

GATE VALVES



“Maximum Drilling Technology”

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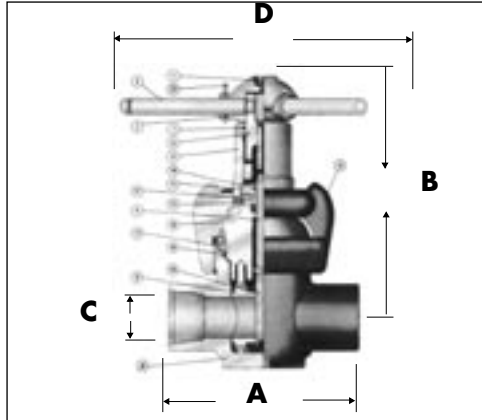
Why Settle for
 Less —
 Insist on the
 Best!

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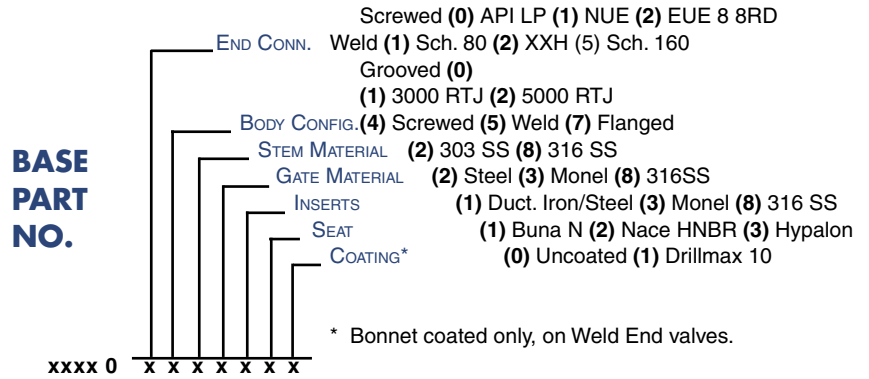
GATE VALVES (DEMCO® TYPE)

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ASSEMBLY PART NUMBER



STANDARD MATERIAL

	3000 WP			5000 WP			
STANDARD MATERIALS: Cast Steel Body & Bonnet; Buna N Seat & Seals; Ductile Iron Seat Inserts; 303 SS Stem; Steel Gate							
FULL PORT	2"	3"	4"	2"	3"	4"	
FIGURE NUMBER	2-3000	3-3000	4-3000	2-5000	3-5000	4-5000	
Screwed End	Base Part No.	2027	3046	4049	2028	3047	4420
Screwed End Valves furnished for API Line Pipe ... EUE 8 round on 2" valves. If specified.							
Weight, Lbs.	53	113	162	61	140	210	
Weld End	FIGURE NUMBER	2030	3055	4058	2031	3056	4420
Weld End Valves furnished for Sch. 80 and Sch. 160 on 3000 WP valves XXH and Sch. 160 on 5000 WP.							
RTJ Flanged End	FIGURE NUMBER	2024	3037	4040	2025	3038	4420
Weight, Lbs.	100	175	265	110	241	330	
RTJ Flanged comply with API Std. 6A 1974							

REGULAR PORT	-	4"x3"	5"x4"	-	4"x3"	5"x4"	6"x4"
FIGURE NUMBER	-	4-3000R	5-3000R	-	4-5000R	5-5000R	6-5000R
Weld End	Base Part No.	3113	4111	-	3110	5420	6420
Weight, Lbs.	-	113	162	-	140	210	210

OPTIONAL MATERIALS

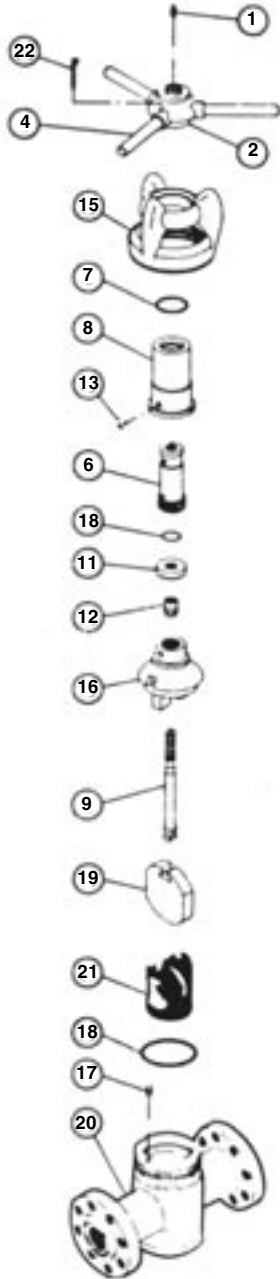
316 SS Stem, Gate & Seat Insert	(888)
316 SS Stem, Monel Gate & Seat Insert	(833)
NACE Seat & Seals, HNBR	(2)
Plastic Coating Assembly	
Drillmax 10	(1)
Bonnet Coating Only (Weld End)	
Drillmax 10	(1)

DIMENSIONS, INCHES

PRESSURE RATING & SIZE	3000 PSI WP 6000 PSI TEST				5000 PSI WP 10,000 PSI TEST				
	2"	3"	4"	5"	2"	3"	4"	5"	6"
A SCREWED, & WELD									
-FULL PORT	9	11	13	-	9	11	13	-	-
-REGULAR PORT			11	13			11	13	13
-FLANGED -RTJ	11 ⁵ / ₈	14 ¹ / ₈	16 ³ / ₈	-	12 ¹ / ₈	15 ⁵ / ₈	18	-	-
B (OPEN) - FULL PORT	13	18	21 ¹ / ₄	-	13	18	24 ⁵ / ₈	-	-
-REGULAR PORT			21 ¹ / ₄				18	24 ⁵ / ₈	24 ⁵ / ₈
C (SEAT BORE) - FULL PORT	2	3	4	-	2	3	4	-	-
-REGULAR PORT				4			3	4	4
D FULL PORT	14	19	23	-	14	19	23	-	-
-REGULAR PORT			19	23			19	23	23
F (FLANGE DIAMETER)	8 ¹ / ₂	9 ¹ / ₂	11 ¹ / ₂	-	8 ¹ / ₂	10 ¹ / ₂	12 ¹ / ₄	-	-
FLANGE BOLTS	NO. SIZE	8 ⁷ / ₈	8 ⁷ / ₈	8-1 ¹ / ₈	-	8 ¹ / ₈	8-1 ¹ / ₈	8-1 ¹ / ₄	-
RING NUMBER (RTJ)	R24	R31	R37	-	R24	R35	R39	-	-



LIST PRICES

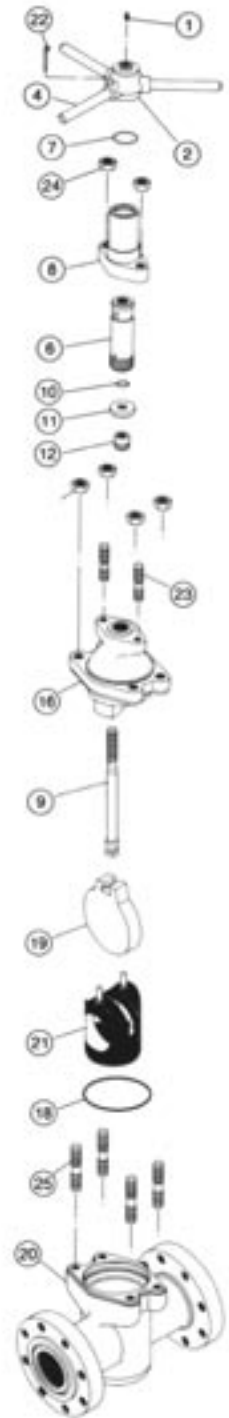


REF.	DESCRIPTION	SIZE	WT.	3000 WP		5000 WP	
				2"	2"	2"	2"
1	LUBE FITTING Steel		.1#	2510950			
2	HUB ASSEMBLY Steel		5#	2140687			
4	LOCK HANDLE Steel		1#	2180910			
6	STEM SCREW Steel		3#	2190130			
7	STEM SCREW SEAL Buna N		.1#	5530224			
8	SCREW HOUSING Steel		4#	2180480			
9	STEM 303 SS -2 316 SS -8		1#	219031X			
10	SECONDARY SEAL Buna N		.1#	5530210			
11	RETAINER Steel		1#	2190400			
12	STEM SEAL ASSEMBLY (Includes Bronze Bushing) Buna N -1 NACE -6		.1#	219049X			
13	LOCK SCREW Steel		.1#	2560652			
15	COUPLING WCB Steel		16#	2140462	2140453		
16	BONNET ANSI 1029 Steel Uncoated -xx0 Coated -Drillmax 10 -xx1		7#	212037X			
17	INDEX PIN Steel		.1#	2190810			
18	BONNET SEAL Buna N 553- NACE 554-		.1#	0342			
19	GATE Steel, Nickel Plated -2 Monel -3 316 SS -8		3#	218087X			
20	BODY, UNCOATED Steel FULL PORT-SCREWEDD-API LP -WELD SCH. 80 -1xx SCH. XXH -2xx SCH. 160 -5xx -FLANGED-RTJ BODY COATING -DRILLMAX 10 -xx1		29# 29# 73#	22850020 23070X20 2200390	22710030 23090X30 2150100		
21	SEAT Ductile Iron -Buna N -11 -NACE .12 Monel -Buna N -31 -NACE .32 316 SS -Buna N -81 -NACE -82		1.5#	218076XX		218076XX	
22	PIN, LOCK HANDLE Steel		1#	2540201			
	BONNET ASBY WITH GATE		22#	2120099			
	SEAL KITS-4 PCS.-BUNA SEALS 1 Ea – Ref 7, 10, 12, 18		1#	2180099			
	MINOR REPAIR KIT – 3 PCS. 1 Ea – Ref 18, 19, 21		5#	2180199			
	MAJOR REPAIR KIT – 6 PCS. 1 Ea – Ref 7, 10, 12, 18, 19, 21		6#	2180299			

Drillmax Gate Valve Parts



REF.	DESCRIPTION	SIZE	WT.	3000 WP	5000 WP	3000 WP
				3" 4" X 3"	3" 4" X 3"	4" 5" X 4"
1	LUBE FITTING Steel		.1#	2510950	2510950	2510950
2	HUB ASSEMBLY Steel		8# 10#	3140688 ***	3140688 ***	*** 4140689
4	LOCK HANDLE Steel		1#	3180920	3180920	4180970
6	STEM SCREW Steel		1#	3190143	3190143	4190150
7	STEM SCREW SEAL Buna N	#553	.1#	0226	0226	0227
8	SCREW HOUSING Steel		6#	3180520	3180520	4190580
9	STEM 303 SS 316 SS	-2 -8	1#	319032X	319032X	419033X
10	SECONDARY SEAL Buna N	#533	.1#	0212	0212	0214
11	RETAINER Steel		1#	3190410	3190410	4190420
12	STEM SEAL ASSEMBLY (Includes Bronze Bushing) Buna N NACE	-1 -6	.2#	319050X	319050X	419051X
16	BONNET A 148 Steel Uncoated Coated	-xx0 -Drillmax 10 -xx1	40# 45#	316003X ***	318003X ***	*** 417003X
18	BONNET SEAL Buna N NACE	#553 #554	.1#	0433	0433	0439
19	GATE Steel, Nickel Plated Monel 316 SS	-2 -3 -8	.1# 9#	318086X ***	318086X ***	*** 419026X
20	BODY, UNCOATED, Steel FULL PORT-API LP FULL PORT-WELD SCH. 80 SCH. XXH SCH. 160 FLANGED-RTJ REG. PORT-WELD ONLY SCH. 80 SCH. XXH SCH. 160 BODY COATING -DRILLMAX 10	-1xx -2xx -5xx -1xx -2xx -5xx -xx1	71# 80# 71# 80# 146# 150# 170# 71# 80#	3120840 *** 3980X30 *** 3280130 *** *** 3680X30 ***	3970030 *** 3990X30 *** *** 3290230 *** 3690X30 ***	*** 4950X30 *** 4990X30 *** *** 4290130 *** 4680X30
21	SEAT Ductile Iron Monel 316 SS	-Buna N -NACE -Buna N -NACE -Buna N -NACE	-11 -.12 -31 -.32 -81 -82	4# 8#	318078XX ***	318078XX *** 4220721
22	PIN, LOCK HANDLE Steel		.1#	3540202	3540202	3540202
23	BONNET STUD (2 REQUIRED) A193 B7 Steel		1#	3200660	3200660	4200720
24	BONNET STUD NUT (2 REQUIRED) Carbon Steel A194 2H		5# .6#	3530254 ***	3530254 ***	*** 4530256
25	BODY STUD (4 REQUIRED) A193 B7 Steel		2#	3200740	3200760	3200750
26	BODY STUD NUT (4 REQUIRED) Carbon Steel A194 2H		.5#	3530285	3530244	4530252
	BONNET ASBY WITH GATE		56# 75#	3160098 ***	3180098 ***	*** 4170099
	SEAL KITS-4 PCS.-BUNA SEALS 1 Ea - Ref 7, 10, 12, 18		1#	3190099	3190099	4190099
	MINOR REPAIR KIT - 3 PCS. Seat, Gate, Bonnet Seal 1 Ea - Ref 18, 19, 21		8# 17#	3190199 ***	3190199 ***	*** 4190299
	MAJOR REPAIR KIT - 6 PCS. 1 Ea - Ref 7, 10, 12, 18, 19, 21		9# 18#	3190299 ***	3190299 ***	*** 4190299





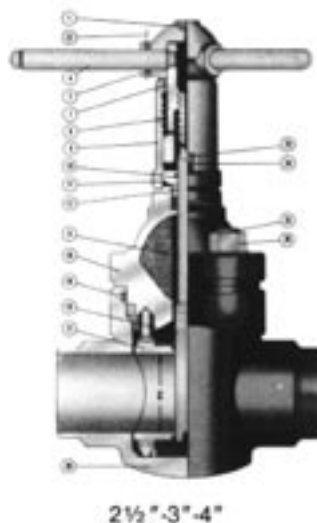
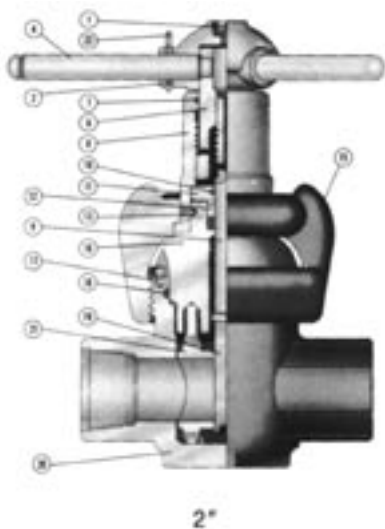
REF.	DESCRIPTION	WT.	SIZE 4" 5" x 4" 6" x 4"
1	LUBE FITTING Steel	.1#	2510950
2	HUB ASSEMBLY Steel	11#	4740140
3	TUBE Steel	1#	4740590
4	STEM CAP Ductile Iron	3#	4740110
5	KEY Steel	.1#	4530016
6	STEM SCREW Steel	4#	4740160
7	STEM SCREW SEAL Buna N	.1#	5530226
8	SCREW HOUSING Steel	9#	4740180
9	STEM 303 SS -2 316 SS -8	3#	474039X
10	SECONDARY SEAL Buna N	.1#	5530214
11	RETAINER Steel	1#	4740130
12	STEM SEAL ASSEMBLY (Includes Bronze Bushing) Buna N -1 NACE -6	.2#	419051X
13	BEARING (2) Teflon/Phenolic	.1#	4740260
14	DOWN STOP RING 303 SS	1#	4740170
16	BONNET-A148 STEEL Uncoated -xx0 Coated Drillmax 10 -xx1	62#	4419003X
18	BONNET SEAL Buna N #553 NACE #554	.1#	0439

REF.	DESCRIPTION	WT.	SIZE 4" 5" x 4" 6" x 4"
19	GATE Steel, Nickel Plated -2 Monel -3 316 SS -8	9#	419026X
20	BODY, UNCOATED* Steel FULL PORT-SCREWED- API LP	120#	42460030
	WELD -4" FULL PORT -SCH. XXH -2xx -SCH. 160 -5xx	120#	42880x30
	FLANGED-RTJ	260#	42830230
	REG. PORT-WELD 5"x4" -SCH. XXH -2xx -SCH. 160 -5xx	116#	42490x30
	REG. PORT-WELD 6"x4" -SCH. XXH -2xx -SCH. 160 -5xx	114#	45640x30
	BODY COATING DRILLMAX 10 -xx1		
21	SEAT Steel -Buna N -21 -NACE -22 Monel -Buna N -31 -NACE -32 316 SS -Buna N -81 -NACE -82	6#	42207XX
23	BONNET STUD (2) A193 B7 Steel	1#	4200720
24	BONNET STUD NUT (2) Carbon Steel A194 2H	1#	4530256
25	BODY STUD (4) AISI 4140 HT Steel	5#	4200770
26	BODY STUD NUT (4) Carbon Steel AISI 414004145	2#	4180900
	BONNET ASSEMBLY With Gate	102#	44190099

* Replacement bodies must include 4 Body Studs

CAUTION: Test valve assembly including replacement body before use. Failure to do so may result in leakage and/or personal injury or property damage.

REPAIR KITS		SIZE 4" 5" x 4" 6" X 4"
Seal Kit - 4 Pcs.-All Buna seal Ref 7, 10, 12		4740099
Minor Repair Kit – 3 pcs. – Seal, Gate, Bonnet Seal Ref 18, 19, 21		4740199
Major Repair Kit – 6 pcs. – Seal Kit, Gate, Seat Ref 7, 10, 12, 18, 19, 21		4740299



DISASSEMBLY

DRILLMAX GATE VALVES for high pressure service are readily disassembled and reassembled without removing the body from the line. Inspection and repair may be accomplished in a short time, to restore the valve to full operating efficiency.

Release all pressure from the line in which the valve is installed. If downstream from another closed valve under pressure, that valve should be locked or sealed and tagged to prevent opening while this work is being done.

1. Fully open the gate valve. Remove nuts (26) (unscrew coupling (15) on 2" valves) and withdraw the bonnet assembly from the body. Collapse the seat (21), by compressing the insert pins together, and remove it from the body.
2. With the bonnet assembly on its side, remove pin (22) and lock handle (4) then lift off hub (2). Remove coupling (15) on 2" valves. Turn stem screw (6) clockwise to bottom, then withdraw gate (19) from stem (9) by rotating a quarter turn and sliding it off the teehead of the stem.
3. Seat or gate replacement may be made at this point. To reassemble the valve, proceed from reassembly instruction 3. If it is desired to inspect other parts, the following instructions apply.
4. Turn the stem clockwise, until it disengages from stem screw (6) and withdraw it from the underside of the bonnet. Unscrew the lock screw (13) on 2" valves or nuts (24) on other sizes and lift screw housing (8) off the bonnet. Remove retainer (11), o-ring seal (10) and stem

seal assembly (12) from the bonnet. Turn stem screw (6) clockwise out of the screw housing. Remove screw seal (7) from the screw housing and bonnet seal (18) from the valve body.

Thoroughly clean all parts and inspect them for wear or damage. It is recommended that seals (7), (10), (18) and stem seal assembly (12) be replaced if they are worn or cut. Inspect the outside surface of the stem, where it passes through the packing, for nicks or scratches and smooth with emery cloth if necessary. Before reassembling, apply a good grade of general purpose grease to all threads, seal rings and exterior of the seat and on the surfaces of the bonnet, stem and stem screw which are in contact with seals.

REASSEMBLY

1. Slide the threaded end of the stem through the bonnet bore, from the underside, and place the stem seal assembly over the stem. This assembly consists of the seal rings, a flat-backed follower ring and a bushing, which are placed over the end of the stem in that order. Slide the retainer (11), with o-ring seal (10) inside, beveled side first, over the stem. Seat the stem seal assembly into its counterbore in the bonnet.
2. Engage the stem screw (6) in the screw housing (8) about half its total travel and place the screw housing on the bonnet and stem. Replace lock screw (13) on 2" valves or nuts (24) on other sizes. Place the coupling on the screw housing of 2" valves.

3. Rotate the stem screw clockwise until it bottoms on the retainer, and then back it up approximately one-eighth turn. Engage the gate on the tee-head of the stem and turn them together, counter-clockwise, until the gate touches the underside of the bonnet lugs. Align the gate with the opening between the lugs and retract it into the bonnet by turning the stem screw counter-clockwise. Place the hub on the stem screw, insert the lock handle and retain it with the cotter pin. Do not spread the pin, since it may be removed later while adjusting the gate level.
4. Install the seat on the bonnet and stand the assembly upright, resting on the seat. Turn the handle clockwise until the hub is stopped by the top of the screw housing.

Make a pencil mark on one side of the gate, even with the bottom of the seat port. Raise the bottom of the gate into the seat bore, by rotating the handle, and measure the distance from the pencil mark to the bottom of the gate. This distance must be within the following limits for each size valve:

2" 2 1/2"	3"	4"
$\frac{5}{16}'' - \frac{7}{16}''$	$\frac{3}{8}'' - \frac{1}{2}''$	$\frac{3}{8}'' - \frac{1}{2}''$ $\frac{7}{16}'' - \frac{9}{16}''$

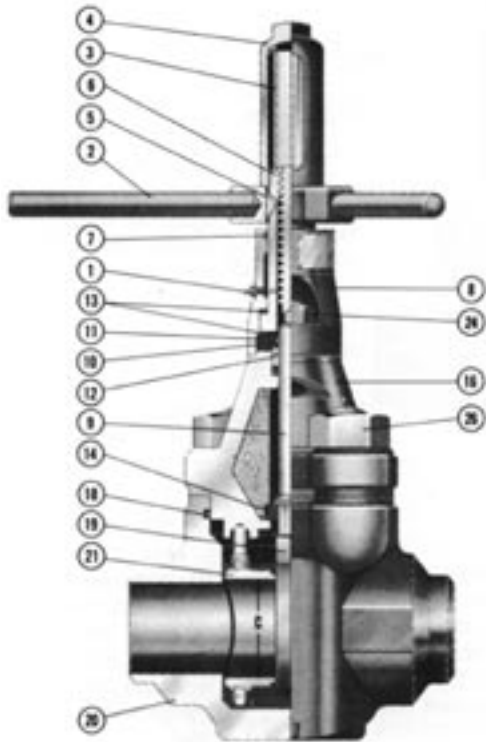
If the distance is correct, proceed to assembly step 5. If not, remove the seat, lock handle and hub from the assembly. Rotate the stem screw clockwise to bottom. Turn the gate and stem together, while holding the stem screw: counter-clockwise to reduce the distance, or clockwise to increase the distance, as required. One-half turn of the gate and stem changes the distance approximately 1/16". Repeat step 4 until the closed gate position is correct.

5. Replace bonnet seal (18) and install the seat and bonnet in the body, making sure the gate is started into the seat and the top pins on the seat are started into the drilled holes in the bonnet. Tighten the coupling on 2" valves; on other sizes, replace and tighten nuts (26). Spread the cotter pin (22) in the lock handle and replace the hub with general purpose grease through fitting (1).

When the DRILLMAX high pressure gate valve is reassembled in the manner described, the hub is stopped by the screw housing at the proper down position of the gate. Overtightening is impossible and maximum sealing efficiency is assured.



5000 WP GATE VALVES
4" FULL PORT, 5" REGULAR PORT
CONFORMING TO API FLANGE DIMENSIONS & PRESSURE RATINGS



DISASSEMBLY

DRILLMAX GATE VALVES for high pressure service are readily disassembled and reassembled without removing the body from the line. Inspection and repair may be accomplished in a short time, to restore the valve to full operating efficiency.

Release all pressure from the line in which the valve is installed. If downstream from another, closed valve under pressure, that valve should be locked or sealed and tagged to prevent opening while this work is being done.

1. Fully open the gate valve. Remove nuts (26) and withdraw the bonnet assembly from the body. Collapse the seat (21) by compressing the insert pins together, and remove it from the body.
2. With the bonnet assembly on its side, turn the handle (2) clockwise then move the gate (19) out of the bonnet. Withdraw the gate from stem (9) by rotating a quarter turn and sliding it off the tee-head of the stem.
3. Seat or gate replacement may be made at this point. To reassemble the valve, proceed from reassembly instruction 4 after following the applicable maintenance instructions. If it is desired

to inspect other parts, the following instructions apply.

4. Remove stem cap (4), tube (3), handle (2) and key (5). Remove nuts (24) and lift off the screw housing (8). Rotate the stem screw (6) off the stem (left hand Acme) and remove bearings (13) and retainer (11). Lift the stem part way so that the down stop ring (14) may be removed, then withdraw the stem from the underside of the bonnet. The stem seal assembly (12), including the bushing, may now be removed.

Thoroughly clean all parts and inspect them for wear or damage. It is recommended that seals (7), (10), (18) and stem seal assembly (12) be replaced if they are worn or cut. All sealing surfaces should be clean and free of dirt, rust, nicks and scratches. These will include the areas inside the body adjacent to the line bore where the seat fits, the area around the lower part of the bonnet that lies against the bonnet o-ring seal, the bonnet stuffing box and the surface of the stem that passes through the packing. Clean these surfaces well and polish with emery cloth if necessary, paying particular attention to the valve stem. Also clean and polish against

the bearings. Before reassembling, apply a good grade of general purpose grease to all threads, bearings, seal rings and exterior of the seat and on the surfaces of the bonnet, stem and stem screw which are in contact with seals.

REASSEMBLY

1. Slide the threaded end of the stem (9) through the bonnet bore from the underside and draw the stem head part way up into the bonnet. Put the down stop ring (14) on over the bottom of the stem head, lower the stem so that the down stop ring shoulders on the inside of the bonnet and slide the gate (19) onto the tee-head of the stem.
2. Place the stem seal assembly (12) over the stem. This assembly consists of seal rings, a flat backed follower ring and a bushing which are placed over the end of the stem in that order. Work the seal and follower rings carefully down over the stem threads lips first and into the stuffing box, being careful that the lips of the rings do not get curled back. After the bushing put the retainer (11), with o-ring seal (10) inside, down over the stem flat side up.
3. Follow the retainer with a bearing (13) and the stem screw (6). The bearing (must be concentric with the stem screw before further assembly. It can be held in place by turning the stem screw counterclockwise until the stem head back seats against the bonnet. Place another bearing down over the stem screw and follow it with the screw housing (8), with o-ring seal (7) inside, and tighten nuts (24). Put the key (5) into its slot in the stem screw and replace the handle (2), tube (3) and stem cap (4) in that order.
4. If the valve was not torn down completely to begin with, the gate replaced at this point. Slide the gate (19) onto the stem, turn it a quarter turn to line up with the slot in the bonnet and draw it up all the way into the bonnet by turning the handle counterclockwise. Place the seat (21) in the valve body keeping the top pins on the seat in line with the body line bore. Replace the bonnet seal (18) and put the bonnet assembly on the body, making sure the gate is started into the seat and the top pins on seat are started into the drilled holes in the bonnet before tightening nuts (26). Tighten nuts (26) and repack the screw housing (8) with general purpose grease through fitting (1).