

# 18771000 - Land Rover Swivel Ball Joint Adaptor Set



Axle end with twin interference fit ball joints

The Sykes-Pickavant 18771000 swivel ball joint tool is an on vehicle solution for the removal and replacement of swivel ball joints fitted onto Land Rover Discovery 2 & Range Rover P38A vehicles.

The kit is designed to be used in a Sykes-Pickavant 187 series press frame and can utilise either an 1500 series 8 tonne ram or for more performance we recommend its use with the more powerful 1800 series 12 tonne ram.



187 Press Frame with 12 tonne Ram

## Index:

- Page 1: Introduction to tool
- Page 2: Kit Contents & Table for use
- Page 3: Safety and Preparation to use tool
- Page 4: Removing top ball joint
- Page 5: Inserting top ball joint
- Page 6: Removing lower ball joint
- Page 7: Inserting lower ball joint



## Table for Use

Task	Kit Items Required
1) Upper Ball Joint Removal	1, 5 & 6
2) Upper Ball Joint Insertion	1, 4 & 9
3) Lower Ball Joint Removal	1, 2, 3 & 4
4) Lower Ball Joint Insertion	1, 5, 7 & 8

## Kit Contents

Item	Description	Size	Part Number
1	Stepped base adaptor plate	90x35mm	18775170
2	Small removal piece – for lower joint only	50x46mm	187710-02
3	Large removal void sleeve – for lower joint only	70x77mm	187710-03
4	Pushing piece with SP ram location socket	70x39mm	187710-04
5	Pushing piece with SP ram location socket	65x65mm	187710-05
6	Narrow removal piece – for upper ball joint	50x70mm	187710-06
7	Adaptor piece with 5mm deep outer step	60x33mm	187710-07
8	Adaptor piece with 10mm deep outer step	60x33mm	187710-08
9	Insertion void piece – for upper joint only	76x60mm	187710-09
10	Ram nose piece for use with Part 4	25x27mm	15002700



## Safety

Before using the 18771000 kit, ensure vehicle is safe to work upon – If no ramp is available then ensure the ground is firm and level, the parking brake fully applied, vehicle ignition keys removed and the rear wheels blocked. Raise vehicle via a jack but do not undertake any work with the vehicle still supported on a jack - always lower the vehicle onto a pair of suitable axle stands.

**Sykes-Pickavant will NOT be responsible for any failure to follow best practice in safe working when using the 18771000 kit.**

### Before using the tool:

Lift the front wheels clear of the ground and proceed to remove wheel, brakes, hub and drive-shafts from each front corner being worked upon. Take care to firstly drain, then manage any axle oil that could leak out when the drive-shaft is withdrawn. Clean off dirt and debris deposits from the ball joint areas of the axle before using the tool.

### After using the tool and replacing ball joints:

Be sure to reassemble the drive shaft, hub and brakes for each corner and then fill the axle with correct grade and amount of oil (to manufacturers specification). Check for leaks and security of all components before refitting the wheel.

Ensure all fixing components are set to their correct torque settings, test operation of the hub for correct movement.

### This kit covers 3 versions of axle as fitted onto the following Land Rover models:

- 2x versions of type A: Straight axle fitted to early Discovery 2's & all Range Rover p38's
- Type B: Curved end axle only fitted to late production Discovery 2's

These tools are capable of working on both axle types and are used in exactly the same way on either axle version.



**AXLE TYPE A**



**AXLE TYPE B**

## Stage 1: Upper ball joint removal - Using Parts 1, 5 & 6

- 1) Insert stepped base adaptor plate (item 1) into 187 Series press frame as shown in Image 1.
- 2) Fit removal piece (item 6) into the stepped base adaptor plate as shown in Image 2.
- 3) Fit void piece (item 5) over top of ball joint. Note: It will rest in position due to the profile of the ball joint top hat fitting into the void area. (See Image 3).

**In use the SP hydraulic ram will face upwards**

- 4) Position press frame over the upper ball joint & fit 1500 or 1800 Series ram into it. Turn ram body to hand tight & then turn T-bar to build hydraulic pressure which will release the ball joint. Continue until the joint is removed – Note: Due to ram travel, resetting may be needed to fully move the joint.



**Image 1**



**Image 2**



**Image 3**



**Image 4**

## Stage 2: Upper ball joint insertion - Using parts 1, 4 & 9

- 1) Insert stepped base adaptor plate (item 1) into 187 series press frame as shown in Image 1.
- 2) Fit insertion void piece (item 9) into the stepped adaptor plate as shown in Image 2.
- 3) Clean the axle socket if necessary.
- 4) Place ball joint over the axle socket and then place pushing piece (item 4 - see Image 3) over the joint. Rest frame over the axle so that it is in contact with the ball joint and as it goes up, this piece guides & locates the ball joint into the axle socket.
- 5) Locate pushing piece with ram input socket (item 4) into the nose piece (item 10) of the hydraulic ram – this piece fits between the ram and item 4.

**In use the SP hydraulic ram will face upwards**

- 6) Turn ram body to hand tight & then turn T bar to build hydraulic pressure which will insert the ball joint; continue until the joint is tightly inserted into the axle socket – note due to ram travel resetting may be needed to fully move the joint.



**Image 1**



**Image 2**



**Image 3**



**Image 4**

### Stage 3: Lower ball joint removal - Using parts 1, 2, 3 & 4

- 1) Insert stepped base adaptor plate (item 1) into 187 series press frame as shown in Image 1.
- 2) Insert small removal piece (item 2) into stepped base adaptor plate as shown in Image 2.
- 3) Fit item 3 (large removal void sleeve) onto the machined ridge of item 4 (pushing piece with ram input socket) as shown in Image 3.
- 4) Note for Range Rover P38A models, the axle profile requires that the cut out section in item 3 sits over a ridge in the axle housing, no special positioning is needed for Discovery 2 axles which do not have the ridge fitted.

**Image 4 below is upside down to actual Range Rover P38A axle layout for better reference**

- 5) Position press frame over the lower ball joint & fit 1500 or 1800 series ram into it, turn ram body to hand tight & then turn T bar to build hydraulic pressure which will release the ball joint; continue until the joint is removed – note due to ram travel resetting may be needed to fully move the joint.

**In use the SP hydraulic ram will face downwards**

Ball joint removal procedure shown in Image 5 – Note the image shown is actually upside down to actual vehicle orientation – this is to better show the use of the tool.



**Image 1**



**Image 2**



**Image 3**



**Image 4**



**Image 5**

#### Stage 4: Lower ball joint insertion - Using parts 1, 5, 7 & 8

- 1) Insert stepped base adaptor plate (item 1) into 187 series press frame as shown in Image 1.
- 2) Insert insertion piece (item 8) into the stepped base adaptor plate as shown in Image 2.
- 3) Locate ball joint into the axle socket, clean the axle socket if necessary - See Image 3.
- 4) Locate adaptor piece (item 7) over ball joint with machined step facing away as shown in Image 4.
- 5) Locate 65mm pushing piece (item 5) onto adaptor piece 7 as shown in Image 5. The socket on top of the adaptor is for the SP hydraulic ram to locate into.
- 6) Assemble all parts together over axle and ball joint as shown in Image 6, with items 5 & 7 pushing the ball joint into the axle socket and items 1 & 8 pushing against the axle socket.

**In use the SP hydraulic ram will face downwards**

Ball joint insertion procedure shown in image 6 – note the image shown is actually upside down to actual vehicle orientation – This is to better show the use of the tool.

Turn ram body to hand tight & then turn T bar to build hydraulic pressure which will insert the ball joint; continue until the joint is tightly inserted into the axle socket – note due to ram travel resetting may be needed to fully move the joint.



Image 1



Image 2



Image 3



Image 4



Image 5



Image 6