Hamilton HSRX Reverse

Installation & Service Manual

Part NO. 82046

Due to our policy of continious development, specifications in this manual are subject to change without notice or obligation

HAMILTON JET 25/07/95

Contents

CHAPTER 1
INTRODUCTION

1.1 Principles of operation

The Hamilton HSRX reverse system is a self contained hydraulic reverse actuation system.

The actuation is provided by a compact hydraulic reverse cylinder (3)* that uses a rotary valve(A) inside the cylinder to give exponential positioning control. Exponential positioning is superior to proportional positioning because it allows fine control of the cylinder position where it is needed (around the zero speed/reverse position) and fast control where accurate positioning is not required (when the duct is not in the jet).

With the piston restriction(A) fully open, equal pressure acts on both the rod end and cap end of the HSRX cylinder. As the cap end area is larger than the rod end area, the cylinder extends,

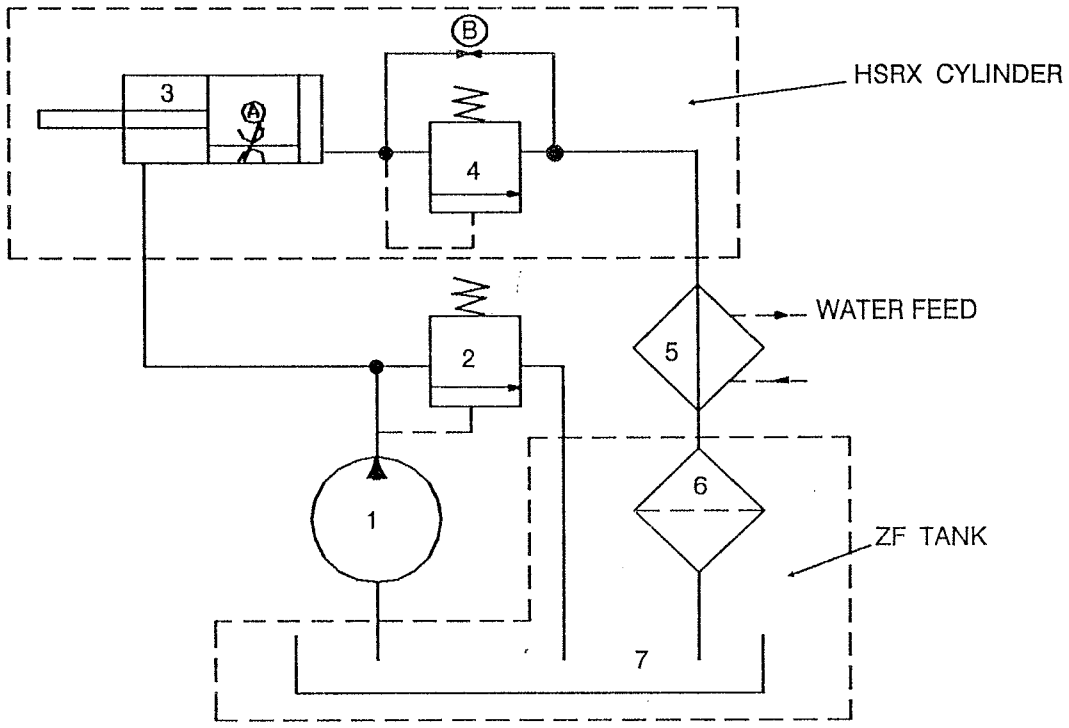
With the piston restriction(A) closed, the cylinder retracts. At full retraction, the bypass valve (B) opens reducing the system pressure and power consumption of the pump.

The back pressure valve(4) is factory preset at 3.45 MPa (500psi).

The pump (1) is belt driven directly from the waterjet.

*(Refer to Circuit diagram section 1.2)

1.2 Basic hydraulic circuit

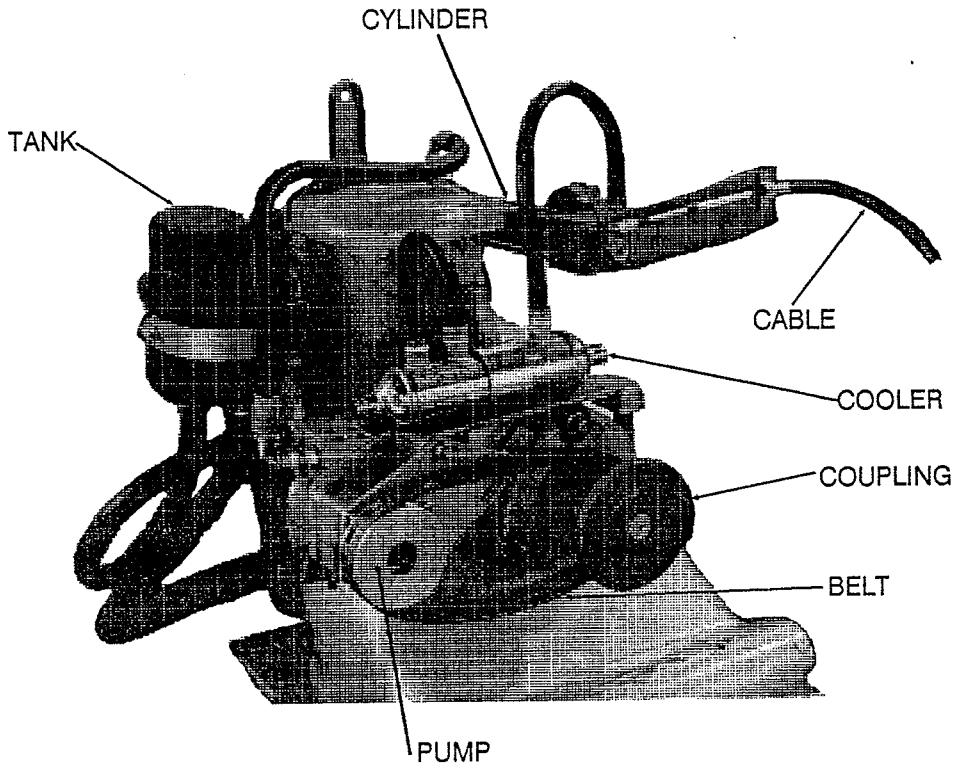


Items:

A	Variable restriction with cylinder position feedback.	
B	Bypass valve open when cylinder is fully retracted.	
1	Pump	
2	Pressure relief valve	
3	HSRX cylinder	- Minimum oil flow 3 l/min 16 l/min maximum
4	Back pressure valve	
5	Oil cooler	- water flow 6 l/min minimum 110 l/min maximum
6	Filter	
7	Tank	

NOTE: Cooler Item (5) will absorb 3.5 kw of heat when Pressure Relief Valve (2) is blowing at 1500 psi (103 MPa)

1.3 Layout of components.



1.4 Scope of supply

The following is a list of items supplied with the HSRX reverse system option of the 273 jet;

RX reverse cylinder,

pump,

tank,

cooler,

hoses and fittings,

belts for the pump.

These items are supplied factory assembled and mounted on the jet ready for use. see Section 7 for details.

The following items are not supplied;

Hydraulic oil,

Cable or other actuating devices.

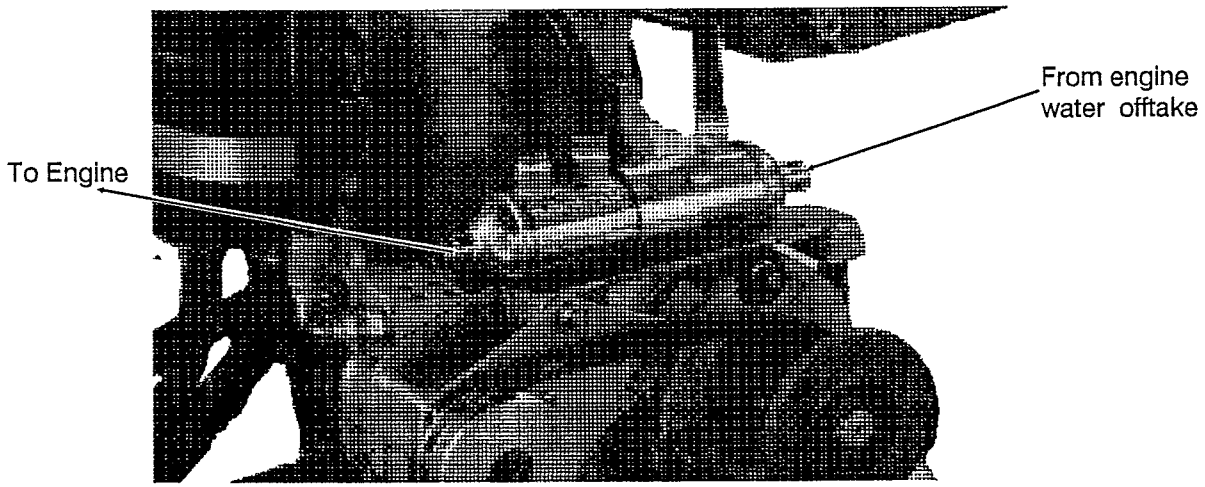
CHAPTER 2
INSTALLATION

2.1 Installing the HSRX reverse system.

1. Remove the reverse duct as instructed in the 273 manual when inserting jet through transom hole.
2. After the jet has been mounted in the boat and the reverse duct fitted, connect the reverse cylinder ensuring that the cylinder shaft is up the same way as it was previously.
3. Check to ensure the dot on the end of the rod is uppermost. If it is 180° out of rotation, then the HSRX reverse will not work properly. To correct a 180° out of rotation rod, with the cylinder correctly mounted (see Section 1.3) rotate rod using an adjustable wrench on the rod end flats. Do not grip the rod itself as surface damage on the rod will damage the cylinder seals.

2.2 Oil cooler water connection

The cooler needs to be connected to the engine water offtake. It does not have a lot of heating capacity so it can be put between the offtake and the engine. Failure to connect the cooler will result in an excessive heat build up and damage to system components.



2.3 Remote operating systems

2.3.1 Cable installation

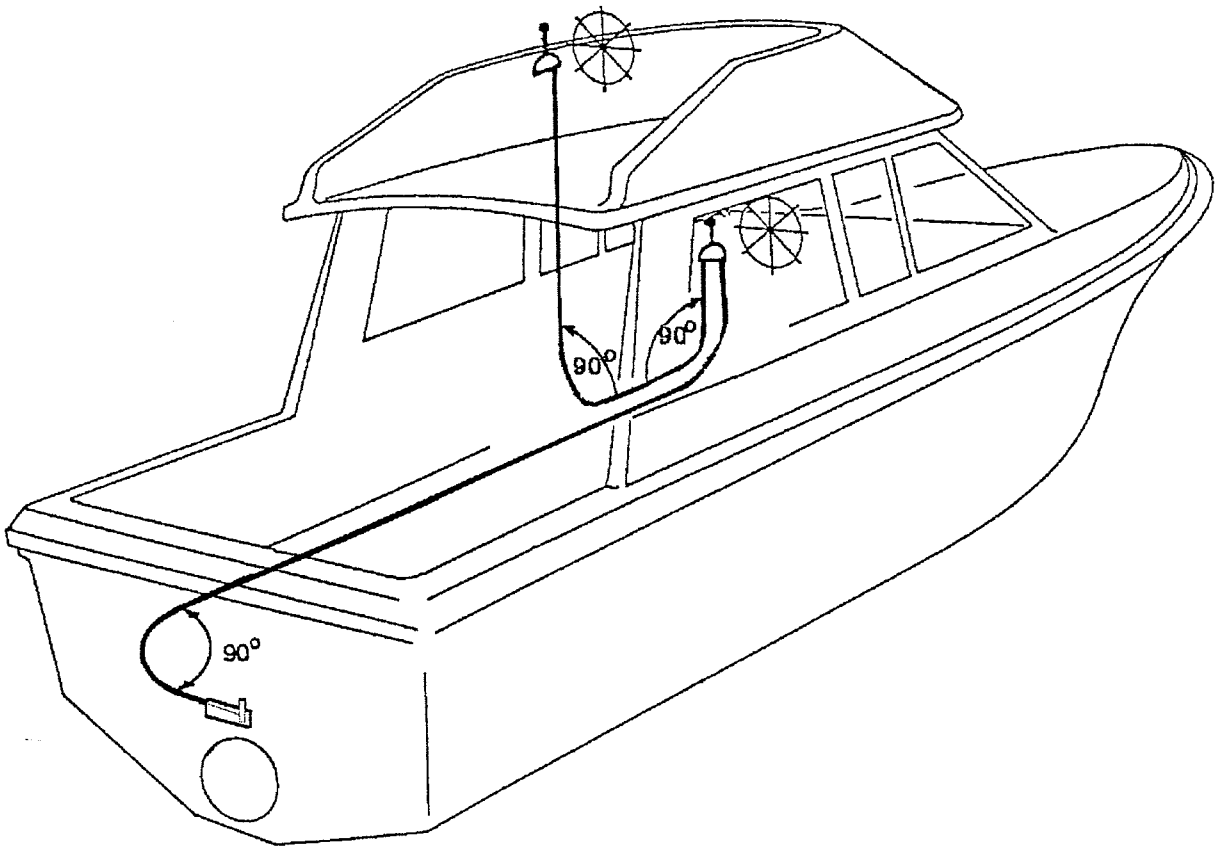
The HSRX reverse system is supplied with a cable mounting plate (fitted to the end of the HSRX cylinder)

The recommended cable is the Morse 33c Supreme (low friction) cable. The cable mounting plate has been designed to suit this cable. Other equivalent quality cables of 3" stroke should be suitable but may require some modification to the cable mounting plate.

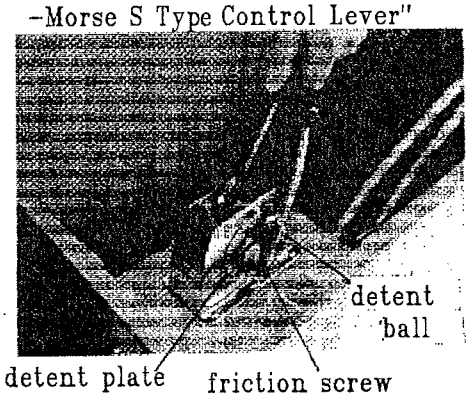
CABLE RUNS SHOULD NOT EXCEED 12m. Cable runs above this length may work but could result in a reduction in reverse duct control quality.

MINIMISE THE NUMBER OF BENDS. The diagram illustrates the ideal arrangement for a dual station system. Total bend angle per cable in this system is 180°. Do not exceed 360° per total as this will result in excessive lost motion (backlash).

Cable "Station Exchanger" systems may allow reduced cable length and bends but tend to introduce excessive lost motion (backlash) themselves. For cable runs longer than 12m, refer 2.3.3.

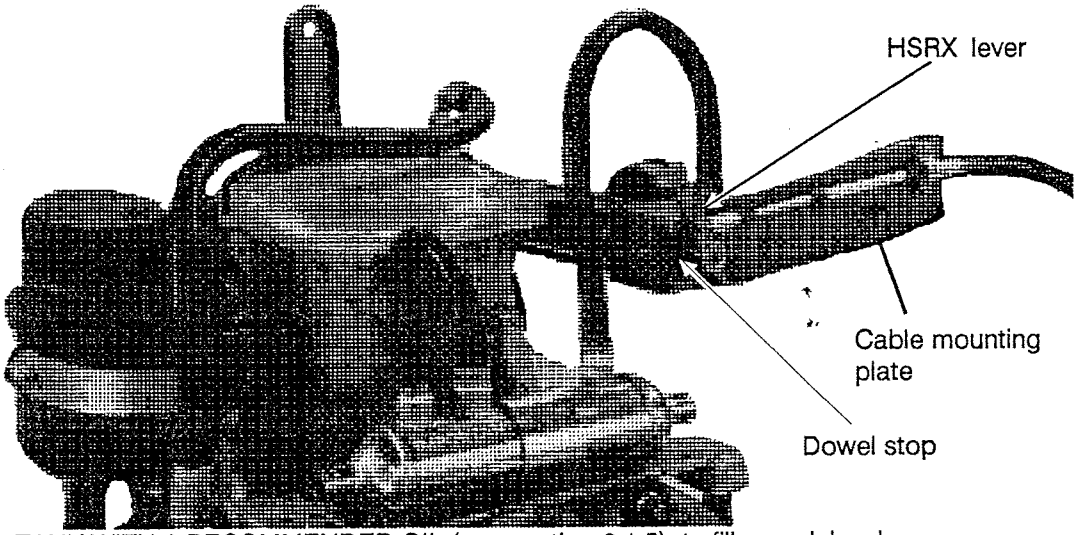


"Adjusting Ahead Travel Stop Screws -Morse S Type Control Lever"



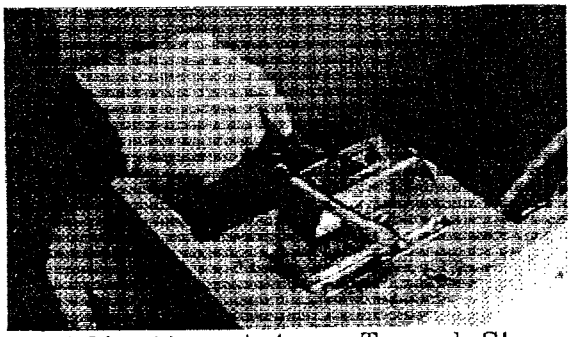
2.3.2 Adjustment

1. With the Control Lever in the full ahead position, the HSRX lever should be touching the dowel stop. Adjust the Control Lever full ahead stop screw to achieve this with no Surplus Control Lever travel. If the cable control lever has no stops, it will be necessary to adjust the cable mounting position on the cable mounting plate and/or the actuation radius at the control lever.



2. FILL THE OIL TANK WITH A RECOMMENDED OIL (see section 6.1.5), to filler neck level.
3. Check belt tension (refer to Section 6.2.1).
4. ENSURE INTAKE IS UNDER WATER -either with the boat trailer reversed into the water or with the boat moored SECURELY.
5. Run the engine at idle, and recheck/ refill oil in tank to the level shown on the dipstick. Move the Control Lever slowly to fully lower and raise the reverse bucket several times. This will purge the hydraulic system of air.
6. The Control Lever should now be moved to full astern position. There is no astern stop for the HSRX Lever. The full astern Control Lever stop should be adjusted so that the reverse duct travels fully down (cuts across the jetstream completely) with no Surplus Control Lever travel.

   If more Control Lever movement is required (for greater sensitivity) and spare cable movement is available, The cable actuation radius at the Control Lever can be altered.



Adjusting Astern Travel Stop Screw – Morse S Type Controller

7. Control Lever detent for Zero speed position:- If desired the position of the Control Lever giving Zero Speed can be determined on trials of the craft and the Control Lever detent position then adjusted to coincide.

NOTES:-

- Not all Control Leverse have an adjustable detent.

- **Hamiltons recommend any Control Lever detent action is de-activated.**(not used).
  The reason is that Zero Speed position will vary with wind and tide and small movements either side of a detented position become difficult.

2.3.3 Alternative remote operating systems

Manual - hydraulic Hynautic mounting kits are available as an option.

Pneumatic (Teletronic, MMC etc)

Electronic

Consult Hamilton Jet if proposing to use an alternative remote operating system.

CHAPTER 3.
CORROSION

All Hamilton Jet manufactured components on the HSRX reverse system are made of high quality materials selected for their good corrosion resistance performance. Some bought in items are of plated steel. As these are inside the vessel, corrosion should not be a problem. Should corrosion commence or if salt spray conditions are likely to be encountered, we recommend the following;

1. Paint mounting bracket of remote mounting tank.
2. Wrap anti corrosion tape (eg. Nippon Denso) around hydraulic fittings.

   Note: it is possible to get stainless hydraulic fittings at a cost.

The oil cooler is protected by a zinc anode. This should be periodically checked.

CHAPTER 4
OPERATION

There are a few points to note when using the HSRX reverse system.

1) There is no flow control in the HSRX reverse system. The effect of this is, the higher the engine rpm, the faster the reverse will move. In the crash stop situation, (full reverse at full speed) the reverse can be actuated almost instantly causing a very sudden and severe deceleration.

2) The HSRX reverse system does not have a mechanical connection between the reverse duct position and the control lever position. This means that the control lever can be positioned before the duct has arrived at the desired position (unlike the previous HSRC systems used where the control lever followed the duct position).

3) The HSRX reverse system has a bypass feature. When the control lever is touching the dowel stop, the reverse duct will be in the fully raised position and a bypass valve opens. Oil is then passed directly to tank rather than over the back pressure valve. The pump will operate at considerably reduced pressure, minimise power consumtion and maximise component lives.

CHAPTER 5
FAULT FINDING

Symptom	Fault	Repair
Duct does not go fully down with high engine rpm, or does not stay down with high rpm.	- back pressure too low	back pressure should be factory set at 500psi. Check and adjust if it is below this.
Duct will not lift out of reverse with high engine rpm, relief valve blowing.	- back pressure too high	same as if back pressure too low
Excessive heat buildup	- Cooler blocked	- Unblock, remember to check water level on boat before removing hoses.
	- Bypass not working	- Adjust as per Secion 2.3.2
Duct does not move at all, - Cannot move controller - Controller moves freely	- Jammed cable - Broken cable - Hydraulic failure - Could be due to; Broken pump belts Belts slipping Blockage in system Run out of oil. Split hose - Jammed cylinder - Could be due to Bent rod	- Unjam or replace - Replace cable - Replace belts - Adjust tension - Disassemble & clean - Refill - Replace - Replace Rod
System looses oil	- Leak in Hydraulics - Damaged cylinder rod - Leaky seal	- Replace or tighten -This can damage seals, Replace both rod and seals - Replace
Duct not synchronised with lever	-Cylinder rod 180° out of phase	- Rotate cylinder rod so that the dot on the rod end is uppermost as in Section 2.1

CHAPTER 6
MAINTENANCE

6.1 Servicing

6.1.1 Schedule

After First 5 hours

Change oil
Change oil Filter element

After First 100 hours

Change oil
Change oil Filter element

Daily

Check oil level in tank
Check for leaks
Check oil condition and replace if discoloured or contaminated
Check V belt tension and belt condition
Check for loose cable linkages
Check control lever moves freely

Monthly

Check the actuation lever contacts the dowel stop in the full ahead cable control lever position.
Check the reverse duct completely cuts the jet in the full astern position
Adjust where necessary
Lightly grease pivot ball of reverse cylinder
Check anode on oil cooler, Replace if required

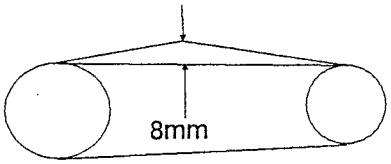
Every 1000 hours running

Change oil and filter.

Replace hydraulic oil and filter after first 100 hours. From then on change filter and oil every 1000 hours or whenever oil/filter condition require replacement.

6.1.2 Servicing notes:

V. Belt tension



The tension should be such that the belts can be moved up or down 8mm by hand in mid span.

Oil level

The oil level should be such that it comes up to the filler neck.

6.1.3 Tightening torques

M6	5Nm
M8	12Nm
M10	24Nm
M12	45Nm
Cap screws	5Nm
Pump tension nuts (22)	12Nm
Backpressure valve	40Nm
Pressure relief valve	40Nm

6.1.4 Tools

The following tools are required to service the RX reverse system:

Screwdriver
Spanners, sizes 10mm, 13mm, 17mm, 3/16", 3/4", 13/16", 7/8"
Allen keys
Thread tape
Loctites; 262, 680

6.1.5 Recommended hydraulic oils

A mineral base hydraulic oil is recommended which contains antiwear additives of a type that are active under boundary lubrication conditions at low temperatures. Oil viscosity should be 20 c St approximately at 40°C. Normal operating temperature should lie between +30°C and +60°C. Oil viscosity range 10-300c St.

Suitable oils might include:

Brand	Oil
Shell	RIMULA 10W (Crankcase oil)
	DONAX TM (Auto transmission oil)
	DEXRON 2 (Auto transmission oil)
	Tellus 46 (hydraulic oil)
Castrol	Hyspin AWS 22
	Transmax (Auto transmission oil)

6.2 Assembly instructions

Note: disassembly follows the reverse of the assembly procedures.

6.2.1 Hydraulics assembly.

Refer to drawing 106549SY

1. Mount block (10) and 'O' ring (38) to pressure port of pump (1). Mount manifold(32) to suction port, torque socket head cap screws to as per section 6.1.3.
2. Assembly side load adaptor (6) to pump (1) and attach front and rear mounting plates (3) and (2) using bolts, nuts and washers (27),(28),(29). Torque as per section 6.1.3. Mount pulley onto sideload adaptor. Torque M12 nut as per section 6.1.3
3. Fit pressure relief valve, (12) to block (10). Check that valve is VM041/E-2-00 (preset at 1500 PSI). Torque as per section 6.1.3.
4. Mount pump assembly on bearing housing (6) using bolt nuts and washers (22 to 26) as per drawing 106549SY.
5. Fit belts(13) and tension by levering pump body away from intake and tightening nuts (22) as per section 6.1.3. The correct tension has been achieved when pushing one of the belts down by hand at the top of the belt lies level with the bottom of the remaining belt.
6. Mount the oil tank (7), using studs, nuts and washers (31)(36)(37) in the upper two holes in the mounting bracket on the waterjet intake..
7. Fit 3/4" BSP hosetail (18) to pump suction manifold (32) using thread tape. Connect up suction hose (20) using jubilee clips (21).
8. Fit 5/8" pushlock fitting (33) to block (10) using thread tape. Connect up 5/8" return line using jubilee clip (21).
9. Mount oil cooler (8) on bearing housing (6) using clamp (9), and studs, nuts, washers (22)(23)(26).
10. Fit 3/8" nipple adaptor (34) dowty washer (14) and 3/8" pushlock fitting (15) (with thread tape) to block(10).
11. Fit high pressure hose (16), routing forward of inspection cover. Fit 3/8" pushlock hoses (17) between HSRX cylinder (30), oil cooler (8) and block(10).

General Notes

1. Thread tape should be used on all BSPT to BSPP (parallel to taper) connections.
2. Push lock hoses should be renewed if disassembly is required.

6.2.2 HSRX cylinder assembly

Refer to drawing 106554SY

1. Grease[A] and fit 'O' ring seals (4)(15) to back head (19), fronthead (3) and hemispherical seat (8). Grease and fit GT ring (16) to piston-shaft assembly (11). Check that the scarf joint on seal backing ring is correctly mated up. Grease and fit 'U' seal (9) and scraper seal (10) to front head and 'U' seal (20) to backhead. Ensure U seal is aligned as per drawing.
2. Assemble stop pin (13) in backhead (19) and pin (5) in fronthead (3) with LOCTITE 680.
3. Loctite tie rods (30) into fronthead (3). Torque as per section 6.1.3.
4. Grease[A] both outside ends of cylinder (2) and fit to fronthead (3); lubricate[B] piston shaft assembly (11) and fit to fronthead(3).
5. Fit bearing (18) to backhead (19). Lubricate[B] spool (1), insert through bearing (18)and seal (20) whilst supporting seal (20) and assemble backhead spool combination onto cylinder fronthead combination.
6. Assemble cable mounting plate (34) and nuts/washers (28)(29) to backhead. Hold cylinder upright with rod at top. Ensure rod is fully retracted. Rotate spool through 360° (this helps to centralize the bearing in the backhead). Torque nuts/washers (28)(29) as per section 6.1.3. Mount Nylon washer (21) and handle (23). Fit set screw (22) using loctite 262.
7. Fit ball joint (26) to handle (23). Fit cable clamp kitset (24) to cable mounting plate (34). Assemble hemispherical seats (7)and(8), and mounting plate (17) onto fronthead (3). Fit HSRX cylinder to water jet using tie rod (33)[C].
8. Fit back pressure valve (38) (pressure relief valve type) CP208-3-B-O-A-B-050, preset at 500 PSI to back head (19) . Torque as per section 6.1.3.

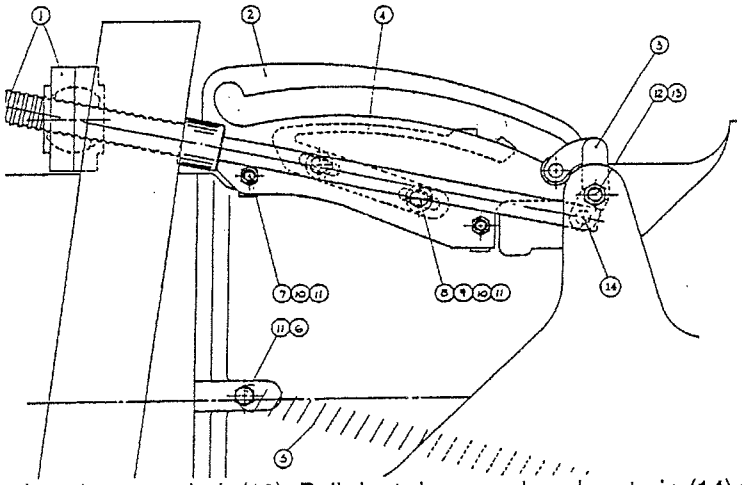
[A] BP Energrease MM EP2 or equivalent.

[B] Mineral based oil such as recommended hydraulic oil (section 5)

[C] Coat threads with non seize compound before fitting nuts (Rocl YIGG, Jet-lube, Nikal, etc).

6.3 Installing the HSRX as a Retrofit.

6.3.1 Removing Manual Reverse



1. Unscrew locknut (13) and remove bolt (12). Pull duct down and push out pin (14) to disconnect toggle (3) from cable.
2. Push duct to full up position and release springs (5) lower duct and rest on deflector.
3. Remove Cam plate (2) by unscrewing 2 nuts (11).
4. Unscrew Reverse cable from ball and tube assembly (1) and pull cable out.
5. Unscrew 4 M6 Nuts that hold ball and tube assy (1). Remove ball & tube assy.

6.3.2 Changing the bearing housing.

- refer section 6.2.1 for instructions to.

1. Remove bearing housing.
2. Change bearing and seals to HSRX bearing housing.
3. Re-assemble jet with new bearing housing.

6.3.3 Assembly of hydraulics

- see section 6.2.1 in HSRX Manual.

CHAPTER 7
PARTS LISTS / DRAWINGS

7.1 General components(Excluding HSRX cylinder)

Refer to Drawing 106549SY at rear

Item	Part Number	Qty.	Description
1	63672SY	1	3.8cc pump with side load adaptor
2	106551	1	Rear mounting plate - pump assembly
3	106550	1	front mounting plate - pump assembly
4	106453	1	pulley
5	106454	1	coupling flange
6	106553	1	bearing housing
7	63681	1	oil tank
8	63670	1	oil cooler
9	106570	1	oil cooler mounting bracket
10	95124	1	PRV block
11	JBJYXAE	4	M6x1x50 socket head cap screw
12	63674	1	VM041/1 pressure relief valve
13	63676	2	V belt (SPZ670)
14	JENXAAO	1	dowty washer 3/8"BSP
15	HXIOBAD	1	push lock fitting 3/8"BSP male
16	66059	1	hose assembly 3/8" BSP
17	66062	2	3/8"BSPx380 pushlock hose
18	HXIOBAH	1	Pushlock Fitting 1/2" BSP Male
19	66063	1	5/8"BSPx500 pushlock hose
20	66061	1	3/4"BSPx500 suction hose
21	HSIJAAU	2	3/4" Jubilee hose clip
22	JDQHXAC	4	M8x1.25 nut

7.1 General components(Excluding HSRX cylinder)

23	JEQKXAC	4	M8 spring washer
24	HYQHXCJ	1	M8x1.25 - 6g x 80 bolt
25	JEOZXAF	3	M8 flat washer
26	30665	3	M8x1.25-6g x27 stud
27	HYQHXAK	4	M6x1-6gx80 bolt
28	JEQKXAA	4	M6 spring washer
29	JDQHXAA	4	M6x1-6H nut
30	106554SY	1	Reverse Cylinder Assembly
31	JCQHXAN	2	M10 x 40 Stud - 316 Stainless Steel
32	63680	1	Inlet Manifold
33	HXIOBAF	1	5/8"male pushlock fitting
34	NZAAJBD	1	3/8" BSP to 3/8"BSP nipple adaptor
35	63682	1	ZF Filter Element
36	JDQHXAE	2	Nut, M10x1.5 316 S.S.
37	JEQKXAE	2	10 Dia. spring washer
38	HMHRAAH	1	'O' ring 0.09 X 0.5 ID.
39	82046	1	HSRX Installation & Service Manual

7.2 HSRX Cylinder

Refer to drawing 106554SY at rear

Item	Part No.	Qty	Description
1	106560	1	Spool
2	106555	1	Cylinder
3	106557	1	Fronthead
4	HMHRAEW	2	'O' seal 3/32"x1.424"x1.630"
5	105927	1	pin
6	105945-1	1	insert
7	106563	1	front hemi seat
8	106564	1	rear hemi seat
9	JWKZAEF	1	seal 20x28x5.0 UHS 20
10	JWKZAEE	1	scraper 20x28x5.3 MN078110
11	106559SY	1	Shaft assy.
12	HXIOBAD	1	3/8"BSP pushlock fitting (male)
13	106558/1	1	stop pin
14	106503	1	pivot pin
15	HMHRAEX	1	'O'seal type 131 3/32x1.612"i/d)
16	JWKZADD	1	Piston seal GT 8065-173-HR
17	105572	1	mounting plate
18	JNODAFY	1	bearing SKF 6301
19	106558	1	backhead assy
20	JWKZAEG	1	seal 12x20x5.0 PM1825
21	JENYAAG	1	Washer nylon 826250
22	JAJYXBC	1	M6x10 skt set screw 316 S.S.
23	106561	1	handle
24	80934	1	cable clamp set
25	JDQSAAA	2	nylon insert nut 3/16"UNC S.S.
26	KYINAAF	1	ball joint Morse 0317'99-001 (3/16")
27		1 (ref)	ball joint (1/4")
28	JDQHXAA	8	M6 nut 316 S.S.

29	JEQKXAA	4	M6 spring washer
30	106556	4	tie rod
31	NZAAJBD	1	Nipple for dowty seal (3/8"BSPP)
32	JENXAAO	1	dowty washer
33	106413-1	4	tie rod
34	106562	1	cable mounting plate
35	HUILAAA	1	split pin S.S.
36	JEOZXAI	1	M10 washer
37	JENYAAH	2	Washer-nylon 6 10x32x1.6
38	63697	1	Pressure Relief Valve

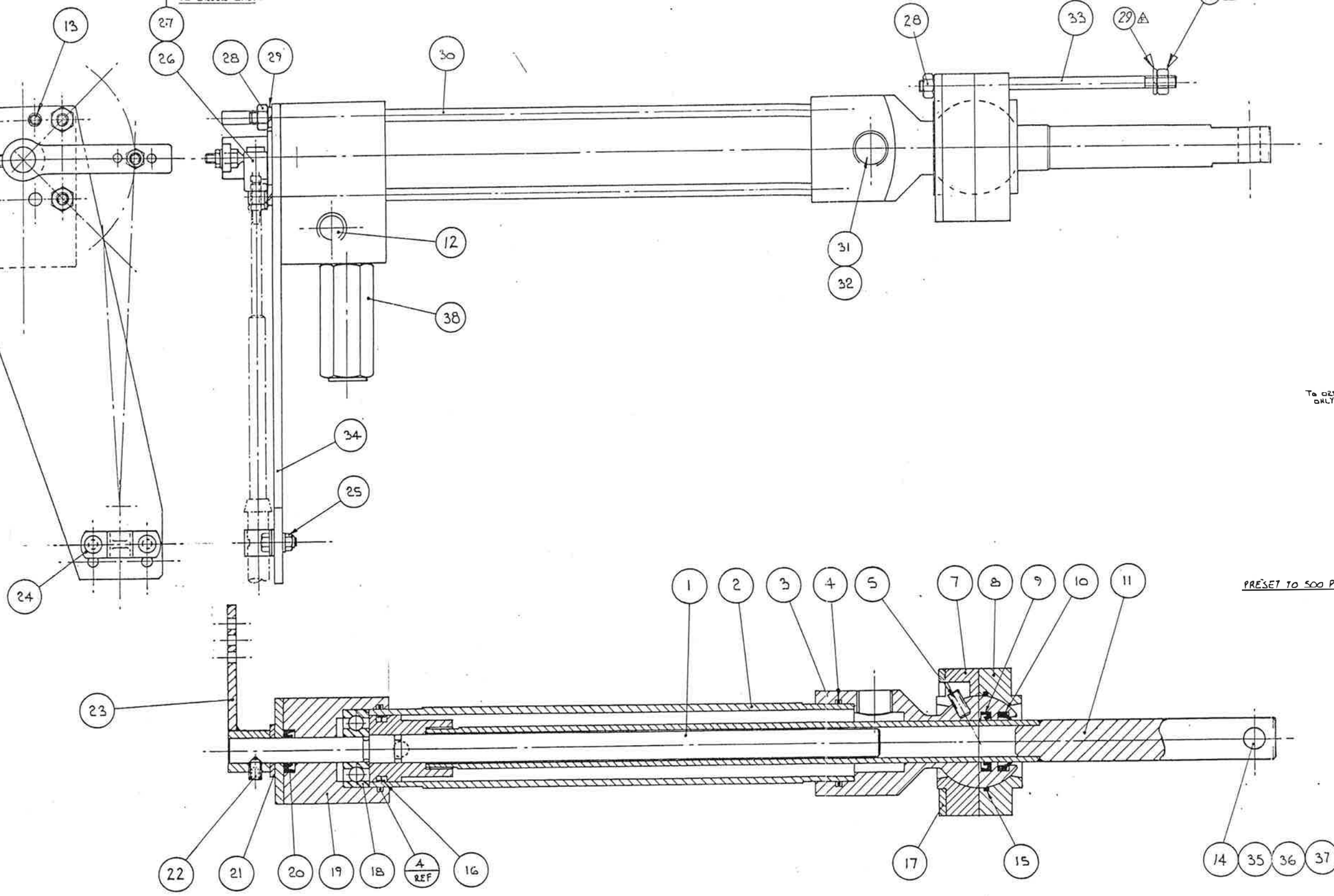
Spares kit

Filter (oil tank)

Cylinder seals kitset 106579

Dipstick. 64439 $9.68

DRILL OUT HOLES
IN ITEM 23 TO ϕ6·5
TO ORDER ONLY.



ITEM	PART N°	DRG. N°	QTY	DESCRIPTION
1	106560	106560	1	SPOOL
2	106555	106555	1	CYLINDER
3	106557	106557	1	FRONTHEAD
4	HMHRAEW	-	2	'O' SEAL 3½" x1·426"x1·630"
5	105927	105331	1	PIN
6				
7	106563	106563	1	FRONT HEMI-SEAT
8	106564	106563	1	REAR HEMI-SEAT
9	JWKZAEF	-	1	SEAL 20×28×5·0 UHS 20
10	JWKZAEE	-	1	SCRAPER 20×28×5·3 HW07B110
11	106559SY	106559SY	1	SHAFT ASSY.
12	HX108AD	-	1	⅜" BSP PUSHLOCK FITTING MALE
13	106558/1	106558	1	STOP PIN.
14	106503	106503	1	PIVOT PIN.
15	HMHRAEX	-	1	'O' SEAL TYPE 131 (⅜"x1·612"ID)
16	JWKZA0D	-	1	PISTON SEAL GT 8065-173-HR
17	105572	105572	1	MOUNTING PLATE
18	JNODAFY	-	1	BEARING SKF GS01
19	106558	106558	1	BACKHEAD ASSY
20	JWKZAEG	-	1	SEAL 12×20×5·0 PM1B2S
21	JENYAAG	-	1	WASHER NYLON B26250
22	JAIYX8C	-	1	M6×10 SKT SET SCREW. 316 SS
23	106561	106561	1	HANDLE
24	80934	-	1	CABLE CLAMP KITSET
25	JDQ4SAAA	-	2	NYLON INSERT NUT ⅜"UNC SS
26	KYINAAF	-	1	BALL JOINT MORSE 031799-001 (⅜")
27		-	(1 REF)	" " " (¼")
⚠ 28	JDQHXAA	-	12	M6 NUT 316 SS.
⚠ 29	JEQKXAA	-	12	ϕ6 SPRING WASHER
30	106556	30635	4	TIE ROD
31	NZAAJBD	-	1	NIPPLE FOR DOWTY SEAL (⅜"BSPP)
32	JENXAAO	-	1	DOWTY WASHER
33	106413-1	30635	4	TIE ROD
34	106562	106562	1	CABLE MOUNTING PLATE
35	HUILAAA	-	1	SPLIT PIN S.S.
36	JEOZXAI	-	1	WASHER ϕ10 S.S.
37	JENYAAH	-	2	WASHER·NYLON 6 ϕ10×ϕ32×1·6
38	63697	—	1	PRESSURE RELIEF VALVE - COMPACT CONTROLS. CP 208-3-B-0-A-B-050

To ORDER ONLY.

PRESET TO 500 PSI

CYLINDER SPECIFICATIONS

(IMPERIAL GALLS/MIN)

Max flow - 16 litres/min (3·52 gall/min)
Min flow - 3 litres/min (0·66 gall/min)
Oil temp. - 75° C max (167° F)
Pump relief pressure - 102 bar (1500 psi)

Oil viscosity to lie between 10-100 centi-stoke under normal operating conditions

NOTE - Refer sheet 85071 for assembly instructions

CL3821	G		18/10/91	⚠ CYLINDER SPECS ADDED
CL3813	F		22/8/91	⚠ 10 TO 12 - WAS 6
CL3813	F		27/11/91	⚠ ITEM 28 N° INCREASED TO 12 - WAS 8 - ITEM 29 INCREASED TO
CL3401	E	RL	28-1-93	ITEM NO 6 106745-1 INSERT REMOVED.
CL3578	D	P.S.	29-7-92	ITEM 30 WAS 63683
CL3573	C	P.S.	23-6-92	ITEM 33 WAS 30482
CL3369	B	P.S.	27-5-92	ITEM 38 PRESET NOTE ADDED. ASSEMBLY INSTRUCTION NOTE.
CL3359	A	P.S.	11-3-92	ITEM 38 ADDED.
CL3352	0	P.S.	21-1-92	ISSUED FOR MANUFACTURE
REF	NO.	DY	DATE	AMENDMENTS

C. W. F. HAMILTON & CO. LTD. CH CH. NZ.

MATERIAL

MATL CERTS YES NO

DRAWN R.H. 13-12-91
CHECKED S.W.R. 20-12-91
APPROVED 21-1-92
ISSUED 23-1-92

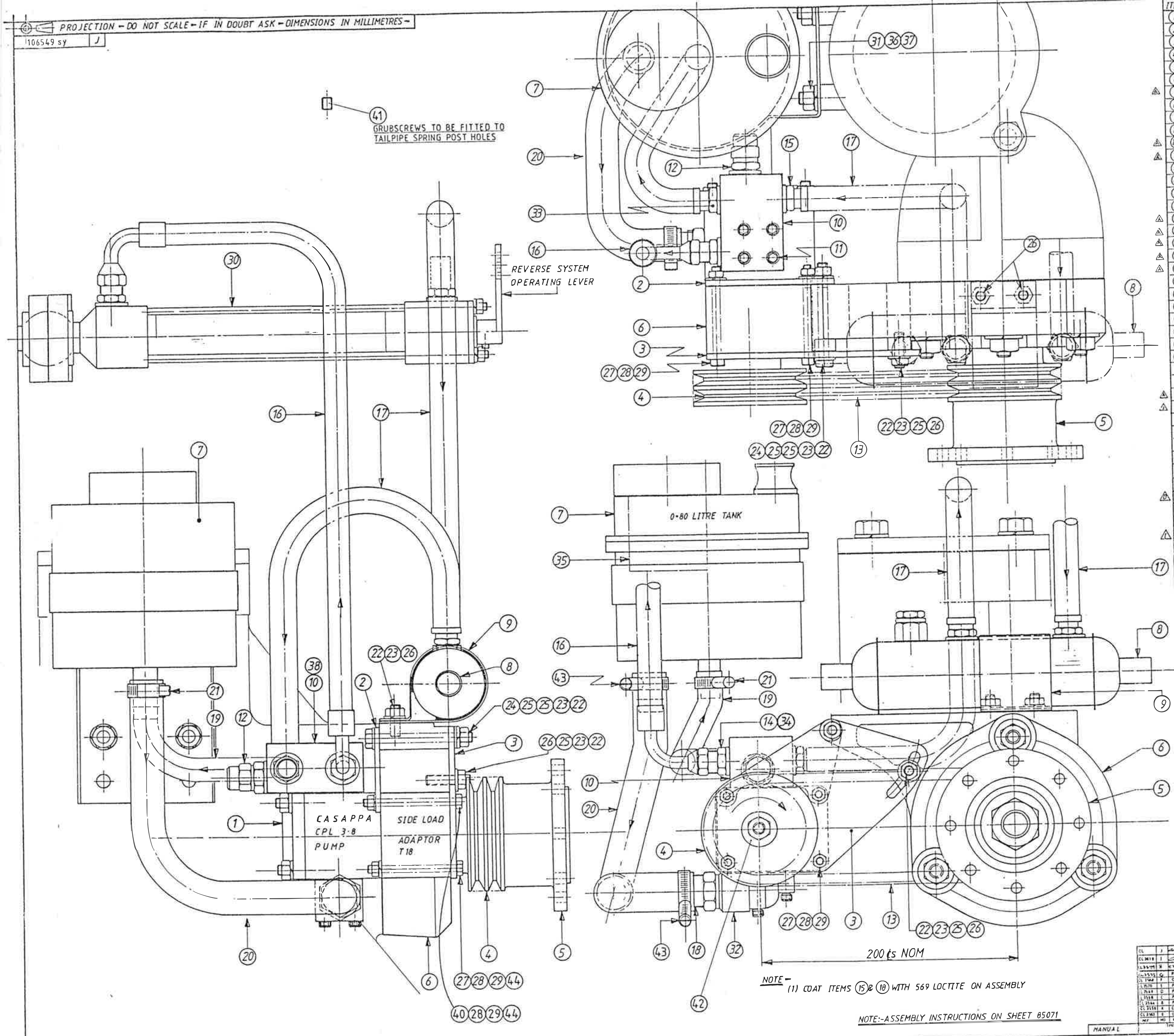
⚠ = N9 EXCEPT AS STATED
UNLIMITED DIMENSIONS TO BE ±

NAME
REV. CYLINDER ASSY.
273 HSRX (BACK PRESSURE ROTARY VALVE TYPE)

SCALE 1:1 | NUMBER 106554SY | G

MANUAL

106554SY G



NOTE - (1) COAT ITEMS (15) & (18) WITH 569 LOCTITE ON ASSEMBLY

NOTE:- ASSEMBLY INSTRUCTIONS ON SHEET 85071

ITEM	PART No	DESCRIPTION	QTY	DRG No
1	63672 sy	Casappa CPL 3·8 pump with T18 side load adaptor	1	
2	106551	Rear mounting plate - pump assembly	1	106550
3	106550	Front mounting plate - pump assembly	1	106550
4	106453	Pulley - driving casappa pump	1	106453
5	106454	Coupling flange / driving pulley combo	1	106454
6	106553	Bearing housing	1	106553
7	63681	Z F Oil tank 7632 472 304 (black)	1	
8	63670	Oil cooler - Savage - 50 × 157 - 3/8 pushlock fittings	1	
9	106570	Oil cooler mounting bracket with rubber insulating strip	1	106570
10	95124	Control block (ex intergrated hydraulics ltd drg HDM 1262)	1	95124
11	JBJYXAE	M6 × 1 socket head cap screws × 50 long	4	
12	63674	VH 041/E-2-00 pressure relief valve. Preset to 1500 psi	1	
13	63676	V Belt SPZ 670	2	
14	JENXAAD	Dowty washer 3/8 BSP	1	
15	HX10BAD	Pushlock fitting - 3/8" BSP male	1	
16	66059	Hose assembly - 3/8" BSP high pressure	1	66004
17	66062	3/8" - Duffield D600/6 push on hose × 400 long	2	
18	HX10BAH	Pushlock fitting - 1/2" BSP male × 3/4" hose tail	1	
19	66063	5/8" - Duffield D600/10 push on hose × 500 long	1	
20	66061	3/4 suction hose × 500 long (Hydralink)	1	
21	HSIJAAU	3/4" jubilee hose clip stainless steel	1	
22	JOQHXAC	M8 × 1·25-6H nut - 316 stainless steel	4	
23	JEQKXAC	ø8 spring washer - 316 stainless steel	4	
24	HYQHXCJ	M8 × 1·25 6g bolt × 80 long - 316 stainless steel	1	
25	JEOZXAF	ø8 flat washer - 316 stainless steel	3	
26	30465	M8 × 1·25-6g × 27 long stud - 316 stainless steel	3	30647
27	HYQHXAK	M6 × 1 × 6g bolt × 70 long - 316 stainless steel 4	2	
28	JEQKXAA	ø6 spring washer - 316 stainless steel	4	
29	JOQHXAA	M6 × 1-6H nut - 316 stainless steel	4	
30	106554 sy	Reverse cylinder assembly	1	106554 sy
31	JCQHXAN	M10 × 40 stud - 316 stainless steel	2	30637
32	63680	Inlet Manifold - Casappa IGQ 12	Ref	SUPPLIED WITH ITEM 1
33	HX10BAF	3/4" BSP × 5/8" pushlock male	1	
34	NZAAJBD	Nipple - male - male 3/8" BSP to 3/8" BSP dowty seal	1	
35	63682	Z F Filter element	Ref	
36	JOQHXAE	Nut - M10 × 1·5 - × 316 stainless steel	2	
37	JEQKXAE	ø10 Spring washer	2	
38	HMHRAAH	"O" Ring 009 × 0·5 LQ	1	
39	82046	HSRX Installation and service manual	1	
40	HYQHXAL	M6 × 75 bolt - 316 stainless steel	2	
41	JAJYXCB	M8 × 10 grubscrew - 316 stainless steel	2	
42	JEOZXAK	ø12 flatwasher - 316 stainless steel	1	
43	HSIJAAV	1" jubilee hose clip - 316 stainless steel	2	
44	JEOZXAD	ø6 flat washer - 316 stainless steel	4	
45				

REF	NO	BY	DATE	AMENDMENTS
CL	J			ITEM 42 QTY NOW 1 OFF ONLY
CL	I			ITEM 42 QTY WAS 2 - NOW REDUCED TO 1 OFF
CL	H	KWL	11-1-93	ITEMS 40-44 ADDED
CL	G	PS		ITEM 17 WAS 300 LONG
CL	F	CH	7-10-92	ITEM 39 ADDED
CL	E	PS		ITEM 27 WAS HYQHXAM
CL	D	PS		ITEM 38 WAS [illegible], ITEM 12 PRESET ADDED
CL	C	PS		ITEM 18 WAS [illegible]
CL	B	PS		ITEM 19 WAS [illegible], ITEM 21 WAS [illegible]
CL	A	CH		PART NUMBERS AMENDED DRG UPGRADED
CL	0	CH		ISSUED FOR PRODUCTION

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C.W.F. HAMILTON & CO. LTD. CH.CH. NZ.

273 JET

REVERSE HYDRAULICS G.A.

NUMBER 106549 sy J

MANUAL