

# PARTS & SERVICE NEWS

REF NO.	AA97018
DATE	March 17, 1997

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**SUBJECT:** INCREASE STRENGTH OF DRAWBAR BALL JOINT

**PURPOSE:** To improve reliability of the drawbar ball joint, field kits are now available to replace the drawbar ball on the graders listed below.

**APPLICATION:**

A400E Graders, All S/N's	A560E Graders, All S/N's
T400A Graders, All S/N's	S560E Graders, All S/N's
A450E Graders, All S/N's	A566E Graders, All S/N's
S450E Graders, All S/N's	A600 Graders, All S/N's
A500 Graders, All S/N's	T600 Graders, All S/N's
A500E Graders, All S/N's	T600B Graders, All S/N's
S500E Graders, All S/N's	T600C Graders, All S/N's
T500 Graders, All S/N's	A606 Graders, All S/N's
T500A Graders, All S/N's	
T500C Graders, All S/N's	830 Graders S/N thru 202988
T500L Graders, All S/N's	950 Graders S/N thru 202988
T500M Graders, All S/N's	970 Grader S/N thru 202988
A525 Graders, All S/N's	GD530/AW Graders S/N thru 202988
A550 Graders, All S/N's	GD650/AW Graders S/N thru 202988
A556 Graders, All S/N's	GD670/AW Graders S/N thru 202988

**DESCRIPTION:**

**Introduction:**

This **PARTS & SERVICE NEWS** presents the proper procedure for removing and installing the improved drawbar end weldment and ball.

Part Number	Engineering Installation Drawing	Application
1432 770 H91	(DEG-2013\46)	Drawbar Ball Kit for Graders Up thru S/N 200345
1437 847 H91	(DEG-20146)	Drawbar Ball Kit for Graders S/N 200345 thru 202988

After completion of this drawbar modification, the customer will have a current style production drawbar with current parts availability.

**Contents of 1433 770 H91 Drawbar Ball Field Kit**  
Serial Number up thru 200345

PART NUMBER	DESCRIPTION	QTY/REF.
1436 151 H91	End Weldment, Drawbar	1
140 188	Cap, Ball	1
1430 119 H91	Ball	1
25 558 R1	Washer, Flat - 1-1/4	2
26 009 R1	Nut, Hex - 1-1/4-12	1
25 862 R1	Washer, Flat - 1-1/8	1
140 244	Nut, Hex - 1-1/8-12	1
140 480	Shim	16
DEG-20146	Reference Print	1

*See Page 3 for Installation Instructions*

**Contents of 1437 847 H91 Drawbar Ball Field Kit**  
S/N 200346 thru 202988

PART NUMBER	DESCRIPTION	QTY/ REF.
1436 884 H91	End Weldment, Drawbar	1
1430 119 H91	Ball	1
25 558 R1	Washer, Flat 1-1/4	2
26 009 R1	Nut, Hex 1-1/4-12	1
25 862 R1	Washer, Flat 1-1/8	1
140 255	Nut, Hex 1-1/8-12	1
140 480	Shim	16
DEG-20146	Reference print	1

*See Page 5 for Installation Instructions*

## INSTRUCTIONS FOR GRADERS UP THRU SERIAL NUMBER 200345



**DRAWBAR AND CIRCLE MUST BE PROPERLY SUPPORTED DURING DISASSEMBLY AND REASSEMBLY**

1. Carbon arc old style ball stud weldment from drawbar at A-A, Figure 1.
2. Clean up drawbar end to appear as shown at view B.

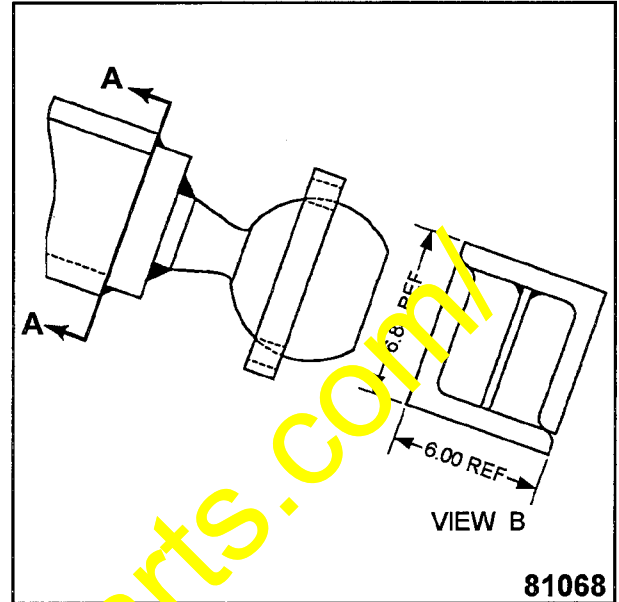


Figure 1

3. Locate new style end weldment (1) to drawbar per dimensions in Figure 2.
4. Protect tapered pin (2) from weld spatter and weld end weldment to drawbar per weld symbols shown in Figure 2.
5. It is very important that the tapered pin and tapered bore in the ball are absolutely free of any grit, dirt, grease, or paint at time of assembly.

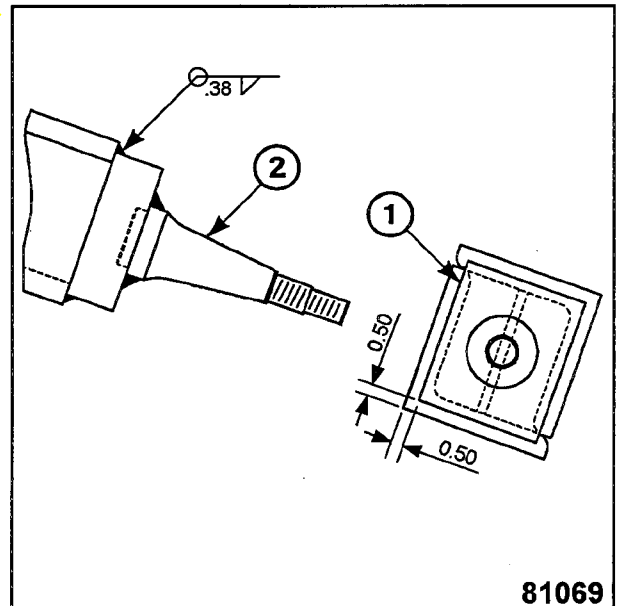


Figure 2

6. Place new 140 188 ball cap (1) on pin (2); install 1430 119 H91 ball (3) with one 25 558 R1 washer (4), and 26 009 R1 hex nut (5). Tighten to 1300 lbf ft.
7. To secure the ball to the tapered pin, place the other washer (4) and 25 862 R1 washer (6) on top of installed nut, apply Loctite 242 to 140 255 hex nut (7) and tighten to 624 lbf ft.

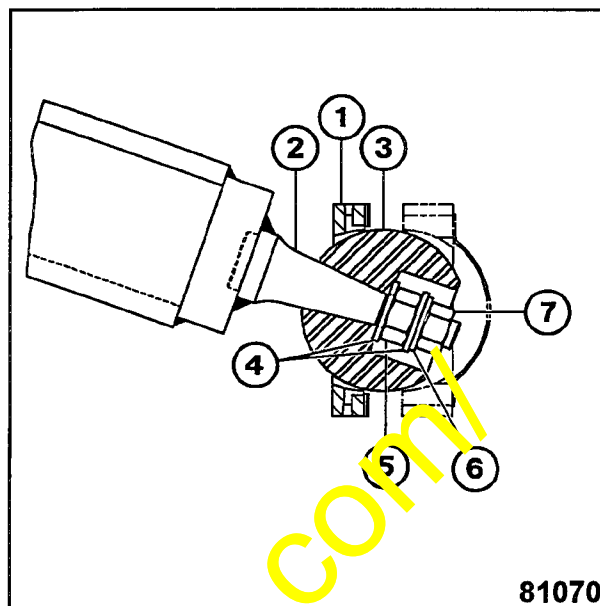


Figure 3

8. The ball socket in the frame must be cleaned and inspected for wear or damage before installing the drawbar ball back into the frame.
9. Grind ball socket corner to have a .093 radius at (A) in Figure 4. File or grind to eliminate all sharp edges. This socket must be free of grit, dirt, old grease or paint.

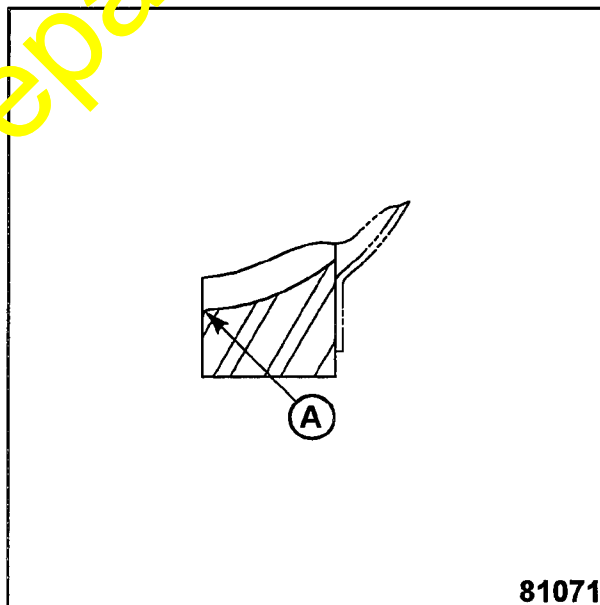


Figure 4

10. Apply extra pressure lithium grease 3% Molybdenum Disulfide (Komatsu America Super Grease) to ball and socket before assembly of drawbar back into frame.
11. The ball and socket must be shimmed for a loose fit. Use 140 480 shims (1) as required to obtain a clearance of .003/.037. Use the same number of shims in top as in bottom, so cap is parallel to the socket face.
12. Install bolts (2) and washers (3). Tighten to 515 lbf ft.

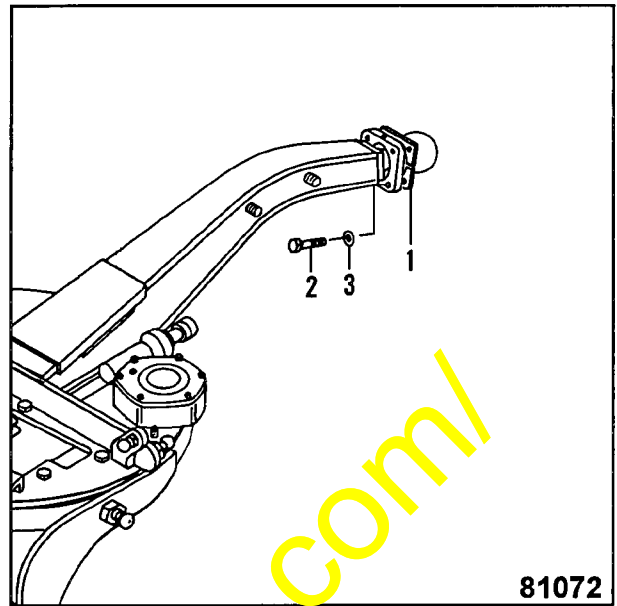


Figure 5

## INSTRUCTIONS FOR GRADERS SERIAL NUMBER 200346 THRU 202988



### DRAWBAR AND CIRCLE MUST BE PROPERLY SUPPORTED DURING DISASSEMBLY AND REASSEMBLY.

1. Carbon arc old style ball stud weldment from drawbar at A-A, Figure 6.
2. Clean up drawbar end to appear as shown at view B.

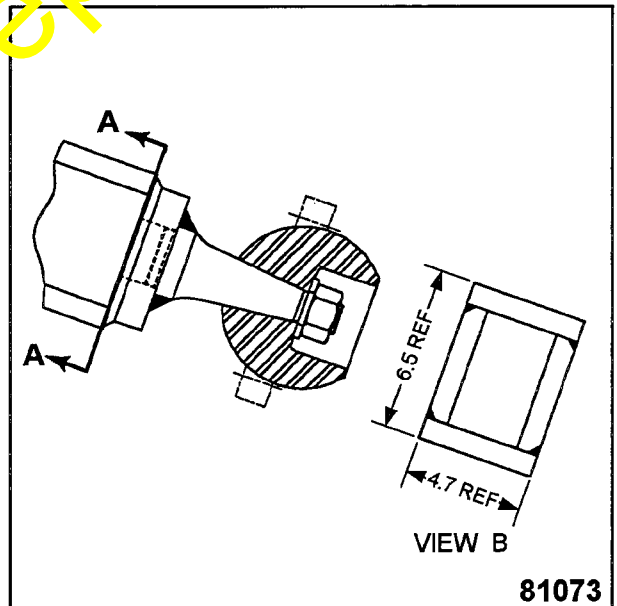


Figure 6

3. Locate new style end weldment (1) to drawbar per dimensions in Figure 7.
4. Protect tapered pin (2) from weld spatter and weld end weldment to drawbar per weld symbols shown in Figure 7.
5. It is very important that the tapered pin and tapered bore in the ball are absolutely free of any grit, dirt, grease or paint at time of assembly.

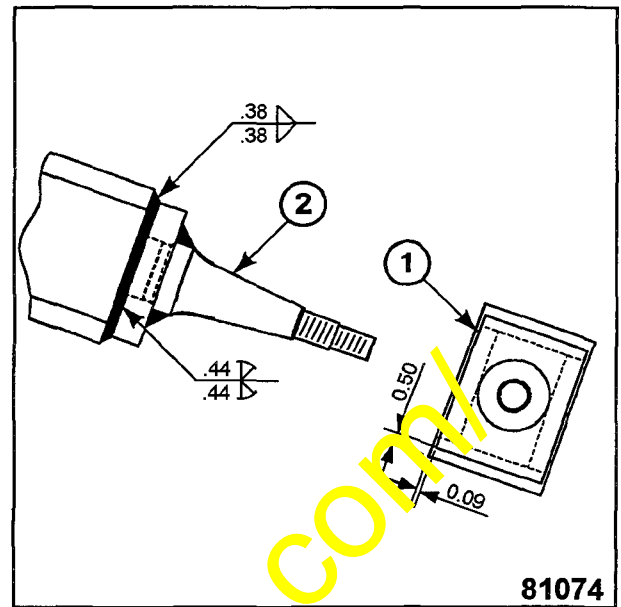


Figure 7

6. Check ball cap for existing groove from the shim pack side of the ball cap to the grease hole (A) Figure 8. If groove is none existent, ball cap can be reworked per instructions in **PARTS & SERVICE NEW AA97017.**

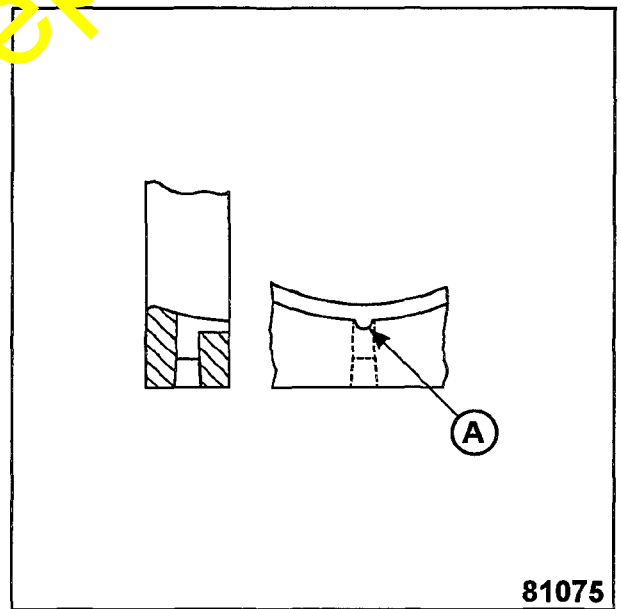


Figure 8

7. Place ball cap (1) on pin (2); install 1430 119 H91 ball (3) with one 25 558 R1 washer (4), and 26 009 R1 hex nut (5). Tighten to 1300 lbf ft.
8. To secure the ball to the tapered pin, place the other washer (4) and 25 862 R1 washer (6) on top of installed nut, apply Loctite 242 to 140 255 hex nut (7) and tighten to 625 lbf ft.

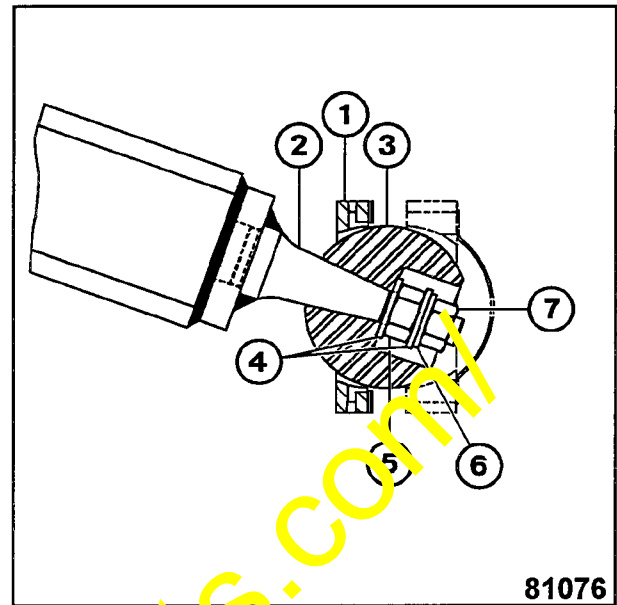


Figure 9

9. The ball socket in the frame must be cleaned and inspected for wear or damage before installing the drawbar ball back into the frame.
10. Grind ball socket corner to have a .093 radius at (A) in Figure 4. File or grind to eliminate all sharp edges. This socket must be free of grime, dirt, old grease or paint.

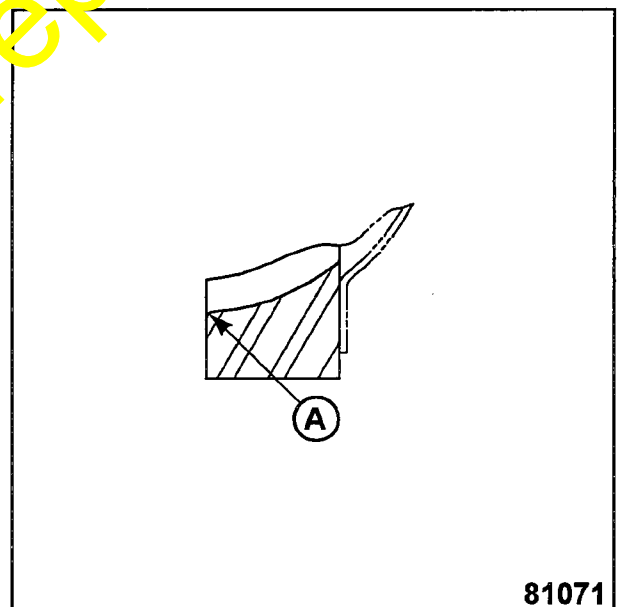


Figure 10

11. Apply extra pressure lithium grease 3% Molybdenum Disulfide (Komatsu America Super Grease) to ball and socket before assembly of drawbar back into frame.
12. The ball and socket must be shimmed for a loose fit. Use 140 480 shims (1) as required to obtain a clearance of .003/.037. Use the same number of shims in top as in bottom, so cap is parallel to the socket face.
13. Install bolts (2) and washers (3). Tighten to 515 lbf ft.

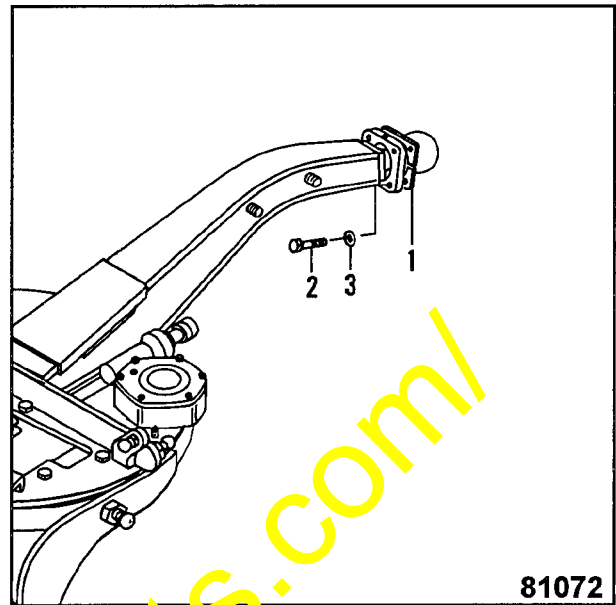


Figure 11

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