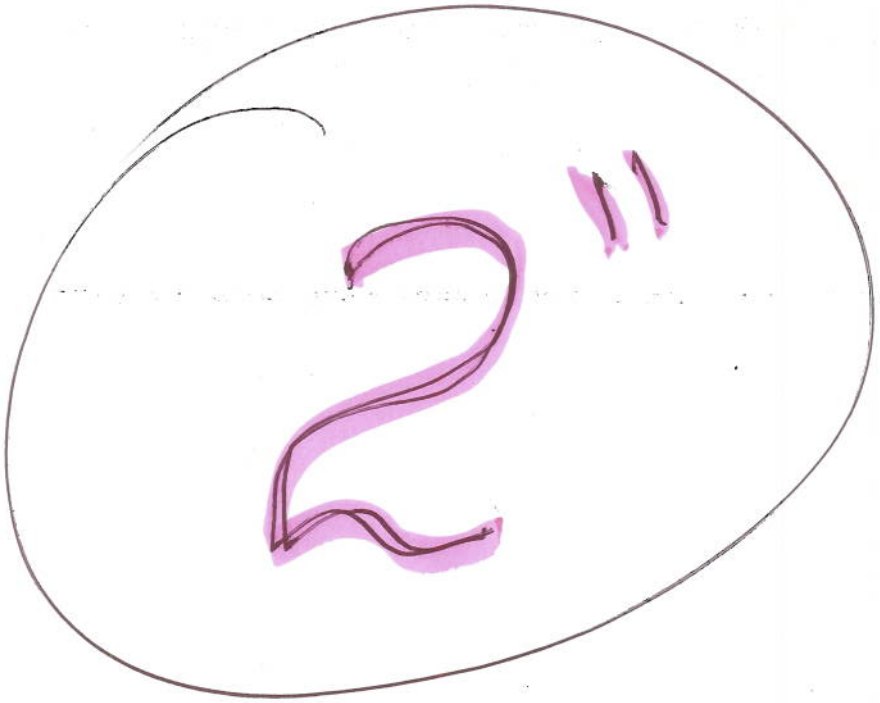
Oteco Inc. Houston, Texas	Specification: **OS-056-130250 Rev. A**
2" Reset Relief Valve Maintenance	Revision Date:
Issued: HK Date: 12/10/01	Approved: HK Date: 12/10/01

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OTECO INC.
2" RESET RELIEF VALVE
2" LPT INLET & OUTLET
INSTALLATION & MAINTENANCE MANUAL



Oteco Inc. Houston, Texas		Specification: **OS-056-130250 Rev. A**	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

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Oteco Inc. Houston, Texas		Specification: **OS-056-130250 Rev. A**	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

1.0 PERIODIC MAINTENANCE

WEEKLY

1. Unseat valve by strking release button at rear of valve . Release pressure in system to 0 PSI and reset valve with reset lever.

6 MONTHS

1. Lubrication – Remove 1/8 plastic pipe plug located behind right load spring on bottom of bonnet. Pump grease through grease fitting until new grease comes out of 7/16 hole. Replace 1/8 plastic pipe plug.

2. Replace seals as required.

12 MONTHS

1. Lubrication – Clean bonnet assembly and repack with new grease

2. Replace parts and seals as required

Oteco Inc. Houston, Texas		Specification: OS-056-130250 Rev. A	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

2.0 SPARE PARTS LIST

SEALS FOR 6 MONTHS NORMAL OPERATION

QUANTITY	DESCRIPTION	PART NO.
1	Cushion Ring	142130
1	Seal	142180
1	Sub Gasket	142150

REPAIR PARTS FOR 12 MONTHS NORMAL OPERATION

QUANTITY	DESCRIPTION	PART NO.
2	Cushion Ring	142130
2	Seal	142180
2	Sub Gasket	142150
1	Seal Retainer	142170
1	Top Crank Pin	142200
2	Link Pins	142403
2	Bearing f/Upper Link and Piston	142423
2	Bearing f/ Bonnet	142424
2	Bearing f/Crank	142422
1	Bearing f/Bonnet Cover	142425
5	Spiral Pin 1/8 X 5/8	142432
1	Spiral Pin ¼ X 1-1/2	142435
1	Spiral Pin 5/16 X 1-3/8	142434

Oteco Inc. Houston, Texas		Specification: OS-056-130250 Rev. A	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

3.0 REPLACEMENT OF SEALS: Ref. Drawings 15708 and 15709

DISASSEMBLY:

1. Remove pressure from relief valve.

2. Remove valve from piping system and grip in vice.

3. Remove (4) cap screws (item 7). Lift piston and bonnet assembly away from body (item 37) .

4. Unscrew sub (item 46) from body (item 37). Remove seal retainer (item 43), gasket (item 44) and seal (item 45) from body.

5. Thoroughly clean body, sub and parts. CAUTION: If grit blast is used, protect threads and seal surfaces from erosion.

6. Inspect all parts for wear or damage. Replace with new parts as needed.

Oteco Inc. Houston, Texas		Specification: OS-056-130250 Rev. A	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

3.0 REPLACEMENT OF SEALS: (continued)

ASSEMBLY

1. Apply a light coat of grease to items 43, 44, and 45.

2. Install seal retainer (item 43), seal (item 45) and sub gasket (item 44) into body (item 37).

3. Install body sub (item 46) into body (item 37). Tighten body sub to 400 ft-lbs torque.

4. Apply a light coast of grease to small diameter of piston (item 42) extending from bonnet assembly. Install cushion ring (item 41) onto piston (item 42) .

5. Install bonnet assembly onto body assembly. Use screw driver to start entry of cushion ring into body.

6. Intall (4) socket head screws (item 7). Tighten to 50 Ft. – lbs. torque.

7. Pressure test valve for correct operation before installing into system. Precautions should be take to protect personnel while testing.

Oteco Inc. Houston, Texas		Specification: **OS-056-130250 Rev. A**	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

4.0 REPAIR OF BONNET ASSEMBLY: Ref. Drawings 15708 and 15709

DISASSEMBLY

1. Remove pressure from relief valve.
2. Remove from piping system and grip in vise.
3. Remove adjusting nut (item 1) and upper spring retainer (item 4).
4. Remove load springs (item 31).
5. Remove (4) socket head cap screws (item 7) from bonnet (item 34).
6. Remove bonnet cover assembly (item 9) .
7. Remove (4) socket head cap screws (item 7) from body (item 37) and lift bonnet assembly from body.
8. Remove old grease from bonnet assembly and bonnet cover assembly. Clean with solvent.
9. Inspect and replace worn parts as needed.

Oteco Inc. Houston, Texas		Specification: OS-056-130250 Rev. A	
2" Reset Relief Valve Maintenance		Revision Date:	
Issued: HK	Date: 12/10/01	Approved: HK	Date: 12/10/01

4.0 REPAIR OF BONNET ASSEMBLY (Continued)

ASSEMBLY:

1. Apply a light coat of grease to small diameter of piston (item 42) extending from bonnet assembly. Install cushion ring (item 41) onto piston (item 42).

2. Install bonnet assembly onto body assembly. Use screwdriver to start entry of cushion ring into body.

3. Install (4) socket head screws (item 7).Tighten to 50 ft – lbs. torque.

4. Repack upper part of bonnet assembly (item 34) with Lubriplate Lo – Temp grease, or equivalent. Approximately 16 oz. is required.

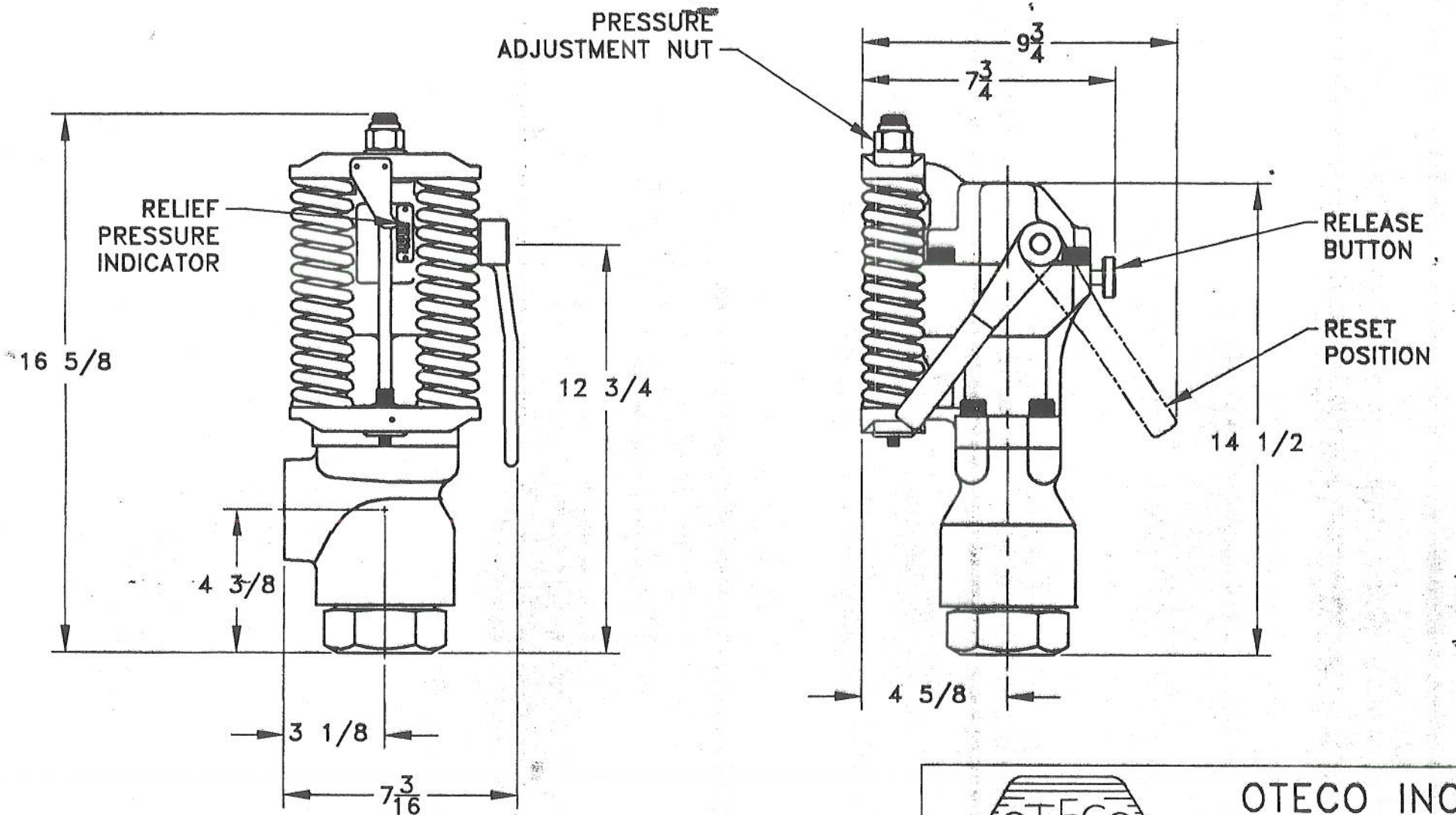
5. Install bonnet cover assembly (item 9) onto bonnet assembly (item 34) using 4 socket head cap screws. Tighten to 50 ft-lbs.

6 Install (2) load springs (item 31).

7 Install upper spring retainer (item 4).

8. Install adjusting nut (item 1). Tighten nut to obtain desired relief pressure as indicated by pressure relief scale.

9. Pressure test valve for correct operation before installing into system. Precautions should be taken to protect personnel while testing.



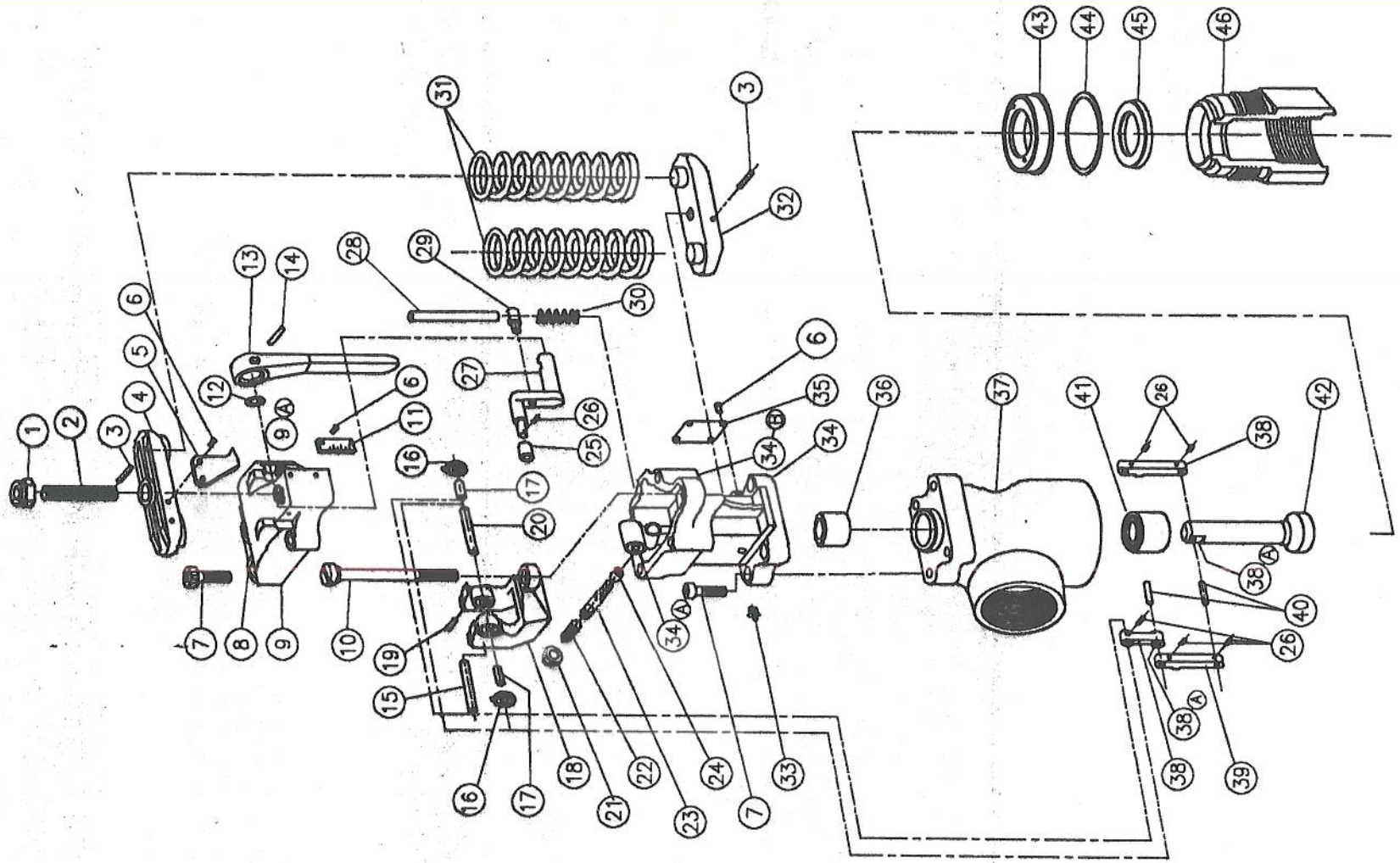
12 of 12

OTECO INC.
HOUSTON, TEXAS

2" RESET RELIEF VALVE ASSEMBLY
W/ 2" L.P.T. INLET AND OUTLET

DATE: 12/10/01	PART NO.
SCALE: NONE	
DRAWN: HK	DRAWING NO. A 13290
CHK'D: HK	REV. A

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OTECO INC.
HOUSTON, TEXAS

OTECO 2" RESET RELIEF VALVE
2" LPT INLET & OUTLET

DATE: 10/1/00	PART NO.	
SCALE: NONE		
DRAWN: HK	DRAWING NO. 15709	REV. A
CHK'D: HK		

THIS DRAWING IS THE PROPERTY OF OTECO INC. AND MAY NOT BE REPRODUCED FOR ANY PURPOSE WITHOUT EXPRESS PERMISSION

ITEM	QTY	PART NO.	DESCRIPTION
1	1	301786	ADJUSTING NUT
2	1	142414	STUD, ADJUSTING
3	1	142435	PIN, SPIRAL
4	1	142426	RETAINER, UPPER SPRING
5	1	142418	INDICATOR, RELIEF PRESSURE
6	12	301729	SELF TAP SCREW
7	8	143310	SOCKET HEAD CAP SCREW
8	1	142420	NAMEPLATE
9	1	142419	COVER, BEARING ASSEMBLY
9-A	1	142425	BEARING, BONNET COVER
10	1	143220	SCREW, LOAD
11	1	142430	RELIEF PRESSURE SCALE
12	1	142439	"O" RING, RESET LEVER
13	1	142409	HANDLE, RESET
14	1	142434	PIN, SPIRAL
15	1	142405	PIN, CRANK PIVOT
16	2	142406	SPRING, SPRIAL
17	2	142422	BEARING, CRANK
18	1	143210	CRANK/BEARING ASSEMBLY
19	1	142433	PIN, SPIRAL
20	1	142200	PIN, TOP CRANK
21	1	143320	BUTTON, RELEASE
22	1	142407	SPRING, RELEASE BUTTON
23	1	143330	SHAFT, RELEASE BUTTON
24	1	142408	BUSHING, RELEASE BUTTON
25	1	142411	ROLLER, RESET CRANK
26	5	142432	PIN, SPRIAL
27	1	142410	CRANK, RESET
28	1	142340	ROD, SPRING GUIDE
29	1	142412	KEEPER, SPRING
30	1	142413	SPRING, RESET CRANK
31	2	142417	LOAD SPRING

ITEM	QTY	PART NO.	DESCRIPTION
32	1	142427	RETAINER, LOWER SPRING
33	1	301616	FITTING, GREASE
34	1	142401	BONNET/BEARING ASSEMBLY
34-A	2	142424	BEARING, BONNET
34-B	1	142431	PLUG
35	1	142421	INSTRUCTION PLATE
36	1	142140	STEM BUSHING
37	1	142100	BODY, 2" LPT
38	1	142404	UPPER LINK/BEARING ASSEMBLY
38-A	2	142423	BEARING, F/UPPER LINK, PISTON
39	2	142402	LINK, LOWER
40	2	142403	PIN, LINK
41	1	142130	CUSHION RING
42	1	142110	PISTON/BEARING ASSEMBLY
43	1	142170	RETAINER, ~~INNER~~ OUTER
44	1	142150	SUB GASKET
45	1	142180	SEAL, OUTER
46	1	142190	SUB, 2" LPT

REV	ECN NO.	DATE
A	1679	9/29/00

NOTE:
SEE DRAWING 15709 FOR EXPLODED VIEW OF VALVE ASSEMBLY AND ITEM NUMBERS.

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OTECO INC.
HOUSTON, TEXAS

2"– 5,000 PSI OTECO RESET RELIEF VALVE PARTS LIST, 2" LPT INLET & 2" LPT OUTLET

DATE: 9/29/00	PART NO. 130250	
SCALE: NONE		
DRAWN: HK	DRAWING NO. A 15708	REV. A
CHK'D: HK		

CONVERSION CHART
RETSCO, CAMERON PART NUMBERS
TO OTECO PART NUMBERS
FOR OTECO TYPE "RR" { 2" RESET RELIEF VALVE }
2" (400-1500, 750-2500 & 1500-5000) PRESSURE RANGES
STANDARD SERVICE

Pressure Range	End Connection	Item # Per Oteco Sketch	Qty's Rq'd	Description	Retsco Pt. #	Cameron Pt. #	OTECO PT. NO.
400-1500	2" LP		1	Complete Valve	30400-03	30400-3	130215
750-2500	2" LP		1	Complete Valve	30400-01	30400-1	130225
1500-5000	2" LP		1	Complete Valve	30400-02	30400-2	130250
400-1500			1	Bonnet Assy. (+)	30418	30418-03	142015
750-2500			1	Bonnet Assy. (+)	30418	30418-01	142025
1500-5000			1	Bonnet Assy. (+)	30418	30418-02	142050
400-5000		1	1	Adjusting Lock Nut, Nyl.	5953-34	5953-34	301786 ^
400-5000		2	1	Stud, Adjusting	20798	20798	142414
400-5000		3	2	Pin, Spiral, 1/4 x 1-1/2	20712-04	20712-04	142435
400-5000		4	1	Retainer, Upper Spring	30385	30385	142426
400-5000		5	1	Indicator, Pressure	30379	30379	142418
400-5000		6	12	Screw, Self Tap, 6-32 x .38		2975-03	301729 ^^
				Self Tapping Screw - 2 Rq'd	710242 ****	-----	-----
				# 6 U-Drive Screw - 6 Rq'd	111656 ****	-----	-----
400-5000		7	8	Screw, Socket Head Cap	204044-10-14	204044-10-14 (18539-45)	143310
400-5000		8	1	Name Plate	30170	30170	142420
400-5000		9A	1	Bearing, Bonnet Cover,	13229-12	13229-12	142425
		9/9A	1	Cover, Bonnet/Bearing Assy	38159	38159	142419
400-5000		10	1	Screw, Load,	30389	30389	143220
400-1500		11	1	Scale, Psi,	31591	31591	142428
750-2500		11	1	Scale, Psi,	111342	111342	142429
1500-5000		11	1	Scale, Psi,		21048	142430
					111343 ****	-----	-----
400-5000		12	1	O-Ring, Reset Crank,		6227-15-01-70	142439
				****	702640-21-01	-----	-----
400-5000		13	1	Reset Handle,	30377	30377	142409
400-5000		14	1	Pin, Spiral, 5/16 x 1-3/8	20712-13	20712-13	142434
400-5000		15	1	Pin, Crank Pivot,	30381	30381	142405
400-5000		16	2	Spring, Spiral,	20791	20791	142406
400-5000		17	2	Bearing, Crank,	13229-13	13229-13	142422
400-5000		17/18	1	Crank/Bearing Assy	38161	38161	143210
400-5000		19	1	Pin, Spiral, 1/8 x 7/8	20712-03	20712-03	142433
400-5000		20	1	Pin, Top Crank		20802	142200
					31975 ****	-----	-----
400-5000		21	1	Release Button	30396	30396	143320
400-5000		22	1	Spring, Release Button		30390	142407
					31868 ****	-----	-----
400-5000		23	1	Shaft, Release Button	30397	30397	143330
400-5000		24	1	Bushing, Release Button		30368	142408
					31865 ****	-----	-----
400-5000		25	1	Reset Crank Roller	30388	30388	142411
400-5000		26	6	Pin, Spiral, 1/8 x 5/8	20712-02	20712-02	142432
400-5000		27	1	Reset Crank	30373	30373	142410

Notes: (+) Piston, Cushion Ring & Stem Bushing are included in Bonnet Assy. Complete

^ Replaces Oteco Part # 142436

^^ Replaces Oteco Part # 142437

**** Retsco Part No's are not the same as Cameron Part No's

CONVERSION CHART
RETSCO, CAMERON PART NUMBERS
TO OTECO PART NUMBERS
FOR OTECO TYPE "RR" { 2" RESET RELIEF VALVE }
2" (400-1500, 750-2500 & 1500-5000) PRESSURE RANGES
STANDARD SERVICE

Pressure Range	End Connection	Item # Per Oteco Sketch	Qty's Rq'd	Description	Retsco Pt. #	Cameron Pt. #	OTECO PT. NO.
400-5000		28	1	Spring, Rod Guide	30387	30387	142340
400-5000		29	1	Spring Keeper	30380	30380	142412
400-5000		30	1	Spring, Reset Crank	30391	30391	142413
400-1500		31	2	Spring, Load	20805-03	20805-03	142415
750-2500		31	2	Spring, Load	20805-02	20805-02	142416
1500-5000		31	2	Spring, Load	20805-01	20805-01	142417
400-5000		32	1	Retainer, Lower Spring	30382	30382	142427
400-5000		33	1	Grease Fitting, 1/8"	5929-02	5929-02	301616 <
400-5000		34A	2	Bearing, Bonnet	13229-8	13229-8	142424
400-5000		34/34A	1	Bonnet/Bearing Assy.	31859 ****	30366/38160 -----	142401 -----
400-5000		34B	1	Pipe Plug, Plastic, 1/8			142431
400-5000		35	1	Operating Instruction Plate		30178	142421
400-5000		36	1	Stem Bushing	30369	30369	142140
400-5000		37	1	Body, {2"LP female Thd. Outlet}	20780	20780	142100
400-5000		38A	1	Bearing, Upper Link	13229-10	13229-10	142423
400-5000		38/38A	1	Upper Link/Bearing Assy.	31977 ****	20787 -----	142404 -----
400-5000		39	2	Lower Link	20786	20786	142402
400-5000		40	2	Pin, Link	23545	23545	142403
400-5000		41	1	Cushion Ring, (NBR) Nitrile	20795	20795	142130
400-5000		38A	1	Bearing, Piston	13229-10	13229-10	142423
400-5000		42/38A	1	Piston/Bearing Assy.	20784	20784	142110
400-5000		43	1	Outer Retainer	20790	20790	142170
400-5000		44	1	Sub to Body Seal, Copper	21792-15	21792-15	142150
400-5000		45	1	Outer Seal, (NBR) Nitrile	20788	20788	142180
400-5000		46	1	Sub, {2"LP female Thd. Inlet}	20793-15 ****	20793 -----	142190 -----

Notes: < Replaces Part # 142438 & 121900

**** Retsco Part No's are not the same as Cameron Part No's