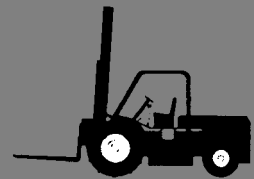


Instructions for Maintenance and overhaul of Straight and Drop Ball Sockets



SPICER SPECIALITY AXLE DIVISION





MANUAL ISSUE SHEET

Page No.	Issue	Description / Alteration	Reason	Date
All	A	New Manual		July 2000

SEQUENCE OF OPERATIONS FOR THE DISASSEMBLY OF DROP BALL SOCKET

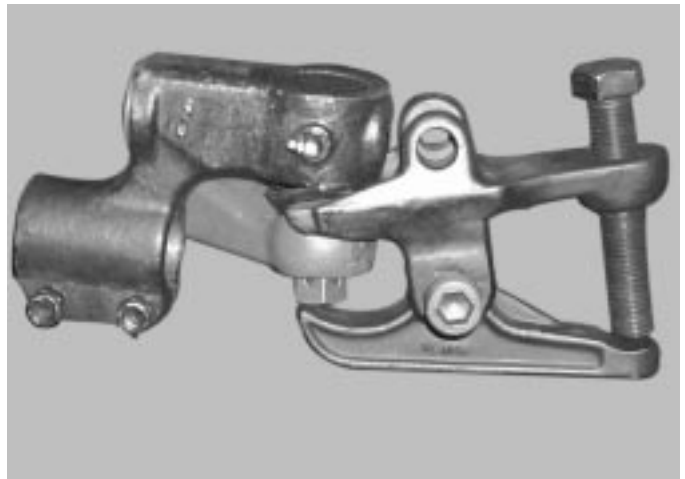
THE FOLLOWING PROCEDURES DETAIL THE STRIPDOWN AND REBUILDING OF A DROP SOCKET ASSEMBLY. PROCEDURE FOR STRAIGHT SOCKET ASSEMBLY IS SAME AS FOR DROP SOCKET EXCEPT FOR THE REMOVAL OF PLASTIC PLUG (ITEM 18)

- 1) Remove split pin (item 1) from Pin Nut (item 2).
- 2) Using a 1 1/8" A/F Socket, unscrew and remove Pin Nut (item 2) also remove Pin Washer (item 3).
- 3) Refit Pin Nut (item 2) slotted side up. Leave a gap of approximately 3 mm between nut and steering lever.
(This serves to prevent the socket assembly from coming completely off the steering lever when disassembling.)
- 4) Using a suitable ball pin extractor tool, separate ball pin from steering lever taper.



**NOTE:-
WHEN SEPARATING BALL JOINTS FROM STEERING LEVERS, NEVER STRIKE AREAS AROUND BALL PIN TAPERS WITH A HAMMER, DUE TO POSSIBLE DEFORMATION OF BALL PIN TAPER.**

- 5) Remove ball socket Tie Rod assembly from steering lever.



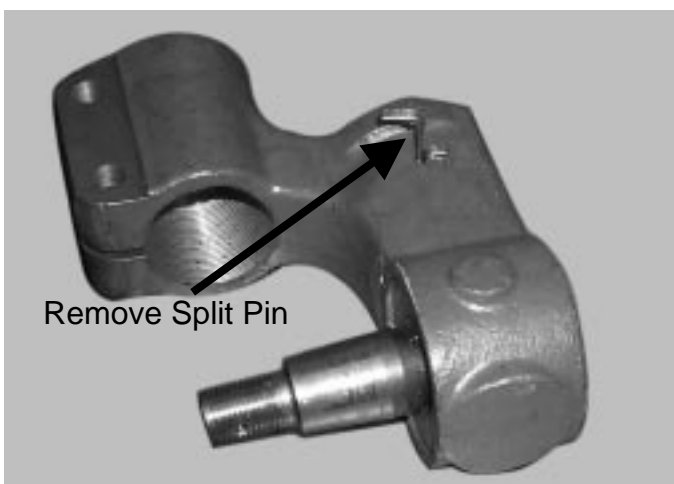
SEQUENCE OF OPERATIONS FOR THE DISASSEMBLY OF DROP BALL SOCKET CONTINUED.

- 6) Remove the Dirt Seal (item 4) also the dirt seal (pressing) (item 5) from the Ball Pin.
- 7) Using an $1\frac{11}{16}$ " A/F Socket, slacken pinch bolt nuts (item 11). Unscrew and remove the ball socket assembly from the Tie Rod . (having first marked the Ball Socket Body and Tie Rod to enable tracking on reassembly).
- 8) Prise out and remove plastic plug (item 18)



NOTE:- THIS ITEM IS FITTED ON DROP TYPE SOCKETS ONLY

- 9) Remove the adjuster Split Pin (item 12) from the Ball Socket Body (item 7).



SEQUENCE OF OPERATIONS FOR THE DISASSEMBLY OF DROP BALL SOCKET CONTINUED.

- 10) Using suitable tool, eg: a piece of 1" x 1/8" x 9" flatbar, unscrew and remove Adjuster Piece (item17). Waggle Ball Pin (item 8) to free Thrust Cup (item 15). Remove the compression spring (item16) also the Thrust Cup (item 15) from the Ball Socket Body.

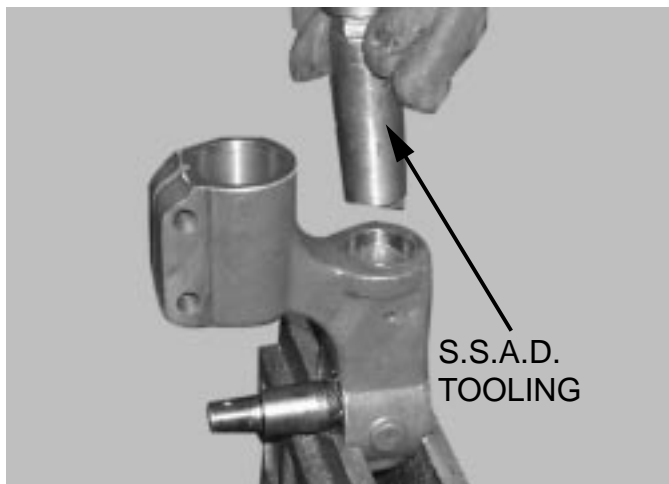


**NOTE:-
AT S.S.A.D. SPECIAL TOOLING FOR USE WITH AIR DRIVE WRENCHES IS USED (AS SHOWN)**

- 11) Check condition of Thrust Cup and replace if required.
- 12) Using a Hammer, gently tap the Ball Pin (item 8) out of the body. This operation will also remove the Cover Plate (item 9) from the body (item 7). Inspect Ball Pin for wear and replace if required.



**NOTE:-
TAKE CARE NOT TO DAMAGE THREADS.**

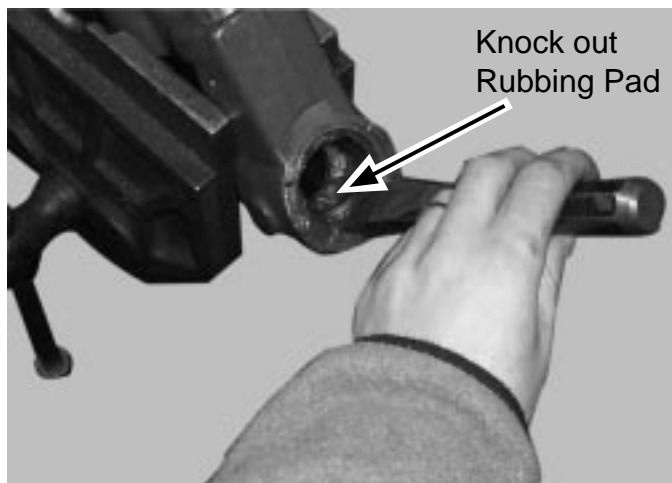
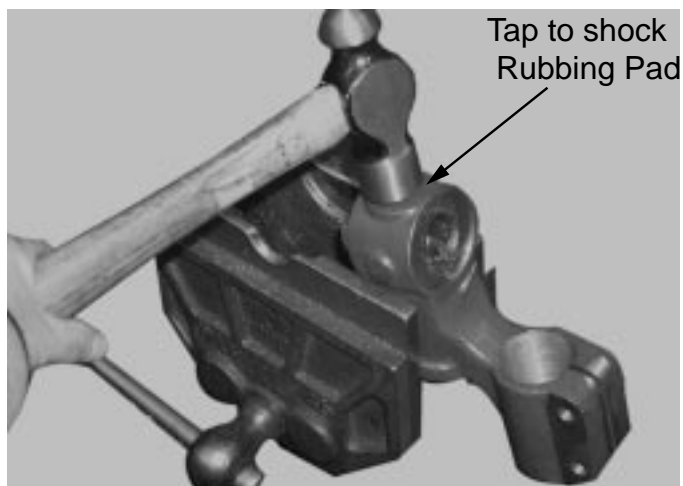


SEQUENCE OF OPERATIONS FOR THE DISASSEMBLY OF DROP BALL SOCKET CONTINUED.

- 13) The Rubbing Pad (item 14) can now be removed from the Ball Socket (item 7). Thoroughly clean all parts and check for wear, renewing where necessary.



**NOTE:-
WORN PARTS MUST BE REPLACED.
IF NOT FAILURE IN SERVICE CAN
OCCUR. IE; BALL PIN NOT BEING
ABLE TO MOVE IN ASSEMBLY WHEN
TURNING FROM LOCK TO LOCK.**



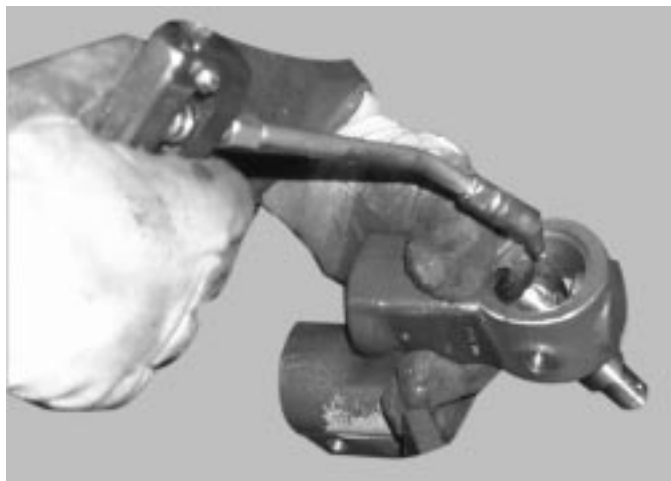
SEQUENCE OF OPERATIONS FOR REASSEMBLING STRAIGHT BALL SOCKET.

- 1) Using a scraping tool , clean the peened areas on the Ball Socket Body to enable the cover plate (item 9) to be fitted.
- 2) Clean Rubbing Pad.
- 3) Apply a bed of Locktite 638 to new Rubbing Pad and insert into recess
- 4) Knock the rubbing pad (item 14) into recess in the Ball Socket Body (item 7).



**NOTE:-
WIPE OFF EXCESS LOCKTITE.**

- 5) Insert Ball Pin (item 8) into Body. Thoroughly grease the Rubbing Pad (item 14) and Ball Pin (item 8) with Shell Retinax A or equivalent.
- 6) Insert new Thrust Cup (item 15) and Compression Spring (item 16) and Adjuster Piece (item 17) into Body.



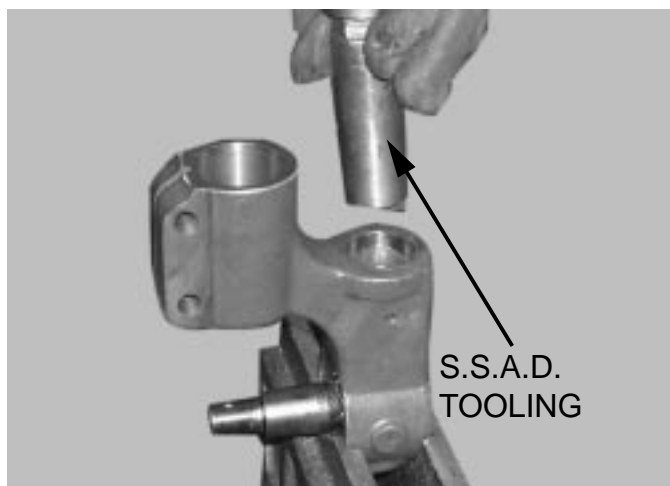
**SEQUENCE OF OPERATIONS FOR
REASSEMBLING DROP BALL SOCKET
CONTINUED.**

- 7) Using suitable tool
e.g: a piece of 1" x $\frac{1}{8}$ " x 9" flat bar, tighten
the Adjuster Piece (item 17) fully
home (**SOLID**) locating the Thrust Cup
(item 15) onto the Ball Pin (item 8).



**NOTE:-
AT S.S.A.D. SPECIAL TOOLING FOR
USE WITH AIR DRIVE WRENCHES IS
USED (AS SHOWN)**

- 8) Still with the tool located on the Adjuster
Piece (item 17). Back off carefully
(**LEAST AMOUNT**) until the Adjuster Piece
Split Pin (item 12) is allowed to pass
through the body, and that the ball pin
shank can be moved by force of Hand.
Then remove the Tool.
- 9) Fit cover plate (item 9) into top of ball
socket body, re - peen, using a cold chisel
to secure.



SEQUENCE OF OPERATIONS FOR REASSEMBLING DROP BALL SOCKET CONTINUED.

- 10) Screw Assembled Ball socket onto the Tie Rod. Lining up marks on body and Tie Rod previously made, or re tracked using Manual Instructions.
- 11) Using an 1 1/16" A/F socket, tighten the Pinch Bolt Nut (item 11) to secure the Ball Joint to the Tie Rod.
- 12) Fit Split Pin (item 10) to Lock Bolt Nut (item 11).
- 13) Fit Plastic Plug(item 18), Dirt Seal (pressing) (item5) and Dirt Seal (Rubber) (item 4) onto Ball Pin (item8).



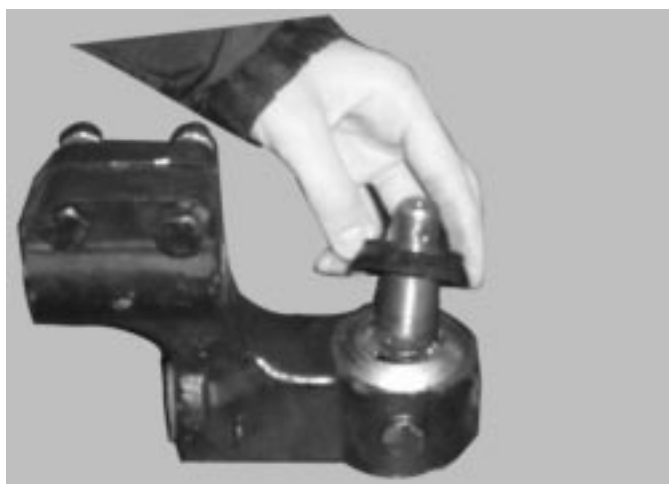
**NOTE:-
PLASTIC PLUG ONLY FITTED ON DROP SOCKET.**

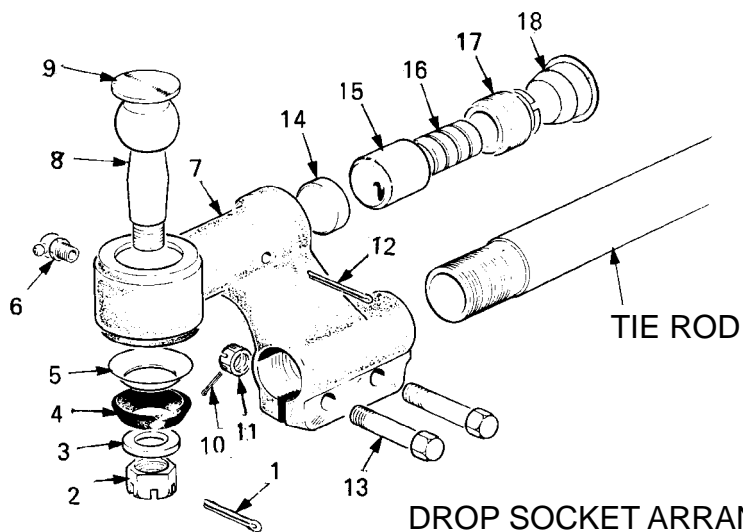
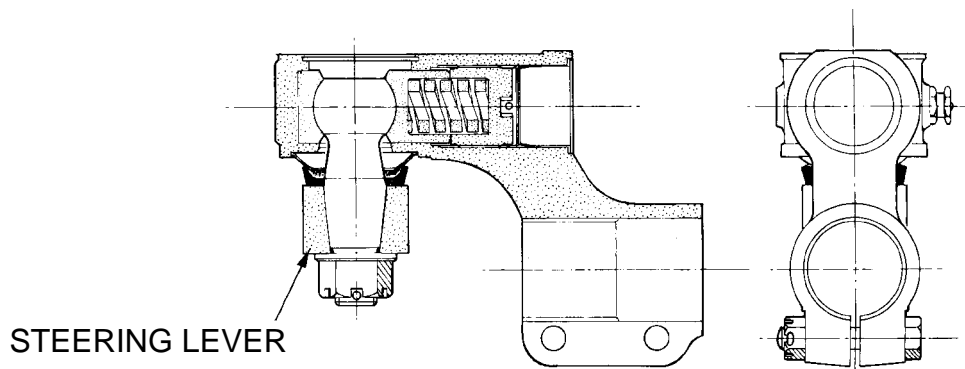
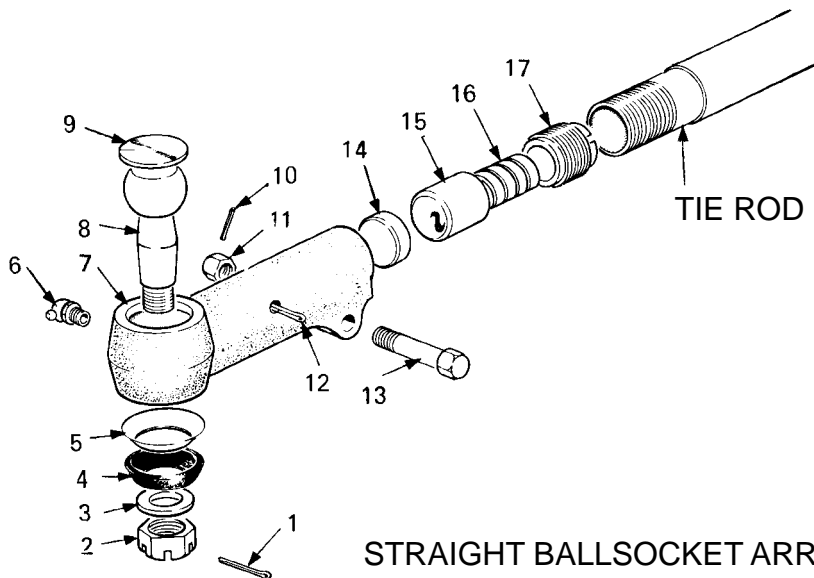
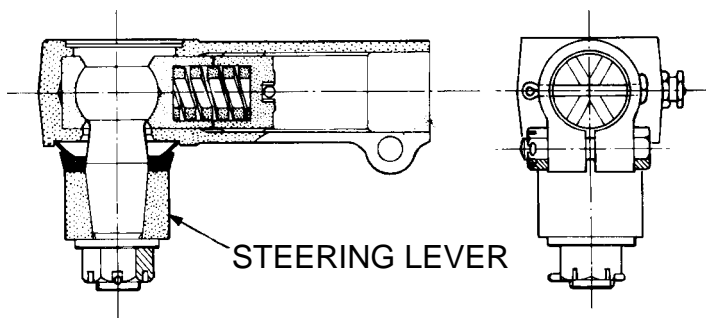
- 14) Locate Ball Socket and Tie Rod Assembly with Steering Lever, carefully align and fit Ball Pin (item 8) into hole in the Steering Lever.
- 15) Fit Pin Washer (item 3) onto Ball Pin (item 8).
- 16) Screw Pin Nut (item 2) onto Ball Pin (item 8) using a 1 1/8" A/F socket. Tighten to 100lbs ft torque.
- 17) Using a 2lb Hammer, tap the Steering Lever to 'Shock' the Ball Pin (item 8) into the taper hole.



**NOTE:-
WHEN SHOCKING BALL PIN INTO THE TAPER HOLE ; GENTLY TAP STEERING LEVER . OTHERWISE DEFORMATION OF THE BALL PIN TAPER COULD OCCUR.**

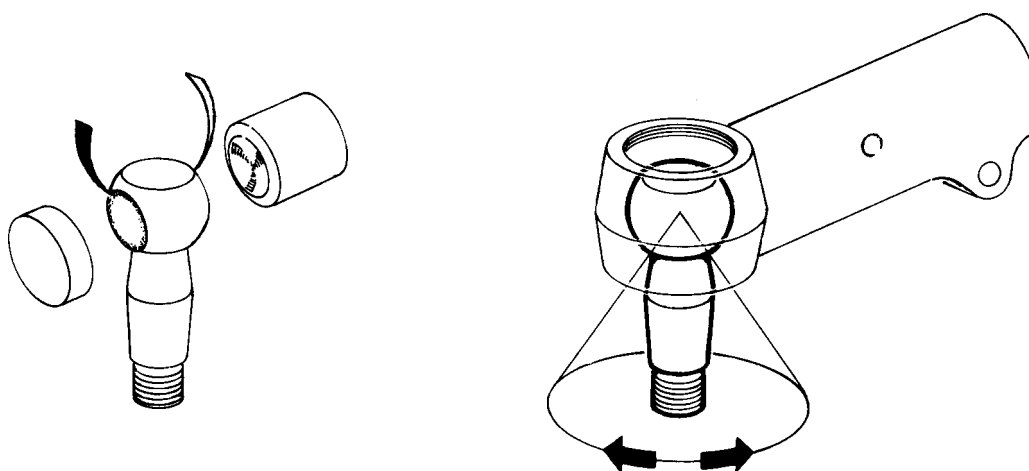
- 18) Re - torque the Pin Nut (item 2) to 100lbs ft.
- 19) Fit the Split Pin (item 1), if slot/hole are not in line adjust up to next slot. Max Pin Nut torque .0170lbs ft. Min Pin Nut torque 100lbs ft.
- 20) Re-charge the Ball Socket with Shell Retinax A or equivalent Grease.





IMPORTANT

If original Pall Pin (item 8) is refitted but does not rotate when re-adjusted in line with Service Manual Instructions, this suggests that the Ball Pin has local worn flats as shown on Fig. 1. In this instance Ball Pin (item 8), Thrust Cup (item 15) and rubbing pad (item 14) MUST be replaced, if not FAILURE could occur in service, ie, Ball Pin (item 8) not being able to move in Assembly when turning from Lock to Lock as shown in Fig. 2.



APPLICATION POLICY

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