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Full-Torque®

Permanent Thread Repair



®

Instructions for Installing Thin Wall (14-mm) Spark Plug Thread Repair Inserts

Full-Torque® thread repair inserts are made of hard anodized aluminum for spark plug holes in aluminum cylinder heads and steel, for cast iron heads.

FFT-Style Deep Reach inserts match the Ford Triton 4.6, 5.4 and 6.8 liter engines. Inserts for aluminum heads are made of hard anodized aluminum for optimum heat transfer.

When installing just one insert, such as in an in-frame repair, use the matching style Deep Reach Insert.

If the heads are off the vehicle, you should replace them all with the Fully Threaded Style to upgrade the head to Fully Threaded spark plugs. This prevents future failures of the other plug holes and warranty claims.



The piloted Core Drill (FT4164CD) oversized the hole for the tap.



Chuck the Core Drill shaft into a 1/2" drill.



Apply L750 Cutting Fluid to the Core Drill. (Shake well before using)



Bore Out the hole to 41/64".



The Tap (FT5RPLT) is piloted to assure proper alignment.

— IMPORTANT! —
Drill speed must be at least 300 to 800 RPM
FOR THE CORE DRILL.

6 Remove the Core Drill and Shell Cutter and blow shavings out of the hole.

NOTE for In-Frame Installation:
Pack the flutes with grease instead of using the Cutting Fluid. This will capture most of the chips and prevent them from getting into the cylinder.



THE EXAMPLES HERE SHOW INSTALLATION STEPS ON A 5.4 LITER FORD ENGINE



Deep Reach Style Fully-Threaded Style Short Style

PLEASE NOTE:

The same installation tools work for the fully threaded or Short Style inserts on all 14mm spark plug holes in Cast Iron and Aluminum heads.

Steel or stainless steel inserts or coils *should not** be used in aluminum heads, because of differences in heat transfer.

*Inserts for cast iron heads are made of steel.



Optional

The optional Shell Cutter (FT14125CC) can be used to flatten the top surface of the plug hole in some heads if necessary. (NOT required on Ford 4.6, 5.4 & 6.8 Liter heads.)

NOTE:

When needed, bore out the area above the hole to accept the installation tool. It has stops built in to the cutting end that prevent it from cutting deeper than the original depth.

Use the Shell Cutter to machine the top of the hole so that the installation tool can seat flush with the original spark plug seal surface.

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Apply L750 Tapping Fluid and use the piloted tap with a ratchet drive to tap out the hole. You can use a 12-point or tap socket and short extension to drive the tap.

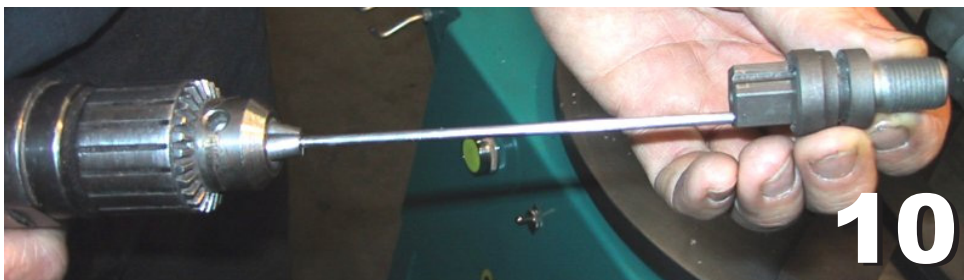
TIP :

To make a driver for power tapping on your machine, cut the female drive end off of a 1/2" extension and chuck it into your machine. It may be helpful to grind three flat sides on the shank for the chuck to grab.

8 Remove the Tap and blow shavings out of the hole.



Slide the Drill Tube over the Drill Bit. Insert the 6 x 1/16" drill bit through the Drill Tube and into the depth setting hole on the top side of the Installation Tool.



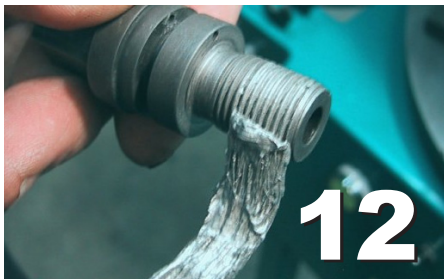
Chuck the drill onto the shank of the 1/16" Drill Bit and up against the Drill Tube to set the depth.

NOTE: Drill speed of 2000-2600 RPM MUST be used for the small bit to prevent it from breaking.

NOTE for In-Frame Installation:

Pack the flutes with grease instead of using the cutting fluid. This will capture most of the shavings and prevent them from getting into the cylinder. Use a LONG Blow Nozzle to reach down into the cylinder to blow shavings back out through the spark plug hole.

11 Remove the Drill and set it aside.



Apply anti-seize to the threads of the Installation Tool to prevent the Thread Locker from getting between the Insert and Installation Tool.



Screw the Thread Repair Insert onto the Installation Tool.

NOTE:

Be careful to avoid getting anti-seize on the external threads of the Insert.



Apply LHC623 Sealant/Thread Locker to the threads of the Insert -or- into the hole itself.



TORQUE the insert into the Head, to match the spark plug used, according to chart on the last page, with a 5/8" Spark Plug Socket.

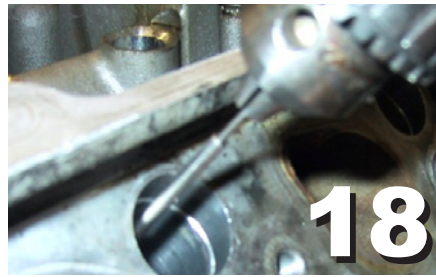


After the insert is installed, the drill and tube will be used to make a hole for the locking pin.

NOTE: This view is only to show how the drill and tube work to drill the hole. Do not remove the installation tool yet.



17
Insert the drill tube into the hole at the edge of the hex head.

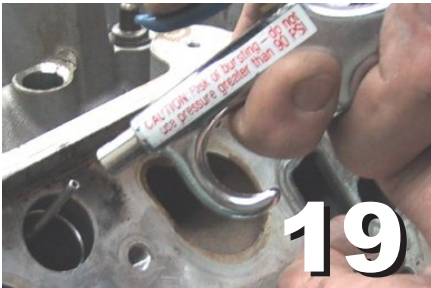


18
Insert the long 1/16" Drill Bit into the Drill Tube and drill the hole until the chuck touches the end of Drill Tube.

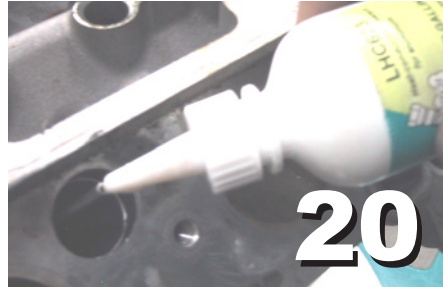
Be careful to avoid pushing too hard against the end of the tube. It is a gauge, not a stop.

NOTE:

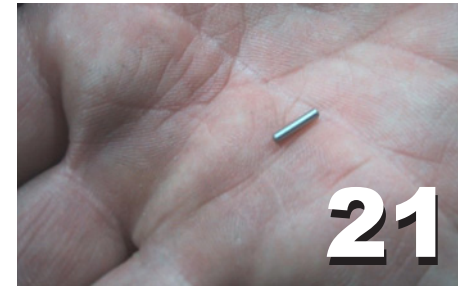
Drill speed of 2000-2600 RPM MUST be used for the small bit to prevent it from breaking.



19
Remove the Drill Bit, leaving the Drill Tube in place. After drilling, blow the shavings away from the Installation Tool through the Drill Tube.



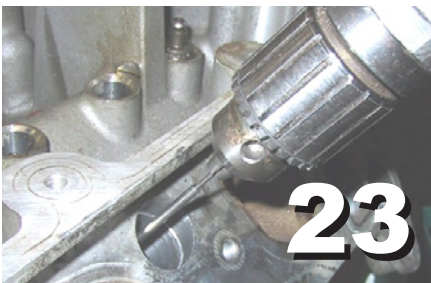
20
Put ONE Drop of Sealant into the top of the Drill Tube . . .



21
. . . slide in ONE Retaining Pin . . .



22
. . . into the top of the Drill Tube.



23
Use the long 1/16" Drill Bit (still mounted on the Drill) to push the Locking Pin to the bottom of the drilled hole.

Lightly tap the pin with the Drill Bit to seat it.

Remove the Drill Bit and the Drill Tube and clean both, making sure there is no Sealant left on either one.



24
Unscrew and remove the Installation Tool from the head to complete the installation.

NOTE:

If you make a mistake and fail to drill deep enough, the installation tool will shear off the top of the pin when you remove it, which is OK.

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The insert is permanently locked in place and ready for use.

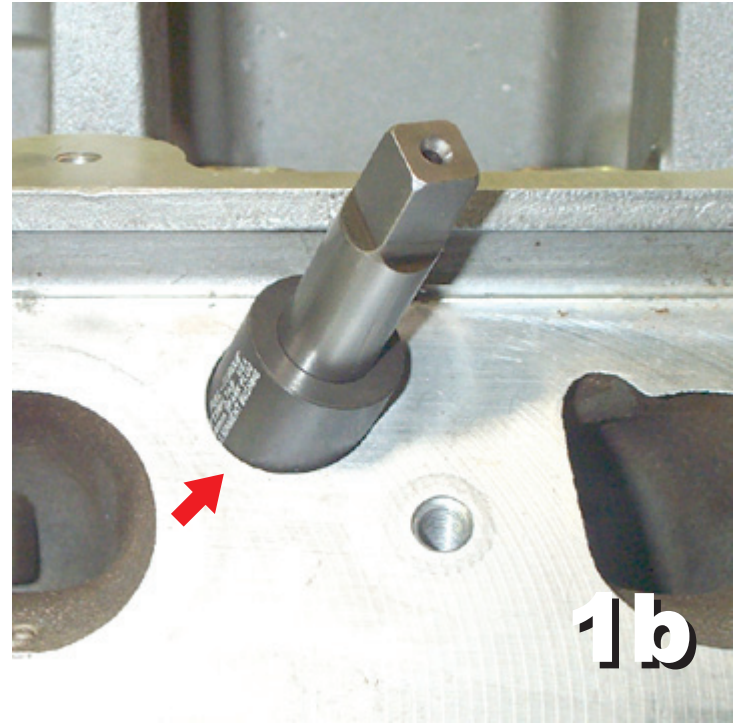
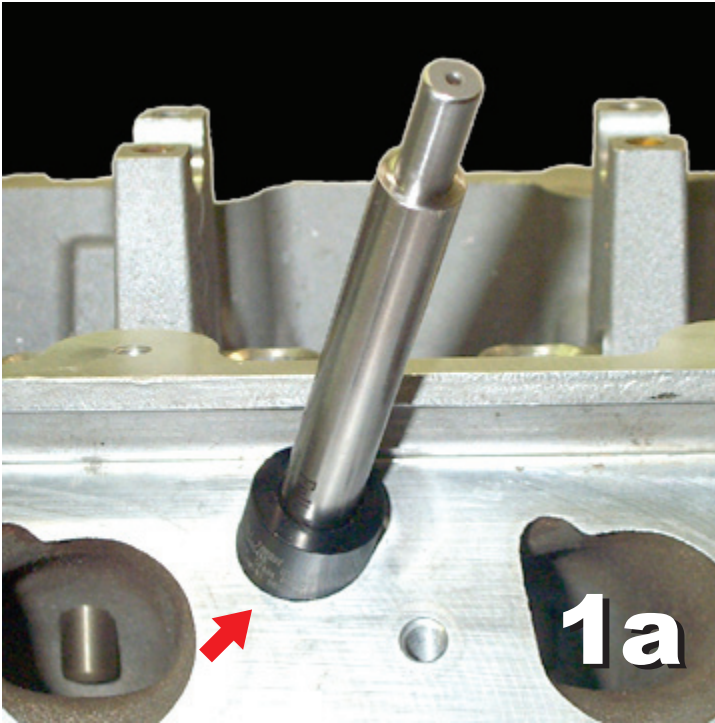
You are now ready to install the spark plug.

TORQUE both the Insert and the Spark Plug according to the guidelines on this chart.

IMPORTANT NOTE:
The Old Style Spark Plug has been discontinued for the Ford Triton motors. The new ones are Full-Threaded and match the Fully-Threaded Inserts.

Spark Plug Insert Torque Chart				
Spark Plug Thread Size	Aluminum Heads		Iron Heads	
	Ft Lbs	KG M	Ft Lbs	KG M
10 mm (Gasket)	16	2.2	16	2.2
12 mm (Gasket)	22	2.7	22	2.7
14 mm (Gasket)	27	3.6	30	4.1
14 mm (Taper Seat)	27	3.6	30	4.1
18 mm (Gasket)	34	4.7	38	5.2
18 mm (Taper Seat)	34	4.7	38	5.2
7/8"-18 (Gasket)	40	5.4	45	6.0

Special Alignment Bushing for Ford Triton Cylinder Heads ONLY

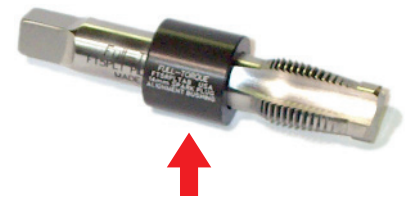


Core Drill Alignment Bushing

Tap Alignment Bushing



The Core Drill Alignment Bushing fits in the top of the hole.



The Tap Alignment Bushing centers the Tap. The Bushing floats with the Tap.