

2003 E46 320d - DIY Removal Of Snapped M10 Glow Plug(Pic Heavy)

Having ran the car for a few months with a snapped glow plug in cylinder no.3, I was confronted by another glow plug error on cylinder no.4
so it was time to bite the bullet and change the glow plugs and attempt to remove the snapped plug.
I successfully removed the snapped glowplug no.3 on a warm engine and so decided to remove all the other glowplugs and lubricate their threads,
the glowplug in no.1 cylinder cracked as I attempted its removal 🤔 so I was forced to remove this one a day later and from a cold engine.

*****I have performed the repair myself and I am comfortable with my ability to do so and I can not be held responsible
if you damage your vehicle in an event to follow my guide.*****

I used the following tools:-

- Small Torque Wrench 5-20Nm
- 1/2" & 1/4" Drive Socket Sets
- T25 & T27 Torx Drives
- Small Mole Grips
- M7 Left Hand 1st & 3rd Hand Taps
- M7 Left Hand Cap Head Screw & spacer
- Small Tap Wrench
- PlusGas Dismantling Lubricant Spray
- Loctite Freeze & Release Spray
- Blow Torch
- Electric Drill
- 5mm Drill
- 6mm Drill
- 10mm Counter Sink Bit
- Head Torch
- Blue Tack/Plasticine

Depending on how much of the Glow Plug inner element comes out with the sheared plug head you may also need:

- Dremmel type tool and attachments
- 6mm Spot Drill
- Drill guide bushes
- Small drill chuck

- 1). Disconnect negative battery lead
- 2). Remove Inlet Manifold as per L16YD L's Swirl Flap removal guide (cheers Lloyd 😊 [E46 320td 320d Swirl Flap Replacement](#))
- 3). Pinch at the top of the glow plug surpressor cap and pull to remove.
- 4). Grip as far down of the snapped glow plug with the mole grips, rotate and pull, you may need to do this several times before it fractures the inner element and comes away.

- 5). If the majority of the inner element is still left in the glowplug use a dremmel type instrument to prepare a flat surface for the 6mm spot drill.
- 6). Using the 6mm drill guide, spot drill the element in readiness for using the 5mm drill.
I found spot drilling and the subsequent drilling tough going on this portion of the inner element but perseverance is the key.
Blow out swarf, a blast of Freeze & Release spray will do this effectively.
- 7). When you've drilled deep enough with the 5mm drill, approx 18-19mm, and its removed the inner element , drill out the existing hole using the 6mm drill, this is the core size of the M7 thread.
- 8). Using Counter Sink Bit chamfer top of 6mm hole to assist tapping.
- 9). Using PlusGas as lubricant tap the hole using the 1st M7 Left Hand tap, remember it is a left hand thread so it will cut rotating counter clockwise.
Once the 1st tap has bottomed out remove it.
Blow out any swarf
Retap the thread using the 3rd tap.
Blow out any swarf
- 10). Mop up any swarf with the Blue Tack/Plasticine
- 11). Apply PlusGas to the glow plug area and go make a brew while it goes to work!
- 12). Apply heat locally to the glow plug area for a couple of minutes then blast the glow plug itself with a good shot of the Freeze and Release spray.
- 13). Repeat this process half a dozen times then screw in the M7 L/H cap head screw and tighten the screw until you feel it go tight then gently but forcefully continue to tighten up, you should feel the glow plug thread turn and possibly squeek!
If you dont feel this movement simply unscrew the cap and repeat the heat/freeze process 2 or 3 times and try again.
- 14). Once the glow plug start to unscrew remove it fully and replace with a new one taking care to lubricate the thread and tighten to the correct Torque value of 12-18Nm, see Beru pdf. <http://www.beruindia.com/pdf/GLOW%20PLUGS.pdf>
- 15). Replace glow plug surpressor caps and replace the inlet manifold.
- 16). Reattach negative battery lead.

This method has been used succesfully on 3 seperate ocasions, once by Kevin Whittaker on a Vauxhall Corsa, and twice by myself on my 320d, once on a warm engine and the 2nd time on a cold engine.

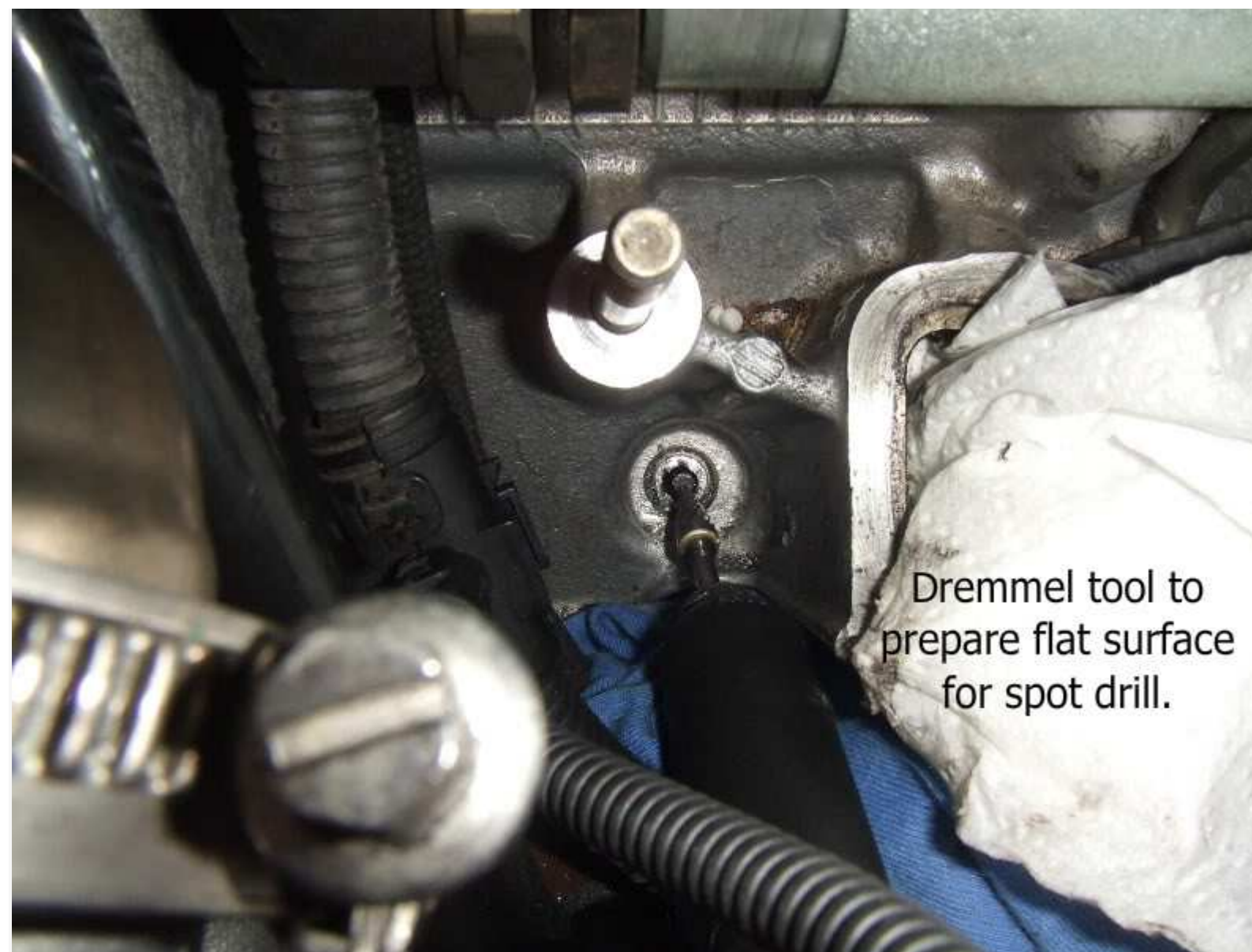
Would also like to say a big thanks to Kevin for his advice on using the heat/freeze technique to assist in this method of removal. 🙏😊



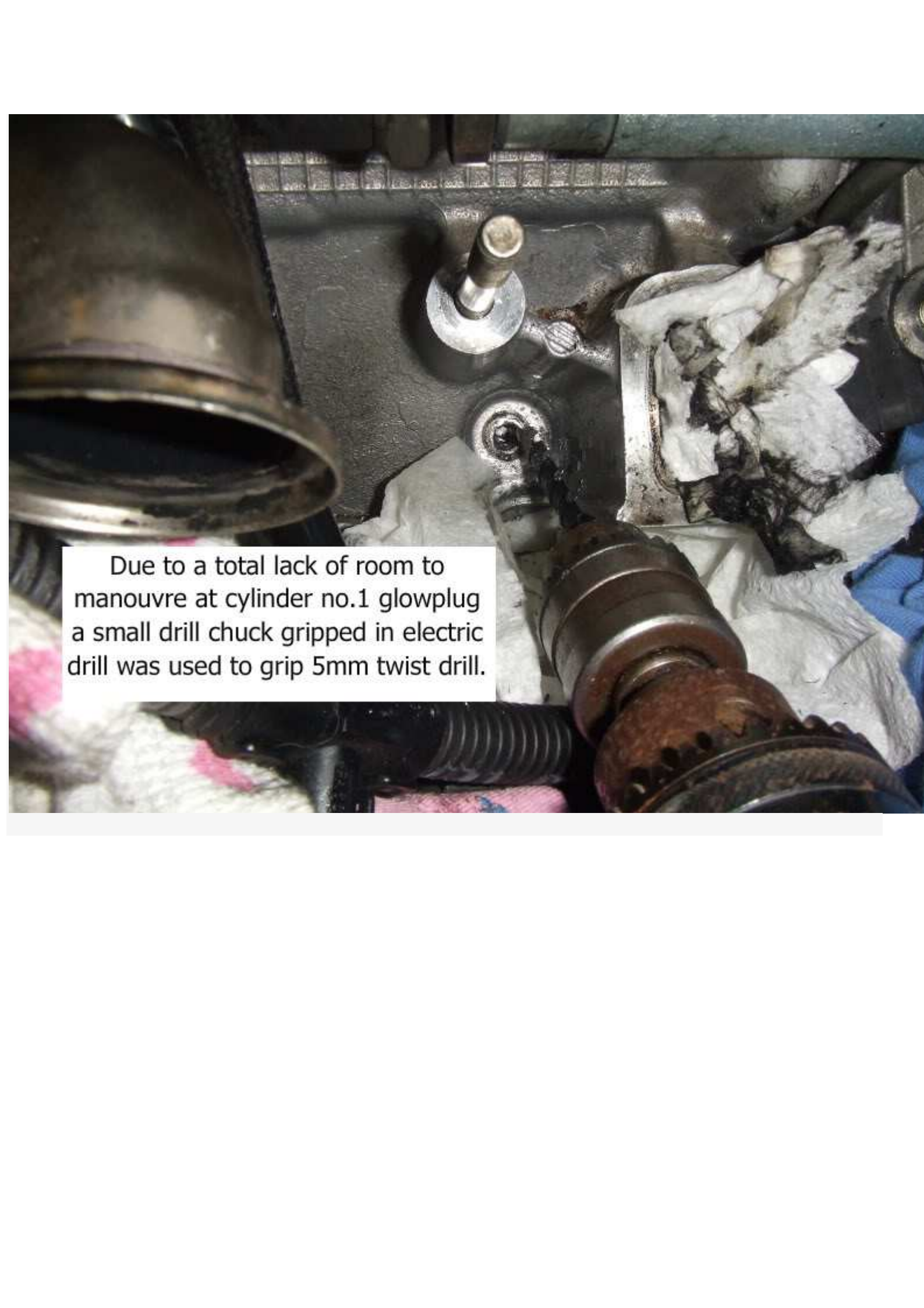
Snapped glowplug
in no.3 cylinder.



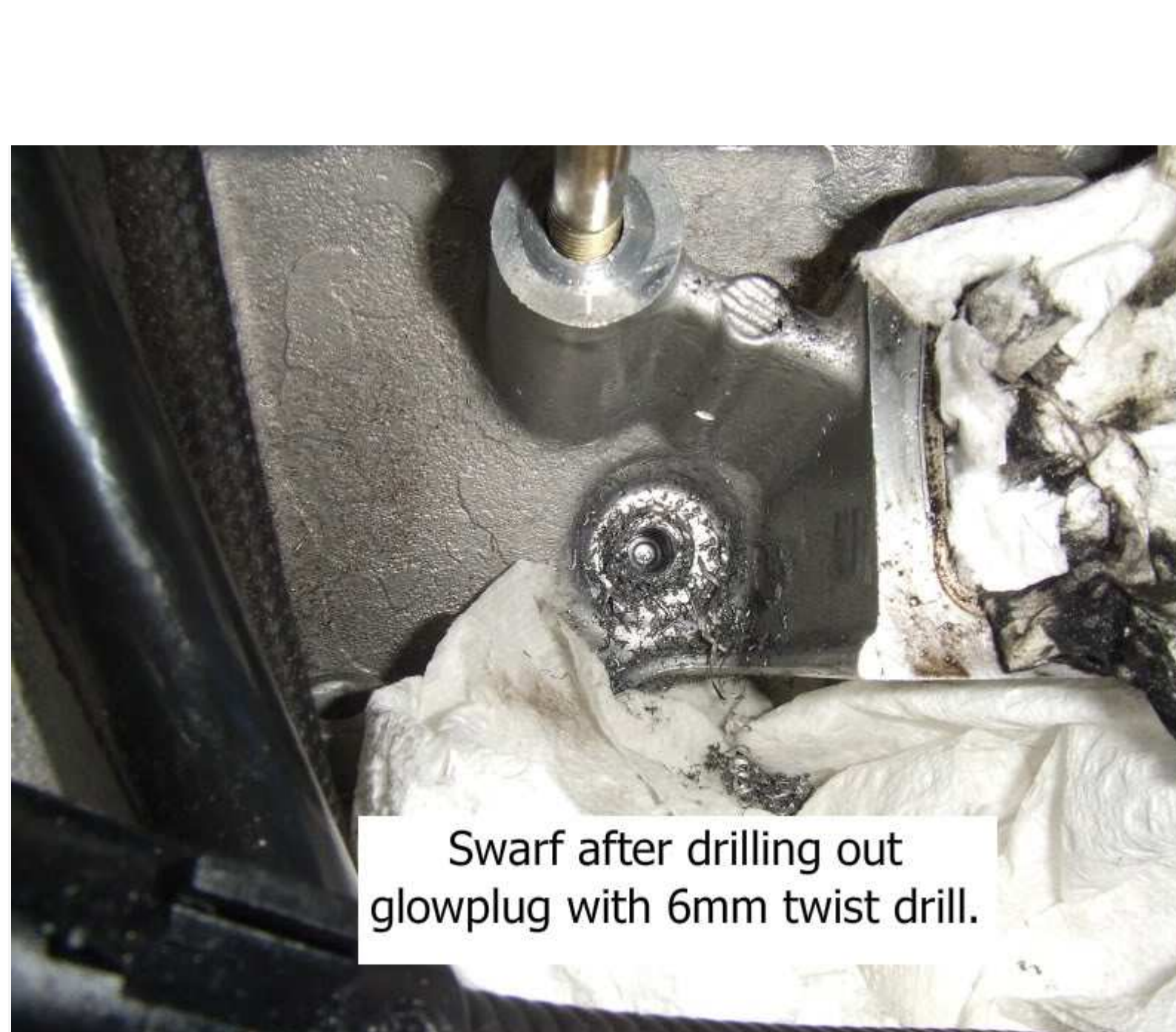
Snapped glowplug in
no.1 cylinder.



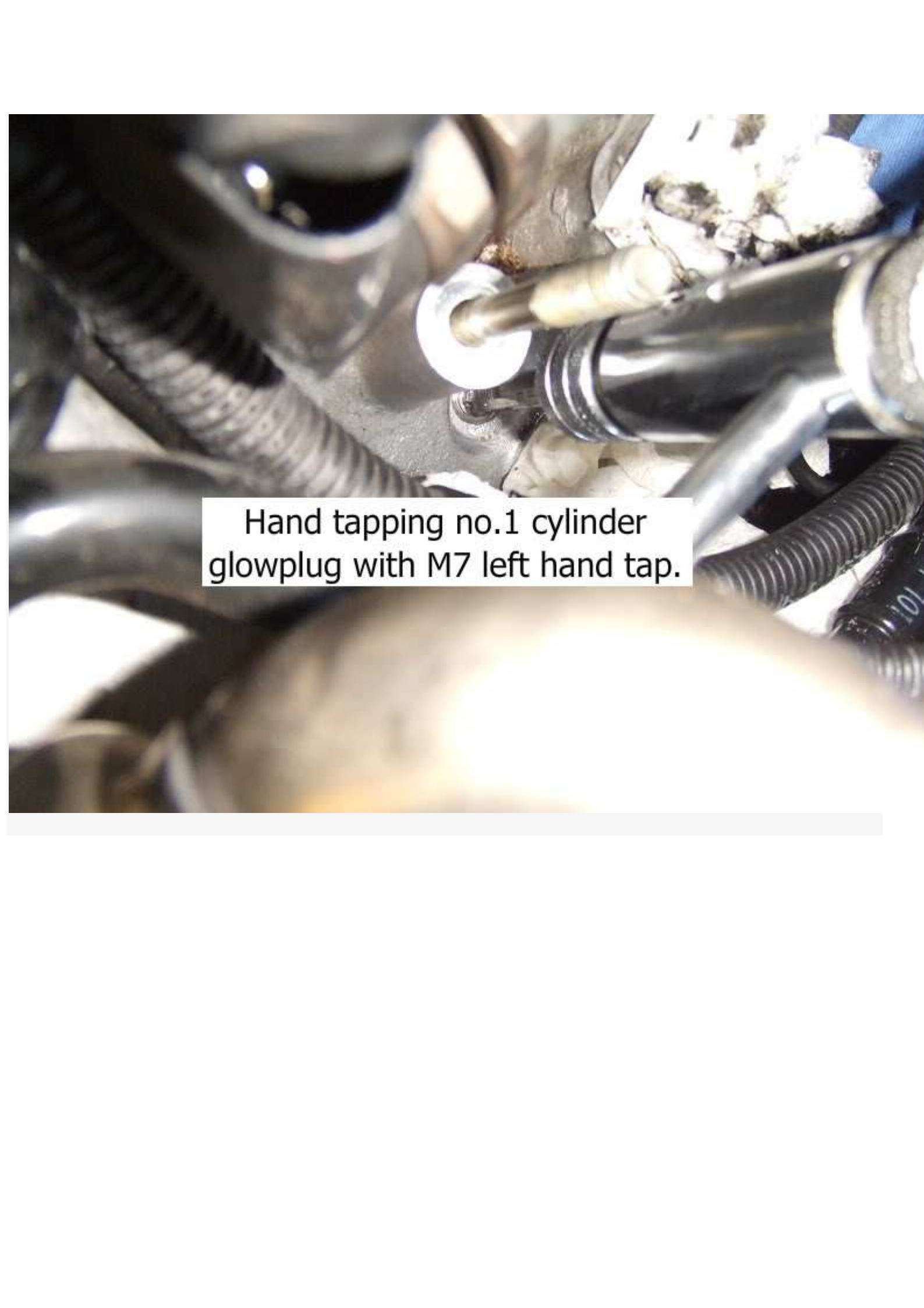
Dremmel tool to
prepare flat surface
for spot drill.



Due to a total lack of room to manouvre at cylinder no.1 glowplug a small drill chuck gripped in electric drill was used to grip 5mm twist drill.



Swarf after drilling out glowplug with 6mm twist drill.

A close-up photograph of a mechanical assembly, likely a cylinder head, during a hand tapping process. A metal tap is being used to create a thread in a glowplug. The tap is held in place by a white plastic or metal support. The glowplug is a long, thin metal rod with a yellowish tip. The surrounding area is metallic and shows signs of wear and debris. A black corrugated hose is visible in the lower right corner. The text "Hand tapping no.1 cylinder glowplug with M7 left hand tap." is overlaid on the image.

Hand tapping no.1 cylinder
glowplug with M7 left hand tap.

Drilled and tapped M7 left
hand in no.1-glówplug.



Snapped glowplug (removed) with M7
left hand cap head screw and spacer.





Removed snapped glow
plug with M7 left hand
screw and spacer.

iroda
SOLDERPRO 70K



70W 4 IN 1
Butane Powered
SOLDERING IRON KIT



SOLDERING



HOT KNIFE



BLOW TORCH



HEAT BLOWER

- Blowing
- Light Plumbing
- Jewelry, Eyeglass
Frame Repair
- Model Building
- Arts and Crafts
- Dental Wax Corrections
- Thawing Frozen Locks

Mini blowtorch/soldering
iron, as used in to heat
up the glowplug area.

