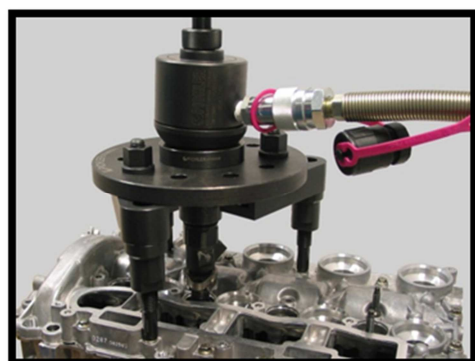
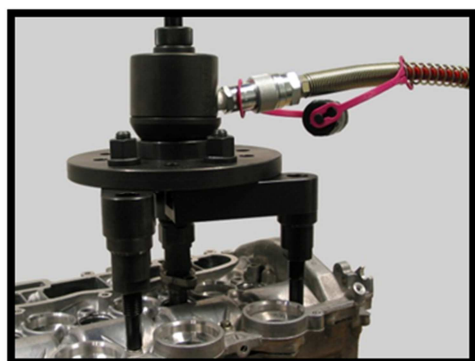
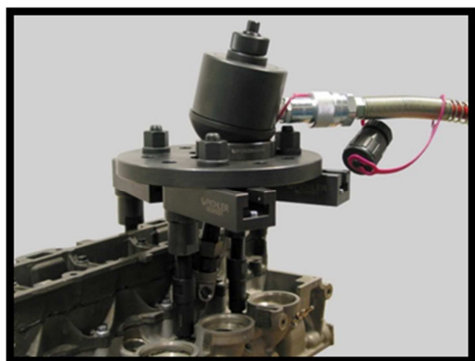
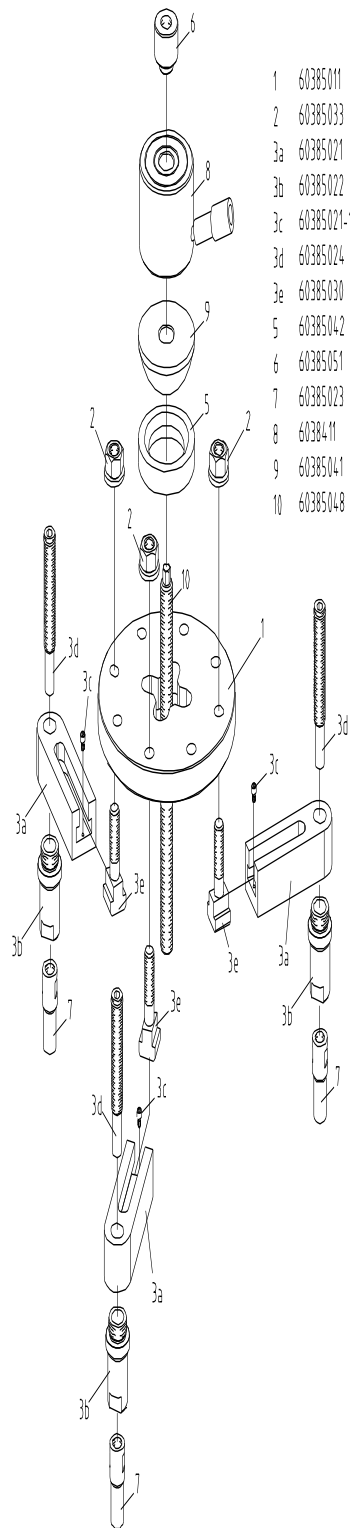


Instructions for the universal hydraulic injector removal tool

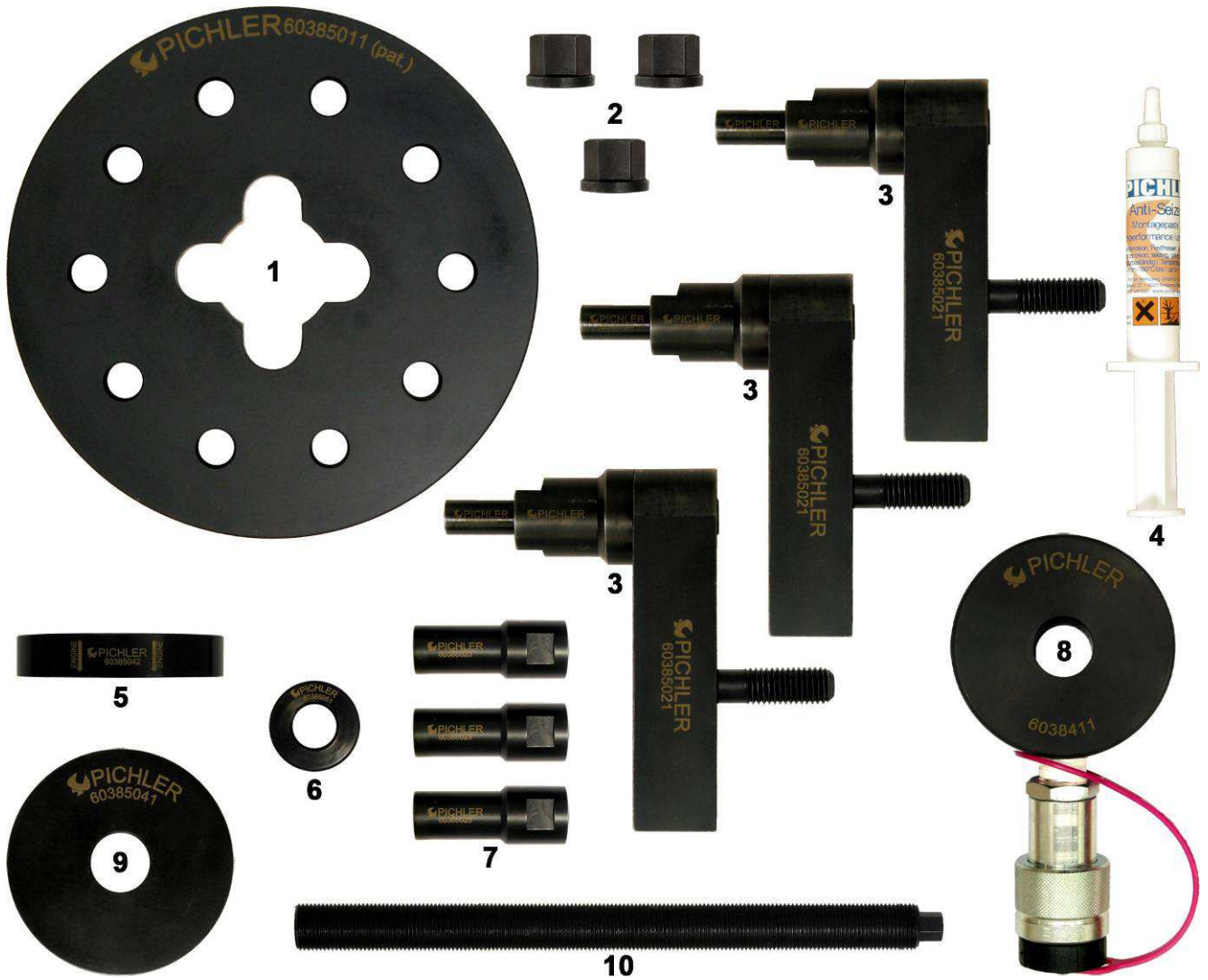
**P/n 60385395 / 60385400
(patented)**





- 1 60385011
- 2 60385033
- 3a 60385021
- 3b 60385022
- 3c 60385021-1
- 3d 60385024
- 3e 60385030
- 5 60385042
- 6 60385051
- 7 60385023
- 8 60384411
- 9 60385041
- 10 60385048

Case contents 60385395 / 60385400:



Nr.	P/n	Description	60385395	60385400
1	60385011	Base Plate	1	1
2	60385033	Collar Nut M14	3	3
3	60385025	Support Leg (adjustable)	3	3
4	81601000	Lubricant	1	1
5	60385042	Swivel Cup Collar	1	1
6	60385051	Knurled Nut M18x1,5	1	1
7	60385023	Leg Extension	3	3
8	6038411	RAM 12t	1	-
9	60385041	Swivel Cup	1	1
10	60385048	Tensile Spindle M18x1,5x242	1	1
11	151.2108	Allen wrench 8	1	1

**Assembly and operational tools:
(not included in the set)**

Combination wrench 19
or socket 19 with ratchet
(p/n 9100519)



Combination wrench 17
or socket 17 with ratchet
(p/n 9100517)



1/4" ratchet with socket 10
(p/n 7210000 + p/n 7221000)








Hydraulic pump with hose and ball valve
(p/n 80255500)



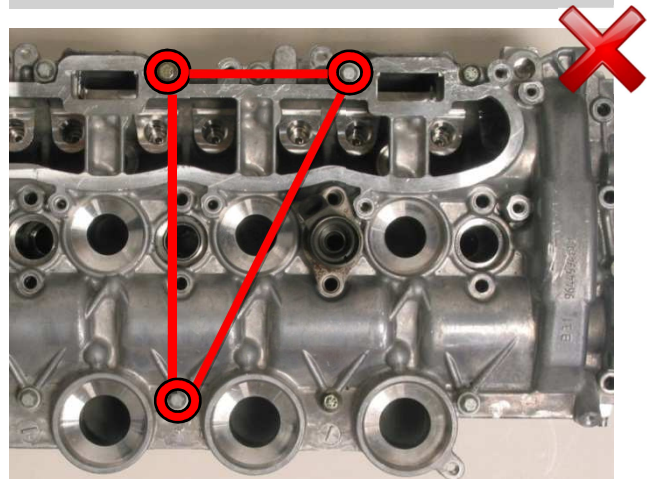
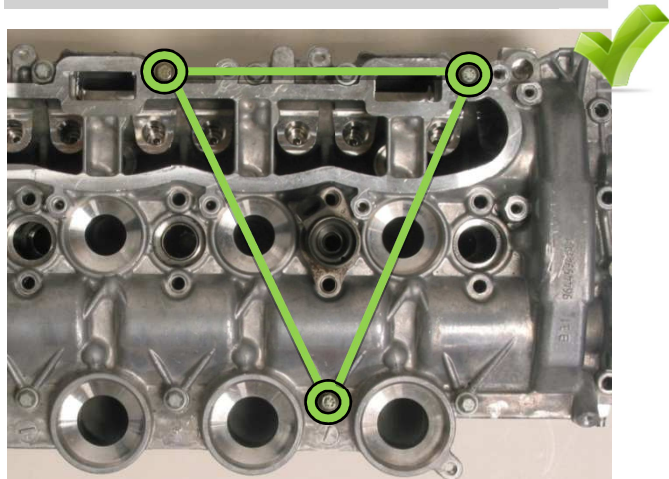
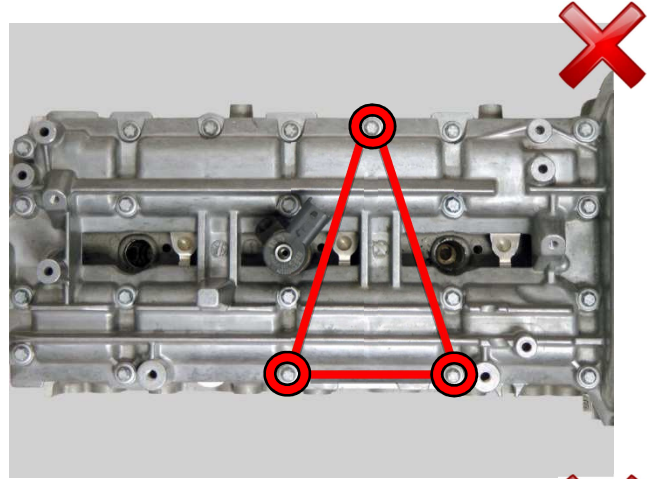
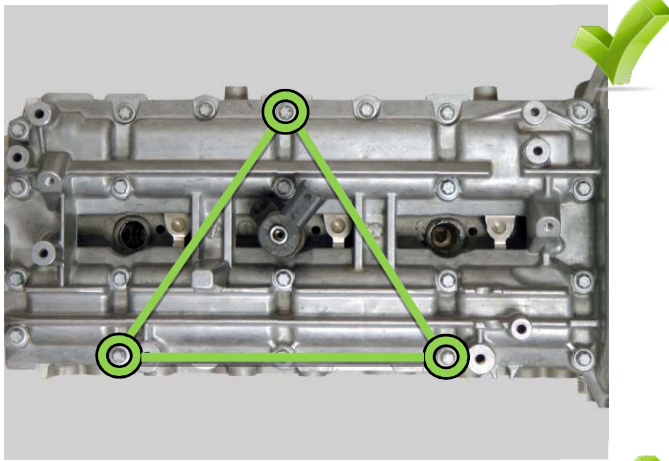
Always refer to the OEM manufacturer's instructions and service manuals for the latest data and to maintain the proper sequence. This work instruction and the recommended tools shown are meant to serve as aides only and are by no means a guarantee for a removal. In some cases, due to insufficient space the engine or the cylinder head will need to be removed. 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 proper sequence.

These tools should only be used by skilled technicians.

Pictograms and their meanings:		
	Caution	special caution or attention
	Spanner	recommendation
	Safety Goggles	wear safety goggles
	Check Mark Green	right
	Cross Red	wrong

1.) Selecting points of support

Only solid, well supported and fixed points (preferably screw heads) on the cylinder head are to be used. When connecting the support points in a straight line the injector must be located inside the resulting triangle.



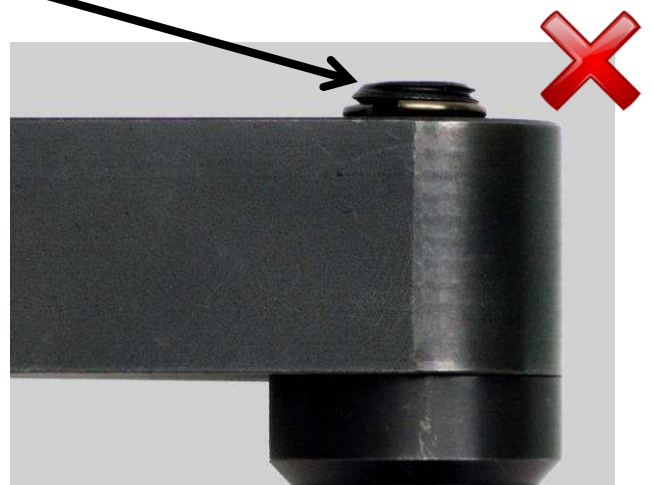
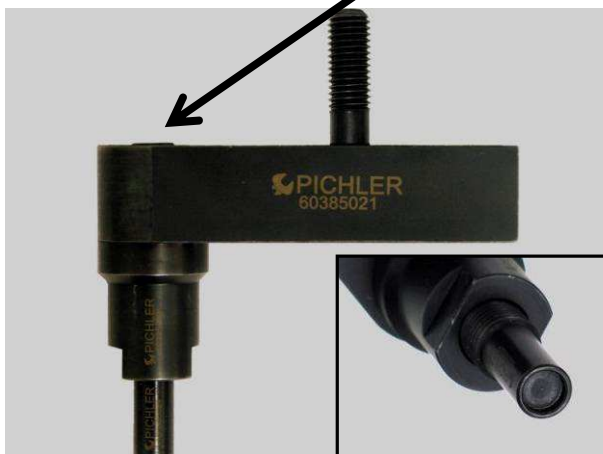
2.) Sizing the support surface:

Depending on the form of the points of support on the cylinder head (i.e.: screw heads or well supported solid flat surfaces) the proper support surface of the extractor is to be chosen. There are two versions to choose from:

2.1.) Version 1: Support leg **without** Extension to the spindle (little support surfaces)



Caution: the Supporting Spindle (p/n 60385024) must not protrude from the horizontal Arm (p/n 60385021)!



2.2.) Version 2: Support Leg **with** Extension to the Spindle (large support surfaces)

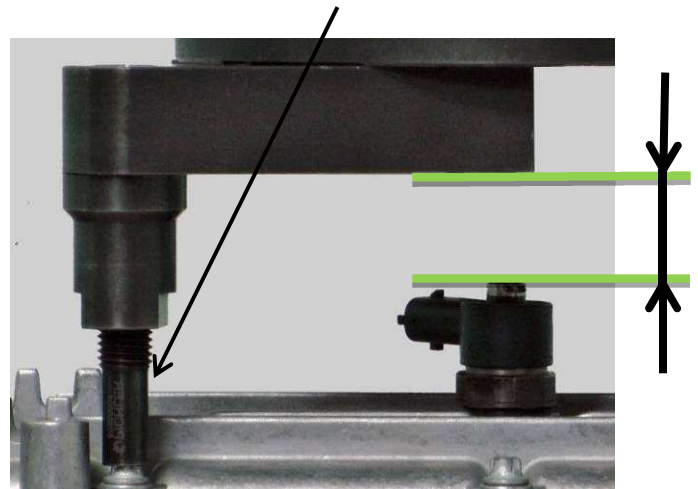
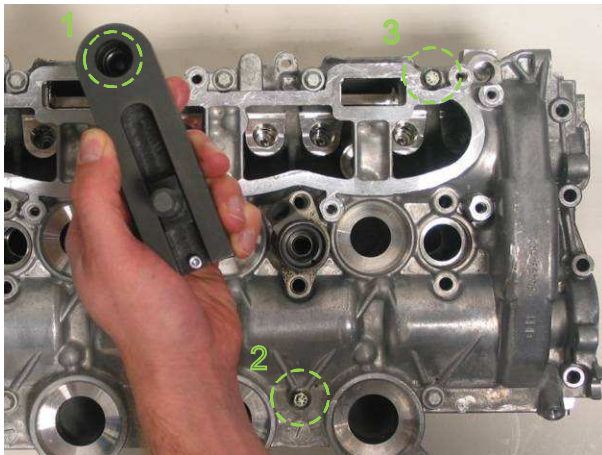


The Extension for the Support Leg (p/n 60385023) **must be** screwed till the stop on the Spindle (p/n 60385024) and properly tightened (Allen wrench 8, combination wrench 17) .

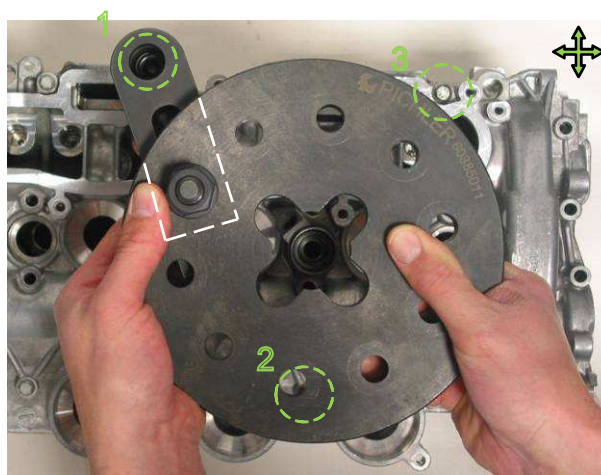


3.) Placing and positioning of the base plate:

When placing the Support Leg (p/n 60385025) on the first point of support, check that there is



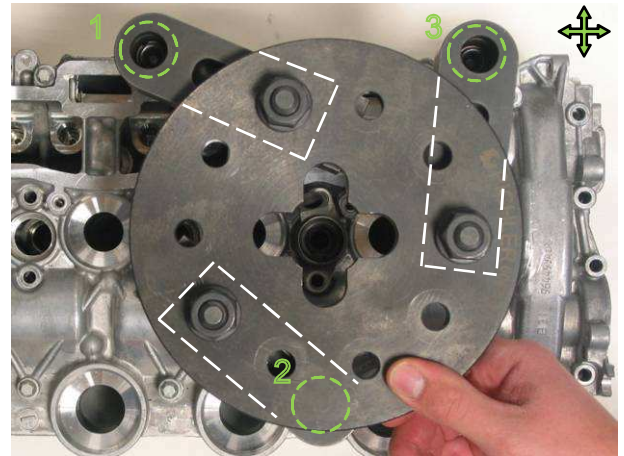
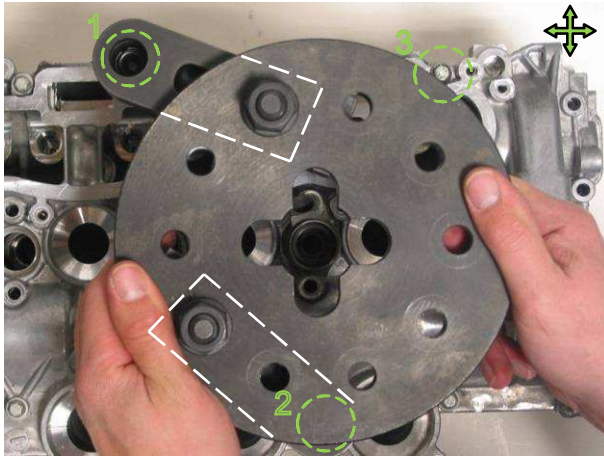
sufficient room to extract. If necessary, screw out the Spindles (p/n 60385023). Feed the Slot Bolt (p/n 60385030) through a random hole of the Base Plate (p/n 60385011) and screw the Collar Nut (p/n 60385033) on the Bolt and tighten it hand tight. Position the centre of the Base Plate centrally above the injector.



Position the second and third Support Leg (p/n 60385025) on the support points 2 and 3. The positions of all three Slot Bolts (p/n 60385030) in the Base Plate (p/n 60385011) must be chosen such that



- the base plate (p/n 60385011) is supported by the support legs (p/n 60385025) and
- the base plate is centred above the injector.



Tighten the Collar Nuts M14 (p/n 60385033) with a suitable tool.

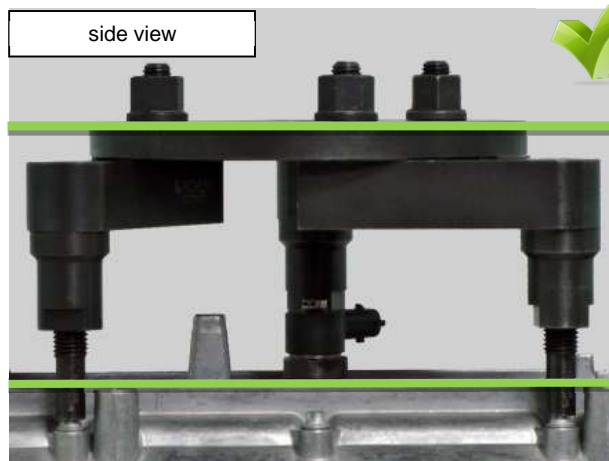
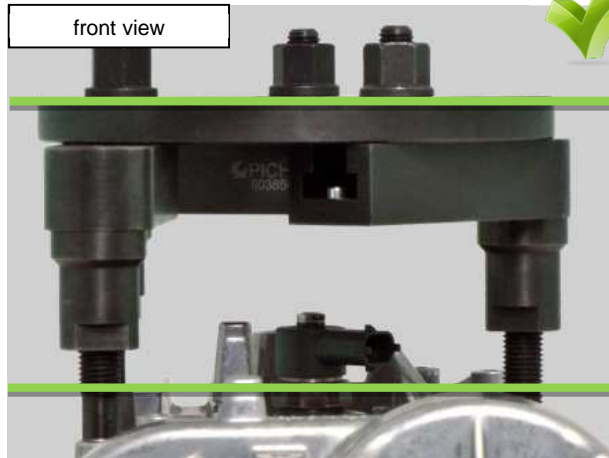


(approx. 80 - 100Nm)

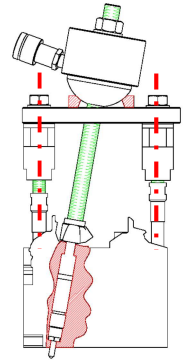


4.) Aligning the Base Plate in height:

By screwing in and/or out of the Spindles (p/n 60385023), align the Base Plate parallel to the cylinder head.



NOTE: The Base Plate does not necessarily need be parallel to the injector, but always has to be in line with the support points.



5.) Disassembling the injector:

Remove the base structure and dismantle the injector as far as necessary to be able to mount a suitable adapter.



Our recommendation: Use the designated injector removal and adapter set (p/n 60384660; see page 10) from Pichler Tools.

6.) Screwing in the Tensile Adapter and - Spindle

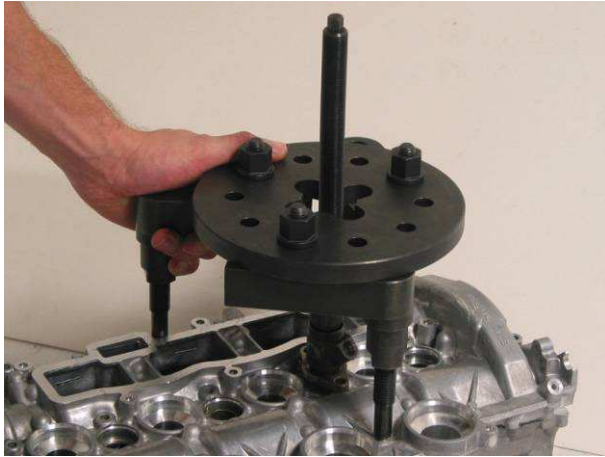
Screw in and tighten the appropriate Tensile Adapter on or in the injector. Screw the Tensile Spindle (p/n 60385048) into the Tensile Adapter and tighten it with a ratchet and socket 10.



7.) Placing the base structure and removing the injector:

Place the base structure over the Tensile Spindle (p/n 60385048) onto the cylinder head.
Place Swivel Cup Collar (p/n 60385042) and Swivel Cup (p/n 60385041) over the Tensile Spindle, onto the Base Plate (p/n 60385011).

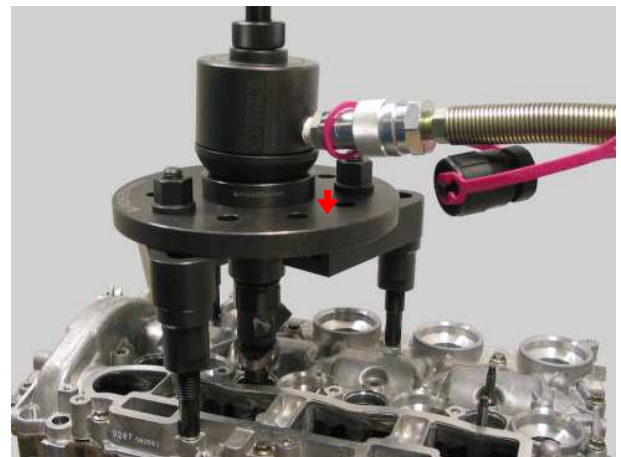
Take care that the arrow ↓ on the Swivel Cup Collar points in the direction of the base plate and cylinder head!!



Place the Ram (p/n 6038411) over the Tension Spindle (p/n 60385048) on the Swivel Cup (p/n 60385041). Screw the Knurled Nut (p/n 60385051) on the Spindle, connect the Ram to a hydraulic hand pump (max. operating pressure 700 bar) and start pumping.

After about 8 mm. the maximum stroke of the piston is reached. Release the pressure, tighten the Knurled Nut by hand and start pumping again.

Repeat the process until the injector is released.



We also recommend from our extensive range:

P/n 60384660
Injector disassembly and removal set



P/n 60384650
Injector disassembly and removal set



P/n 9039100
Injector shaft cleaning set



P/n 90390305
Injector shaft cleaning set



Do you have any questions?

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