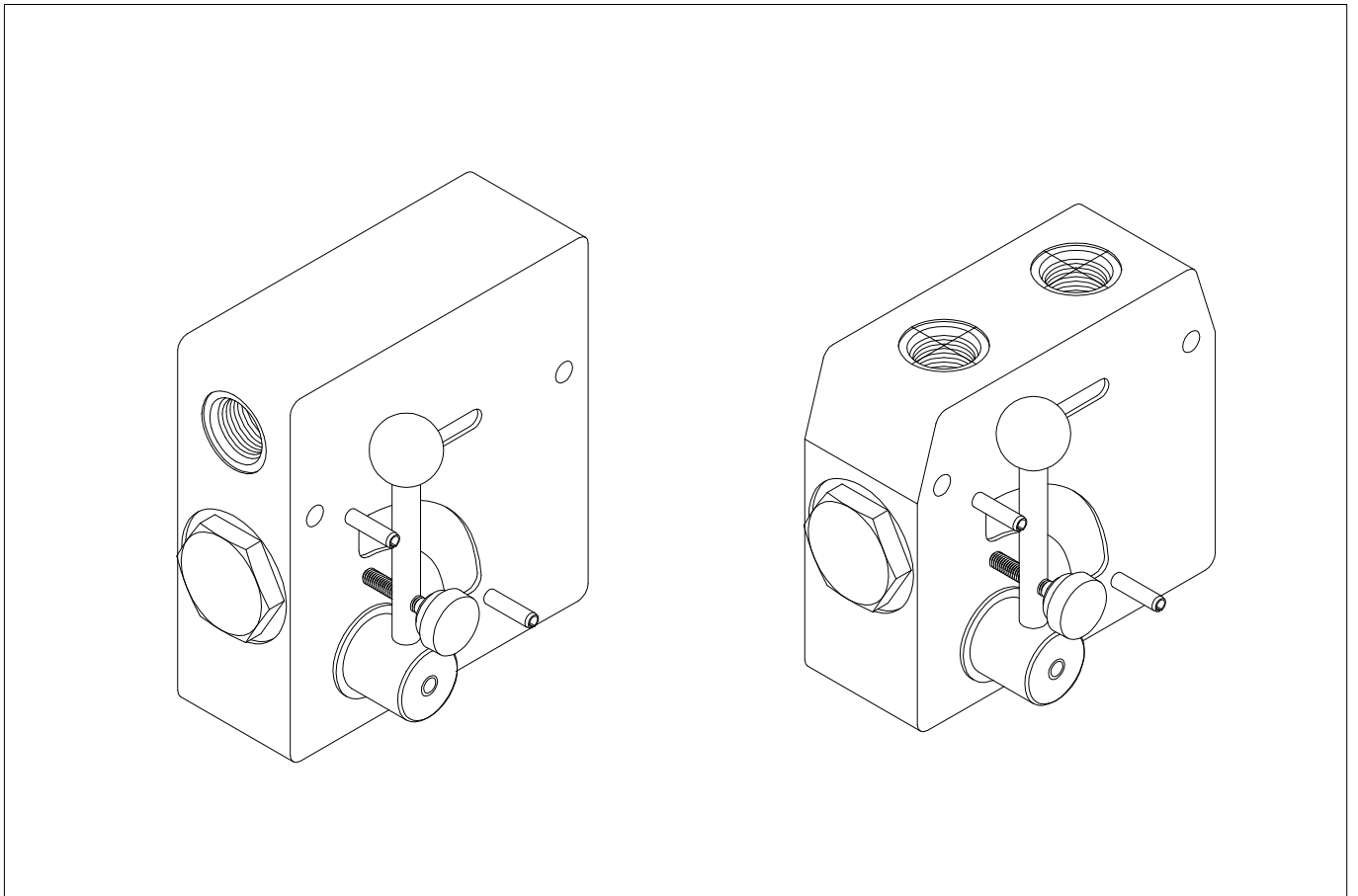


RD1900, RD100, RDRS1900, RDRS100
 RD-200, RD-300, RD-400, RD-400R,
 RD-500, RD-500P, RD-900, RD-1000
 RD-1400, RD-1600,
 RD-1800, RV, AND DRV

PARTS MANUAL



PRINCE MANUFACTURING CORPORATION



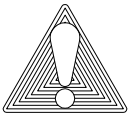
2ND EDITION

INDEX		PAGE	
4	RD-100	12	RD-1000-CB
5	RD-1900	13	RD-1000-S
6	RDRS-100/1900	14	DRV/RV
7	RD-100/1900 EXAMPLE CIRCUIT	15	DRV EXAMPLE CIRCUIT
8	RD-400/RD-400R	15	RD-1800
9	RD-500	16	RD-1600
10	RD-200/RD-300	17	RD-1400
11	RD-500P	18	RD-900

GENERAL SAFETY PRECAUTIONS FOR HYDRAULIC VALVES

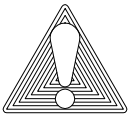
1) ALL HYDRAULIC VALVES MUST BE PROPERLY INSTALLED INTO THE HYDRAULIC SYSTEM TO PREVENT PERSONAL INJURY AND/OR PROPERTY DAMAGE. FURTHER, THE IMPROPER SERVICING OF A VALVE MAY RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE. PLEASE READ AND UNDERSTAND ALL CATALOG AND SERVICE INFORMATION BEFORE STARTING. AS WITH ALL MECHANICAL WORK THE PROPER TOOLS, KNOWLEDGE, AND SAFETY EQUIPMENT ARE REQUIRED. ALWAYS WEAR SAFETY GLASSES.

2) MAKE SURE ALL PRESSURE HAS BEEN RELIEVED IN THE HYDRAULIC LINES BEFORE INSTALLING OR SERVICING A HYDRAULIC VALVE.



WARNING: ESCAPING HYDRAULIC FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE SKIN, CAUSING SERIOUS PERSONAL INJURY. DO NOT USE YOUR HAND TO CHECK FOR HYDRAULIC LEAKS.

3) BEFORE INSTALLING OR SERVICING A HYDRAULIC COMPONENT MAKE SURE ALL WEIGHT HAS BEEN REMOVED FROM THE CYLINDERS OR MOTORS BEFORE DISCONNECTING HYDRAULIC LINES.



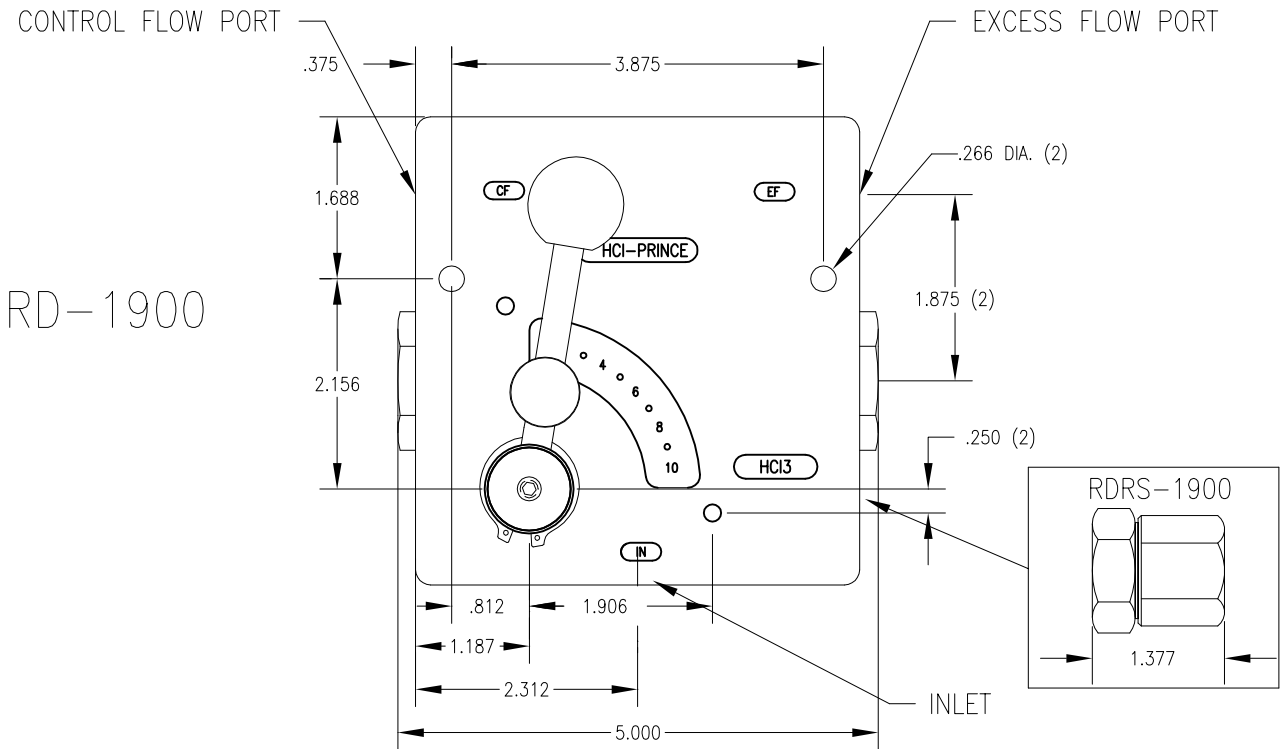
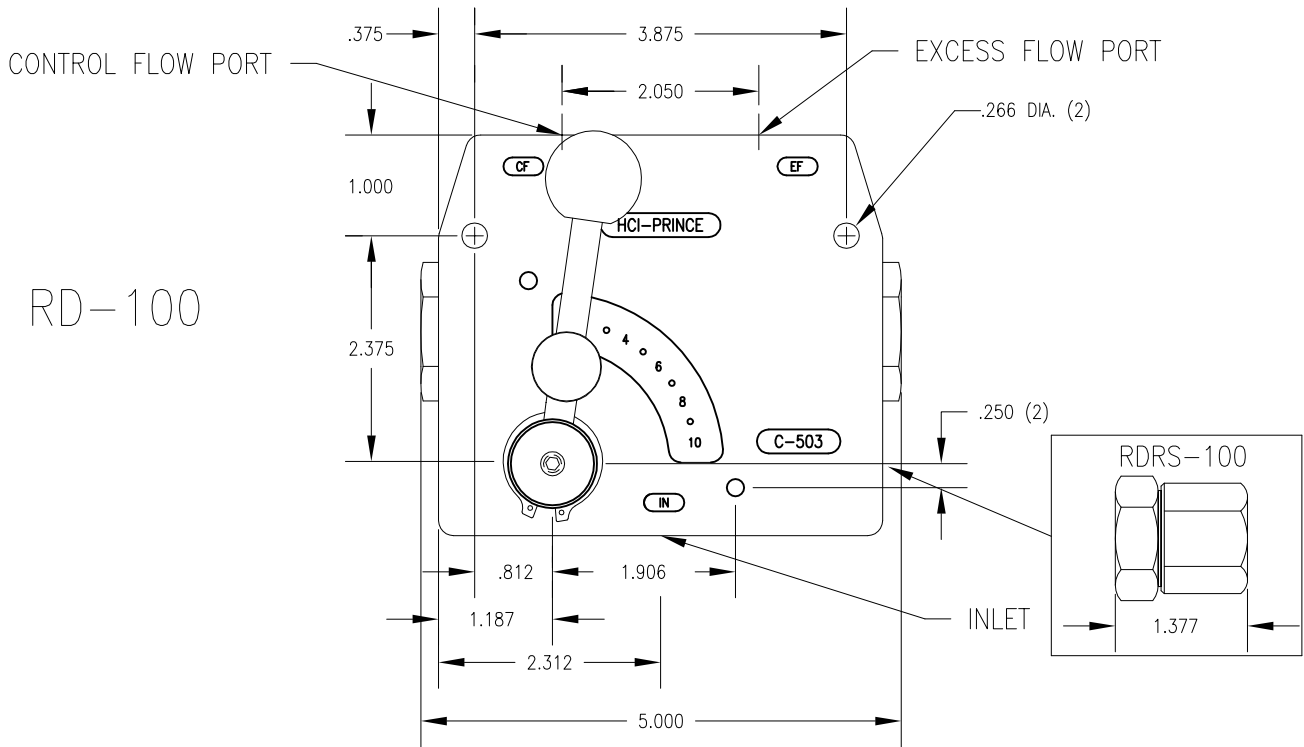
WARNING: DISCONNECTING THE HYDRAULIC LINES WHILE THE CYLINDER OR MOTOR IS UNDER LOAD MAY RESULT IN THE UNEXPECTED RAPID MOVEMENT OF MACHINE RESULTING IN SERIOUS PERSONAL INJURY.

4) DO NOT EXCEED THE OPERATING SPECIFICATIONS FOR PRESSURE, FLOW OR TEMPERATURE. ALL HYDRAULIC SYSTEMS REQUIRE A MEANS TO LIMIT THE MAXIMUM PRESSURE. THIS REQUIRES EITHER A PRESSURE RELIEF VALVE IN THE SYSTEM OR A PUMP THAT HAS PRESSURE COMPENSATION.



WARNING: OVERPRESSURE MAY CAUSE SUDDEN AND UNEXPECTED FAILURE OF A COMPONENT IN THE HYDRAULIC SYSTEM RESULTING IN SERIOUS PERSONAL INJURY. ALWAYS USE A GAUGE WHEN ADJUSTING A RELIEF VALVE.

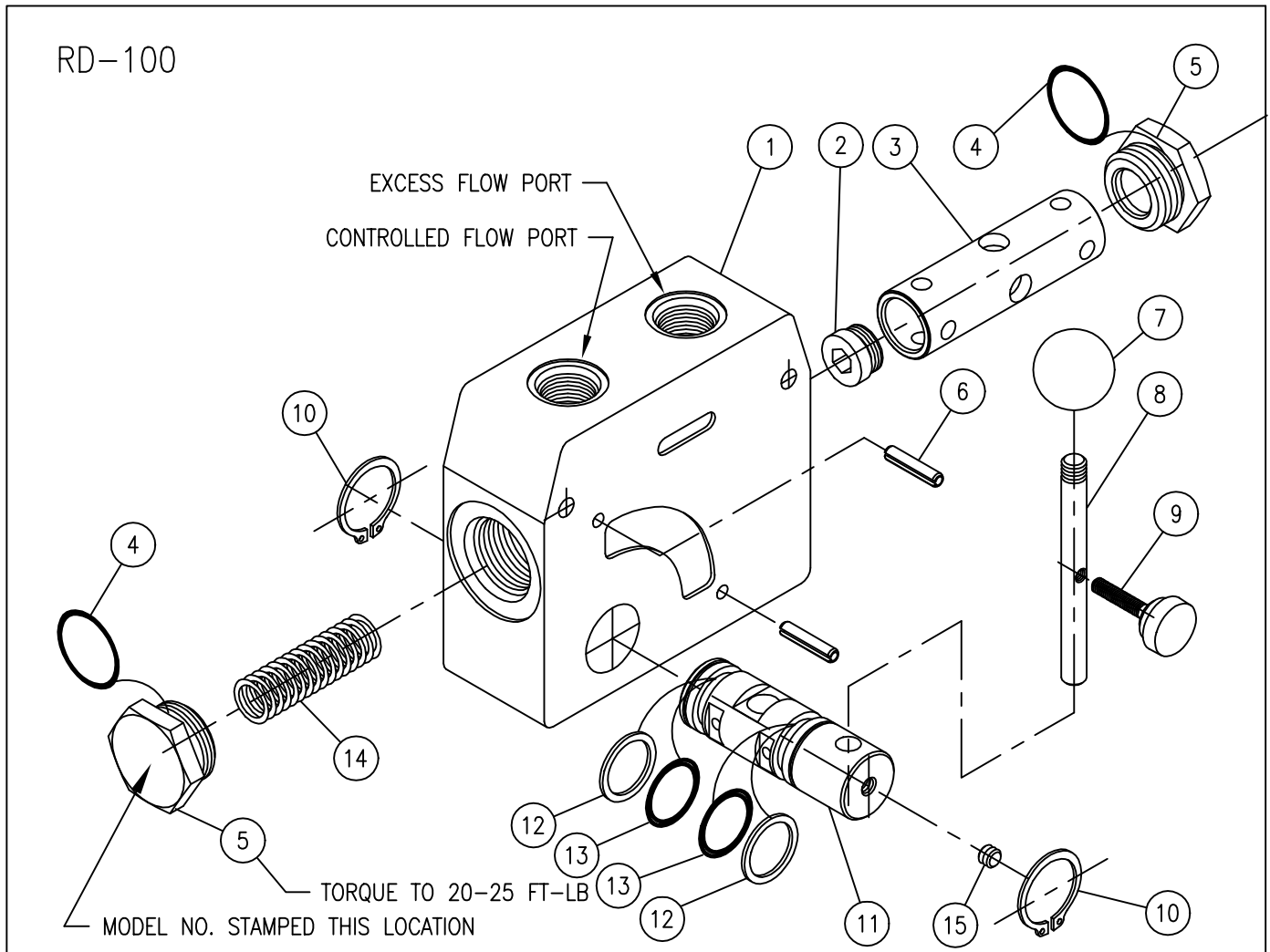
PORT IDENTIFICATION



SPECIFICATIONS
 MAXIMUM OPERATING PRESSURE.....3000 PSI
 MAXIMUM OPERATING TEMPERATURE.....180°F
 RECOMENDED SYSTEM FILTRATION.....10 MICRON
 FLOW RATING.....30 GPM



RD-100



RD-100 PRIORITY DIVIDER

RD-100 PRIORITY DIVIDER

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		PLUG
3	1		METERING SPOOL*
4	2	240000912	912 O-RING
5	2	671600002	MAIN BORE PLUG
6	2	190100018	ROLL PIN
7	1	670400005	HANDLE KNOB
8	1	670400004	HANDLE
9	1	670400006	THUMB SCREW
10	2	230005093	SNAP RING
11	1		ROTARY SPOOL*
12	2	240016072	BACK-UP WASHER
13	2	240000116	116 O-RING
14	1	670300008	METERING SPRING
15	1	220000762	SET SCREW

* indicate matched parts and are not sold separately.

SEAL KIT PART # 660501001 INCLUDES ITEMS 4, 12, & 13.

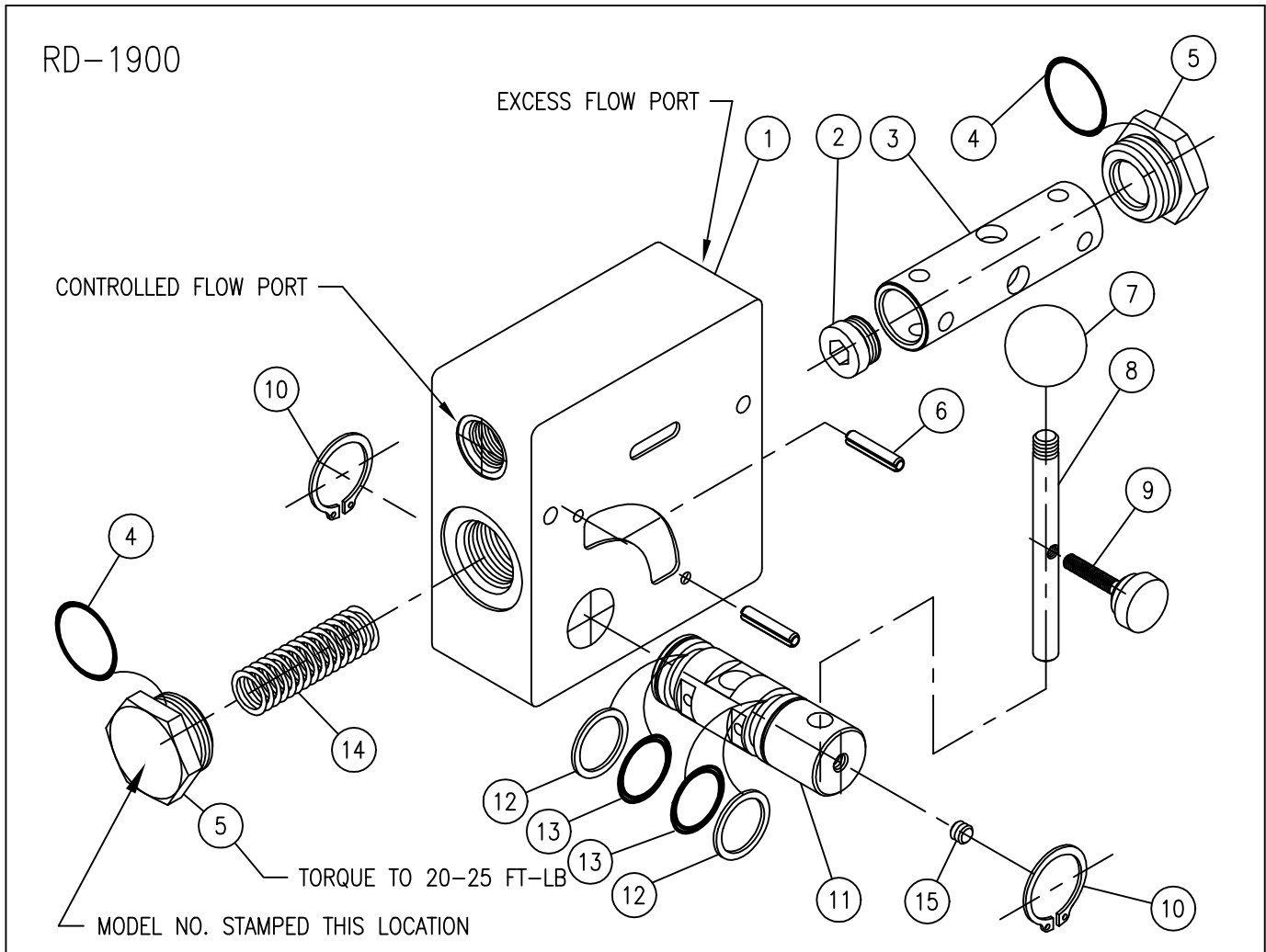
HANDLE KIT PART# 660301002 INCLUDES ITEMS 6, 7, 8, & 9

} SEE NOTE 1

NOTES:

1. SPOOL SEAL INSTALLATION PROCEDURE: INSTALL ONE O-RING AND BACKUP WASHER IN THE GROOVE ON HANDLE END OF ROTARY SPOOL. PUSH SPOOL THRU FROM HANDLE SIDE JUST FAR ENOUGH TO EXPOSE O-RING GROOVE ON THE BACKSIDE. INSTALL THE OTHER O-RING AND BACK-UP WASHER AND PUSH SPOOL BACK. LUBRICATE SEALS BEFORE INSTALLATION.
2. SEE PAGE 7 FOR INSTALLATION EXAMPLE.

RD-1900



RD-1900 PRIORITY DIVIDER

RD-1900 PRIORITY DIVIDER

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		PLUG
3	1		METERING SPOOL*
4	2	240000912	912 O-RING
5	2	671600002	MAIN BORE PLUG
6	2	190100018	ROLL PIN
7	1	670400005	HANDLE KNOB
8	1	670400004	HANDLE
9	1	670400006	THUMB SCREW
10	2	230005093	SNAP RING
11	1		ROTARY SPOOL*
12	2	240016072	BACK-UP WASHER
13	2	240000116	116 O-RING
14	1	670300008	METERING SPRING
15	1	220000762	SET SCREW

* indicate matched parts and are not sold separately.

SEAL KIT PART # 660501001 INCLUDES ITEMS 4, 12, & 13.

HANDLE KIT PART# 660301002 INCLUDES ITEMS 6, 7, 8, & 9

} SEE NOTE 1

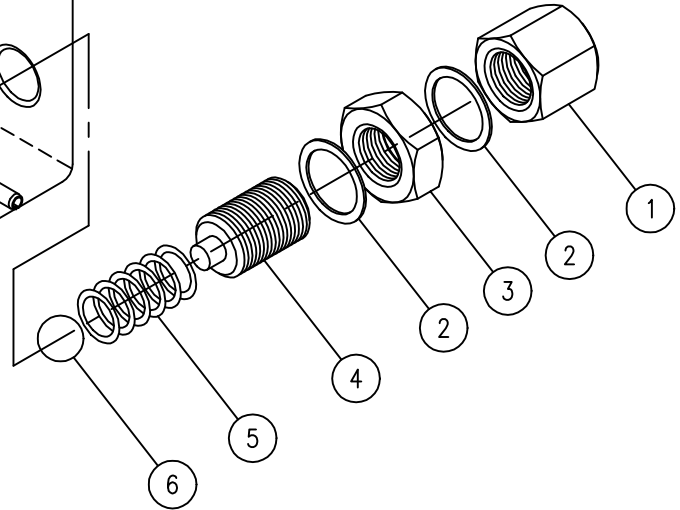
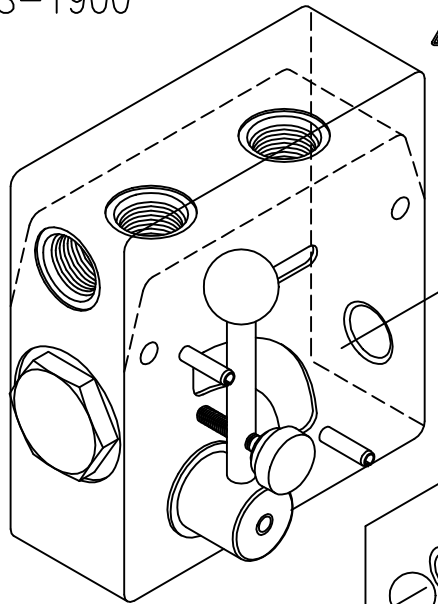
NOTES:

1. SPOOL SEAL INSTALLATION PROCEDURE: INSTALL ONE O-RING AND BACKUP WASHER IN THE GROOVE ON HANDLE END OF ROTARY SPOOL. PUSH SPOOL THRU FROM HANDLE SIDE JUST FAR ENOUGH TO EXPOSE O-RING GROOVE ON THE BACKSIDE. INSTALL THE OTHER O-RING AND BACK-UP WASHER AND PUSH SPOOL BACK. LUBRICATE SEALS BEFORE INSTALLATION.
2. SEE PAGE 7 FOR INSTALLATION EXAMPLE.

RDRS-100/RDRS-1900



WARNING: OVERPRESSURE MAY CAUSE SUDDEN AND UNEXPECTED FAILURE OF A COMPONENT IN THE HYDRAULIC SYSTEM RESULTING IN SERIOUS PERSONAL INJURY. ALWAYS USE A GAUGE WHEN ADJUSTING A RELIEF VALVE.



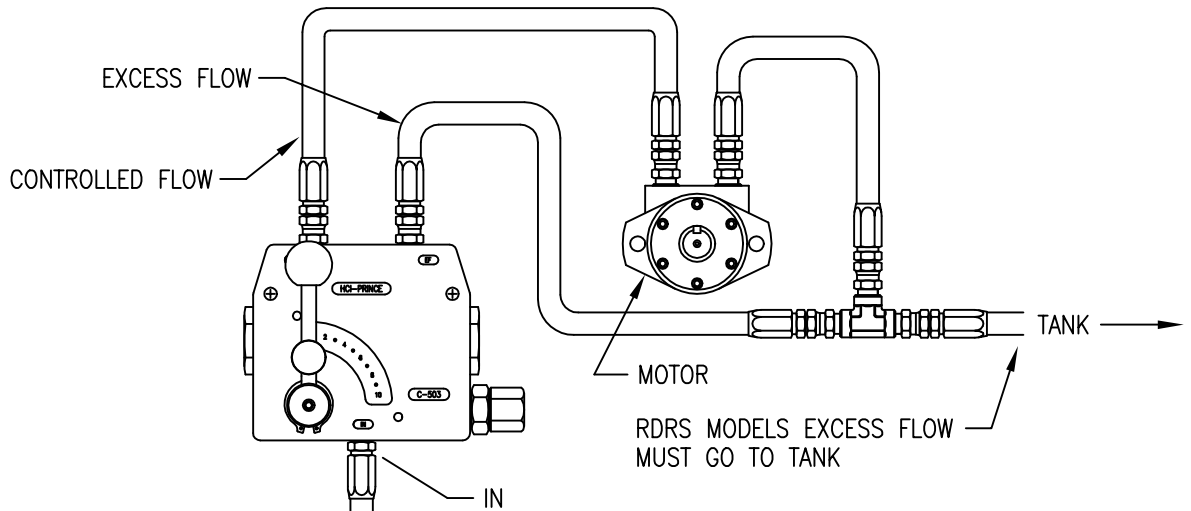
RELIEF PRESSURE CAN BE ADJUSTED BY REMOVING ACORN NUT, LOOSENING JAM NUT AND TURNING ADJUSTING SCREW CLOCKWISE TO INCREASE PRESSURE AND COUNTERCLOCKWISE TO DECREASE PRESSURE. RELIEF ADJUSTABLE FROM 1000 PSI TO 2500 PSI.

RDRS-100 RDRS-1900 RELIEF DETAIL

RDRS-100/RDRS-1900 RELIEF DETAIL

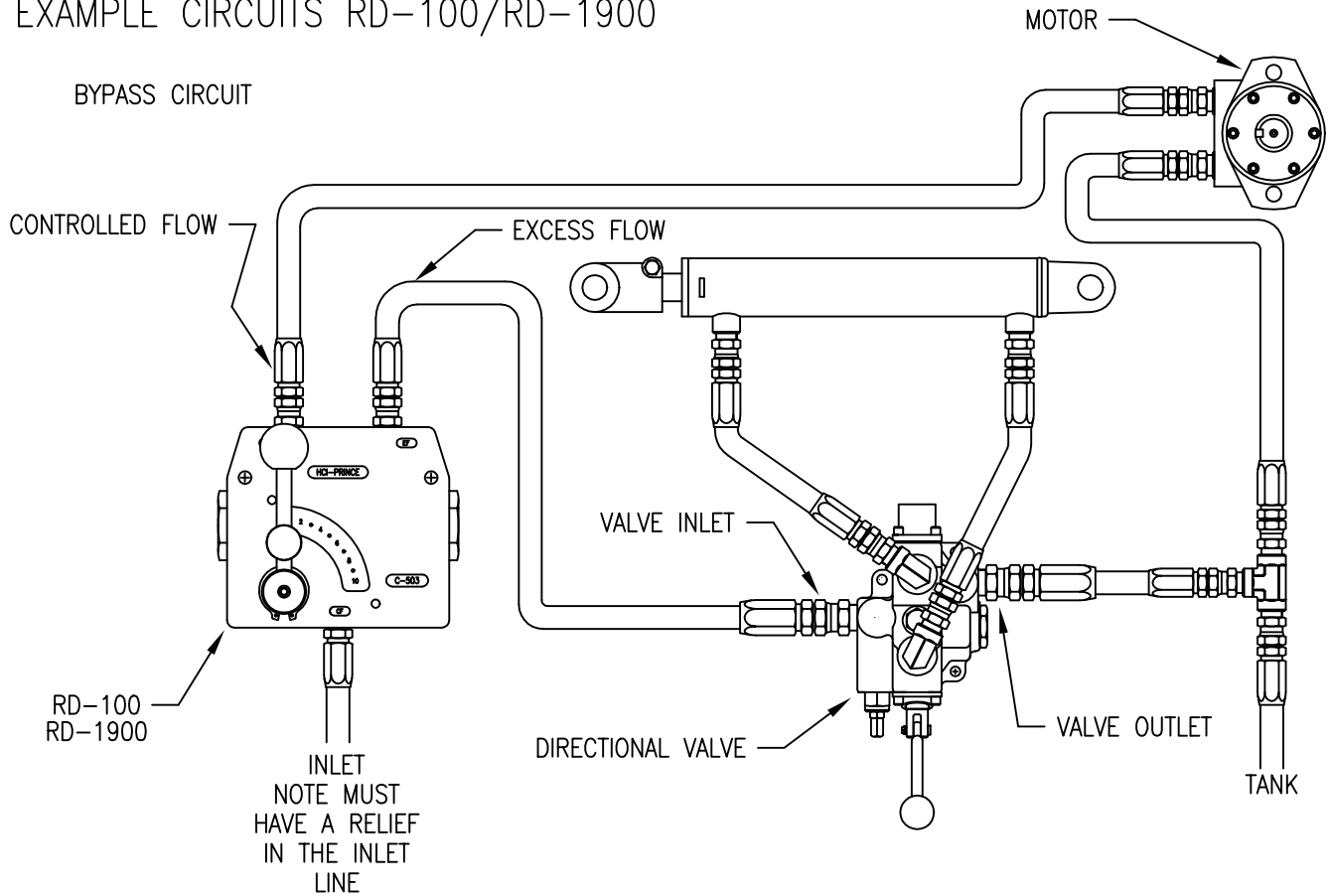
ITEM	QTY	PART NO.	DESCRIPTION
1	1	671800002	ACORN NUT
2	2	671500004	WASHER
3	1	671800010	JAM NUT
4	1	671900001	ADJUSTING SCREW
5	1	670300011	SPRING
6	1	230009014	STEEL BALL

EXAMPLE RDRS-100 CIRCUIT

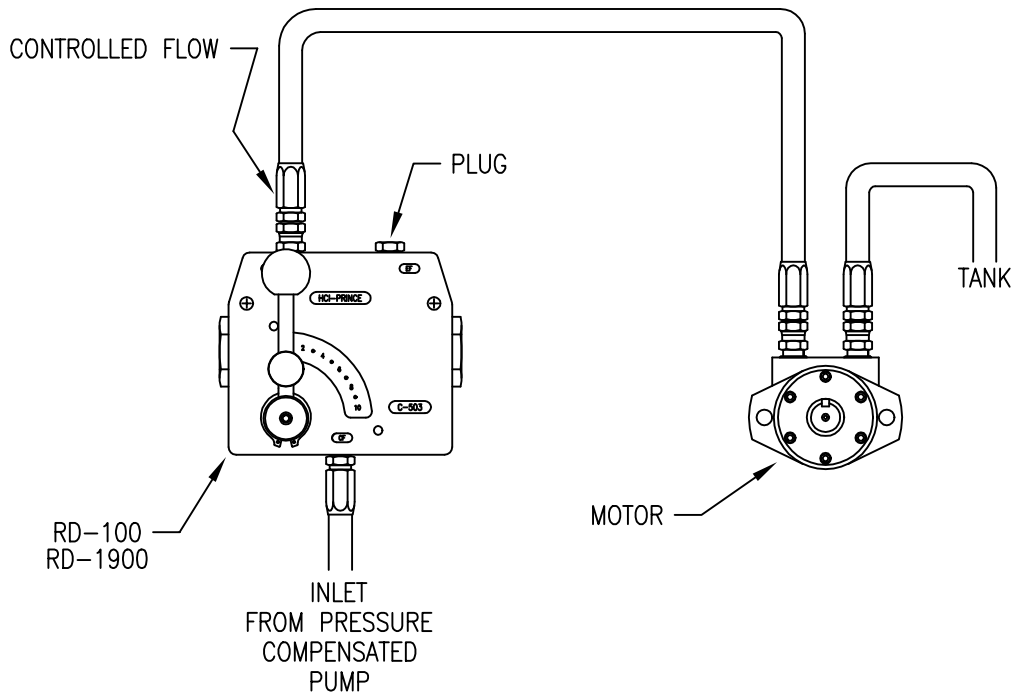


EXAMPLE CIRCUITS RD-100/RD-1900

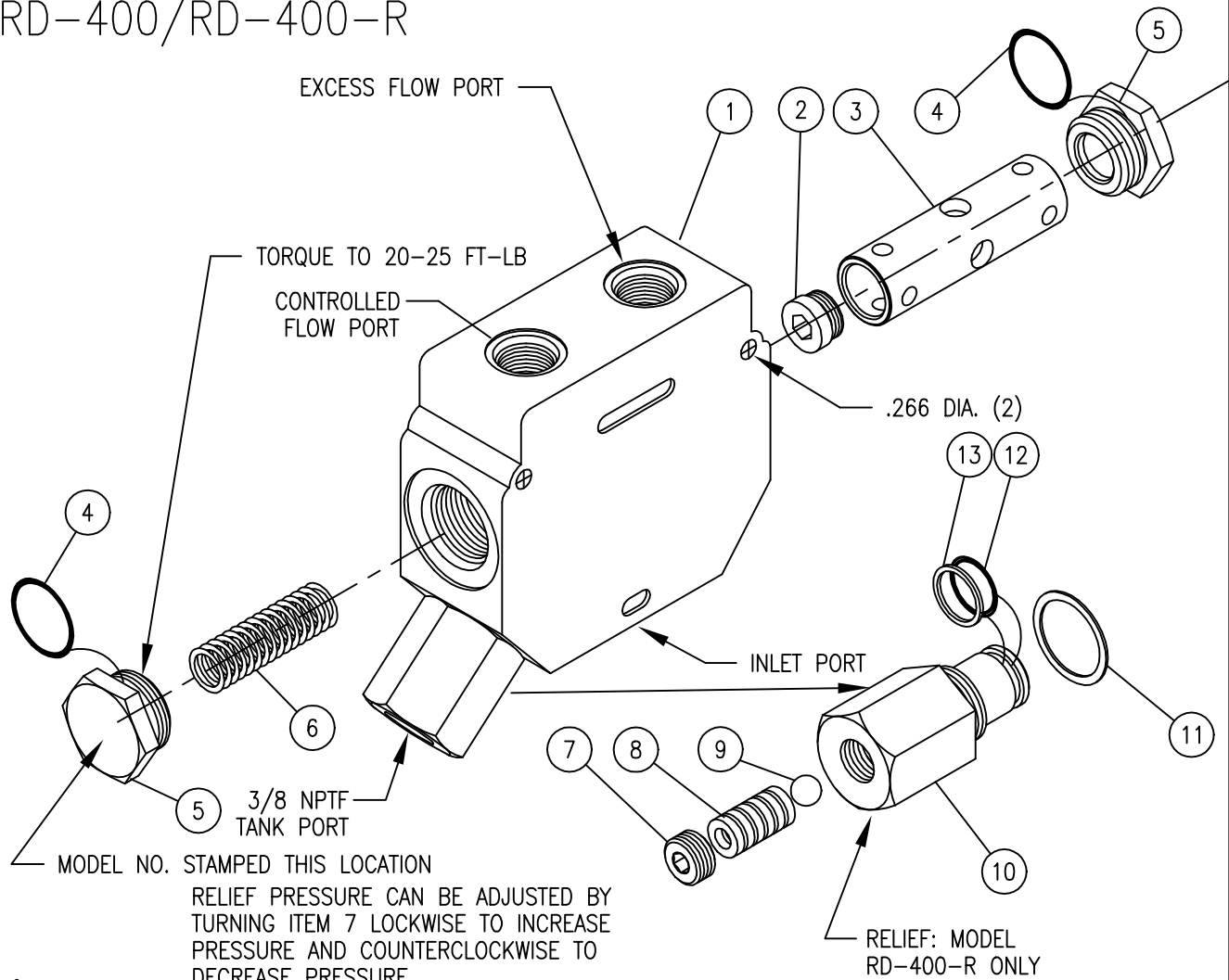
BYPASS CIRCUIT



RESTRICTIVE CIRCUIT NORMALLY USED IN CLOSED CENTER SYSTEM OR A SYSTEM WITH PRESSURE COMPENSATED PUMP



RD-400/RD-400-R



RD-400/RD-400-R PRIORITY DIVIDER

RD-400/RD-400-R PRIORITY DIVIDERS

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		ORIFICE*
3	1		METERING SPOOL*
4	2	240000912	912 O-RING
5	2	671600002	MAIN BORE PLUG
6	1	670300008	METERING SPRING
7	1	671600025	5/8-18 X 5/16 NYLOK SSS
8	1	670300015	RELIEF SPRING
9	1	230009011	STEEL BALL
10	1	671000007	RELIEF CART. BODY
11	1	671500005	ALUM WASHER
12	1	240000017	017 O-RING
13	1	240019017	BACK-UP WASHER

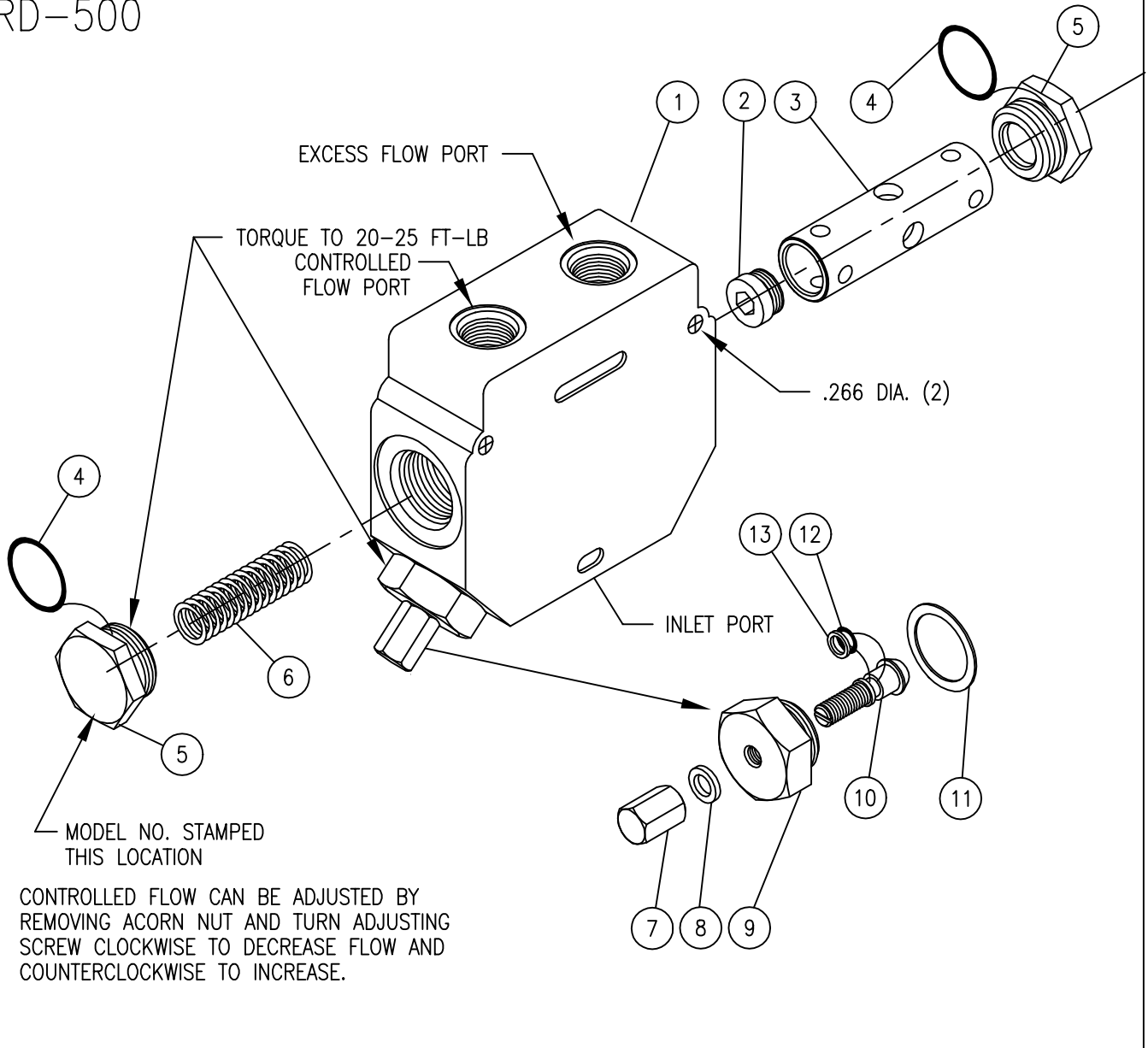
* indicate matched parts and are not sold separately.

SEAL KIT PART # 660504001 RD-400

SEAL KIT PART # 660504002 RD-400-R

RELIEF CART. 660204001 RD-400-R ONLY

RD-500



RD-500 ADJUSTABLE FLOW PRIORITY DIVIDER

RD-500 ADJUSTABLE FLOW PRIORITY DIVIDER

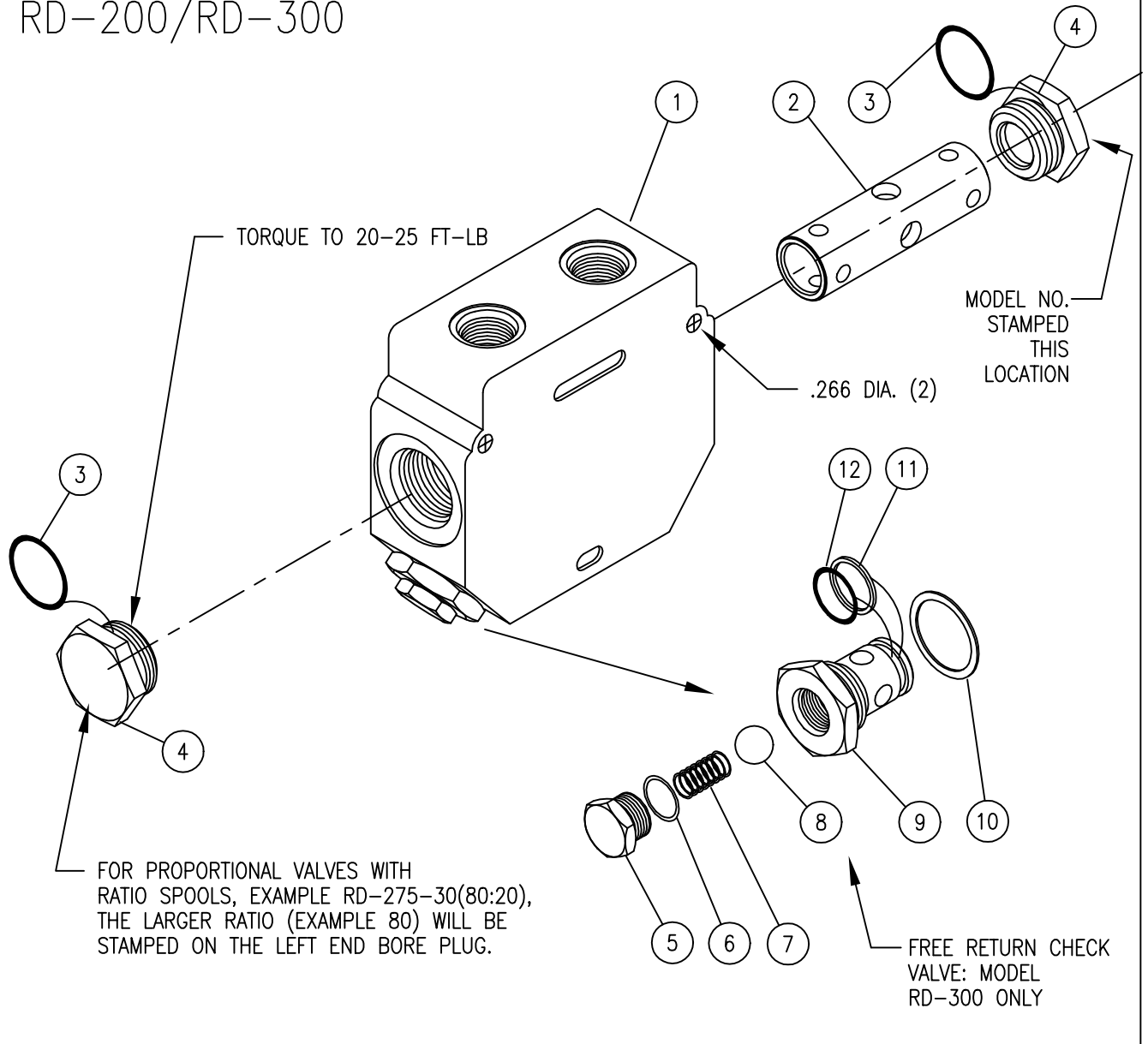
ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		PLUG
3	1		METERING SPOOL*
4	2	240000912	912 O-RING
5	2	671600002	MAIN BORE PLUG
6	1	670300008	METERING SPRING
7	1	671800001	ACORN NUT
8	1	671500003	ALUMINUM WASHER
9	1	671600008	ADJUSTING PLUG
10	1	671900002	ADJUSTING SCREW
11	1	671500005	ALUMINUM WASHER
12	1	240016069	O-RING
13	1	240019010	BACK-UP WASHER

* indicate matched parts and are not sold seperately.

SEAL KIT PART # 660505001

ADJUSTING PLUG ASSY 660305001

RD-200/RD-300



RD-200/RD-300 PROPORTIONAL DIVIDER

RD-200 PROPORTIONAL FLOW DIVIDER RD-300 PROPORTIONAL DIVIDER WITH FREE RETURN CHECKS

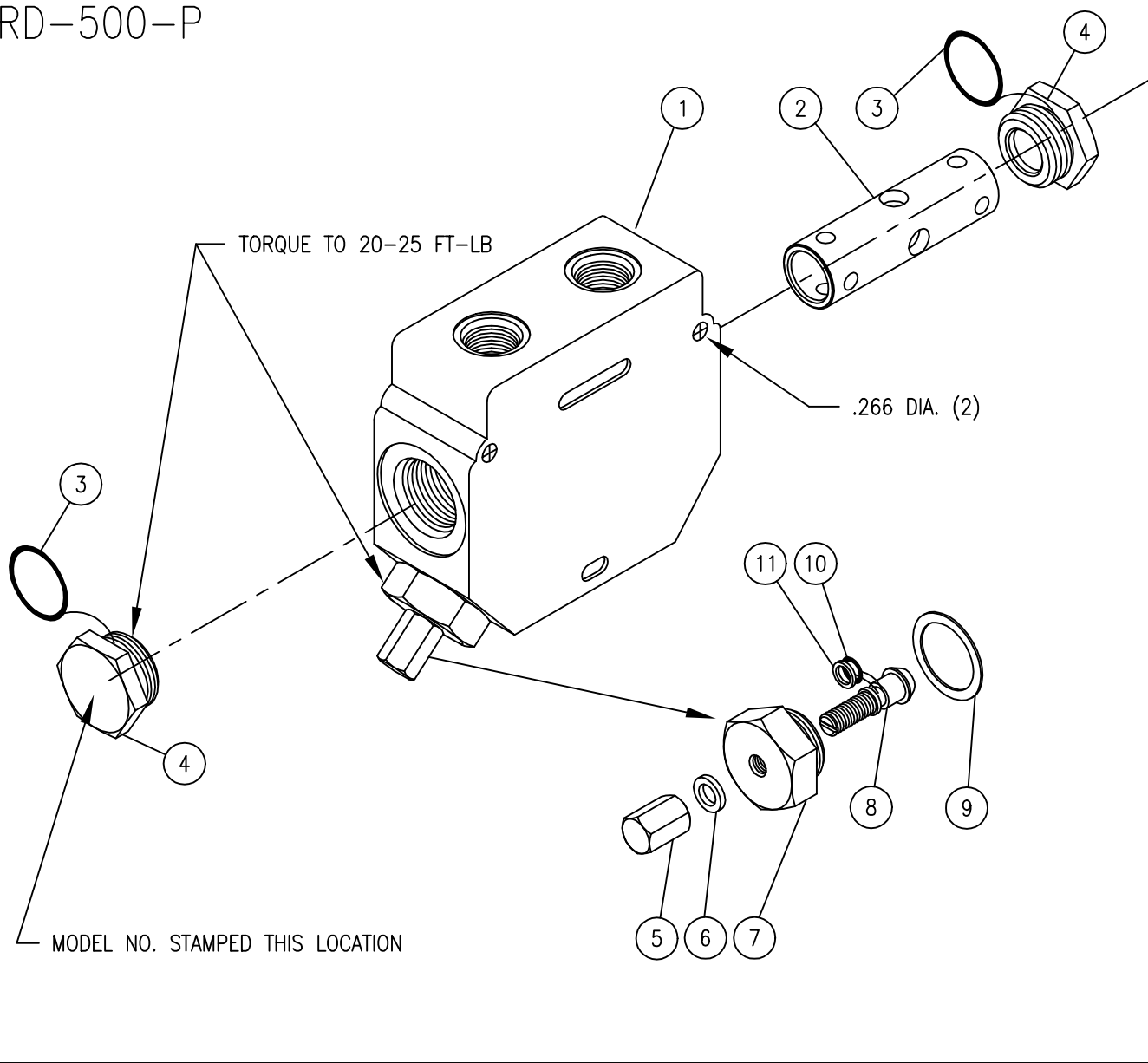
ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		DIVIDING SPOOL*
3	2	240000912	912 O-RING
4	2	671600002	MAIN BORE PLUG
5	2	671600006	CHECK PLUG
6	2	240000015	015 O-RING
	2	670300014	CHECK SPRING
8	2	230009014	STEEL BALL
9	2	671600027	CHECK SEAT
10	2	671500005	ALUMINUM WASHER
11	2	240019017	BACK-UP WASHER
12	2	240000017	017 O-RING

* indicate matched parts and are not sold seperately.

SEAL KIT PART # 660502001 RD-200
SEAL KIT PART # 660503001 RD-300

FREE RETURN CHECK VALVE
660203001
RD-300 ONLY

RD-500-P



RD-500-P PROPORTIONAL DIVIDER WITH ADJUSTABLE ORIFICE

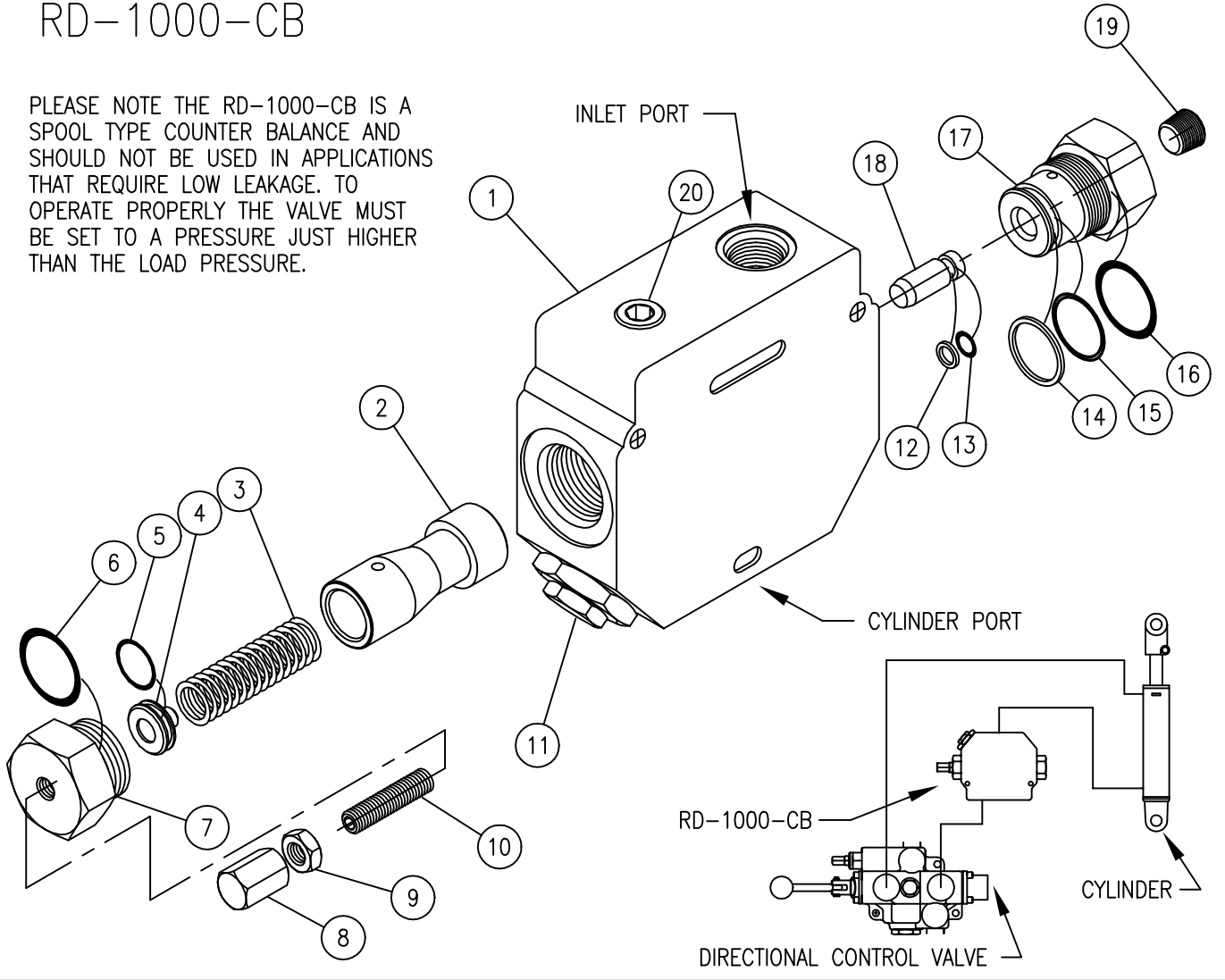
RD-500-P PROPORTIONAL DIVIDER WITH ADJUSTABLE ORIFICE

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		DIVIDING SPOOL*
3	2	240000912	912 O-RING
4	2	671600002	MAIN BORE PLUG
5	1	671800001	ACORN NUT
6	1	671500003	ALUMINUM WASHER
7	1	671600008	ADJUSTING PLUG
8	1	671900002	ADJUSTING SCREW
9	1	671500005	ALUMINUM WASHER
10	1	240016069	O-RING
11	1	240019010	BACK-UP WASHER

* indicate matched parts and are not sold separately.
SEAL KIT PART # 660505001
ADJUSTING PLUG ASSY 660305001

RD-1000-CB

PLEASE NOTE THE RD-1000-CB IS A SPOOL TYPE COUNTER BALANCE AND SHOULD NOT BE USED IN APPLICATIONS THAT REQUIRE LOW LEAKAGE. TO OPERATE PROPERLY THE VALVE MUST BE SET TO A PRESSURE JUST HIGHER THAN THE LOAD PRESSURE.



RD-1000-CB PILOT OPERATED COUNTERBALANCE VALVE

RD-1000-CB PILOT OPERATED COUNTERBALANCE VALVE

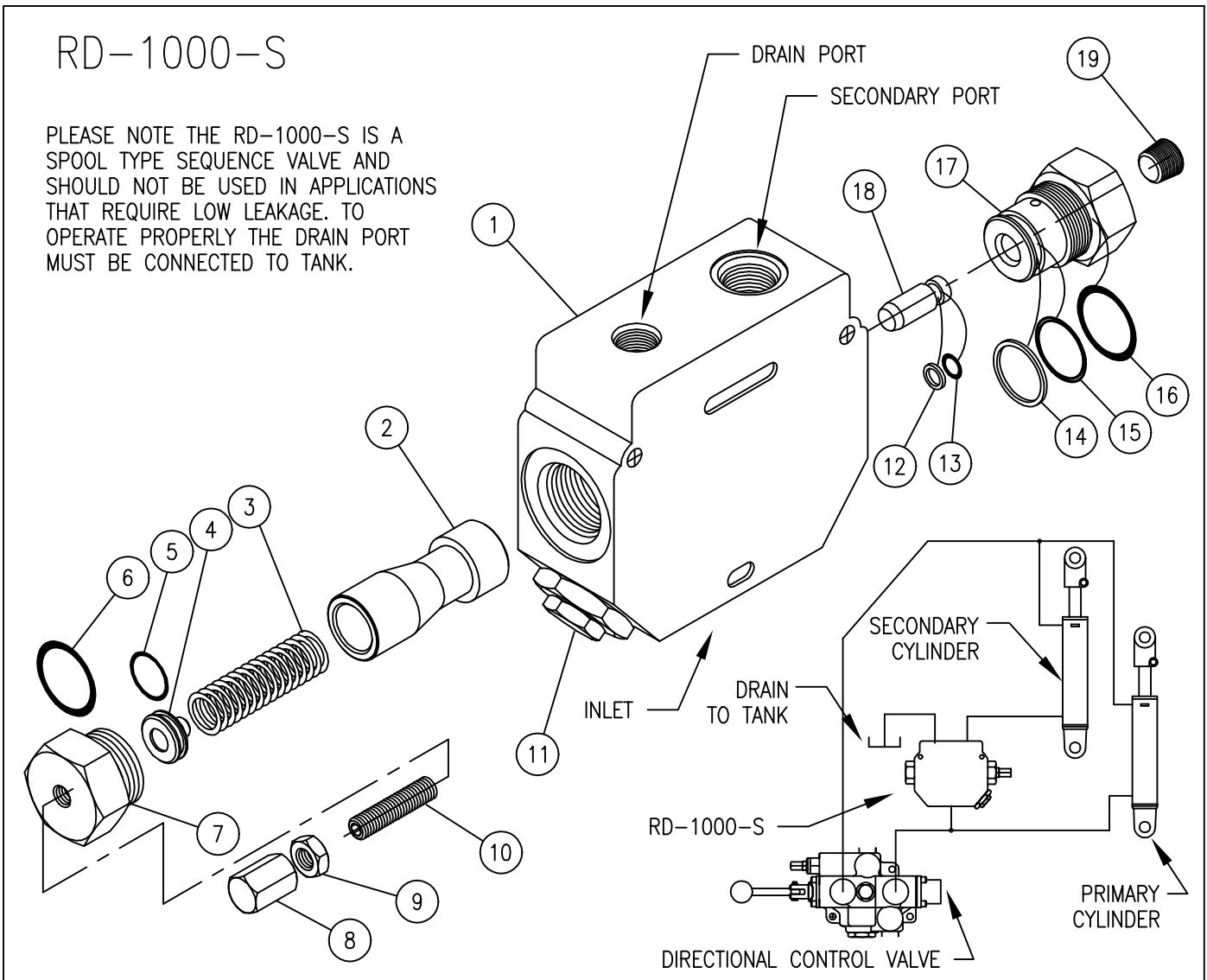
ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		INT. METERING SPOOL* * indicate matched parts and are not sold separately.
3	1	SEE BELOW	SPRING
4	1	671100007	SPRING RETAINER
5	1	240000015	015 O-RING
6	1	240000912	912 O-RING
7	1	671600011	ADJUSTING PLUG
8	1	671800001	ACORN NUT
9	1	220001302	JAM NUT
10	1	220000765	SOCKET HD. SET SCR.
11	1	660203001	CHECK VALVE ASSY (SEE PAGE 10)
12	1	240019010	010 BACK-UP WASHER
13	1	240016069	010 O-RING
14	1	240019019	019 BACK-UP WASHER
15	1	240000019	019 O-RING
16	1	240000912	912 O-RING
17	1		INT. PILOT PLUG*
18	1		PISTON*
19	1	200018001	1/4 PIPE PLUG
20	1	200018002	3/8 PIPE PLUG

ADJUSTING PLUG ASSEMBLY	660310001	SEAL KIT PART # 660510001
INTERNAL PILOT PLUG ASSEMBLY	660310003	

ADJ. RANGE	SPRING CODE	SPRING NO.
40-350 PSI	L	670300008
350-1700 PSI	M	670300016
1400-2500 PSI	H	670300017

RD-1000-S

PLEASE NOTE THE RD-1000-S IS A SPOOL TYPE SEQUENCE VALVE AND SHOULD NOT BE USED IN APPLICATIONS THAT REQUIRE LOW LEAKAGE. TO OPERATE PROPERLY THE DRAIN PORT MUST BE CONNECTED TO TANK.



RD-1000-S PILOT OPERATED SEQUENCE VALVE

RD-1000-S PILOT OPERATED SEQUENCE VALVE

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY*
2	1		EXT. METERING SPOOL* * indicate matched parts and are not sold separately.
3	1	SEE BELOW	SPRING
4	1	671100007	SPRING RETAINER
5	1	240000015	015 O-RING
6	1	240000912	912 O-RING
7	1	671600011	ADJUSTING PLUG
8	1	671800001	ACORN NUT
9	1	220001302	JAM NUT
10	1	220000765	SOCKET HD. SET SCR.
11	1	660203001	CHECK VALVE ASSY (SEE PAGE 10)
12	1	240019010	010 BACK-UP WASHER
13	1	240016069	010 O-RING
14	1	240019019	019 BACK-UP WASHER
15	1	240000019	019 O-RING
16	1	240000912	912 O-RING
17	1		INT. PILOT PLUG*
18	1		PISTON*
19	1	200018001	1/4 PIPE PLUG

ADJUSTING PLUG ASSEMBLY
660310001

INTERNAL PILOT PLUG ASSEMBLY
660310003

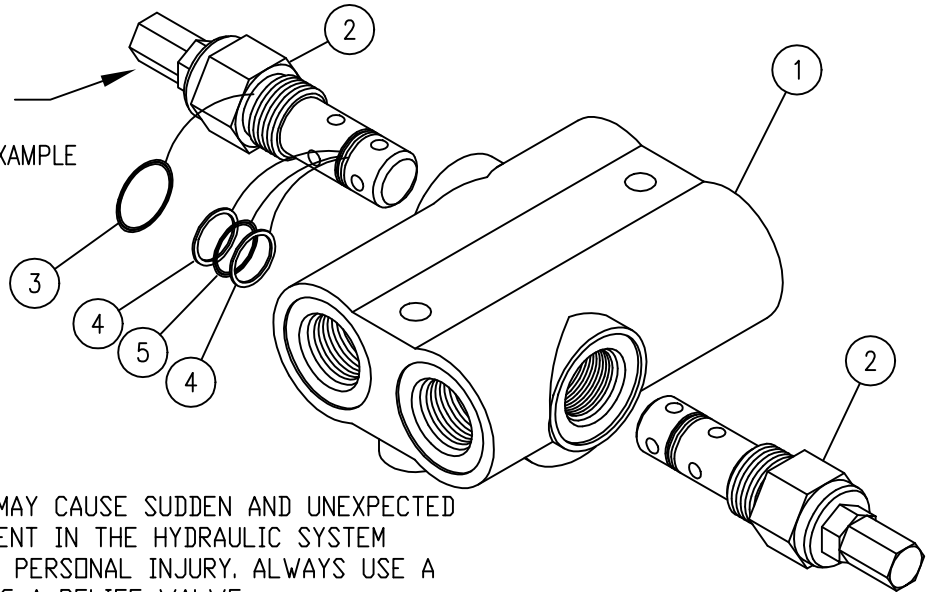
SEAL KIT PART # 660510001

ADJ. RANGE	SPRING CODE	SPRING NO.
40-350 PSI	L	670300008
350-1700 PSI	M	670300016
1400-2500 PSI	H	670300017

DRV

SEE ADJUSTMENT NOTE BELOW

SEE PAGE 15 FOR INSTALLATION EXAMPLE



WARNING: OVERPRESSURE MAY CAUSE SUDDEN AND UNEXPECTED FAILURE OF A COMPONENT IN THE HYDRAULIC SYSTEM RESULTING IN SERIOUS PERSONAL INJURY. ALWAYS USE A GAUGE WHEN ADJUSTING A RELIEF VALVE.

DRV DIFFERENTIAL POPPET DOUBLE RELIEF

DRV DIFFERENTIAL POPPET DOUBLE RELIEF

ITEM	QTY	PART NO.	DESCRIPTION	RELIEF CODE	CART. NO.	ADJUSTMENT RANGE
1	1		BODY	H	660250011	1500-3000 PSI
2	1	SEE CHART	RELIEF CART.	L	660250003	500-1500 PSI
3	1	240000116	116 O-RING	*NH	660250012	1500-3000 PSI
4	2	240044015	015 BACK-UP	*NL	660250005	500-1500 PSI
5	1	240000015	015 O-RING	*NH & NL ARE SHIM ADJUSTABLE RELIEF CARTRIDGES		



WARNING: OVERPRESSURE MAY CAUSE SUDDEN AND UNEXPECTED FAILURE OF A COMPONENT IN THE HYDRAULIC SYSTEM RESULTING IN SERIOUS PERSONAL INJURY. ALWAYS USE A GAUGE WHEN ADJUSTING A RELIEF VALVE.

RV

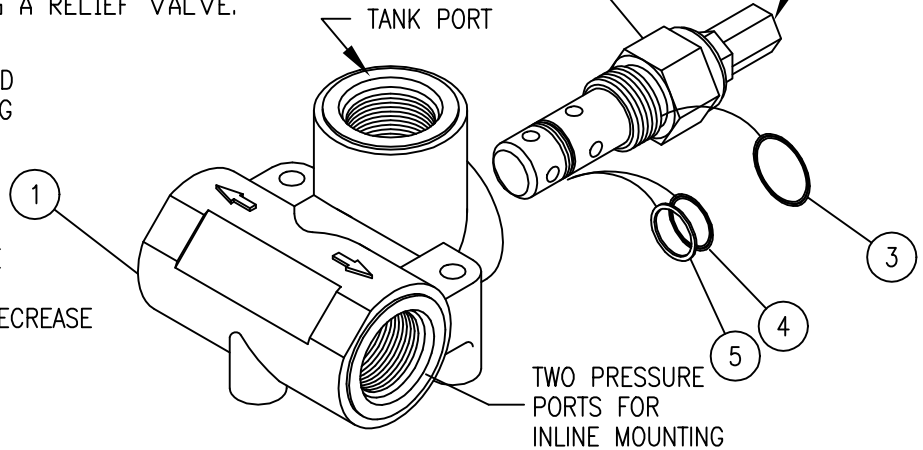
SEE ADJUSTMENT NOTE

RELIEF MODELS H & L ARE ADJUSTED BY REMOVING ACORN NUT, LOOSENING JAM NUT AND TURNING SET SCREW IN TO INCREASE PRESSURE AND OUT TO DECREASE PRESSURE. RELIEF NH & NL (NOT SHOWN) ARE ADJUSTED BY DISASSEMBLING RELIEF CARTRIDGE AND ADDING SHIMS TO INCREASE PRESSURE & REMOVING SHIMS TO DECREASE PRESSURE.

.015 SHIM PART NO. 672000101

.033 SHIM PART NO. 672000102

.060 SHIM PART NO. 672000103

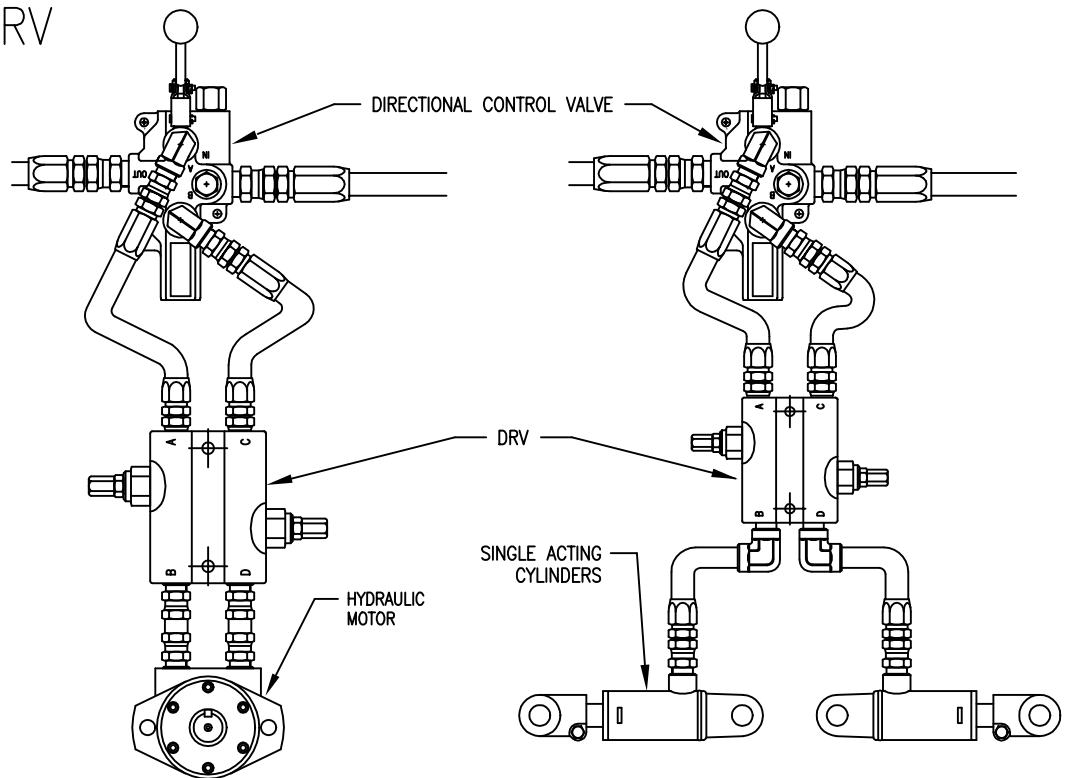


RV DIFFERENTIAL POPPET INLINE RELIEF

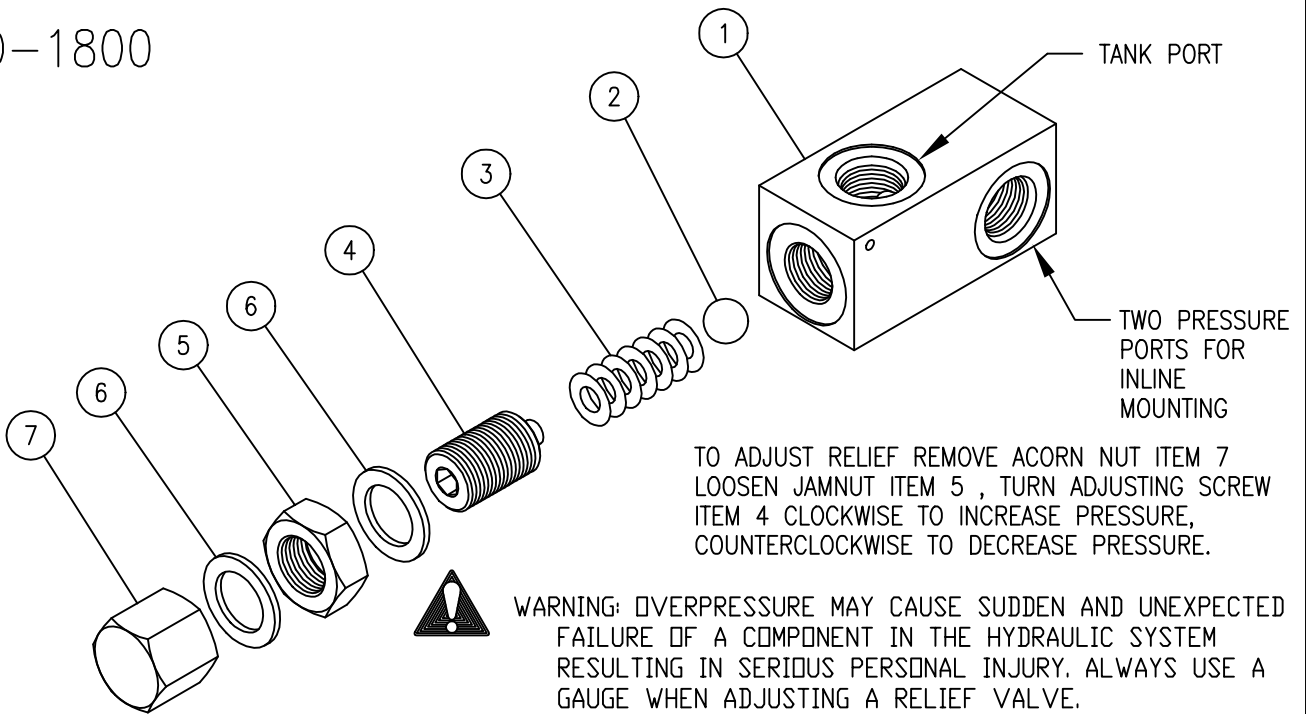
RV DIFFERENTIAL POPPET INLINE RELIEF

ITEM	QTY	PART NO.	DESCRIPTION	RELIEF CODE	CART. NO.	ADJUSTMENT RANGE
1	1		BODY	H	660250002	1500-3000 PSI
2	1		RELIEF CART.	L	660250003	500-1500 PSI
3	1	240000116	116 O-RING	*NH	660250004	1500-3000 PSI
4	1	240019015	015 BACK-UP	*NL	660250005	500-1500 PSI
5	1	240000015	015 O-RING	*NH & NL ARE SHIM ADJUSTABLE RELIEF CARTRIDGES		

EXAMPLE DRV CIRCUITS



RD-1800

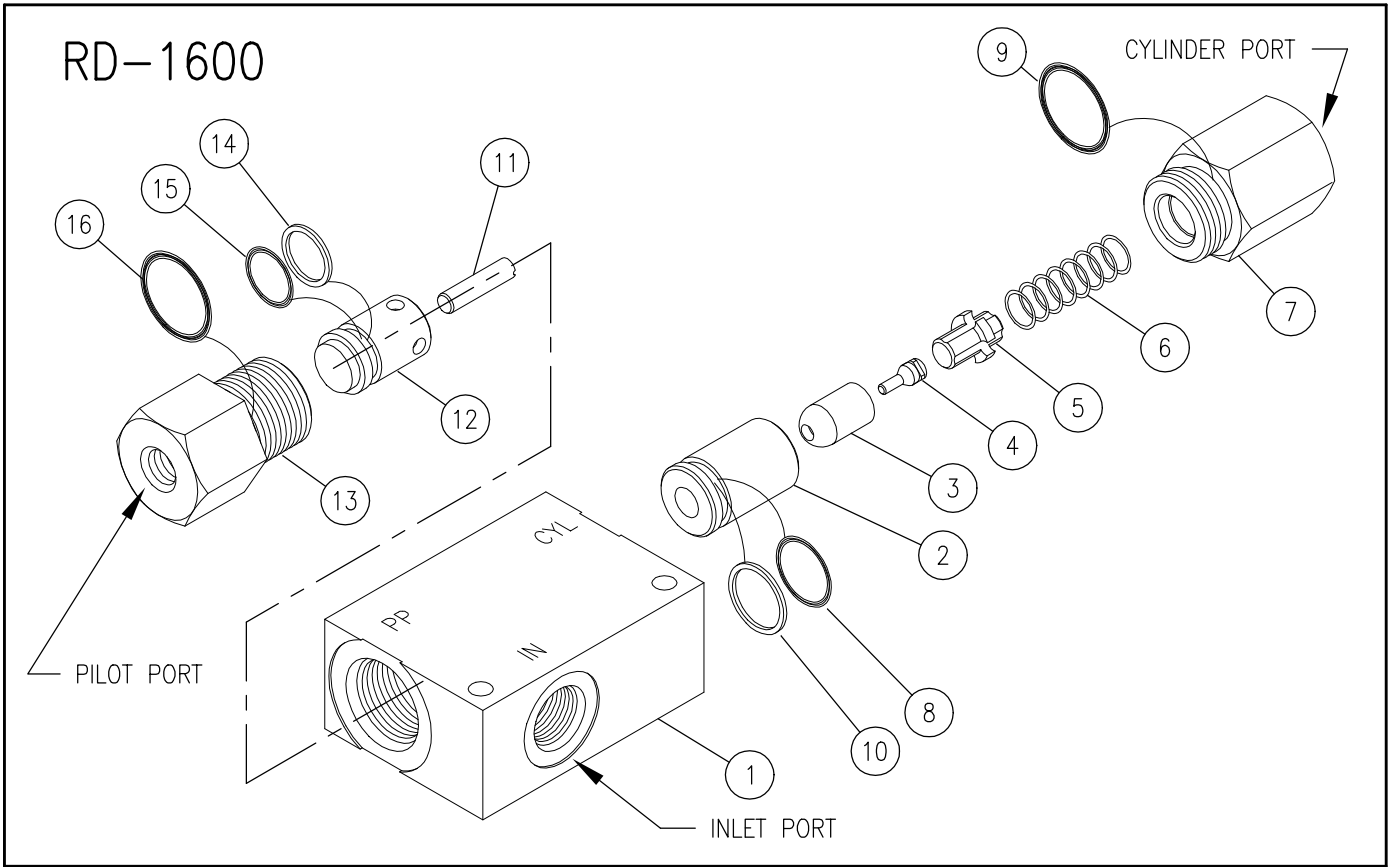


RD-1800-S & H RELIEF VALVE

RD-1800-S & H RELIEF VALVE

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY (NOT AVAILABLE SEPERATELY)
2	1	230009014	STEEL BALL
3	1	670300011	SPRING
4	1	671900001	ADJUSTING SCREW
5	1	671800010	JAM NUT
6	2	671500004	WASHER
7	1	671800002	ACORN NUT

'H' MODELS HAVE A HARDENED STEEL SEAT.



RD-1600 PILOT OPERATED CHECK VALVE

RD-1600 PILOT OPERATED CHECK VALVE

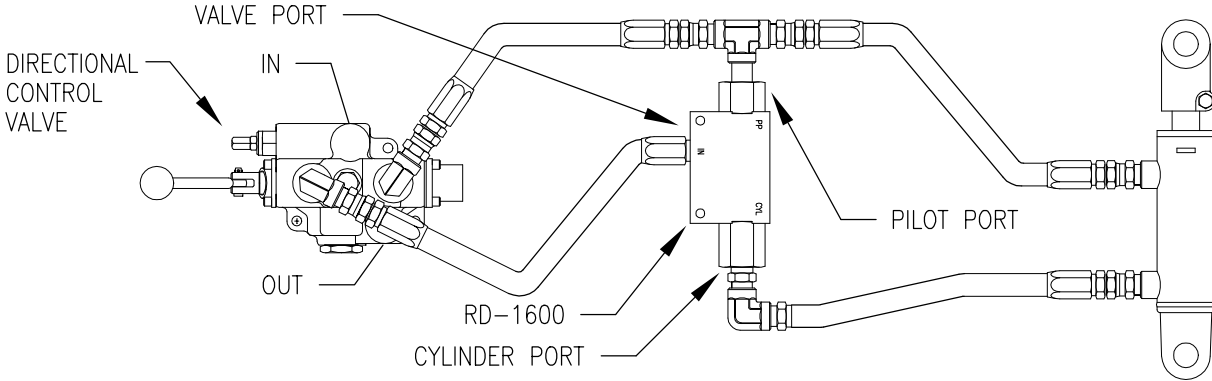
ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY (NOT AVAILABLE SEPERATELY)
2	1		CHECK SEAT (NOT AVAILABLE SEPERATELY)
3	1		CHECK POPPET (NOT AVAILABLE SEPERATELY)
4	1		SECONDARY POPPET (NOT AVAILABLE SEPERATELY)
5	1	671100014	SPRING GUIDE
6	1	670300012	SPRING
7	1		SPRING CARTRIDGE { #8 SAE 671600037
8	1	240000018	018 O-RING { 3/8 NPTF 671600046
9	1	240000912	912 O-RING { 1/2 NPTF 671600029
10	1	240019018	018 BACK-UP WASHER
11	1		PISTON PIN (NOT AVAILABLE SEPERATELY)
12	1		PILOT PISTON (NOT AVAILABLE SEPERATELY)
13	1		PILOT CARTRIDGE (NOT AVAILABLE SEPERATELY)
14	1	240019016	016 BACK-UP WASHER
15	1	240000016	016 O-RING
16	1	240000912	912 O-RING

SEAL KIT NO. 660516001

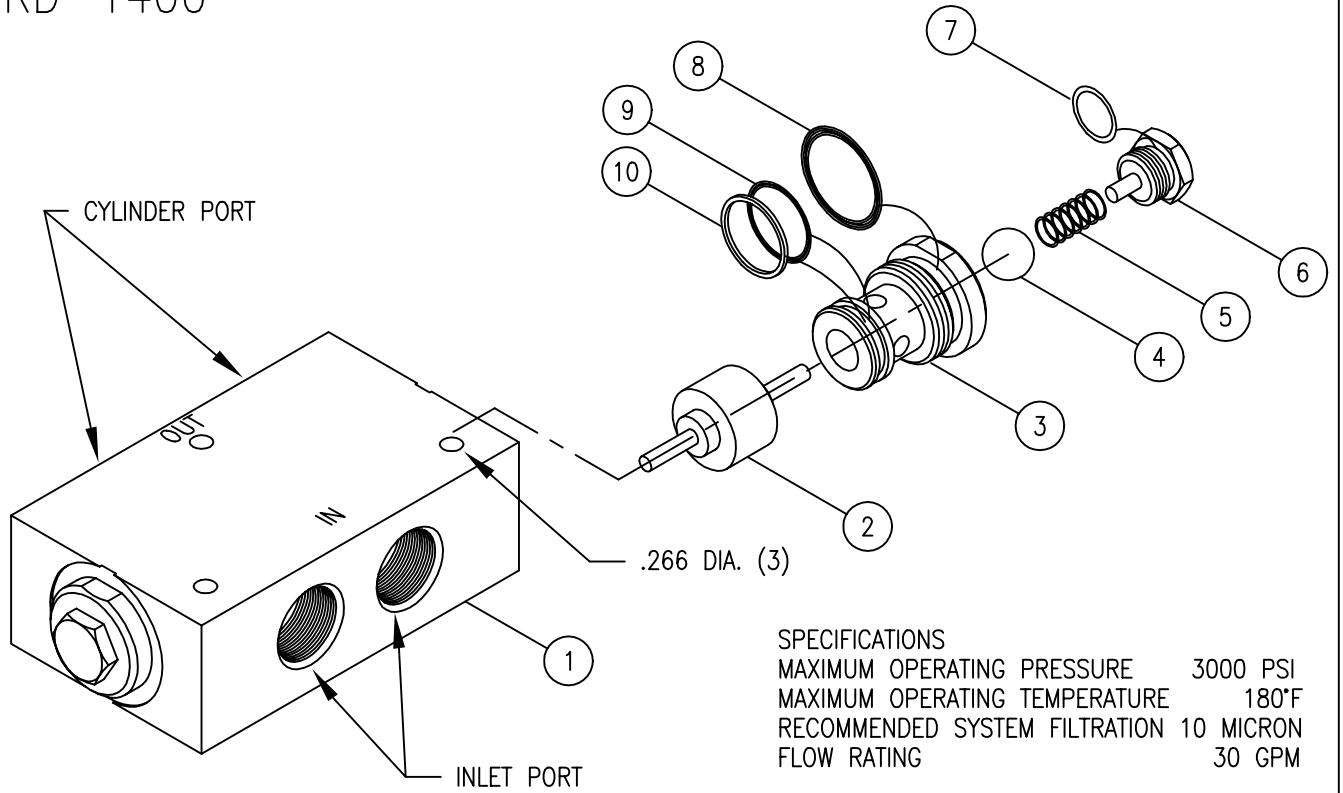
1/4 NPTF EXTERNAL
PILOT CART. 660316002

#4 SAE EXTERNAL
PILOT CART. 660316001

EXAMPLE CIRCUIT



RD-1400



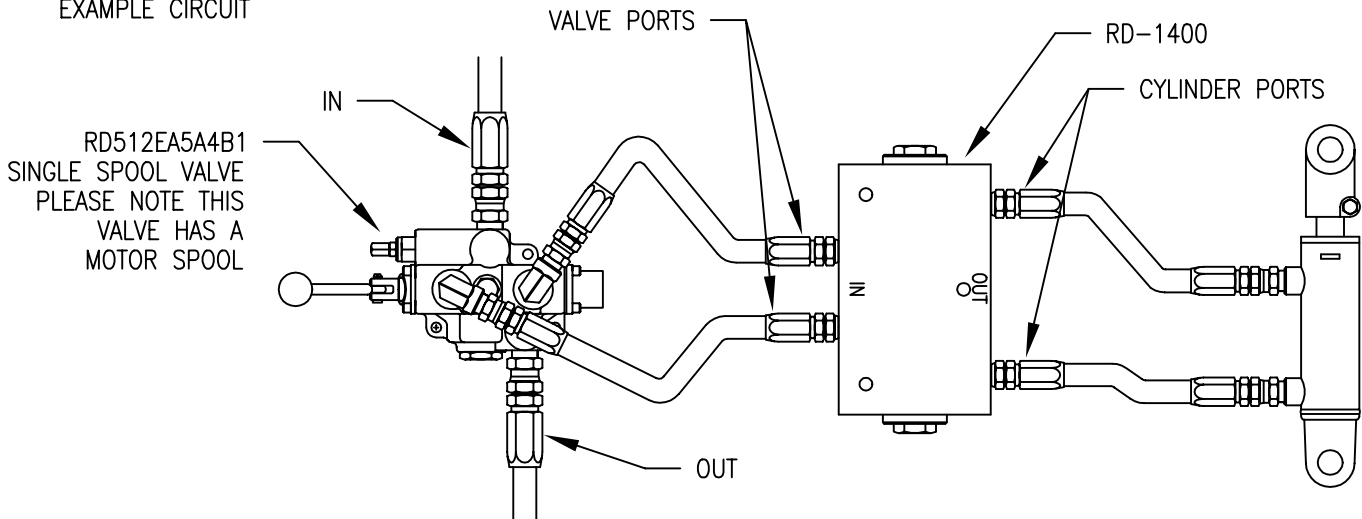
RD-1400 DOUBLE LOCK VALVE

RD-1400 DOUBLE LOCK VALVE

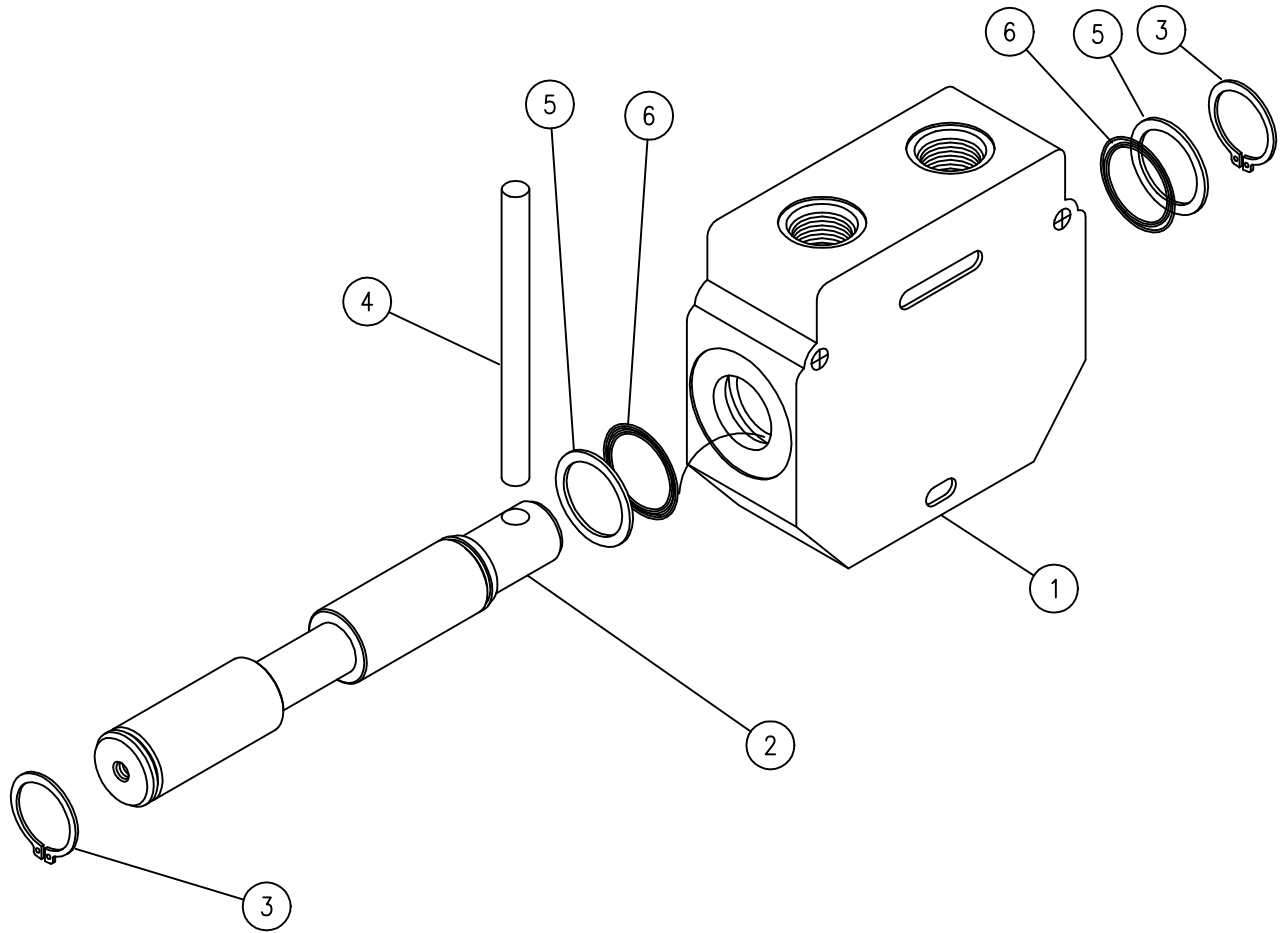
ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY (NOT AVAILABLE SEPERATELY)
2	1		SHUTTLE SPOOL (NOT AVAILABLE SEPERATELY)
3	2	671600026	CHECK CARTRIDGE
4	2	230009008	STEEL BALL
5	2	670300014	SPRING
6	2	660314001	PLUG ASSY
7	2	240000015*	015 O-RING
8	2	240000914*	914 O-RING
9	2	240000020*	020 O-RING
10	2	240005020*	020 BACK-UP WASHER

} CHECK CART. ASSY. NO. 660214001
 *SEAL KIT NO. 660514001

EXAMPLE CIRCUIT



RD-900



RD-900 SELECTOR VALVE

RD-900 SELECTOR VALVE

ITEM	QTY	PART NO.	DESCRIPTION
1	1		VALVE BODY (NOT AVAILABLE SEPERATELY)
2	1		SPOOL (NOT AVAILABLE SEPERATELY)
3	2	230017018	SNAP RING
4	1	190100019	HANDLE 5/16 X 4 ROLL PIN
5	2	240016074	BACK -UP WASHER
6	2	240016071	O-RING

SEAL INSTALLATION INSTRUCTIONS. INSTALL O-RING AND BACK-UP IN GROOVE IN HANDLE END OF VALVE. INSTALL SPOOL FROM OPPOSITE END AND PUSH THRU UNTIL THE OTHER SEAL GROOVE IS EXPOSED. INSTALL O-RING AND BACK-UP, PUSH SPOOL BACK THRU AND INSTALL SNAP RINGS.



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