

SLA-02

PRENTICE HYDRAULICS, INC.

PRENTICE, WISCONSIN

PARTS LIST

MODEL NORC

SERIAL # 6193

Important

To prevent delay in processing your orders and to guard against error in shipment, please read the following directions carefully before ordering:

1. Indicate on your order the model and serial number of your machine.
2. Clearly specify part numbers on your order.

Company service policy is to process all orders and ship the same day received.

MODEL

H03C

SERIAL NO.

6193

WARRANTY

The Prentice Hydraulics, Inc. warrants that it will repair, F.O.B. its factory, or furnish without charge, F.O.B. its factory, a similar part to replace any material in its new machinery which within 3 months after date of sale by the dealer, is proven to the satisfaction of Prentice Hydraulics, Inc. to have been defective at the time it was sold, provided that all parts claimed defective shall be returned properly identified to the Prentice Hydraulics, Inc. factory, charges prepaid.

GENERAL INFORMATION

All Grease Fittings	No. 2 Grease or Equiv.
Spindle & Hub Assy	Pack with No. 5 Grease or Equiv. on reassembly
Winch Gear Case	No. 90 Transmission Grease

HYDRAULIC SYSTEM DATA

Reservoir Capacity	20 gallon or 30 gallon	
Pump	Gear Type Bi-Rotational	
Filter	M-300 Sump Type (Clean Regularly)	
Relief Valve Settings	(Located on Valve Bank)	
	Truck & Large Loaders	1800 PSI
	TMS	1200 PSI
	Skidders	1200 PSI

Motrex Hydraulic Oil No. 119 or equiv. (Winter)
 Specs. of Socony Vacuum Motrex #119 Hydraulic Oil

Pour	-50 Degrees	
Flash	345 Degrees	
Viscosity at 100 Degrees F		100-110
Viscosity at 210 Degrees F		39
Color	#2	Defoamant

Motrex Hydraulic Oil No. 101 or Equiv. (Summer)
 Specs of Socony Vacuum Motres #101 Hydraulic Oil

Pour	-25 Degrees	
Flash	365 Degrees	
Viscosity at 100 Degrees F		170
Viscosity at 210 Degrees F		43.3
Color	#2	Defoamant

GENERAL INFORMATION

agitation caused CIA

2024 09 11 09:11:02

SEND MAIL OFFICE

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223070 no. 21mancr 02 .07

ATM. KUTZY2 OIJCASOYH

Researcher's name

652

1990

agitated on 14V battery

(Mounted on Valve Bank)

attached signed & dated

2:1

2-10-542

125 0007

122 0081

1300 0031

(метод) .вида на ГИ .на 10 описувајќи својот

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Page 10 of 10

Page 10 of 10

011-001 T sergnt 001 to v l 001

28 H assigned 015 to yamamoto

NAME - DOB	SSN	TO-DO
ALAN - 01/01/1950	123-45-6789	10/15/2023
JOHN - 02/02/1955	987-65-4321	11/01/2023
JANE - 03/03/1960	567-89-1011	12/01/2023
BOB - 04/04/1965	234-56-7890	01/01/2024
EMILY - 05/05/1970	345-67-8901	02/01/2024
MICHAEL - 06/06/1975	456-78-9012	03/01/2024
SARAH - 07/07/1980	567-89-0123	04/01/2024
DANIEL - 08/08/1985	678-90-1234	05/01/2024
AMANDA - 09/09/1990	789-01-2345	06/01/2024
CHRISTOPHER - 10/10/1995	890-12-3456	07/01/2024
KATHERINE - 11/11/2000	901-23-4567	08/01/2024
ANDREW - 12/12/2005	012-34-5678	09/01/2024
ELIZABETH - 01/01/2010	123-45-6789	10/01/2024
JACOB - 02/02/2015	234-56-7890	11/01/2024
OLIVIA - 03/03/2020	345-67-8901	12/01/2024
WILLIAM - 04/04/2025	456-78-9012	01/01/2025
CHARLOTTE - 05/05/2030	567-89-0123	02/01/2025
LUCAS - 06/06/2035	678-90-1234	03/01/2025
HARPER - 07/07/2040	789-01-2345	04/01/2025
JOSEPH - 08/08/2045	890-12-3456	05/01/2025
SKYLAR - 09/09/2050	901-23-4567	06/01/2025
LEONARD - 10/10/2055	012-34-5678	07/01/2025
ADAM - 11/11/2060	123-45-6789	08/01/2025
MARIAH - 12/12/2065	234-56-7890	09/01/2025
ERIK - 01/01/2070	345-67-8901	10/01/2025
ISABELLA - 02/02/2075	456-78-9012	11/01/2025
NOAH - 03/03/2080	567-89-0123	12/01/2025
AVARAHAM - 04/04/2085	678-90-1234	01/01/2026
ESTHER - 05/05/2090	789-01-2345	02/01/2026
ISAAC - 06/06/2095	890-12-3456	03/01/2026
REBECCA - 07/07/2100	901-23-4567	04/01/2026
YOUSUF - 08/08/2105	012-34-5678	05/01/2026
ANNA - 09/09/2110	123-45-6789	06/01/2026
MOHAMMAD - 10/10/2115	234-56-7890	07/01/2026
ASHLEY - 11/11/2120	345-67-8901	08/01/2026
ABRAHAM - 12/12/2125	456-78-9012	09/01/2026
HELEN - 01/01/2130	567-89-0123	10/01/2026
ISAAC - 02/02/2135	678-90-1234	11/01/2026
CHARLOTTE - 03/03/2140	789-01-2345	12/01/2026
JOSEPH - 04/04/2145	890-12-3456	01/01/2027
AMANDA - 05/05/2150	901-23-4567	02/01/2027
ANDREW - 06/06/2155	012-34-5678	03/01/2027
ELIZABETH - 07/07/2160	123-45-6789	04/01/2027
JACOB - 08/08/2165	234-56-7890	05/01/2027
OLIVIA - 09/09/2170	345-67-8901	06/01/2027
WILLIAM - 10/10/2175	456-78-9012	07/01/2027
CHARLOTTE - 11/11/2180	567-89-0123	08/01/2027
JOSEPH - 12/12/2185	678-90-1234	09/01/2027
AMANDA - 01/01/2190	789-01-2345	10/01/2027
ANDREW - 02/02/2195	890-12-3456	11/01/2027
ELIZABETH - 03/03/2200	901-23-4567	12/01/2027
JACOB - 04/04/2205	012-34-5678	01/01/2028
OLIVIA - 05/05/2210	123-45-6789	02/01/2028
WILLIAM - 06/06/2215	234-56-7890	03/01/2028
CHARLOTTE - 07/07/2220	345-67-8901	04/01/2028
JOSEPH - 08/08/2225	456-78-9012	05/01/2028
AMANDA - 09/09/2230	567-89-0123	06/01/2028
ANDREW - 10/10/2235	678-90-1234	07/01/2028
ELIZABETH - 11/11/2240	789-01-2345	08/01/2028
JACOB - 12/12/2245	890-12-3456	09/01/2028
OLIVIA - 01/01/2250	901-23-4567	10/01/2028
WILLIAM - 02/02/2255	012-34-5678	11/01/2028
CHARLOTTE - 03/03/2260	123-45-6789	12/01/2028
JOSEPH - 04/04/2265	234-56-7890	01/01/2029
AMANDA - 05/05/2270	345-67-8901	02/01/2029
ANDREW - 06/06/2275	456-78-9012	03/01/2029
ELIZABETH - 07/07/2280	567-89-0123	04

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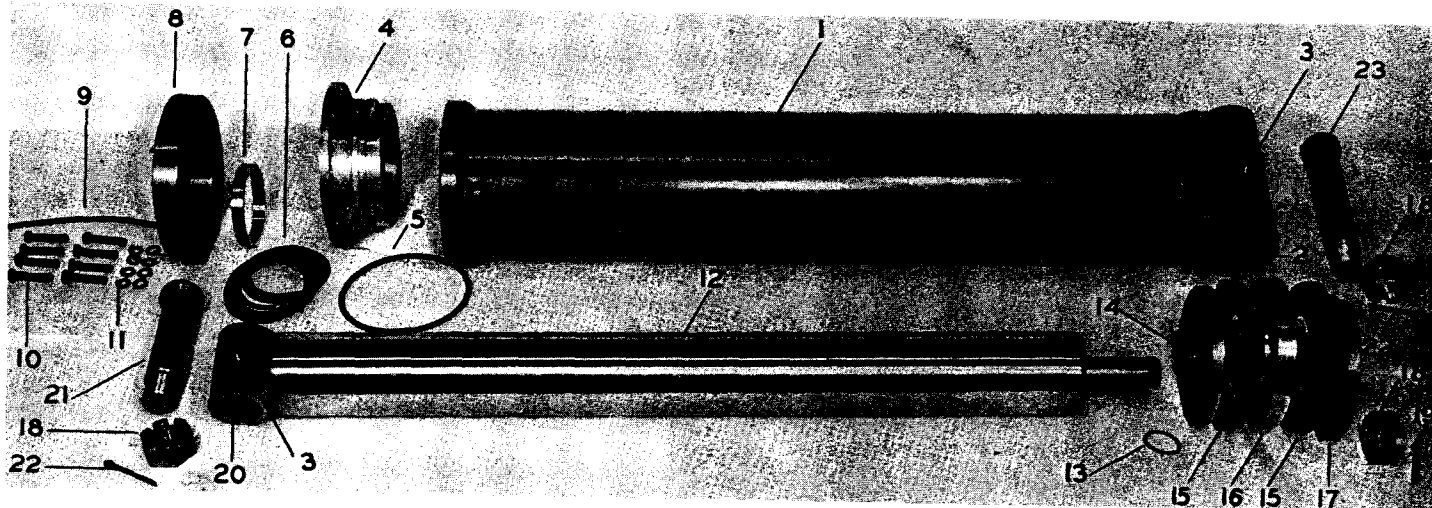
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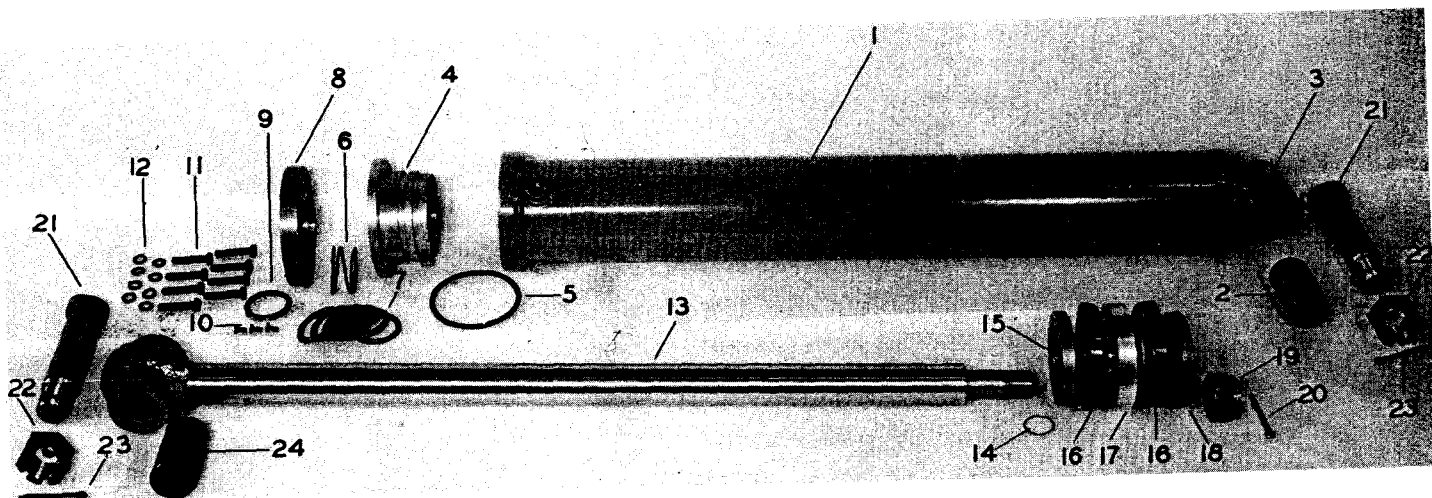
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Main Boom
CYLINDER 7" Bore 4" Rod
34" Stroke

Item No.	Name of Part	Part No.
	Complete Cyl. Assy. (less pins)	110037
1	Barrel	111031
2	Hardened Steel Bushing (2 req.)	102503
3	Grease Fitting	121005
4	Cyl. Head Sleeve	113028
5	Static Seal	135439
6	V Packing	117007
7	Wear Ring	102015
8	Cyl. Head Cap	113027
9	Wiper Strip	147011
10	Cap Screw (8 required)	300511 308601
11	Lock Washer (8 required)	305005
12	Cylinder Rod	112025
13	Shaft Seal	135222
14	Internal Spacer	115020
15	Cups (2 required)	116012
16	Piston	114014
17	External Spacer	115019
18	Castle Nut (3 required)	304414
19	Cotter Pin	309609
20	Hardened Steel Bushing	102505
21	Boom Pin	136022 136037
22	Cotter Pin	309709
23	Boom Pin	136029

When ordering parts please show model and serial number of loader and parts book form number



Note: For cylinders stamped .010 oversize, use:

	Cylinder No.	110041
Item #1	Barrel	111069
Item #4	Sleeve	113042
Item #17	Piston	114021

All other parts are the same.

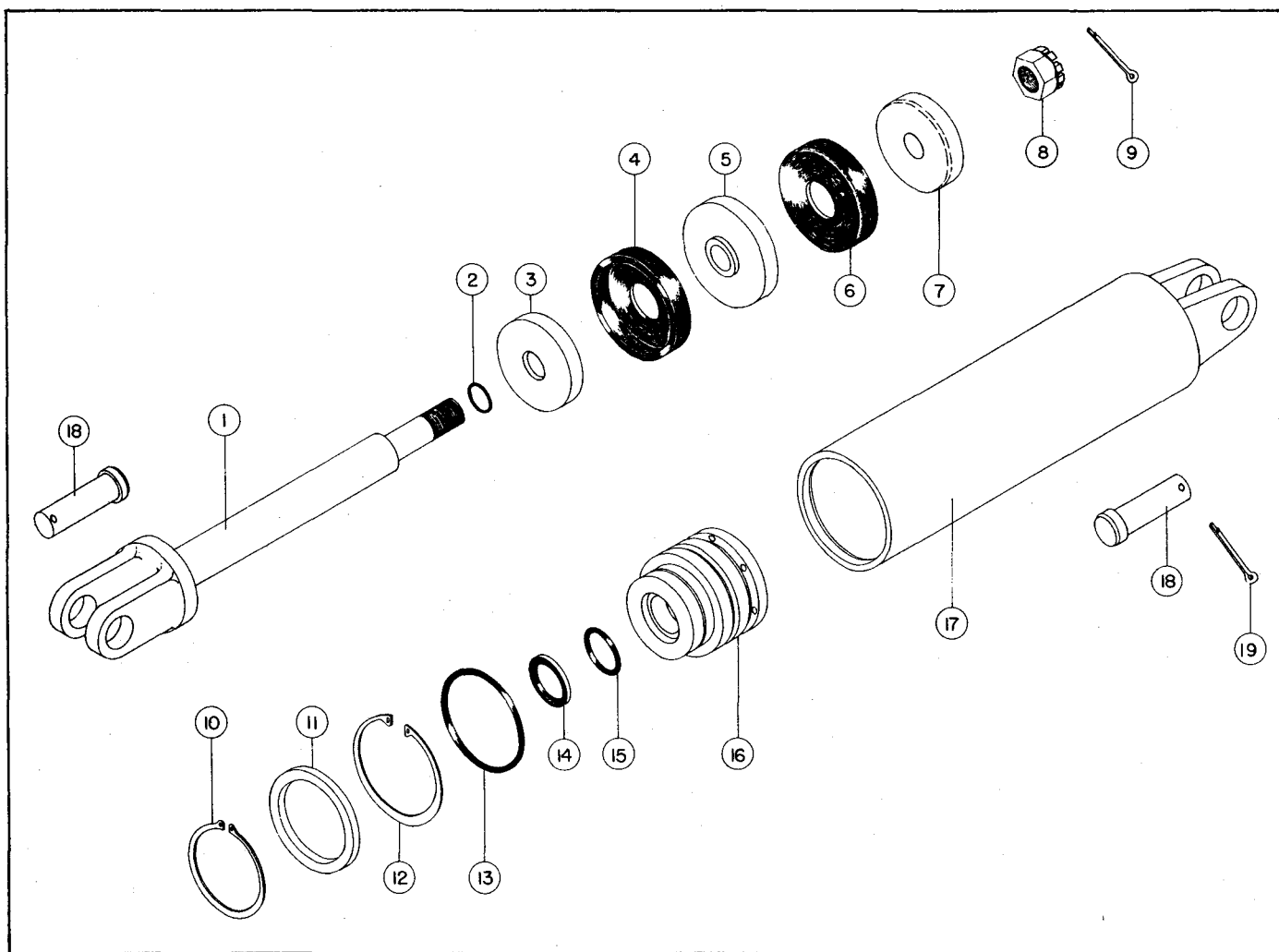
Stick Boom
CYLINDER 5" Bore 2" Rod
34" Stroke

Item No.	Name of Part	Part No.
	Complete Cyl. Assy. (less pins)	110041
1	Barrel	111028
2	Hardened Steel Bushing	102505
3	Grease Fitting	121005
4	Cyl. Head Sleeve	113022
5	Static Seal	135425
6	Conical Spring	152003
7	V Packing	117003
8	Cyl. Head Cap	113021
9	Wiper Seal	147005
10	Brass Cap Screw	308501
11	Cap Screw (8 required)	300410
12	Lock Washer (8 required)	305004
13	Cylinder Rod	112028
14	Piston Gasket	135028
15	Internal Cup Spacer	115014
16	Cups - Fabric	116009
17	Piston	114011
18	External Cup Spacer	115013
19	Castle Nut	304413
20	Cotter Pin	309609
21	Boom Pin	136022
22	Nut	304414
23	Cotter Pin	309709
24	Hardened Steel Bushing	102505

When ordering parts please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
 Prentice, Wis.

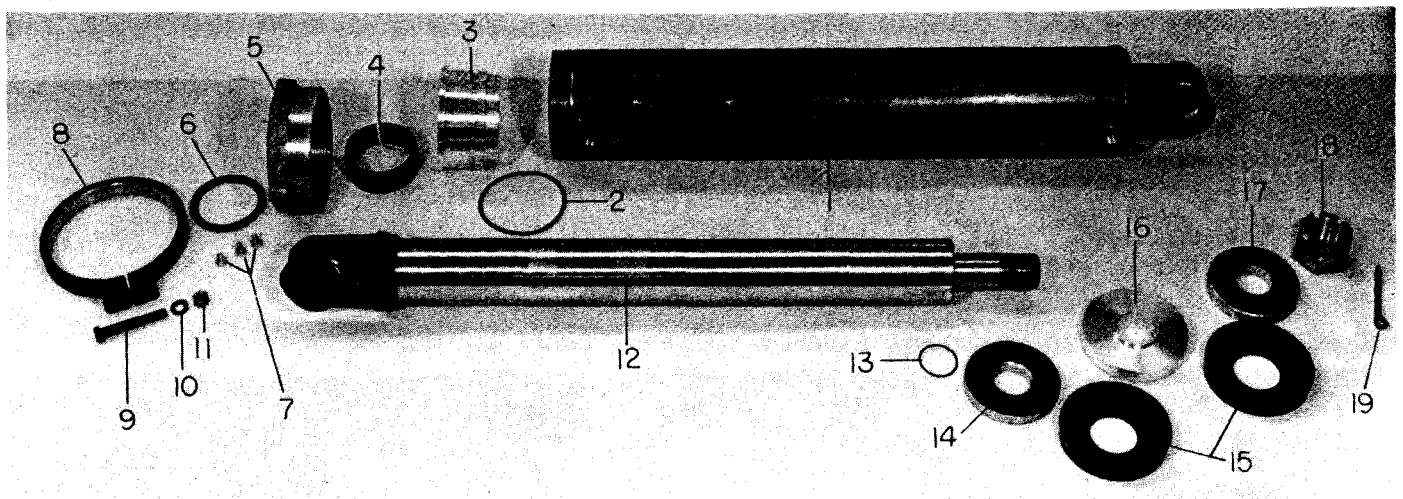
FORM NO. PHI 12



GRAPPLE CYLINDER 3 1/2" Bore 1 1/2" Rod 8" Stroke

Item No.	Name of Part	Part No.	Item No.	Name of Part	Part No.
	Complete Cylinder Assy. (less pins)	110002	10	External Lock Ring	151107
1	Cyl. Rod	112002	11	Lock Ring Spacer	115024
2	Piston Gasket	135022	12	Internal Lock Ring	151005
3	Internal Cup Spacer	115002	13	Static Seal	135338
4	Cup - Fabric	116001	14	Wiper Seal	147004
5	* Piston - Alum.	114002	15	Shaft Seal	135222
	* Piston - Cast Iron	114001	16	Cyl. Head	113001
6	Cup - Fabric	116001	17	Barrel	111002
7	External Cup Spacer	115001	18	Cyl. Pin (2 required)	136001
8	Castle Nut	304410	19	Cotter Pin (2 required)	309605
9	Cotter Pin	309405		* Only one piston required. Use one part no.	

When ordering parts please show model and serial number of loader and parts
book form number



Stabilizer **CYLINDER**

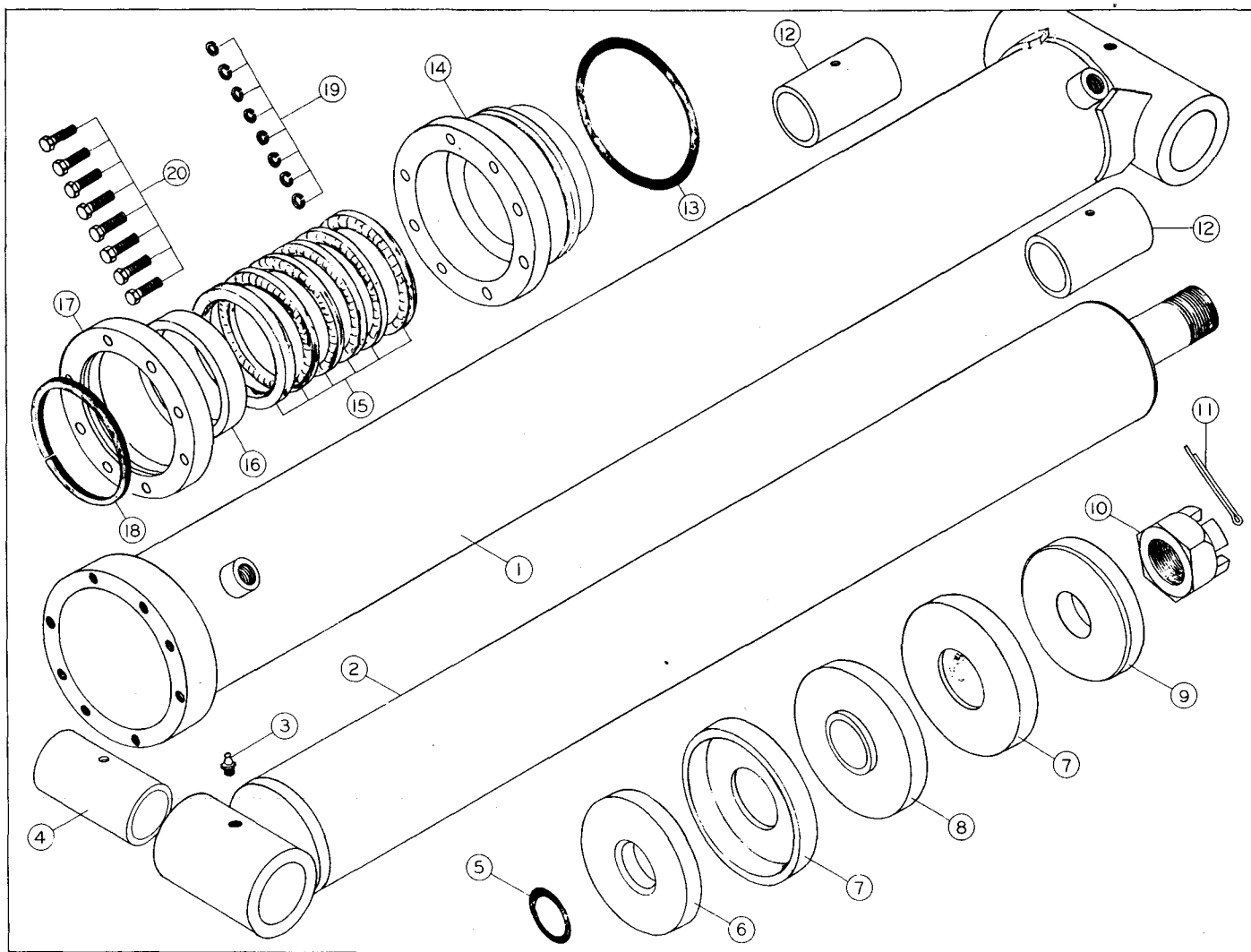
4" Bore 2½" Rod 18" Stroke

Screw Cap Type

Item No.	Name of Part	Part No.
	Complete Cylinder Assy. (less pins)	110067
1	Barrel	111075
2	Static Seal	135240
3	Cylinder Head Sleeve	113047
4	V Packing	117004
5	Screw-on Cap	113046
6	Wiper Seal	147003
7	Brass Cap Screws (3 req.)	308501
8	Clamping Ring	113051
9	Cap Screw	302311
10	Lock Washer	305003
11	Nut	304003
12	Cylinder Rod	112051
13	Piston Gasket	135028
14	Internal Cup Spacer	115006
15	Cup (2 req.)	116005
16	Piston	114005
17	External Cup Spacer	115005
18	Castle Nut	304413
19	Cotter Pin	309409

When ordering parts please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.

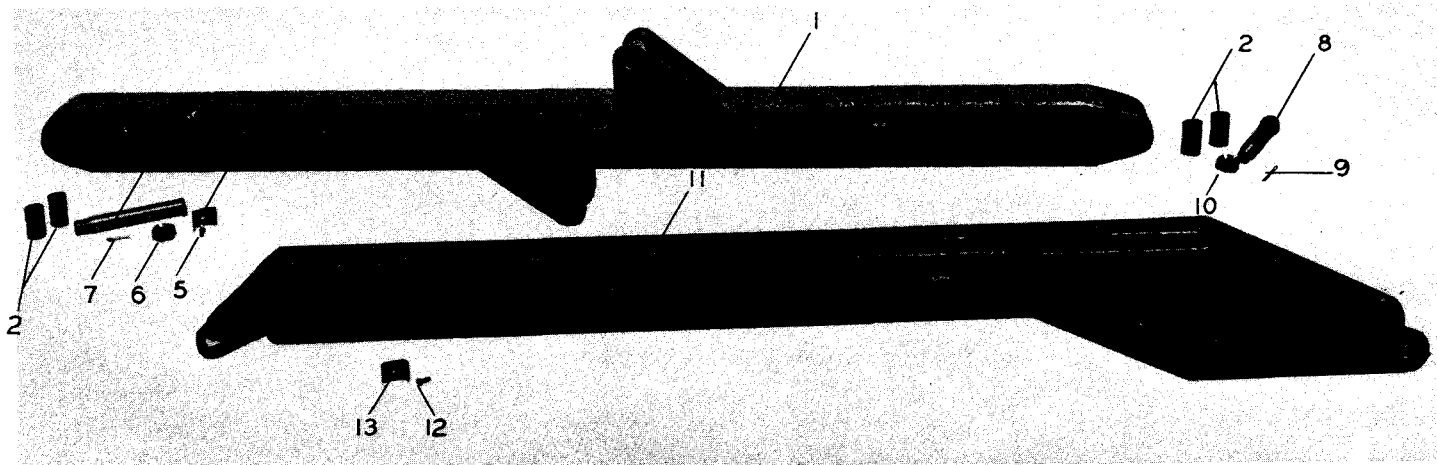


Steel
CYLINDER 6" Bore 4" Rod 28" Stroke

Item No.	Name of Part	Part No.	Item No.	Name of Part	Part No.
	Complete Cylinder Assembly	110030	11	Cotter Pin	309609
1	Cylinder Barrel	111030	12	Bushing	102503
2	Cylinder Rod	112025	13	Static Seal	135433
3	Grease Fitting	121005	14	Cylinder Head Sleeve	113026
4	Bushing	102505	15	Chevron Packing	117007
5	Piston Gasket	135222	16	Wear Ring	102015
6	Internal Cup Spacer	115018	17	Cylinder Head Cap	113025
7	Cup	116011	18	Wiper Strip	147011
8	Piston	114013	19	Lock Washer	305004
9	External Cup Spacer	115017	20	Cap Screw	300409
10	Castle Nut	304414			

Pin for Barrel End	1-3/4 x 9"	4B4 & 3B3 Boom	#136038
Pin for Rod End	1-3/4 x 8"	4B4 & 3B3 Boom	#136037
Pin for Barrel End	1-3/4 x 9-1/4"	FOBC Boom	#136025
Pin for Rod End	1-3/4 x 6-1/8"	FOBC Boom	#136022

When ordering parts please show model and serial number of loader and parts book form number



7" P. C. BOOM

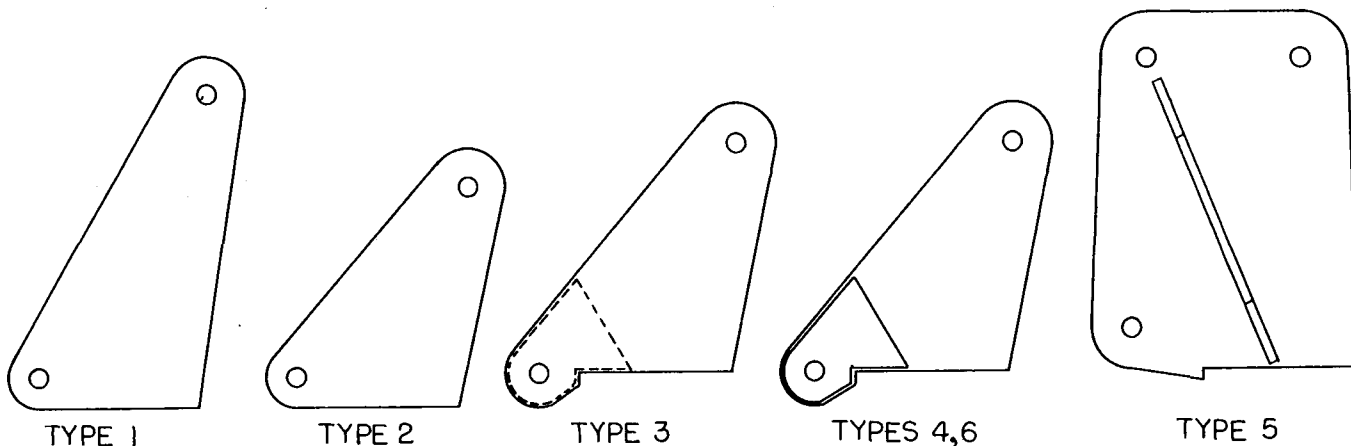
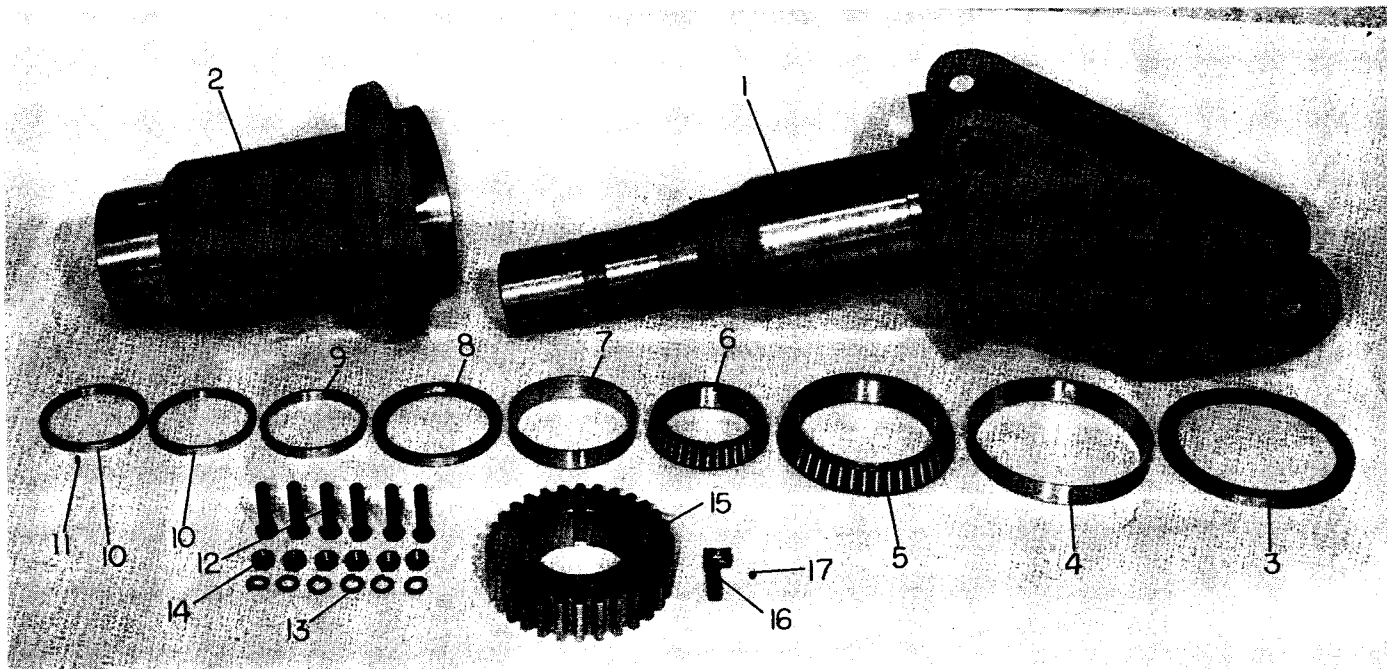
Item No.	Name of Part	Part No.
1	Main Boom 9'-6"	206022
	Main Boom 10'	206047
	→ Main Boom 10'-6"	206046
	Main Boom 11'	206057
	Main Boom 11'-6"	206048
2	Bushings (4 req.)	102504
3	Pin	136027
4 & 13	Holder	130003
5 & 12	Cap Screw	300306
6 & 10	Castle Nut	304414
7 & 9	Cotter Pin	309709
8	Pin	136025
11	Stick Boom - Reg. Ears 8'-6"	206023
	Stick Boom - Reg. Ears 9'	206050
	Stick Boom - Reg. Ears 9'-6"	206049
	Stick Boom - Reg. Ears 10'	206051
	Stick Boom - Reg. Ears 10'-6"	206052
	Stick Boom - Brake Ears 8'-6"	206044
	Stick Boom - Brake Ears 9'	206053
	→ Stick Boom - Brake Ears 9'-6"	206054
	Stick Boom - Brake Ears 10'	206055
	Stick Boom - Brake Ears 10'-6"	206056

When ordering parts please show model and serial number of loader and parts
book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.

5/8/62

FORM NO. PHI 57



HUB & SPINDLE ASSY.

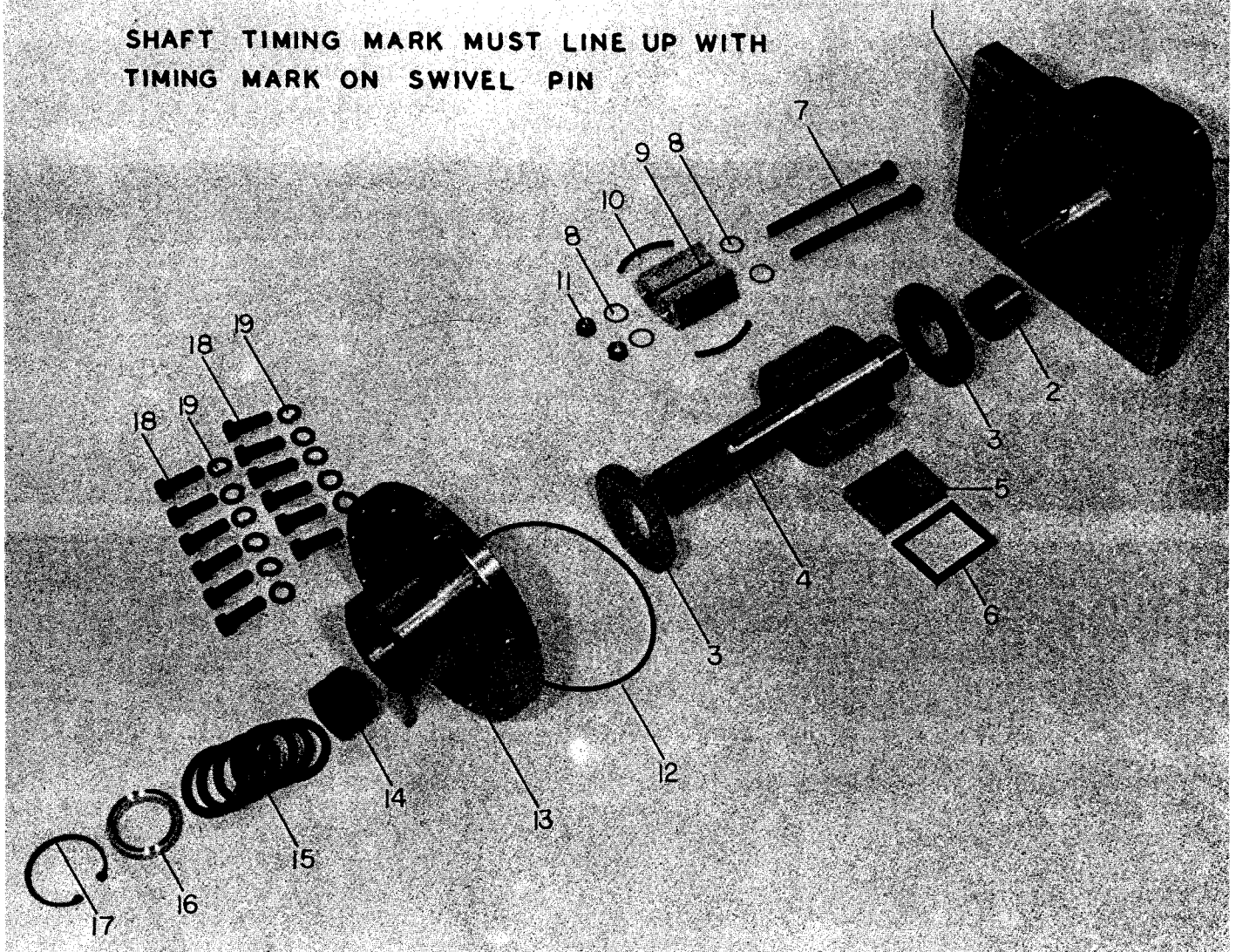
Item No.	Description	No. Req.	Part No.	Item No.	Description	No. Req.	Part No.
1	Spindle w/FOBC ears	1	203021	7	Lower Cup	1	100017
1	Spindle w/Type 1 ears for 7" cyl.	1	203012	8	Grease Seal (lower)	1	147009
1	Spindle w/Type 2 ears for 7" cyl.	1	203001	9	Bearing Spacer & Seal Seat	1	203004
1	Spindle w/Type 3 ears for 6" cyl.	1	203013	10	Adjusting Nut	203055 1	203005
1	Spindle w/Type 4 ears for 7" cyl.	1	203029	11	Allen Head Set Screw	1	306001
1	Spindle w/Type 5 ears (dual)	1	203023	12	Cap Screw	6	302813
1	Spindle w/Type 6 ears (3M3 boom)	1	203036	13	Lock Washer	6	305008
2	Hub	1	202001	14	Nut	6	304208
3	Grease Seal (upper)	1	147013	15	Gear	1	20303D
4	Upper Cup	1	100019	16	Key	1	203007
5	Upper Cone	1	100020	17	Allen Head Set Screw	1	306005
6	Lower Cone	1	100018				

When ordering parts, please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.

NOTE:

**SHAFT TIMING MARK MUST LINE UP WITH
TIMING MARK ON SWIVEL PIN**



ROTOR ASSEMBLY

Item No.	Name of Part	Part No.	Item No.	Name of Part	Part No.
1	Housing	146020	11	Nuts, Flexlock (2 req.)	304502
2	Bushing, Housing	102005	12	Seal, Cover	135255
3	Thrust Washer (2 req.)	146010	13	Cover	146025
4	Shaft	146004	14	Bushing, Cover	102509
5	Vane	146023	15	V Packing	117001
6	Quad Ring	146024	16	Bronze Female Adapter	146026
7	Bolts (2 req.)	302419	17	Snap Ring	151002
8	O Rings (4 req.)	135017	18	Cap Screws (12 req.)	306712
9	Divider Block	146021	19	Lock Washers (12 req.)	305003
10	Wiper Seal (2 req.)	146012			

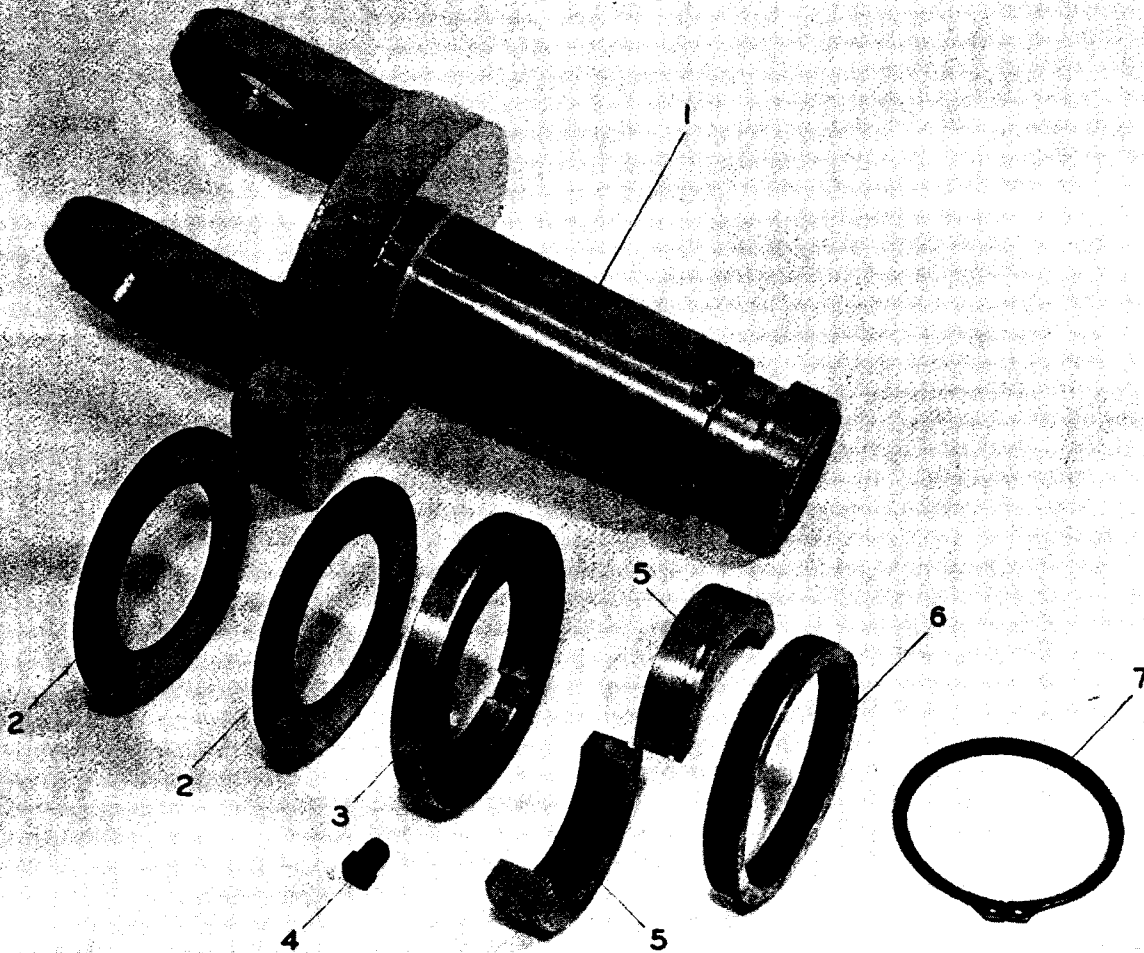
Note: Shaft timing mark must line up with timing mark on swivel pin.

When ordering parts please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.

NOTE

SWIVEL PIN TIMING MARK MUST
LINE UP WITH TIMING MARK
ON END OF ROTOR SHAFT



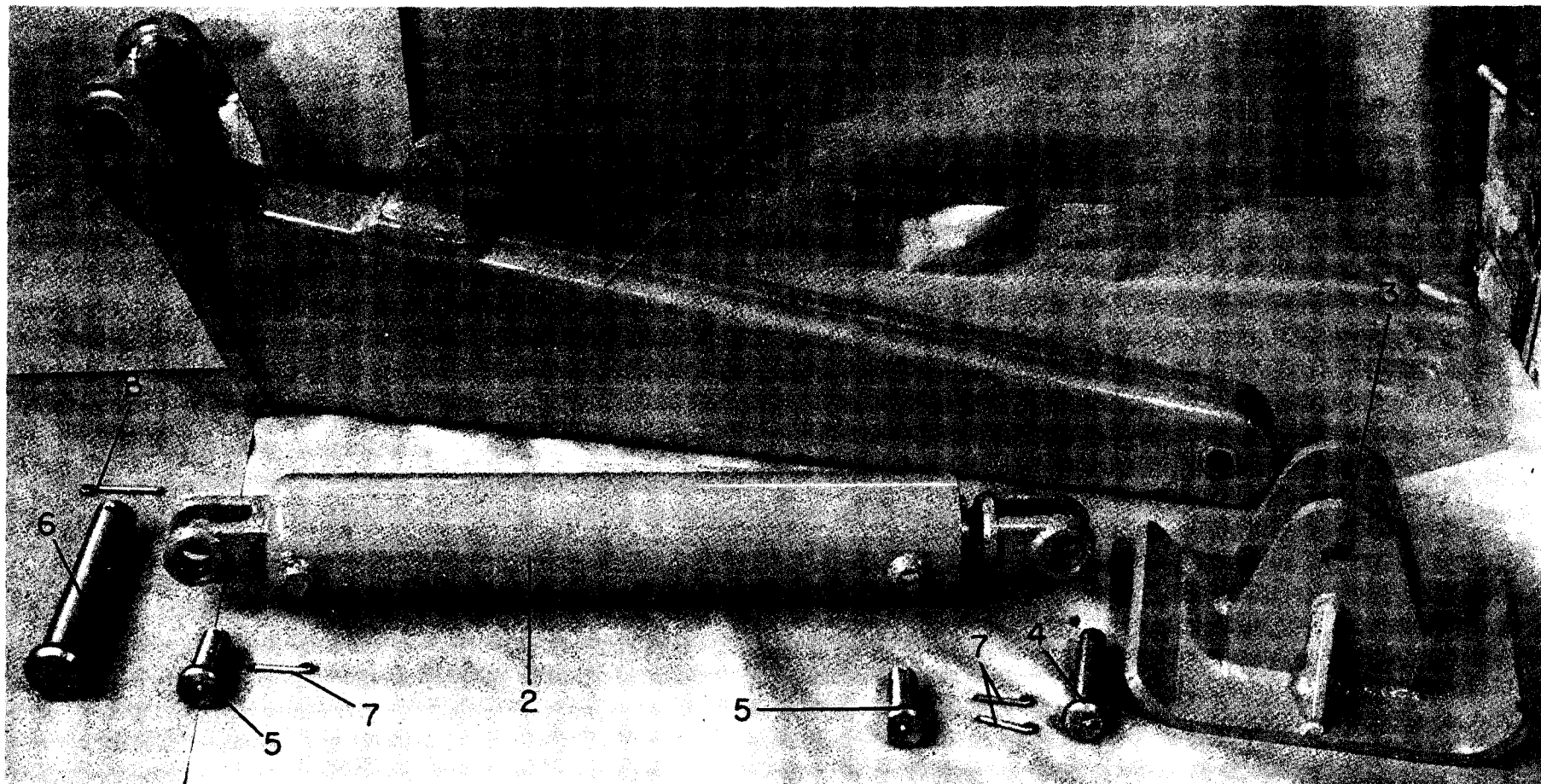
SWIVEL PIN

Item No.	Name of Part	Part No.
1	Swivel Pin (splined P.C. Ears)	166056
Not Shown	Swivel Pin (splined Brake-Ears)	166057
Not Shown	Swivel Pin (Log Grapple P.C.)	166058
Not Shown	Swivel Pin (Log Rapple Brake-Ears)	166059
Not Shown	Swivel Pin (Ears turned 90°)	166060
2	Thrust Washers (2 req.)	166005
3	Thrust Collar	166004
4	Keg (Cap Screw)	306502
5	Split Ring (1 set)	166061
6	Lock Ring	166062
7	Snap Ring	151110

When ordering parts please show model and serial number of loader and parts
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PRENTICE HYDRAULICS, INC.
Prentice, Wis.

FORM NO. PHI 149

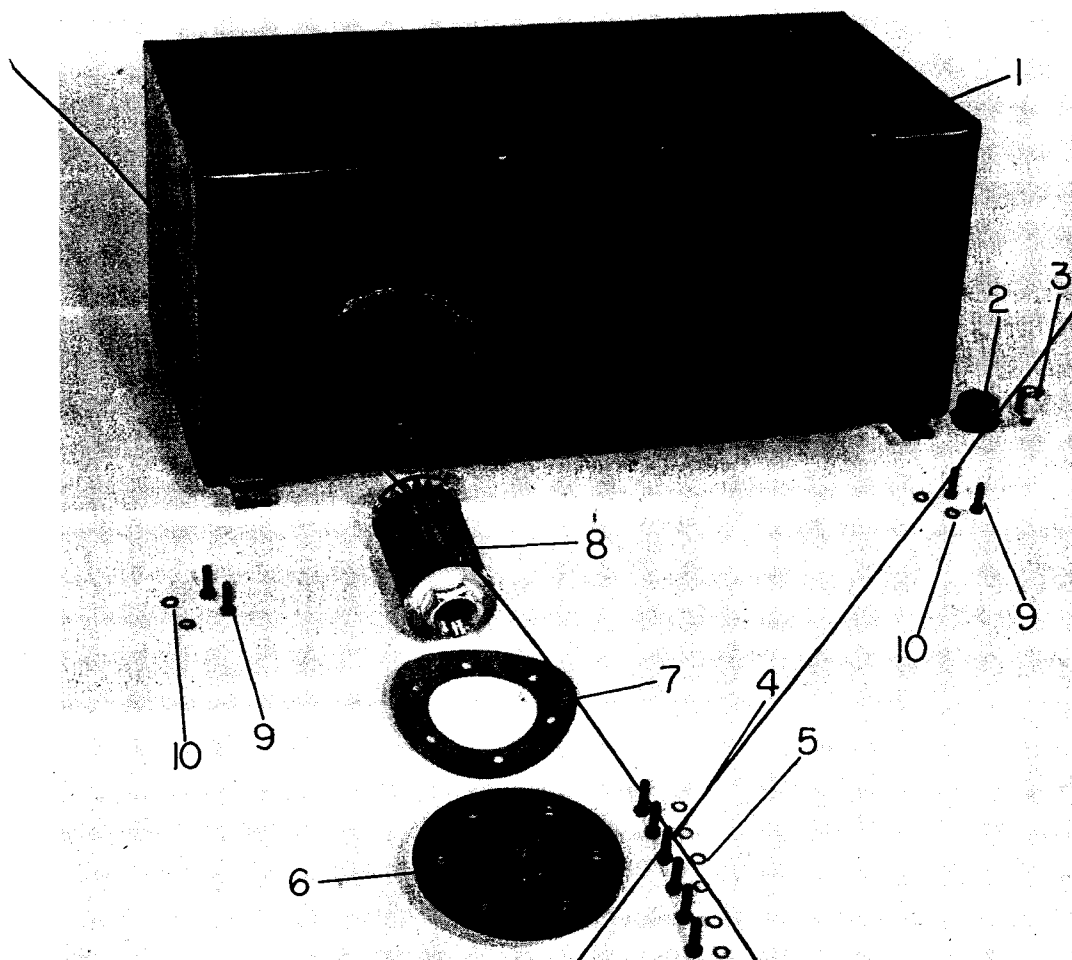


HYDRAULIC STABILIZERS - STIFF ARM

Item No.	Description	Part No.	Item No.	Description	Part No.
1	Stabilizer Arm	167017	5	Cylinder Pin (2)	136001
2	Hydraulic Cylinder	110013	6	Anchor Pin	136015
3	Shoe	167018	7	Cotter Pin (3)	309605
4	Shoe Pin	136013	8	Cotter Pin	309609

When ordering parts please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.



OIL RESERVOIR ASSEMBLY
(31 gallon - Single Filter)

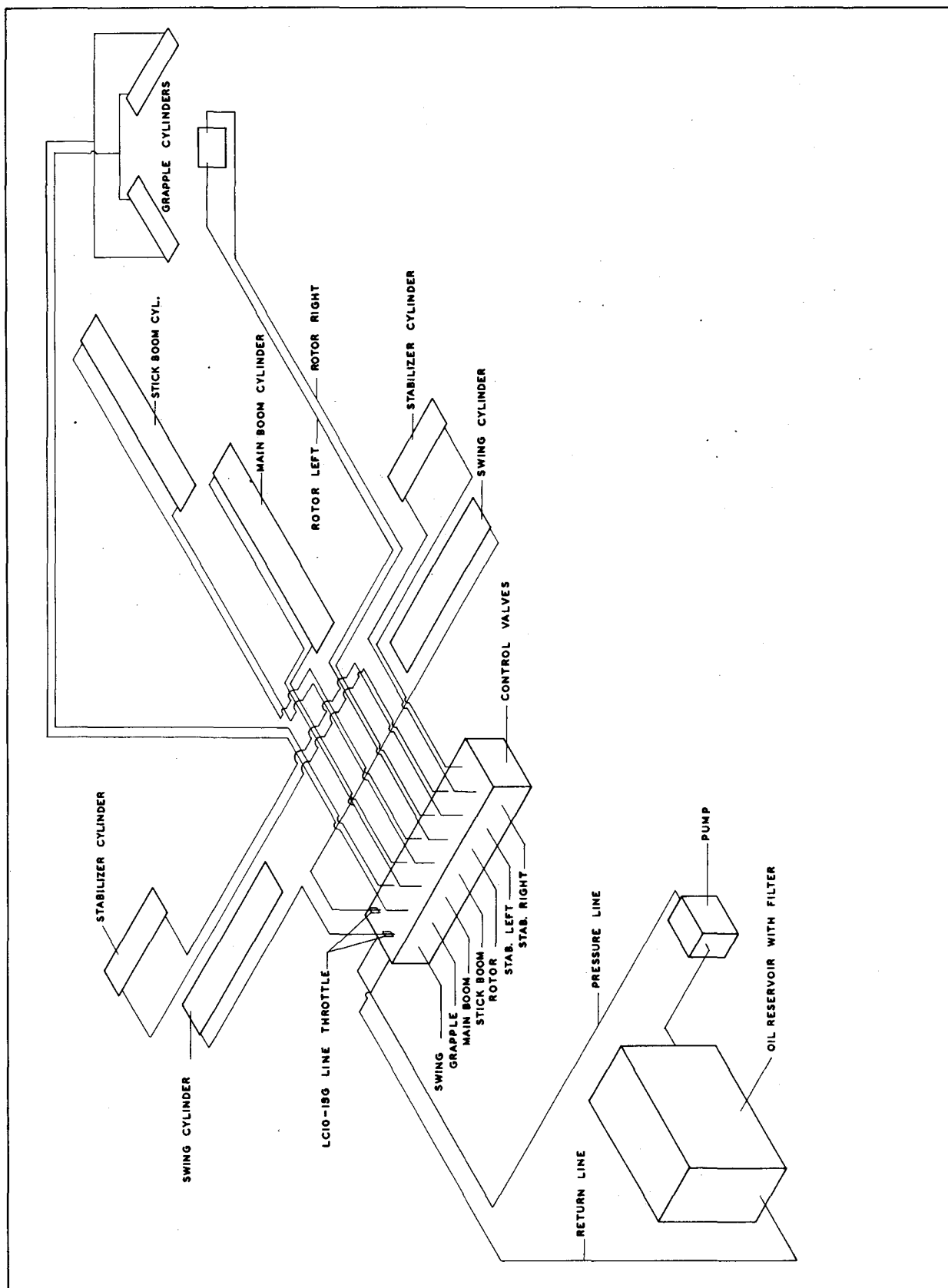
<u>Item No.</u>	<u>Description</u>	<u>No. Req.</u>	<u>Part No.</u>
1	Oil Reservoir	1	155010
2	Cap w/Air Vent	1	155009
3	Bendix Breather Filter	1	120018
4	Cap Screw	6	300305
5	Copper Washer	6	108003
6	Tank Cover	1	155002
7	Tank Gasket	1	121505
8	Filter	1	120019
9	Cap Screw	4	300305
10	Lock Washer	4	305003

When ordering parts please show model and serial number of loader and parts
book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.

3/26/65

PHI-129



HYDRAULIC CIRCUIT MODELS FOBC & HOBC

Gresen Valves - Model P190-A

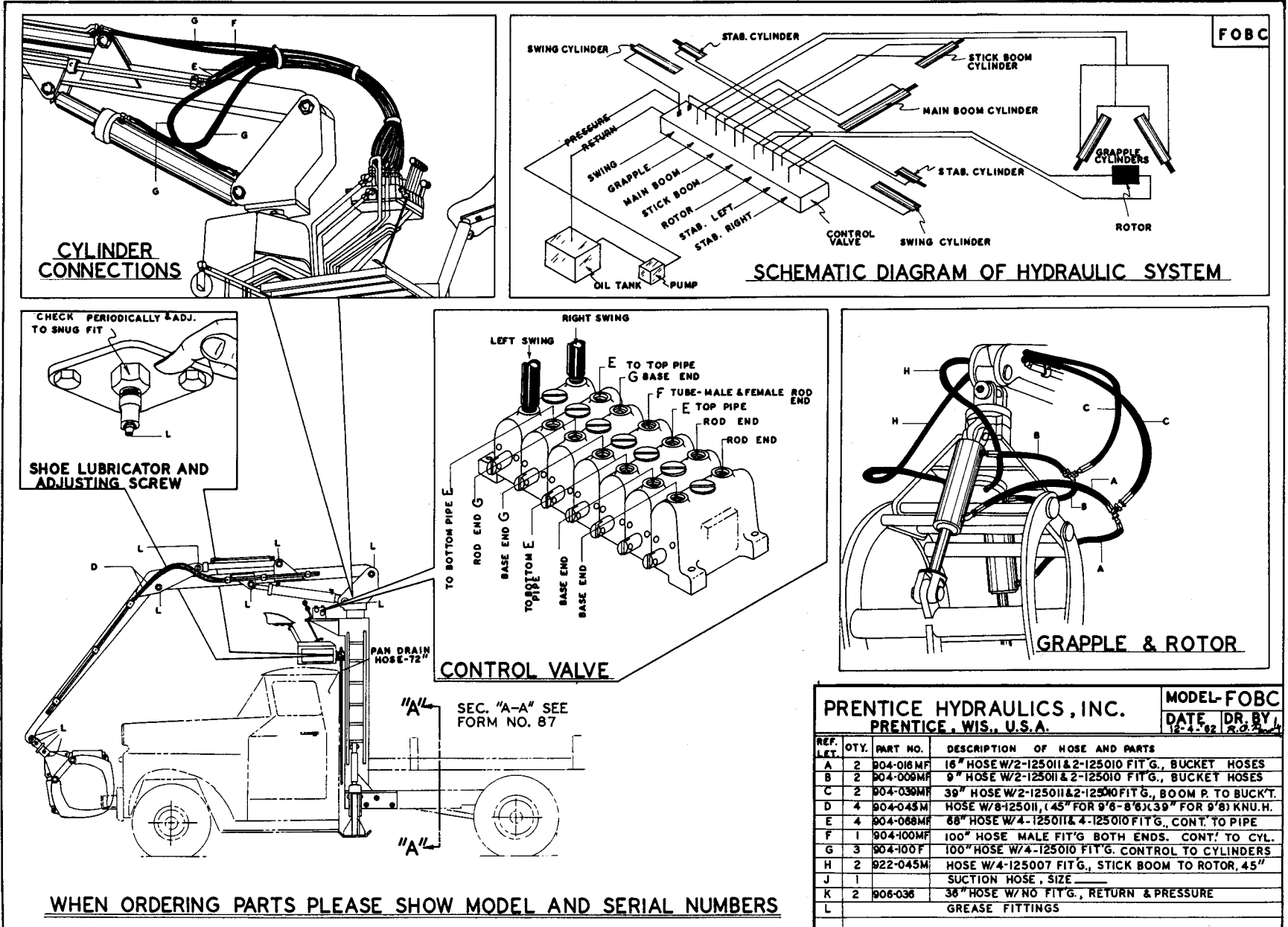
When ordering parts please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.

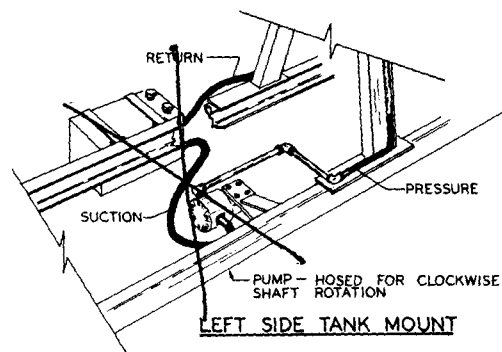
7/12/62

FORM NO. PHI 74

HOSING INSTRUCTIONS FOBC & HOBC



When ordering parts, please show model and serial number of loader and parts book form number



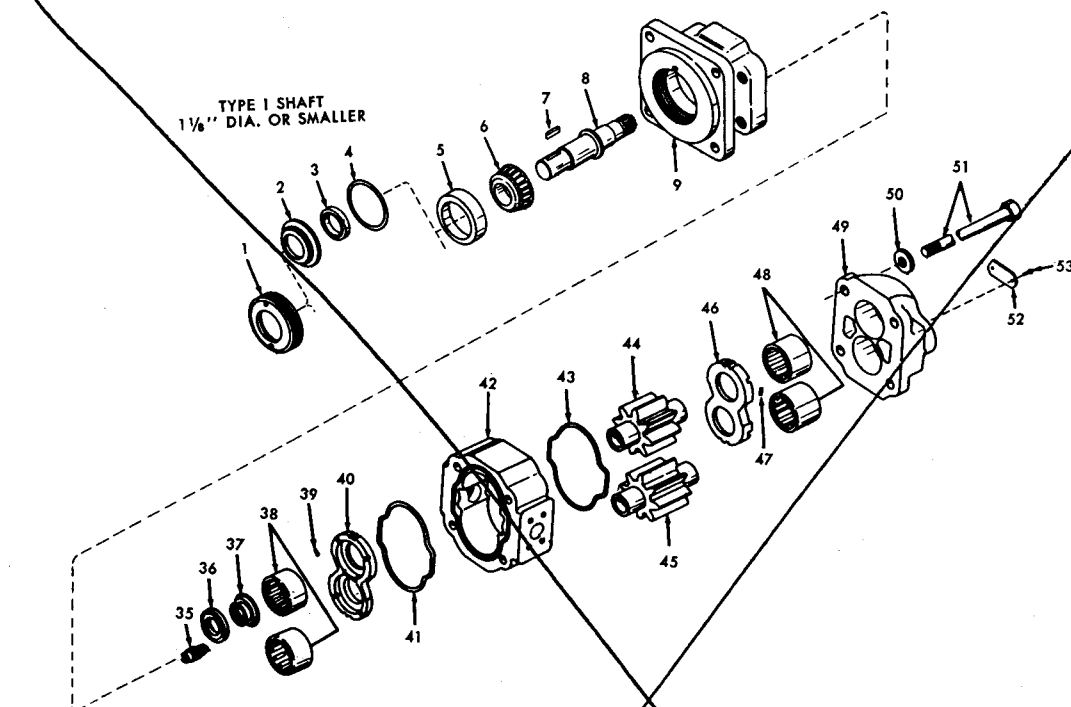


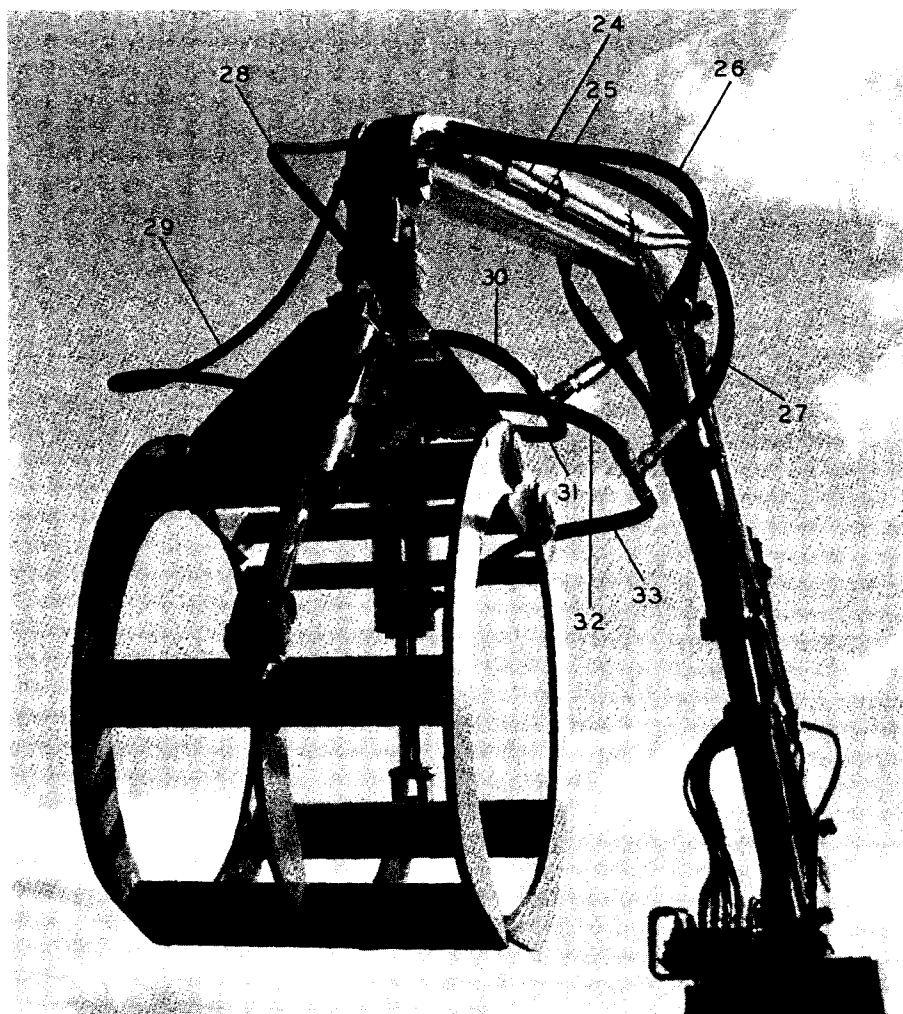
Fig. 1 Exploded View of Single Pump

25X PUMP

Item No.	Description	Part No.	Item No.	Description	Part No.
1	Retainer Ring	143581	40 & 46	Thrust Plates	143594
2	Seal Retainer	143582	41 & 43	O Ring Gasket	143595
3	Double Lip Seal	143583	42	Gear Housing	
4	O Ring	143584		for 1 3/4" Gears	143596
5	Bearing Cup	143585		for 2" Gears	143597
6	Bearing Cone	143586		for 2 1/2" Gears	143598
7	Key	143511	44 & 45	Matched Set	
8	Drive Shaft	143587		of 1 3/4" Gears	143599
9	Shaft End Cover	143588		of 2" Gears	143600
35	Check Valve	143589		of 2 1/2" Gears	143601
36	Bronze Shaft Bushing	143590	49	Port End Cover	143602
37	Conical Spring	143591	50	Washer	143603
38 & 48	Roller Bearing	143592	51	Cap Screw	143604
39 & 47	Pocket Seal	143593			

When ordering parts please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.



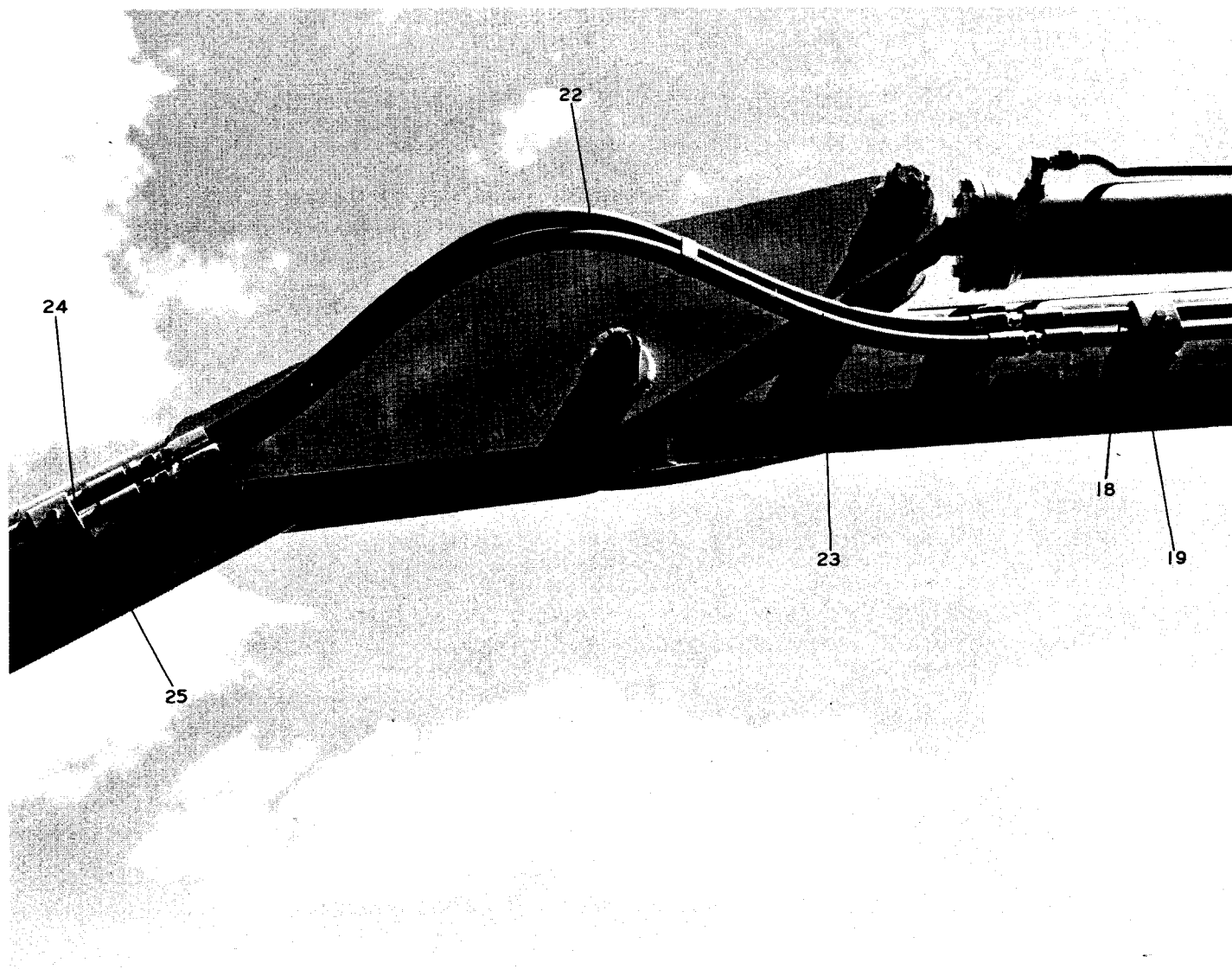
Item No.	Part No.	Description	Application
24	*156001	Tubing	Upper Stick Boom Tube - Left Side Grapple Cyl.
25	*156002	Tubing	Lower Stick Boom Tube - Left Side Grapple Cyl.
26	904-039MF	39" of 1/2" hose with 1-125010 & 1-125011 fit.	From #24 Tube to Tee on #30 & #31 Hoses for Grapple Cylinder
27	904-039MF	39" of 1/2" hose with 1-125010 & 1-125011 fit.	From #25 Tube to Tee on #32 & #33 Hoses for Grapple Cylinder
28	922-045MM	45" of 3/8" hose with 2-125007 fittings	From Upper Stick Boom Tube - Right Side to Rotor
29	922-045MM	45" of 3/8" hose with 2-125007 fittings	From Lower Stick Boom Tube - Right Side to Rotor
30	904-009MF	9" of 1/2" hose with 1-125010 & 1-125011 fit.	From Tee on #26 Hose to Grapple Cyl. (Base End)
31	904-009MF	9" of 1/2" hose with 1-125010 & 1-125011 fit.	From Tee on #26 Hose to Grapple Cyl. (Base End)
32	904-016MF	16" of 1/2" hose with 1-125010 & 1-125011 fit.	From Tee on #27 Hose to Grapple Cyl. (Rod End)
33	904-016MF	16" of 1/2" hose with 1-125010 & 1-125011 fit.	From Tee on #27 Hose to Grapple Cyl. (Rod End)

* Note: Loader Ser. #1130 and up were equipped with 1/2" pipe on boom.

Pipe	#156028
Straight swivel fitting	#125078
45° swivel fitting	#125081

All numbers listed above are for standard boom lengths. (9' 6" Main Boom and 8' 6" Stick Boom). When loader has longer than standard boom, please specify this on your order.

When ordering parts please show model and serial number of loader and parts book form number



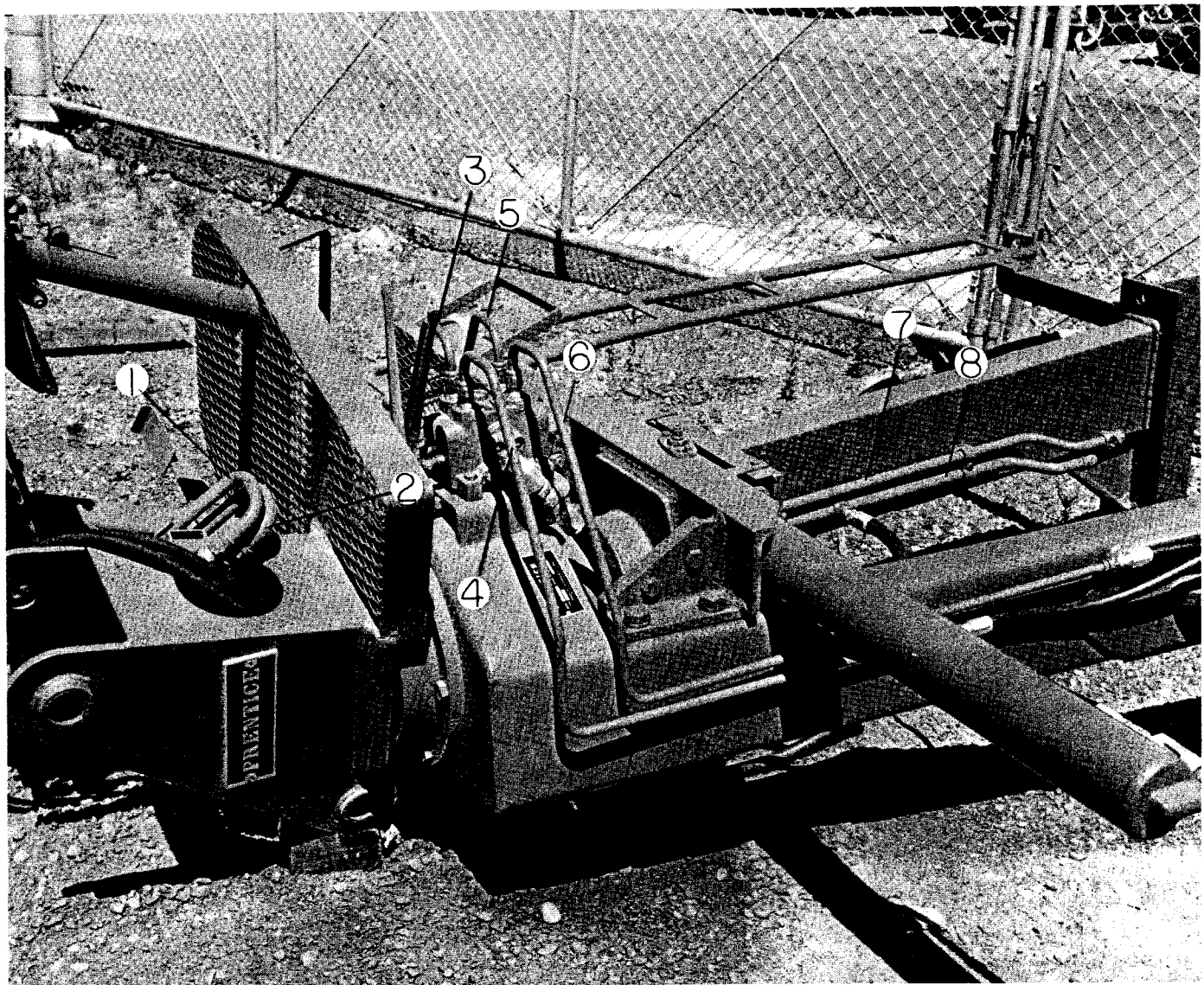
Item No.	Part No.	Description	Application
18	*156001	Tubing	Upper Main Boom Tube (Left Side) Grapple Cyl.
19	*156002	Tubing	Lower Main Boom Tube (Left Side) Grapple Cyl.
22	904-045MM	45" of ½" hose with 2-125011 fittings	Knuckle Hoses (Boom-Left Side) From #18 to #24 Tube
23	904-045MM	45" of ½" hose with 2-125011 fittings	Knuckle Hoses (Boom-Left Side) From #19 to #25 Tube
24	*156001	Tubing	Upper Stick Boom Tube (Left Side) Grapple Cyl.
25	*156002	Tubing	Lower Stick Boom Tube (Left Side) Grapple Cyl.

* Note: Loader Ser. #1130 and up were equipped with ½" pipe on boom.

Main Boom Pipe	#156027
Stick Boom Pipe	#156028
Straight Swivel Fitting	#125078
45° Swivel Fitting	#125081

All numbers listed above are for standard boom lengths. (9' 6" Main Boom and 8' 6" Stick Boom). When loader has longer than standard boom, please specify this on your order.

When ordering parts please show model and serial number of loader and parts book form number

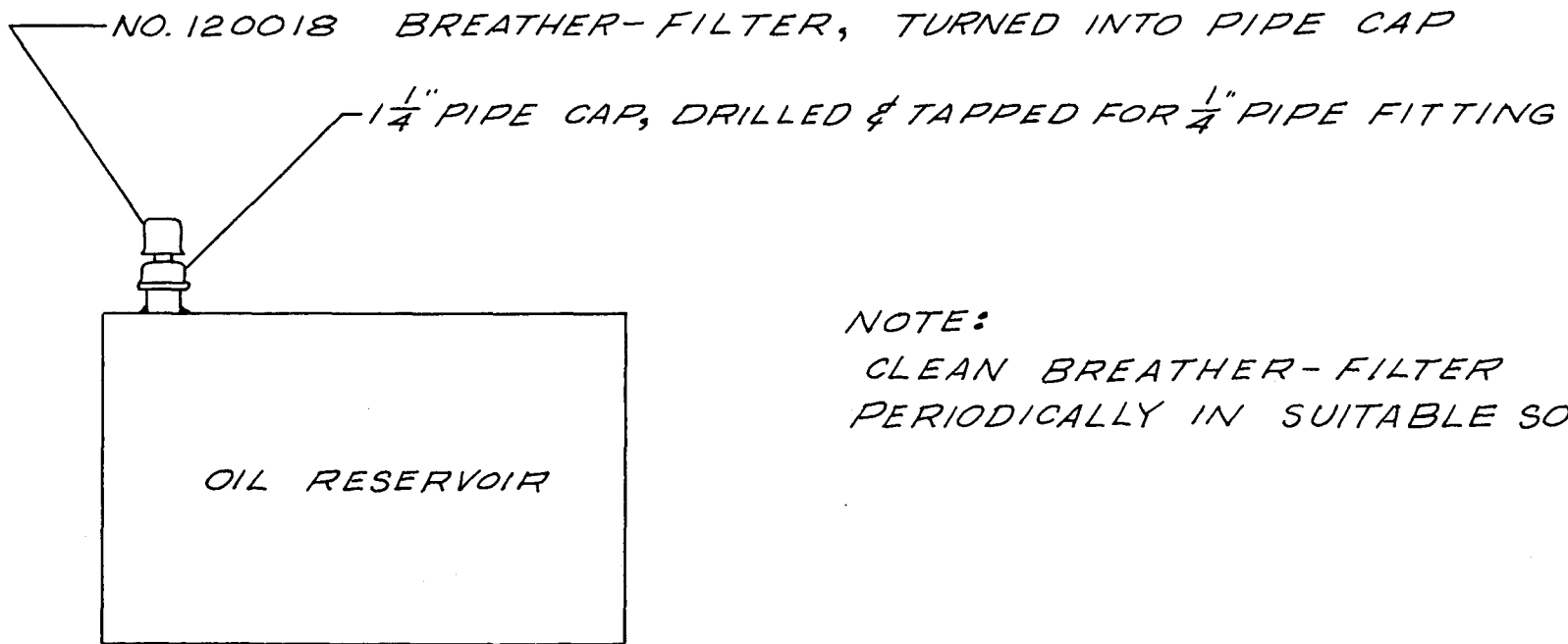


TUBING SEAT TO SWING PLATFORM

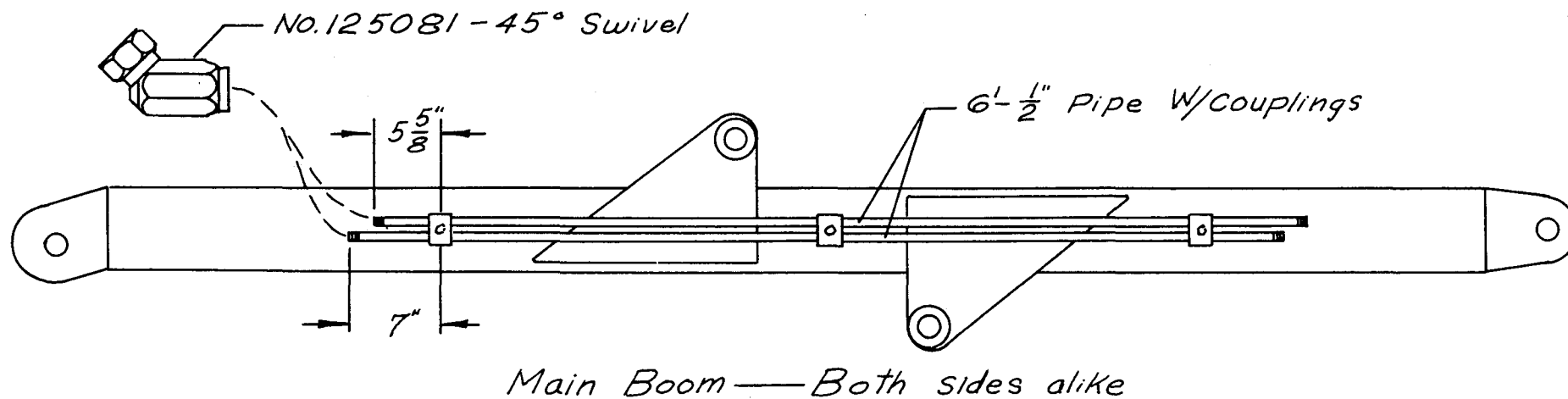
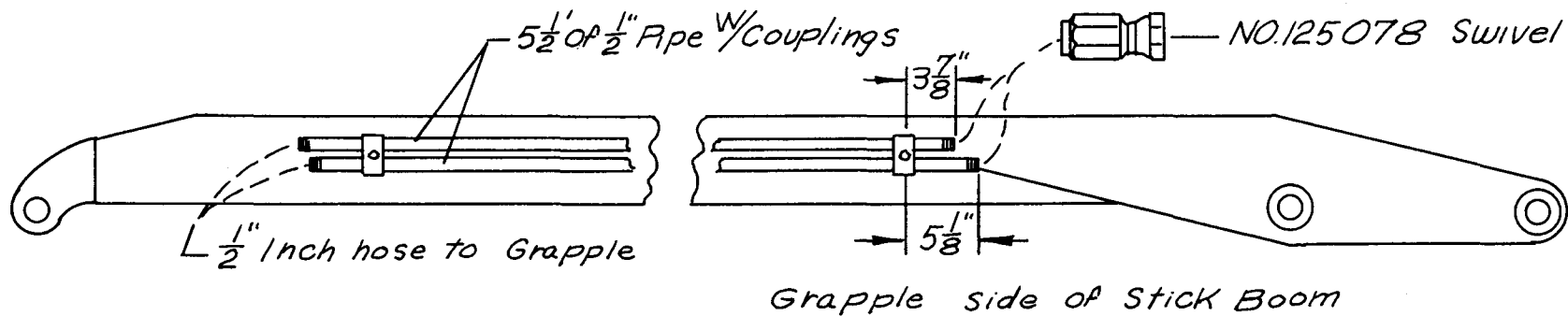
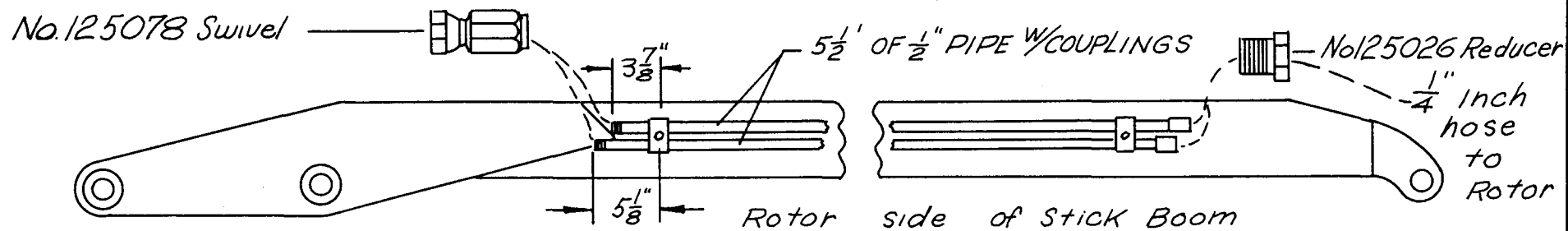
	Item No.	Part No.	Description	Application
1	156071	Tubing	Pressure from main valve bank	
2	156072	Tubing	Return from main valve bank	
3	156081	Tubing	Stab. valve to R H Stab. Cyl. Hose (Base End)	
4	156079	Tubing	Stab. valve to L H Stab. Cyl. Hose (Base End)	
5	156082	Tubing	Stab. valve to R H Stab. Cyl. Hose (Rod End)	
6	156080	Tubing	Stab. valve to L H Stab. Cyl. Hose (Rod End)	
7	156073	Tubing	Pressure from Stab. valve down	
8	156074	Tubing	Return from Stab. valve down	

When ordering parts, please show model and serial number of loader and parts book form number

PRENTICE HYDRAULICS, INC.
Prentice, Wis.



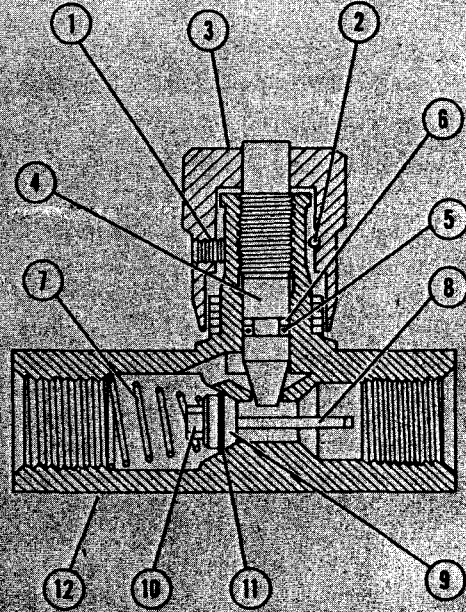
NOTE:
CLEAN BREATHER-FILTER
PERIODICALLY IN SUITABLE SOLVENT



OPERATING INSTRUCTIONS

COLORFLOW Control Valves simplify your flow (speed) control problems. Setting, adjusting, checking and *recording* can be done quickly and easily by the color coding system. Unskilled personnel can be quickly trained to obtain precise flow control. The valves meet J. I. C. standards.

The Valves should be installed between the operating valve and one or both ends of the cylinder. For exhaust speed control, install the COLORFLOW Flow Control Valve with the arrow pointed away from the cylinder. This allows speed control through meter flow in one direction and rapid return through free flow in the other direction. For best results, it is recommended that exhaust method of speed control be used. Little maintenance is required to keep COLORFLOW Valves operating accurately. The single O-Ring (5) is the only part subject to wear and may be easily replaced. To order replacement parts, give valve model, size, and material, together with name and number of part required.



DISASSEMBLY

Remove locking set screw (1). Rotate knob until the locking balls (2) drop out of the set screw hole. Knob (3) and needle (4) can now be unscrewed from the body (12). O-ring (5) and Teflon back-up ring (6) can be removed from groove in needle. Spring (7) is removed from body by pulling it out with needle-nose pliers. The poppet assembly can then be easily removed. The poppet blade (8) can be unscrewed from the poppet retainer (9) and poppet (10) to inspect the seat and poppet seal ring (11).

To reassemble the valve, assemble the parts in reverse of the disassembly procedure outlined above.

ADJUSTMENT

The COLORFLOW Valve allows a controlled flow from zero to full valve capacity. A range of five or more complete revolutions of the micrometer type adjustment knob allows an infinite number of flow settings. Any setting can be *easily recorded* for future reference, such as: Red 6, Orange 3, etc. Adjustment is obtained by rotating the adjustment knob (3). To increase flow, rotate it in the direction of the arrow marked "FAST." The set screw (1) locks the valve position and prevents field tampering. A locking ball (2) prevents the needle from being backed completely out.

COLORFLOW CONTROL VALVE

Item No.	Description	$\frac{1}{4}$ " - F400-S	$\frac{1}{2}$ " - F800-S
		Part No.	Part No.
1	Set Screw	129033	129019
2	Locking Balls	129034	129020
3	Knob	129035	129030
4	Needle	129036	129031
5	O Ring	129037	129022
6	Back Up Ring	129038	129023
7	Spring	129039	129024
8	Poppet Blade	129040	129025
9	Poppet Retainer	129041	129026
10	Poppet	129042	129027
11	Poppet Seal Ring	129043	129028
12	Body	129044	129029
13	Marking Washer	129045	129046
No Number	Complete Valve	129032	129018

When ordering parts please show model and serial number of loader and parts book form number

INSTRUCTIONS FOR REPLACING SPOOL SEALS IN GRESSEN 25P CONTROL VALVE



REQUIREMENT: One Special T-273 Tool.

NOTE: For the purpose of these instructions, we shall consider the control handle side of the valve as the front end, and the opposite end as the back end.

* * * * *

1. At the back of the valve, remove the #1611 die cast Bonnet Assy. This assembly is fastened to the valve housing by four (4) #2673 Bonnet Screws with four (4) #563 Lockwashers.
2. Remove #1618 Spool Assembly Screw, #1610 Spool Collar, #1291 Spool Assembly Lockwasher, #1609 Stop Collar, and #1625 Centering Spring. Be sure to observe the order in which these parts are removed to insure proper reinstallation.
3. Disconnect handle from spool by removing #085 Handle Pin. Let handle swing free of spool.
4. Pull spool towards front end of valve just far enough to expose the back seal in housing.
5. Remove back seal (#1616).
6. Push spool in opposite direction (towards back end) until front seal is fully exposed.
7. Remove front seal (#1616) from housing.
8. BE SURE THAT BODY SEAL GROOVES ARE THOROUGHLY AND CAREFULLY CLEANED.
9. Insert new #1616 Seal in front groove, being very careful that the open end (end with wiping edges) of the seal is placed towards the center of the valve body. It will be very helpful to pinch one side of the seal, causing the seal to bend into a shape slightly smaller than the seal groove in the valve. When the seal has been properly placed in seal groove, straighten the seal by running a smooth rod around the exposed surface of the seal until you have it well seated. To check this, run your finger around the exposed edge of the seal. You should have a smooth perfect ridge with no kinks.
10. Apply a small amount of grease or heavy oil on the #1616 Seal to prevent it from tearing during assembly.

(Continued on Reverse Side)

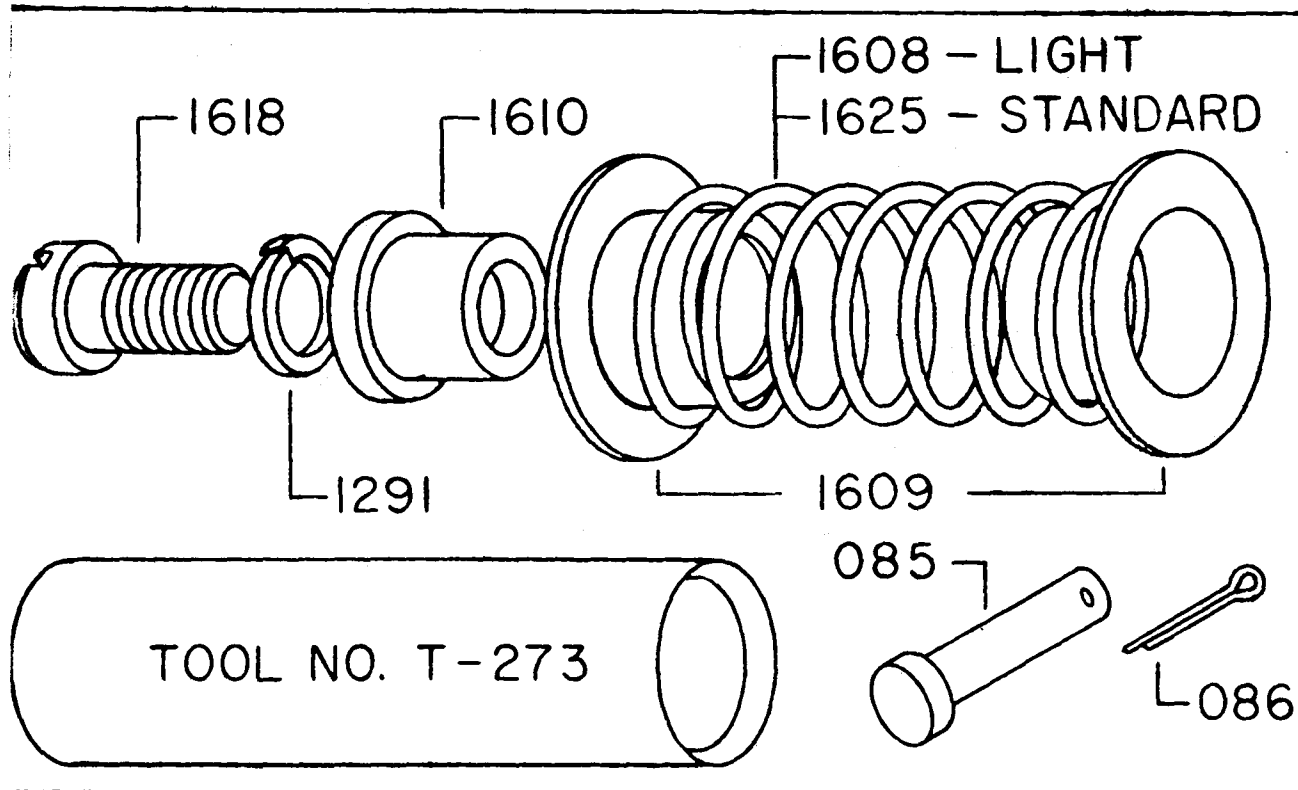
GRESSEN MANUFACTURING COMPANY

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MINNEAPOLIS 18, MINNESOTA

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1. Insert the internal-chamfered end of the T-273 Special Tool into the spool bore of the valve housing from the front side of the valve and through the new seal. Push spool forward until the spool and tool make contact. Push spool further forward against tool until rear seal groove is completely exposed, but no further.
2. Install new #1616 Seal in back groove and apply grease or heavy oil. Insert T-273 Special Tool (internal-chamfered end first) carefully into back bore through seal until it makes contact with spool. From front side, push spool back approximately 3/4".
3. Reinstall complete handle assembly, installing the #085 Handle Pin and #086 Cotter Pin.
4. Reinstall the complete spring assembly on back of spool. Be sure the #1618 Spool Assembly Screw is securely tightened. (20 Ft. Lbs. Torque)
5. Reinstall #1611 Bonnet Assembly.



4-WAY 3-POSITION SECTION

SPOOL SPRING-CENTERED
OPEN CENTER IN NEUTRAL WITH WORK PORTS BLOCKED
PARALLEL CIRCUIT
Max. Pressure - 2500 PSI

FOR CONTROL OF DOUBLE-ACTING CYLINDERS: OR START, STOP AND REVERSE OF HYDRAULIC MOTORS WHERE "FREE-WHEELING" OF MOTOR IS NOT REQUIRED.

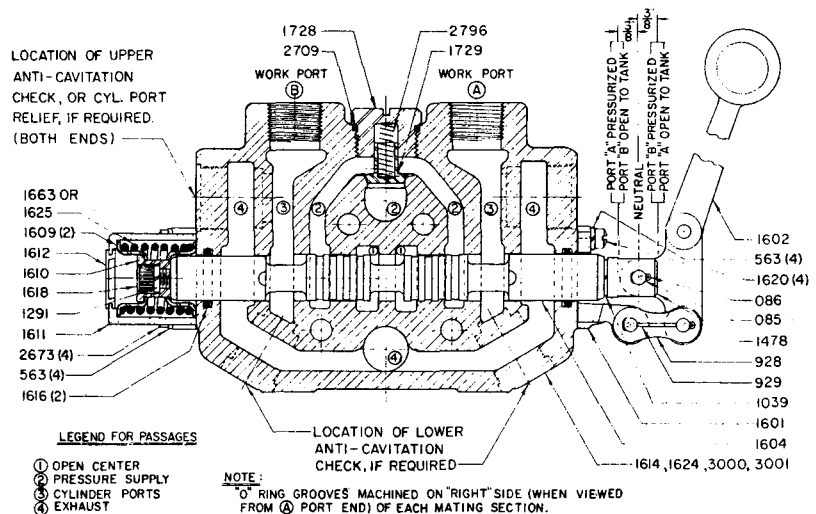
- Handle Provisions Available on Either "A" or "B" Port End. ("A" Port End is Standard.)
- Individual Load-Check. (Spring-Loaded)
- Spring-Centered Spool.
- Two Work Ports.
- Cylinder Port Relief (Pilot or Poppet) and/or Anti-Cavitation Checks Available in Either Work Port. (Refer to Forms #435 and #436.)
- 3-Position Detent (Optional) (See Form #433.)
- Free Flow (F) Spool (Optional) for Free-Wheeling of Motor.

NOTE

For Available Port Sizes, see page 4 of Form #428.

APPROXIMATE WEIGHTS (LESS HANDLES)

Center Section #1614 - 13¼ lbs.
Right End Section #1624 - 16½ lbs.
Left End Section #3001 - 22½ lbs.
Left End Section #3000 - 21¼ lbs.



Dwg. 301 Misc.

PARTS LIST

PART NO.	DESCRIPTION	QTY. PER SECTION	PART NO.	DESCRIPTION	QTY. PER SECTION
085	Handle Pin	1	*3001	Left Hand End W/Top "In" & "Out" Section Valve Hsg.	(1)
086	Handle Pin Cotter	1	1728	Check Plug	1
563	Lockwasher (Bonnet Screw & Handle Bracket Screw)	8	1729	Check Poppet	1
928	Handle Link	1	2673	Bonnet Screw	4
929	Handle Link Cotter	1	2709	Check Plug O-Ring Seal	1
1039	Handle Adapter Lockwasher	1	2796	Check Spring	1
1291	Spool Assembly Lockwasher	1	ASSEMBLY PARTS		
1478	Handle Adapter	1	934	Assy. Bolt (3 Section)	4
1601	Handle Bracket	1	1039	Lockwasher (Used Only With Assy. Bolts #934, #1670, & #1676)	4
1602	Handle	1	1621	Section Seal (Small) (Not Used On #1624 Sec.)	2
*1604	4-Way Spool	1	1622	Section Seal (Large) (Not Used on #1624 Sec.)	1
*1606	4-Way Free Flow Spool (Opt.)	(1)	1665	Assy. Stud Nut (Used Only With Studs.)	4
1609	Stop Collar	2	1676	Assy. Bolt (1 Section)	4
1610	Spool Collar	1	1670	Assy. Bolt (2 Section)	4
1611	Bonnet	1	1672	Assy. Stud (4 Section)	4
1612	Bonnet Diaphragm	1	1673	Assy. Stud (5 Section)	4
*1614	Center Section Valve Hsg.	(1)	1674	Assy. Stud (6 Section)	4
1616	Spool Seal	2	1675	Assy. Stud (7 Section)	4
1618	Spool Assembly Screw	1	1755	Assy. Stud (8 Section)	4
1620	Handle Bracket Screw	4	1756	Assy. Stud (9 Section)	4
*1624	Integral Turn-Around Sec. (Right Hand End)	(1)	1754	Rubber Grommet for Bottom Outlet (Opt.)	(1)
1625	Standard Centering Spring	1			
1663	Heavy Centering Spring (Opt.)	(1)			
*3000	Left Hand End W/End "In" & "Out" Section Valve Hsg.	(1)			

*Housings and Spools Cannot be Ordered as Separate Items. All Spools are Fitted to Individual Housings by Select Hone Process at Factory.



3-WAY 3-POSITION SECTION

SPool SPRING-CENTERED
OPEN CENTER IN NEUTRAL WITH WORK PORT BLOCKED
PARALLEL CIRCUIT
Max. Pressure - 2500 PSI

FOR CONTROL OF SINGLE-ACTING CYLINDERS; OR START, STOP OF NON-REVERSIBLE HYDRAULIC MOTORS WHERE "FREE-WHEELING" OF MOTOR IS NOT REQUIRED.

NOTE: AVAILABLE WITH EITHER CYLINDER PORT "A" OR "B" AS WORKING PORT.

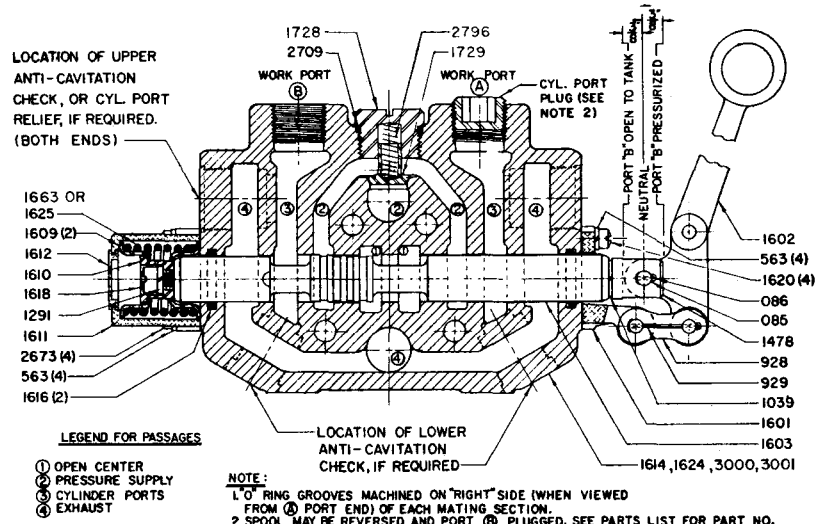
- ▶ Handle Provisions Available on Either "A" or "B" Port End. ("A" Port End is Standard).
- ▶ Individual Load-Check. (Spring-Loaded)
- ▶ Spring-Centered Spool.
- ▶ One Work Port.
- ▶ Cylinder Port Relief (Pilot or Poppet) and/or Anti-Cavitation Checks Available in One or Both Work Ports. (Refer to Forms #435 and 436.)
- ▶ 3-Position Detent (Optional) (See Form #433.)
- ▶ Free Flow (F) Spool (Optional) for Free-Wheeling of Motor.

NOTE

For Available Port Sizes, see page 4 of Form 428.

APPROXIMATE WEIGHTS (LESS HANDLES)

Center Section #1614 - 13¾ lbs.
Right End Section #1624 - 16½ lbs.
Left End Section #3001 - 22½ lbs.
Left End Section #3000 - 21¼ lbs.



PARTS

LIST

Dwg. 302 Misc.

PART NO.	DESCRIPTION	QTY. PER SECTION	PART NO.	DESCRIPTION	QTY. PER SECTION
085	Handle Pin	1	*3000	Left Hand End W/End "In" & "Out" Section Valve Hsg.	(1)
086	Handle Pin Cotter	1	*3001	Left Hand End W/Top "In" & "Out" Section Valve Hsg.	(1)
563	Lockwasher (Bonnet Screw & Handle Bracket Screw)	8	1728	Check Plug	1
928	Handle Link	1	1729	Check Poppet	1
929	Handle Link Cotter	1	2673	Bonnet Screw	4
1039	Handle Adapter Lockwasher	1	2709	Check Plug O-Ring Seal	1
1291	Spool Assembly Lockwasher	1	947	Cylinder Port Plug (½" NPTF)	1
1478	Handle Adapter	1	1282	Cylinder Port Plug (¾" NPTF)	1
1601	Handle Bracket	1	1288	Cylinder Port Plug (1" NPTF)	1
1602	Handle	1	1726	Cylinder Port Plug (SAE #12)	1
*1603	3-Way Spool	1	1727	Cylinder Port Plug (SAE #14)	1
*1653	3-Way Free Flow Spool	(1)	2684	Cylinder Port Plug (SAE #8)	1
1609	Stop Collar	2	1458	Cylinder Port Plug (SAE #10)	1
1610	Spool Collar	1	1629	Cylinder Port Plug (SAE #16)	1
1611	Bonnet	1	2706	Cylinder Port Plug O-Ring For SAE #8 Plug	1
1612	Bonnet Diaphragm	1	2707	Cylinder Port Plug O-Ring For SAE #10 Plug	1
*1614	Center Section Valve Hsg.	(1)	2708	Cylinder Port Plug O-Ring For SAE #12 Plug	1
1616	Spool Seal	2	2709	Cylinder Port Plug O-Ring For SAE #14 Plug	1
1618	Spool Assembly Screw	1	2710	Cylinder Port Plug O-Ring For SAE #16 Plug	1
1620	Handle Bracket Screw	4	2796	Check Spring	1
*1624	Integral Turn-Around Sec. (Right Hand End)	(1)			
1625	Standard Centering Spring	1			
1663	Heavy Centering Spring (Opt.)	(1)			

(SEE REVERSE SIDE FOR ASSEMBLY PARTS)

*Housings and Spools Cannot be Ordered as Separate Items. All Spools are Fitted to Individual Housings by Select Hone Process at Factory.

ANTI-CAVITATION CHECKS

(For use in any Working Cylinder Port)

Purpose

For use with double-acting cylinders. Allows oil from the "exhaust or tank" passage of valve to supplement pump flow to "powered" end of cylinder when it is being moved by an external force. Installation of anti-cavitation checks reduces operating time, lag, and sponginess caused by cylinder cavitation.

Function

The anti-cavitation check is unseated only when "pump" pressure falls below "exhaust or tank" pressure, and allows the "exhaust or tank" flow to supplement "pump" flow until such time that "pump" flow pressure exceeds "exhaust or tank" pressure at which time the check ball reseats.

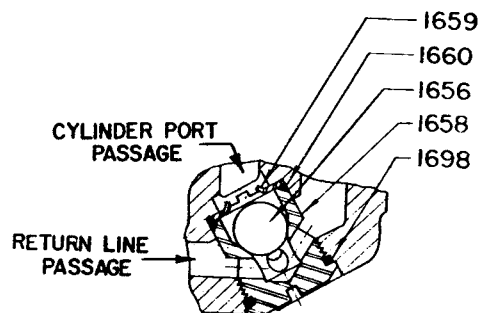
LOWER ANTI-CAVITATION CHECK

(Weight - 2½ oz.)

Used when cylinder port relief valve also required in same cylinder port. If no cylinder port relief is required, then upper anti-cavitation check is used.

PERFORMANCE

Will Pass 6.3 GPM at 10 PSI Pressure Differential.
Will Pass 9 GPM at 20 PSI Pressure Differential.
Will Pass 14.6 GPM at 40 PSI Pressure Differential.



PARTS LIST

Part No.	Description	No. Req'd. Per Assembly
1656	Lower Anti-Cav. Ball (9/16" Dia.)	1
1658	Lower Anti-Cav. Body	1
1659	Lower Anti-Cav. Ball Retainer	1
1660	Lower Anti-Cav. Body Seal (Inner)	1
1667	Lower Anti-Cav. Plug (Opt.)	1
1698	Lower Anti-Cav. Body Seal (Outer)	1

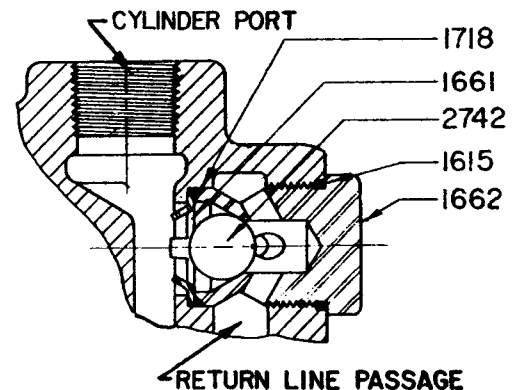
UPPER ANTI-CAVITATION CHECK

(Weight - 5½ oz.)

Used when cylinder port relief valve is not used. If cylinder port relief is required, then lower anti-cavitation check is used.

PERFORMANCE

Will Pass 8.7 GPM at 10 PSI Pressure Differential.
Will Pass 14 GPM at 20 PSI Pressure Differential.
Will Pass 25 GPM at 40 PSI Pressure Differential.



PARTS LIST

Part No.	Description	No. Req'd. Per Assembly
1615	Seal O-Ring (Outer)	1
1661	Upper Anti-Cav. Ball Retainer	1
1662	Upper Anti-Cav. Body	1
1667	Upper Anti-Cav. Plug (Opt.)	1
1718	Seal O-Ring (Outer)	1
2742	Upper Anti-Cav. Ball (5/8" Dia.)	1

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25P & 25PK DIRECTIONAL CONTROL

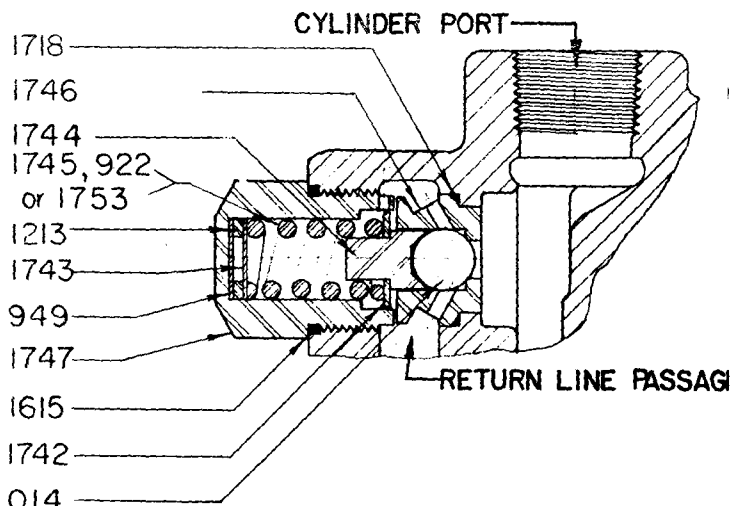
CYLINDER PORT "POPPET" RELIEF



For Use in any Working Cylinder Port

(Pressure Range - (300 To 3000 PSI Crack))

IDEAL FOR
"LIMITING"
CYLINDERS
WITH RIGID
LINKAGE OR
VANE TYPE
CYLINDERS
HAVING
INERTIA
LOADS.



USED TO
LIMIT PRESSURE
(OR FORCE)
IN BOTH ENDS OF
A DOUBLE-ACTING
CYLINDER OR
HYDRAULIC MOTOR,
OR ONE END OF
A SINGLE-ACTING
CYLINDER.

FACTORY SET TO CUSTOMERS SPECIFICATIONS
(ADJUSTABLE WITH SHIMS.)
PRESSURE SETTING STAMPED ON CAP.

WGT. - 8 OZ.

Function

This relief valve may be installed as an option, in any cylinder port of the 25P or 25 PK control valve. It is a high quality, inexpensive device for limiting pressure, or cushioning in the work port, line, cylinder, or motor supplied by this particular work port.

Performance

THIS RELIEF WILL PASS 35 GPM.

Parts List

Part No.	Description	No. Req'd. Per Assembly
014	POPPET RELIEF BALL (½" DIA. STEEL)	1
922	RELIEF SPRING (1501-3000 PSI*)	(1)
949	POPPET RELIEF SHIM (.010")	As Req'd.
1213	POPPET RELIEF SHIM (.105")	As Req'd.
1615	SEAL O-RING (OUTER)	1
1668	RELIEF CAVITY PLUG	(Opt.)
1718	SEAL O-RING (INNER)	1
1742	POPPET RELIEF SPRING SPACER	1
1743	POPPET RELIEF SHIM (.006")	As Req'd.
1744	RELIEF BALL FOLLOWER	1
1745	RELIEF SPRING (1001-1500 PSI*)	(1)
1746	RELIEF SEAT	(1)
1747	POPPET RELIEF BODY	1
1753	LOW PRESSURE SPRING (500-1000 PSI*)	(1)

* PRESSURES FULL FLOW @ 35 GPM.

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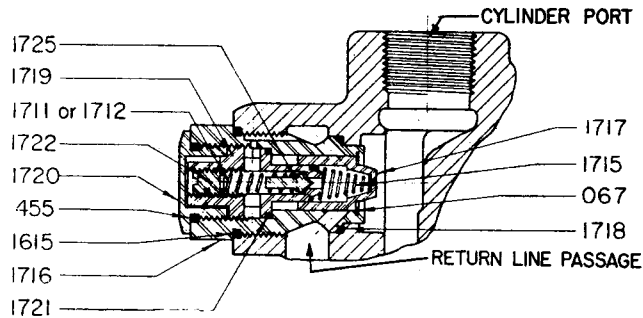
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AGRICULTURAL



"PILOT-OPERATED" CYLINDER PORT RELIEF

(For Use in any Working Cylinder Port)
Pressure Range – (200 To 3500 PSI Crack)

**IDEAL FOR
"LIMITING"
CYLINDERS
WITH RIGID
LINKAGE OR
VANE-TYPE
CYLINDERS
HAVING
INERTIA
LOADS**



**USED TO
LIMIT
PRESSURE
(OR FORCE)
IN
DOUBLE-ACTING
OR SINGLE-
ACTING
CYLINDERS OR
HYDRAULIC
MOTORS**

FACTORY-SET TO CUSTOMERS SPECIFICATIONS (ADJUSTABLE)
PRESSURE SETTING STAMPED ON CAP

WGT. – 7-1/2 OZ.

Function

This pilot operated relief which may be installed as an option in any cylinder port of the 25P & 25PK control valves is a high quality, quiet means of limiting pressure or cushioning in work ports. This valve has a better "crack" to "full flow" differential than the "poppet" type cylinder port relief shown on the reverse side of this form.

CAUTION: Due to the close tolerances held on the working ports of a pilot operated relief valve, it is important that the system be kept free of all foreign matter. We strongly recommend a filter be installed in any hydraulic system incorporating pilot operated reliefs.

Performance

THIS RELIEF VALVE WILL PASS 35 GPM VERY ADEQUATELY

Parts List

Part No.	Description	No. Req'd. Per Assembly
067	PILOT RELIEF RETAINING RING	1
455	PILOT RELIEF CAP SEAL	1
1615	O-RING SEAL (OUTER)	1
1668	RELIEF CAVITY PLUG	(Opt.)
1711	PILOT SPRING (LOW PRESS.)(500–1500 PSI*)	(1)
1712	PILOT SPRING (H.P.)(1501–3500 PSI*)	(1)
1715	PISTON SPRING	1
**1716	PILOT RELIEF BODY	1
**1717	PILOT RELIEF PISTON	1
1718	O-RING SEAL (INNER)	1
1719	PILOT RELIEF SEAT	1
1720	PILOT RELIEF CAP	1
1721	PILOT RELIEF SEAT O-RING SEAL	1
1722	PILOT RELIEF ADJUSTING SCREW	1
1725	PILOT POPPET	1

* PRESSURES FULL FLOW @ 35 GPM ** (SOLD ONLY IN MATCHED SETS)

HOSE CATEGORY

First three numbers signify type of hose
Three dash numbers signify length of hose in inches.

900-	1/4" double wire braid hose
902-	3/8" double wire braid hose
904-	1/2, " double wire braid hose
906-	3/4" double wire braid hose
908-	1" double wire braid hose
920-	1/4" single wire braid hose
922-	3/8" single wire braid hose
924-	1/2" single wire braid hose
926-	3/4" single wire braid hose
928-	1" single wire braid hose
940-	3/4" fabric braid hose
950-	1/4" double wire braid no skive hose
952-	3/8" double wire braid no skive hose
954-	1/2" double wire braid no skive hose
956-	3/4" double wire braid no skive hose
958-	1" double wire braid no skive hose

MF - signifies male fitting on one end, female fitting on one end

MM - signifies male fittings on both ends

FF - signifies female fittings on both ends