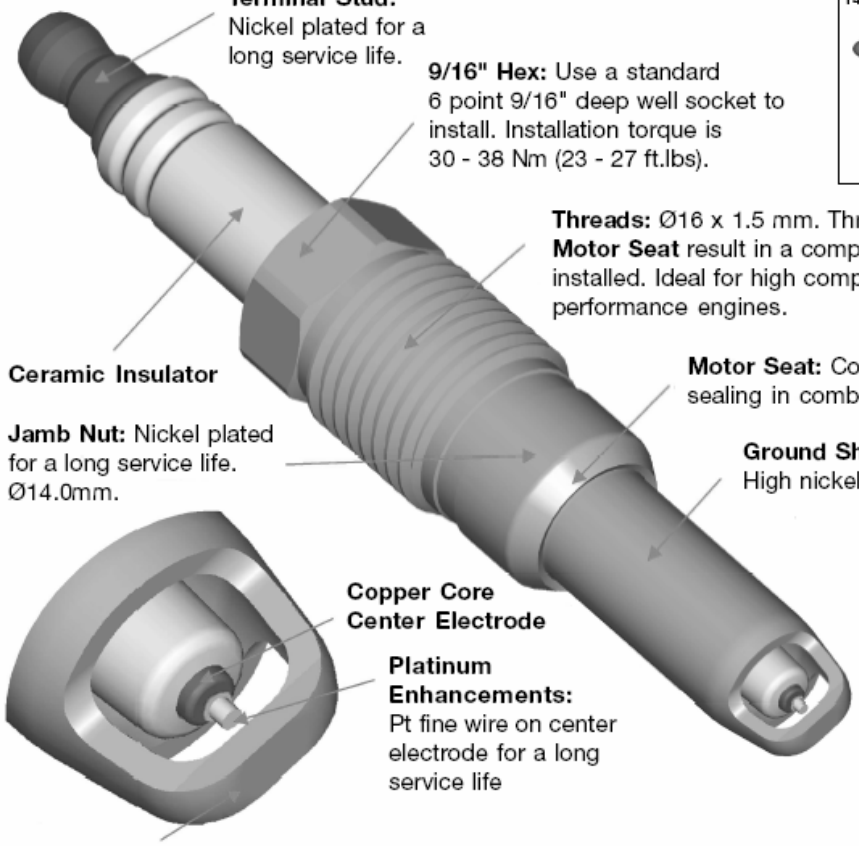
High Thread Spark Plug Type

Features

Unique **High Thread** design has the **Threads** above the **Motor Seat** resulting in a compressive seal when installed. Ideal for high compression and high performance engines. Conventional spark plug has thread below the motor seat.

Advantage

Allows the placement of the spark plug into a smaller 10mm diameter design envelope while maintaining electrical, mechanical, and durability characteristics associated with a 14mm conventional spark plug design.



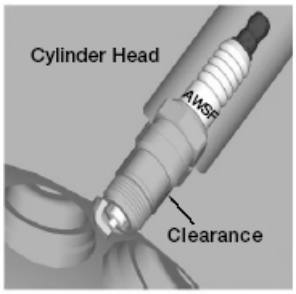
First Letter	**P**	Diameter of Ground Shield	10.0mm
Second Letter	**Z**	Firing Location	25.5mm
Additional Letter	**T**	Plug Family	High Thread
First Number	**2**	Heat Range	0 - Cold; 5 - Hot
Suffix Letter/s	**F** **FE** **FP**	Platinum Enhancements (Pt)	F — F - Fine Wire Center Wire FE — F - Fine Wire Center Wire, E - Large Pt Pad Strap FP — F - Fine Wire Center Wire, P - Small Pt Pad Strap

Product Information

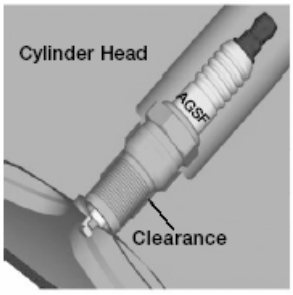
Motorcraft® Spark Plug Transition

Half Thread to Full Thread

The AGSF can replace AWSF, but the AWSF cannot replace the AGSF. The difference is in the thread length rather than the overall plug length. Some engines have the AWSF thread design machined into the head assembly, intended for ease of assembly in the plants. The full thread design, AGSF, meshes with the half thread holes in the head in exactly the same location with the additional threads located above the mesh engagement.



"HALF THREAD" AWSF-type



"FULL THREAD" AGSF-type

Note that there is a clearance above the thread-to-head interface

Motorcraft® Spark Plugs
New Nickel-Plated Shell Coating

Designed, engineered and recommended by Ford Motor Company.

Resists Corrosion

- Better than any other coating, impervious to salt damage
- Permits service intervals often greater than 150,000 miles

OE Replacement Plugs

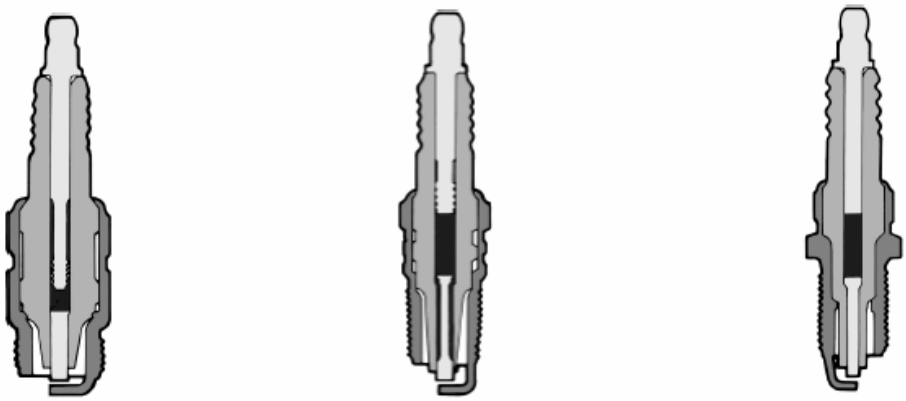
- Majority of current model year OE replacement plugs are nickel plated
- Available in service for most prior model years of our long-life plugs

Motorcraft® Part Numbers for New Nickel-Plated Plugs

Motorcraft P/N	Replacing Part Information
AGSF12FM1F4	Does not replace another P/N
AGSF22FM1F4	Does not replace another P/N
AGSF22FMF6	AGSF22PPF6
AGSF32FMF6	AWSF32FF4
AGSF32FSMF6	AGSF32FS
AGSF32FSMF6	AGSF32FSF6
AGSF32FMF4	Does not replace another P/N
AGSF34FMF6	AGSF34EEF6
AGSF34FMF4	AGSF34EEF4
AGSF42FMF6	AWSF42EEF6
AGSF42FCM	Does not replace another P/N
AGSP32FSMF4	Does not replace another P/N

Motorcraft® Spark Plugs . . .

offered in a broad range of options for domestic and imported cars and for all size trucks. Motorcraft® also supplies plugs for all popular marine, farm, industrial, and small engine applications.



1 2 3

1 NON-EXTENDED TIP

- For most older cars and some new truck applications.
- Available for many applications in suppressor, or non-resistor (standard) types.

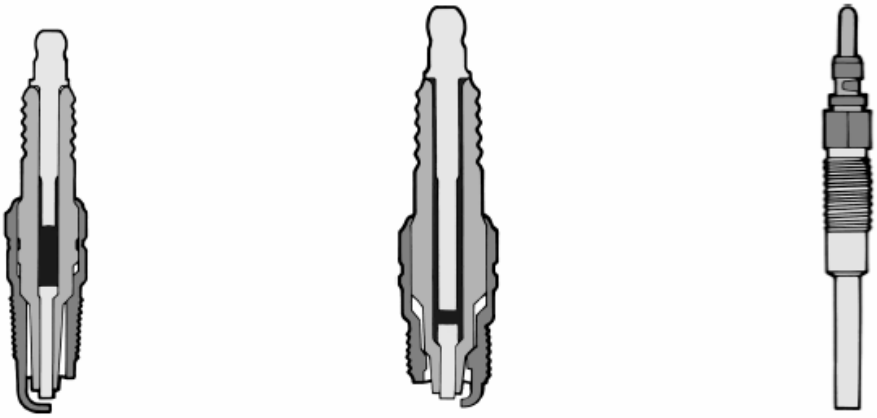
2 EXTENDED TIP

- Insulator tip and electrodes extend into combustion chamber to provide good combustion initiation and reduced fouling at low speeds.
- The extended tip is cooled by incoming fuel-air mixture. (Example: AWSF42C)
- Extended tip plugs cannot be used in all engines – consult application section of this catalog.
- Supplied in suppressor, or non-resistor (standard) types.

3 EXTRA EXTENDED TIP

- Insulator and electrode extends further into the combustion chamber for optimum spark gap position. (Example: AGSP33C)
- Shares the same fouling resistance and self-cleaning features as the extended tip.
- Extra extended tip plug cannot be used in all engines – consult application section of this catalog.

SPARK PLUGS CONTINUED



4 5 6

4 SPECIAL EXTENDED TIP

- Share the same design benefits for self-cleaning as an extended tip plug, plus the electrodes project further into the combustion chamber for the optimum position of the spark gap.
- The shell may have a long pilot beyond the tip of the threads, i.e., AGSF34C, BSF44C, or the electrodes may just project farther than a regular extended tip, i.e., AGS44.
- Special extended tip plug cannot be used in all engines – consult application section of this catalog.

5 NON-EXTENDED AND EXTENDED GAP RACING GROUP

- Special cold heat ranges with selected gap configurations and electrode alloys to meet requirements of all types of racing engines.
- Provides optimum combustion initiation under all racing conditions with all types of fuel.
- Consult Racing Heat Range Chart.

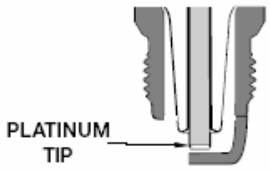
6 DIESEL ENGINE GLOW PLUG

- Diesel engine glow plugs are designed to heat air in the engine pre-combustion chamber to assist cold engine starting and fuel vaporization.
- Identified by a prefix letter coding of ZD.

Platinum Spark Plugs

The same well engineered and tested plugs that have 100,000 mile replacement intervals on many new Ford vehicles are now available as service replacements for earlier vehicles. Because of platinum's high melting point, it provides superior resistance to erosion. Less erosion means 60,000 to 100,000 mile intervals between spark plug changes while still maintaining optimal engine performance. Platinum plugs are designated by the letter "P", "E", "F", "FE", "FM", "FP", or "WM" in the part number suffix.

TYPICAL SINGLE PLATINUM PLUG (P&E)



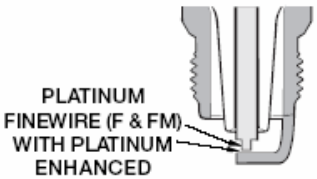
(P, E or W) Single Platinum Spark Plugs

Single platinum (P) tip plugs are designed and recommended for use in conventional distributor-equipped ignition systems. Typically *60,000* mile service interval. Single platinum (E) tip plugs are designed for coil-on-plug ignition systems, but with the use of enhanced platinum, can result in longer service intervals of up to *100,000* miles.

(F, FE & FM) Finewire Platinum Spark Plugs

The Finewire platinum was designed to improve electrode wear beyond the capability of the E & P levels of platinum enhancement. The quantity of platinum is 2 or 3 times greater than the P or E models and its thin, cylindrical shape serves to reduce required firing voltage. This results in diminished erosion of the platinum and robustness against fouling. FM & FM1 include nickel plated shell.

TYPICAL FINEWIRE PLATINUM PLUG (F, FE & FM)



Original Equipment Copper Core Plugs	Can Use Platinum Tip Electrode For Extended Mileage Change Interval	
	Single Platinum	Finewire
AZFS22C	–	AZFS22FE or AZFS22FM
ASF32C	ASF32P	–
ASF42C	ASF42P	–
BSF44C	BSF44P	–
AGSF22C	–	AGSF22FM
AGSF34C	–	AGSF34FM
AGSP32C	–	AGSP32FM
AWSF22C	AWSF22E	AWSF22FM
AWSF32C	AWSF32P or E	AGSF32FM
AWSF34C	–	AGSF34FM
AWSF42C	AWSF42P	AGSF42FM
AWSF44C	AWSF44P	AGSF44FM

Product Information

Motorcraft® Spark Plug Model Identification

The alpha-numeric system for coding Motorcraft® spark plugs provides positive identification of key product characteristics. Letters and numbers describe size and function of each type of spark plug.

Example #1

First Letter	Second Letter	Third Letter(s)	First Number	Second Number	Suffix Letter(s)	Suffix Letter/ Number
Thread Diameter	Reach	Plug Characteristic	Heat Range	Tip Configuration	Plug Characteristics	Packaging Configuration
A	**G**	**SP**	**3**	**2**	**FSM**	**F4**

Example #2

First Letter	Second Letter	Third Letter(s)	First Number	Second Number	Suffix Letter(s)	Suffix Number	Suffix Letter/ Number
Thread Diameter	Reach	Plug Characteristic	Heat Range	Tip Configuration	Plug Characteristics	Gap Size	Packaging Configuration
A		**SF**	**5**	**2**	**C**	**-7**	**F6**

First Letter	A =	14mm	3/8" Gasket Seat	A7C, AS4C	The ***First Letter*** in the part number designates the "Thread Diameter." It can also designate the "Thread Reach" when **NOT** followed by the second letter E, G, L V, W, Y Z See Special Example (Shown on P-9)
	A =	14mm	.460" Conical Seat	ASF22C, ASF52C	
	B =	18mm	1/2" Gasket Seat	BTS8	
	B =	18mm	.468 Conical Seat	BSF44P, BSF82C	
	F =	1/2" Pipe Thread		F11	
	T =	7/8" - 18	5/8"	TT10	
	PZT =	—	High Thread	PZT2FE	
Second Letter	E =	.472 Gasket Seat		AES4C, AE22C	The ***Second Letter*** in the part number designates the "Thread Reach" only when the second letter is E, G, L, V, W, Y, Z
	G =	.750" Gasket Seat		AG24C, AGS42C	
	G =	.708" Conical Seat		AGSF22C, AGSF43C	
	L =	7/16" Gasket Seat		AL7C, AL82	
	T =	Transport (Hard Surface)		TT10	
	W =	.708" (.288 Short Travel)		AWSF44C	
	Y =	.968" (.360 Short Travel)		AYFS22FM, BYSF3-4 (18mm thread)	
	Z =	25mm (.984) Partial Thread		AZFS22FE	
Third Letter(s)	A =	Extra Wide Ground Electrode		AWSFA32C	The ***Third Letter(s)*** can be used in combinations and they indicate specific spark plug characteristics and/or spark plug types. (Examples: SF, SP, PR, SFA, etc.)
	F =	Conical Seat		ASF42C, A7C	
	P =	5/8" Hex		AGSP32C, AGSP52C	
	S =	Suppressor (Carbon)		ASF44P	
First Number	02 – 09	Extremely Cold		AYFS092CFEC	The ***First Number*** shows the spark plug heat ranges from zero up. Double digit numbers 10 and 11 are exceptions to the general rule and designate very hot spark plugs.
	1 – 3	Cold		AGSF12FM, AGSF32C	
	4 – 7	Medium		ASF42C, A7C	
	8 – 10	Hot		BSF82C,BTS10	
Second Number	No #	Non-Extended (Standard) Tip		ASF4C, BSF6	The ***Second Number*** indicates the spark plug tip configuration, **EXCEPT** in the case of a double digit heat range number. (Examples: 09, 10, 11)
	2	Extended (Power) Tip		AZFS22C, AGSP32C	
	3	Extra Extended Tip		AGSP33C, AGSF43C	
	4	Special Extended (Long Pilot) Tip		AGSP54C, BGSF44P	

Example #1 and Example #2 Continued

Suffix Letter(s)	C	Copper Core Electrode	AGSF24C	The ***Suffix Letter(s)*** can be used in combinations and they indicate specific spark plug characteristics. (Examples: C1, FE, FEM, WM, YPC, etc.)
	1	Special Ground Electrode	AGSF12FM1	
	E	Enhanced Platinum Electrode	AGSF32FEC	
	F	Finewire Platinum Center Electrode	AGSF32FM	
	S	Special Resistor	AGSF22FSM	
	M	Nickel Plated Shell	AYFSF22FM	
	P	Standard Platinum Electrode	ASF42P	
	W	Platinum Iridium Center Electrode	AGSF22WM	
	Y	Small (less than .7mm dia.) Finewire Center Electrode with Platinum Copper Core Ground Electrode	AGSF22YPC	

Suffix Number	-4	.040" or .044" gap	BYSF3-4	The ***Suffix Number*** indicates the factory set spark plug gap.
	-6	.060" gap	AGS52C-6	
	-7	.070" gap	ASF52C-7	

Suffix Letter/ Number	None	10 Pack Carton
	F4 =	Flat Pack Display carton with 4 Spark Plugs
	F6 =	Flat Pack Display carton wtih 6 Spark Plugs

Special Example

First Letter	Second Letter	Third Letter(s)	First Number	Second Number	Suffix Letter(s)	Suffix Letter/ Number
Thread Diameter	Reach	Plug Characteristic	Heat Range	Tip Configuration	Plug Characteristics	Packaging Configuration
P	**Z**	**T**	**2**		**F**	**F4**

First Letter	P =	10mm	Ground Shield Diameter	Identifies the size of the ground shield that protrudes through the cylinder head and into the combustion chamber.

Second Letter	Z =	25.5mm	Firing Location	Identifies the firing location in relationship to the seating surface of the cylinder head.

Third Letter(s)	T =	High Thread	Plug Family

First Number	1	Cold	The ***First Numbe***r indentifies the spark plug heat range from one up.
	3	Medium	
	5	Hot	

Second Number	No Number	Non-Extended Standard) Tip	The ***Second Number*** indicates the spark plug tip configuration.

Suffix Letter(s)	F =	Finewire Platinum Center Electrode	The ***Suffix Letter(s)*** can be used in combinations and they indicate specific spark plug characteristics. (Examples: FP, FE, etc.)
	E =	Enhanced Platinum Electrode	
	P =	Standard Platinum Electrode	

Suffix Letter/ Number	F4 =	Flat Pack Display carton with 4 Spark Plugs
	F6 =	Flat Pack Display carton with 6 Spark Plugs

Torque Information

Use shown values only when threads on spark plugs are clean, dry and smooth, the plug has been finger tightened and a new folded gasket used (except in the case of tapered seats). The use of thread lubricants is not recommended but if lubricant is used, torque values should be reduced to avoid possibility of over torquing.

* **For 14mm and 18mm tapered seat** – if no torque wrench available – tighten 1/16 turn (snug) after finger tight.

PLUG THREAD	POUND FEET	NEWTON-METER
CAST IRON HEADS		
10mm Gasket Seat	7-11	10-15
12mm Gasket Seat	11-19	15-25
14mm Gasket Seat	26-29	35-40
14mm Tapered Seat*	7-15	9-20
18mm Gasket Seat	32-38	43-52
18mm Tapered Seat*	15-20	20-27
7/8"-18	35-43	47-58
ALUMINUM HEADS		
10mm Gasket Seat	7-11	10-15
12mm Gasket Seat	11-19	15-25
14mm Gasket Seat	15-22	20-30
14mm Tapered Seat	7-15	9-20
18mm Gasket Seat	28-34	38-46
18mm Tapered Seat	15-20	20-27
7/8"-18	31-39	42-53
High Thread – PZT	23-27	31-37

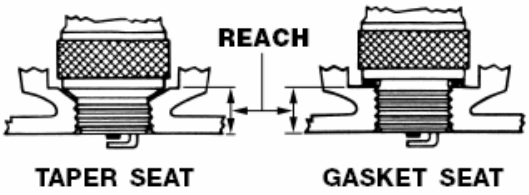
Heat Ranges and Sizes

Each type of plug must be built in a number of specific heat ranges in order to meet the demands of different engines and varying types of operation.

Heat range refers mainly to firing tip temperature and is controlled by the length of the insulator tip. With a long tip, heat must travel farther before reaching the shell, from which it can be transferred to the cooling system. The heat transfer takes longer, causing the plug to run hot. With a short tip, the distance is shorter, so the heat is transferred faster and the plug runs cooler.

Dimensional relationships are extremely important. They have been clearly standardized by SAE. The thread diameter, of course, must match the threads in the engines. The "reach" dimension is of critical importance, since it determines the position of the electrodes within the combustion chamber. Improper reach plugs can result in severe engine damage (the piston could hit the plug) or poor performance (gap not positioned properly, affecting the fuel ignition).

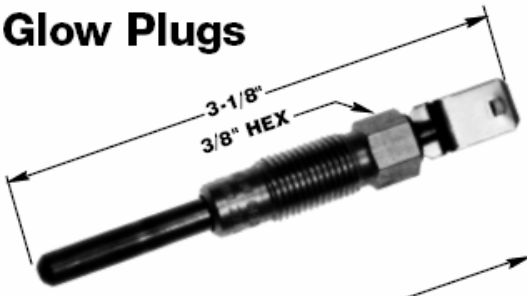
Note: Consult Spark Plug Heat Range charts as a further double check for correct reach and heat range interpretation of two-digit and three-digit spark plug numbers.



Important

Canadian regulations require that vehicles and other devices (other than aircraft) equipped with internal combustion engines using spark ignition systems and manufactured or imported into Canada on or after September 1, 1976 be operated in conformance with restrictions on radio frequency interference. Use of non-resistor on non-inductive type spark plugs may cause such vehicles or devices to be out of compliance with these regulations.

Glow Plugs



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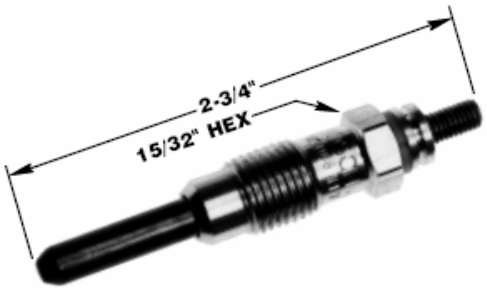
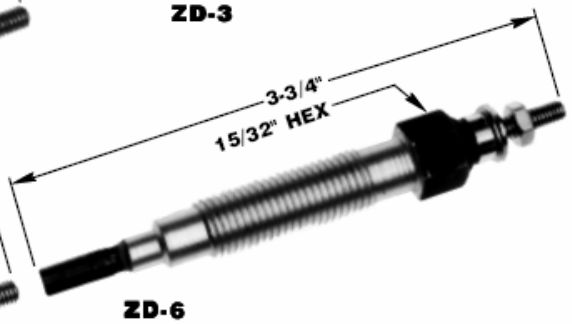


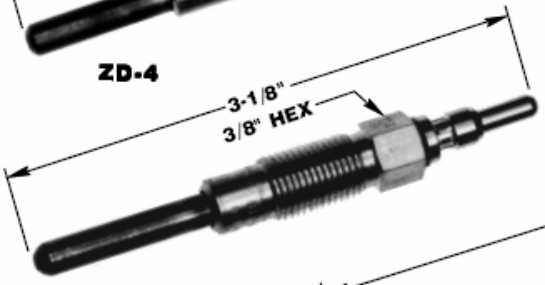
ZD-3

ZD-2



ZD-6

ZD-4



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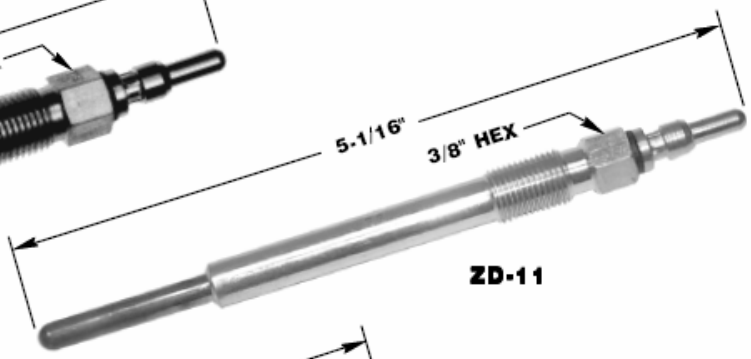
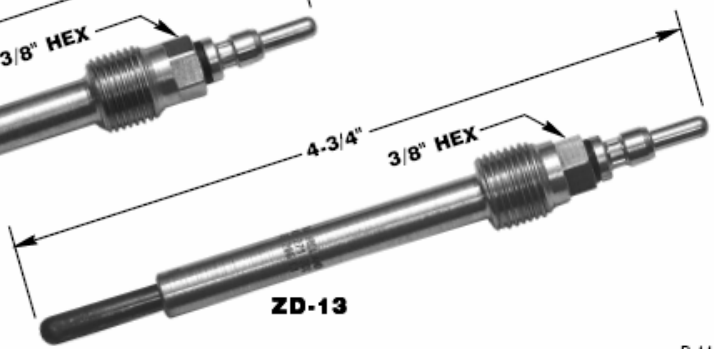


ZD-11

ZD-12



ZD-13