REMEMBER...”SAFETY FIRST, EVERY TIME”

- Always use eye protection when using power tools.
- Always wear protective footwear when working in a workshop environment.
- Always wear hand protection and remove jewelry when performing workshop duties.
- Always wear protective head wear when performing workshop duties.
- Always wear ear protection when working in a noisy workshop environment
- Only use certified equipment.
- Do not manually lift heavy loads, always use a fork lift or gantry crane with a designated operator.
- Always perform a tool box prior to any pressure testing and follow any JSA that has been performed.

Post Job Maintainence:

- Remove the Cylinder assemblies from the Wireline Valve.
- Remove any well deposits and clean the Wireline Valve.
- Close each Hydraulic cylinder and remove the ram and inspect.
- Manually close hydraulic back up.
- Remove Ram Guides and inspect for damage.
- Replace any damaged O-rings and back-ups.
- Remove Equalizing assembly and clean.
- Check all threads and apply copper-slip.
- Inspect all seals and sealing surfaces.
- Update inspection and maintenance file for the Wireline Valve, and have signed off by the competent person in charge.

On location inspection:

- Open all rams and inspect the inner seals are correct for the cable being ran.
- Inspect the correct orientation for the outer seals, upper ram face up, lower face down when being used for a braided line application.
- Inspect the Ram Guides are correct for the cable being ran.
- Open and close all rams hydraulic and manually back them up.
- Open and close the equalizing assembly.
- Check inspection band to ensure the equipment is in current certification and rating for the operation.
- Follow the Pre Job Pressure Testing Guidelines on page 6 & 7.

Operation:

- Closing Wireline Valve rams is achieved by hydraulically operating the cylinders until Inner Seals butt together internally at the center of the inner bore.
- With the Equalizing Valve or By Pass Plug in the closed position, the outer ram seals will complete the seal in the ram body housing.
- Pressure can now be bled from the lubricator allowing it to be disconnected, and hoisted so necessary surface operations can be completed.
- Once the lubricator is reconnected to the top of the Wireline Valve and lubricator bleed off valves closed, pressure can be equalized back to the lubricator from the lower side of the rams by opening the valve seat or Bypass Plug of the equalizing assembly.
- The Equalizing Assembly is located on the side of the main Body, with two Bleed Off Ports and located 90° from ram housings. Using an Allen wrench to open the valve seat equalizing assembly allows pressure to be returned to the lubricator from the wellbore with rams closed.
- The Wireline Valve rams can now be opened by hydraulically operating the rams open, resuming wireline operation.

Precautions:

- Ensure that for a hydraulic wireline valve always have the bridals on the opposite side of the wire, in case there is a need to fix or replace any items. This way the operator will not be in the line of the wire.
- Always have the wireline valve equalizing assembly on the opposite side of the wire, in case there is a need to equalize. This way the operator will not be in the line of the wire.
- Never Open a closed wireline valve without opening the equalization system.

Tools List:

1. Socket set.
2. Spanner set.
3. Allen key set.
4. Screw driver set
5. Brass punch set.
6. Circlip pliers.
7. O-ring pick.
8. Plastic hammer.
9. NPT Thread gauge.
10. 12" Stilson.
11. 12" adjustable spanner.
12. Vice.
13. Grease.
14. Hydraulic oil.
15. Anti-seize protective compound (Copperslip).
16. PTFE thread tape.
17. Clean rags.
18. Wireline Valve Control panel, hoses and bridals (if hydraulically operated).
19. Wireline Valve schematics for the valve being worked on.
20. Maintenance file for valve being worked on.
21. Complete Brace supplied redress kit suited for the well conditions and equipment specification.

DISASSEMBLY: HYDRAULIC WIRELINE VALVE

1. Remove Adapter Plugs from Body.
2. Remove the Hexagon Socket Button Head Cap Screw from the Bypass Plug.
3. Remove the Bleed Off Plug from the Bypass Plug.
4. Remove the Bypass Plug from the Body.
5. Remove the 5/8” UNC and T Handles from the Lock Out Pins
6. Remove Adaptor Plugs and/or hydraulic fittings from the Cylinder and drain any excess fluid.
7. Remove the Retaining Ring (exterior) from the Cylinder.
8. Remove the Nut from the Cylinder.
9. Remove the Retaining Ring (interior) from the End Cap.
10. Remove the Lock Out Bolt from the End Cap.
11. Remove the Nut from the Cylinder.
12. Remove the End Cap from the Cylinder.
13. Remove the Piston from the Piston Shaft (this can be accomplished by using the Piston Wrench, or 2 – 0.375 rods inserted into the piston while securing the piston shaft while unthreading the piston via the Piston Wrench or 0.375 rods).
14. Remove the Piston Shaft through front of Actuator.
15. Remove the Bushing from Piston Shaft.
16. Remove the Indicator Rod from the Piston.
17. Remove the Internal Retaining Ring (snap ring pliers required).
18. Remove the all V-packing, Back Up Rings, and O-Rings from Cylinder, Piston, and End Cap.
19. Clean and inspect all parts for wear or damage.
20. Remove Inner and Outer Seals from Rams.
21. Remove the Lock Out Pins and Bronze Bushings from the Piston Housings.
22. Remove the V-Packing and O-Rings, and Anti Rotation Pin from the Piston Housing.
23. Remove the Lock Nut from the Piston Housing.
24. Repeat steps 5 thru 11 for remaining arm assembly.
25. Remove Set Screws on the Top and Bottom Subs of the Wireline Valve
26. Remove the Top Sub.
27. Remove the Bottom Sub and Union Nut.
28. Clean and inspect all parts for wear or damage.
    a. If any significant damage or wear; replace or repair as required.

ASSEMBLY: HYDRAULIC WIRELINE VALVE

1. Install 238 O-Ring and Back-Up Rings in the Wireline Valve Body.
2. Install the Top Sub into the Body of the Wireline Valve (take note as to which way the arrow is on the Body of the Wireline Valve is pointing at this time) ***RECOMMENDED TORQUE –600 FT/LBS***.
3. Install Set Quantity 2 Set Screws in the Wireline Valve Body located at the Top Sub and tighten.
4. Install the Bottom Sub and Hand Nut into the Body of the Wireline Valve (the wellhead direction arrow will be pointing towards the bottom sub and hand nut.) ***RECOMMENDED TORQUE -600 FT/LBS***.
5. Install Set Quantity 2 Set Screws in the Wireline Valve Body located at the Bottom Sub and tighten.
6. Install the Quantity 1 - O-Ring 111 onto each Adapter Plug.
7. Install the Adapter Plugs into the Body of the Wireline Valve.
8. Install the 009 O-Rings and 009 Back Up Rings on the Bleed Off plug and install into the By-Pass Plug.
9. Install the Quantity 2 - O-Ring 114 and QTY 2 -114 Back-Up Rings onto By-Pass Plug.
10. Install By-Pass Plug into Body of Wireline Valve.
11. Install the 009 O-Rings and 009 Back Up Rings on the Bleed Off plug and install into the By-Pass Plug.
12. Install the Hexagon Socket Button Head Cap Screw into the By-Pass Plug.
13. Install the 236 O-Rings and 236 Back Up Rings into the Piston Housing as per Diagram.
14. Install the 215 O-Rings and Back Ups into the Cylinder and End Cap.
15. Install the “T” Seal and Back Up Rings on the Piston.
16. Install the 234 O-Ring and Back Up Rings on the End Cap.
17. Install the 124 O-Ring on the outside of the Male Back Up Ring and the 121 O-Ring on the inside of the Male Back Up Ring.
18. Install the Female Back Up Ring into the packing bore of the Cylinder with the V-groove exposed.
19. Install the V-packing into the packing bore so that it seats into the Female Back Up Ring.
20. Install the Male Back Up Ring into the packing bore (take care to ensure that the external 124 o-ring is not chipped or torn).
21. Install the Internal Retaining Ring (snap ring pliers may be required).
22. Install the the Piston onto the Indicator Mandrel and tighten.
23. Install the bronze Bushing onto the Piston Shaft and install into the Cylinder. (Take care not to chip or score o-rings when sliding the threads of the Lock out Pin though the Seal Sub.).
24. Install the Piston onto the Piston Shaft onto the Piston (this can be accomplished by using the Piston Wrench, or 2 – 0.375 rods inserted into the piston while securing the Piston Shaft while threading the piston via the Piston Wrench or 0.375 rods).
25. Install the End cap onto the Cylinder (Care should be taken to ensure that the o-rings and back up rings are not chipped or damaged.).
26. Install the Lock Out Bolt into the End Cap.
27. Install the Internal Snap Ring into the End Cap.
28. Install the the Nut onto the Cylinder.
29. Install the the External Retainer Ring.
30. Fill the Actuator(s) with hydraulic.
31. Install the desired Hydraulic Fittings.
32. It is recommended that a function test is performed after assembly before being put into service.
33. Install the desired Inner and Outer Seals onto Rams using the Key Retainer to retain the inner seals.
34. Install the Lock Out Pin and Bushing into the “T” slot of the Ram, the Bushing is to act as a bearing between the “T” Slot and the Lock Out Pin.
35. Install the Anti Rotation Pin into the Seal Housing. (this is accomplished by dropping the pin through the inspection hole on the Ram, aligning the threaded hole in the Ram and tightening with a wrench).
36. Install the Ram and Arm Assembly into the Body of the Wireline Valve. (ensure that the outer seal is facing up and the Locating Pin is lined up with the Locating Pin hole on the Seal Housing).
37. Install the Nut and thread onto Wireline Valve Body.

ASSEMBLY: HYDRAULIC WIRELINE VALVE CONT'D

38. Install the Spiroloc Snap Ring.
39. Repeat steps to 13-25 for Second Arm Assembly.
40. It is recommended that a pressure test be reformed at this point to verify Wireline Valve Integrity, as per your local regulations.

Pressure Testing Guidelines for a Slickline Wireline Valve:

- Confirm that all personnel are deemed competent to perform the task.
- Document all changes, configurations and repairs made to the equipment and keep copies in the maintenance files.
- Sign off completed pre-job inspection checklist.
- Place signs and barriers warning all personnel of the defined test area.
- Ensure clear radio communication between the controller of the Pressure Test Unit (PTU) and the supervisor in charge of the test.
- Ensure all personnel without radio communication are in a clear line of visibility.
- Ensure constant communication between the PTU operator and the supervisor.
- Pressure test as per local regulations or manufacture guidelines.

Pressure Testing Guidelines for Slickline Wireline Valve dressed with Blind Ram Seals:

- Install the Wireline Valve and connect bridals and hoses to Wireline Valve panel/hand pump.
- Make an announcement for pressure testing, so everyone in the area is aware of the danger.
- Open the equalizing port.
- Partially close Blind rams, leaving enough gap to allow test fluid overflow above the rams to expel any air in the system.
- Fill with test fluid.
- Cease pumping fluid when the fluid is level with the blind rams.
- Close the blind rams and apply the recommended ram pressure as per OEM.
- Instruct the Pressure Pump operator to pump slowly and wait for fluid to overflow over the blind ram via equalization port or manifold if the test is being done with the lubricator in position.
- Stop pump operator and close equalization ports.
- Perform initial low pressure test. The test is a 5 minute, 300 psi test to ensure the integrity of the pressure test lines etc.
- Perform the high pressure test as per companies pressure test procedure, typically MWHP x 1.5 of the job the equipment is being sent too.
- Pressure up slowly in stages to the required test pressure. Ensure this figure does not exceed the recommended working pressure of the equipment
- Test duration is down to the individual customer discretion.
- On completion of a successful blind ram test, bleed pressure back to zero via PTU.
- Open equalization ports (Slowly) on Wireline Valve to dispel any residual low pressure.
- Open the Wireline Valve blind ram.
- Close the equalization ports and continue to the next step.

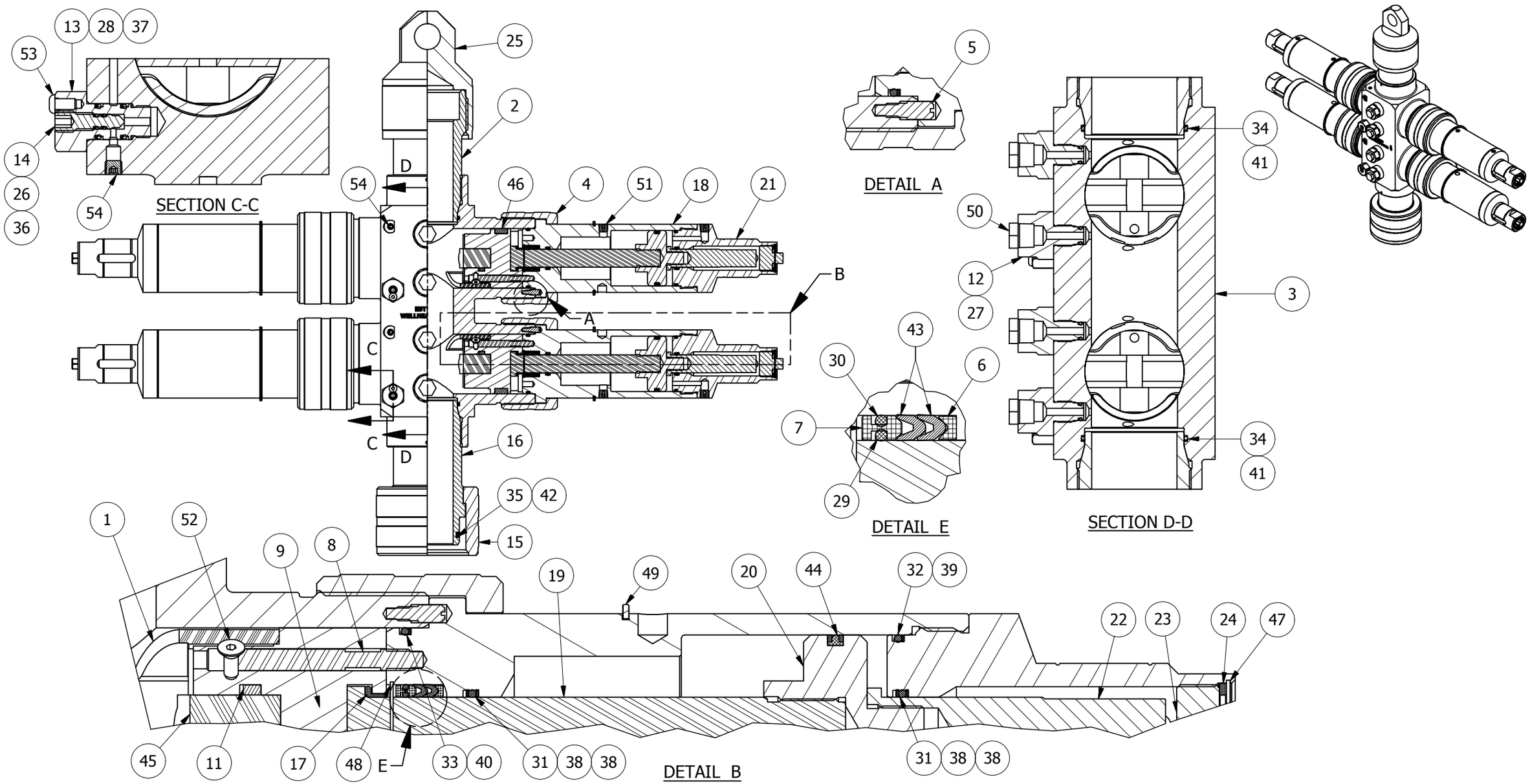
Pressure Testing Guidelines for Braided Line Wireline Valve:

- Confirm that all personnel are deemed competent to perform the task.
- Document all changes, configurations and repairs made to the equipment and keep copies in the maintenance files.
- Sign off completed pre-job inspection checklist.
- Place signs and barriers warning all personnel of the defined test area.
- Ensure clear radio communication between the controller of the Pressure Test Unit (PTU) and the supervisor in charge of the test.
- Ensure all personnel without radio communication are in a clear line of visibility.
- Ensure constant communication between the PTU operator and the supervisor.
- Ensure all grease lines and sufficient injection grease is available for the operation duration.
- For hydraulic wireline valves connect bridals and hoses to control panel and grease injection ports.
- Make an announcement for pressure testing, so everyone in the area is aware of the danger.
- Install the correctly sized test rod and close lower ram and apply Ram pressure, ensuring the rod is tied off correctly with certified strop and shackles.
- Inject grease and close upper rams on the test rod applying equal pressure on both top and bottom rams.
- Apply injection grease pressure between the rams.
- Open the equalizing port to remove air pocket.
- Instruct the Pressure Pump operator to pump slowly and wait for test fluid to overflow over the wireline valve ram via equalization port.
- Perform initial low pressure test. This is a 5 minute test, 300 psi test to ensure the integrity of the pressure test lines etc.
- Perform the high pressure test as per companies pressure test procedure, typically MWHP x 1.5 of the job the equipment is being sent too.
- Pressure up slowly in stages to the required test pressure. Ensure this figure does not exceed the recommended working pressure of the equipment.
- Test duration is down to the individual customer discretion.
- On completion of a successful blind ram test, bleed pressure back to zero via PTU.
- Stop the pump operator and close equalization ports.
- Perform test as laid out in procedures above.
- Bleed the pressure back to zero, via PTU, upon completion of a successful ram test.
- Open the equalization ports on the wireline valve to dispel any residual low pressure.
- Open the wireline valve rams.
- Close equalization ports and continue to the next step.

Inspection & Testing

- Brace Tool recommends inspections after any procedure that may expose the Wireline Valve to Sand, Salt, KCL Water, or like fluid, extended periods of H2S service, or any other corrosive or oxidizing fluids or materials.
- Brace Tool recommends a complete tear down inspection at least quarterly based on operational exposure, this may increase at the users discretion.
- All Pressure Control Equipment must be maintained at regular intervals and re-certified at least once per year with an accurate record of all essential and none-essential maintenance.
- The yearly maintenance procedure should be implemented after any job that exposes the Pressure Control Equipment to conditions, such as accidental drops, corrosive fluids, long durations in position on H2S or CO2 or any major maintenance.
- An annual Pressure Test should be performed when any service requirements are performed.
- After any integral part is removed or replaced that may compromise the integrity of the Wireline Valve.
- After servicing of the Wireline Valve.
- After any Inspection or Repair.
- After any seals are changed out.
- Prior to any pressure test remove any NPT plugs, clean, oil and thread depth check.

AT ANY POINT THAT WELLBORE PRESSURE OR FLUIDS ARE ALLOWED TO ESCAPE UNEXPECTEDLY TO ATMOSPHERE DUE TO FAILURE OF THE WIRELINE VALVE. IT IS RECOMMENDED THAT THE EQUIPMENT BE IMMEDIATELY REMOVED FROM SERVICE AND QUARRINTINED UNTIL A COMPLETE INSPECTION, REPAIR, AND PRESSURE TEST CAN BE DONE.



REV	DATE	DESCRIPTION	BY	ECR
A	27 APR 16	PROTOTYPE	L.B.	

TOLERANCES
.X = +/- 0.030
.XX = +/- 0.015
.XXX = +/- 0.005
∠ = +/- 0.5 DEG
◎ = .005 TIR

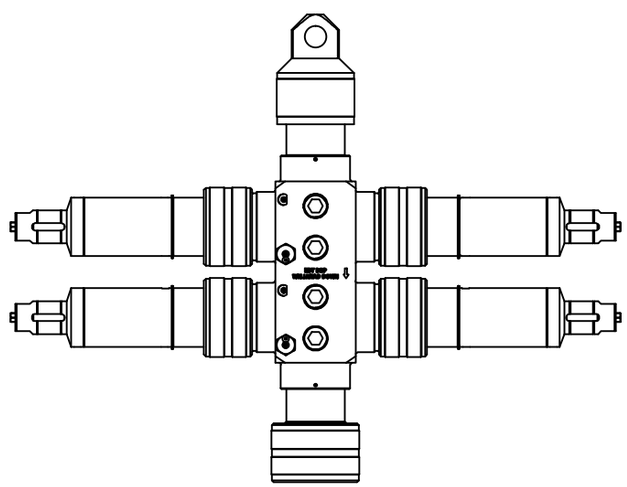
BRACE TOOL
TEL (780) 438 - 0441 1-800-438-0061

MATERIAL: AS REQ
SCALE: NTS
SHEET: 1 of 2
DWN: L.B.
DATE: 4/27/2016
CHK: RD
DATE: 4/30/2016

TITLE: 3" DUAL WIRELINE VALVE
10K HYDRAULIC ACTIVATED B.O.P.
DWG #: 13-01-DWL-300-A2
REV: 0

ITEM	QTY	DESCRIPTION	PART NUMBER	COMMENTS	ITEM	QTY	DESCRIPTION	PART NUMBER	COMMENTS
1	4	CABLE GUIDE	13-01-CG-300-01	1026 DOM	28	4	O-RING	2-114	HSN OR AS REQUIRED
2	1	TOP SUB	13-01-WLV-300-01	AISI 4140 - L80	29	4	O-RING	2-121	HSN OR AS REQUIRED
3	1	BODY	13-01-DWL-300-02	AISI 4140 - L80	30	4	O-RING	2-125	HSN OR AS REQUIRED
4	4	NUT	13-01-WLV-300-03	4140 HTSR (28-32 HRC)	31	8	O-RING	2-215	HSN OR AS REQUIRED
5	4	LOCATING PIN	13-01-WLV-300-04	AISI 1018	32	4	O-RING	2-234	HSN OR AS REQUIRED
6	4	BACKUP RING	13-01-WLV-300-12	BRASS (UNS C36000)	33	4	O-RING	2-236	HSN OR AS REQUIRED
7	4	BACKUP RING	13-01-WLV-300-13	BRASS (UNS C36000)	34	2	O-RING	2-238	HSN OR AS REQUIRED
8	4	ANTI-ROTATION PIN	13-01-WLV-300-15	1018 CARBON STEEL	35	1	O-RING	2-340	HSN OR AS REQUIRED
9	2	RAM BLOCK (RIGHT HAND)	13-01-WLV-300-18	17-4 PH (H1150) STAINLESS STEEL	36	4	BACKUP RING	8-009	NITRILE OR AS REQUIRED
10	2	RAM BLOCK (LEFT HAND)	13-01-WLV-300-19	17-4 PH (H1150) STAINLESS STEEL	37	4	BACKUP RING	8-114	NITRILE OR AS REQUIRED
11	4	KEY RETAINER	13-01-WLV-300-23	1018 CARBON STEEL	38	16	BACKUP RING	8-215	NITRILE OR AS REQUIRED
12	4	ADAPTER PLUG	13-01-WLV-300-24	AISI 4140 - L80	39	4	BACKUP RING	8-234	NITRILE OR AS REQUIRED
13	2	BY-PASS PLUG	13-01-WLV-300-27	AISI 4140 -L80	40	4	BACKUP RING	8-236	NITRILE OR AS REQUIRED
14	2	BLEED-OFF PLUG	13-01-WLV-300-28	316 STAINLESS STEEL	41	2	BACKUP RING	8-238	NITRILE OR AS REQUIRED
15	1	NUT	13-01-WLV-300-29	AISI 4140 HTSR (P110)	42	1	BACKUP RING	8-340	NITRILE OR AS REQUIRED
16	1	BOTTOM SUB	13-01-WLV-300-30	AISI 4140 - L80	43	8	VALVE PACKING	1.5 GLV	NITRILE OR AS REQUIRED
17	4	BUSHING	13-01-WLV-300-31	BRASS (UNS C36000)	44	4	T-SEAL	TP034	AS REQUIRED
18	4	CYLINDER	13-01-WVH-300-01	AISI 4140 - L80 (NACE MR-0175)	45	4	INNER RAM SEAL	I-RAM SEAL	NITRILE OR HSN
19	4	PISTON SHAFT	13-01-WVH-300-06	AISI 4140 - L80 (NACE MR-0175)	46	4	OUTER RAM SEAL	O-RAM SEAL	NITRILE OR HSN
20	4	PISTON	13-01-WVH-300-07	17-4 PH (H1150) STAINLESS STEEL	47	4	RETAINING RING - INT.	HO-156	STAINLESS STEEL
21	4	END CAP	13-01-WVH-300-08	AISI 4140 - L80 (NACE MR-0175)	48	4	INTERNAL RETAINING RING	NA2 - 1 1/2	SPAENAUR # 254-812
22	4	INDICATOR ROD	13-01-WVH-300-09	17-4 PH (H1150) STAINLESS STEEL	49	4	RETAINING RING - EXT.	RST-400	STAINLESS STEEL
23	4	LOCK-OUT BOLT	13-01-WVH-300-10	17-4 PH (H1150) STAINLESS STEEL	50	4	HEX HEAD PLUG	1/2-14 NPT	STEEL
24	4	STOP RING	13-01-WVH-300-11	17-4 PH (H1150) STAINLESS STEEL	51	8	SOCKET HEAD PLUG	1/4-18 NPT	AS REQUIRED
25	1	LIFT CAP	13-01-LS-300-02	AISI 4140 - L80	52	8	COUNTERSUNK HEAD CAP SCREW	.250-20 UNC x .63 LG	STEEL
26	4	O-RING	2-009	HSN OR AS REQUIRED	53	2	HEX SOCKET BUTTON HEAD CAP SCREW	.250 - 20 x .50 LG	STEEL
27	4	O-RING	2-111	HSN OR AS REQUIRED	54	4	SOCKET HEAD PLUG	1/8-27 NPT x .25 LG	STEEL

APPLICABLE CRITICAL DATA	
DESCRIPTION	DATA
MINIMUM ID (FULLY OPEN)	Ø3.00
TOP CONNECTION	4.75-4 ACME PIN
BOTTOM CONNECTION	4.75-4 ACME BOX
MAXIMUM WORKING PRESSURE	10,000 psi
TYPE OF SERVICE	H2S
SHIPPING DIMENSIONS	41-11/16" x 31-3/8" x 7-1/4"
APPROXIMATE WEIGHT	340 Lbs



TOLERANCES
.X = +/- 0.030
.XX = +/- 0.015
.XXX = +/- 0.005
∠ = +/- 0.5 DEG
◎ = .005 TIR

BRACE TOOL
TEL (780) 438 - 0441 1-800-438-0061

MATERIAL AS REQ
SCALE NTS SHEET 2 of 2
DWN L.B. DATE 4/27/2016
CHK RD DATE 4/30/2016

TITLE
3" DUAL WIRELINE VALVE
10K HYDRAULIC ACTIVATED B.O.P.
DWG # 13-01-DWL-300-A2 REV 0