



GLOW PLUG DRILLING-OUT SET OM642

Manual

60416750 | 60416725 | 90416455



PICHLER
tools since 1978.

SAFETY NOTICE

To understand the functioning of the tools, is it necessary to read the manual first!

- > Read these instructions before assembling, during installation and throughout use and in the proper sequence
- > Always refer to the OEM manufacturer's instructions and service manuals for the latest data and to maintain the correct sequence
- > These work instructions and the recommended tools are meant to serve as aides only and are by no means a guarantee for certain results.
- > This tool kit is a special collection and it has been tested and used successfully on several occasions. It is of the utmost importance to maintain the correct procedure as per the instructions
- > The use of the tools should only be carried out by qualified personnel!



ATTENTION
Special caution



CORRECT



LIGHT BULB
Hint or recommendation



WRONG



SAFETY GOGGLES
Wearing safety goggles
necessary

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GLOW PLUG DRILLING KIT OM642

PART.-NR. 60416750

No.	Part.-Nr.	Description
1	6049024	Pipe brush Ø 7,0 mm
2	6049027	Pipe brush Ø 4,7 mm
3	6041768	Operating tool
	6041641	Drill sleeve
	6041639	Special drill Ø4,5 mm
	60416535	Centering & support pipe
	60416365	Drill holder
	60416375	Tap holder
	6041695	Step Drill
	6041643	Drill UNF No.12
	6041634	Drill M8x1
	4024030	Angle gauge
	60416455	Combination drilling and extraction device
	60416527	Bolt M6x20
	60416525	Bayonet guide
	1131025	Extracting stud bolts Ø 2,5 mm
	1131040	Extracting stud bolts Ø 4,0 mm
	6041649	Fastening bolt
	6041695	Special drill Ø 9,0 mm
	6041874	Drill M10x1
	6042106	Threaded Bushing Insertion Tool
	6044080	Threaded bush M8x1
	60416536	Tension nut
	60416475	Extractor spindle



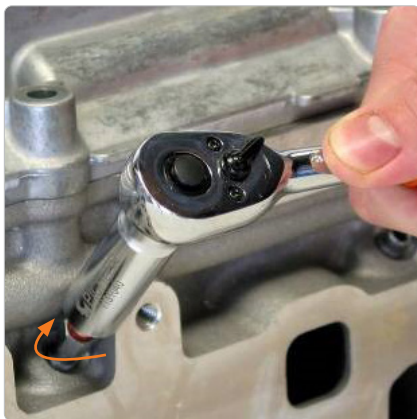
**GLOW PLUG IS BROKEN OFF BELOW
THE HEXAGON!**



PREPARATION

1. REMOVE CENTRE ELECTRODE

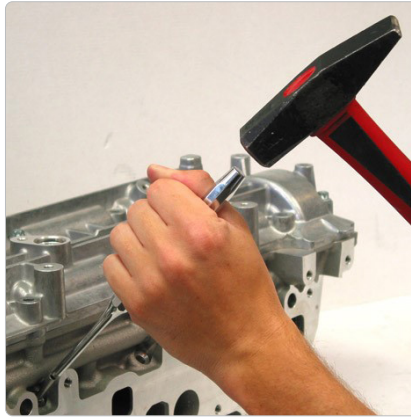
Place the stud extractor Ø4.0 mm **1131040** (17) on the pin of the centre electrode cap. Using a 1/4" ratchet, tear off the centre electrode of the glow plug by turning it clockwise several times and remove all loose and exposed parts.



If the centre electrode does not break at the lower end as required, but directly behind the cap of the electrical connection, remove loose parts and try to tear off the centre electrode again using a suitable stud extractor.



If this is not possible or if the centre electrode does not break off completely at the bottom, the centre electrode must be stabilised with a drilling sleeve **6041641** (4) or **60416520**, which is hammered in with a hammer and a punch, in order to be able to drill out correctly.



2. ATTACH COMBINATION DRILLING AND EXTRACTION DEVICE

Remove the two screws directly above the broken glow plug from the valve cover. Position the combination drilling and extraction device **60416455** (13) on the cylinder head and screw it hand-tight to the valve cover using the fastening fitting screws **6041649** (18).

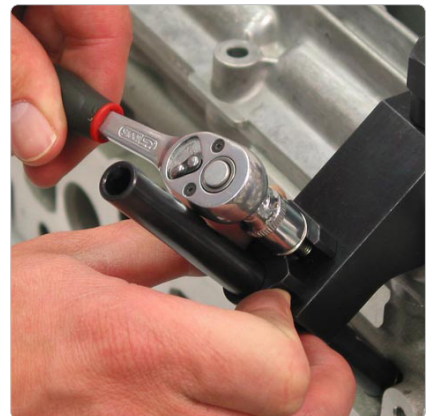
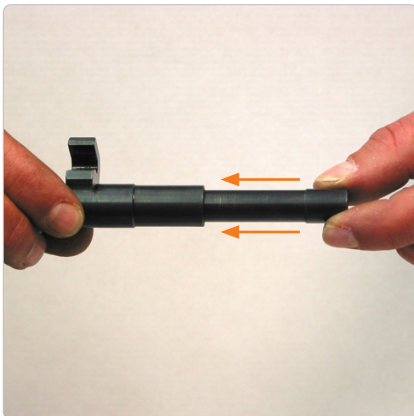


Push the centring and support tube **60416535** (6) with the thinner diameter from below (see illustration) through the bayonet guide **60416525** (15) and attach the unit to the combi drilling and extraction device **60416455** (13).



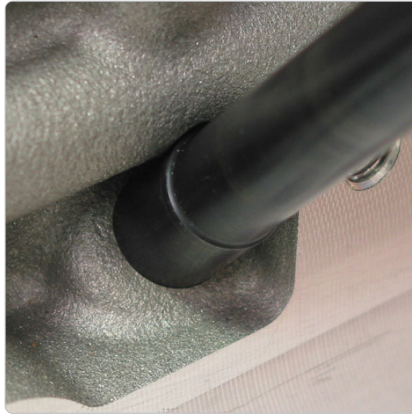
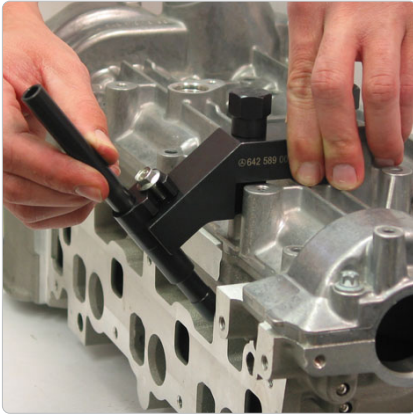
ATTENTION

Always attach the bayonet hook properly. (see picture)



3. CENTRING PROCESS

Push the centring and support tube **60416535** (6) into the glow plug bore in the cylinder head.
By moving or shifting the combined drilling and extraction device **60416455** (13) centre the centring and support tube **60416535** (6) in the bayonet guide **60416525** (15) so that it is aligned with the glow plug.



ATTENTION

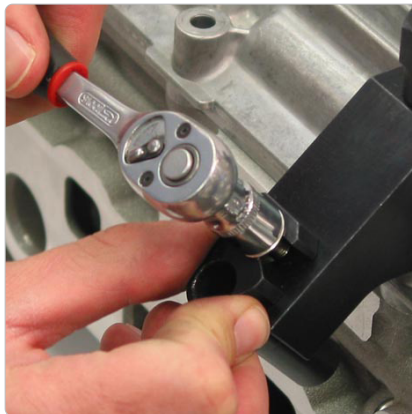
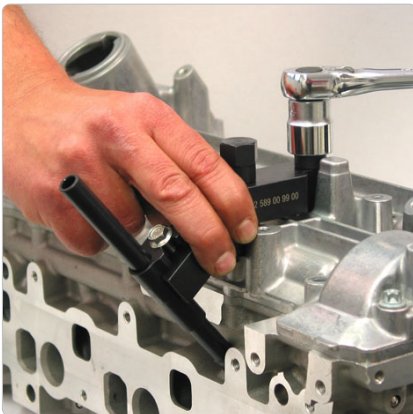
Always attach the bayonet hook properly. (see picture)

After aligning the combination drilling and extracting device **60416455** (13) tighten the fixing fitting screws **6041649** (18).

Check:

The centring and support tube **60416535** (6) should always be easy to insert into the glow plug shaft in the cylinder head.

If this is not the case, the centring process must be repeated.



DRILL OUT THE GLOW PLUG AND CUT THE PULLING THREAD INTO THE GLOW PLUG BODY

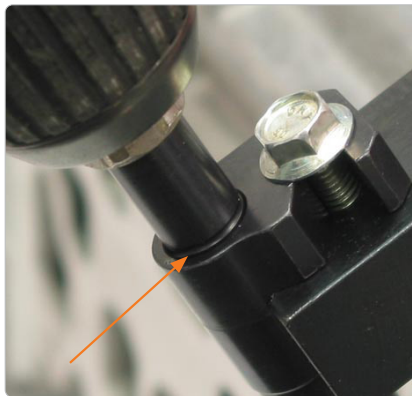
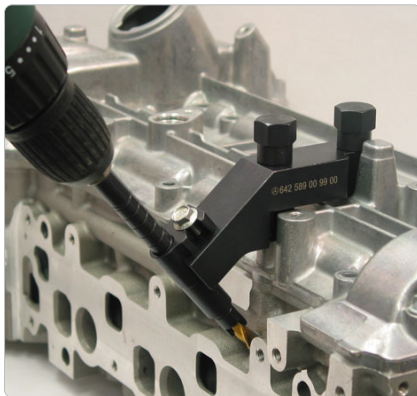
4. DRILLING OUT GLOW PLUG THREADS IN THE CORE - PART 1

Depending on the glow plug thread size, clamp the special drill bit with **60416350** (9) for M8x1 or **60417435** for M10x1 in the drill bit holder **60416365** (7) clamp and moisten with spray oil.



4.1. No drilling sleeve was hammered in

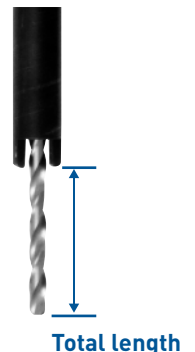
Insert the special step drill bit clamped in the drill bit holder **60416365** (7) through the bayonet guide **60416525** (15). Drill out the glow plug thread in the core by lowering it several times up to the marking on the drill bit holder **60416365** (7) at the edge of the guide.



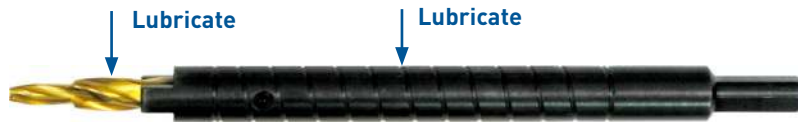
p 5: Cutting the pulling thread - part 1

4.2. A drilling sleeve was hammered in

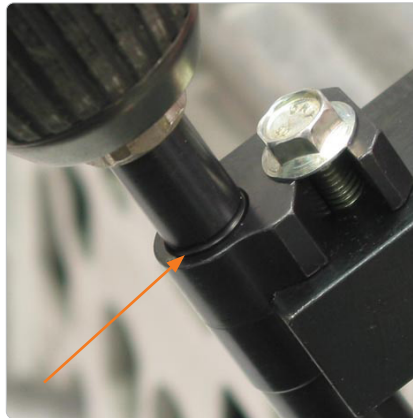
Depending on the glow plug thread size, insert the special step drill **60416350** (9) for M8x1 or **60417435** b60417435 for M10x1 clamped in the drill holder **60416365** (7) through the bayonet guide **60416525** (15). Centre the glow plug with the special step drill only approx. 2-3 mm deep, unclamp the special step drill and replace it with the special drill **6041639** (5) for M8x1 or **60417395** for M10x1. Drill out the centre electrode with feeling up to the stop of the combination holder for special drill **60416365** (7) on the cylinder head.



Depending on the glow plug thread size, clamp the special drill bit with **60416350** **9** for M8x1 or **60417435** for M10x1 in the drill bit holder **60416365** **7** clamp and coat both with spray oil.



Insert the special step drill bit clamped in the drill bit holder **60416365** **7** through the bayonet guide **60416525** **15**. Drill out the glow plug thread in the core by lowering it several times up to the marking on the drill bit holder **60416365** **7** at the edge of the guide.



Zylinderkopf im Schnitt

Remove the special step drill clamped in the drill bit holder **60416365** **7** and clean the opening using either compressed air or a vacuum cleaner and magnets.



SAFETY GOOGLES

Safety goggles must be worn



TIP

Good suction success is achieved with a funnel on the Hoover hose



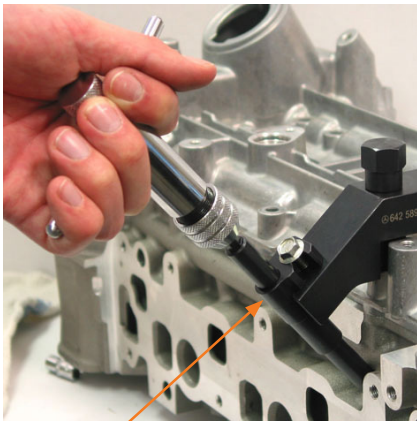
5. CUTTING THE PULL THREAD - PART 1

Depending on the glow plug thread size, insert tap **6041643** (10) for M8x1 or **6041543** for M10x1 into the tap holder **60416375** (8) and clamp.



Insert the tap clamped in the drill holder **60416365** (8) through the bayonet guide **60416525** (15) into the glow plug hole in the cylinder head.

By actuating the drill holder with the tool holder **6041768** (3) or a 1/4" ratchet + 7 mm socket, turn clockwise to cut a thread as deep as possible into the glow plug body.



ATTENTION

Lubricate well and thread with care

Remove the tap with drill holder **60416365** (8) and clean the opening either with compressed air or a Hoover and magnets.



SAFETY GOOGLES

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TIP

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6. DRILLING OUT GLOW PLUG THREADS IN THE CORE - PART 2

Insert the special step drill bit clamped in the drill bit holder **60416365** ⑦ through the bayonet guide **60416525** ⑮. Drill out the glow plug thread in the core by lowering it several times up to the marking on the drill bit holder **60416365** ⑦ at the edge of the guide.



Remove the special step drill clamped in the drill bit holder **60416365** ⑦ and clean the opening using either compressed air or a vacuum cleaner and magnets.



SAFETY GOOGLES

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TIP

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7. CUTTING PULL THREAD - PART 2

Depending on the glow plug thread size, insert tap **6041643** ⑩ for M8x1 or **6041543** for M10x1 into the tap holder **60416375** ⑧ and clamp.

See point 5: Cutting pulling threads - part 1

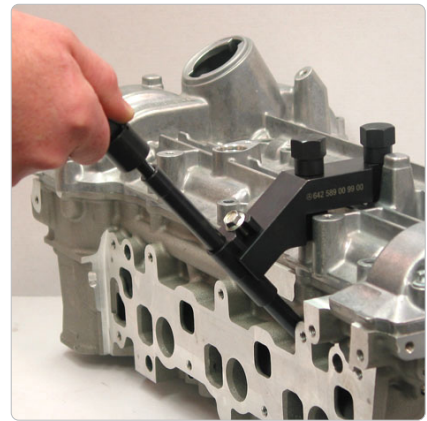
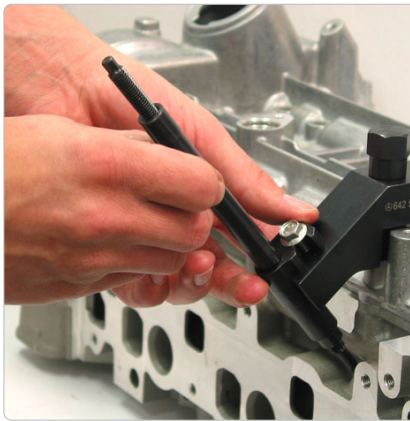
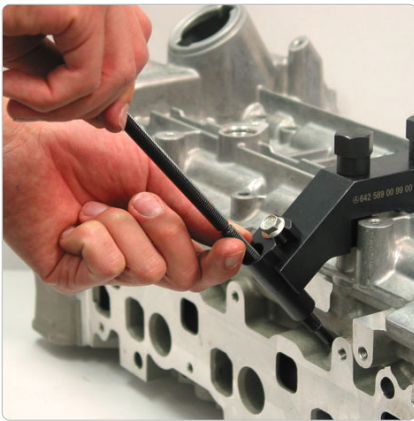
GLÜHKERZEN AUSZIEHVORGANG GLOW PLUGS EXTRACTION PROCESS

8. ATTACH THE PULLING DEVICE

Depending on the glow plug thread size, screw the extraction threaded spindle **60416475** (24) for M8x1 or **60416550** for M10x1 into the previously cut pulling thread and tighten.

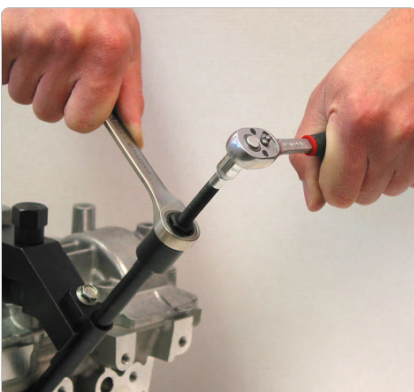
Position the centring and support tube **60416535** (6) in the cylinder head via the extraction threaded spindle and through the bayonet guide **60416525** (15) and the glow plug hole.

Screw the bearing unit **60416539** (23) onto the extracting threaded spindle.



9. PULL OUT GLOW PLUG REMAIN

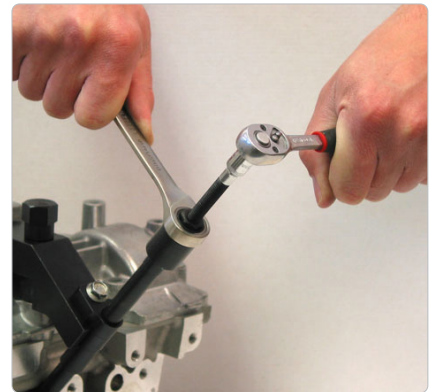
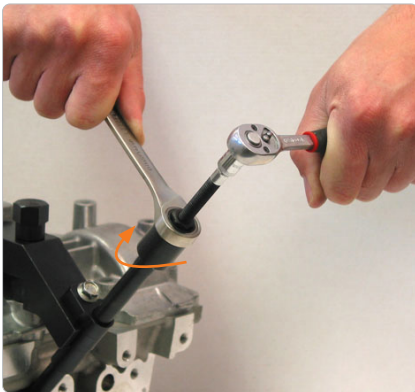
Pull out the glow plug residue by actuating the bearing nut and simultaneously holding the end of the extraction threaded spindle with a 5 mm spanner.



ATTENTION

Always hold the spindle against the hexagon when actuating the nut! Grease the pull spindle! Avoid high torque!!

If the extraction process is very stiff, the bearing nut should be loosened from time to time and tapped with a hammer at the end of the extraction threaded spindle.



ATTENTION

Always hold the spindle against the hexagon when actuating the nut! Grease the pull spindle! Avoid high torque!!

FINISHING

10. CLEANING THE GLOW PLUG SHAFT IN THE CYLINDER HEAD

Clean the glow plug hole that has now become free of soot and deposits using the appropriate pipe brushes.

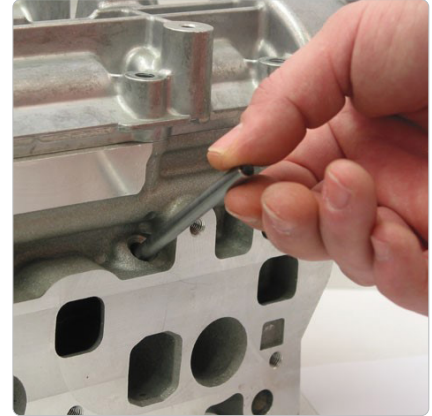


ATTENTION

If the glow plug fastening thread in the cylinder head has been damaged, continue with point 12.

11. RECUTTING THE GLOW PLUG MOUNTING THREAD IN THE CYLINDER HEAD

Shorten the removed glow plug remnant by approx. 10 mm at the drilled end, recut the thread and clean the shaft of the glow plug remnant with a file or sandpaper. Now insert this part back into the cleaned glow plug shaft as a sealing plug.



Depending on the glow plug thread size, wet the clamped tap **6041634** **11** for M8x1 or **6041874** for M10x1 in the tap holder **60416365** **8** with grease and cleanly recut the fastening thread in the cylinder head by operating the tool holder **6041768** **3** or a ratchet 1/4" + socket 7 mm.

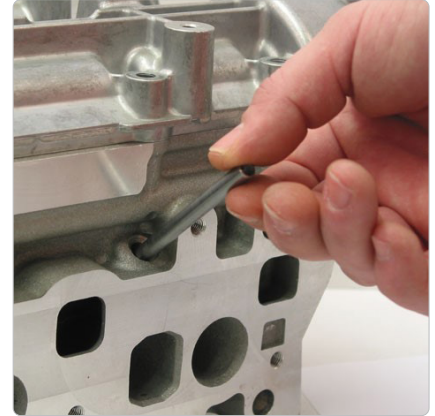


Remove the sealing plug with a magnet or the extraction spindle and fit the new glow plug with the specified torque.

12. REPLACE GLOW PLUG MOUNTING THREAD IN CYLINDER HEAD-SET THREADED BUSH

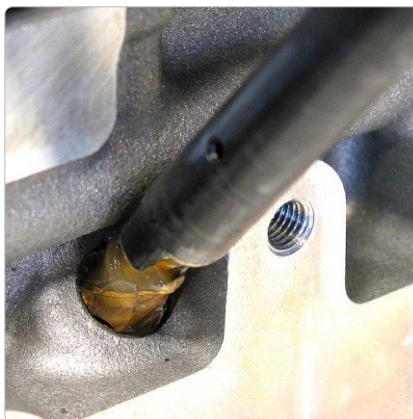
Shorten the removed glow plug remnant by approx. 10 mm at the drilled end, recut the thread and clean the shaft of the glow plug remnant with a file or emery cloth.

Now insert this part back into the cleaned glow plug shaft as a sealing plug.



Depending on the glow plug thread size, clamp the special drill bit **6041695** (19) for M8x1 or **6041895** for M10x1 in the drill bit holder **60416365** (7), clamp and coat both with spray oil.

Insert the special drill bit clamped in the drill bit holder **60416365** (7) through the bayonet guide **60416525** (15). Drill out the damaged thread in the cylinder head several times until the drill bit holder **60416365** (7) is in contact with the cylinder head.



Remove the special drill with drill bit holder **60416365** (7) and clean the opening either with compressed air or a Hoover and magnets.



SAFETY GOOGLES

Safety goggles must be worn



TIP

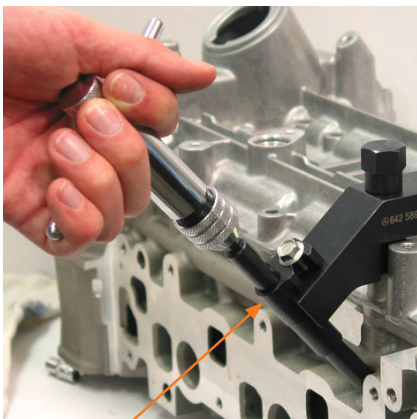
Good suction success is achieved with a funnel on the Hoover hose



Depending on the glow plug thread size, clamp the machine tap **6041874** (20) for M8x1 or **6041895** for M10x1 in the tap holder **60416375** (8), clamp and coat both with spray oil.

Insert the machine tap clamped in the tap holder **60416375** (8) through the bayonet guide **60416525** and cut the thread into the cylinder head.

By actuating the tap holder with the tool holder **6041768** (21) or a ratchet 1/4" + socket 7 mm, turning clockwise, cut a thread as deep as possible into the glow plug body.



ATTENTION

Lubricate well and thread with care

Remove the machine tap with the tap holder **60416375** (8) and clean the opening either with compressed air or a vacuum cleaner and magnets.



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TIP

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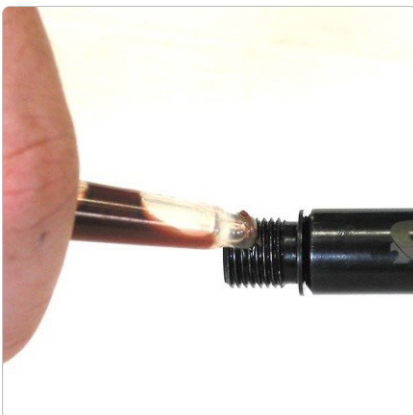


Depending on the glow plug thread size, screw the threaded bushing **6044080** (22) onto the threaded bushing driver **6042106** (21) for M8x1 or screw the threaded bushing **60441000** onto the threaded bushing driver **6041704** for M10x1.



Clean the threaded bush and the glow plug thread in the cylinder head with brake cleaner. Then apply thread locking agent to the threaded bush and screw it into the cylinder head until the collar of the bush is in contact with the cylinder head.

Tighten the threaded bush using the driver with the appropriate actuation and remove the driver.



NOTES





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