27–HDP ROLLER KELLY BUSHING

(Pre–GBX–6Z)

OPERATION MANUAL

27–HDP–SM

STANDARD:Q/320623AD07

7K–0048

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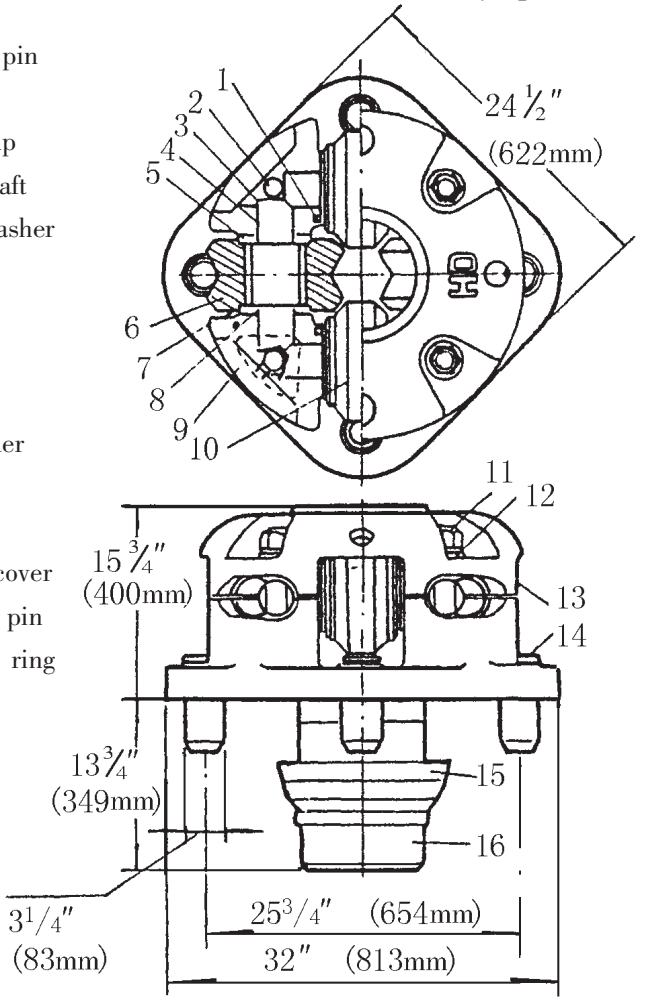
I . Introduction

Roller Kelly Bushing is a necessary tool for drilling. It matches with master bushing to drive kelly pipe. When kelly pipe is drilling in, the rollers of the bushing favour the motion of kelly pipe and keep it concentric with well hole.

Chart one is 27–HDP type roller kelly bushing. It is designed for the most rugged, high torque, high speed drilling conditions. Its roller assembly provides an efficient driving mechanism that maintains good driving edges on the kelly and in condition of certain velocity, and drill pipe couldn´t bend.

27–HDP roller bushing fits for $27^1/_2''$ and $37^1/_2''$ rotary table. Roller bushing has four pins of $3^1/_4''$ (83mm) diameter, with central distance $25^3/_4''$ (654mm). The pins match with 3″ ~6″ square and hexagonal drill pipe. By changing the size of roller, the bushing can be used to kinds of kelly.

1. location pin
2. bolts
3. grease cup
4. roller shaft
5. thrust washer
6. V–roller
7. bearing
8. O–ring
9. pin
10. flat roller
11. nut
12. washer
13. upper cover
14. driving pin
15. floating ring
16. seleeve



Technical specifications:

Applicable kelly size: 3″, $3^1/_2''$, $4^1/_4''$, $5^1/_4''$, 6″

Max. torque: 32365N·m(23870 ft.lbf)

Overall dimensions: $24^3/_4 \times 24^3/_4 \times 30^1/_8$in
(630×630×765mm)

Weight: 730kg (1609 lb)

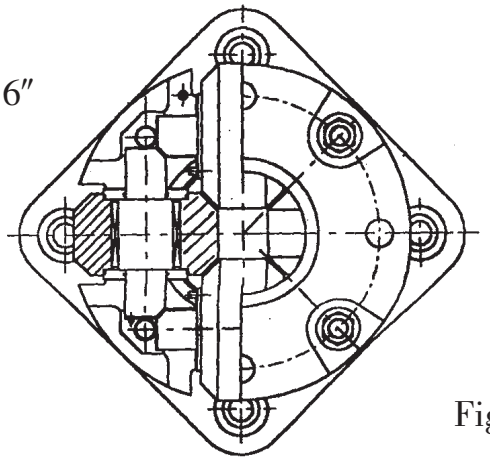


Fig.1

Ⅱ. Installation

1. Liffing bushing and putting it into master bushing.
2. Screwing off four nuts and washers.
3. Taking out the upper cover along the bolts.
4. Taking out four rollers from the lower body of bushing.
5. Connecting the upper cover with lower body roughly.

Note: Locating pin for thrust ring should align with bushing center, and be in the groove of lower part.

6. Putting the kelly into bushing.
7. Lifting the upper cover and installing roller parts.
8. Laying down the upper cover and making the location pin align to center.
9. Installing washers and nuts.
10. Before being used, adding grease to rollers

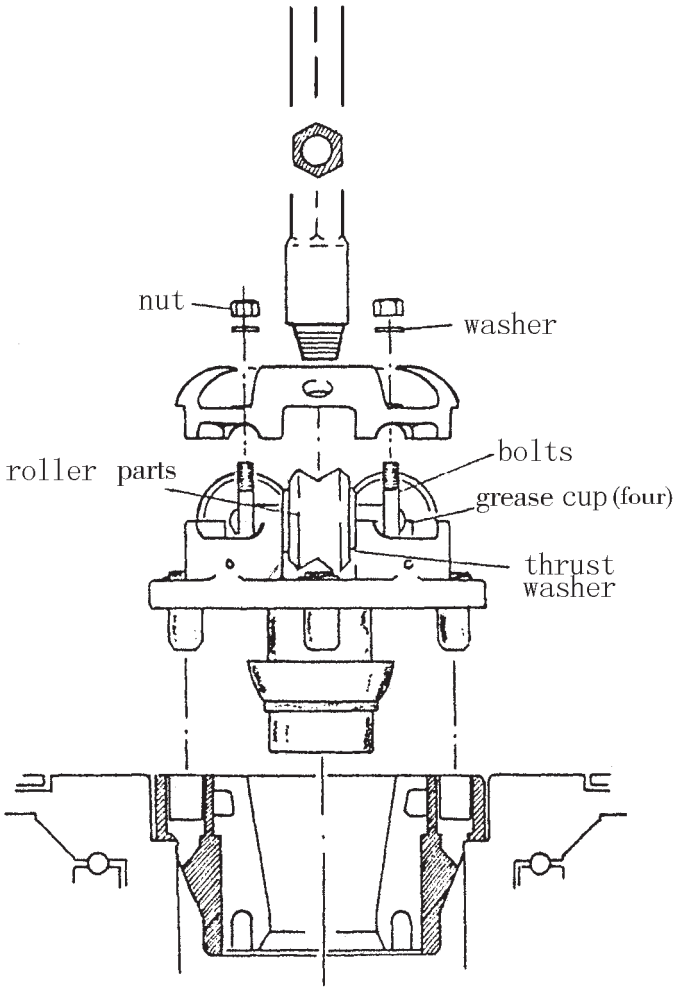


Fig.2

Ⅲ. Operation

1. Putting the roller kelly bushing into master bushing. Its sleeve enters into the bushing along the cone. The surfaces of sleeve is coated with grease to make the floating ring slide better.

2. When lowering the roller bushing, the rotary table should rotate slowly, and the roller bushing will auto-align to the center, and the driving pin will fall into the driving hole.

3. You must be careful to prevent the kelly from bumping any rollers, and sudden stopping would damage the roller parts.

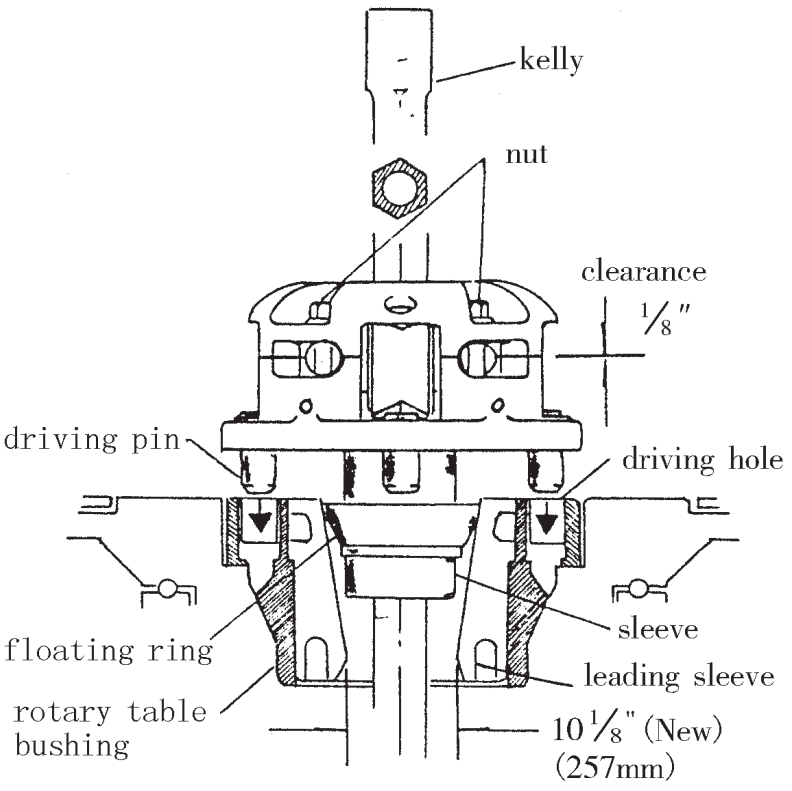


Fig.3

4. Using the rubber mud board, the lifespan of the kelly and roller bushing parts would extend by 20 percent; the board can prevent the dirt from entering the clearance between the kelly and roller bushing.

Ⅳ. Maintenance

1. Checking up the bolts once every week.

2. Adding No.3 calcium-base grease (GB491-87) to rollers every day.

3. Lubricating the lower sleeve to make it slide esily.

4. Inspecting the clearance doesn't exceed 1/8"(3.2mm). If not, it could make roller group wear fastly.

5. Checking the wearing of rollers. The max. wearing of hexagonal kelly is $^1/_{16}$"(1.6mm) and for square kelly, it is $^1/_8$"(3.2mm).

6. The clearance of the upper and lower body is $^1/_8$"(3.2mm). For checking the wearness of rollers, pry rollers up with a bar, and the shifting distance of rollers should not be over $^1/_{32}$" (0.8mm).

V. Spares List (Recommended)

No.	Part No.	Name	Qty	Remark
1	09–04B(a)	4$^1/_4$" Square Flat–Roller	4	
2	09–04B(b)	5$^1/_4$" Square Flat–Roller	4	
3	09–04B(c)	3$^1/_2$" Square Flat–Roller	4	
4	09–04B(d)	6" Square Flat–Roller	4	
5	09–04ZB(a)	4$^1/_4$" Hexagonal Flat–Roller	2	
6	09–04ZB(b)	5$^1/_4$" Hexagonal Flat–Roller	2	
7	09–04ZB(c)	3$^1/_2$" Hexagonal Flat–Roller	2	
8	09–04ZB(d)	3" Hexagonal Flat–Roller	2	
9	09–04ZB(e)	6" Hexagonal Flat–Roller	2	
10	09–06ZB(a)	4$^1/_4$" V Roller	2	
11	09–06ZB(b)	5$^1/_4$" V Roller	2	
12	09–06ZB(c)	3$^1/_2$" V Roller	2	
13	09–06ZB(d)	3" V Roller	2	
14	09–06ZB(e)	6" V Roller	2	
15	09–09A	Square Rubber Mud Board 3$^1/_2$"、4$^1/_4$"、5$^1/_4$"、6"	1	
16	09–09Z	Hexagonal Rubber Mud Board 3"、3$^1/_2$"、4$^1/_4$"、5$^1/_4$"、6"	1	
17	Q/Z1–66	Bearing 64920–1	4	
18	JB/ZQ4224–97	O Ring 150×3.1	8	
19	GB3452.1–92	O Ring 73×3.55	8	