Sykes-Pickavant®
Specialist Tool Solutions

User Instructions for HGV Suspension Split Bush Removal & Replacement System

18797000 / 1879900 / 18798000 / 18799500

Many modern trucks are fitted with SILENT BUSHES which are made up of a split outer steel casing bonded to a rubber shock absorber inner section. There are 2 steel end caps and an inner steel tube also bonded to the construction to make up the full assembly. This type of bush is hard wearing and provides flexibility within the suspension to assist in the shock absorbing qualities of the suspension. However the removal and more specifically the replacement of this type of bush is impossible without the correct equipment.

The 2 bushes in the picture are typical of the design and are both used in DAF tipper trucks where there may be more than 20 such bushes used throughout the suspension system. At each annual MOT safety check the condition of these bushes is carefully checked and if any wear is found then these must be replaced before the vehicle can be allowed back on the public roads.

In-situ access to these bushes can be severely hampered due to the many components attached to the chassis in and around the suspension system making it impossible to use large maintenance equipment.

Another problem this bush design throws up is the requirement to ensure the bush is sufficiently compressed prior to insertion to prevent the bush from opening up at the rear when being forced into the spring eye. If this happens then the bush will de-laminate and be destroyed before assembly. Each bush can cost over £100 each so it is important that they are inserted correctly first time of asking. If the bush has to be removed due to incorrect insertion then again the bush will be scrapped.

Bush Removal

Before the new bushes can be inserted the old worn out bushes must be removed. These can be very stubborn to remove in-situ without a great deal of preparatory disassembly work to allow clear access. The Sykes-Pickavant HGV SUSPENSION BUSH REMOVER & REPLACER system uses a compact 12 Tonne hydraulic ram extraction system to allow the operator to work in a limited access environment and so reduce the amount of disassembly work required.

The old bush is gradually pushed out of the spring eye and is retained in the hollow receiver tube when clear of the spring. Despite the limited travel offered by this compact ram the removal is very quick using the adjustment nuts at each end of the DRAW ROD. The benefit of the compact ram is the limited space needed to operate. This more than compensates for the limited travel on each stroke of the ram.

Note a longer (40mm) travel ram is available (part number SHS121) but this is not supplied as standard due to it being too large for most truck access.

Important!

Please note that the 20017000 - Hydraulic Aluminium Pump - Hand Operated is required for this kit to work (available to purchase separately.

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Bush Insertion

The Sykes-Pickavant HGV SUSPENSION BUSH REMOVER & REPLACER uses a unique clamping system and a series of shell sleeves for different applications. This system can cover a range of bush sizes from 56mm Diameter to 75mm Diameter.

The picture on the left shows the outer form of the CLAMP system. The CLAMP is in 2 halves and is closed together around the bush using the 4 x 10mm studs & nuts. This ensures a high degree of compression around the full circumference of the bush without the risk of damage during the insertion process.

Located within the CLAMP are a series of SHELL sleeves to cater for the different bush sizes.

The first 5 sizes fit straight into the CLAMP and are retained with an M8 bolt in each half of the CLAMP as can be seen in the next picture. The SHELL sleeve shown is the largest of the set with a 75mm internal dimension. This SHELL sleeve also acts as a spacer sleeve for the 4 smaller sizes of SHELL sleeve.

The next picture shows the first of the smaller SHELL sleeve bolted into place which takes the internal diameter down to 63mm. This is the size used by DAF on their bushes.
The second set of sleeves is retained by longer M8 bolts which pass through the outer sleeves to screw into the inner sleeves. They are coloured black or silver to identify.

Clamp with No 1 SHELLS (75mm dia) & No 6 SHELLS (63mm dia) fitted and DAF bush in place ready for insertion. Note the tool will be set up from new in this configuration, this is to ensure all component parts are present and in position.

The picture below shows the full range of SHELL sleeves available with the universal clamp system.

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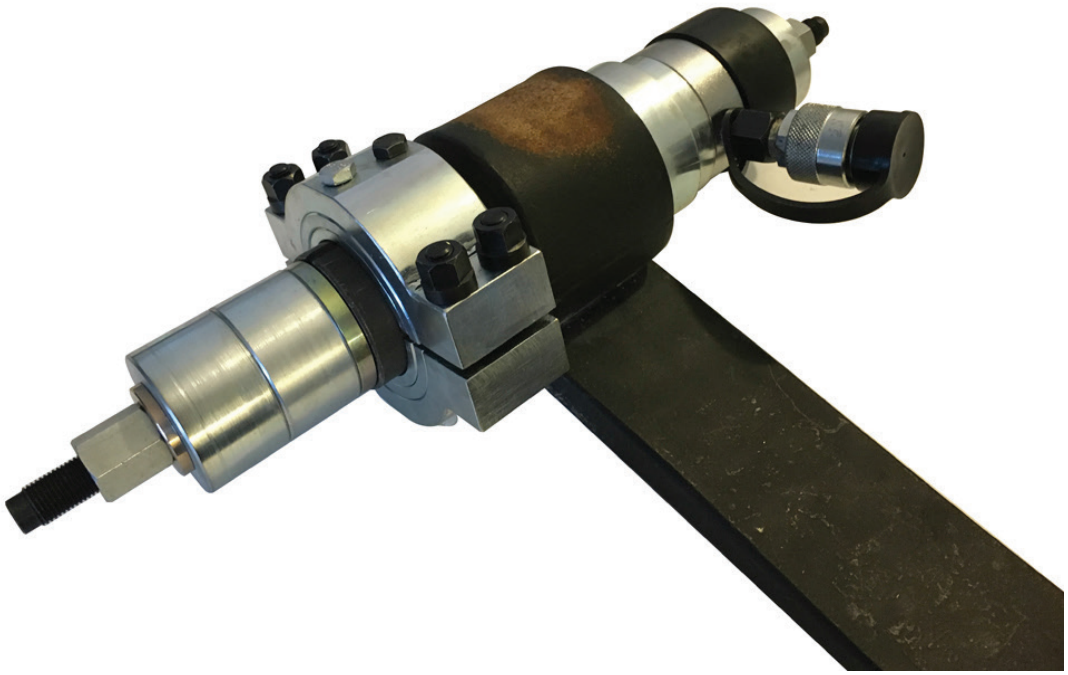
The SHELL sleeves shown will cover the following applications: (note sizes are for guidance)

Shell No	Part No	Description	Application
1.	18797100	75mm Internal diameter	Mercedes Benz
2.	18797200	70mm Internal diameter	MAN
3.	18797300	68mm Internal diameter	MAN Front Spring
4.	18797400	66mm Internal diameter	IVECO Eurostar (driving cab)
5.	18797500	65mm Internal diameter	Mercedes Benz Actros, Atego
6.	18797600	63mm Internal diameter	DAF
7.	18797700	60mm Internal diameter	Mercedes Benz / IVECO Eurostar (stabiliser)
8.	18797800	58mm Internal diameter	Mercedes Benz / Volvo
9.	18797900	56mm Internal diameter	IVECO Eurostar (driving cab)

Please note SHELL No 1 acts as a sleeve when using SHELLS No's 6-9.

When the CLAMP system has been correctly assembled for the application and the new BUSH is securely clamped the insertion process can begin.



The picture above shows the full assembly prior to insertion.

As the force is applied and the bush begins to enter the spring eye the clamp will be pushed back along the length of the bush whilst still holding the bush firmly clamped to prevent the bush from breaking open under load. The process of insertion is gradual and the ram will need to be re-set a number of times, adjusting the nuts on the DRAW ROD as with the removal process. This allows for the most compact equipment operating in the limited space available.

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Part Numbers / Component Descriptions

Part Number	Description	Image
18592000	HYDRAULIC RAM	
187970-01	CLAMP ASSEMBLY	
187970-02	RAM REACTION PLATE	
187970-03	RAM LOCATION PLATE	
187970-04	RECEIVER SLEEVE - SMALL	
187970-05	RECEIVER SLEEVE - LARGE	
187970-06	SPACER BLOCK (WITH RECESS IN REAR)	
187970-07	PUSHER BLOCK	
187970-08	BRASS WASHER (SINGLE)	
187970-09	M16 NUT (SINGLE)	
187970-10	DRAW ROD	
18797100	SHELL 1 (75MM) - MERCEDES BENZ	
18797200	SHELL 2 (70MM) – MAN	
18797300	SHELL 3 (68MM) - MAN FRONT SPRING	
18797400	SHELL 4 (66MM) - IVECO EUROSTAR	
18797500	SHELL 5 (65MM) - MERCEDES BENZ ACTROS, ATEGO	
18797600	SHELL 6 (63MM) - DAF	
18797700	SHELL 7 (60MM) - MERCEDES BENZ / IVECO EUROSTAR	
18797800	SHELL 8 (58MM) - MERCEDES BENZ / VOLVO	
18797900	SHELL 9 (56MM) - IVECO EUROSTAR	

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