NO	NO	NO	

(1) May be necessary to remove starter or radiator fan to get to frost plug. (2) 10425 will not fit flush against engine plate due to the steel section of heater. (6) Remove RF wheel for access to plug hole. (7) 10406 produced after November of 1988. (12) May be necessary to remove AC compressor. (11) Must pry or pull plug outward. (18) May be necessary to remove wheel liner. (19) May require steel tube from GM.

		FROST PLUGS				mm	LOWER RAD		EXTERNAL	
CORD	HEATER		DIRECTION	SIZE	LOCATION	WATTS	HEATER	HEATER	12010	
PLYMOUTH (CONTINUED)										
1983-76	1.7 Transverse	28400	11420	6	36.5	RC	400	NO	13080	NO
1993-79	1.6 Transverse	28400	11402	5	35	2ndLR	400	14500/16500	13080	NO
1989-85	1.6	28400	11402	12	35	RC	400	14500/16500	13080	NO
1979-78	1.6 Conv	28400	11402	6	35	RR	400	14500/16500	13080	NO
1977-72	1.6	28400	11402	6	35	LC	400	NO	NO	NO
1996-93	1.5 Transverse	28400	11411	12	35	FL	400	NO	13080	NO
1989-85	1.5 Transverse	28400	11402	6	35	FL	400	NO	13080	NO
1993-79	1.4 Transverse	28400	11402	6	35	2ndLR	400	14500/16500	13080	NO
6 CYLINDER										
1995-86	3.9	28400	11607	12	41	RR	600	14600/16600	13100	NO
1996-94	3.8	28400	11613	12	41	RL	600	NO	13100	NO
1998-93	3.5	28400	11613	12	41	RR	600	NO	NO	NO
1996-94	3.3	28400	11613	12	41	RL	600	NO	13100	NO
1997-93	3.3 Conv	28400	11613	12	41	RR	600	NO	NO	NO
1992-88	3.3 Conv	28400	11607	6	41	RL	600	NO	13100	NO
1997-90	3.0 Transverse	28400	11607	11	41	RL	600	NO	13100	NO
1989-88	3.0	28400	11607	11	41	RL	600	NO	13100	NO
2001-95	2.5	28400	11612	9	41	RL	600	NO	NO	NO
1983-61	170,198,225	28400	11613	12	41	LF	600	14600/16600	13100	NO
8 CYLINDER										
1994-91	5.2	28400	11603	6	41	RR	600	14700/16700	13150	NO
2001-64	All other V8's	28400	11612	12	41	RC	600	14600/16600	13150	NO
PONTIAC										
3 CYLINDER										
1999-85	1.0	-----	-----	--	--	--	--	14400/16400	NO	NO
4 CYLINDER										
1995-80	2.5	28400	11603	6	41	FL	600	NO	13080	NO
1992-90	2.5 Trans Code U	28400	11406 (7)	1	41	FL	400	NO	13080	NO
1989-77	2.5	28400	11603	6	41	LR	400	14600 (16)/16600	13080	NO
2009-05	2.4	28500	11455	THD	28	RC	400	NO	NO	NO
2002-96	2.4 Twin Cam	28216	11423	THD	1/2" NPT	Water Pump	400	NO	13080	NO
1995-94	2.3 Quad IV	28216	11423	THD	1/2" NPT	Water Pump	400	NO	13080	NO
1993-87	2.3 Quad IV	28216	11409(19)	THD	3/4" NPT	RC	400	NO	13080	NO
2003-95	2.2	28400	11435	9	42.5	LF	400	NO	13080	NO
1994-87	2.2 Ex VIN K, M	28400	11418	3	42	FL	400	NO	13080	NO
2007-06	2.0	28500	11405	THD	36	FL	400	NO	NO	NO
1995-87	2.0 Ex VIN K, M	28400	11418	3	42	FL	400	NO	13080	NO
1986-85	2.0	28400	11418	3	42	FL	400	NO	13080	NO
1984-83	2.0 Transverse	28400	11425	9	34	LF	400	NO	13080	NO
1994-87	2.0 VIN K, M	28400	11415	9	34	FC(11)	400	NO	13080	NO
2009-02	1.8	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
1987-82	1.8 Diesel	28400	11421	12	35	RR	400	NO	13080	NO
1994-84	1.8	28400	11425	1	34	FC	400	NO	13080	NO
1985-83	1.8	28400	11425	1	34	FC	400	NO	13080	NO
1982	1.8	28400	11413	12	34	FL	400	NO	13080	NO
1993-81	1.6 Transverse	28400	11425	6	34	FR(11)	400	14600/16600	13080	NO
1988-81	1.6 Conv	28400	11415	3	34	FL	400	14500/16500	NO	NO
1987-85	1.5 Transverse	28400	11421	12	35	CR	400	NO	NO	NO
1987-76	1.4 Transverse	28400	11425	12	34	RF	400	NO	NO	NO
1999-87	1.3	-----	-----	--	--	--	--	14400/16400	NO	NO
6 CYLINDER										
1987-85	4.3	28400	11612	6	41	LR	600	14600/16600	13100	NO
1985-82	4.3 Diesel	28400	11610	12	38	RR	600	NO	13100	NO
2009-05	3.9	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2009-05	3.8	28510	11484 (23)	THD	28	RC	400	NO	NO	NO
2002-96	3.8 Firebird	28400	11432	9	38	RF	400	NO	NO	NO
2004-93	3.8 Transverse	28400	11416	12	38	FR(12)	400	14600/16600	13100	NO
1992-86	3.8 Transverse	28400	11426	12	38	FL	400	14600/16600	13100	NO
1988-80	3.8	28400	11612	6	41	LR	600	14600/16600	13100	NO
2009-05	3.6	28811	11811 (24)	Cartridge	.885	LR/RL	400	NO	NO	NO
2004	3.6	28810	11810	Cartridge	.885	LR/RL	400	NO	NO	NO
2009-05	3.5	28810	11484 (23)	THD	28	RC	400	NO	NO	NO
2008-93	3.4 Transverse	28400	11425	9	34	RC(15)	400	NO	NO	NO
1997-90	3.4 Conv	28400	11415	8	34	LR(11)	400	NO	NO	NO
1992-88	3.4 Transverse	28400	11425	11	34	RC(11)	400	NO	13100	NO
1999-93	3.3 Transverse	28400	11416	12	38	FR(1)	400	NO	NO	NO
1992-89	3.3	28400	11416	12	38	FL	400	14600/16600	13100	NO
2002-93	3.1 Transverse	28400	11425	9	34	RC(15)	400	NO	NO	NO
1997-90	3.1 Conv	28400	11415	8	34	LR(11)	400	NO	NO	NO
1992-87	3.1 Transverse	28400	11425	11	34	RC(11)	400	NO	13100	NO
1992-87	3.1 APV	28400	11425	11	34	FC(11)	400	NO	13100	NO
1989-82	3.0 Transverse	28400	11416	3	38	FL	400	NO	13100	NO

(11) Must pry or pull plug outward. (15) Use front freeze plug hole if available. (12) May be necessary to remove AC compressor. (23) OEM is thermostatically controlled heater 11455 is heater without thermostat.(24) OEM heater is thermostatically controlled. (7) 10406 produced after November of 1988. (19) May require steel tube from GM.

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

FROST PLUGS		HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD	EXTERNAL	12010	
CORD							HEATER	HEATER		
PONTIAC (CONTINUED)										
6 CYLINDER										
1989-82	3.0 Transverse	28400	11416	3	38	FL	400	NO	13100	NO
1995-93	2.8 Transverse	28400	11425	9	34	RC(15)	400	NO	NO	NO
1992-82	2.8 Conv	28400	11425	9	34	RFF(9)	400	14600/16600	13100	NO
1992-80	2.8 Transverse	28400	11425	11	34	RC(11)	400	14600/16600	13100	NO
1976-64	330	28400	11607	6	41	LF	600	14600/16600	13100	NO
1984-80	252	28400	11604	12	38	RR(1)	600	14600/16600	13100	NO
Thru 76	250	28400	11607	6	41	LF	600	14600/16600	13100	NO
1985-82	231	28400	11604	12	38	FR(1)	600	14600/16600	13100	NO
1981-78	231	28400	11606	12	38	RR(1)	600	14600/16600	13100	NO
1976-64	215	28400	11607	6	41	LF	600	14600/16600	13100	NO
8 CYLINDER										
2009	6.2	28510	11484 (23)	THD	28	LF	400	NO	NO	NO
2009-05	6.0	28510	11484 (23)	THD	28	FL	400	NO	NO	NO
2004-98	5.7 Gen III	28500	11455	THD	28	LF	400	NO	13150	NO
2009-05	5.3	28510	11484 (23)	THD	28	FL	400	NO	NO	NO
1979-66	455	28400	11608	6	49	RF	600	14600/16600	13150	NO
1977-70	454	28400	11609	6	44.5	RC	600	14600/16600	13150	NO
1979-66	428	28400	11608	6	49	RF	600	14600/16600	13150	NO
1970-62	427,409,396	28400	11609	12	44.5	RC	600	14600/16600	13150	NO
1990-75	403 Olds	28400	11610	12	38	RC	600	14600/16600	13150	NO
1995-74	400 Chev	28400	11612	9	41	LR	600	14600/16600	13150	NO
1979-66	400	28400	11608	6	49	RF	600	14600/16600	13150	NO
1979-66	384	28400	11608	6	49	RF	600	14600/16600	13150	NO
1995-74	350 Chev	28400	11612	9	41	LR	600	14600/16600	13150	NO
1990-75	350 Olds	28400	11610	12	38	RC	600	14600/16600	13150	NO
1985-80	350 Diesel	28400	11610	6	38	AnyLS	600	NO	13150	NO
1979-66	350 Pont	28400	11608	6	49	RF	600	14600/16600	13150	NO
1979-66	326	28400	11608	6	49	RF	600	14600/16600	13150	NO
1995-58	305,302,283Chev	28400	11612	9	41	LR	600	14600/16600	13150	NO
1990-74	307	28400	11610	12	38	RC	600	14600/16600	13150	NO
1981-77	301	28400	11608	6	49	AnyLS(1)	600	14600/16600	13150	NO
1982-78	267	28400	11612	9	41	LR	600	14700/16700	13150	NO
1981-77	265	28400	11608	6	49	AnyLS(1)	600	14600/16600	13150	NO
1990-74	260	28400	11610	12	38	RC	600	14600/16600	13150	NO
1985-80	260 Diesel	28400	11610	6	38	AnyLS	600	NO	13150	NO
PORSCHE										
2008-04	3.2	28400	11417	10	30	RF	400	NO	NO	NO
RENAULT										
1988-84	2.2	28216	11407	THD	1" NPT	RFF	400	NO	NO	NO
ROVER										
4 CYLINDER										
1958 & UP	Gas or Diesel	28400	11410	6	50	LC	400	14500/16500	NO	NO
6 CYLINDER										
1958 & UP	161,182.7 CID	28216	11407	THD	1" NPT	Block	400	NO	NO	NO
8 CYLINDER										
2016-11	5.0	28500	11463	THD	30	LR	400	NO	NO	NO
2004-96	4.6	28400	11458	6	38	LC	400	NO	NO	NO
2009-04	4.4	28500	11463	THD	30	LR	400	NO	NO	NO
2011-04	4.2	28500	11463	THD	30	LR	400	NO	NO	NO
1995-87	4.2	28400	11604	6	38	LC	600	NO	NO	NO
2007-96	4.0	28400	11458	6	38	LC	400	NO	NO	NO
1995-87	3.9	28400	11604	6	38	LC	600	NO	NO	NO
SAAB										
4 CYLINDER										
2006-90	2.3	28400	11436	9	36	LF	400	NO	NO	NO
1993-85	2.1	28400	11437	THD	26	— —	400	NO	NO	NO
1984-75	2.1	28400	11438	3	41.5	RR	400	NO	13080	NO
1993-85	2.0	28400	11437	THD	26	— —	400	NO	NO	NO
1984-75	2.0	28400	11438	3	41.5	RR	400	NO	NO	NO
6 CYLINDER										
2009-05	4.2	28510	11484 (23)	THD	28	LR	400	NO	NO	NO
2004-99	3.0	28500	11419	THD	28	— —	400	NO	NO	NO
8 CYLINDER										
2009-08	6.0	28510	11484 (23)	THD	28	LR	400	NO	NO	NO
2009	5.3	28510	11484 (23)	THD	28	LR	400	NO	NO	NO

1) May be necessary to remove starter or radiator fan to get to frost plug.(11) Must pry or pull plug outward. (9) May be necessary to remove wheel liner. (15) Use front freeze plug hole if available. (12) May be necessary to remove AC compressor.(23) OEM is thermostatically controlled heater 11455 is heater without thermostat.(24) OEM heater is thermostatically controlled.

		FROST PLUGS CORD	HEATER	DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
SATURN										
4 CYLINDER										
2008-05	2.4	28500	11455	THD	28	RC	400	NO	NO	NO
2008-06	2.2	28400	11435	4	42.5	FL (1)	400	NO	NO	NO
2008-07	2.0	28500	11405	THD	35	FL	400	NO	NO	NO
6 CYLINDER										
2011-07	3.6	28811	11811 (24)	Cartridge	.885	RL	400	NO	NO	NO
2009-06	3.5	28510	11484 (23)	THD	28	LF	400	NO	NO	NO
2007-00	3.0	28500	11419	THD	28	LF	400	NO	NO	NO
SUBARU										
3 CYLINDER										
1995-88	1.2	28500	11405	THD	36	RL	400	NO	NO	NO
4 CYLINDER										
2015-96	2.5	28500	11405	THD	36	FL	400	NO	NO	NO
2018-12	2.0	28500	11405	THD	36	LF	400	NO	NO	NO
2002-78	2.0	28500	11405	THD	36	FL	400	NO	NO	NO
1996-78	1.8	28500	11405	THD	36	RF	400	NO	NO	NO
1992-78	1.6	28500	11405	THD	36	RF	400	NO	NO	NO
6 CYLINDER										
2018-08	3.6	28500	11405	THD	36	LF	400	NO	NO	NO
1996-92	3.3	28500	11405	THD	36	RF	400	NO	NO	NO
2011-01	3.0	28500	11405	THD	36	FL	400	NO	NO	NO
1989-88	2.8	28500	11405	THD	36	RR	400	NO	NO	NO
1993-88	2.7	28500	11405	THD	36	RF	400	NO	NO	NO
SUZUKI										
3 CYLINDER										
2000-85	1.0	-----	-----	---	---	---	---	14400/16400	NO	NO
4 CYLINDER										
2000-89	1.6	-----	-----	---	---	---	---	14400/16400	NO	NO
1999-85	1.3	-----	-----	---	---	---	---	14400/16400	NO	NO
6 CYLINDER										
2010-07	3.6	28811	11811 (24)	Cartridge	.885	RL	400	NO	NO	NO
2011-08	3.2	28811	11811 (24)	Cartridge	.885	RL	400	NO	NO	NO
TOYOTA / SCION										
4 CYLINDER										
2018-09	2.5 ARFE	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
2014-04	2.4	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
2001-92	2.2 5S-FE	28400	11401	12	40	LF	400	NO	NO	NO
1993-91	2.0 3S-GTE	28400	11411	9	35	2ndLR	400	NO	NO	NO
1991-86	2.0 2S-FE,3S-GE	28400	11414	12	35	2ndRR	400	NO	NO	NO
1986-83	2.0 2SE 25GE	28400	11401	6	40	2ndLF	400	NO	NO	NO
1985-72	2.0 2SE	28400	11401	6	40	FR	400	NO	NO	NO
1985-74	2.0 20R,22R,22RE	28400	11401	12	40	FR	400	NO	13080	NO
1974-72	2.0 18RC	28400	11401	12	40	RR	400	NO	13080	NO
2018-98	1.8	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
1999-94	1.8 7A-FE	28400	11401	12	40	FC	400	NO	NO	NO
1987-82	1.8 3TC	28400	11424	9	35	FL	400	NO	13080	NO
1987-82	1.6 2TC	28400	11424	9	35	FL	400	NO	13080	NO
ALL	1.6 4A-GE	28400	11414	12	35	LC	400	NO	NO	NO
ALL	1.6 4A-C	28400	11401	12	40	2ndLF	400	NO	13080	NO
1993-90	1.6 4A-FE	28400	11401	12	40	FC	400	NO	NO	NO
1997-88	1.6 4AF,7AFE	28400	11401	12	40	FC	400	NO	NO	NO
1989-86	1.6 4A-GE, 4A-GZE MR2	28400	11414	6	35	FR	400	NO	NO	NO
1991-85	1.6 4A-GE	28400	11414	12	35	RC	400	NO	NO	NO
1991-85	1.6 4A-GE	28400	11414	12	35	RC	400	NO	NO	NO
2018-00	1.5 1NZ-FE	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
1999-92	1.5 5E-FE	28400	11417	3	30	FL	400	NO	NO	NO
1998-96	1.5 5E-FE Paseo	28400	11417	12	30	FL	400	NO	NO	NO
1995-92	1.5 5E-FE	28400	11417	3	30	2ndRF	400	NO	NO	NO
1994-90	1.5 3E-E	28400	11402	9	35	FL	400	NO	NO	NO
1991-87	1.5 3E	28400	11402	12	35	FL	400	NO	NO	NO
1988-80	1.5 1AC,3A,3AC	28400	11401	6	40	2ndLF	400	NO	13080	NO
6 CYLINDER										
2018-07	4.0	28813	11813	Cartridge	.683	FL	400	NO	NO	NO
2018-05	3.5 2GRFE	28813	11813	Cartridge	.683	FL	400	NO	NO	NO
2009-04	3.3	28400	11414	3	35	FR	400	NO	NO	NO
2006-94	3.0 1MZ-FE	28400	11482	3	35	FR	400	NO	NO	NO
1993-92	3.0 3VZ-FE	28400	11424	6	35	FL	400	NO	NO	NO
1992-86	3.0 7M-GE	28400	11401	12	40	FL	400	NO	NO	NO
1992-86	3.0 7M-GE,7M-GTE	28400	11401	6	40	FL	400	NO	NO	NO
1988-86	3.0 7M-GE	28400	11401	12	40	FL	400	NO	13100	NO
1999	3.0 1MZ-FE	28400	11414	3	35	FR	400	NO	NO	NO

(23) OEM is thermostatically controlled. 11455 is heater without thermostat. (24) OEM is thermostatically controlled. 11810 is heater without thermostat.

AUTOMOTIVE & LIGHT TRUCK APPLICATION GUIDE

FROST PLUGS				DIRECTION	mm SIZE	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
CORD		HEATER								
TOYOTA / SCION (CONTINUED)										
6 CYLINDER CONTINUED										
1999	3.0 1MZ-FE	28400	11414	3	35	FR	400	NO	NO	NO
1992-86	2.8 5M-GE	28400	11401	12	40	FL	400	NO	13100	NO
1985-80	2.8 5ME,5ME-GE	28400	11401	10	40	FR	400	NO	NO	NO
1985-79	2.6 4ME	28400	11401	10	40	FR	400	NO	13100	NO
1979-71	2.6 4M	28400	11401	10	40	RR	400	14500/16500	13100	NO
1991-88	2.5 2VZ-FE	28400	11424	12	35	FC	400	NO	NO	NO

TOYOTA TRUCK										
4 CYLINDER										
1987-81	3.4 3B,2B	28400	11414	12	35	RL	400	NO	13100	NO
2018-09	2.7	28813	11813	Cartridge	.683	RL	NO	NO	NO	NO
2007-96	2.7 3RZ-FE	28400	11424	9	35	LF	400	NO	NO	NO
2018-94	2.7 3RZ-FE Tacoma	28400	11481	9	35	RF	400	NO	NO	NO
2013-01	2.4	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
2006-95	2.4 2RZ-FE	28400	11481	2	35	FL	400	NO	NO	NO
1997-91	2.4 2TZ-FE, 2TZ-FZE	28400	11414	12	35	FR	400	NO	13080	NO
1996-81	2.4 22R,22R-E, 22R-TE	28400	11401	12	40	FL	400	NO	13080	NO
1995-81	2.4 22R,22R-E 22R-TE	28400	11401	6	40	RF	400	NO	13080	NO
1989-86	2.2 4YE	28400	11424	12	35	RL	400	NO	13080	NO
1980-75	2.2 20R	28400	11401	12	40	RF	400	NO	13080	NO
ALL	2.2 2L,2LT	28400	11411	3	35	LR	400	NO	NO	NO
2008-01	2.0	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
2003-97	2.0 3S-FE	28400	11414	12	35	2ndRR	400	NO	13080	NO
1985-84	2.0 3Y	28400	11424	12	35	RL	400	NO	NO	NO
ALL	1.8 L	28400	11411	3	35	LR	400	NO	13080	NO
6 CYLINDER										
2018-03	4.0	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
1989-88	3.9 3F-E	28400	11410	12	50	LC	400	NO	NO	NO
1987-86	3.9 2H Diesel	28400	11424	6	35	RR	400	NO	13100	NO
2016-15	3.5 2GRFE	28813	11813	Cartridge	.683	FL	400	NO	NO	NO
2004-96	3.4 5VZ-FE 4-Runner&Tundra	28400	11414	6	35	LR	400	NO	NO	NO
2001-95	3.4 5VZ-FE	28400	11482	6	35	RL	400	14500/16500	NO	NO
2009-06	3.3	28400	11414	3	35	FR	400	NO	NO	NO
2006-00	3.0 1MZFE	28400	11482	3	35	FR	400	NO	NO	NO
1995-88	3.0 3VZ-FE	28400	11411	7	35	RL	400	NO	NO	NO
1995-88	3.0 3V-ZE	28400	11411	6	35	LF	400	14500/16500	NO	NO
8 CYLINDER										
2018-07	5.7	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
2009-00	4.7 2UZ-FE Tundra	28400	11482	6	35	2ndRF	400	NO	NO	NO
2003-98	4.7 2UZ-FE Land Cruiser	28400	11482	12	35	2ndRF	400	NO	NO	NO
2018-10	4.6 1URFSE	28813	11813	Cartridge	.683	RL	400	NO	NO	NO
2006-03	4.0 1GR-FE	28400	11482	6	35	RL	400	NO	NO	NO

VOLKSWAGEN (suggests the use of a 24150 Silicone Pad on the oil pan in place of a Frost Plug.)										
4 CYLINDER										
1995-87	2.0 Conv	28400	11420	12	36.5	RF(11)	400	NO	NO	NO
1999-83	2.0 Transverse	28400	11420	12	36.5	RF(11)	400	NO	NO	NO
1999-93	1.9 Diesel	28400	11420	12	36.5	RL(11)	400	NO	NO	NO
1995-87	1.8 Conv	28400	11420	12	36.5	RF(11)	400	NO	NO	NO
1995-83	1.8 Transverse	28400	11420	12	36.5	RR(11)	400	NO	NO	NO
1994-74	1.7	28400	11420	12	36.5	RC(11)	400	14400/16400	13080	NO
1994-74	1.6	28400	11420	12	36.5	RC(11)	400	14400/16400	13080	NO
1994-74	1.5	28400	11420	12	36.5	RC(11)	400	14400/16400	13080	NO
5 CYLINDER										
1995-87	2.3	28400	11429	3	36.5	RF	400	NO	NO	NO
1995-87	2.2	28400	11429	3	36.5	RF	400	NO	NO	NO
6 CYLINDER										
2007-04	3.2	28400	11417	10	30	RFF	400	NO	NO	NO

FROST PLUGS		mm	LOCATION	WATTS	LOWER RAD HEATER	EXTERNAL HEATER	12010
CORD	HEATER						

VOLVO

4 CYLINDER										
1993	2.4	28400	— — — — —	— —	— —	— —	— —	NO	13080	NO
1990-85	2.3	28400	11401	9	40	RF	400	14500/16500	NO	NO
1996-85	2.3	28400	11401	6	40	RF	400	14600/16500	13080	NO
1985-69	2.3	28400	11450	3	44.5	RR	400	14500/16500	13080	NO
1985-69	2.1	28400	11450	3	44.5	RR	400	14500/16500	13080	NO
6 CYLINDER										
1975-69	3.0	28400	11450	9	44.5	RR	400	14500/16500	13100	NO
1990-76	2.8	28400	11427	9	36	RFF	400	14500/16500	13100	NO
1990-76	2.7	28400	11427	9	36	RFF	400	14500/16500	13100	NO
1985-80	2.4 Diesel	28400	11420	6	36.5	4THRS	400	NO	13100	NO
8 CYLINDER										
2011-06	4.4 Transverse	28216	11409	THD	3/4" NPT	LR	400	NO	NO	NO

YUGO

1992-88	1.3	28400	11434	3	40	RC	400	NO	NO
1992-88	1.1	28400	11434	3	40	RC	400	NO	NO

ALLIS CHALMERS

170 Diesel

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30508	600		RR	12	16700	13150



XP170, XP190

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16700	13150



XP180, XP210, XP220

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16800	13150



7030, 7040, 7045, 7050, 7060, 7080, 7580, D21, 210, 220, 3500, 670T, 670I

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30207	1500	1"	RR	THD	16600	13150



W, WC, WD, WF, WR, WD45

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16600	13150



185, 200, 7000, 7010, 702649, 649T, 2800, 2900

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30208	1000	Plate	RR			13150



3500, 3700 (670T & I), 10000, 11000 (685T & I, 516 CID)

Part Number	Watts	Volts	Diameter	Cordset
30303	1500	120	1" NPT	120V 28216
31303	1500	240	1" NPT	240V 28316



Replaces 1" pipe plug on right rear of block

17000, 21000, 25000 (6138LT, or 844 CID)

Part Number	Watts	Volts	Diameter	Cordset
30303	1500	120	1" NPT	120V 28216
31303	1500	240	1" NPT	240V 28316



Replaces 1" pipe plug in oil cooler

ALLIS CHALMERS (CONTINUED)

AGCO Allis 5040, 545, 5050

Part Number	Watts	Volts	Diameter	Cordset
11404	400	120	36mm	28400



Replaces right rear frost plug

BELARUS

500, 800, 900 Series

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	RF	THD		13100
11407	400	1" NPT	RF	THD		



BOLENS

TS1910, TS3420 2 Cyl

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11615	400	1 3/4"	LS	6		13100



G2102, 2104, 2702, 2704 3 Cyl

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11615	400	1 3/4"	LC	12		13100



TX1502, TX1504, TX1704

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11615	400	1 3/4"	RS	6		13100



5117H (Mitsubishi L3A)

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11401	400	1 9/16"	LR	9		13100



DAVID BROWN

900, 995, 1200, 1212

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11616	400	1 3/4"	LC	12		



CASE

336, 401, 451, 504, 1470TK, W2A, 301B, 301BD, 336B, 336BD, 336BDT, 401B, 401BD, 451BD, 451BDT, 504B, 504BD, 504BDT

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30603	1000	2"	RR	4		13100



4-390, 6T-590, 4T-390, 4TA-390, 6-590, 6T-590

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30107	750	2 1/4"	RS	6		13100



430, 730, 830, 930 (188D, 251G, 267D, 284D, 310D, 401D)

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11453	400	3/8" NPT	LS	THD		13100



530C, 531C, 630C, 400, 500, 600, 700B, 800B, 900B

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16700	13100



6T-830, 6TA-830

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30108	1000	2 1/4"	RR	4		13150



All 6 Cyl 930-377G, 401D, 1200-451D

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11453	400	3/8" NPT	LS	THD	16700	13100



2090, 2290, 2390

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30603	1000	2"	RR	6		13150



B10

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30401	1000	42mm		THD		



CASE (CONTINUED)

Case/Maxxum/New Holland T6000 Series

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30133	750	58mm	RS	THD		13150

V1100B

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	RS	THD		13100



V2203

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11444	400	1 3/8"	RF	12		13100



Cursor

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30612	1000	42		THD		13150



CATERPILLAR

1140, 1145, 1150, 1160, 3206

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	RS	12		13100



C10, C12, 3196, 3406 (with Brake Saver 1994 & newer)

Part Number	Watts	Volts	Diameter	Cordset
30207	1500	120	1" NPT	120V 28216
31207	1500	240		240V 28316



Replaces plug in right rear of oil cooler

C9, C15, C16, ACERT, C18 2004 thru 2006

Part Number	Watts	Volts	Diameter	Cordset
30213	1500	120	1 3/16"	120V 28216



Replaces plug in right rear of oil cooler
C18 Right Rear

C9, C15, C16

Part Number	Watts	Volts	Diameter	Cordset
30313	1000	120	1" NPT	120V 28216
31313	1000	240		240V 28316
30303	1500	120		120V 28216
31303	1500	240		240V 28316



Replaces 1" plug in oil cooler

CATERPILLAR (CONTINUED)

C11, C13 including ACERT

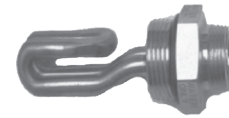
Part Number	Watts	Volts	Diameter	Cordset
30212	1500	120	1 5/16"	120V 28216
31212	1500	240		240V 28316



Replaces plug in rear of oil cooler

C13, C15 (2007 & newer)

Part Number	Watts	Volts	Diameter	Cordset
30216	1500	120	1 3/16"	28216



Replaces plug in oil cooler

1100 & 3100 Series

Part Number	Watts	Volts	Diameter	Cordset
30204	1000	120	1 3/4"	120V 28216
31204	1000	240		240V 28316
30206	1500	120		
31206	1500	240		



Replaces front frost plug

1670, 1674, 1693, G & D333

Part Number	Watts	Volts	Diameter	Cordset
30201	1500	120	Plate	120V 28216
31201	1500	240		240V 28316



Replaces water inspection plate on left side of engine 1670 G & D333

1693 & D343 (893 CID)

Part Number	Watts	Volts	Diameter	Cordset
30203	1500	120	Plate	120V 28216
31203	1500	240		240V 28316



Replaces water inspection plate on side of engine

1693 T & TA

Part Number	Watts	Volts	Diameter	Cordset
30205	1500	120	Plate	120V 28216
31205	1500	240		240V 28316



Replaces water jacket access plate on side of engine

3054 C & E 2004 and newer C 4.4

Part Number	Watts	Volts	Diameter	Cordset
30214	750	120	1 1/4"	120V 28500
30217	1000			



RR 3

3054, 3056

Part Number	Watts	Volts	Diameter	Cordset
11604	600	120	1 1/2"	120V 28400



Install in 1 1/2" frost plug on right side front or right side of engine

CATERPILLAR (CONTINUED)

C3.3B

Part Number	Watts	Volts	Diameter	Cordset
11409	400	120	3/4 NPT	120V 28216



FL

C 9.3, C15

Part Number	Watts	Volts	Diameter	Cordset
30218	400	120	1 5/16-12	120V 28216



RR

C 4.4 Acert Tier 4

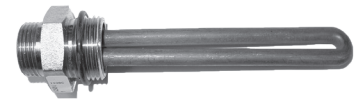
Part Number	Watts	Volts	Diameter	Cordset
11619	600	120	3/4" NPT	120V 28216



LC (Left Center)

C 18 Acert

Part Number	Watts	Volts	Diameter	Cordset
30330	1500	120	1 3/16"	120V 28216



RR (Right Rear)

3114 (4.4L), 3116 (6.6L), 3126 (7.2L), C7 Including ACERT, CFE, 7.1 ACERT

Part Number	Watts	Volts	Diameter	Cordset
30202	1000	120	1 3/4"	
31202	1000	240		
30215	1500	120		



Install in center frost plug on right side

3117

Part Number	Watts	Volts	Diameter	Cordset
30317	1500	120	3/4" NPT	120V 28216
31317	1500	240		240V 28316



Replaces 3/4" pipe plug on right rear side of engine

3176 1996 & Newer, 3196, 3406 with Brake Saver 1994 & Newer

Part Number	Watts	Volts	Diameter	Cordset
30207	1500	120	1" NPT	120V 28216



Replaces 1" pipe plug in oil cooler

3204, 3208, 3150, 3160, 3406 with Brake Saver

Part Number	Watts	Volts	Diameter	Cordset
11609	600	120	1 3/4"	120V 28400



3204: replaces right rear frost plug

3208: replaces center frost plug on each side of engine – 2 required

CATERPILLAR (CONTINUED)

3208 Stationary Engine

Part Number	Watts	Volts	Diameter	Cordset
30319	1000	120	3/4" NPT	120V 28216
30317	1500	120		240V 28316
31317	1500	240		

Replaces 3/4" pipe plug on rear of oilcooler on left side of engine
Hold element stationary while tightening adapter



3716 1995 & Older, 3304, 3306

Part Number	Watts	Volts	Diameter	Cordset
30307	1000	120	3/4" NPT	120V 28216
31307	1000	240		240V 28316
30312	1500	120		
31312	1500	240		

3176: replaces 3/4" pipe plug on right front of engine

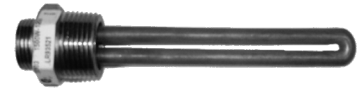
3304/3306: replaces pipe plug in water jacket on left side of engine



3406 (893 CID), 3406 (Steiger ST325) w/o Brake Saver, 3406E, 3456

Part Number	Watts	Volts	Diameter	Cordset
30313	1000	120	1" NPT	120V 28216
31313	1000	240		240V 28316
30303	1500	120		
31303	1500	240		

Replaces 1" pipe plug on oil cooler bonnet



3406E 3456 1998 only

Part Number	Watts	Volts	Diameter	Cordset
30211	1500	120	1" NPT	120V 28216

Replaces plug in top of oil cooler



3408 (1099 CID), 3412 (Use 2)

Part Number	Watts	Volts	Diameter	Cordset
30313	1000	120	1" NPT	120V 28216
31313	1000	240		240V 28316
30303	1500	120		
31303	1500	240		

Replaces 1" pipe plug behind oil cooler on right side of engine



C6.6 1106

Part Number	Watts	Volts	Diameter	Cordset
30519	1000	120	Plate	120V 28216

RR



3406 1994 & Newer - Not for use with 1998 3406E or 15.8L 600 hp mold

Part Number	Watts	Volts	Diameter	Cordset
30207	1500	120	1" NPT	120V 28216

Replaces 1" pipe plug in oil cooler front bonnet



1404

Part Number	Watts	Volts	Diameter	Cordset
11440	400	120	2 1/8"	28400

LC 12 o'clock



CATERPILLAR (CONTINUED)

3003

Part Number	Watts	Volts	Diameter	Cordset
11402	400	120	35mm	28400



LF 6 o'clock

3013, 3014, 3024

Part Number	Watts	Volts	Diameter	Cordset
11401	400	120	40mm	28400



LF 6 o'clock

3034

Part Number	Watts	Volts	Diameter	Cordset
11465	400	120	50mm	28400



Rear face 4 o'clock

3046

Part Number	Watts	Volts	Diameter	Cordset
11439	600	120	35mm	120V 28216



2nd LR 6 o'clock

COCKSHUTT

500 Hercules, 560 Perkins

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4 NPT				13100



CONTINENTAL

F162; F163; F227; F245; TM27, TMD27; Y112 (Since 1981)

Part Number	Watts	Volts	Diameter	Cordset
11406	400	120	1 5/8"	28400



LS 12 o'clock

TM27, TMD27: RS 12 o'clock

CUMMINS

855 N & NH w/o full flow cooling, Big Cam III and IV, N14, Reverse Plate on New Big Cam IV

Part Number	Watts	Volts	Diameter	Cordset
30111	1000	120	Plate	120V 28216
31111	1000	240		240V 28316
30101	1500	120		Gasket 28120
31101	1500	240		



Replaces water inspection plate on right side of engine

CUMMINS (CONTINUED)

Big Cam IV alternate installation

Part Number	Watts	Volts	Diameter	Cordset
30105	1500	120	Plate	120V 28216
31105	1500	240		240V 28316
				Gasket 28107



Replaces rear inspection plate. Includes 1/2" NPT hose connection

855 N, NH, NTC, with full flow cooling; 30110 Hose Port Swivels

Part Number	Watts	Volts	Diameter	Cordset
30104	1500	120	Plate	120V 28216
31104	1500	240		240V 28316
30110	1500	120		Element: 28106
31110	1500	240		



Install in rear header or water inspection plate on right rear of engine

855 full flow high mount oil cooler (exhaust partially blocks rear port)

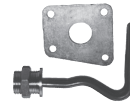
Part Number	Watts	Volts	Diameter	Cordset
30110	1500	120	Plate	120V 28216
31110	1500	240		240V 28316



Replaces water jacket plate on side of engine

855 full flow cooling high mount oil cooler, Prior to 1975

Part Number	Watts	Volts	Diameter	Cordset
30114	1500	120	Plate	120V 28216
31114	1500	240		240V 28316



Replaces heating element in casting

855 (alternate installation) 1995 and older

Part Number	Watts	Volts	Diameter	Cordset
30119	1500	120	1 1/2" NPT	120V 28216



Rear of engine block

855 (alternate installation)

Part Number	Watts	Volts	Diameter	Cordset
30120	1500	120	1 5/8"	120V 28216



Rear of engine block

855 full flow cooling low mount oil cooler

Part Number	Watts	Volts	Diameter	Cordset
30110	1500	120	Plate	120V 28216
31110	1500	240		240V 28316



Replaces front water jacket plate on side of engine (Note: Use position 2)

V6-140, 155; VT225, V555, VT555; V8-170, 185, 210, 470

Part Number	Watts	Volts	Diameter	Cordset
30102	1000	120	Plate	120V 28216
				240V 28316



Replaces water inspection plate on front of left bank

CUMMINS (CONTINUED)

V6-195, 200, 215, 280; V8-235, 265, 300, 370, 430, 903

Part Number	Watts	Volts	Diameter	Cordset
30103	1500	120	Plate	120V 28216 240V 28316



3 7/8" x 5 5/8"

Replaces water inspection plate on front of left bank

L10 (10 Liter), 6 cyl., 611 CID; ISM, QSM11; M11 (10.8 Liter) 6 cyl., 661 CID

Part Number	Watts	Volts	Diameter	Cordset
30106	1500	120	38mm THD	120V 28216 240V 28316
31106	1500	240		



Install in heater casting on right rear of engine

"A" Series, 4 & 6 cyl

Part Number	Watts	Volts	Diameter	Cordset
11611	600	120	2"	



RS 12 o'clock

"B" Series 4B3.9, 4BT3.9 (3.9L, 289 CID) 4 cyl, 6B5.9, 6BT5.9 (5.9L, 359 CID) 6 cyl, 6.7 QSB 2006-05, ISB 02 200 HP

Part Number	Watts	Volts	Diameter	Cordset
30107	750	120	2 1/4"	120V 28216
30108	1000	120		
30122	1500	120		



Replaces frost plug on right side of engine in any available hole

"ISB" "QSB" Series, 3.9L, 4.5L, 5.9L, 6.7L

Part Number	Watts	Volts	Diameter	Cordset
30115	750	120	3/4" NPT	120V 28216



Rear of oil cooler

"B" 3.3L, "QSB"

Part Number	Watts	Volts	Diameter	Cordset
11443	400	120	40mm	120V 28400



LR 6 o'clock

ISB-02 200HP 2006-05, QSB 2006-05

Part Number	Watts	Volts	Diameter	Cordset
30130	750	120	Plate	120V 28216
30131	1000	120		



Right front

"C" Series 6C 8.3L, 6CT 8.3L, 6CTA 8.3L (8.3L, 505 CID), "QSC" Series, 8.3L

Part Number	Watts	Volts	Diameter	Cordset
30108	1000	120	2 1/4"	120V 28216 240V 28316
31108	1000	240		



Replaces frost plug on right side of engine

CUMMINS (CONTINUED)

“ISC” Series, 8.3L; “ISL” Series, 8.9L; “QSL” Series, 8.9L

Part Number	Watts	Volts	Diameter	Cordset
30307	1000	120	3/4" NPT	120V 28216
31307	1000	240		240V 28316



Front of oil cooler

“K” Series KT19, KT450, KT1150, KTA525, QSK19, KV38 (6 cyl. 1150 CID)

Part Number	Watts	Volts	Diameter	Cordset
30112	1500	120	1 3/4"-18	120V 28216
31112	1500	240		240V 28316



Replaces large hex plug at either upper front or center position on oil cooler cover element at 2 o'clock or 10 o'clock

L-423, 140 CID (4A2.3), L-634, 210 CID (6A3.4)

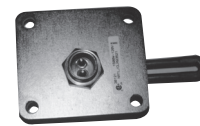
Part Number	Watts	Volts	Diameter	Cordset
11611	600	120	2"	120V 28400



Any 2" cored plug on right side

11 Litre, M11 2000 and newer

Part Number	Watts	Volts	Diameter	Cordset
30121	1500	120	Plate	120V 28216



RR

ISX, QSX, Signature 600, 15L

Part Number	Watts	Volts	Diameter	Cordset
30128	1000	120	Plate	120V 28216
30118	1500	120		240V 28316
31118	1500	240		



Replace two bolt plate at front of engine on right side

ISX, QSK 2007 and Newer, 11.9L

Part Number	Watts	Volts	Diameter	Cordset
30129	1500	120	Plate	120V 28216
30132	1000	120		



Right side

V903, VT903, VT350 Formula VT300 (902 CID), V6-195, 200, 215, 280 (588 CID), V8-235, 265, 300, 370 (787 CID), 350 & 430 (950 CID)

Part Number	Watts	Volts	Diameter	Cordset
30113	1500	120		120V 28216
31113	1500	240		240V 28316



Replacement element only

V903, VT903, VT350 Formula VT300 (alternative installation. Not available on all engines)

Part Number	Watts	Volts	Diameter	Cordset
30312	1500	120	3/4" NPT	120V 28216
31312	1500	240		240V 28316



Replaces 3/4" plug on bottom rear of oil cooler

CUMMINS (CONTINUED)

ISV 5.0L

Part Number	Watts	Volts	Diameter	Cordset
11628	600	120	27mm	120V 28216

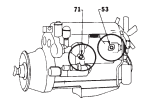


Front Face

DETROIT DIESEL

3-53, 4-53, 3-71 & 4-71 without water cooled compressor

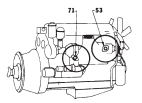
Part Number	Watts	Volts	Diameter	Cordset
30305	750	120	Plate	120V 28216
30301	1000	120		240V 28316
31301	1000	240		



Replaces water jacket plate on side of engine

3-53, 4-53, 3-71 & 4-71 with water cooled compressor

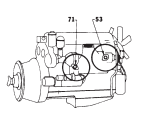
Part Number	Watts	Volts	Diameter	Cordset
30308	750	120	Plate	120V 28216
30309	1000	120		240V 28316
31309	1000	240		



Replaces water jacket plate on side of engine

6V-53

Part Number	Watts	Volts	Diameter	Cordset
30310	1000	120	Plate	120V 28216



Replaces water jacket plate on side of engine

6-71 with water cooled compressor

Part Number	Watts	Volts	Diameter	Cordset
30309	1000	120	Plate	120V 28216
31309	1000	240		240V 28316
30311	1500	120		
31311	1500	240		



Replaces water jacket plate on side of engine

6-71 w/o water cooled compressor

Part Number	Watts	Volts	Diameter	Cordset
30301	1000	120	Plate	120V 28216
31301	1000	240		240V 28316
30311	1500	120		
31318	1500	240		



Replaces water jacket plate on side of engine

6V-71, 8V-71, 12V-71, 16V-71, 6V-92, 8V-92, 12V-92, 16V-92 w/air conditioning compressor mounted next to water jacket access plate except GMC general w/92 Series

Part Number	Watts	Volts	Diameter	Cordset
30316	1000	120	Plate	120V 28216
30304	1500	120		240V 28316
31304	1500	240		



Replaces water jacket plate on left front cyl. bank

DETROIT DIESEL (CONTINUED)

Silver Series (6V-92, 8V-92), also 6V-71, 8V-71, 12V-71, 16V-71, 6V-92, 8V-92, 12V-92, 16V-92 w/o air conditioning plate next to water jacket access plate

Part Number	Watts	Volts	Diameter	Cordset
30314	1000	120	Plate	120V 28216
30315	1500	120		240V 28316
31315	1500	240		



Replaces water jacket plate on left front cyl. bank

6V-71, 8V-71 w/o air conditioning or power steering

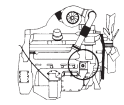
Part Number	Watts	Volts	Diameter	Cordset
30313	1000	120	1" NPT	120V 28216
30303	1500	120		240V 28316
31303	1500	240		



Replaces pipe plug in front of block

Silver Series (6V-92, 8V-92), also 12V-71, 16V-92 & General w/92 Series alternate installation

Part Number	Watts	Volts	Diameter	Cordset
30319	1000	120	3/4" NPT	120V 28216
31319	1000	240		240V 28316
30317	1500	120		
31317	1500	240		



Replaces pipe plug in front face of cyl. bank on driver's side or pipe plug in oil cooler elbow pipe. Pipe bushing may be required. Pipe plug not available on all engines.

Series 30

Part Number	Watts	Volts	Diameter	Cordset
11604	600	120	1 1/2"	28400
11606	600	120		



1 1/2" frost plug on right front (Engines built prior to September 1993)

Series 40

Part Number	Watts	Volts	Diameter	Cordset
30501	600	120	1 1/4"	28200
30502	1250	120		
31502	1250	240		



Replaces 3rd or 4th frost plug on left side of engine. Engines built after Aug. 93: install in boss on left side of engine

Series 50 (with low-mount turbo)

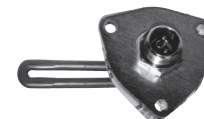
Part Number	Watts	Volts	Diameter	Cordset
30321	1000	120	1 1/2"	120V 28216



Installs in frost plug hold behind oil cooler

Series 55

Part Number	Watts	Volts	Diameter	Cordset
30320	1500	120	Plate	28216



Replaces water jacket place on left side of engine

Series 50 (w/o low-mount turbo), Series 60

Part Number	Watts	Volts	Diameter	Cordset
30303	1500	120	1" NPT	120V 28216
31303	1500	240		240V 28316



1991 & older replaces 1" pipe plug in water pump; 1991 & newer replaces 1" plug in oil cooler casting

DETROIT DIESEL (CONTINUED)

Series 60 2007 and Newer

Part Number	Watts	Volts	Diameter	Cordset
30213	1500	120	1 3/16"	120V 28216



Oil cooler

6V-71 and 8V-71 w/o power steering and/or air conditioning

Part Number	Watts	Volts	Diameter	Cordset
30313	1000	120	1" NPT	120V 28216
30303	1500	120		240V 28316
31303	1500	240		



Replaces pipe plug in left front of block

6.2L, 6.5L Diesel

Part Number	Watts	Volts	Diameter	Cordset
11612	600	120	1 5/8"	28400



Install in 1 5/8" frost plug on left center of engine

DD13, DD15, DD16

Part Number	Watts	Volts	Diameter	Cordset
30515	1500	120	27mm	120V 28216



In oil cooler below intake

D638

Part Number	Watts	Volts	Diameter	Cordset
11619	600	120	3/4" NPT	120V 28216



Install on right side

8.2L, V8, 501 CID

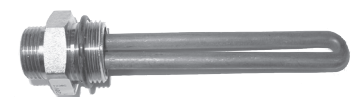
Part Number	Watts	Volts	Diameter	Cordset
30307	1000	120	3/4" NPT	120V 28216
31307	1000	240		240V 28316



Replaces 3/4" pipe plug on right front side of block

Series 10

Part Number	Watts	Volts	Diameter	Cordset
30328	1500	120	1 1/2"	120V 18216



Right side

DEUTZ ALLIS

1012, 1013, 2013

Part Number	Watts	Volts	Diameter	Cordset
30407	1000	120	Plate	120V 28216
30417	750			



Install in oil cooler

FIAT

8060, 8061, 8065 (5.5L-335 CID)

Part Number	Watts	Volts	Diameter	Cordset
30401	1000	120	42mm	120V 28216
31401	1000	240	Hex Nut	240V 28316



Installs in 42mm threaded opening on right rear of engine

8360, 8361 (8.1L)

Part Number	Watts	Volts	Diameter	Cordset
30313	1000	120	1" NPT	120V 28216
31313	1000	240		240V 28316



1" pipe in coolant casing

FORD

2000, 3000, 4000, 5000, 6000 Pre 1968

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11627	600	52			16700	13100



3000, 4000, 5000, 6000, 9000 (1968-70)

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	LS	6	16700	13100



3000, 4000, 5000, 7000, 8000, 9000 Since 1970

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11610	600	1 1/2"	RS	6	16800	13100



8000, 9000

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	LS	6	16800	13100



FORD (CONTINUED)

6 cyl. 1060 "B" Series Cummins (5.9L, 359 CID), 1460 "C" Series Cummins (8.3L, 505 CID)

Part Number	Watts	Volts	Diameter	Cordset
30107	750	120	2 1/4"	120V 28216
30108	1000	120		240V 28316
31108	1000	240		



Replaces front frost plug on right side of engine

8 cyl. 6.6L, 7.8 L Ford Diesel 401, 474 cu. in. since Aug. 1989

Part Number	Watts	Volts	Diameter	Cordset
30402	1250	120	Plate	120V 28216
31402	1250	240		240V 28316



Replaces 2nd frost plug from rear, right side

6.6L, 7.8L, 1986-89

Part Number	Watts	Volts	Diameter	Cordset
30406	1500	120	1 1/2"	120V 28200
31406	1500	240		240V 28300



Replaces 2nd frost plug from rear, right side

8 cyl. 6.9L, 7.3L Diesel 1993 to Present Alternate Navistar Installation

Part Number	Watts	Volts	Diameter	Cordset
11416	400	120	1 1/2"	120V 28216
30307	1000	120	3/4" NPT	



2 heater units recommended. Install LR & RR at 12:00. Install in oil cooler

8 cyl. 6.9L, 7.3L Diesel 1983 thru 1992

Part Number	Watts	Volts	Diameter	Cordset
30403	1000	120	1 1/2"	120V 28200



Replaces right rear frost plug w/ element at 11:00

158, 175, 183, 201

Part Number	Watts	Volts	Diameter	Cordset
11610	600	120	1 1/2"	28400



RF 6 o'clock

VSG411, VSG416, KSG411, 67, 98 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11406	400	120	1 5/8"	28400



LF 12 o'clock

091PV, GSG417, 91, 104 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11426	400	120	1 1/2"	28400



RFF 9 o'clock

FORD (CONTINUED)

134, 172, 192 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11441	400	120	2.05"	28400
11627	600			



LS 12 o'clock

LRG423, LRG425

Part Number	Watts	Volts	Diameter	Cordset
11416	400	120	1 1/2"	28400



LR 3 o'clock

LSG423, 140 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11606	600	120	1 1/2"	28400



RR 12 o'clock

DSD442, ESD442, 254 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11614	600	120	1 3/4"	28400



LC 12 o'clock

233, 256, 268

Part Number	Watts	Volts	Diameter	Cordset
11610	600	120	1 1/2"	28400



LSG633, 200 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11609	600	120	1 3/4"	28400



RF 12 o'clock

CSG649, 300 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11603	600	120	1 5/8"	28400



RF 12 o'clock

SSD655, 335 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
30401	750	120	42mm	120V 28216



RR

FORD (CONTINUED)

DSD & ESD 659, 660, 680, 362, 363, 380 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11614	600	120	1 5/8"	28400



Left side

BSD666, 401 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11610	600	120	1 1/2"	28400



Right side 6 o'clock

WSG858, 255, 302, 351W, C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11606	600	120	1 1/2"	28400



RR 6 o'clock

LSG861, 870, 875, 370, 429, 460 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11606	600	120	1 1/2"	28400



Right side 12 o'clock

401, 477, 534 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
30204	1000	120	1 3/4"	28400



Front frost plug hole

GMC

V8 – 350 Diesel 1978 to Present

Part Number	Watts	Volts	Diameter	Cordset
11610	600	120	1 1/2"	120V 28400



Install in front frost plug on either side – element at 12:00

V-6 – 305, 351, 401 (Gas)

Part Number	Watts	Volts	Diameter	Cordset
30204	1000	120	1 3/4"	120V 28216
31204	1000	240		240V 28316



Install on right element at 12:00

GMC (CONTINUED)

379-396 Diesel

Part Number	Watts	Volts	Diameter	Cordset
11607	600	120	1 5/8"	120V 28400
11612				



Install in center frost plug on left side – element at 12:00

478 Diesel

Part Number	Watts	Volts	Diameter	Cordset
30204	1000	120	1 3/4"	120V 28216
31204	1000	240		240V 28316
30206	1500	120		
31206	1500	240		



Install on right side – element at 9:00

HERCULES

G1600, 2.7 163 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11440	400	120	2 1/8"	28400



LC 12 o'clock

GD2300, DT2300, GD3400 since 1982, 3.7 & 5.8 & 5.6 Turbo

Part Number	Watts	Volts	Diameter	Cordset
11422	400	120	35mm	28400



RC 12 o'clock

GD3400, 3400T Thru 1982, 5.6 339 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11606	600	120	1 1/2"	28400



RS 12 o'clock

D4800 7.8L

Part Number	Watts	Volts	Diameter	Cordset
30603	1000	120	2"	



Install in any available frost plug hole

HINO

3.8L, 5.7L, 6.0L, 6.4L & 6.7L

Part Number	Watts	Volts	Diameter	Cordset
30307	1000	120	3/4"	120V 28216
31307	1000	240		240V 28316



Replaces 3/4" pipe plug. Water transfer casting, oil cooler cover

HINO (CONTINUED)

J Series 5.3L, 8.0L

Part Number	Watts	Volts	Diameter	Cordset
30511	1000	120	50mm	120V 28216



RF

INTERNATIONAL-NAVISTAR

Cub Lo-Boy

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16700	13100



D150, D170, D190

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11604	600	1 1/2"	RS	12		13150



460, 560, 660, 706, TD62, T92

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11614	600	1 5/8"	RS	6		13100



806, 856, 1206, 1256 (1963-67)

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11614	600	1 5/8"	RS	6		13100



All 4-Cylinder 390

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30107	750	2 1/4"	RS	6		13080



All 6-Cylinder 590

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30107	750	2 1/4"	RS	6		13100



INTERNATIONAL-NAVISTAR (CONTINUED)

All 6-Cylinder 830

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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30108	1000	2 1/4"	RR	4		13100
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504, 608 Since 1964

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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11603	600	1 5/8"	RC	6		13100
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966, 1066, 1068, 1466

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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30501	600	1 1/4"	LS	6		13100
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970

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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11611	600	2"	LC	6		13100
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2590 & 1175

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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11611	600	2"	LC	6		13150
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7100 Series

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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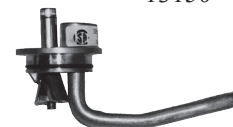
30107	750	2 1/4"	LR	12		13150
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All Neuss Engines

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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30502	1250	1 1/4"	RS	6		13150
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D407, DT407, D166, D188, D236, D282, D301, C152, C175, C200, C221, C263, C282, C291, C301

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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11614	600	1 5/8"	RS	6		13150
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INTERNATIONAL-NAVISTAR (CONTINUED)

404, 446, 485

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
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11450

400

1 1/2"

LS

Lower Radiator

External Tank

13100



6.9L & 7.3L 1983 thru 1993

Part Number	Watts	Volts	Diameter	Cordset
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30403

1000

120

1 1/2"

Cordset



Replaces frost plug on right rear of engine – element at 11:00

T444E, 6.9L & 7.3L 1993 to Present

Part Number	Watts	Volts	Diameter	Cordset
-------------	-------	-------	----------	---------

30307

1000

120

3/4" NPT

Cordset

120V 28216

31307

1000

240

240V 28316



Replaces threaded hole in oil cooler

D150, D170, D190

Part Number	Watts	Volts	Diameter	Cordset
-------------	-------	-------	----------	---------

11604

600

120

1 1/2"

Cordset



Install in any available frost plug

D312, DT360, DTA360, D414, DT414, D436, DT466, DTA466 (thru 1993)

Part Number	Watts	Volts	Diameter	Cordset
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30502

1250

120

1 1/4"

Cordset

120V 28200

31502

1250

240

240V 28300

30507

1000

120



Install in 3rd or 4th frost plug on left side of engine

DT408, DT466, DT466E, 530 (1994 to Present)

Part Number	Watts	Volts	Diameter	Cordset
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30502

1250

120

1 1/4"

Cordset

120V 28200



Install in 1 1/4" frost plug in boss on left side of engine

9L DT550, MV 404, 466, 485, 537

Part Number	Watts	Volts	Diameter	Cordset
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30503

600

120

1 1/2"

Disk Type

Cordset



Replaces any frost plug – point element between cyl.

V800 (789 CID)

Part Number	Watts	Volts	Diameter	Cordset
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30303

1500

120

1" NPT

Cordset

120V 28216

31303

1500

240

240V 28316



Replaces 1" pipe plug on oil cooler bonnet

INTERNATIONAL-NAVISTAR (CONTINUED)

817

Part Number	Watts	Volts	Diameter	Cordset
30701	1500	120	1 3/4"	28216
31701	1500	240		



Install in right side frost plug 1, 2, or 5 – element at 6:00

806, 1206 w/0282 Eng. 1963-1967

Part Number	Watts	Volts	Diameter	Cordset
11604	600	120	1 1/2"	28400



Install in 3rd or 4th frost plug on left side of engine element at 1:00

VT365, VT275, MAXX Force 5 and 7

Part Number	Watts	Volts	Diameter	Cordset
30513	1000	120	27mm	120V 28216



Right Rear

MAXX Force 9, 10 and DT

Part Number	Watts	Volts	Diameter	Cordset
30516	1250	120	1 1/4"	120V 28216



Left Side

MAXX Force 11 and 13

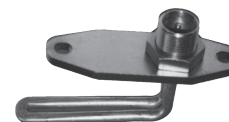
Part Number	Watts	Volts	Diameter	Cordset
30515	1500	120	27mm	120V 28216



Right Front

MAXX Force 15

Part Number	Watts	Volts	Diameter	Cordset
30118	1500	120	PLATE	120V 28216



Right Side

ISUZU

QD27, QT15, 2AA1

Part Number	Watts	Volts	Diameter	Cordset
11615	400	120	45mm	28400



RF 10 o'clock

ISUZU (CONTINUED)

3ABI, QD40, QD60, C201, C223, C240, 108 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11433	400	120	45mm	28400



LS 6 o'clock

QT23, QT35, 3AA, 3KC-1, 3KR-1-60

Part Number	Watts	Volts	Diameter	Cordset
11615	400	120	45mm	28400



RF 10 o'clock

QT23, 3KC-1

Part Number	Watts	Volts	Diameter	Cordset
11442	400	120	35mm	28400



LF 9 o'clock

3LD1-2, 3LD2

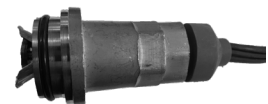
Part Number	Watts	Volts	Diameter	Cordset
11448	400	120	35mm	28400



LS 9 o'clock

3LB1

Part Number	Watts	Volts	Diameter	Cordset
11485	400	120	35mm	120V 28400



LS

4FB1, 111 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11421	400	120	1 3/8"	28400



RR 12 o'clock

4HE1

Part Number	Watts	Volts	Diameter	Cordset
11622	600	120	1 3/4"	28400



RF 6 o'clock

4BB1, 4BD1, 4BGI, 4BGIT, QD90, QD100, QD130

Part Number	Watts	Volts	Diameter	Cordset
11602	600	120	1" NPT	28216
or 11609	600	120	1 3/4"	

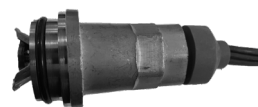


(11602) - LR or (11609) - Rear Face 1 o'clock

ISUZU (CONTINUED)

4LE1, 4LE2, 4LC1

Part Number	Watts	Volts	Diameter	Cordset
11485	400	120	35mm	28500



LS 9 o'clock

4JB1, 456, 4JG

Part Number	Watts	Volts	Diameter	Cordset
11433	400	120	45mm	28400



LR 6 o'clock

329 C.I.D., QD130 (6BB1)

Part Number	Watts	Volts	Diameter	Cordset
11609	600	120	1 3/4"	28400



FR 1 o'clock

6SA1, 6SA1-T, 6BD1, 6BG1, 6HE1, 6HK1, 6SA1, 6SD1, QD100, QD145, QD170, QD170T

Part Number	Watts	Volts	Diameter	Cordset
11602	600	120	1" NPT	28216



All LR except 6SA1 RS

8.4 L

Part Number	Watts	Volts	Diameter	Cordset
30505	1000	120	45mm	28216



E-120 6RB-1, 733, 839 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
30506	1000	120	45mm	28216



Rear 6 o'clock

IVECO

Z110, Z120, Z220, Z230, Z240

Part Number	Watts	Volts	Diameter	Cordset
30401	1000	120	42mm	120V 28216
31401	1000	240		240V 28316



Right rear of engine of head

JOHN DEERE

3029

Part Number	Watts	Volts	Diameter	Cordset
11619	600	120	3/4" NPT	28216



Replaces 3/4" inch pipe plug on rear face of engine

6105, 6125

Part Number	Watts	Volts	Diameter	Cordset
30207	1500	120	1" NPT	28216



In oil cooler housing

Series 300: 3164, 4039, 4045, 3179, 4219, 4239, 4276, 6059, 6068, 6329, 6359, 6414 without obstruction to rear face of block

Part Number	Watts	Volts	Diameter	Cordset
30601	1000	120	3/4" NPT	120V 28216



Replaces 3/4" pipe plug on rear face of engine. Some engines may require a 1" x 3/4" pipe reduce bushing.

6404, 6466, 6619 with smooth bore frost plug hole

Part Number	Watts	Volts	Diameter	Cordset
30603	1000	120	2"	



Replaces 2" diameter core plug on left side of engine

Series 300: 3164, 4039, 4045, 4068, 4219, 4239, 4276, 6059, 6068, 6329, 6359, 6414

Series 400: 6076, 6081, 6101, 6414, 6466, 6619 (with threaded frost plug hole)

Part Number	Watts	Volts	Diameter	Cordset
30602	1000	120	1 5/8"	120V 28216



Replaces 1 5/8" threaded plug on left side of engine

6105, 6125

Part Number	Watts	Volts	Diameter	Cordset
30207	1500	120	1" NPT	120V 28216



Replaces 1" NPT plug in oil cooler

Power Tech 4045, 6068 (4.5L, 6.8L)

Part Number	Watts	Volts	Diameter	Cordset
30609	1000	120	1 5/8"	120V 28216



Replaces 1-5/8" threaded plug on RS of engine

Power Tech 250, 4024, 5030

Part Number	Watts	Volts	Diameter	Cordset
11624	600	120	1 1/4"	120V 28216



LS

JOHN DEERE (CONTINUED)

300 Series

Part Number	Watts	Volts	Diameter	Cordset
30611	1000	120	1" NPT	



Rear face of block

Series 350: Power Tech Plus; T4 (Interior Tier 4): 4045 Power Tech Plus; T4 (4.5L, 4 cyl), 6068 Power Tech Plus; T4 (6.8L, 6 cyl)

Part Number	Watts	Volts	Diameter	Cordset
30513	1000	120	27mm	120V 28216



Right Rear

All 50, 60, 70, 730, 3029, Series A, B, D & G

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	Front	THD		13100



520, 560, 630, 720, 730, 820, 830, A, B, G Thru 1982

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16700	13100



2010

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16600	13100



3020, 4000, 4320, 4520, 4620, 4640, 531

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30603	1000	2"	LS	12	16700	13100



All 4230, 4430, 4630, 6030, 6404, 6466, 6619, 7020, 7520

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30603	1000	2"	LS	12		13150



1020, 2020, 3010, 3020, 4000, 4010, 4020

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16700	13150



JOHN DEERE (CONTINUED)

All Tractors Since 1976 w/large hex plug outside engine

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30602	1000	1 5/8"	LS	12		



KOMATSU

SA6D125

Part Number	Watts	Volts	Diameter	Cordset
30702	1500	120	1 3/4"	28216



RS

S6D- 95L, SA6D-95L

Part Number	Watts	Volts	Diameter	Cordset
11617	600	120	1 9/16"	28400



LR 12 o'clock

4D95 164 C.I.D.

Part Number	Watts	Volts	Diameter	Cordset
11443	400	120	1 9/16"	28400



LR 12 o'clock

S6D140

Part Number	Watts	Volts	Diameter	Cordset
30605	1500	120	1 3/8"	28216



RR

S6D170

Part Number	Watts	Volts	Diameter	Cordset
30114	1500	120	Plate	28216



RR

Z400, Z482, D722

Part Number	Watts	Volts	Diameter	Cordset
11469	400	120	30mm	28500



Back of Head

KOMATSU (CONTINUED)

S4D106-1

Part Number	Watts	Volts	Diameter	Cordset
11407	400	120	1" NPT	28216



LC

SA6D107

Part Number	Watts	Volts	Diameter	Cordset
11443	400	120	40mm	28400



Replaces 40mm core plug

KUBOTA

D3000B, D3200B

Part Number	Watts	Volts	Diameter	Cordset
11407	400	120	1" NPT	28216



LF Threaded hole

D1402

Part Number	Watts	Volts	Diameter	Cordset
11444	400	120	1 3/8"	28400



RF 2 o'clock

D650, D750, D850, D950

Part Number	Watts	Volts	Diameter	Cordset
11409	400	120	3/4" NPT	28216



RF Threaded hole

V4000B, V4300B

Part Number	Watts	Volts	Diameter	Cordset
11407	400	120	1" NPT	28216



LF Threaded hole

D600, D640, WG600, D622, D722, DG750, WG750, Z400, Z482, V800

Part Number	Watts	Volts	Diameter	Cordset
11469	400	120	30mm	28500



Rear Face

KUBOTA (CONTINUED)

D1102, D1302, D1402, D1403, V1702, D1703, V1703, V1902, V1903, V2003, V2003T, V2203, S2800, F2803, D1803, D2203, D2403

Part Number	Watts	Volts	Diameter	Cordset
11444	400	120	35mm	28400



2 o'clock Back of Head

V1100, VH1100, V1200, V3300

Part Number	Watts	Volts	Diameter	Cordset
11409	400	120	3/4" NPT	120V 28216



RF Threaded hole

Z600, ZH600

Part Number	Watts	Volts	Diameter	Cordset
11409	400	120	3/4" NPT	28216



RF

D905, DH905, D1005, DH1005, D1105, V1105, V1205, V1305, VH1305, V1505, V2607, V3307, V3600, V3800

Part Number	Watts	Volts	Diameter	Cordset
11407	400	120	1" NPT	28216



LF Threaded hole

Z602

Part Number	Watts	Volts	Diameter	Cordset
11487	400	120	30mm	28500



Rear Face

B Series

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	RF	THD		13100



L Series

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	RF	THD		13100



M Series

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	Front	THD		



KUBOTA (CONTINUED)

70000-92500

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11461	400	32mm	RS	Drive In		13100



LISTER-PETTER

LPW Series

Part Number	Watts	Volts	Diameter	Cordset
11445	400	120	1 1/4"	28400



RS 12 o'clock

MACK

E3 MS200, MS250, E5 MS300, MS350, MS400

Part Number	Watts	Volts	Diameter	Cordset
30704	1500	120	Plate	120V 28216
31704	1500	240		240V 28316

E3: Replaces plug in rear face of block
E5: Install in oil cooler water feed pipe



E6, EM6, END465, 711, EN438, 504, 707, 673, 675, 676

	Part Number	Watts	Volts	Diameter	Cordset
Threaded	30701	1500	120	1 3/4"	120V 28216
Bore	31701	1500	240		240V 28316
Smooth	30702	1500	120	1 3/4"	30701 Only
Bore	31702	1500	240		

Replaces 1 3/4" frost plug on the left side of engine



E7 & EM7

Part Number	Watts	Volts	Diameter	Cordset
30703	1500	120	Plate	120V 28216
31703	1500	240		240V 28316

Replaces 1 3/8" core plug on right side of block



865, 866 & 1000 Series EM9-400

Part Number	Watts	Volts	Diameter	Cordset
30307	1000	120	3/4" NPT	120V 28216
31307	1000	240		240V 28316
30312	1500	120		
31312	1500	240		

RInstalls in 3/4" NPT plug in oil cooler casting. Use 2 heaters



EM6237-675

Part Number	Watts	Volts	Diameter	Cordset
30702	1500	1 3/4"		
31702	1500			

Install in 1 3/4" frost plug hole with smooth bore



MACK (CONTINUED)

E-Tech, 12L

Part Number	Watts	Volts	Diameter	Cordset
30707	1500	120	Plate	120V 28216



Mounts in water pump

MP7, 11L

Part Number	Watts	Volts	Diameter	Cordset
30709	1000	120	Plate	120V 28216
30710	1500	240		



RS

MP8, 13L

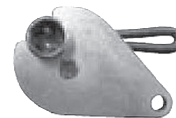
Part Number	Watts	Volts	Diameter	Cordset
30711	1000	120	Plate	120V 28216
30712	1500	120		



RF

MP10, 16L

Part Number	Watts	Volts	Diameter	Cordset
30809	1500	120	Plate	120V 28216



RF

MASSEY FERGUSON

30B Backhoe 20, 20C, 40

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11620	600	Bushing	RS	6	16700	13100



MF35, 40, 50, 135, 150, 203, 205, 230, 231, 235, 240, 245, 250, 253, 254-4, 282, 283, 298, 360, 364S, 399, 698, 2135 & 2200

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30501	750	1 1/4"	RS	6		13100
or						
11620	600	Bushing		THD		



MF65, 165, 255, 302, 304, 365 & 3165

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	LS	THD		13100



MASSEY FERGUSSON (CONTINUED)

88, 333, 444, 445P, 555

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11603	600	1 5/8"	RF	12		13100



MF90, 285, 1080, 1085

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11409	400	3/4" NPT	RS	THD		13100



MF175, 180, 265

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30508	600	1 1/4"	LC	6		13100



1100

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
					16800	13150



MF1100, 1105, 1130, 1135

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30508	600	1 1/4"	RR	12		13150



MF1150, 1155

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11407	400	1" NPT	RS & LS	THD		13150



2775

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30303	1500	1" NPT	RS	THD		13150



MF1120, 1125, 1240, 1250, 1260, 3120, 3140

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11604	600	1 1/2"	RR	12		13150



MASSEY FERGUSON (CONTINUED)

3150, 3160, 3165

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	RS	12	16700	13100



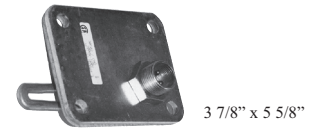
3670, 3685, 3688, 3690, 8140, 8102, 8160

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11617	600	1 9/16"	LR	12	No	13100



4800, 4840, 4880, 4900

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
30103	1500	Plate	FL	Plate	No	13150



3 7/8" x 5 5/8"

MF1140, 1145

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11616	600	1 3/4"	LF	3	No	No



DAIMLER MERCEDES

MBE 900 Series 4.3L, 7.2L

Part Number	Watts	Volts	Diameter	Cordset
30325	1000	120	60mm	120V 28216



RR

MBE 4000

Part Number	Watts	Volts	Diameter	Cordset
30326	1500	120	Plate	120V 28216



Right Center

MBE 4000 2004 and newer 12.8L, DD16

Part Number	Watts	Volts	Diameter	Cordset
30327	1500	12	Plate	120V 28216



Right Center

DAIMLER MERCEDES (CONTINUED)

MBE HDEP 15.2L

Part Number	Watts	Volts	Diameter	Cordset
30515	1500	120	27mm	28216



Installation in Right Rear (RR core hole, element down, 6 o'clock

2.7 Sprinter

Part Number	Watts	Volts	Diameter	Cordset
11483	400	120	38mm	120V 28500



Right Rear. Might need to heat existing plug to remove

MINNEAPOLIS MOLINE

M602, 604, 670, G705, 706, 900, 1000

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11604	600	1 1/2"	All	12	No	13100



Jetstar 3, 206 CID

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11453	400	3/8" NPT		THD	No	13080



U302, 220 CID

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11453	400	3/8" NPT		THD	No	13080



MITSUBISHI

L3A

Part Number	Watts	Volts	Diameter	Cordset
11401	400	120	1 9/16"	28400



RR 9 o'clock

K3A, K3B

Part Number	Watts	Volts	Diameter	Cordset
11615	600	120	45mm	28400



RS 12 o'clock

MITSUBISHI (CONTINUED)

4G32, 4G44

Part Number	Watts	Volts	Diameter	Cordset
11422	400	120	1 3/8"	28400



LS 12 o'clock

4G52, 4G53, 4G54

Part Number	Watts	Volts	Diameter	Cordset
11410	400	120	50mm	28400



RC 3 o'clock

S4L2, S4S

Part Number	Watts	Volts	Diameter	Cordset
11447	400	120	1 3/8"	28400



RR 11 o'clock

4G63, 4G64

Part Number	Watts	Volts	Diameter	Cordset
11421	400	120	1 3/8"	28400



LF 3 o'clock

S6E, S6E2

Part Number	Watts	Volts	Diameter	Cordset
11447	400	120	1 3/8"	28400



LR 3 o'clock

6G72

Part Number	Watts	Volts	Diameter	Cordset
11607	600	120	1 5/8"	28400



RR 9 o'clock

MITSUBISHI FUSO

4D31, 4M40, 4D36, 6D14, 6D31, 6D16

Part Number	Watts	Volts	Diameter	Cordset
11619	600	120	3/4" NPT	120V 28216



LR

MWM MURPHY

D225 & D226

Part Number	Watts	Volts	Diameter	Cordset
11410	400	120	50mm	28400



NISSAN

H20-2, H25 (1.2, 1.5)

Part Number	Watts	Volts	Diameter	Cordset
11422	400	120	35mm	28400



LF 6 o'clock

A12, A15, H20, SD22, SD4-47, SD25 (2.2)

Part Number	Watts	Volts	Diameter	Cordset
11414	400	120	35mm	28400



LR 12 o'clock

TD42

Part Number	Watts	Volts	Diameter	Cordset
11621	600	120	35mm	28400



RC

Z24

Part Number	Watts	Volts	Diameter	Cordset
11401	400	120	40mm	28400



LC 12 o'clock

FD6 (5.6)

Part Number	Watts	Volts	Diameter	Cordset
11401	400	120	40mm	28400



RF 3 o'clock

LD28 (2.8)

Part Number	Watts	Volts	Diameter	Cordset
11422	400	120	35mm	28400



LR 12 o'clock

NISSAN (CONTINUED)

P Series (4.0)

Part Number	Watts	Volts	Diameter	Cordset
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11411

400

120

35mm

28400



RF 12 o'clock

SD33, SD6-72 (3.2)

Part Number	Watts	Volts	Diameter	Cordset
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11411

400

120

35mm

28400



LS 12 o'clock

OLIVER

All except 1265, 1365, 1900

Part Number	Watts	Volts	Diameter	Cordset
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30307

1000

120

3/4" NPT

28216



Front

PACCAR

PX-6 6.7L Cummins, PX-7

Part Number	Watts	Volts	Diameter	Cordset
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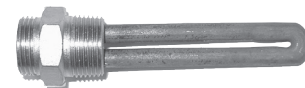
30115

750

120

3/4" NPT

28216



RR behind oil cooler

PX-8 8.3L Cummins, PX-9

Part Number	Watts	Volts	Diameter	Cordset
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30307

1000

120

3/4" NPT

28216



FR Front of oil cooler

MX-13

Part Number	Watts	Volts	Diameter	Cordset
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30129

1500

120

Plate

120V 28216

30132

1000



Right Front

PERKINS

103.06, 103.07, 103.09, 103.10

Part Number	Watts	Volts	Diameter	Cordset
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11422

400

120

35mm

28400



LF 6 o'clock

PERKINS (CONTINUED)

103.12, 103.13, 103.15

Part Number	Watts	Volts	Diameter	Cordset
11401	400	120	40mm	28400



LF 6 o'clock

3-152

Part Number	Watts	Volts	Diameter	Cordset
30508	600	120	1 1/4"	120V 28501 120V 28206
or 11620	600	120	Bushing	



2nd from rear; LS 6 o'clock

1104.19, 104.22, 1104

Part Number	Watts	Volts	Diameter	Cordset
11401	400	120	40mm	28400



LF 6 o'clock

1104, Tier 4

Part Number	Watts	Volts	Diameter	Cordset
11619	600	120	3/4" NPT	28216



LF 6 o'clock

4-108

Part Number	Watts	Volts	Diameter	Cordset
30508	600	120	1 1/4"	120V 28501 120V 28206
or 11602	600	120	Bushing	



RC 12 o'clock

4-135

Part Number	Watts	Volts	Diameter	Cordset
11411	400	120	35mm	28400



RS 12 o'clock

4-154

Part Number	Watts	Volts	Diameter	Cordset
11417	400	120	30mm	28400



LS 12 o'clock

200 Series: 204.25 (GD 4 cyl), 204.30 (GE 4 cyl)

Part Number	Watts	Volts	Diameter	Cordset
11454	400	120	30mm	28400



LS 12 o'clock

PERKINS (CONTINUED)

4-203

Part Number	Watts	Volts	Diameter	Cordset
11409	400	120	3/4" NPT	120V 28216



LS 12 o'clock

4-204

Part Number	Watts	Volts	Diameter	Cordset
11454	400	120	30mm	28400



LS 12 o'clock

4-236 Small Bore; Large Bore

Part Number	Watts	Volts	Diameter	Cordset
30508	600	120	1 1/4"	120V 28501
11422	400	120	1 3/8"	120V 28400



2nd from rear LS of block 12 o'clock

4-248, 4-248-2

Part Number	Watts	Volts	Diameter	Cordset
30508	600	120	1 1/4"	120V 28501



LR 12 o'clock

"N" Series, 4-300, 4-318

Part Number	Watts	Volts	Diameter	Cordset
11409	400	120	3/4" NPT	120V 28216



LS

700 Series

Part Number	Watts	Volts	Diameter	Cordset
11465	400	120	50mm	28400



In head 4 o'clock

400 Series 5, 1004

Part Number	Watts	Volts	Diameter	Cordset
11604	600	120	38mm	28400



RR 12 o'clock

"T" Series, 6-354, 6-354.4, 6-372

Part Number	Watts	Volts	Diameter	Cordset
30508	600	120	1 1/4"	120V 28501



LR 12 o'clock

PERKINS (CONTINUED)

1006

Part Number	Watts	Volts	Diameter	Cordset
11604	600	120	38mm	28400



RR 12 o'clock

1106D

Part Number	Watts	Volts	Diameter	Cordset
30519	1000	120	Plate	120V 28216



RR

8-540

Part Number	Watts	Volts	Diameter	Cordset
11407	400	120	1" NPT	120V 28216



LS & RS

8-640

Part Number	Watts	Volts	Diameter	Cordset
30303	1500	120	1" NPT	120V 28216



LR

SATOH

669cc 1980

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11401	400	1 9/16"	RS	10	No	13100



849cc 1980

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	RR	9	No	13100



1777cc 1980

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	LF	5	No	13100



5373 1980

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	RR	9	No	13100



TOYOTA

5R, 2J (1.9, 2.5)

Part Number	Watts	Volts	Diameter	Cordset
11410	400	120	50mm	28400



LF 12 o'clock

4Y (2.2)

Part Number	Watts	Volts	Diameter	Cordset
11414	400	120	35mm	28400



LR 9 o'clock

2F (4.2)

Part Number	Watts	Volts	Diameter	Cordset
11410	400	120	50mm	28400



LR 9 o'clock

3F

Part Number	Watts	Volts	Diameter	Cordset
11465	400	120	50mm	28400



LR 2 o'clock

UD TRUCK

FD 35T, 3.5L

Part Number	Watts	Volts	Diameter	Cordset
11417	400	12	30mm	



RF 3 o'clock

TD 42T, 2.4L

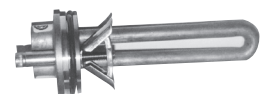
Part Number	Watts	Volts	Diameter	Cordset
11621	600	120	35mm	



Replaces plate in center of oil cooler 6:00

FE6 & FE6T, 6.9L

Part Number	Watts	Volts	Diameter	Cordset
30803	1000	120	40mm	120V 28216



RC 5:00

NE6 & NE6T, 7.4L

Part Number	Watts	Volts	Diameter	Cordset
30804	1500	120	50mm	120V 28216



LR 12:00

UD TRUCK (CONTINUED)

FD46TA

Part Number	Watts	Volts	Diameter	Cordset
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11468

400

120

40mm



LR 12:00

VOLKSWAGEN

1588

Part Number	Watts	Volts	Diameter	Cordset
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11420

400

120

36.5mm

28400



RC 6 o'clock

VOLVO

TD60, TD61 (334 CID), TD70, TD71 (409 CID), TD100, TD101, VE10 (586 CID), TD120, TD121, TD123 (732 CID)

Part Number	Watts	Volts	Diameter	Cordset
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30801

1500

120

44mm

120V 28216

31801

1500

240

240V 28316

30811

1000

120



Replaces 44mm threaded plug on left front of engine

VE-D7

Part Number	Watts	Volts	Diameter	Cordset
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30805

1500

120

1 3/4"

120V 28216



LR

VED-12

Part Number	Watts	Volts	Diameter	Cordset
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30802

1500

120

Plate

120V 28216



RC Below Turbo

VED-12 2002 and newer

Part Number	Watts	Volts	Diameter	Cordset
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30808

1000

120

Plate

120V 28216



RC Below Turbo

D11

Part Number	Watts	Volts	Diameter	Cordset
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30709

1000

120

Plate

120V 28216

30710

1500

120



RS

VOLVO (CONTINUED)

D13

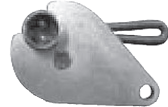
Part Number	Watts	Volts	Diameter	Cordset
30711	1000	120	Plate	120V 28216
30712	1500	120		



RF

D16

Part Number	Watts	Volts	Diameter	Cordset
30809	1500	120	Plate	120V 28216
30810	1000	120		



LF 6 o'clock

YANMAR

3T72HLE

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11407	400	1" NPT	LF	THD	No	13100



4TN82E

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11407	400	1" NPT	LC	THD	No	13100



3TN66, 3TN72

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11452	400	Plate	RR		No	13100



YYDXL, 4.4 1 D4T

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11407	400	1" NPT	LC	THD	No	13100



4TN82E, 4TNE98

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11407	400	1" NPT	LC	THD	No	13100



ZETOR

All except 278 & 417

Frost Plug	Watts	Diameter	Location	Direction	Lower Radiator	External Tank
11609	600	1 3/4"	LR	12	No	13100





COLD WEATHER STARTING FLUID INJECTION SYSTEMS

FAST, SAFE, DEPENDABLE — STARTS EVERY TIME

Suitable for Diesel, Gasoline, and Gasohol Engines

Pat. Nos. 3, 198, 404 and 3960131 and Foreign Patent

KATS was created and developed as a truly effective product for cold weather and hard starting problems. Owners and operators of diesel and gas operated equipment have long known that delayed starts and slow starts mean big money losses in labor, maintenance and operating revenue. KATS Ether Start are designed to do one thing — Start Engines FAST!

KATS Ether Start systems are truly superior heavy duty patented products. Our components are 100% made in the USA. Customers will find KATS Ether Start are unbeatable in pricing, quality, and performance anywhere. KATS manufacturing quality control procedures assure you the very best anytime you install and operate a KATS system.

KATS Ether Start SYSTEMS BURN POLLUTION FREE AND ARE ENVIRONMENTALLY HELPFUL BY REDUCING EMISSIONS.

Systems are available for a variety of application types and equipment sizes. KATS manufactures three separate series of KATS Fuel Injection Systems. We offer the Automatic Electric 33200 Series, Push-Button Electric 33100 Series, and the Pull-Cable Manual Control 33180 Series.

The KATS Ether Start portion of this catalog contains ordering information of Systems Series Descriptions & Applications, Fuel Cylinders & Replacement Components, Thermostats, Drawings, and Nozzle Vaporizers.

Please contact us directly for custom requirements, special orders, sizes, and application types.

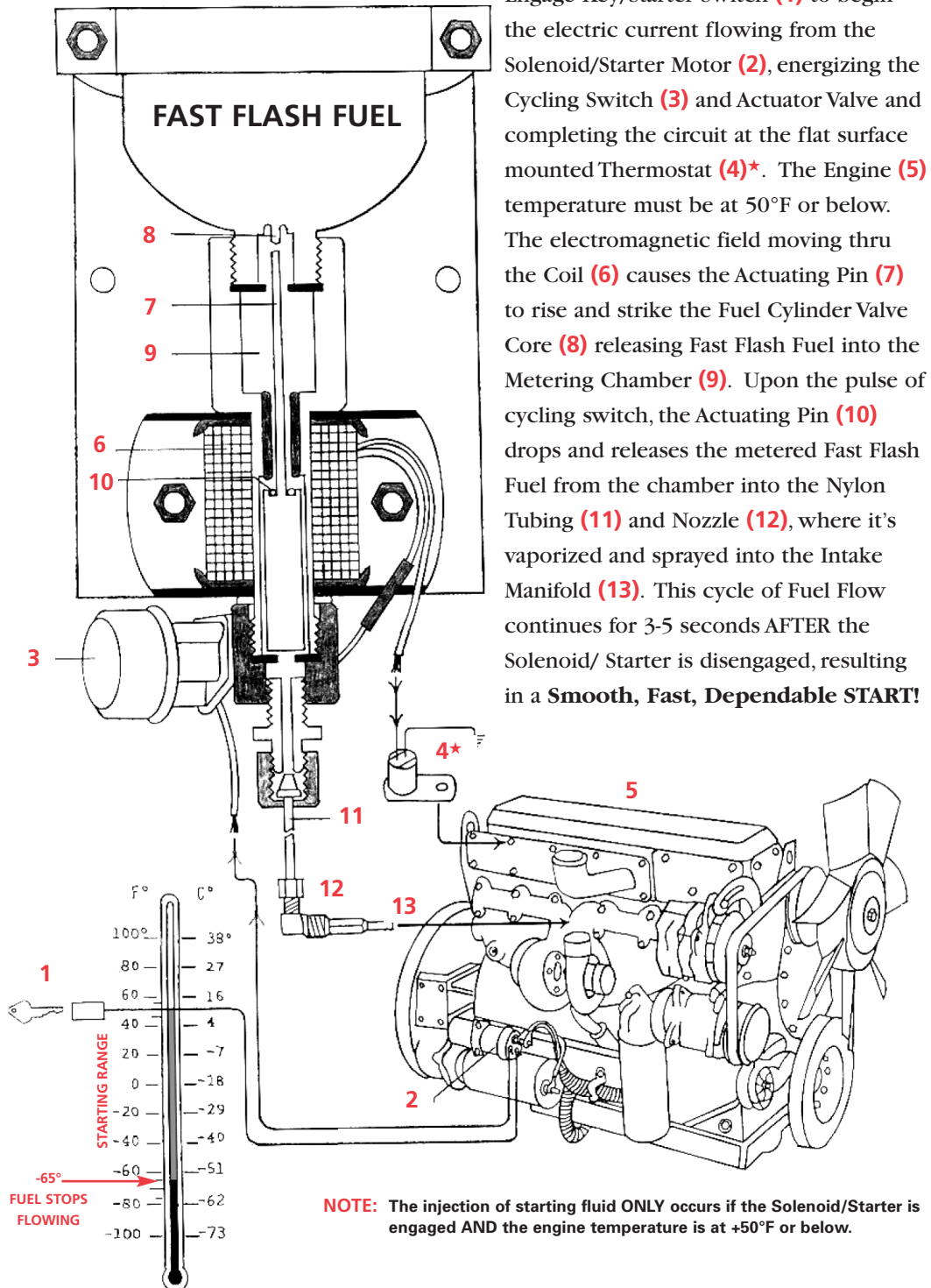
Thank you!



HOW THE KATS ETHER SYSTEMS OPERATE:

These functional drawings provide a visual understanding of the operational characteristics of our Automatic Electric KATS Start. These features are particularly important to those looking for top quality and highly durable starting fluid systems.

NOTE: Our 33100 Push-Button and 33180 Pull-Cable Systems have many of the same basic operational features as shown below in the 33200 Automatic.



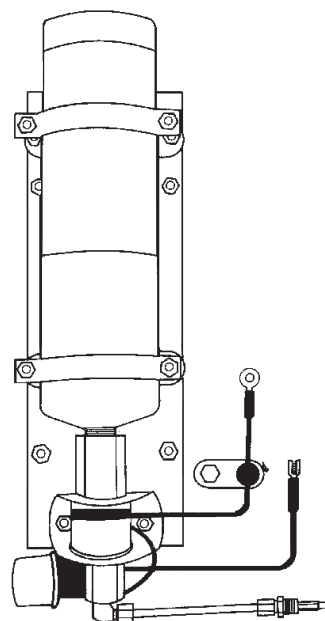
KATS MODEL 33200 AUTOMATIC SERIES

THE KATS 33200 SERIES IS A FULLY AUTOMATIC ELECTRIC OPERATED ETHER INJECTION SYSTEM.

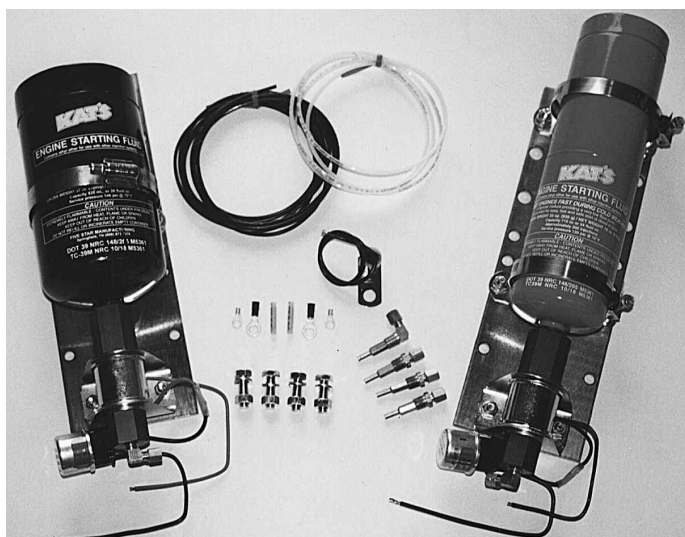
Our most popular system combines the advantages of no operator control and thermostatic system control into **Fast, Reliable**, cold weather starts everytime. All this prevents pre-loading, overloading, and power boosting of the engine. The ether injection system will only operate at 50°F or below. See page 63 for thermostats that open at higher or lower starting temperatures. These systems are available with an 18 oz. or 21 oz. ether fuel cylinder. The 21 oz. system features a larger reservoir and is a shorter, more compact unit.

The 33200/33400 system uses 35% less Fast Flash Fuel than our competitors without sacrificing performance. This is achieved by our superior design and Fast Flash Fuel mixture. The system comes preassembled and is easy to install. Systems are available to operate on 12 or 24 volt requirements. Virtually no maintenance is required other than changing a Fuel Cylinder once per year if needed.

All this adds up to an increase in equipment performance, monetary savings, and operator attitude.



EACH 33200 SERIES KIT CONTAINS:



Actuating Valve Assembly with Cycling Switch, Heavy Duty Rigid Mounting Plate and Quick Release Clamp Assembly with all hardware, Nozzle with Built-In Filter Assembly, Thermostat +50°F (+10°C) Surface Mount Type, Nylon Tubing (5 Feet), Electrical Wiring Kit with Terminals (12 Feet — 16 Gauge), Protective Caps, Plugs, & Gaskets, Installation Instruction Guide Three (3) Year Limited Warranty

APPLICATION AND ORDERING GUIDE

ENGINE CID	MODEL NUMBER			
	12 VOLT		24 VOLT	
	18 oz.	21 oz.	18 oz.	21 oz.
500 and up	33250	33450	34250	34450
300 — 499	33230	33430	34230	34430
200 — 299	33220	33420	34220	34420
100 — 199	33210	33410	34210	34410
Universal Kit ★	33200	33400	34200	34400

★ Includes four (4) NOZZLES for all the Engine CID Sizes listed above.
 ★ Excellent for the Stocking Warehouse / Distributor.

NOTE: All model numbers come without fuel cylinders.

KATS MODEL 33100 PUSH BUTTON SERIES

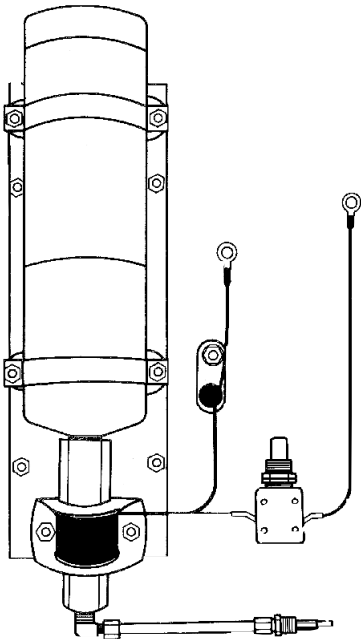
THE KATS 33100 SERIES IS A PUSH BUTTON ELECTRIC OPERATED ETHER INJECTION SYSTEM.

The 33100 Push Button Series has all the great high quality features of the 33200 Automatic Series except the operator has “limited control” over the use of the system.

Providing the engine temperature is at 50°F or below, the operator engages and releases the push button at the dashboard or suitable location, causing a 5 - 6 cc metered shot of Fast Flash Fuel to be injected into the engine manifold. ONLY one (1) metered shot of fuel can be injected per push of the button. Holding the push button down WILL NOT allow a continuous flow of ether fuel to the engine.

This system is even designed to operate at battery voltage as low as 6.5 volts. This is especially important for “low battery” cold weather cranking which often bogs down the starting of the engine.

Each type of equipment or engine may have its own personality for which the Push Button System can be an excellent choice.



EACH 33100 SERIES KIT CONTAINS:



Actuating Valve Assembly, Heavy Duty Rigid Mounting Plate and Clamp Assembly with all hardware, Nozzle with Built-In Filter Assembly, Thermostat +50°F (+10°C) Surface Mount Type, Push Button Switch and Dash Decal SPST 10 Amp — Momentary ON, Nylon Tubing (4 Feet), Electrical Wiring Kit with Terminals (12 Feet — 16 Gauge), Protective Caps, Plugs, & Gaskets, Installation Instruction Guide
Three (3) Year Limited Warranty

APPLICATION AND ORDERING GUIDE

ENGINE CID	MODEL NUMBER	
	12 VOLT	24 VOLT
500 and up	33101	34101
300 — 499	33102	34102
100 — 299	33112	34112
Universal Kit ★	33100	34100
★ Includes three (3) NOZZLES for all the Engine CID Sizes listed above.		
★ Excellent for the Stocking Warehouse / Distributor.		
NOTE: All models numbers come without fuel cylinders.		

KATS MODEL 33180 PULL CABLE SERIES

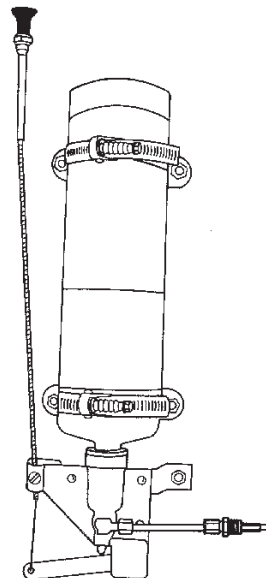
THE KAT'S 33180 SERIES IS A MANUALLY OPERATED ETHER INJECTION SYSTEM.

The Pull Cable 33180 Series is a fully operator controlled manual Ether Injection System. It's designed to withstand even the toughest of cold weather conditions and applications.

If the operator determines that any given "hard starting" situation exists, he/she can engage the Pull Cable to inject a metered shot of Ether Fuel to the engine. Each pull and release of the cable injects only ONE metered amount of the fuel.

This system is easy to install, comes preassembled, and requires no electricity.

This system is ideal for many application types which require an "economical" heavy duty cold weather starting system.



EACH 33180 SERIES KIT CONTAINS:



Actuating Valve Assembly, Pull Cable (7 foot with knob and sleeve), Nozzle with Built-In Filter Assembly, Nylon Tubing (4 Feet), Cylinder Quick Release Clamp, Cradle, Hardware, Installation Instruction Guide

Three (3) Year Limited Warranty

APPLICATION AND ORDERING GUIDE

ENGINE CID

500 and up

200 — 499

Universal Kit ★

MODEL NUMBER

33181

33180

33185

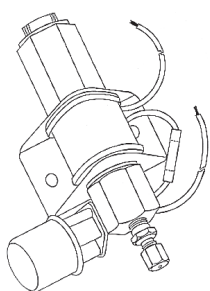
★ Includes two (2) NOZZLES for all the Engine CID Sizes listed above.

★ Excellent for the Stocking Warehouse / Distributor.

NOTE: All model numbers come without fuel cylinders.

COMPONENT PARTS AND ASSEMBLIES

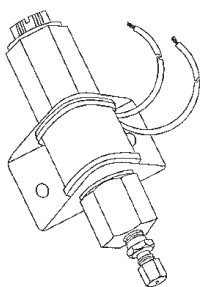
THE FOLLOWING COMPONENTS, PARTS, AND ASSEMBLIES CAN BE PURCHASED AS REPLACEMENT PARTS, OR AS STAND-ALONE ASSEMBLIES IF SO REQUIRED. ORDER BY PART NUMBER.



ACTUATOR VALVE ASSEMBLY WITH MOUNTED CYCLING SWITCH

Assembly includes Cycling Switch and Cycling Switch Socket. 12 or 24 Volt, 5-cc metering chamber, 6-8 Amps, 8" of 16 gauge wire leads, intermittent duty, 65-120 cycles per minute (CPM), straight valve fitting, gaskets, and protective valve plug.

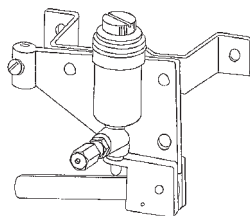
PART NO. 33251 (12 volt)
PART NO. 34251 (24 volt)



ACTUATOR VALVE ASSEMBLY

Assembly includes 5-cc metering chamber, 12 or 24 Volt, intermittent duty, 8" of 16 gauge wire leads, straight valve fitting, gaskets, and protective valve plug.

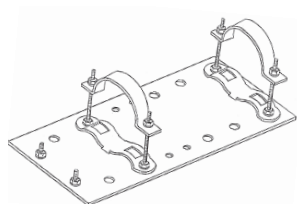
PART NO. 33105 (12 volt)
PART NO. 34105 (24 volt)



MANUAL ACTUATOR VALVE ASSEMBLY

Includes mounting bracket, pull lever, 5-cc metering chamber, straight valve fitting, gaskets, and protective valve plug.

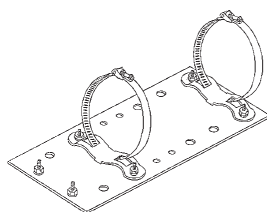
PART NO. 33183



MOUNTING PLATE AND CLAMPS

Fits all push button and automatic Series units, Super Heavy Duty Back Plate dual clamps, dual cradles, heavy duty nuts, bolts and washers.

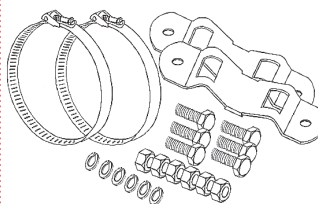
PART NO. 33201



MOUNTING PLATE AND QUICK RELEASE CLAMPS

Fits all 33100 and 33200 Series units, dual cradles, dual quick release clamps, heavy duty nuts, bolts, and washers.

PART NO. 33202

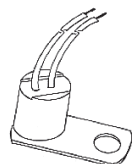


QUICK RELEASE CLAMPS, CRADLES, AND MOUNTING HARDWARE KIT

Same heavy duty quality. Fits Pull Cable 33180 Series. Can be used as a Universal Cradle

and Clamp assembly. Quick Release clamps are stainless steel and meets 35842 Mil-standard. Includes two (2) cradles, two (2) quick release clamps, and all nuts and bolts.

PART NO. 33179 CLAMP ONLY PART NO. 33178

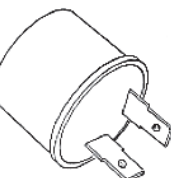


THERMOSTATS SURFACE MOUNT TYPE

Recommended to be mounted on the flat surface of the engine block. Circuit operates at 50°F and below, 15 Amp, 12" of 14 gauge wire lead(s). Internal Ground (IG) style has only one lead.

Packaged one (1) per pack.

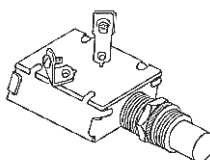
PART NO. 33129 2 WIRE
33131 1 WIRE
33130 1/2"NPT



CYCLING SWITCH KIT

Heavy duty. Available in 6, 12, and 24 volt, 10 amp, 60-120 cycles per minute (CPM), Intermittent action, moisture proof case.

PART NO. 33253 6V
33252 12V
33254 24V



PUSH BUTTON SWITCH KIT

Single Pole - Single Throw (SPST), 10 amp, momentary ON, heavy duty.

PART NO. 33127

DASH LABEL ONLY

PART NO. 33140



ELECTRIC WIRE AND TERMINALS KIT

Kit contains 12 feet of 16 gauge, up to 500 volts DC, copper strand; (2) each 3/8" 16 gauge ring style terminals; (2) each #8 16 gauge ring style copper terminals; (2) each female 14-16 gauge butt splice connectors; (2) each 14-16 gauge female slip terminals; (2) each 10-12 gauge female slip terminals.

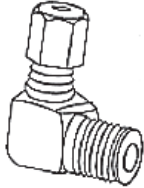
PART NO. 33259



NUT AND COMPRESSION SLEEVE KIT

1/8" Cone Style.
Ten (10) per pack.

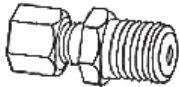
PART NO. 33113



VALVE FITTING, ELBOW DESIGN, COMPRESSION NUT & SLEEVE

Fits all Jet-Start Series actuator valves. 1/8" Tube x 1/8" NPT.
Five (5) per pack.

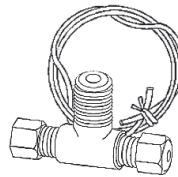
PART NO. 33115



VALVE FITTING, STRAIGHT DESIGN, COMPRESSION NUT & SLEEVE

Fits all Jet-Start Series actuator valves. 1/8" Tube x 1/8" NPT. Five (5) per pack.

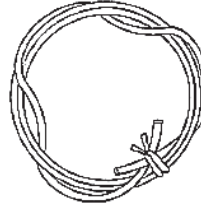
PART NO. 33114



DUAL NOZZLE ADAPTOR KIT

Valve T-fitting 1/8" Tube x 1/8 NPT, 4 feet nylon tubing (TBN-005), compression nuts and sleeves. Converts single manifold ether injection to dual injection type. **NOTE:** See page for ordering extra Nozzles

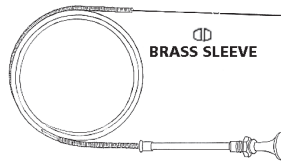
PART NO. 33116



NYLON TUBING

Five (5) feet, 1/8" O.D. x .078 I.D., operating pressure to 625 PSI, burst pressure to 2500 PSI, temperature range -65°F (-54°C) and above. Melt down temperature 490°F. Type 6/6.

PART NO. 33117



PULL CABLE KIT

Fits all 33180 Series, 5 foot length, 50" sleeve, with barrel sleeve clip and instructions.

PART NO. 33182

FAST FLASH FUEL CYLINDERS

The superiority of the KATS Fast Flash Fuel is backed by cold room tests conducted by the United States Department of the Army, at Fort Blevoir, Virginia. Faster starting times down to a freezing -65°F (-54°C), are the major result of our superior fuel formula.

Our proprietary formula contains 80 - 90% High Grade Ethyl Ether, 20 - 25% more than our competition. Less than 1% special lubricant is mixed within each fuel cylinder to provide upper cylinder engine lubrication. The balance of the formula components are proprietary.

SPECIFICATIONS:

- 18 or 21 Ounces of Fast Fuel Mix.
- 200 Starts Approximately.
- Ethyl Ether at 99% Purity or Better.
- Non-Clogging Formula.
- Cylinders Rated at 1000 Pound Test Burst Pressure.
- Cylinder Relief Valve Pressure up to 650 PSI Max.
- Fuel cylinders are pressured from 140 to 170 PSI at 70°F.
- Sizes Available in 7/8" or 1" Thread * See Below
- DOT Specified Safety and Caution Labeling
- Meets Federal Safety Specification O-F-1004B
- Material Safety Data Sheets (MSDS) Available Upon Request.
- All cylinders come complete with Protective Caps to eliminate dust, moisture, or debris during storage.

* Specify neck thread size of 1" or 7/8"

FAST FLASH FUEL

FC ORDER NUMBERS AND DESCRIPTIONS:

Single Flash Fuel

Cylinder 18 oz. 1"
Part No. 33118
Cylinder 18 oz. 7/8"
Part No. 33218
Cylinder 21 oz.
Part No. 33121

KATS work on all competitors starting system.

Cylinder Gasket (Pk of 12)

Part No. 33119 1"
Part No. 33219 7/8"

Cylinder Valve Adapter Kit Part No. 33120

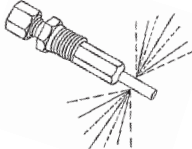
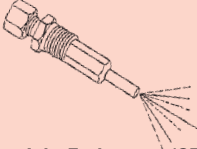
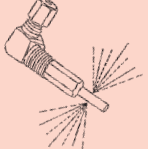
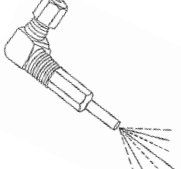
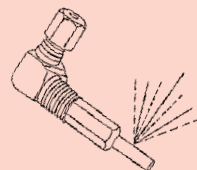
Adapts 1" Actuating Valves to accept 7/8" Fast Flash Fuel Cylinders. Includes gaskets and protective cap.

NOZZLES

NOZZLES ARE THE HEART OF THE KATS ETHER START SYSTEM.

Nozzles must be able to vaporize Fast Flash Fuel, meter the delivery of the fuel, and prevent manifold "back-flash", without failure. All Nozzles contain a filter assembly rated at 25 microns, which prevents possible engine "blow-by" from clogging the nozzles and nylon tubing. The filter assembly helps prevent foreign contamination from installation.

TO ORDER NOZZLES SPECIFY BY: ENGINE CID, KATS ETHER SERIES NUMBER, AND ORIFICE DESIGN AND MANIFOLD PORT LOCATION.

	33200 AUTOMATIC		33100 PUSH-BUTTON		33180 PULL-CABLE	
	ENGINE CID	PART NO.	ENGINE CID	PART NO.	ENGINE CID	PART NO.
 Straight Dual Side (SDS)	500 & UP	33135 ★	500 & UP	33137 ★	500 & UP	33137 ★
	300 - 499	33136 ★	200 - 499	33135 ★	200 - 499	33135 ★
 Straight End (SEN)	500 & UP	33147	500 & UP	33138	500 & UP	33138
	300 - 499	33132	200 - 499	33147	200 - 499	33135
	200 - 299	33133 ★	100 - 199	33133 ★		
	100 - 199	33134 ★				
 Straight One Side (SOS)	500 & UP	33125	500 & UP	33126	500 & UP	33126
	300 - 499	33139	200 - 499	33125	200 - 499	33125
	200 - 299	33142	100 - 199	33142		
	100 - 199	33170				
 Elbow Dual Side (EDS)	500 & UP	33143	500 & UP	33145	500 & UP	33145
	300 - 499	33144	200 - 499	33143	200 - 499	33143
 Elbow End (EEN)	500 & UP	33146	500 & UP	33151	500 & UP	33151
	300 - 499	33148	200 - 499	33146	200 - 499	33146
	200 - 299	33149	100 - 199	33149		
	100 - 199	33150				
 Elbow One Side (EOS)	500 & UP	33152	500 & UP	33156	500 & UP	33156
	300 - 499	33153	200 - 499	33152	200 - 499	33152
	200 - 299	33154	100 - 199	33154		
	100 - 199	33155				

★ NOZZLE IN STANDARD KITS

ALL NOZZLES ARE A STANDARD 1" IN LENGTH.

For Nozzles in 1 1/4" length, add the suffix (125) to the part numbers above. Example: 33125-125

For Nozzles in 2" lengths, add the suffix (200) to the part numbers above. Example: 33125-200

ALL NOZZLES ARE A STANDARD 1/8" NPT THREAD SIZE

1/4" BUSHING 33124

Custom thread size adapters are available upon request.

NOTE:

A ★ next to the Nozzle numbers in the chart above indicate the Nozzle included in any standard KATS Ether Start standard kit. Example: 33135★ is the nozzle included in the 33250 KATS Start system.

KATS Start Systems include the correct Nozzle size and standard orifice spray pattern. Orifice spray pattern requirements may vary from one installation to the next. Spray pattern is dictated by manifold port location.



FROST PLUG HEATERS

***Simple installation directly into engine block.
Saves Wear & Tear on your engine.***



SIMPLE TO INSTALL

10400 & 11400

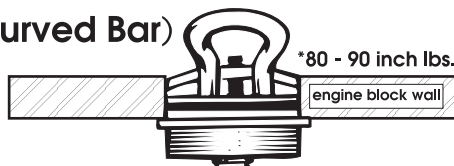
SERIES RATED AT 400 WATTS / 120 VOLTS

10600 & 11600

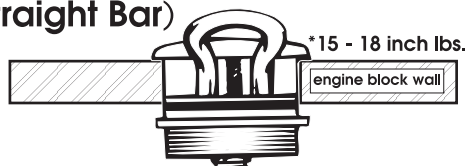
SERIES RATED AT 600 WATTS / 120 VOLTS

**DO NOT USE
A KAT'S ENGINE HEATER
WHEN USING A
100% SOLUTION
OF ANTI-FREEZE.**

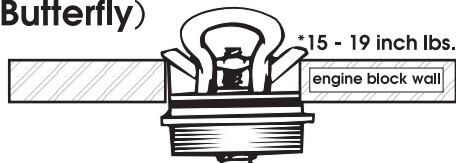
**EXAMPLE A
(Curved Bar)**



**EXAMPLE B
(Straight Bar)**



**EXAMPLE C
(Butterfly)**

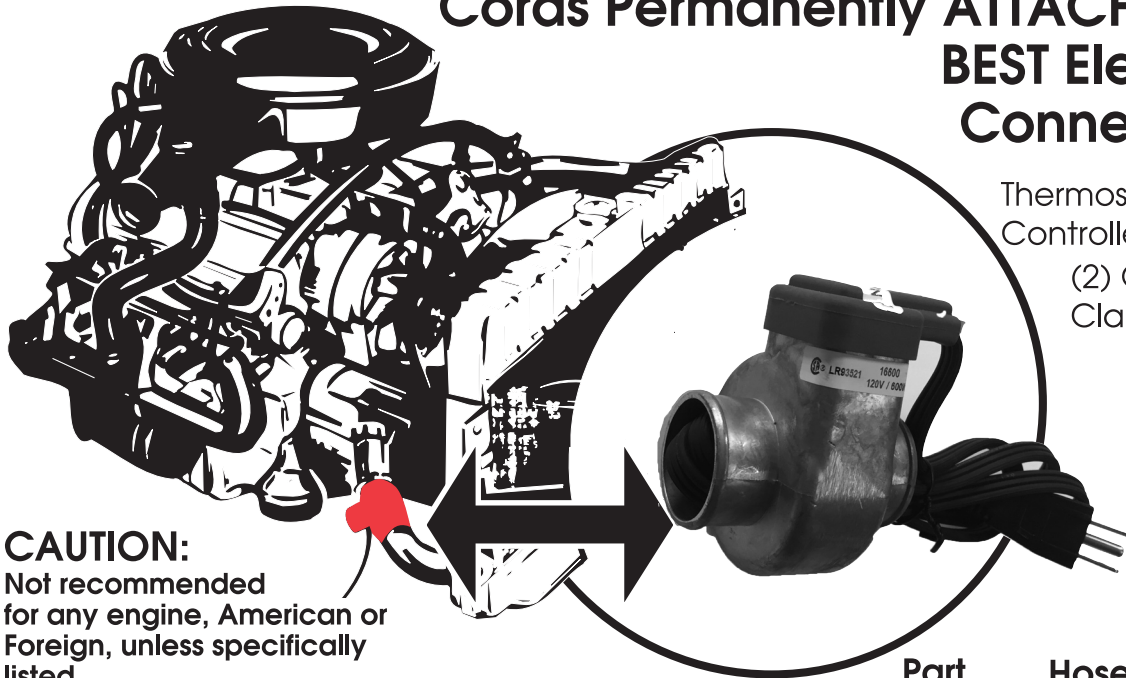


***Torque Properly**

INSTRUCTIONS:

1. Drain and flush radiator and block.
2. Remove correct frost plug or core plug - depending on type of engine.
3. Clean frost plug hole with a cleaning agent to remove any dirt, grease or paint. (Lubricate "O" ring with a light weight grease only, oil is not as satisfactory) before installing heater in frost plug opening.
4. Place engine heater in frost plug opening. Position of element is dependent on specific engine. The shoulder on the steel section of the heater must be against the face of the engine block wall. This allows the "O" ring to seal the unit for a leak proof installation.
5. Models with a toggle or flat cross bar on the back side of steel adapter must be installed with bar behind block wall. Tighten the Hex head or nut to 15 to 18 inch pounds torque until the cross bar is tight against inside block wall. Only use these models where recommended. (see example B above.)
- *6. Models with a curved cross bar need to be torqued to 80 to 90 inch pounds to expand the cross bar on the back side of the heater in the frost plug opening. Only use these models where recommended. (See example A above.)
- *7. Models with a butterfly cross bar need to be tightened to 14 to 19 inch pounds. Only use these models where recommended. (See example C above.)
8. Place the electric cord from the heater through radiator grille or other convenient opening and tape or fasten in position, making sure it is clear of all moving parts (fan blades) and heater parts (manifold).
9. Refill radiator, run engine long enough to build up a maximum pressure and check for leaks to complete installation.
10. Connect the Kat's Engine Heater to any 120 volt AC or DC electric outlet. Use your heater for 60 minutes or longer before vehicle is to be operated. Heater can be left on all night without overheating.
11. This heater is equipped with a three prong (grounding) plug and should be connected to a properly grounded circuit.
12. If an extension cord is used in conjunction with this heater, be certain that the wire size of the extension cord is of adequate size for the wattage of the heater and distance from the receptacle to the heater. Consult a licensed electrician if further information is required.

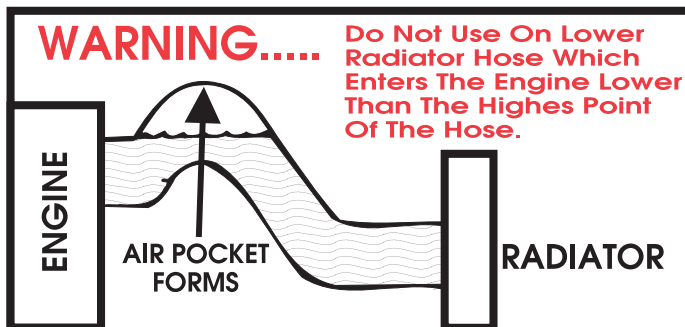
The High Performance ENGINE HEATER. Cords Permanently ATTACHED For BEST Electrical Connections.



Thermostatically
Controlled
(2) Gear Type
Clamps

CAUTION:

Not recommended
for any engine, American or
Foreign, unless specifically
listed.



WARNING..... Do Not Use On Lower
Radiator Hose Which
Enters The Engine Lower
Than The Highest Point
Of The Hose.

ENGINE AIR POCKET FORMS RADIATOR

WHEN INSTALLING A HOSE HEATER, CHECK THE CONDITION
OF THE LOWER HOSE. IF CRACKED OR WORN, REPLACE WITH
NEW HOSE BEFORE INSTALLING ELECTRIC HOSE HEATER.

Part No.	Hose Dia.	Wattage.
16400	1"	400
16500	1 1/4"	600
16600	1 1/2"	600
16700	1 3/4"	600
16800	2"	600
14825	2 1/4"	750
14850	2 1/2"	750
14875	2 3/4"	750
14900	3"	750

INSTRUCTION FOR INSTALLING AND OPERATING

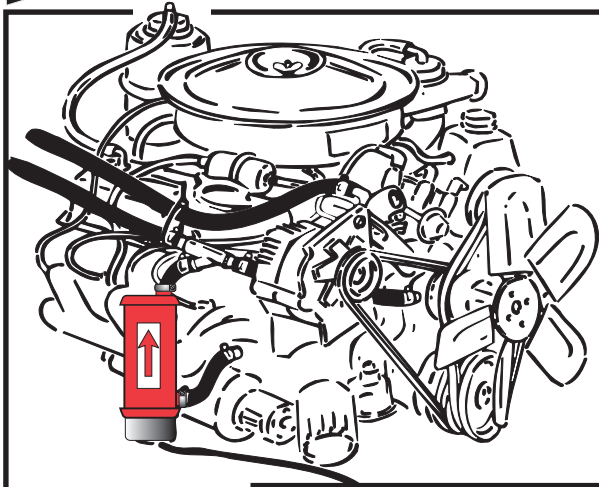
1. Drain and clean cooling system.
2. Cut and remove 1" section from the lower radiator hose at a point close to the water pump that will accept the heater. Make certain that the heater has a rise toward the water pump.
Install with cap down at 5-7 o'clock position and element pointing toward engine block.
3. Run cord through grill and secure making sure it is clear of all moving or heated parts.
4. Refill cooling system, start engine and check for leaks.
5. Before energizing heater all air must be bled out of system by running the engine until internal thermostat opens. Continue to run the engine for 30 minutes to eliminate all air pockets.
6. Connect to properly grounded power source to check heater operation.

CAUTION:

NOT RECOMMENDED FOR ANY ENGINE UNLESS SPECIFICALLY LISTED. DO NOT USE ON FLEXIBLE WIRE REINFORCED RADIATOR HOSE. AN ADEQUATE SIZE EXTENSION CORD MUST BE USED. CONSULT LICENSED ELECTRICIAN IF FURTHER INFORMATION IS NEEDED.



THERMOSTATICALLY CONTROLLED (EXTERNAL TYPE) ENGINE HEATER FITS MOST LIQUID COOLED ENGINES



INLET CONNECTION MADE FROM RADIATOR OR BLOCK DRAIN USING HOSE CONNECTOR OUTLET CONNECTION MADE TO TOP CAB HEATER HOSE AT WATER PUMP USING "Y" CONNECTOR

MODEL SPECIFICATIONS AND HEATERS RECOMMENDED FOR VARIOUS SIZE COOLING SYSTEMS

MODELS	VOLTS	WATTS	AMPS	CAPACITY
13080	120	850	7.00	Up to 18 qts.
13100	120	1000	8.3	16 - 25 qts.
13101	240	1000	4.16	16 - 25 qts.
13150	120	1500	12.5	26 - 40 qts.
13151	240	1500	6.25	26 - 40 qts.
13200	120	2000	16.6	41 - 60 qts.*
13201	240	2000	8.3	41 - 60 qts.
13222	120	2000	16.6	41 - 60 qts.**
13251	240	2500	10.4	Over 60 qts.

Short warm-up periods should be avoided when it is extremely cold. It is better to operate the heater all night. This will eliminate frozen water hoses. Our heaters are thermostatically controlled to obtain the most efficient operation.

*with 15 amp plug

**CSA approved with 20 amp plug

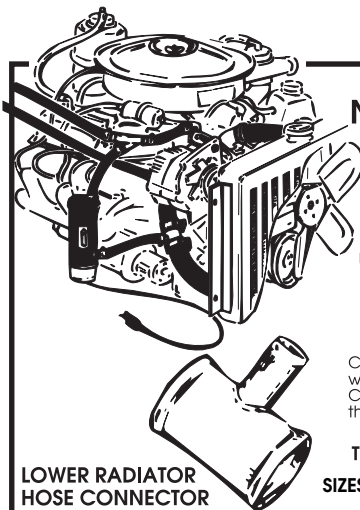
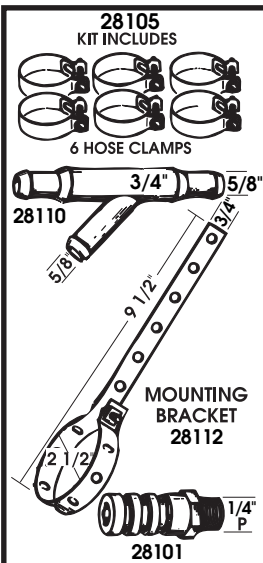
INSTRUCTIONS FOR INSTALLING AND OPERATING

1. Drain and clean the cooling system. (Recommend that this be done annually for more efficient heater operation.)
2. Mount heater vertically with the heater inlet (cold water line) connected to the engine block drain, radiator drain or lower radiator hose.
3. Heater outlet (hot water line) may be connected to the engine block at several locations.
 - Examples:
 - A. heater hose entering motor block.
 - B. hose line entering water pump.
 - C. engine block drain.
4. Use a 5/8" diameter heater hose for connecting heater inlet and outlet to engine. Use a minimum length of heater hose to prevent formation of air pockets.
5. Refill cooling system.
6. Bleed the air from the hose lines at the highest connection. OPERATE ENGINE FOR 30 MINUTES TO OPEN ENGINE THERMOSTAT BEFORE TESTING HEATER.
7. Place the electric cord from heater through radiator grille or other convenient opening and tape or fasten in position, making sure it is clear of all moving parts (fan blades) and heater parts (manifold).
8. Connect extension cord to the proper voltage outlet. Check the circulation of COOLANT TO MAKE ABSOLUTELY SURE THAT THE HEATED COOLANT CIRCULATES THROUGH THE HEATER HOUSING. If the radiator becomes warm before the engine block, the hot water is possibly being returned to the block too close to the thermostat, thus causing it to open prematurely. Relocate your hot water return line.
9. This heater is equipped with a three prong (grounding) plug and should be connected to a properly grounded circuit.

Heater failure is usually caused by lack of circulation. Check for the following when this happens:

- (a) Improper installation
- (b) Trapped air, preventing siphoning action
- (c) Water too low in the radiator
- (d) Coolant frozen
- (e) Car heater control closed
- (f) Antifreeze solution too strong

10. If an extension cord is used in conjunction with this heater, be certain that the wire size of the extension cord is of adequate size for the wattage of the heater and distance from the receptacle to the heater. Consult a licensed electrician if further information is required.



NEW LOWER RADIATOR HOSE CONNECTORS MAKE EXTERNAL HEATER INSTALLATIONS EASIER AND SIMPLER

USE TO SUPPLY THE COOLANT TO THE INLET OF AN EXTERNAL TYPE HEATER.
USE WHEN NO BLOCK DRAIN OR RADIATOR DRAIN IS AVAILABLE.
DO NOT USE ON FLEXIBLE WIRE REINFORCED RADIATOR HOSE.

Cut and remove a 1" section from the lower (MOLDED) radiator hose at a point that will accept the connector without changing the form of the original radiator hose. Cut and remove two or three inches of the wire coil that reinforces the hose where the connector will be placed.

THESE HOSE CONNECTORS SOLD SEPARATELY. CONSULT YOUR PRICE SHEET.
SIZES: 28113=1 IN., 28114=1 1/4 IN., 28115=1 1/2 IN., 28116=1 3/4 IN., 28117=2 IN.



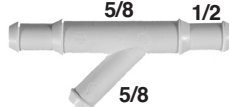
INTRODUCING THE NEW IMPROVED CIRCULATING TANK HEATER



- Made of die cast aluminum
 - Corrosion and impact resistant
 - Recyclable
- One piece molding
 - Eliminates possibility of leaks
- Tapered outlet design, pushes coolant more efficiently than other styles
- Available in 850W 1000W 1500W and 2000W 120V and 240V
- Thermostatically controlled 135° - 175°
- 5' HPN 105°C cord
- Uses versatile strap type mounting
- CSA approved

ADDITIONAL ACCESSORIES

	Part # 28103
	Part # 28104
	Part # 28108
	Part # 28109

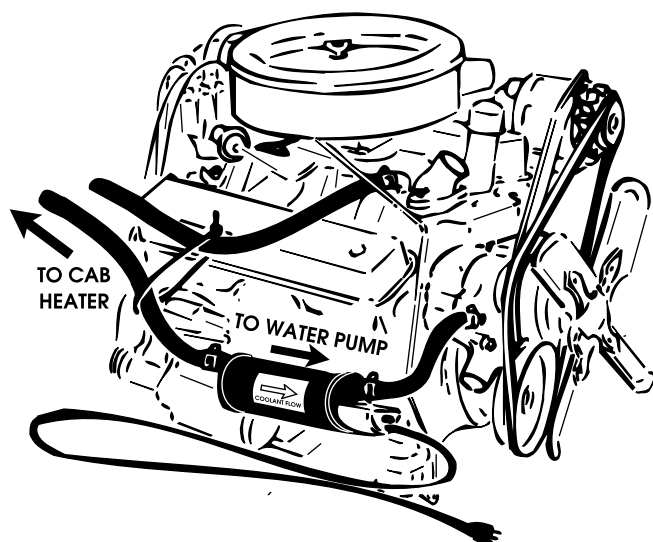
	Part #28110
	Part #28111



EXTERNAL HEATER 12010



**NO NEED TO DRAIN COOLANT!
KAT'S ENGINE HEATERS ARE EQUIPPED WITH
AUTOMATIC THERMOSTATS TO GIVE
MAXIMUM PROTECTION AND CONTROLLED HEAT
850 WATTS - 120 VOLTS**



INSTRUCTIONS FOR INSTALLING AND OPERATING

1. Remove the radiator cap
2. Install the heater in a horizontal position in the hose line that returns the coolant to the water pump from the cab heater. Heater must be mounted a minimum of 4" below the outlet of the cab heater. The lower the heater is mounted, the better the circulation.

It is not necessary to drain the coolant to install this heater. Hose can be clamped with two locking type pliers before cutting. It may be necessary to add hose between cab heater and engine heater to comply with instruction number 2.

It is not necessary to drain the coolant to install this heater. Hose can be clamped with two locking type pliers before cutting. It may be necessary to add hose between cab heater and engine heater to comply with instruction number 2.

CAUTION
**NOT RECOMMENDED FOR
ANY ENGINE, AMERICAN OR
FOREIGN, UNLESS SPECIFICALLY
LISTED**

CAUTION
**NOT RECOMMENDED FOR
ANY MAKE OR MODEL ENGINE
ON WHICH THE CAB HEATER
RETURN HOSE IS ROUTED TO
THE RADIATOR, OR ON
ENGINES EQUIPPED WITH
A VACUUM CONTROLLED
HEATER VALVE THAT IS
INOPERABLE UNLESS THE
ENGINE IS OPERATING**

3. After cutting hose, place a gear type clamp on each hose end. Install engine heater into heater hose with the arrow on the heater pointing toward the water pump. Make sure that the engine heater is positioned so that both inlet and outlet are on the top side. Arrow must point in direction of normal water flow. If installed improperly, neither the cab heater nor engine heater will function properly.
4. Place clamps into position and secure. If necessary, use furnished tie down straps on heater hose to help support engine heater. Do not place tie downs on engine heater housing. Replace radiator cap. Place the electric cord from heater through radiator grill or other convenient opening and tape or fasten in position, making sure it is clear of all moving parts (fan blades) and Heated parts (manifold).
5. With the heat control on dashboard set at maximum heat, run engine until thermostat opens to insure that water is in the heater prior to engine heater operation. (The dashboard heater control must be set at maximum heat when engine heater is in operation.)
6. Bleed the air from the engine block, hoses and heater housing before connecting the engine heater to the power supply.
7. Connect the engine heater to the proper voltage outlet. The heater is thermostatically controlled and can be operated all night or for several hours prior to starting the engine.
8. This heater is equipped with a three prong (grounding) plug and should be connected to a properly grounded circuit.
9. If an extension cord is used in conjunction with this heater, be certain that the wire size of the extension cord is of adequate size for the wattage of the heater and distance from the receptacle to the heater. Consult a licensed electrician if further information is required.



MAGNETIC HEATERS

SPECIFICATION	1153	1155 - CSA	1160	1190 - CSA
Heating Area	Approx. 8 sq. in.	Approx. 8 sq. in.	Approx. 20 sq. in.	Approx. 20 sq. in.
Heat Output	300 - 400° F.	300 - 400° F.	300 - 400° F.	300 - 400° F.
Power Req.	110 Volt AC	110 Volt AC	110 Volt AC	110 Volt AC
Warranty	One-Year Limited	One-Year Limited	One-Year Limited	One-Year Limited

U.S. Patent No. Re.32643

Patented Canada 1986, Patent No. 1,204,808



HAND-HEAT
1153/1155
200 WATTS

Applications include:

- Oil pan, intake manifold, battery holder or engine block.
- Snowblowers, chainsaws, snowmobiles, or other small engines.
- It may also be used for warming hydraulic systems or thawing frozen locks, pipes, gutters, livestock feeders, etc.



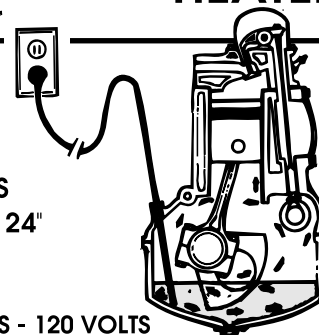
MAGNUM
1160/1190
300 WATTS

MAGNUM

The magnum is an upscale version of the Handi-Heat, featuring two powerful magnets and expanded heating surface. It can be used in many of the same applications as Handi-Heat, plus its larger size makes it ideal for use on trucks, diesels and farm machinery.



OIL HEATER



MODELS
15200 - 24"

90 WATTS - 120 VOLTS

- FITS MOST OIL STICK OPENINGS OF 1/4" OR MORE.
- STAINLESS STEEL TUBING IS FLEXIBLE MAKING IT POSSIBLE TO BE INSTALLED IN MOST ENGINES. THIS FLEXIBLE FEATURE ALLOWS GREATER COVERAGE.
- ECONOMICAL TO OPERATE
- HEATS OIL AND AIR IN CRANKCASE.
- ELEMENT LENGTH IS 23".

INSTRUCTIONS FOR OPERATING & INSTALLING

1. Measure dipstick to see that 4" of heater is in the oil.
2. replace oil stick with Kat's Heater. This flexible oil heater will conform with most curves in the present opening.
3. connect oil heater into any 120 Volt outlet and operate on an all-night basis. It is important to begin operating oil heater when car engine is still warm. Check heater clearance from hood, before closing hood. Be sure no wires or cables come in contact with heater.
4. Remove the oil heater before starting your engine. After each use, wipe oil heater clean of oil and sludge. This will greatly prolong the life of your oil heater.



AUTOMOTIVE INTERIOR HEATER

120 VOLTS

120 VOLTS



Part No. 37100

- Pre-heated interior comfort
- 900 Watts of power (120V)
- Slim, compact, lightweight design
- 900 Watt heat setting
- Thermostatically protected
- Ergonomically designed to blend into any car or truck interior
- Easily installed, mounting bracket included

12 VOLT INTERIOR HEATERS



Part No. 37650

- Provides heat to interior of car, boat, campers or RV's
- 150 Watt, 12 Volt
- Plugs into the cigarette lighter outlet
- Mounts on dash or under console



Part No. 37500

- Provides heat to interior of car, boat, campers or RV's
- 300 Watt, 12 Volt
- 7x7x3.5 inches
- Mounting Bracket included

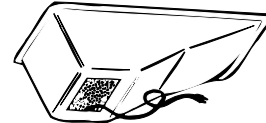


UNIVERSAL HOT PAD HEATER

SILICONE COVERED / ACID RESISTANT / PLIABLE

MODEL	DIMENSIONS	VOLTS	WATTS
24025	1" x 5"	120	25
24050	2" x 5"	120	50
24100	4" x 5"	120	100
24150	4" x 5"	120	150
24250	4" x 5"	120	250
24500	5½" x 8½"	120	500
SP approved with ground plug			
26025	1" x 5"	120	25
26050	2" x 5"	120	50
26100	4" x 5"	120	100
26150	4" x 5"	120	150
26250	4" x 5"	120	250
23075	5X5	12V	75
25075	5x5	24V	75

- For Cars, Truck, Tractors
- Use as Oil Pan heater
- Use as Transmission Pan heater
- Easy to install



NOTE: Not for use on batteries

Do not cut pad

**Always place heater on metal reservoir
before plugging in heater**

**Application ranges may vary depending
on outside temperature**

**Do not use pads with higher than
recommended wattage for specific
capacities**

USAGE GUIDE

	100 WATTS	150 WATTS	250 WATTS	500 WATTS
Engine Oil Pan	2-5 quarts	5-8 quarts	8-20 quarts	20-35 quarts
Diesel Tank	5-7 gallons	7-10 gallons	10-20 gallons	20-30 gallons
Hydraulic Tank	1-5 gallons	5-10 gallons	10-20 gallons	20-30 gallons
Water Tank	0-2 gallons	2-4 gallons	4-7 gallons	7-10 gallons



BATTERY THERMAL WRAP



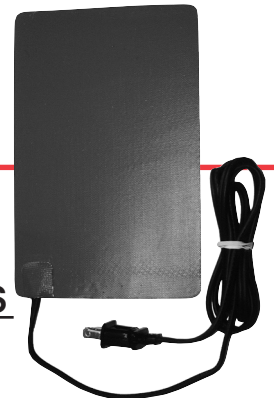
VINYL COVERED / ACID RESISTANT / PLIABLE

- 3 MODELS TO FIT MOST BATTERY SIZES
- FAST, EASY INSTALLATION - SIMPLY WRAPS AROUND BATTERY TO HEAT AND INSULATE
- OIL AND ACID RESISTANT VINYL COVER

MODEL	LENGTH	VOLTS	WATTS	BATTERY SIZE
22100	28"	120	60	SERIES 26, 26R, 70
22200	36"	120	80	SERIES 24, 24F, 27, 27F, 74
22300	72"	120	160	TRUCK BATTERIES



BATTERY HEATERS PAD STYLE

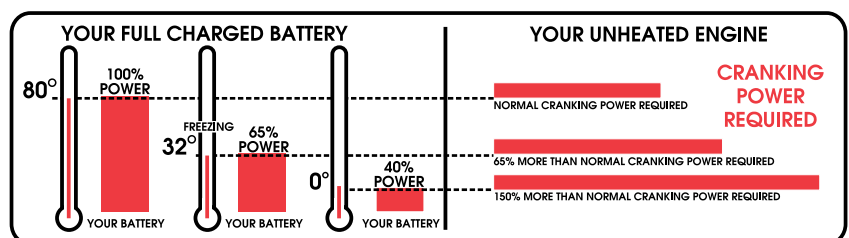


**SILICONE COVERED / ACID RESISTANT / PLIABLE
FITS MOST CAR AND TRUCK BATTERIES**

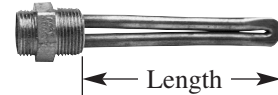
BATTERY SIZE	MODEL	DIMENSIONS	VOLTS	WATTS
24	22400	5 1/2" x 8 1/2"	120	60
24	22401	5 1/2" x 8 1/2"	240	60
27, 31, 40	22500	8 1/2" x 11 1/2"	120	60
8D	22600	11" x 18"	120	80
8D	22700	11" x 18"	240	80

NOTE: If bottom of battery box is perforated with holes or has a waffle bottom use a sized piece of sheet metal or sheet aluminum between bottom of box and battery heater.

**CAUTION:
DO NOT OPERATE
BATTERY HEATER WHEN
OUTSIDE TEMPERATURE
IS ABOVE FREEZING**



IMMERSION ELEMENTS THREADED



<u>MODEL #</u>	<u>WATTS</u>	<u>VOLTS</u>	<u>NPT THREAD SIZE</u>	<u>ELEMENT LENGTH</u>	<u>APPLICATION</u>	<u>ELEMENT CONSTRUCTION</u>
30901	150	120	1/2"	3 3/4"	WATER/OIL	STAINLESS STEEL
30902	150	120	3/4"	3 3/4"	WATER/OIL	STAINLESS STEEL
30900	150	120	1"	3 3/4"	WATER/OIL	STAINLESS STEEL
30911	150	120	22mm	3 3/4"	WATER/OIL	STAINLESS STEEL
30924	150	120	25mm	3 3/4"	WATER/OIL	STAINLESS STEEL
30904	300	120	1/2"	3 3/4"	WATER/OIL	STAINLESS STEEL
30905	300	120	3/4"	3 3/4"	WATER/OIL	STAINLESS STEEL
30903	300	120	1"	3 3/4"	WATER/OIL	STAINLESS STEEL
30910	300	120	22mm	3 3/4"	WATER/OIL	STAINLESS STEEL
30923	300	120	27mm	3 3/4"	WATER/OIL	STAINLESS STEEL
30925	300	120	1 15/16"	3 3/4"	WATER/OIL	STAINLESS STEEL
11453	400	120	3/8"	2 1/2"	WATER	COPPER
11423	400	120	1/2"	1 3/4"	WATER	COPPER
11409	400	120	3/4"	1 1/2"	WATER	COPPER
11407	400	120	1"	1"	WATER	COPPER
30906	450	120	1/2"	3 3/4"	WATER/OIL	STAINLESS STEEL
30926	450	120	1"	3 3/4"	WATER/OIL	STAINLESS STEEL
11619	600	120	3/4"	1 3/4"	WATER	COPPER
11602	600	120	1"	1 3/4"	WATER	COPPER
30115	750	120	3/4"	3 3/8"	WATER	COPPER
30307	1000	120	3/4"	3 1/4"	WATER	COPPER
30313	1000	120	1"	3 1/4"	WATER	COPPER
30312	1500	120	3/4"	5"	WATER	COPPER
30303	1500	120	1"	5"	WATER	COPPER
30207	1500	120	1"	3 1/4"	WATER	COPPER
30211	1500	120	1"	8"	WATER	COPPER
30106	1500	120	38mm x 1.5	3"	WATER	COPPER

NOTE:

ALLOW 10 WATTS PER QT/OF OIL

ALL ABOVE ELEMENTS USE THE 28216 CORDSET

28130 1/2" NPT Weld Bushing



31000 Series is for 240 volt heaters

OIL PRESSURE SWITCH

28124

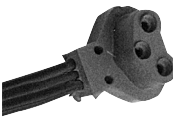
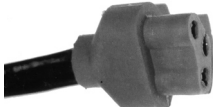
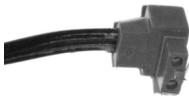
For engines that have an automatic start up. This unit will sense oil pressure and turn off current to heater preventing the heater from burning out.





REPLACEMENT CORDS



	28206	1'	16/3	120	
	28216	6'	16/3	120	
	28416	10'	16/3	120	
	28316	6'	16/3	240	
	28400	5'	18/3	120	
	28200	5'	16/3	120	
	28201	1'	16/3	120	
	28300	6'	16/3	240	
	28496	8'	16/3	120	
	28401	1'	18/3	120	
	28500	5'	18/3	120	
	28501	1'	18/3	120	
	28510	5'	18/3	120	*
	28591	7.5'	18/3	120	
	28450	5'	18/3	120	
	28451	1'	18/3	120	
	28800	5'	18/3	120	*
	28801	5'	18/3	120	
	28810	5'	18/3	120	
	28811	5'	18/3	120	*
	28812	5'	18/3	120	
	28813	5'	18/3	120	
	28814	5'	18/3	120	



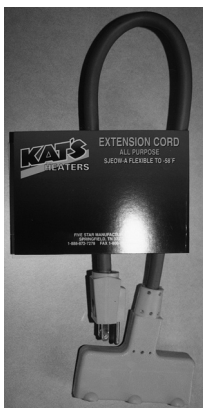
WORK LIGHT 41900

Built in light indicates when power is on



PLUG COVER 28405

* CORD WITH THERMOSTAT



TRIPLE-CONNECTOR INDOOR/OUTDOOR 3 - WIRE GROUNDED EXTENSION CORDS

12/3 SJEOW-A .475 O.D. UL LISTED 3 WIRE

Part No.	Length	Amps	Watts	Std. Pkg.	Wt.
41300	2'	15	1875	10	8 lbs.



4 PLEX BOX (2)

41400 ECONOMY BOX

15 amp w/10' CORD 14/3

41401 HEAVYDUTY BOX

20 amp w/8' CORD 12/3

w/ ground wire





WEATHER PROOF TRUCK MOUNT RECEPTACLES



KITS:

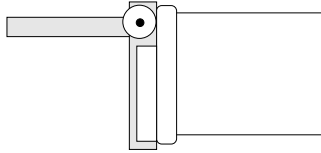
35112 • (120V-15 AMP) w/35108 Cord
35113 • (120V-20 AMP) w/35109 Cord
35114 • (240V-15 AMP) w/35110 Cord
35115 • (120V-15 AMP) w/35102 Cord
35117 • (120V-15 AMP) w/35125 Cord
35200 • (120V-15 AMP) w/35121 Cord
35308 • (120V-15 AMP) w/35208 Cord

ALL KITS INCLUDE:

MOLDED RECESSED MALE RECEPTACLE WITH 6' CORD AND WEATHER PROOF HINGED COVER.

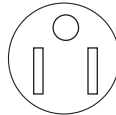
HINGE COVER

35101

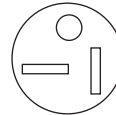


MALE WEATHER PROOF PLUG

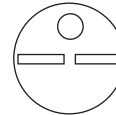
35102
35108
35109
35110
35116
35121
35208
35209
35210



120V 15 AMP



120V 20 AMP



240V 15 AMP

ACCESSORIES / REPLACEMENT PARTS

PART #	DESCRIPTION	VOLTS	AMPS
35101	CHROME HINGE COVER		
35135	SERVICE PLUG		
35145	CHROME HINGED COVER AND SERVICE PLUG		
35119	OIL PAN THERMOSTAT (100°-120°)		
35118	OIL PAN THERMOSTAT (55°-75°)		
35108	6' CORDSET w/MALE W/P PLUG	120V	15 AMP
35208	6' CORDSET w/MALE W/P PLUG AND MOLDED END	120V	15 AMP
35109	6' CORDSET w/MALE W/P PLUG	120V	20 AMP
35209	6' CORDSET w/MALE W/P PLUG AND MOLDED END	120V	20 AMP
35110	6' CORDSET w/MALE W/P PLUG	240V	15 AMP
35210	6' CORDSET w/MALE W/P PLUG AND MOLDED END	240V	15 AMP
35125	10' CORDSET w/MALE W/P PLUG	120V	15 AMP
35155	10' CORDSET w/MALE W/P PLUG AND MOLDED END	120V	15 AMP
35102	"Y" CORDSET 6' / 10' w/MALE W/P PLUG AND MOLDED END	120V	15 AMP
35116	"Y" CORDSET 6' / 10' w/MALE W/P MOLDED END	240V	15 AMP
35121	"Y" CORD 10' / 10' w/MALE W/P PLUG AND MOLDED END	120V	15 AMP
35250	"Y" CORD SET 6'/6' w/MALE W/P PLUG AND 6'/6' MOLDED END	120V	15 AMP
35202	35250 "Y" CORD w/35119 THERMOSTAT	120V	15 AMP
35203	35250 "Y" CORD w/35118 THERMOSTAT	120V	15 AMP
35124	"Y" CORD 10'/10' w/MOLDED END	240V	15 AMP
35270	"Y" CORD 6'/6' MOLDED END	240V	15 AMP
35126	35270 "Y" CORD 10'/10' w/35119 THERMOSTAT	240V	15 AMP
35217	35270 "Y" CORD 10'/10' w/35118 THERMOSTAT	240V	15 AMP
35122	"Y" CORDSET 10'/10' w/MOLDED ENDS	120V	15 AMP
35222	"Y" CORDSET 10'/10'	120V	15 AMP
35134	14" CORDSET w/MALE W/P PLUG AND MOLDED END	120V	15 AMP

DEFROST FAN

Part No.
43100 (12 Volt)
43101 (24 Volt)



- Black Swivel Ball Base with 3-Hole Mounting
- Chrome Guard
- Heavy-duty, 12 or 24-Volt 2-Speed Motors
- 2 Position Toggle Switch



AUXILIARY HEATERS

Part No. 38500 12V

Part No. 39500 24V

HEATING: 12,500 btu/hr.

MOTOR: Multi-speed

POWER: 1.5 amps @ 12 volts

MOUNTING: Rear mounting studs

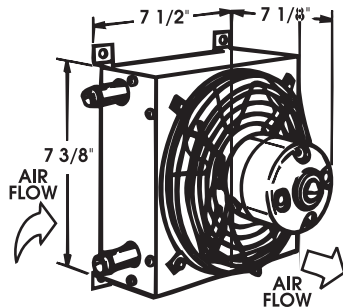
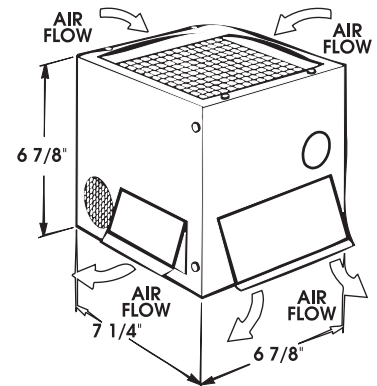
Replacement Parts

Motor 38502

Core 38506

Fan Blade 38507

Fan Guard 38509



Part No. 38600 12V

Part No. 39600 24V

HEATING: 15,000 btu/hr.

MOTOR: Multi-speed

POWER: 1.5 amps @ 12 volts

MOUNTING:

Replacement Parts

Motor 38602

Core 38606

Fan Blade 38607

Fan Guard 38608

Part No. 38700 12V

Part No. 39700 24V

HEATING: 20,000 btu/hr.

MOTOR: Multi-speed

POWER: 5 amps @ 12 volts

MOUNTING: Rear mounting studs

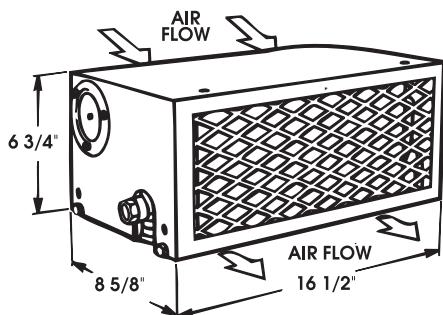
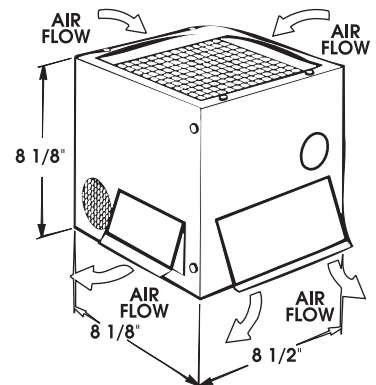
Replacement Parts

Motor 38702

Core 38706

Fan Blade 38707

Fan Guard 38709



Part No. 38800 12V

Part No. 39800 24V

HEATING: 33,000 btu/hr.

MOTOR: 2 speed

POWER: 8.5 amps @ 12 volts

MOUNTING: Rear mounting studs

Replacement Parts

Motor 38802

Core 38806

Fan Blade 38807

(39000 Series is for 24 volt.)

FROST PLUG SIZE CHART

FRACTION	METRIC	PART	ATTACHMENT	FRACTION	METRIC	PART	ATTACHMENT
3/8 NPT		11453	THD	1 1/2	38	11426	BUTTERFLY
1/2 NPT		11423	THD	1 1/2	38	11432	BUTTERFLY
3/4 NPT		11409	THD	1 1/2	38	11458	BUTTERFLY
3/4 NPT		11490	THD	1 1/2	38	11604	BUTTERFLY
3/4 NPT		11491	THD	1 1/2	38	11605	BUTTERFLY
3/4 NPT		11619	THD	1 1/2	38	11606	BUTTERFLY
3/4 NPT		30115	THD	1 1/2	38	11610	BUTTERFLY
1 NPT		11407	THD	1 1/2	38	11460	THD
1 NPT		11470	THD	1 1/2	38	11483	THD
1 NPT		11602	THD	1 1/2	38	30403	BUTTERFLY
63/64	24	11479	THD	1 9/16	40	11401	BUTTERFLY
1 1/32	26	11437	THD	1 9/16	40	11434	BUTTERFLY
1 1/16	27	11628	THD	1 9/16	40	11443	BUTTERFLY
1 7/64	28	11419	THD	1 9/16	40	11468	BUTTERFLY
1 7/64	28	11455	THD	1 9/16	40	11617	BUTTERFLY
1 7/64	28	11484	THD	1 5/8	41	11406	BUTTERFLY
1 5/32	30	11412	THD	1 5/8	41	11601	BUTTERFLY
1 5/32	30	11463	THD	1 5/8	41	11603	BUTTERFLY
1 3/16	30	11417	BUTTERFLY	1 5/8	41	11607	BUTTERFLY
1 3/16	30	11454	BUTTERFLY	1 5/8	41	11612	BUTTERFLY
1 3/16	30	11469	BUTTERFLY	1 5/8	41	11613	BUTTERFLY
1 3/16	30	11487	BUTTERFLY	1 5/8	41	11614	BUTTERFLY
1 1/4	32	11620	DRIVE IN	1 5/8	41	11626	BUTTERFLY
1 1/4	32	11461	DRIVE IN	1 5/8	41	30602	THD
1 1/4	32	11445	BUTTERFLY	1 21/32	41.5	11438	BUTTERFLY
1 1/4	32	11624	PLATE	1 21/32	41.5	11480	BUTTERFLY
1 1/4	32	30214	BUTTERFLY	1 11/16	42	11418	BUTTERFLY
1 1/4	32	30501	BUTTERFLY	1 11/16	42	11486	BUTTERFLY
1 11/32	34	11413	BUTTERFLY	1 11/16	42	30401	HEX NUT
1 11/32	34	11415	BUTTERFLY	1 23/32	42.5	11435	BUTTERFLY
1 11/32	34	11425	BUTTERFLY	1 3/4	44.5	11450	BUTTERFLY
1 3/8	35	11402	BUTTERFLY	1 3/4	44.5	11609	BUTTERFLY
1 3/8	35	11411	BUTTERFLY	1 3/4	44.5	11616	BUTTERFLY
1 3/8	35	11414	BUTTERFLY	1 3/4	44.5	11622	BUTTERFLY
1 3/8	35	11421	BUTTERFLY	1 3/4	44.5	30202	BUTTERFLY
1 3/8	35	11422	BUTTERFLY	1 3/4	44.5	30204	BUTTERFLY
1 3/8	35	11424	BUTTERFLY	1 25/32	45	11431	BUTTERFLY
1 3/8	35	11428	THD	1 25/32	45	11433	BUTTERFLY
1 3/8	35	11439	BUTTERFLY	1 25/32	45	11615	BUTTERFLY
1 3/8	35	11442	BUTTERFLY	1 15/16	49	11608	BUTTERFLY
1 3/8	35	11444	BUTTERFLY	1 31/32	50	11410	BUTTERFLY
1 3/8	35	11447	BUTTERFLY	1 31/32	50	11465	BUTTERFLY
1 3/8	35	11448	BUTTERFLY	2	51	11611	BUTTERFLY
1 3/8	35	11456	BUTTERFLY	2	51	30603	BUTTERFLY
1 3/8	35	11481	BUTTERFLY	2 1/16	52	11441	BUTTERFLY
1 3/8	35	11482	BUTTERFLY	2 1/16	52	11627	BUTTERFLY
1 3/8	35	11485	BUTTERFLY	2 1/8	54	11440	BUTTERFLY
1 3/8	35	11618	BUTTERFLY	2 1/4	58	30107	FLAT BAR
1 3/8	35	11621	BUTTERFLY	2 1/4	58	30108	FLAT BAR
1 25/64	35.5	11488	BUTTERFLY				
1 27/64	35	11403	BUTTERFLY				
1 27/64	36	11404	BUTTERFLY	.885		11810	CARTRIDGE
1 27/64	36	11427	BUTTERFLY	.885		11811	CARTRIDGE
1 27/64	36	11430	BUTTERFLY	.703		11812	CARTRIDGE
1 27/64	36	11436	BUTTERFLY	.683		11813	CARTRIDGE
1 27/64	36	11451	BUTTERFLY	.688		11814	CARTRIDGE
1 27/64	36	11405	THD	.805		11815	CARTRIDGE
1 7/16	36.5	11420	BUTTERFLY	1.068		11816	CARTRIDGE
1 7/16	36.5	11429	BUTTERFLY				
1 1/2	38	11416	BUTTERFLY				

CARTRIDGE HEATERS



Distributed By Five Star Manufacturing



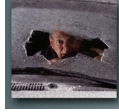
No more dirty clothes from scraping when you can't reach the windshield



Heated fluid is more effective on bird droppings, insects and road grime in warm weather



Improves driver vision during snow and ice storms



Provides quick defrosting, defogging and de-icing



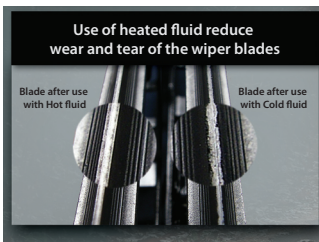
Removes ice build-up on wiper blades and arms



Increases safety for drivers, eliminates scraping in dark parking lots

Kat's / Alpha Therm Heated windshield washer

Unit

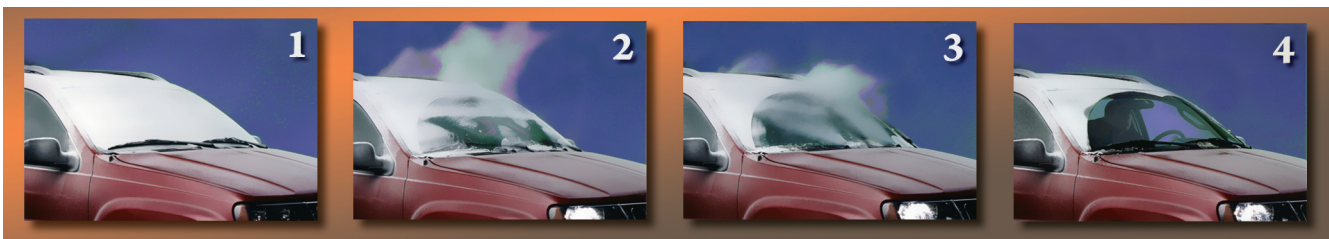


Functional purpose

- Sprays 125 degree washer fluid on windshield to melt and thaw snow and ice buildup on the front windshield and wiper blades.
- With 4 applications, at 20 second intervals, it can completely clear a window covered in ice.
- Uses existing fluid from reservoir. The existing pump is used to pump the fluid through the heater and onto the windshield through the vehicles washer jets.
- The heated fluid will help unclog frozen washer nozzles.
- By using the heated fluid there is a reduced wear and tear on the wiper blades.
- During warmer months heated fluid will help dissolve faster mud, dirt, insects and sap.
- This is a SAFETY ITEM. Using Alpha Therm will give trucks and buses increase visibility not only at start up but while traveling during snow or ice storms. If presented Insurance Companies as the increased safety value, they can and will reduce premiums.
- No more waiting to clear windows or having to scrape windows.
- Alpha Therm will clear windows 10 to 25 times faster than heated windshields.
- Fuel savings are achieved because of the time that it takes to heat the engine before starting to clear the windshield.

Mechanical features

- (3) 200 watt heaters will heat the fluid to 125-133 degrees in 40 seconds and will continue to maintain heated fluid in reserve.
- No specialty tools required for installation.
- Easy to install. All needed accessories are included to the box to complete the installation in 30 minutes. Accessories included are: a bracket to mount heater to the fire wall, 5' of tube to attach heater to washer pump, 4 self-tapping screws, 8 cable ties.
- Connects directly to battery with a 60 amp inline fuse.
- Heater has a monitoring device that will shut the heater down when the battery voltage falls below 13.0 volts.





TECHNICAL INFORMATION

KAT'S ENGINE HEATER - THERMOSTAT SETTINGS (RATINGS)

EXTERNAL HEATERS

LOWER RADIATOR HOSE HEATERS	14XXX
OPEN (OFF)	175°F
CLOSE (ON)	135°F

LOWER RADIATOR HOSE HEATERS	16XXX
(IN LINE HEATER) OPEN (OFF)	270°F
CLOSE (ON)	240°F

12010 (IN LINE HEATER) OPEN (OFF)	284°F
CLOSE (ON)	170°F

MAGNETIC (1153, 1155, 1160)	
OPEN (OFF)	275°F
CLOSE (ON)	271°F

FLEXIBLE HEATER (24300, 24600, 24120)	
OPEN (OFF)	159°F
CLOSE (ON)	149°F

TO OBTAIN SATISFACTORY RESULTS FROM YOUR ENGINE HEATER, PLEASE READ AND FOLLOW THESE GUIDELINES.

- DO NOT USE A KAT'S ENGINE HEATER WHEN USING A 100% SOLUTION OF ANTIFREEZE—A 50/50 SOLUTION IS RECOMMENDED.
- KAT'S HEATERS THAT ARE EQUIPPED WITH A THREE PRONG (GROUNDING) PLUG SHOULD BE CONNECTED TO A PROPERLY GROUNDED CIRCUIT OUTLET.
- IF AN EXTENSION CORD IS USED IN CONJUNCTION WITH A HEATER BE CERTAIN THAT THE WIRE SIZE OF THE EXTENSION CORD IS OF ADEQUATE SIZE FOR THE WATTAGE OF THE HEATER AND DISTANCE FROM THE RECEPTACLE. SEE CHART BELOW. CONSULT A LICENSED ELECTRICIAN IF FURTHER INFORMATION IS REQUIRED.
- DO NOT START VEHICLE ENGINE WITH HEATER PLUGGED INTO ELECTRICAL OUTLET. ELEMENT HOT SPOTS COULD OCCUR CAUSING THE HEATER ELEMENT TO BURN OUT.
- CARE SHOULD BE TAKEN WHEN REPLACING HEATER CORDS. THE 28400 REPLACEMENT CORD IS A 10 AMP, LOW WATTAGE REPLACEMENT CORD FOR 400/600 WATT HEATERS. THE 28200 IS A 15 AMP CORD WHICH IS FOR THE DIESEL (HIGHER WATTAGE) HEATERS. THE 28216 (120V) AND 28316 (120V) CORDS ARE DIESEL HEATER REPLACEMENT CORDS.

SUGGESTED WIRE GAUGES FOR POWER SUPPLY CORDS

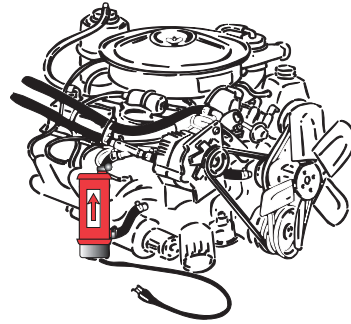
(Current carrying capacity shown in amperes)

	4	6	8	10	12	14	16	18	20	25
Length in Feet	Suggested wire Gauge									
15	18	18	16	16	16	16	14	14	12	12
25	18	18	16	16	14	14	12	12	12	10
50	18	18	16	16	14	14	12	12	12	10
100	16	16	14	14	14	12	12	10	10	10
150	16	14	12	12	12	12	10	10	10	8

KAT'S

HEATERS

MANUFACTURERS OF QUALITY
ENGINE HEATERS SINCE 1947



TERMS OF LIMITED WARRANTY

WARRANTY: Products manufactured by Five Star Manufacturing Company are warranted for one year from date of sale to the original consumer against defects in workmanship and materials providing the installation and use of these products are in accordance with the manufacturer's instructions and applications. The manufacturer's only obligation shall be to repair or replace at the manufacturer's option the product provided it is returned transportation prepaid to the factory within one year from date of sale to original consumer.

Defects or failures due to incorrect installation, improper voltage, improper usage, improper alterations, or handling, or by any other conditions beyond our control, as to any and all of which the manufacturer will be the sole judge, are specifically excluded from this warranty. This may also have implied warranty rights which vary from state to state. No other liability of any kind, arising from the use of the product, whether defective or not, is assumed.

REPLACEMENT AND REPAIR POLICY

- I. In returning a heater for replacement or repair, include all the information possible as to what may have caused the trouble. Check the extension cord. In some cases it has been faulty. All returned heaters must be labeled and identified with warranty tags.
- II. Service charges will be made on units which:
 - (1) Were burned in air (operated without the heating element being immersed in water or antifreeze).
 - (2) Failed due to restricted circulation, improper installation, air pockets in hose lines, or a dirty cooling system.
 - (3) Are damaged through no fault of manufacturer.
 - (4) Failed due to installation on other than recommended vehicles.
 - (5) Are not defective.
- III. Five Star Manufacturing Company cannot and does not refund labor.

IMPORTANT...CAUTION

To obtain satisfactory results from your external type engine heater, please read the following information carefully.

DO NOT USE A KAT'S ENGINE HEATER WHEN USING A 100% SOLUTION OF ANTI-FREEZE.

After the heater has been installed according to instructions, have your service station or garage check your antifreeze solution. On permanent type antifreeze, a solution too strong as well as too weak will freeze. If your coolant freezes or congeals, it will stop the flow of liquid through the heater housing and hoses and cause the heater to burn out. Our heater guarantee is void when this happens or when there is evidence of inadequate coolant.

To obtain the maximum protection from freezing, consult your antifreeze manufacturer's recommendations.

Five Star Manufacturing reserves the right to make any changes to the design or appearance it deems necessary to any of its products at anytime without notification, and these changes will not obligate Five Star to replace or change any previously manufactured products.



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