

**STAINLE SS-STEEL
GATE VALVES**

1 20<5SERIES INSTRUCTION MANUAL .525" THRU S.a0ⁿ

FAX (415,73S-9B53 TWX 910-383-2045

HIGH VACUUM APPARATUS NIFG., INC., 1763 SABRE ST. HAYUVAQD ra «A545-r^ 1K, 7pR-'=>-»»^
/ -_d ^ggg-oN 69S1-6SE SH 0N3d VAH NdOS:乙 _ZWIⁿ 「 ” 4

INSTRUCTIONS

UNPACKING

Inspect container before unpacking to see that no damage has been sustained in transit. Any damage that is visible should be reported to transportation company. Remove valve from container making sure that the flange faces are in good condition and visually inspect the valve.

INSTALLATION

- C Determine that the valve and adjacent plumbing in the vacuum system will be adequately supported when installed. Make sure that the mating flanges are in line, parallel and the correct distance apart **to minimize straining of valve body.**
- Remove the flange cover and wipe the flange and the gaskets with a lint free dry wipe. In case of o-ring seal flanges, apply light film of vacuum grease to the o-ring and install in flange groove.
- Proceed with installation making sure that no foreign particles enter the valve. When installing a valve it is imperative that the proper length bolts be used. Bolts longer than the thickness of both mating flanges **will damage the body panels and destroy the seal surface area for the gate o-ring.** For best results, **always use bolts that are at least 1/8" of an inch shorter than the thickness of both mating flanges.** Lightly grease the flange bolts with high temperature non-galling type grease. Carefully tighten around the flange in 180 degree alternating pattern until flanges are metal to metal and bolts are snug approximately 5-10 foot pounds of torque (o-ring seal flanges) or 16 foot pounds of torque (metal seal flanges) up to 2% O.D. or 26 foot pounds of torque (metal seal flanges) up to 10.0° O.D.
- Valves will work equally well with actuation center line located in any position round the flange. In addition, the pressure differential can be applied to either side of the gate and still maintain a vacuum tight seal. However, it is preferable to install the valve with vacuum on the underside of the valve gate so that the valve body remains under vacuum at all times and the pumpdown of the valve body is eliminated.

HAND OPERATED TYPES. Prior to valve installation check to see that the valve actuation works freely.

AIR OPERATED AND SPRING LOADED OPTION TYPES. Connect the compressed air supply to the valve with 1/2" pipe fittings using teflon tape on the threads to insure leak proof joints. **For continued trouble free operation, it is recommended that an air filter/lubricator be used in the air line system.** Refer to the solenoid nameplate for the correct voltage when connecting to the electric service. Check carefully the operation of the valve with 20 PSIG air pressure. Increase air pressure slowly until the valve is heard to mechanically lock over center. At this point, note the pressure, increase the pressure by 5 additional pounds. The valve is now set and ready for operation. See caution for dismantling spring loaded air cylinder assemblies.

POSITION INDICATED TYPES. The standard position indicator switches are preset and will indicate when the valve is fully opened or fully closed. The standard voltage on the micro switches is 28 volts DC at 5 amps.

OPERATION

To ensure troublefree use, keep the valve clean and free of contaminants. **DO NOT operate pneumatic valves above 100 PSIG.** Higher pressures may damage the piston actuator.

DO NOT excessively tighten or adjust the hand operated valve; especially to prevent leakage. The gate mechanism is designed to go "over-center" in order to achieve a seal. Any further tightening of the actuator will only increase the leak rate at the gate and will damage internal linkage of the valve. Check for o-ring damage and cleanliness if leakage should occur at the gate. For special gate valves, see addendum enclosed.

WARRANTY

Each product sold by High Vacuum Apparatus (HVA) is warranted to be free from manufacturing defects that adversely affect the normal functioning thereof during the one-year period immediately following delivery thereof by HVA (or in the case of products or components of any product purchased by HVA from another for any lesser period of time that such manufacturer warrants said product or component to HVA.) Due to the potential danger from a misuse of the goods sold under this agreement **SELLER'S WARRANTIES OF FITNESS AND MERCHANTABILITY, AS WELL AS ANY OTHER EXPRESS WARRANTIES MADE IN CONNECTION WITH THIS SALE, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS** the product is operated under conditions of normal use and that regular, periodic maintenance and service is performed or replacements made, in accordance with the instructions provided by HVA. **The foregoing warranty shall not apply to any product or component that has been repaired or altered** by anyone other than an authorized HVA representative or that has been subject to improper installation or abuse, misuse, negligence or accident. HVA shall not be liable for any damage, loss or expense, whether consequential, special, incidental, direct or otherwise, caused by, arising out of or connected with the manufacture, delivery (including any delay in or failure to deliver), packaging, storage or use of any product sold or delivered by HVA, whether or not resulting from negligence or from breach of contract except that in the event that any product so sold or delivered by HVA shall fail to conform to the foregoing warranty or to the description thereof contained herein, the purchaser thereof, as its exclusive remedy, shall upon prompt notice to HVA of any such defect or failure and upon the return of the product, part or component in question to HVA at its factory, with transportation charges prepaid, and upon HVA's inspection confirming the existence of any defect inconsistent with said warranty or any such failure, be entitled to have such defect or failure cured at HVA's factory and at no charge therefore, by replacement or repair of said product as HVA may elect. **THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS, AND OF ANY OTHER OBLIGATION ON THE PART OF HVA AND NONE SHALL BE IMPLIED BY LAW.**

PARTS LIST

ITEM	DESCRIPTION	.625	1.50	2.00	2.50	3.00	4.00	6.00
BONNET BELLOWS SECTION								
*01b	STAND PIPE ASSY "STD"	—	B-0063	B-0142	B-0351	B-0144	B-014Q	B-0140
	STAND PIPE ASSY: MSB"	—	B-0065	B-0143	B-0352	B-0147	0*0141	B-0141
*02b	SCREW: "STD"	—	07-023	07-023	07-032	07-032	07-033	07-033
	SCREW: "MSB"	—	07-039	07-038	07-Q39	07-039	07-050	07-050
*03b	BONNET BELLOWS ASSY: "STD"	—	B-0149	B-0150	B-0597	B-0588	B-0329	B-0333
	BONNET BELLOWS ASSY: MSB"	—	B-0148	B-01S1	B-0598	B-0593	B-0330	B-0334
	BONNET X-BELLOWS ASSY: "STD"	—	B-0353	B-0160	B-01S8	B-0156	B-0328	B-0349
	BONNET X-BELLOWS ASSY "MSB"	—	B-0354	B-0305	B-0159	B-0157	B-0317	B-0321
	BONNET BELLOWS ASSY "STD HAT"	A-0881	—	—	—	—	—	—
	BONNET BELLOWS ASSY: "MSB H/O"	A-0882	—	—	—	—	—	—
	BONNET BELLOWS ASSY: STD PNU"	A-1091	—	—	—	—	—	—
	BONNET BELLOWS ASSY: MSB PNU"	A-1 的 2	—	—	—	—	—	—
04b	6XT RETAINER RING	—	—	—	22-003	22-003	22^QQ2	22-002
05b	—	—	—	—	—	—	—	—
*06b	SOC HD SCR: "STD"	—	—	—	—	—	07-029	07-029
	SOCHDSCR..M	—	—	—	—	—	07-042	07-042
07b	SOC HD SCR	—	07-024	07-024	07-028	07-029	07-028	07-02d
08b	STEM PIN	—	—	—	—	—	A-0823-02	A-0823-02
*0如	SCREW: -STD-	07-025	07-023	07-023	07-032	07-032	07-032	07-032
	SCREW: MSB.	07-025	07-039	07-039	07-039	07-039	07-048	07-048
*10B	BONNET GASKET; "STD"	24-025	24-033	24-035	24-152	24-153	24-157	24-162
	BONNET GASKET: "MSB.	27-001	27-002	27-003	27-004	27-005	27-006	27-007
11b	FLAT WASHER	—	09-010	09-010	09-010	09-010	09-016	09-016
12t)	HEXNUT	—	—	—	—	—	08-012	08-012

CARRIAGE SECTION

01c	PIVOT PIN ..UL"	—	A-0170	A-0170	A-0479	A-0479	A-1122-02	A-1122-02
02c	UPPER UNKAG£ ASSY	—	B-0047	B-0208	A-0469	B-0136	B-0344	B-0341
03c	RADIAL BEARING	—	—	—	14-008	14-008	14-001	14-001
04c	FLAT WASHER	—	—	—	—	—	A 1045	A-1045
05c	LOWER LINKAGE UL"	—	—	—	—	—	C-0203	C-0203
06c	COTTER KEY	—	40-01^	40-019	40-025	40-025	40-025	40-025
07c	LOCKWASHER	—	—	—	09-015	09-015	09-013	09-013
08c	JAM N(JT "RIGHT HAND"	08-007	A-0742	A-0742	08-011	08-011	A-0926	A-0926
	JAM NUT: LEFT HAND*	—	—	—	—	—	A-0927	A-0927
	THREADED BOU	—	A-0128	A-0595	A-08S6	A-08M-01	A-0894	A-0894
	LOWER LINKAGE SB"	—	A-0127	A-0127	A-1089	A-1089	C-0073	C-0072
	PIVOT PIN "SB *	—	A-0139	A-0139	A-0478	A-0478	A-0739-02	A-0739-02
	ELBOW PIVOT PIN	—	A-0169	A.01 的	A-0476	A-0476	A-0747-02	A-0747-02
	STRONG BACK ASSY	C-0105	B-0107	B-0210	C-0195	C-0198	C-0127	C-0206
	SET SCREW	07-532	07-526	07-526	07-515	07-525	07-524	07-524
09c	JAM NUT	08-015	08-007	08-007	08-008	08-008	08-011	08-011
10c	LOCKWASHER	—	—	—	09-008	09-008	09-015	09-015
11c	INT RETAINER RING	—	—	—	22-301	22-301	22-201	22-201
12c	STEM PIN	—	A-0140	A-0140	A.0486	A-04A6	A-2228-02	A-2228-02
13c	EXT RETAINER RING	—	22-001	22-001	22-003	22-0Q3	22,002	22-002
14c	EXT RETAINER RING	22-001	—	—	22-003	22-003	22402	22-002
15c	EXT RETAINER RING	—	—	—	22-003	22-003	22-004	22-004
16c	EXT RETAINER RING	—	—	—	22-003	22-003	22-004	22-004
17c	SIDE WHEEL	A-0342	A-0136	A-0136	A-0496	A-0496	A-0728	A-0728
18c	FLAT WASHER	—	09-005	09-005	—	—	09-009	09-009
19c	\$IOE WHEEL AXLE	—	A-0137	A-0137	A-0477	A-0477	A-0734-02	A-0734-02
20c	GATE SPRING	17002	17-002	17-002	17-001	17-001	17-004-01	17-004-01
21c	STRONG BACK UNK PIN	A-0348	A>0138	A-0138	A«O485	A-0485	A-的92-02	A-0992-02
22c	GATE O-RING	24.017	24-029	24-033	24-146	24-1S1	24-155	24-163
23c	GATE ASSY	C-0494	B-0106	0-0209	B0131	B-0135	B-02«e	C-0172
24c	GATE UNK PIN	A-0347	A-0161	A-Q599	A 1027	A-1027	A-0733-02	A-0733-02
25c	LINKS	A-0346	A-O130	A-0130	A-0455	A-0455	A-0109	A-0856
26c	GUIOC WHEEL ZU(LE	—	—	—	—	—	A-0740-02	A-0740-02
27c	GUIDE WHEEL	—	—	—	A-0285	A-0285	A-072S	A-0729
28c	FWCAXLg	A-0348	A-1041	A-1041	A-1028	A-1028	A-0957-02	A-0957-02
29c	FWC PLATE	—	B-0494	B-049S	B-0513	B-0514	A-0903	A-0905
30c	EXT RETAINER RING	—	—	—	22-009	22-009	22-002	22-002
31c	BODY ASSY: "STD"	B-0356	B-0358	B-0359	C-0064	C-0066	C-0068	C-0070
32c	BODY ASSY: MSB *	B-0355	B-0857	B-0360	C>0065	C-0067	C-0069	C-0071
33c	CARRIAGE ASSY	B-0509	B-0559	B-0560	B-0561	B-0562	B-0563	C-0248
34c	(Items 01c thru 35c)							

* INDICATES "STD" & "MSB" VERSIONS

PARTS LIST

ITEM	DESCRIPTION	.625	1.50	2.00	2.50	3.00	4.00	6.00
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MANUAL ACTUATOR SECTION

01m	KNOB HANDLE	—	—	—	A-0077	A-0077	A-0088	A-0088
02m	KNOB	A-0345	A-0143	A-0143	A-0071	A-0071	A-0497	A-0497
03m	SETSCREW	07-511	07-512	07-512	07-512	07-512	07-517	07-517
04 m	DRIVE NUT	A-0354	A-0142	A-0142	A-0871	A-0H71	A-0041	A-0041
05m	BEARING KIT ASSY	—	—	—	A-1030	A-1030	A-1030	A-1030
06m	RADIAL BEARING	—	—	—	14-006	14-006	14-006	14-006
07m	BEARING BLOCK	—	—	—	A-0870	A-0870	A-0865	A-0865
08m	JAM NUT	—	—	—	A^0662	A-0662	A-0662	A-0662
09m	DRIVE SCREW	—	A-0847	A-0847	A-O916	A-0916	A-1031	A^1031
*10m	BASE PL ASSY: "STD"	A-0924	—	—	—	—	—	—
	BASE PL ASSY; "MSB"	A-0925	—	—	—	—	—	—
11m	EXT RETAINER RING	22-007	—	—	—	—	—	—
12m	INT RETAINER RING	—	22-101	22-101	—	—	—	—
*13m	ACTUATOR ASSY H/O: "STD"	B-0551	B-0550	B-0550	B-0549	B-0549	B-0548	B-0548
	ACTUATOR ASSY K/O "MSB"	B-0552	B-0550	B^0550	B-D549	B-0549	B-0548	B-0548

[Items 01m thru 12 mJ

PNEUMATIC ACTUATOR SECTION

*01p	AIR CYL ASSY 'STD- AIR CYL ASSY: "MSB"	B-0456 B-0367	B-0455 —	B-O455 —	B-0454 —	B-0454 —	B-0453 —	B^0453 —
02p	SOC HD SCR	07-021	07-024	07-029	07-029	07-029	07-029	07-029
03p	SOC HD SCR	—	07-021	07-021	07-024	07-024	07-029	07-029
04p	PISTON O-RING	23-115	23-131	23^131	23-227	23-227	23-231	23-231
05p	PISTON	A-0883	A-0887	A-0887	A-08B8	A-0888	B-0361	B-0361
06p	INTER PL O-RING INT	23-108	23-110	23-110	23^206	23-206	23-206	23-206
07p	INTER PL O-RING EXT	23-T15	23-131	23-131	23-227	23-227	23-231	23-231
08 □	INTERMEDIATE PU	A-1032	B-0362	8-0362	B-0363	B-0363	B-0364	B-0364
09p	—	—	—	—	—	—	—	—
10p	DRIVE SHAFT	—	6-0530	B-0530	A-1086	A-1086	A-1033	A-1033
11p	AIR CYL FITTINGS	15-002	15-002	15-002	15-002	15-002	15-002	15-002
12p	AIR LINES	20-002	20-002	20-002	20-002	20-002	20-002	20-002
13p	FITTING KIT ASSY	A-1034	A-1034	A-1034	A-1034	A-1034	A-1035	A-1035
14p	SOLENOID	18-007	18-007	18-007	18-007	18-007	18-003	18-003
15p	SOLENOID BASE PL	—	—	—	—	—	A-0092	A-0092
16p	FLAT7HDSCR	—	—	—	07-018	07-018	07-061	07-061
17p	SPEED CONTROL	—	—	—	—	—	18-013	18-013
*18p	ACTUATOR ASSY PNU "STD"	B-0553	B-0S36	B-0536	B-0544	B-O544	B-0S45	B-0545
	ACTUATOR ASSY PNU; .MSB"	B-0554	—	—	—	—	—	—

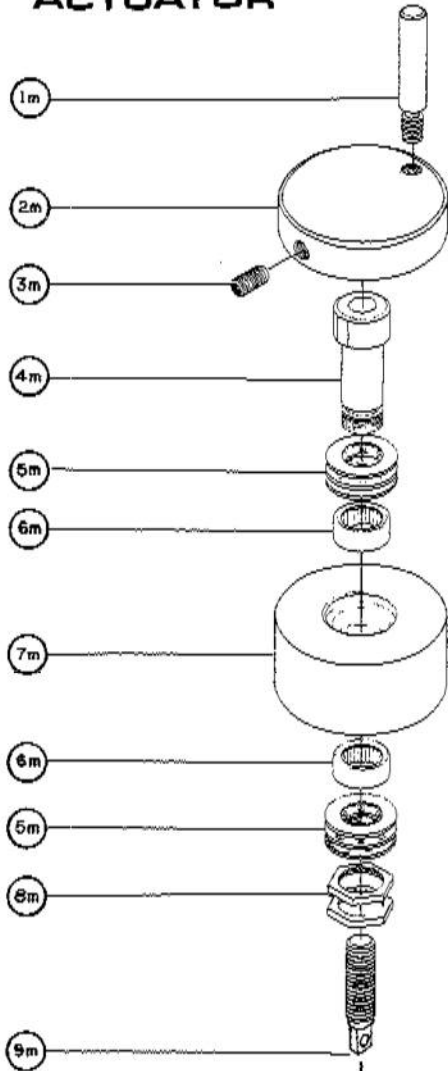
[Items 01 p thru 10p & 12 m)
(Items 12p thru 16p; 17p optional)

POSITION INDICATOR SECTION

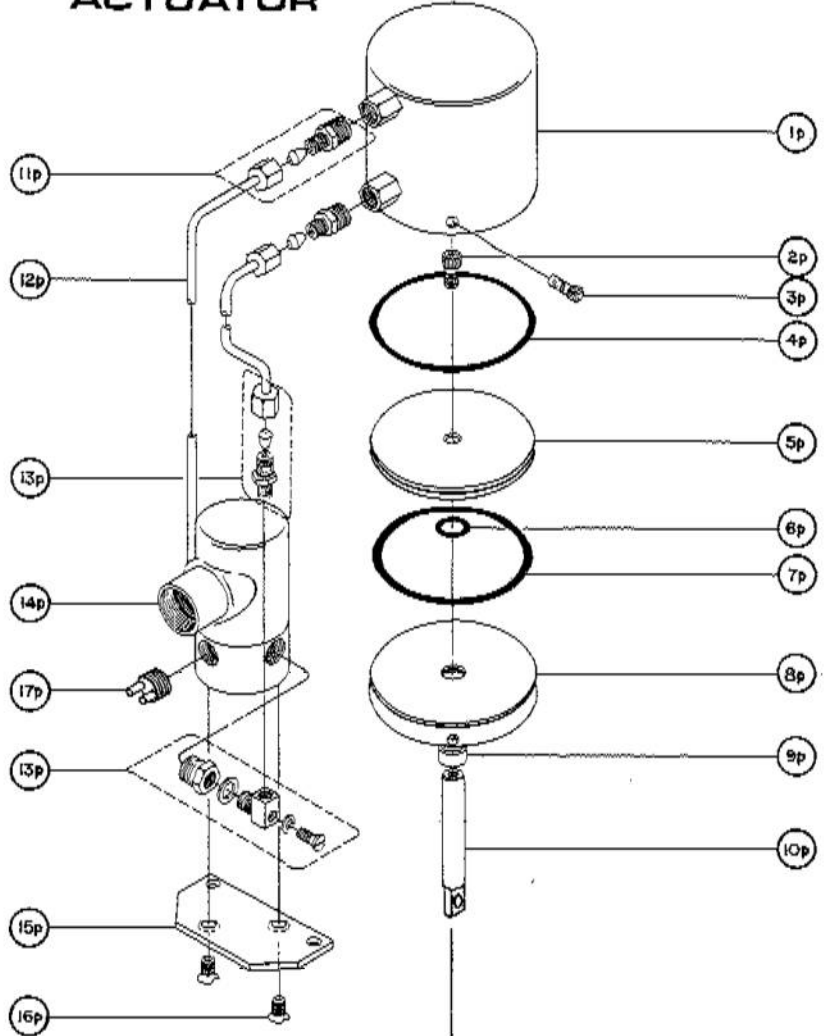
01 i	PI BOX KIT	B-0490-06	B-0490-01	B-0490-01	B-0490-02	B-0490-02	B-0490-03	B-0490-03
02i	MICRO-S KIT ASSY	A-1044	A-1044	A-1044	A-1044	A-1044	A-1044	A-1044
*03i	STAND PIPE ASSY: "STD"	—	B-0063-01	B-0142-01	B-0351-01	B-0144-01	B-0140-01	B-0140-01
	STAND PIPE ASSY: "MSB"	—	B-0065-01	B-0143-01	B-0352-01	B-0147-01	B-0141-01	B-0141-01
04i	SOC HD SCR	07-021	07-022	07-022	07-029	07-029	07-030	07-030
*05i	BONNET BELLOWS ASSY: "STD"	A-1091	B-0149-01	B-0150-01	B-0597-01	5-05^4	B-0329-01	B-0333-01
	BONNET BELLOWS ASSY: MSB"	A-1092	B-0148-01	B-0151-01	B-0598-01	B-0595	B-0330-01	B-0334-01
	BONNET X-BELLOWS ASSY: "STD"	—	B-0S53-01	B-0160-01	B-0158-01	B-0156-01	B-032^01	B-0349-01
	BONNET X-BELLOWS ASSY; .MSB"	—	B-0354-01	B-0305-01	B-0159-01	B-0157-01	B-0317-01	B-0321-01
*0W	AIR CYL ASSY 'STD'	B-0557	—	—	—	—	—	—
	AIR CYL ASSY; "MSB"	□-0558	—	—	—	—	—	—
07i	PIO-RING	23-010	—	—	—	—	—	—
	PI SPACER	A-1055	—	—	—	—	—	—
09i	PI SHAFT	A-1056	—	—	—	—	—	—
10i	PI TRIGGER	A-0794	—	—	—	—	—	—
11f	SOC HD SCR	07-022	—	—	—	—	—	—
*12i	PI ACTUATOR ASSY: STD"	B-0555	—	—	—	—	—	—
	PJ ACTUATOR ASSY "MSB"	B-0556	—	—	—	—	—	—

[Items 0H thru 17i and 04p thru 08p)

MANUAL ACTUATOR

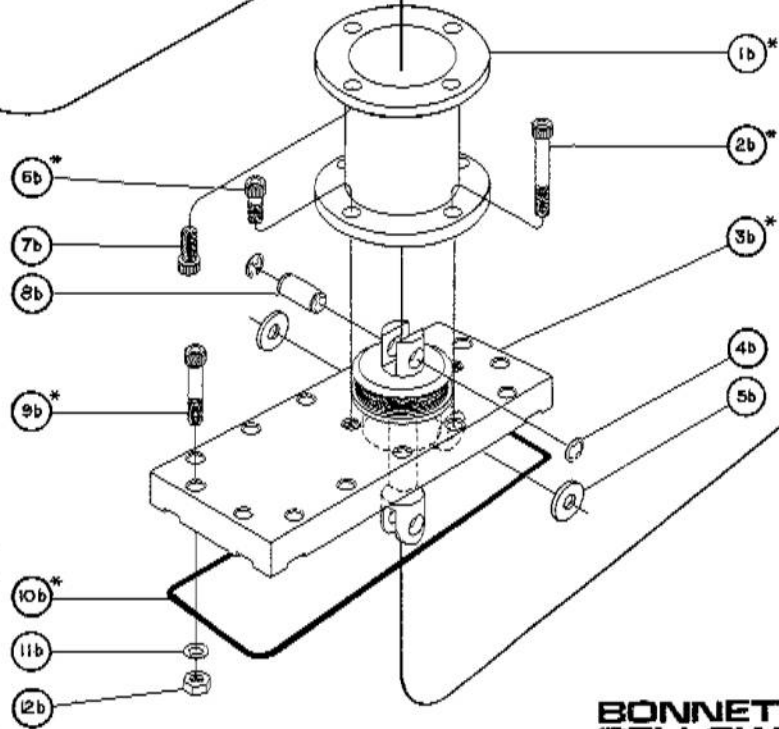
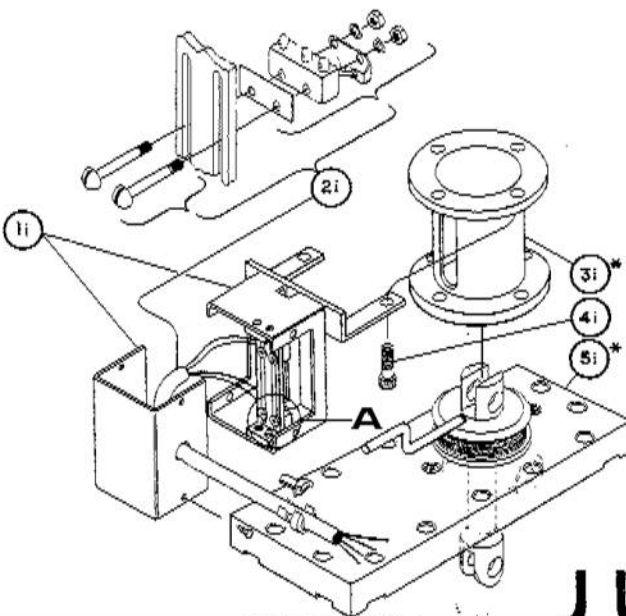


PNEUMATIC ACTUATOR



POSITION INDICATOR

VIEW IN CIRCLE 'A'

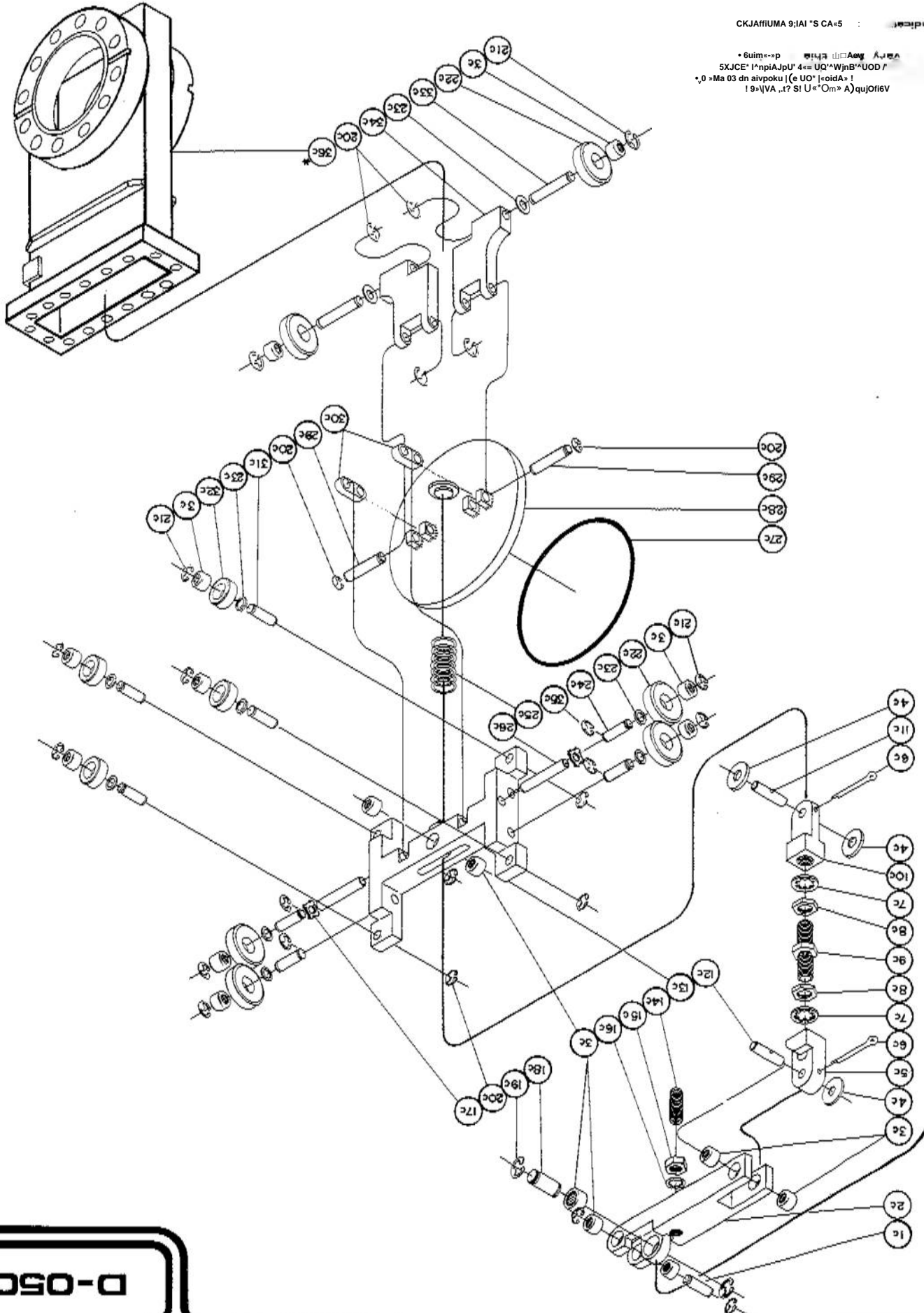


BONNET BELLOWS

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D-0500

CARRIAGE

Bill of Material Viewer Report

Assembly ID: C-0248
Description: A\$Y CARRIAGE G 6.0M W/GW

Level	Component ID	Required Quantity	Remark	Description	End Date	Start Date
1	07-531	1.000000		SCR SET .312-24 X 1. UULFUVAL # 1 S/S		
1	08-011	1.000000		NO 1.01 1/2 UIM A .187 1HK HEX JMMI		
考 1	09-013	2.000000		WASHER INTERNAL TOOTH LOCK .375 1&-8SS		
4i	09-015	1.000000		WASHER INTERNAL TOOTH LOCK .312 18-88\$		
*i	09-212	10.000000		WASHER FLAT .253IDX 468ODX .026T 18-8SS		
41	14-001C	17.000000		BEARING #B-44 COATED .250 I.D.		
*1	14-062	sJooooo		BEARING #TRA-411 THRUST RACE NOT COATE		
1	17-004-01	1.000000		SPRING G 4.0'- 12.0" HEAVY PER B- 0072-03		
4i	22-002	14.000000		R-RING EXT .172" X5133-17		
1	22-004	10.000000		R-RING EXT .250" 5133-25		
奇 1	22-201	2.000000		R-RING INT .311* S\$ 5005-3-H		
41	40-025	2.000000		COTTER PINS 5/64* XII/4 - S/S		
1	A-0728-01	2.000000		WHEEL S/W G 6.0 W/GW ONLY (WITH HUB)		
1	A-0728	4.000000		WHEEL G/W G 4.0 - 8.0 W/GW		
4 1	A-0733-02	2.000000		GATE L PIN G 4.0"- 6.0" W/GW NI-60 \$\$		
* i	A-0734-02	4.000000		AXLE S/W G 4.0"- 6.0* W/GW NI60		
* 1	A-0739-02	1.000000		SB. PIVOT PING 4- 8 W/GW 2.5G.OLD NI60		
*1	A-0740-02	4.000000		AXLE G/W G 4.0"- 6.0" W/GW NI60		
4 i	A-0747-02	1.000000		ELBOW PIN G 4.8 W/GW 2.5-3 OLD Ni- 60 SS		
1	A-0800	2.000000		LINK G 8.0-8.0 wewii		
1	A-0801	1.000000		W/BOLE G 4.0-8.0 W/GW IfgWBgObOH		
1	A-0900	2.000000		P.W.C. PLATE G 6.0 W/GW RE-N BEGON		

Bill of Material Viewer Report

Assembly ID: 620-0600
Description: KIT, PINS & BEARINGS REPLACEMENT G 6.0'

Level	Component ID	Required Quantity	Remark	Description	End Date	Start Date
.....	00000	1.000000			
.....	01230	0.000000			
4 1.....	Q9-013	2.000000		WASHER INTERNAL TOOTH LOCK .375 18-8SS		
4i	09-015	1.000000		WASHER INTERNAL TOOTH LOCK .312 18-8SS		
X 1.....	09-212	10.000000		WASHER FLAT .253IDX .468ODX •026T 18-8SS		
.....	00000	1.000000			
4i.....	14-001C	17.000000		BEARING #B-44 COATED .250 I.D.		
4 i	14-062	11.000000		BEARING #TRA-411 THRUST RACE NOT COATE		
JEI.....	17-004-01	1.000000		SPRING G 4.0"-12.0- HEAVY PER B-0072-03		
4 i.....	22-002	20.000000		R-RING EXT .172" X5133-17		
4i.....	22-004	15.000000		R-RING EXT .250" 5133-25		
*1.....	22-201	3.000000		R-RING INT .311-SS 5005-3-H		
4 i	40X)25	1.000000		COTTER PINS 5/64" XII/4" S/S		
1 "	A-0733-02	2.000000		GATE L PIN G 4.0"-6. " W/GW NI-60 SS		
J 1.....	A-Q734-02	4.000000		AXLE S/W G 4.0"-6.0" W/GW NI60		
*1.....	A-0739-02	1.000000		S.B. PIVOT PIN G 4-8W/GW2.5G OLD NI60		
4 1.....	A-0740-02	4.000000		AXLE G/W G 4.Q"-6.0" W/GW NI60		
* 1.....	A-0747-02	1.000000		ELBOW PIN G 4.8 W/GW 2.5-3 OLD NI-60 SS		
.....	A-0000-02	2.000000			
.....	A-0000-02	2.000000			