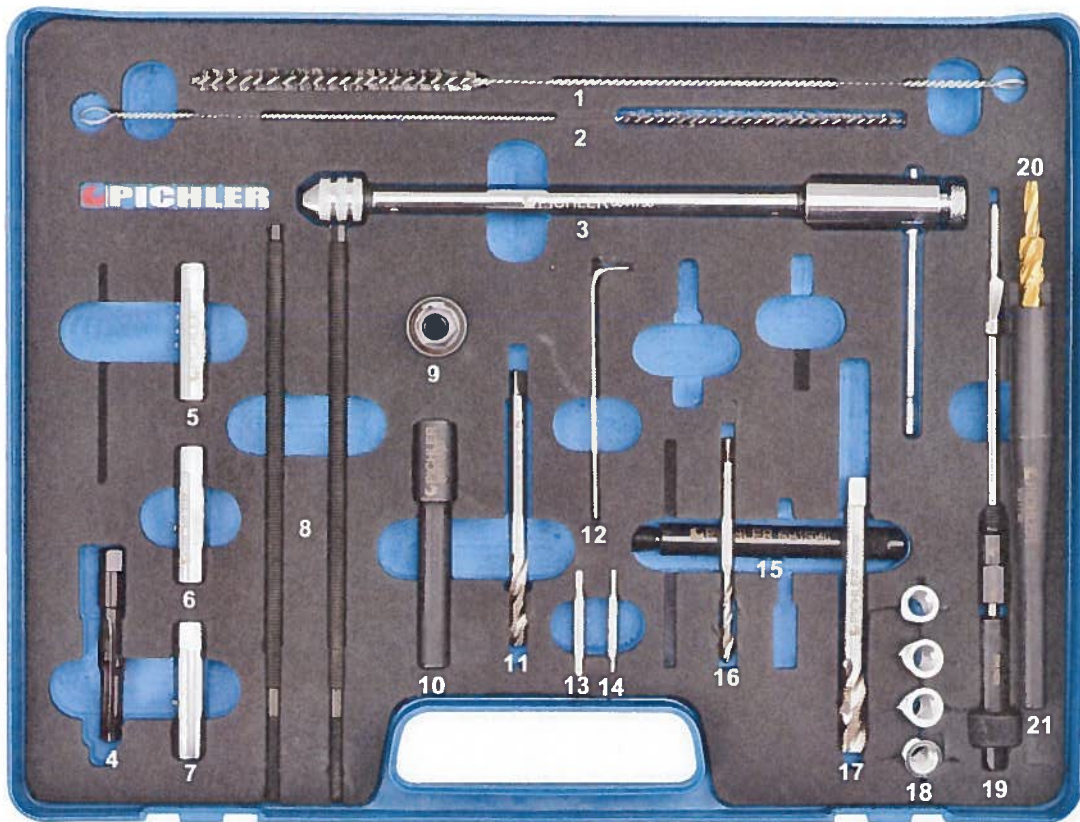


Universal Glow Plug Drilling Out Set M10x1.25

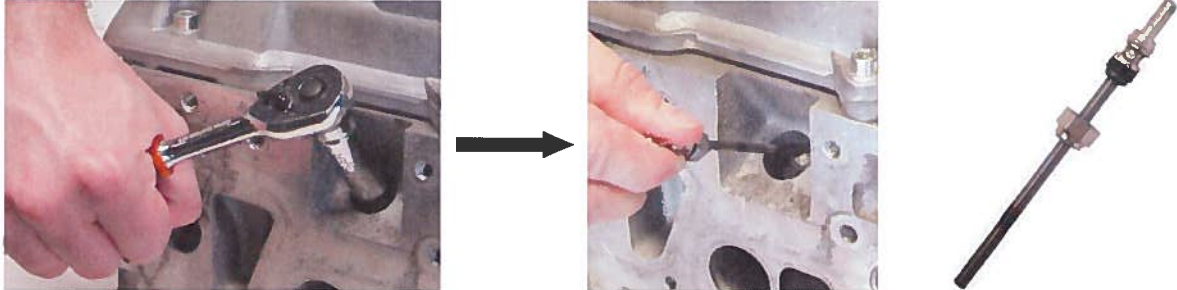
90417500



N°	P/n	Description	90417500
1	6049029	Pipe Brush Ø 8.5mm	1
2	6049025	Pipe Brush Ø 5.3mm	1
3	6041738	Tool Holder with Ratchet "Keeper" (long) M3 - M8	1
4	6041701E	Reamer "G" M 10 x 1 x 10.0	1
5	1131025	Stud Puller Lift S 2.5mm 1/4"	1
6	1131035	Stud Puller Lift S 3.5mm 1/4"	1
7	1131040	Stud Puller Lift S 4.0mm 1/4"	1
8	60418870	Spindle 180mm stepped M8:UNF1/4"	2
9	60416536	Extraction Nut 4 -pcs	1
10	60416533	Support Sleeve	1
11	6041744	Tap M10x1.25	1
12	1512103	Ball End Hex Key 3mm	1
13	6041749	Drill Sleeve Ø 3.5mm	1
14	6041751	Drill Sleeve Ø 2.6mm	1
15	60415040	Insert Setting Tool for "G" M 10x1.25	1
16	6041543	Hand Tap HSSG UNF 1/4" DIN 376	1
17	6041764	Machine Tap RSP M12x1.25 HSSG-E 35°	1
18	60441150	Thread Insert M10x1.25. 17mm	4
19	60417029	Reamer M10x1.25 90°	1
20	60417355	Step drill Ø 9.0/5.4/4.0 mm	1
21	9041736	Tool Holder for the Step Drill	1

1. Removing the central electrode

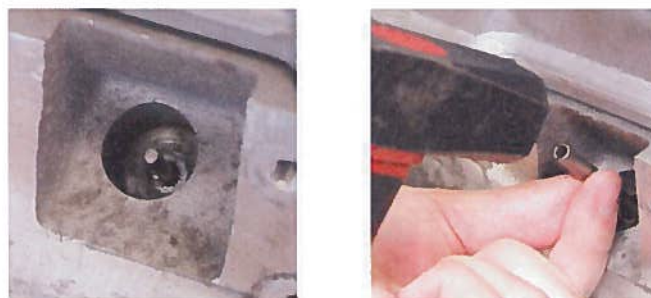
Place the **Stud Puller 4.0 mm 1131040** for smooth connectors or **3.5 mm 1131035** for threaded connectors on to the central electrode. With a 1/4" ratchet break off the central electrode by turning it several times clockwise then remove the freed parts



If the electrode does not break off at the bottom as desired, but directly behind the connector cap you must by using **Stud Puller 2.5mm 1131025** or **Stud Puller 3.5mm 1131035** depending upon the type of glow plug, break off the central electrode.



If this is not possible or if the central electrode does not break off at the bottom, in order to be able to properly drill out the central electrode, it must be immobilized by hammering a **Drill Sleeve 6041751** or **6041749** into the glow plug.



2. Drilling procedure:

The choice of the Drill and Tool Holder, which should be used in this work procedure, depends on the length of the glow plug. Compare the drill with the glow plug that is to be removed (a new part or a reference glow plug from a neighbouring cylinder) before starting to drill.



1st pass:

Place the **Drill and Extraction Sleeve 6041745** in the bore (if available). Clamp the **Shouldered Drill 6041735** or **60418758** in the **Tool Holder 9041736** or **6041876** and lubricate them with spray oil. Drill until the larger diameter ($\varnothing 9$) of the Shouldered Drill has drilled into the glow plug for about 4 - 5 mm. In the case that a Drill Sleeve has been hammered in, lift the drill frequently for better chip removal.



Remove the Drill Sleeve and remove the chips by compressed air, a vacuum cleaner and/or a magnet.



Tip: Good results can be obtained, by putting a funnel on the nozzle of the vacuum cleaner.



3. Tapping procedure:

1st pass:

Use the **Tap UNF 1/4" 6041743** in the **Ratchet "KEEPER" 6041738**, to cut a screw thread as far as it goes into the glow plug.

- Lubricate well
- tap carefully



4. Drilling procedure:

2nd pass:

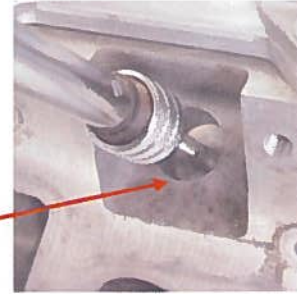
Place the **Drill Sleeve 6041745** again in the bore and with the **Shouldered Drill 6041735** clamped in the **Tool Holder 9041736** drill until the tool holder stops. Do not forget to lubricate sufficiently! In the case that a Drill Sleeve has been hammered in, lift the drill frequently for better chip removal. Check to assure that the proper depth has been drilled.



5. Tapping procedure:**2nd pass:**

Use the **Tap UNF 1/4" 6041743** in the Ratchet "KEEPER" 6041738 to cut a screw thread as **far as it goes in the glow plug.**

- Lubricate well
- tap carefully

**6. Extraction procedure:**

Screw **Extraction Spindle M16x1.5 6041748** with **Extraction Insert UNF 1/4" 6041746** into the newly cut screw thread of the glow plug.

Place the **Drill Sleeve 6041745**, the **Bearing 6176478**, **Bearing Adapter 6176479** and screw on the **Nut M16x1.5 60417476** Now extract the glow plug.



CAUTION! During extraction it is most important to prevent the spindle from turning, be sure to use a wrench on the hex to prevent rotation.

With increased energy expenditure to the nut it is advisable to spray first the remains of the glow plug with rust remover before increase tension again. Additionally it is possible to tap at the hexagon with a hammer to loosen the glow plug.

With extremely seized glow plugs we recommend to bring the engine to working order again: By starting up the engine, the cylinder head heats up and the extraction procedure can be continued.



In case it is not possible to place the **Drill Sleeve 6041745** on the cylinder head, the glow plug can be extracted with the **Adapter 6041798** and the **Extraction Insert UNF 1/4" 6041746** and a slide hammer.



For a slide hammer we recommend Pichler p/n: **1030210**.

7. Cleaning and closing:

Clean the now empty glow plug shaft first with the **Pipe Brush Ø9.0mm 6049029**, then with the **Pipe Brush Ø5.3mm 6049025** of soot and deposits. Shorten the remainder of the glow plug at the drilled out end by approx. 10mm. Cut the UNF ¼" thread and clean the shank with a file or an emery line. Drop this part into the cleaned glow plug shaft to be used as a plug during cleaning.

**8. Rethreading of the thread in the cylinder head:**

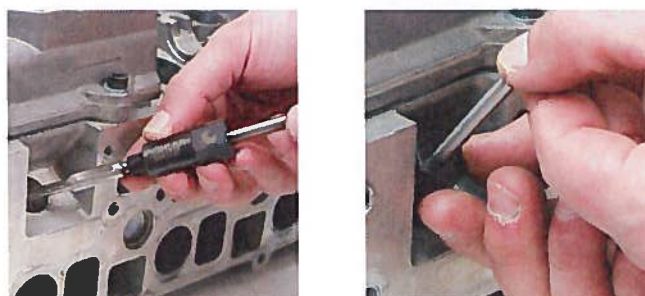
Wet the threads of **Tap M10x1 6041734** and with the **Ratchet "KEEPER" 6041738** clean the thread in the cylinder head. Remove the plug with a magnet or a spindle (if necessary start the car briefly).

**9. Cleaning and finish-reaming of the glow plug seat with the shouldered reamer**

Slide the guidance adapter onto the reamer shank until it stops, see picture.



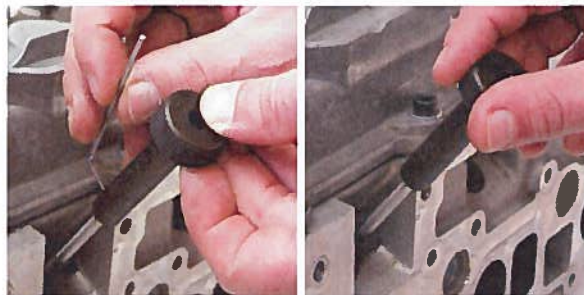
Hold the reamer by the square and insert it carefully in the glow plug shaft (attention; danger of damage to the reamer!) and apply the adapter guide sensitively by hand.



Screw the guide completely in by hand using a 17mm socket.



Put the reamer actuator with the interior square onto the reamer and without generating too much pressure and using a clockwork rotation clean the shaft of soot and deposits.



CAUTION ! During the cleaning no metal should be milled away, use the reamer only clockwise and apply only mild pressure!!!

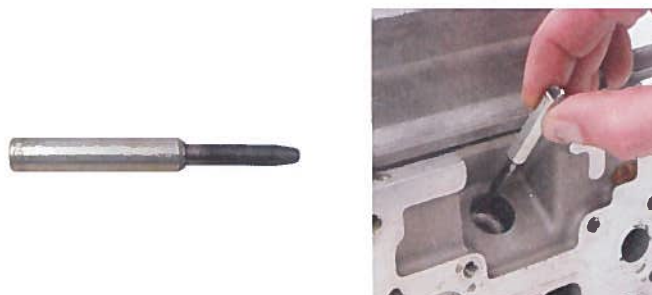
After cleaning remove the actuator from the reamer, unscrew the guide with a socket and remove the reamer carefully from the glow plug shaft.

Should the original thread M10x1 in the cylinder head be damaged or the proper torque can not be reached during the installation of the new glow plug, the thread has to be renewed as follows.

10. **Renewing the thread:**



Place the shortened and cleaned glow plug remains as a plug in the glow plug shaft.



After determining the length of the **Thread Insert 60441000** or **60441050** which should be used according to the depth in the cylinder head or the thread of the glow plug, the placing of the Thread Insert can begin.

Remove the damaged thread is with the **Reamer \varnothing 11,0 mm 6041701E** according the length of the Tread Insert.



During all drilling procedures the drilling tools must always be properly lubricated.



Remove tools, swarf and chips from the opening.

Place the **Tool Holder with Ratchet "KEEPER" (long) 6041738** and the **Tap 6041884** into the glow plug shaft and carefully cut a thread.

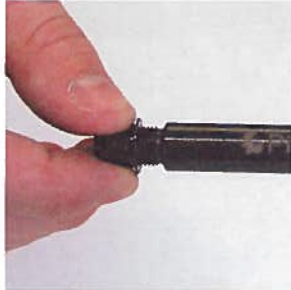
- Lubricate well
- tap carefully



Remove the Tap and clean the shaft from the inside out e.g. with compressed air.

Screw the **Thread Insert 60441000** or **60441050** onto the **Insert Setting Tool 6042106**. Clean the insert and cylinder head threads with brake cleaner (to free of grease). For extra security it is possible to add a suitable thread locking adhesive on the outside thread of the Thread Insert.

Screw the Thread Insert up to the collar in the cylinder head.



Tighten the Thread Insert with the Insert Setting Tool and remove the Insert Setting Tool.



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