LASER®

7730 7731
7732 7733
7734 7735
7736 7737
7738 7739

Broken Glow Tip Puller Kits

Safety First. Be Protected.

Laser Tools Copyright

www.lasertools.co.uk

Introduction

Diesel glow plugs often stop working overtime and the only option is to remove them and fit new. Unfortunately, due to the environment in which they operate (inside the engine cylinder) and the ever decreasing physical dimensions of modern glow plugs the removal of a failed unit is not always a simple job. Add to this the frustration that often the recommended method for checking engine compression is via the glow plug aperture it is even more important that the technician has the ability to remove the glow plug if it breaks off in the head.

There are 2 ways in which a glow plug can break on removal and often both occur at the same time:

1. The glow plug is seized at the threaded section: this results in the plug shearing off a the hex and would require the use of tools set like the Laser 5205 & 5362 Damaged Glow Plug Removal Set.
2. The glow plug tip shears off due to carbon build up around the glow plug element. It is often this build up that result in the glow plugs electrical failure because it causes over heating of the element.

The 7730 to 7739 kits have been specifically designed to extract the broken tip.

To ensure the correct drills and taps are used for the glow plug size being worked on please refer to the kit selection matrix on page 4 of this document.

Always double check the diameter of the glow plug tip on the replacement plugs to ensure the correct size drill is being used.

NOTE: Citroën/Peugeot (PSA) 1.4 (DV4) and 1.6 (DV6) glow plugs require special length drill and tap combinations to be used (K & L). These components should only be used on these PSA derived engines. See additional information on page 5.

Laser Kits 7730, 7731, 7732, 7733, 7734, 7735, 7736, 7737, 7738, 7739.

- Applications include: M10 x 1mm, M10 x 1.25mm, M9 x 1mm, M8 x 1mm glow plug tip extraction tools.
- Unique extended drill bits with crimped and welded ends for increased access and a built in depth control collar to ensure the maximum depth cannot be exceeded.
- Specially machined thread taps, crimped and welded to extra-long extensions for increased access.
- Due to the size of individual threaded components and the nature of the task, all components of the 7730 to 7739 should be considered consumable. Always follow instructions provided.
- Kit includes a comprehensive glow plug hole cleaning kit designed to remove carbon and corrosion to ensure the new glow plugs can be tightened to the correct torque.

Components

The kits have been designed to allow M8, M9, M10 (depending on kit contents) broken glow plug tips to be removed without removing the cylinder head.

Ref.	Laser No.	Description
A	61192	Centre Guide M10 x 1
B	61193	Centre Guide M10 x 1.25
C	61194	Centre Guide M9 x 1
D	61195	Centre Guide M8 x 1
E	61196	Support Tube short
F	61197	Support Tube Long
G	61198	Puller Shaft M4
H	61199	Puller Shaft M3
J	61200	Puller Nut (x2)
K	61201	Glow Plug Tip Tap M4 (PSA) plug tip diameter 6mm, length = 14mm.
L	61202	Drill Bit 3.2mm (PSA) plug tip diameter 6mm, length = 14mm
M	61203	Glow Plug Tip Tap M3 plug tip diameter 6mm, length = 12mm
N	61204	Drill Bit 2.5mm plug tip diameter 6mm, length 12mm
O	61205	Glow Plug Tip Tap M4 plug tip diameter 8mm, length = 12mm
P	61206	Drill Bit 3.2mm plug tip diameter 8mm, length 12mm
Q	61207	Sliding Washers (x4)

Kit Selection Contents

Description	Ref.	Picture	7730 & 7731	7732 & 7733	7734 & 7735	7736 & 7737	7738 & 7739	No.
Centre Guide M10 x 1	A		1x			1x		61192
Centre Guide M10 x 1.25	B		1x			1x		61193
Centre Guide M9 x 1	C		1x		1x			61194
Centre Guide M8 x 1	D		1x	1x			1x	61195
Support Short	E		1x	1x	1x	1x	1x	61196
Support Long	F		1x	1x	1x	1x	1x	61197
Puller Shaft M4	G		1x			1x	1x	61198
Puller Shaft M3	H		1x	1x	1x			61199
Pulling Nut	J		2x	1x	1x	1x	1x	61200
Thread Tap M4 (PSA) Head Ø 6mm Tap L- 14mm	K		1x				1x	61201
Drill 3.2 (PSA) Head Ø 6mm Drill L- 14mm	L		1x				1x	61202
Thread Tap M3 Head Ø 6mm Tap L- 12mm	M		1x	1x	1x			61203
Drill 2.5 Head Ø 6mm Drill L- 12mm	N		1x	1x	1x			61204
Thread Tap M4 Head Ø 8mm Tap L- 12mm	O		1x			1x		61205
Drill 3.2 Head Ø 8mm Drill L- 12mm	P		1x			1x		61206
Sliding Washer	Q		4x	2x	2x	2x	2x	61207

Note: The following kits also include the addition of a brush set for final cleaning of the glow plug aperture: 7730, 7732, 7734, 7736 & 7738

Applications

Citroen/Peugeot (PSA) 1.4 (DV4) and 1.6 (DV6) additional information:

For the vehicles listed below, only the tool components D-E-F-G-J-K-L-Q should be used.

The vehicles listed below use the PSA derived DV4/DV6 diesel engines. The glow plug tips on these engines require a longer drill bit and tap to help ensure removal. These longer components must **NOT** be used on any other vehicles because their increased drill and tap length could damage internal engine components.

Make	Model	CC		Engine Code
Citroën	Xsara	1.4 HDI		1.4 CC
	Xsara Picasso	1.6 HDI		8HX (DV4TD) 8HY (DV4TED34)
	Berlingo	1.6 HDI		
	C2	1.4/1.6 HDI		1.6 CC
	C3	1.4 /1.6 HDI		DV6TED4 DV6ATEDA 9HZ (DV6TED4) 9HZ (DV6TEDA) 9HY (DV6TED4)
	C3 Pluriel	1.4 HDI		
	C4	1.6 HDI FAP		
	C4 Grand Picasso	1.6 HDI FAP		
	C5	1.6 HDI		

Make	Model	CC		Engine Code
Ford	C-Max	1.6 TDCI		1.4 CC
	Fiesta V	1.4 TDCI		F6JA F6JB
	Focus C-Max	1.6 TDCI		
	Focus II	1.4 TDCI		1.6 CC
	Fusion	1.4/1.6 TDCI		HHDA HHDB G8DA G8DB G8DD GPDA G9DB HHJA HHJB

Make	Model	CC		Engine Code
Mazda	2	1.4 CD		1.4 CC
				F6JA

Make	Model	CC		Engine Code
Peugeot	107	1.4 HDI		1.4 CC
	206	1.4/1.6 HDI		DV4 8HX (DV4TD) 8HZ (DV4TD)
	207	1.4/1.6 HDI		
	307	1.4/1.6 HDI		1.6 CC
	407	1.6 HDI		9HY (DV6TED) 9HZ (DV6TED4 9HX (DV6ATED4)
	1007	1.4 HDI		

Make	Model	CC		Engine Code
Suzuki	Liana	1.4 DDIS		1.4 CC
	Kombi			8HY

Make	Model	CC		Engine Code
Toyota	Aygo	1.4 HDI		1.4 CC
				2WZ-TV

Make	Model	CC		Engine Code
Volvo	S40 II	1.6 D		1.6 CC
	V50			D 4164 T

The following instructions are for guidance only. Please refer to OEM derived data such as the vehicles manufacturers own data or Autodata.

The use of this tool is purely down to the user's discretion and The Tool Connection Ltd. cannot be held responsible for any damage caused what so ever.

Instructions

Suitable for glow plugs with thread M10 x 1 - M10 x 1.25 - M9 x 1 - M8 x 1.

The 7730 kit contains all the tools required to safely remove the glow plug electrode tip without removing the cylinder head.

NOTE: All threaded tools and drill bits must be kept clean and well lubricated.

Safety Precautions:

- **Wear eye protection**

Figure 1 shows the glow plug tip broken off in the cylinder head:

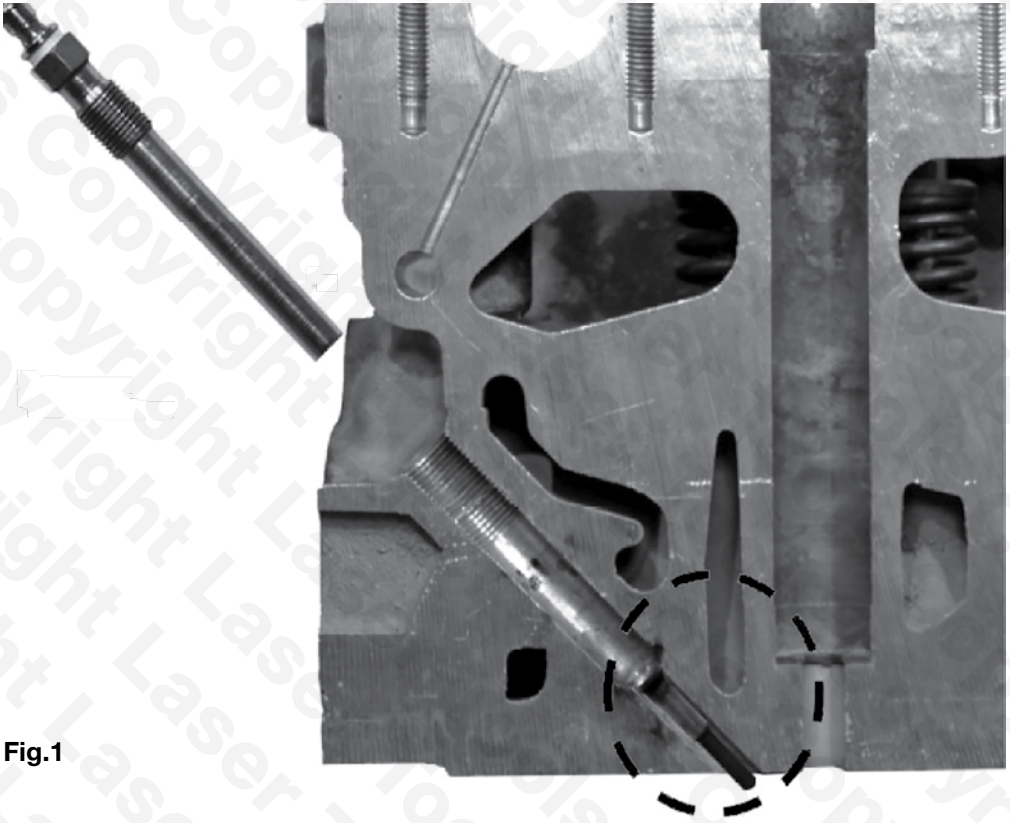

Fig.1

1. Using an electric or air drill, drill a centralised hole into the broken glow plug tip:
   Select the appropriate drill bit according to the plug electrode size being drilled. Select the correct size of centre guide according the glow plug thread size.

NOTE: PSA M8 glow plugs require the use of a longer drill bit (component L)

Component L = Drill Bit 3.2mm 14mm long (PSA M8 x 1 Glow Plugs) use with Centre Guide D

Component N = Drill Bit 2.5mm (Electrode diameter 4mm) use with Centre Guide A, B, C or D according to glow plug thread size.

Component P = Drill Bit 3.2mm (Electrode diameter greater than 4.8mm) use with Centre Guide A, B, C or D according to glow plug thread size.

WARNING: Before drilling double check the glow plug electrode tip diameter can accommodate the chosen tap size and the correct threaded centre guide has been selected before attempting to screw it into the cylinder head.
Use suitable lubricant on drill bit and its shaft as shown in figure 2.

Tighten the Centre guide with a wrench as shown.

After drilling remove the Centre guide and drill bit. Clean the hole with compressed air and a magnet. **WARNING – WEAR EYE PROTECTION.**

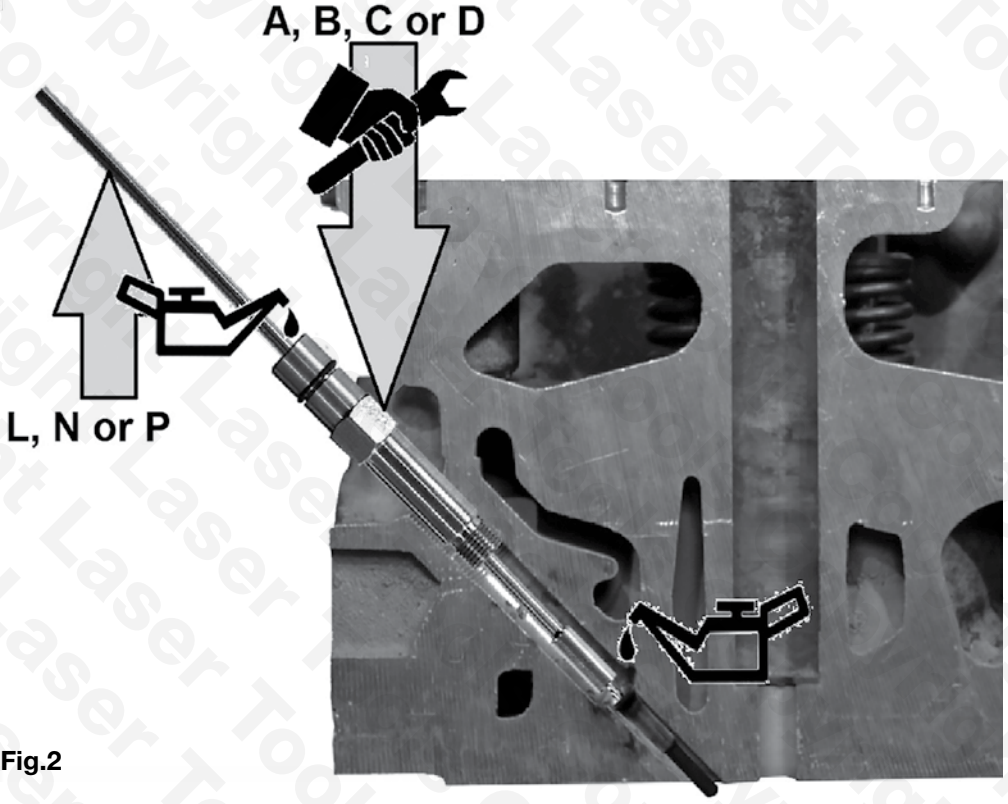

Fig.2

2. Tapping the puller thread into the broken tip:

Using an appropriate tap wrench select the correct tap according to the glow plug size and tip shape. Select the correct size of centre guide according the glow plug thread size. See figure 3.

NOTE: PSA M8 glow plugs require the use of a longer tap (component D)

WARNING - Before taping the thread double check the glow plug electrode tip diameter can accommodate the chosen tap size and the correct threaded centre guide has been selected before attempting to screw it into the cylinder head.

Component K = M4 Tap (PSA M8 x 1 Glow Plugs) use with Centre Guide D

Component M = M3 Tap (Electrode diameter 4mm) use with Centre Guide A, B, C or D according to glow plug thread size.

Component O = M4 Tap (Electrode diameter greater than 4.8mm) use with Centre Guide A, B, C or D according to glow plug thread size.

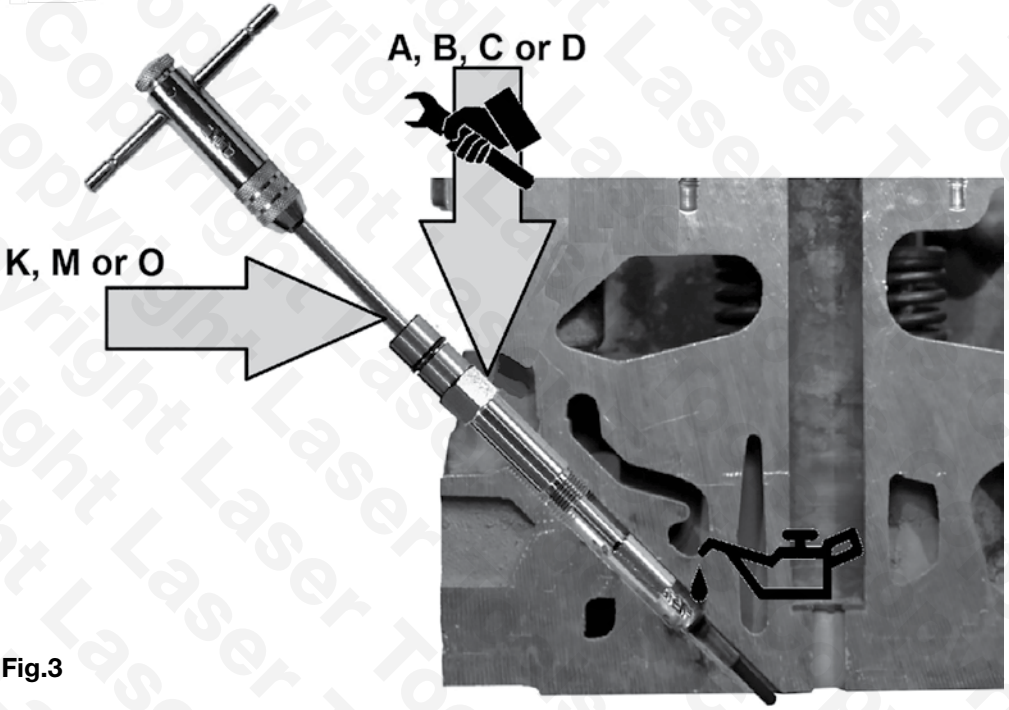

Fig.3

3. Extracting the broken tip:

Screw the appropriate Centre Guide in to the glow plug hole and attach the Support Tube (**E** or **F**) as required. Ensure the rubber sealing ring is lightly greased to aid fitting and removal.

With the cap nut, puller nut and puller sliding washers in place screw the puller shaft that matches the threaded tap used into the broken tip.

While holding the puller cap nut wind the puller nut down the puller rod till it touches the support sleeve.

Back the puller nut 1/2 a turn and gently tap the top of the puller shaft with a small hammer to help release the seized glow plug tip.

While holding the top cap nut with a wrench, turn the puller nut clockwise to pull the glow plug tip up and out of the head.

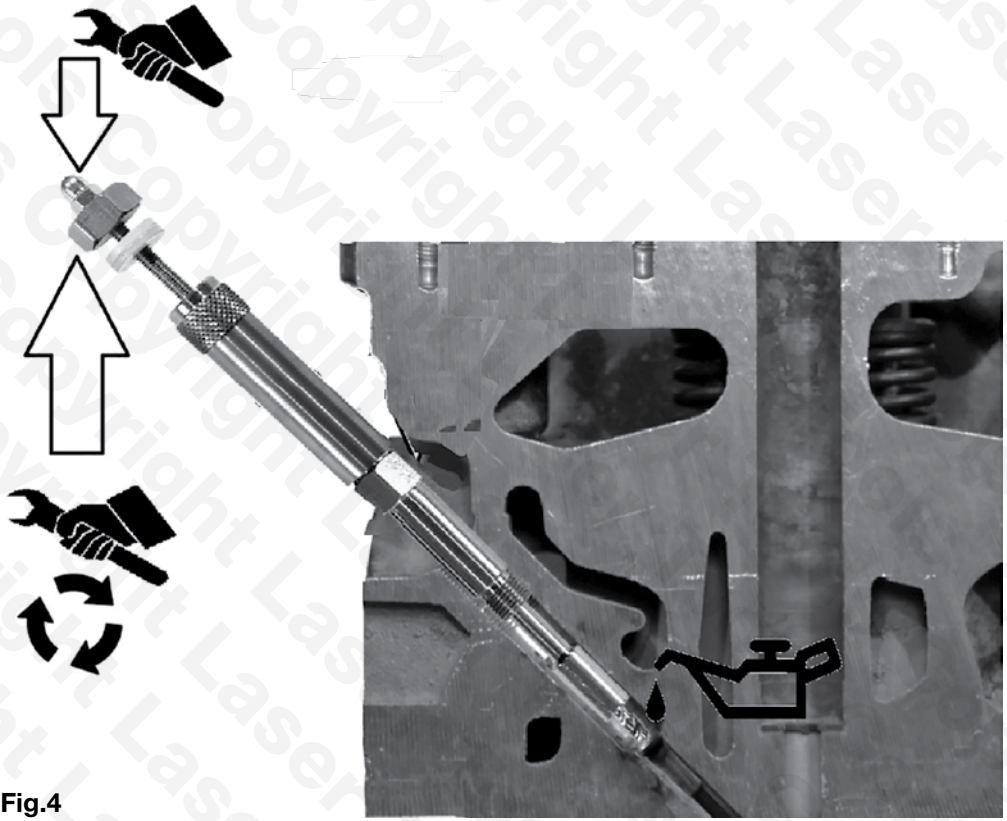

Fig.4

After extraction and before installing a new glow plug the glow plug aperture must be fully cleaned to ensure the glow plug will seal correctly at the correct torque.

Instructions Cleaning Kit Use:

1. Select the appropriate wire brush according to the chart shown:

Ref	Brush Set Contents	
R	Inner Brush 150x60mm. Diameter 4.8 x 20/7.0	M8/M9 glow plugs
S	Inner Brush 150x60mm. Diameter 5.3 x 20/8.5	M9/M10 glow plug
T	Inner Brush 150x60mm. Diameter 6.5 x 20/8.5	M10/M12 glow plugs
U	Inner Brush 150x60mm. Diameter 4.8 x 20/7.0	M8/M9 glow plugs
V	Inner Brush 150x60mm. Diameter 5.3 x 20/8.5	M9/M10 glow plugs
W	Inner Brush 150x60mm. Diameter 6.5 x 20/8.5	M10/M12 glow plugs
X	Brush Holding Tool	
Y	Quick Chuck Flexible Drive (1/4")	
Z	Hex Key (2mm) for X	

2. Fit the wire brush to the brush holding tool (**X**) and tighten with the hex key (**Z**) both grub screws as shown in figure 5. Fit the assembly into the quick chuck flexible driver. Apply a small amount of grease to the brush tip to help catch any dislodged carbon.

3. Using a suitable drill (Max. speed 4500RPM) turning in a clockwise direction only clean the glow plug aperture.
4. Swap the wire brush for the appropriate nylon brush to complete the cleaning tasks.

Our products are designed to be used correctly and with care for the purpose for which they are intended. No liability is accepted by the Tool Connection for incorrect use of any of our products, and the Tool Connection cannot be held responsible for any damage to personnel, property or equipment when using the tools. Incorrect use will also invalidate the warranty.

If applicable, the applications database and any instructional information provided has been designed to offer general guidance for a particular tool's use and while all attention is given to the accuracy of the data no project should be attempted without referring first to the manufacturer's technical documentation (workshop or instruction manual) or the use of a recognised authority such as Autodata.

It is our policy to continually improve our products and thus we reserve the right to alter specifications and components without prior notice. It is the responsibility of the user to ensure the suitability of the tools and information prior to their use.

recycle
When you have finished with this leaflet please recycle it

www.lasertools.co.uk

7730-7731-7732-7733 -7734-7735-7736-7737-7738-7739_Instructions_V4

TOOL CONNECTION
The Complete Connection

Distributed by The Tool Connection Ltd
Kineton Road, Southam, Warwickshire CV47 0DR
T +44 (0) 1926 815000 **F** +44 (0) 1926 815888
info@toolconnection.co.uk **www.toolconnection.co.uk**

Guarantee

If this product fails through faulty materials or workmanship, contact our service department direct on: **+44 (0) 1926 818186.** Normal wear and tear are excluded as are consumable items and abuse.