



USN 500 & 600 Series Adapter Mount and 200 & 300 Series Direct Mount Plummer Blocks Instruction Manual

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see dodgeindustrial.com for updated instruction manuals.

WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for these products.

GENERAL INFORMATION

Dodge USN bearings conform with all appropriate ISO standards. They are available in either adapter or direct mounting styles for 40 mm to 160 mm diameter shafts. A wide variety of seals are available including standard metallic LER, TRIPLE-TECT™ non-metallic seal with V-ring, Drop-In TRIPLE-TECT seal with neoprene V-ring, Auxiliary Taconite or Split non-metallic. TRIPLE-TECT seal is provided as standard on complete assemblies. Dodge USN housings provide maximum application flexibility. Cast-in dimples allow for easy field modification for vents, lube ports and sensors. Oversized drains and an oil equalization hole make USN bearings ready for circulating oil systems off-the-shelf. For hostile environments, USN offers optional cast closed end housings, stainless steel hardware kits, and nickel or nylon coating. Complete installation, maintenance and modification instructions are provided in this manual.

INSPECTION

Inspect shaft—Ensure that the shaft is smooth, straight, clean, and within commercial tolerances.

Inspect bearing—Do not allow bearing to be exposed to any dirt or moisture. Do not remove preservative compound as it acts as both a protectant and lubricant and is also compatible with standard greases.

Note: Housing caps and bases are not interchangeable. They must be matched with mating half. Install non-expansion bearing first.

Note: For seal types other than TRIPLE-TECT such as drop-in TRIPLE-TECT, LER, auxiliary seals and split seals follow instructions supplied with the seals.

Note: For an explanation of the various dimples and tapped holes found on the USN housings, see Table 11.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Dodge® nor are the responsibility of Dodge. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

INSTALLATION

USN 500 & 600 Series Adapter Mount

1. Apply a coating of light oil or other rust inhibitor to the adapter area of the shaft.
2. Measure the internal clearance of the bearing before mounting. Place the bearing in an upright position as shown in Figure 1. Seat the inner ring and roller elements by pressing down firmly on the inner ring bore while rotating the inner ring a few times. Position the roller assemblies so that a roller is at the top most position on either side. For bore sizes above 135 mm only, press these top rollers inward ensuring contact with the center guide ring. Using a feeler gauge measure the clearance for each side by inserting as far as possible and sliding over top of roller (Figure 1). Write down the measured clearance for use in Step 3e.

Note: Do not rotate bearing when moving feeler between roller and outer ring.

3. Install the bearing parts in the following sequence. (Refer to parts drawing)
 - a. **V-ring Seal**—Slide one of the V-ring seals onto the shaft, making sure lip is toward the bearing.
 - Note: Do not install V-ring seal on seal ring until housing cap has been set in place and tightened.**
 - b. **Seal Ring**—Install a seal ring on shaft with largest O.D. toward bearing.
 - c. **Adapter Sleeve**—Slide adapter sleeve onto the shaft, threaded end outboard to the approximate location of the bearing. Apply light coating of oil to sleeve O.D. Do Not Use Grease.
 - d. **Bearing**—Make sure that the internal clearance has been written down. Install bearing on adapter sleeve, large end of tapered bore first. Locate bearing in proper position on shaft.

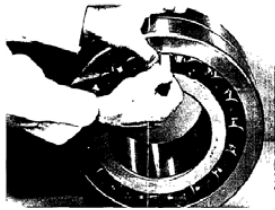


Figure 1 - Internal Clearance

- e. **Lockwasher and Locknut**—Install the lockwasher on the adapter sleeve with inner prong located in the slot of the sleeve and pointing towards the bearing. Install locknut, chamfered face toward bearing as

Tighten locknut using a spanner wrench and hammer until clearance noted in Step 2 is reduced by amount shown in Table 1. During this step shaft should be supported so all weight is off the bearing.

Table 1 - Adapter Mount Bearings Only

Shaft Diameter, (mm)	Reduction in Internal Clearance* (mm)
35, 40	.020 - .025
45, 50	.025 - .030
55, 60, 65	.030 - .038
70, 75, 80	.038 - .051
85, 90, 100	.046 - .064
110, 115, 120	.051 - .066
125, 130, 135, 140	.064 - .089

* Amount of clearance to be removed from clearance measured in Step 2.

Now find a lockwasher tab that aligns with a locknut slot and bend tab into slot. If slot is past tab then tighten, not loosen, locknut to meet a washer tab.

Steps f and g are not necessary if pillow block housing is a cast closed end style.

- f. **Seal Ring**—Install second seal ring with large O.D. toward locknut.
 - g. **V-ring Seal**—Slide second V-ring seal onto the shaft, making certain lip is toward bearing. Do not install V-ring seal on seal ring until housing cap has been set in place and tightened. For assistance in installing seals, use instructions supplied with the seals.
4. Remove any paint, dirt or burrs from the mating surfaces of the housing halves. Thoroughly clean seal grooves on both sides. Set lower half of housing on base and apply oil to the bearing seats.
 5. Apply grease to the bearing and seal rings. The lubricant should be smeared between the rolling elements (see Grease Lubrication section). This step and the first sentence of Step 9 do not apply for oil-lubricated bearings.
 6. Place shaft with bearing into lower half while carefully guiding the seal rings into the housing grooves.
 7. Bolt lower half of the non-expansion bearing to the base. Move shaft endwise so that spacer ring can be inserted as shown on Figure 4. Center all other bearings on same shaft in their housing seats. Note: Only one bearing per shaft is non-expansion, other bearings should be expansion.
 8. When closed end is required and the block is not a cast closed, an optional end plug may be fit into the center seal ring groove of the housing. Shaft extension should not be beyond adapter end to ensure no rubbing with end plug or housing on cast closed end.
 9. Grease the bearing seal grooves in the housing cap and place over the bearing after wiping the mating surfaces (does not apply for oil-lubricated bearings). The two dowel pins will align the cap with the lower housing half. Note: Each cap must be matched with its mating lower half, as these parts are not interchangeable. Cap and base have serial number stamped at joint. The serial numbers should line up for proper match. If the blocks are mounted other than in the horizontal position, a sealer must be applied at the cap and base mating surfaces.
 10. Tighten cap bolts to the recommended torque shown on Table 2.
 11. Assure that there is running clearance at seal rings, then install V-ring onto the seal rings as shown on Figure 4. Coat V-ring seal with grease to protect against ozone attack.
 12. Misalignment of plummer blocks must not exceed $\pm 1/2^\circ$ (one-half degree).

Table 2 - Recommended Torque Value

Bolt Size, mm	10	12	16	20	24
Grade 8.8	47-51	81-89	203-215	415-420	720-725
Stainless Steel A2/A4 Class 70	24	40	110	170	—

INSTALLATION

USN 200 & 300 Series Direct Mount

1. Measure the internal clearance of the bearing before mounting. Place the bearing in an upright position as shown in Figure 1. Seat the inner ring and roller elements by pressing down firmly on the inner ring bore while rotating the inner ring a few times. Position the roller assemblies so that a roller is at the top most position on either side. Using a feeler gauge measure the clearance for each side by inserting as far as possible and sliding over top of roller (Figure 1). Write down the measured clearance and compare with specifications Table 3. Note: Do not rotate bearing when moving feeler between roller and outer ring.

Note: For cylindrical bore direct mount bearings, it is not necessary to check internal clearance after mounting. It is, however, important to verify the shaft diameters (Tables 4, 5, and 6) and to measure the unmounted internal clearance to ensure conformance to specifications (Table 3).

2. Install the bearing parts in the following sequence (refer to parts drawing):
 - a. **V-ring Seal**—Slide one of the V-ring seals onto the shaft, making sure lip is toward the bearing.
Note: Do not install V-ring seal on seal ring until housing cap has been set in place and tightened.
 - b. **Seal Ring**—Install a seal ring on shaft with largest O.D. toward bearing.
 - c. **Bearing**—Install bearing. Bearings with cylindrical bore up to 70 mm may be cold mounted on the shaft. Apply coat of light oil to the shaft and bearing bore, then press on the bearing by mechanical or hydraulic device or use the mounting nut to drive the bearing onto the shaft. Bearings with cylindrical bore above 70 mm are heated for mounting on shaft. Bearings, heated in oil between 93°C and 102°C, should have the bore wiped dry with a clean cloth and while bearings are still in a heated condition, they should be rapidly pushed on the shaft and positioned squarely against the shoulder. A slight twisting motion during fitting facilitates the mounting. Large bearings are generally handled with a hoist or crane.

The use of proper safety equipment including heat resistant gloves is required for all steps.

Table 3 - Radial Clearance of 222 Series Spherical Roller Bearings (Straight Bore)

Basic Bearing No.	C3 Radial Clearance (mm)	
	Min.	Max.
22209	.055	.075
22210	.055	.075
22211	.065	.090
22212	.065	.090
22213	.065	.090
22214	.080	.110
22215	.080	.110
22216	.080	.110
22217	.100	.135
22218	.100	.135
22219	.100	.135
22220	.100	.135
22222	.120	.160
22224	.120	.160
22226	.145	.190
22228	.145	.190
22230	.170	.220
22232	.170	.220

**Table 4 - Shaft Diameters For Cylindrical Bore Mount
Plummer Blocks (See Figure 2)**

Bearing Bore (mm)			Normal Load			High Load		
			Shaft Diameter (mm)		Mean	Shaft Diameter (mm)		Mean (mm)
Nom.	Max.	Min.	Max.	Min.	Fit	Max.	Min.	Fit
40	40.000	39.988	40.025	40.009	.023	40.033	40.017	.031
45	45.000	44.988	45.025	45.009	.023	45.033	45.017	.031
50	50.000	49.988	49.025	49.009	.023	50.033	50.017	.031
55	55.000	54.985	55.030	55.011	.028	55.039	55.020	.037
60	60.000	59.985	60.030	60.011	.028	60.039	60.020	.037
65	65.000	64.985	65.030	65.011	.028	65.039	65.020	.037
70	70.000	69.985	70.030	70.011	.028	70.039	70.020	.037
75	75.000	74.985	75.030	75.011	.028	75.039	75.020	.037
80	80.000	79.985	80.030	80.011	.028	80.039	80.020	.037
85	85.000	84.980	85.035	85.013	.034	85.045	85.023	.044
90	90.000	89.980	90.035	90.013	.034	90.045	90.023	.044
95	95.000	94.980	95.035	95.013	.034	95.045	95.023	.044
100	100.000	99.980	100.035	100.013	.034	100.045	100.023	.044
110	110.000	109.980	110.035	110.013	.034	110.045	110.023	.044
120	120.000	119.980	120.035	120.013	.034	120.045	120.023	.044
130	130.000	129.975	130.040	130.015	.040	130.052	130.027	.052
140	140.000	139.975	140.040	140.015	.040	140.052	140.027	.052
150	150.000	149.975	150.040	150.015	.040	150.052	150.027	.052
160	160.000	159.975	160.040	160.015	.040	160.052	160.027	.052

These fits apply to roller bearings with inner ring rotation under radial and thrust loads.

Bearing Bore Diameter

Up to 160 mm

Normal Load

P/C = 0.10 to 0.18

High Load

P/C > 0.18

Where:

P = Equivalent Dynamic Load on the Bearing (N)

C = Basic Dynamic Load Rating of Bearing (N)

(For these values see appropriate rating tables)

Table 5 - Tolerance

Shaft Diameter (S-2)		(mm)
Over	Including	Tolerance
35 mm	100 mm	+ .000 to -.102
100 mm	150 mm	+ .000 to -.127
Over 150 mm		+ .000 to -.152

d. **Install Sleeve**—Item 31 replacement parts table. This sleeve must be supplied by the equipment manufacturer. The O.D. of the sleeve must conform to S-2 dimensions (see Tables 5 and 6). For closed end applications, the locknut and lockwasher must also be supplied by the equipment manufacturer.

Steps e and f are not necessary if pillow block housing is a cast closed end style.

e. **Seal Ring**—Install second seal ring with large O.D. toward bearing.

f. **V-ring Seal**—Slide second V-ring seal onto the shaft, making certain lip is toward bearing. Do not install V-ring seal on seal ring until housing cap has been set in place and tightened.

- Remove any paint, dirt or burrs from the mating surfaces of the housing halves. Thoroughly clean seal grooves on each side. Set lower half of housing on mounting base and apply oil to the bearing seats.
- Apply grease to the bearing and seal rings. The lubricant should be smeared between the rolling elements (see Grease Lubrication section). This step and the first sentence of Step 8 do not apply for oil-lubricated bearings.
- Place shaft with bearing into lower half while carefully guiding the seal rings into the housing grooves.
- Bolt lower half of the non-expansion bearing to the base. Move shaft endwise so that spacer ring can be inserted as shown on Figure 5. Center all other bearings on same shaft in their housing seats.

Note: Only one bearing per shaft is non-expansion, other bearings should be expansion.

- When closed end is required and the block is not a cast closed, the end plug supplied should be fit into the center seal ring groove of the housing. Shaft should not extend beyond locknut end to ensure no rubbing with end plug or housing on cast closed end.
- Grease the bearing seal grooves in the housing cap and place over the bearing after wiping the mating surfaces (does not apply for oil-lubricated bearings). The two dowel pins will align the cap with the lower housing half.

Note: Each cap must be matched with its mating lower half, as these parts are not interchangeable. Cap and base have serial number stamped at joint. The serial numbers should line up for proper match.

- Tighten cap bolts to the recommended torque shown on Table 2.
- Assure that there is running clearance at seal rings, then install V-ring seals onto the seal rings as shown on Figure 4. Coat V-ring seals with grease to protect against ozone attack.
- Misalignment of plummer blocks must not exceed $\pm 1/2^\circ$ (one-half degree).

Table 6 - Shaft Diameter, S-2 (See Figure 2)

Bearing Bore Diameter (mm)	S-2 (mm)
40	50
45	55
50	60
55	65
60	70
65	75
70	80
75	85
80	90
85	95
90	100
95	110
100	115
110	125
120	135
130	145
140	155
150	165
160	175

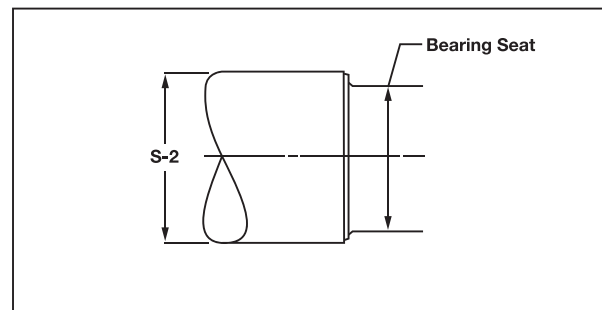


Figure 2 - Shaft Diameter

MAINTENANCE

Remove the housing cap in order to inspect bearing and grease. Before reassembly it is important that the V-ring seals be removed if TRIPLE-TECT seal installation tools are not available. If available, do not remove V-ring seals and follow cap installation outlined in the instructions supplied with the seal.

Grease Lubrication (Adapter Mount and Direct Mount)

USN bearings are specifically designed for dirty, dusty or wet environments. In order to properly protect bearings during installation pack the bearing insert 100% full immediately after having properly mounted bearing on the shaft.

WARNING: Regreasing requires rotating parts to be exposed. Exercise extreme care during such operations. Failure to observe these precautions could result in bodily injury.

Table 7 - Viscosity of Oil in the Grease

DN	Viscosity for Loads Up To 18% of Dyn. Cap* (Cst @ Oper. Temp.)	DN	Viscosity for Loads Up To 18% of Dyn. Cap* (Cst @ Oper. Temp.)
2500	700	35000	125
5000	650	40000	100
7500	580	45000	85
10000	500	50000	75
12500	425	75000	62
15000	390	100000	42
17500	325	125000	30
20000	280	150000	27
22500	235	175000	22
25000	200	200000	20

DN = Bore Diameter (mm) x RPM

* = For loads above 18% of dynamic capacity an EP grease with the above viscosity oil is recommended.

**Table 8 - Regreasing Intervals (Months) *
(Based on 12 Hours Per Day - 66° Max.)**

Size, mm	RPM*									
	250	500	750	1000	1250	1500	2000	2500	3000	3500
35-60	8	6	4	3	2	1	.5	.5	.25	.25
65	7	5	3	2	1	1	.5	.25	.25	
70-85	6	4	3	2	1	.5	.25	.25		
90-100	5	3	2	1	.5	.5	.25			
110-130	4	3	2	1	.5	.25				
140-160	3	2	1	.5	.25					

Table 9 - Maximum RPM (Adapter Mount)

Shaft Size, mm	Basic Bearing Description	Maximum RPM	
		Grease	Oil
35	22308K C3	4300	5300
40	22209K C3	5600	7000
45	22210K C3	5300	6700
50	22211K C3	4500	5600
55	22212K C3	4000	5000
60	22213K C3	3600	4500
65	22215K C3	3400	4300
70	22216K C3	3200	4000
75	22217K C3	3000	3800
80	22218K C3	2600	3400
85	22219K C3	2400	3200
90	22220K C3	2200	3000
100	22222K C3	2000	2800
110	22224K C3	1800	2400
115	22226K C3	1700	2200
125	22228K C3	1600	2000
135	22230K C3	1500	1900
140	22232K C3	1400	1800

If the RPM of the application falls between 20% and 80% of maximum RPM (Table 9 for adapter mount, Table 10 for direct mount), pack the lower half of the housing one-third to one-half full. If the RPM of the application is less than 20% of maximum RPM, pack bearing housing cavity 100% full. If the RPM exceeds 80% of maximum RPM, do not add grease in the lower half of the housing nor in the cap.

At each regreasing cycle, for applications up to 80% of maximum RPM, slowly add grease until fresh grease is seen purging at the seals. Regreasing should be done while running. Remote regreasing lines should be added to avoid endangering personnel.

If the RPM is greater than 80% of maximum RPM, add 4 strokes of a handgun at each regreasing cycle for bores up to 50 mm. For bores greater than 50 mm up to 130 mm add 8 strokes of handgun at each regreasing cycle. For bores greater than 130 mm add 16 strokes of a handgun at each regreasing cycle. For units running above 80% of maximum RPM, running temperature should be monitored. If a drastic change in running temperature is noted, it is recommended to remove the used grease completely and recharge with fresh grease per the above instructions.

Select a grease with a viscosity at operating temperature which will provide full film lubrication (See Table 7). Use a 30°C-55°C increase in bearing temperature above ambient, depending on RPM and load. Use Table 8 as a general guide for regreasing the bearings. A small amount of grease at frequent intervals is preferable to a large amount of grease at infrequent intervals. For special applications involving high speeds or high temperatures consult your local Dodge Industrial representative.

Applications such as conveyor pulleys and fans are shipped to a job site with bearings already mounted to the shafts. Since these units may be stored for long periods of time in unprotected areas subject to rain, dust, etc., bearings should be packed 100% full and so tagged at bearing assembly to prevent contamination or corrosion of the bearings.

LONG-TERM STORAGE OF PRE-ASSEMBLED BEARINGS

Oil Lubrication (Adapter Mount or Direct Mount)

USN bearings are specifically designed to handle either grease or oil lubrication. Oil lubrication is normally required at high speeds as well as high loads or whenever heat from an external source is flowing into the bearing. Oil lubrication may be static or circulating. With static oil, fill the bearing cavity with oil up to the centerline of the lower roller. The dimension is identified as “w” and is shown on Table 12. Mount an oil sight gauge in the drilled and tapped drain hole on the side of the plummer block for visual indication of this level. The oil level may drop or rise during operation depending on the rotation of the bearing. Oil should be added only when the bearing is not operating. Both the static oil level and the running oil level should be marked on the oil sight gauge and properly identified.

Prior to installation on the structure, if the application RPM is greater than 20% of catalog maximum speed, excess grease must be removed to the levels outlined previously. Removal of excess grease must be done in a clean, protected environment.

For circulating oil, the flow rate and size of return drains are shown in Table 12. Consult Dodge Industrial application engineering for recommendations.

Table 10 - Maximum RPM (Direct Mount)

Shaft Size, (mm)	Basic Bearing Description	Maximum RPM	
		Grease	Oil
40	22308 C3	4300	5300
45	22209 C3	5600	7000
50	22310 C3	3400	4300
55	22211 C3	4500	5600
60	22212 C3	4000	5000
65	22213 C3	3600	4500
70	22314 C3	2400	3200
75	22215 C3	3400	4300
80	22216 C3	3200	4000
85	22217 C3	3000	3800
90	22218 C3	2600	3400
95	22219 C3	2400	3200
100	22220 C3	2200	3000
110	22222 C3	2000	2800
120	22224 C3	1800	2400
130	22226 C3	1700	2200
140	22228 C3	1600	2000
150	22230 C3	1500	1900
160	22232 C3	1400	1800

Table 11 - USN Plummer Block—Dowel Pin, Lubrication & Mounting Hole Position

USN Series	AA	BB	CC	GG1	GG2	G Max. Dia.	JJ1	JJ2	J	
									Hole Size	Bolt Size
509	37	21.5	6.5	135	23	6	160	34	11	M10
510/608/308	39	22.5	6.5	135	23	6	160	34	11	M10
511/609/309	42	25.5	7	170	27	8	200	40	14	M12
512/212/ 610/310	47	25.5	8.5	172	27	8	200	40	14	M12
513/611/311	47	32.5	8.5	190	32	8	220	48	14	M12
515/215/ 612/312	47.5	31	9	190	32	8	220	48	14	M12
516/216/ 613/313	51.5	35	8	218	35	8	252	52	18	M16
517/217/314	52.5	37.5	10.5	218	35	8	252	52	18	M16
518/218/ 615/315	60.5	38	11	240	37	8	280	58	18	M16
519/219/ 616/316	64.5	41.5	13.5	240	37	8	280	58	18	M16
520/220/ 617/317	68.5	43.5	13.5	260	41	8	300	66	18	M16
522/222/ 619/319	71.5	49	15	280	45	8	320	74	18	M16
524/224/ 620/320	79.5	48.5	17.5	290	45	8	330	74	18	M16
526/226/ 622/322	82.5	53	19	325	52	12	370	80	22	M20
528/228	88.5	64.5	19	345	55	12	400	92	26	M24
530/230/ 624/324	97.5	64.5	20.5	375	60	12	430	100	26	M24
532/232/ 626/326	104	65	23	395	60	12	450	100	26	M24

Notes on Table 11: All dimensions are in millimeters.

- | Item | Description |
|------|---|
| A | Optional location for seal lubrication |
| B | Optional location for vent, vibration pickup and/or grease location for non W33 grooved bearing |
| C | Position for thermocouple location |
| D | Position for lubrication of bearing with W33 groove |
| E | Lubrication port for W33 groove, bearing drilled standard on plummer blocks |
| F | Pre-drilled and tap location for vent or side lubrication for bearing without W33 groove |
| G | Dowel pin location for metric plummer blocks |
| J | Drilling location for four bolt mounting or optional dowel pin location |

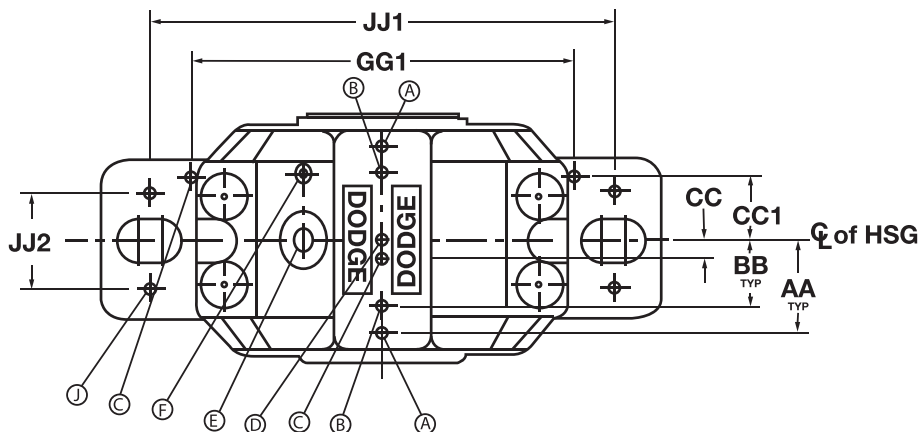


Figure 3 - Dowel Pin Locations

Table 12 - USN Circulating Oil Chart

Block Size	Circulating Oil Flow*		Static Oil Level (mm)	Drain Holes Size (BSPP)
	Amount Sufficient For Normal Lubrication	Maximum Amount For Heat Dissipation Due to External Heat Source		
	Liters/Min.	Liters/Min.	W**	
509	.009	.26	26.5	1/8-28
510	.011	.341	24	1/8-28
608/308	.011	.341	26.5	1/8-28
511	.015	.378	29	1/8-28
609/309	.015	.378	32.5	1/8-28
512/610/310	.017	.454	28.5	1/8-28
513	.019	.567	32	1/8-28
611/311	.019	.567	40.5	1/8-28
515	.023	.662	27	1/4-19
612/312	.023	.662	30.5	1/4-19
516	.025	.738	38	1/4-19
613/313	.025	.738	42	1/4-19
517	.028	.757	34.5	3/8-19
314	.028	.757	37	3/8-19
518	.030	.946	34.5	3/8-19
615/315	.030	.946	42	3/8-19
519/616/316	.038	1.13	47	3/8-19
520	.042	1.32	39.5	3/8-19
617/317	.042	1.32	42	3/8-19
522/619/319	.057	1.59	45	3/8-19
524	.066	1.82	53.5	1/2-14
620/320	.066	1.82	58	1/2-14
526	.072	2.08	57	1/2-14
622/322	.072	2.08	58.5	1/2-14
528	.087	2.27	49	1/2-14
530	.095	2.84	51.5	1/2-14
624/324	.095	2.84	60	1/2-14
532	.113	3.03	53	1/2-14

Replacement Parts for USN 500 Adapter Mount Plummer Blocks

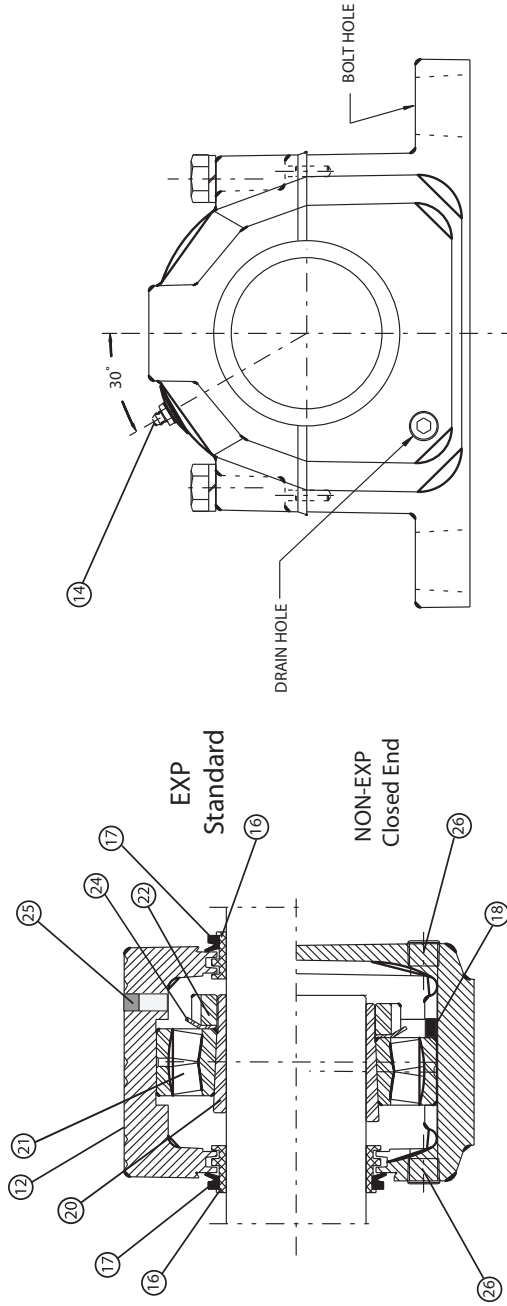


Figure 4

Ref.	Name of Part	Style	Qty.	(509) 40	(510) 45	(511) 50	(512) 55	(513) 60	(515) 65	(516) 70	(517) 75	(518) 80	(519) 85	(520) 90	(522) 100	(524) 110	(526) 115	(528) 125	(530) 135	(532) 140
12	2-Bolt Base Housing	Standard	1	039637	039639	039641	039676	039643	039645	039647	039649	039651	035852	039653	039655	039657	039659	039661	039663	039664
12	2-Bolt Base Housing	Closed End	1	039638	039640	039642	039677	039644	039646	039648	039648	039652	035853	039654	039656	039658	039660	039662	039680	039981
21	Roller Bearing		1	422134	422137	422123	422978	422124	422001	422003	422005	422007	422979	422009	422011	422013	422015	422017	422019	422021
16	Seal Ring*		2	046451	046452	046179	046180	046181	046182	046183	046183	046185	039518	046187	046188	046189	046190	046191	046192	046193
17	V-Ring*		2	042224	042225	042225	042226	042227	042228	042228	042228	042230	042230	042230	042232	042232	042233	042234	042235	042235
18	Non-Expansion Spacer		1	046458	042335	042315	046440	042316	041174	041172	041175	041173	046843	041176	041177	041185	041178	041179	041186	041180
20	Adapter Sleeve		1	046265	046266	046267	046268	046269	046270	046271	046271	046273	046661	046274	046275	046276	046277	046278	046279	046280
22	Locknut		1	046285	046286	046287	046264	046288	046289	046290	046290	046292	046488	046293	046294	046295	046296	046297	046298	046299
24	Lockwasher		1	046304	046305	046306	046330	046307	046308	046309	046309	046311	046490	046312	046313	046314	046315	046316	046317	046318
26	Drain Plug	Standard & Closed End	2	415480	415480	415480	415480	415480	415481	415481	415482	415482	415482	415482	415482	415483	415483	415483	415483	415483
14	Lube Fitting		1																	
25	Top Plug		1																	
				405601-All Sizes																
				415479-All Sizes																

*Closed end housings take only one seal ring and one V-ring.

Replacement Parts for USN 600 Adapter Mount Plummer Blocks

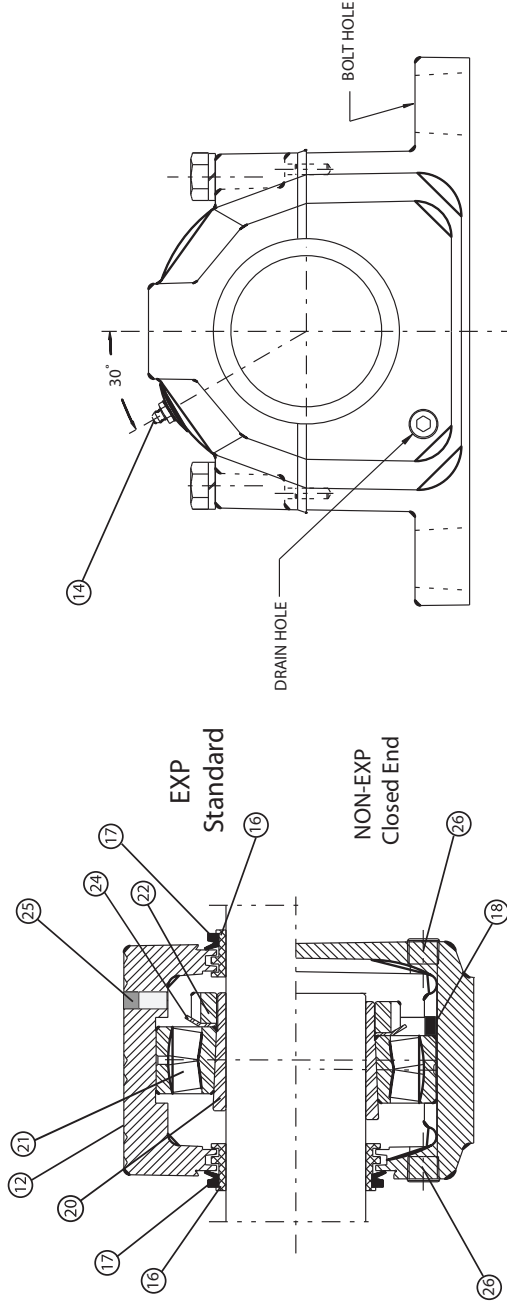


Figure 4

Ref	Name of Part	Style	Qty	(608) 35	(609) 40	(610) 45	(611) 50	(612) 55	(613) 60	(615) 65	(616) 70	(617) 75	(619) 85	(620) 90	(622) 100	(624) 110	(626) 115
12	2-Bolt Base Housing	Standard	1	035792	035795	035797	035799	035801	035803	035805	035807	035809	035812	035814	035816	035818	035820
12	2-Bolt Base Housing	Closed End	1	035794	035796	035798	035800	035802	035804	035806	035808	035810	035813	035815	035817	035819	035821
21	Roller Bearing		1	423375	423100	423372	423102	423376	423104	423106	423373	423108	423374	423110	423112	422140	423114
16	Seal Ring*		2	046546	046335	046336	046179	046547	046181	046338	046183	046184	046548	046341	046188	046189	046190
17	V-Ring*		2	042243	042224	040972	042225	042226	042226	045994	042228	042229	042230	045965	042231	042233	042233
18	Non-Expansion Spacer		1	042335	042315	046642	042316	460886	460887	460889	046643	460890	460891	460892	460635	042341	460896
20	Adapter Sleeve		1	046652	046653	046654	046655	046656	046657	046658	046659	046660	046661	046662	046663	046664	046665
22	Locknut		1	046492	046285	046286	046287	046487	046288	046289	046290	046291	046488	046293	046294	046295	046296
24	Lockwasher		1	046493	046304	046305	046306	046489	046307	046308	046309	046310	046490	046312	046313	046314	046315
26	Drain Plug & Closed End		2	415480	415480	415480	415480	415481	415481	415482	415482	415482	415482	415483	415483	415483	415483
14	Lube Fitting		1	405601 - All Sizes													
25	Top Plug		1	415479 - All Sizes													

* Closed end housings take only one seal ring and one V-ring.

Replacement Parts for USN 200 Direct Mount Plummer Blocks

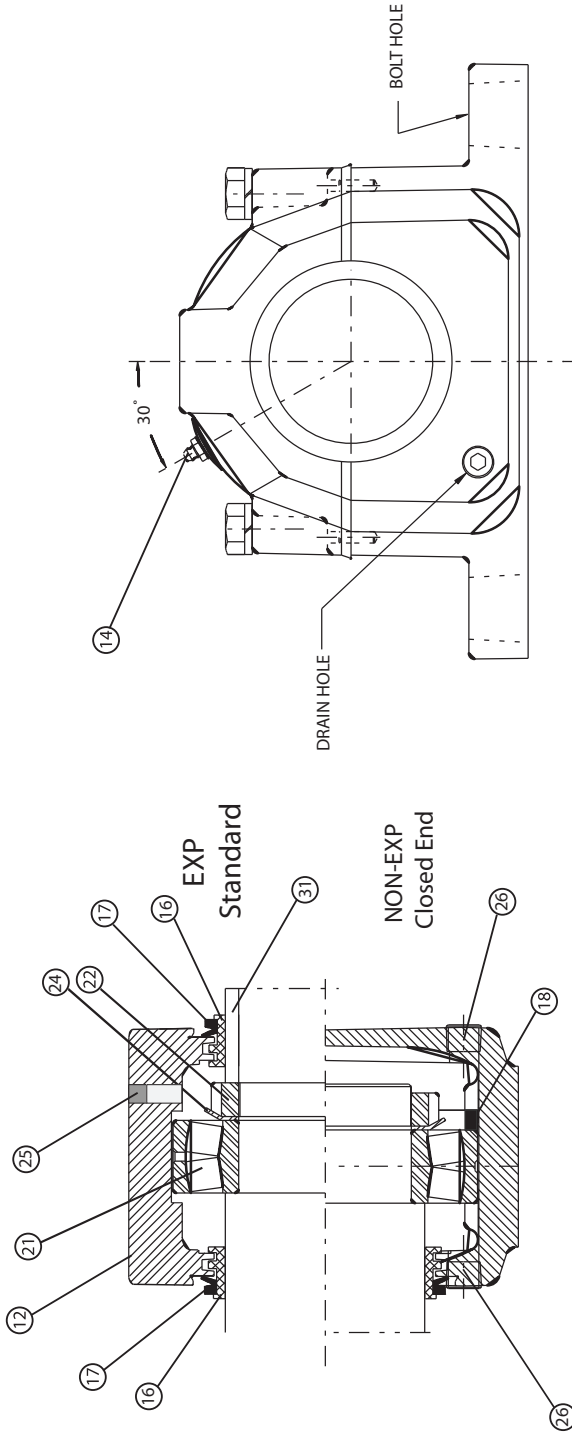


Figure 5

Ref	Name of Part	Qty	Style	(209)	(210)	(211)	(212)	(213)	(215)	(216)	(217)	(218)	(219)	(220)	(222)	(224)	(226)	(228)	(230)	(232)		
12	2-Bolt Base Housing	1	Standard	039946	039948	039950	039952	039954	039956	039958	039960	039962	035941	039964	039966	039968	039970	039972	039974	039975		
12	2-Bolt Base Housing	1	Closed End	039947	039949	039951	039953	039955	039957	039959	039961	039963	035942	039965	039967	039969	039971	039973	039978	039979		
21	Roller Bearing	1		421260	421261	421262	421263	421264	421265	421266	421267	421268	422996	421269	421270	421271	421272	421273	421274	421275		
16	Seal Ring*	2	(S2)	046459	046181	046170	046181	046171	046172	046175	046453	046174	046342	046190	046191	046192	046454	046455	046456	046457		
17	V-Ring	2	(S2)	042226	042226	042228	042226	042229	042230	042230	042231	042231	042231	042233	042234	042235	042236	042237	042237	042238		
18	Non-Expansion Spacer	1		041987	042335	042315	046642	042316	041174	041172	041275	041173	046643	041176	041177	041185	041178	041179	041186	041180		
22	Locknut	1		046285	046286	046287	046487	046288	046289	046290	046291	046292	046488	046293	046294	046295	046296	046297	046298	046299		
24	Lockwasher	1		046304	046305	046306	046489	046307	046308	046309	046310	046311	046319	046312	046313	046314	046315	046316	046317	046318		
26	Drain Plug	2		415480	415480	415480	415480	415480	415481	415481	415482	415482	415482	415482	415482	415483	415483	415483	415483	415483	415483	
14	Lube Fitting	1		405601 - All Sizes																		
25	Top Plug	1		415479 - All Sizes																		
31	Sleeve			(See Paragraph 2 on page 3)																		

*Closed end housings take only one sealing and one V-ring.

Replacement Parts for USN 300 Direct Mount Plummer Blocks

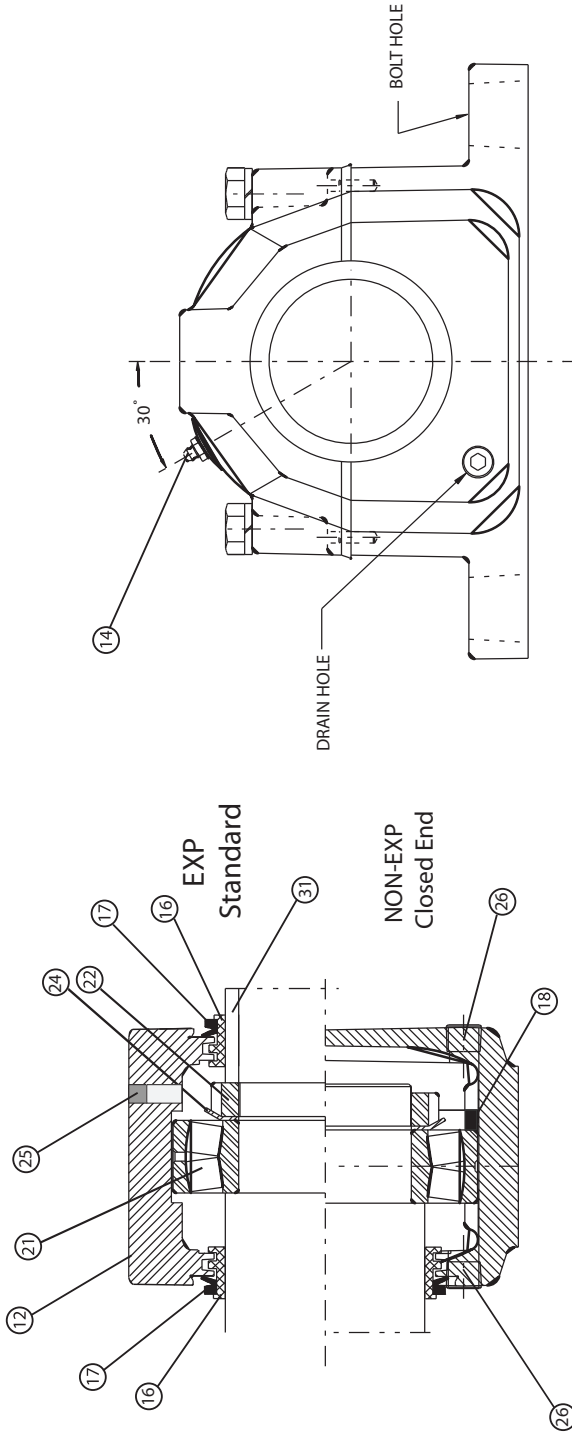


Figure 5

Ref	Name of Part	Style	Qty	(308) 40	(309) 45	(310) 50	(311) 55	(312) 60	(313) 65	(314) 70	(315) 75	(316) 80	(317) 85	(319) 95	(320) 100	(322) 110	(324) 120	(326) 130
12	2-Bolt Base Housing	Standard	1	035822	035824	035826	035828	035830	035832	035834	035836	035838	035840	035842	035844	035846	035848	035850
12	2-Bolt Base Housing	Closed End	1	035823	035825	035827	035829	035831	035833	035835	035837	035839	035841	035843	035845	035847	035849	035851
21	Roller Bearing		1	423124	423125	423143	423126	423127	423128	423129	423130	423144	423131	423145	423132	423133	423134	423135
16	Seal Ring*	(S2)	2	046179	035743	046181	046338	046183	046340	046549	039518	046341	046342	046189	046190	046191	046192	045990
17	V-Ring	(S2)	2	042225	040972	042226	045994	042228	042229	042230	042230	045965	042231	042232	042233	042234	042235	042236
18	Non-Expansion Spacer		1	042335	042315	046642	042316	460886	460887	460888	460889	046643	460890	460891	460892	046635	042314	460896
22	Locknut		1	046492	046285	046286	046287	046487	046288	046238	046289	046290	046291	046488	046293	046294	046295	046296
24	Lockwasher		1	046493	046304	046305	046306	046489	046307	046239	046308	046309	046310	046490	046312	046313	046314	046315
26	Drain Plug		2	415480	415480	415480	415480	415481	415481	415482	415482	415482	415482	415482	415483	415483	415483	415483
14	Lube Fitting		1															
25	Top Plug		1															
31	Sleeve																	
405601 - All Sizes																		
415479 - All Sizes																		
(See Paragraph 2d on page 3)																		

* Closed end housings take only one sealing and one V-ring.

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