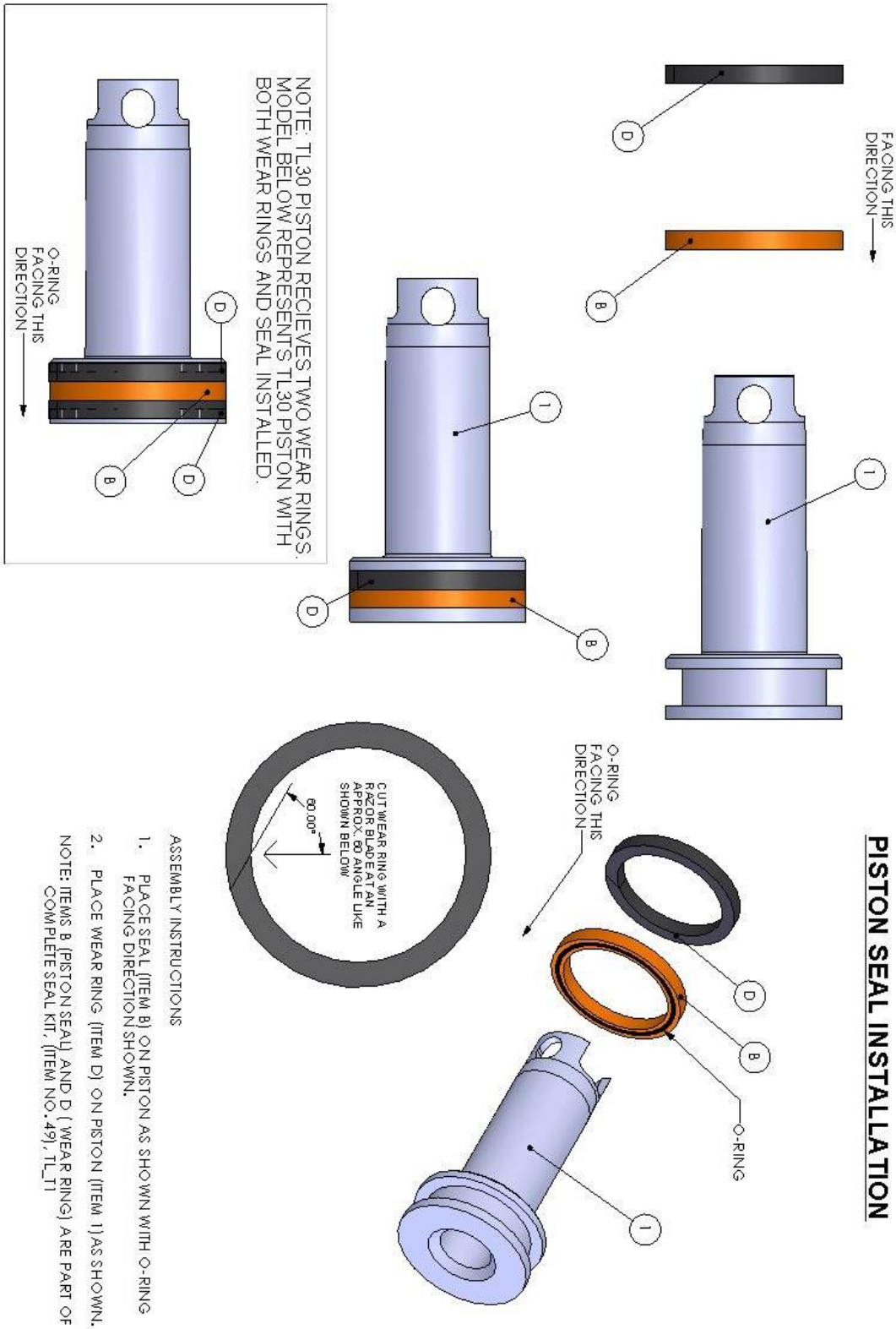
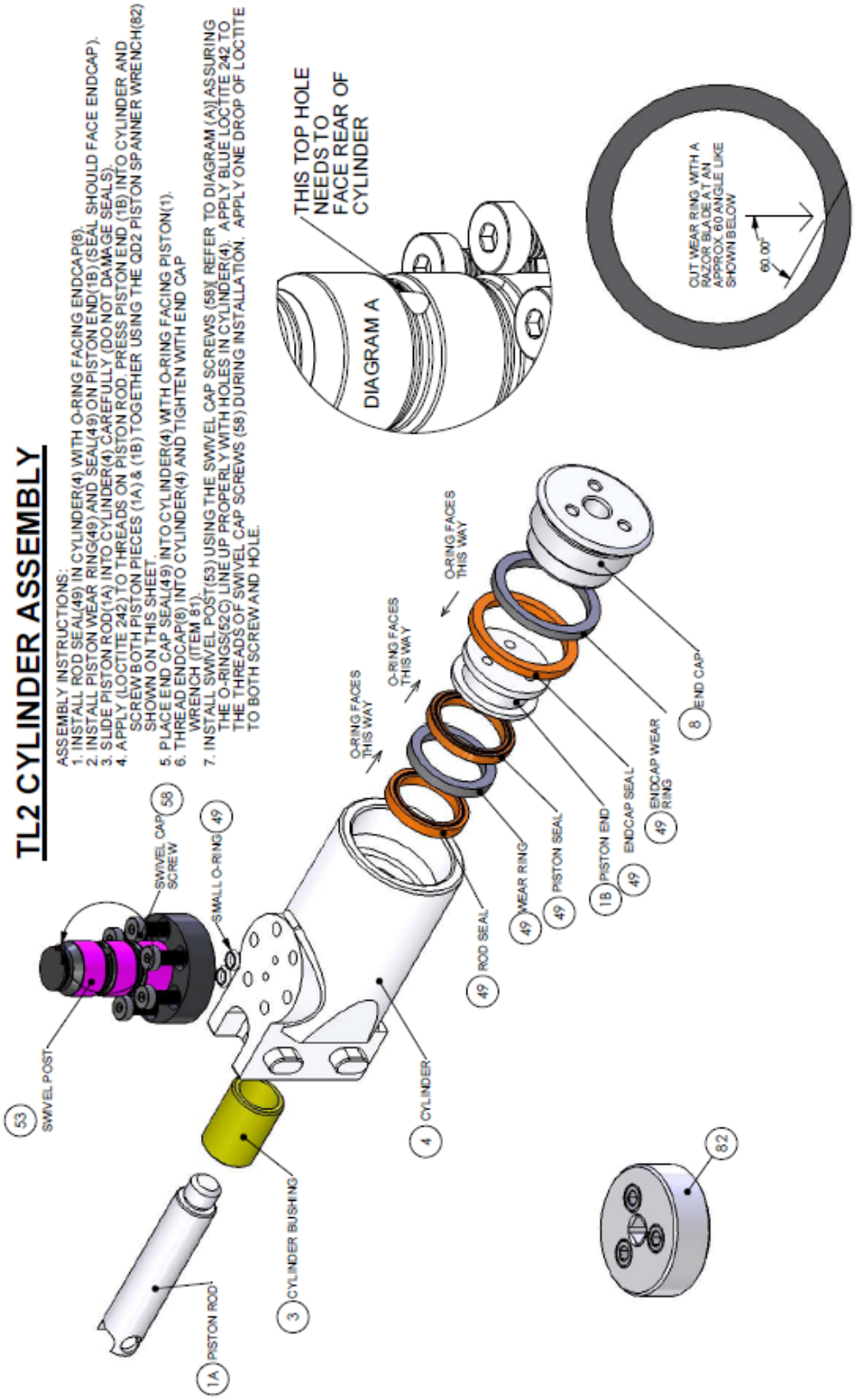
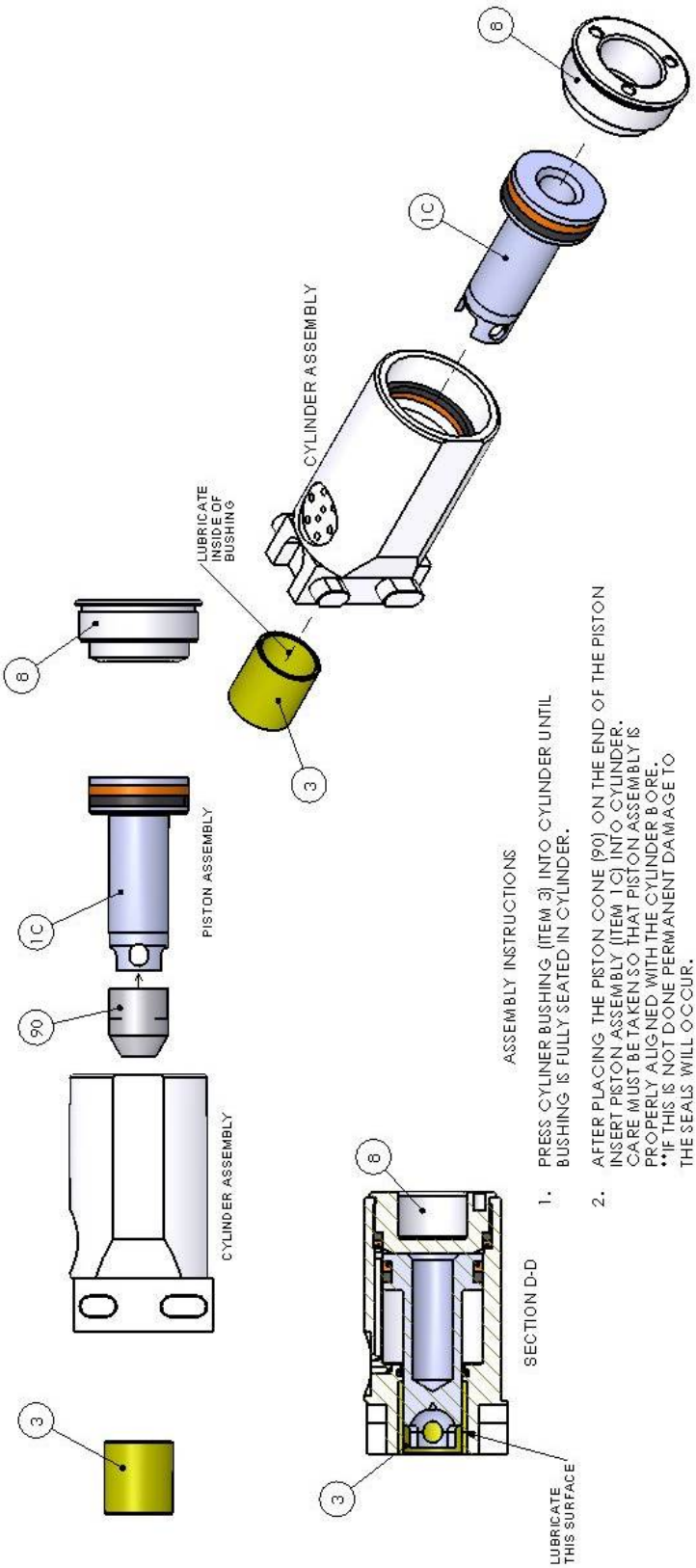

PISTON SEAL INSTALLATION
O-RING FACING THIS DIRECTION
O-RING
D
B
1
CUT WEAR RING WITH A RAZOR BLADE AT AN APPROX. 60 ANGLE LIKE SHOWN BELOW
60.00°
NOTE: TL30 PISTON RECIEVES TWO WEAR RINGS. MODEL BELOW REPRESENTS TL30 PISTON WITH BOTH WEAR RINGS AND SEAL INSTALLED.
ASSEMBLY INSTRUCTIONS
1. PLACE SEAL (ITEM B) ON PISTON AS SHOWN WITH O-RING FACING DIRECTION SHOWN.
2. PLACE WEAR RING (ITEM D) ON PISTON (ITEM 1) AS SHOWN.
NOTE: ITEMS B (PISTON SEAL) AND D (WEAR RING) ARE PART OF COMPLETE SEAL KIT, (ITEM NO. 49), TL_T1


TL2 CYLINDER ASSEMBLY
ASSEMBLY INSTRUCTIONS:
1. INSTALL ROD SEAL(49) IN CYLINDER(4) WITH O-RING FACING ENDCAP(8).
2. INSTALL PISTON WEAR RING(49) AND SEAL(49) ON PISTON END(1B) (SEAL SHOULD FACE ENDCAP).
3. SLIDE PISTON ROD(1A) INTO CYLINDER(4) CAREFULLY (DO NOT DAMAGE SEALS).
4. APPLY (LOCTITE 242) TO THREADS ON PISTON ROD. PRESS PISTON END (1B) INTO CYLINDER AND SCREW BOTH PISTON PIECES (1A) & (1B) TOGETHER USING THE QD2 PISTON SPANNER WRENCH(82) SHOWN ON THIS SHEET.
5. PLACE END CAP SEAL(49) INTO CYLINDER(4) WITH O-RING FACING PISTON(1).
6. THREAD ENDCAP(8) INTO CYLINDER(4) AND TIGHTEN WITH END CAP WRENCH (ITEM 81).
7. INSTALL SWIVEL POST(53) USING THE SWIVEL CAP SCREWS (58)(REFER TO DIAGRAM (A)) ASSURING THE O-RINGS(52C) LINE UP PROPERLY WITH HOLES IN CYLINDER(4). APPLY BLUE LOCTITE 242 TO THE THREADS OF SWIVEL CAP SCREWS (58) DURING INSTALLATION. APPLY ONE DROP OF LOCTITE TO BOTH SCREW AND HOLE.
THIS TOP HOLE NEEDS TO FACE REAR OF CYLINDER
DIAGRAM A
CUT WEAR RING WITH A RAZOR BLADE AT AN APPROX. 60 ANGLE LIKE SHOWN BELOW
60.00°
O-RING FACES THIS WAY
O-RING FACES THIS WAY
O-RING FACES THIS WAY
53 SWIVEL POST
58 SWIVEL CAP SCREW
49 SMALL O-RING
4 CYLINDER
49 ROD SEAL
49 WEAR RING
49 PISTON SEAL
1B PISTON END
49 ENDCAP SEAL
49 ENDCAP WEAR RING
8 END CAP
3 CYLINDER BUSHING
1A PISTON ROD
82

TL 4, 8, 14, 20, 30 CYLINDER ASSEMBLY



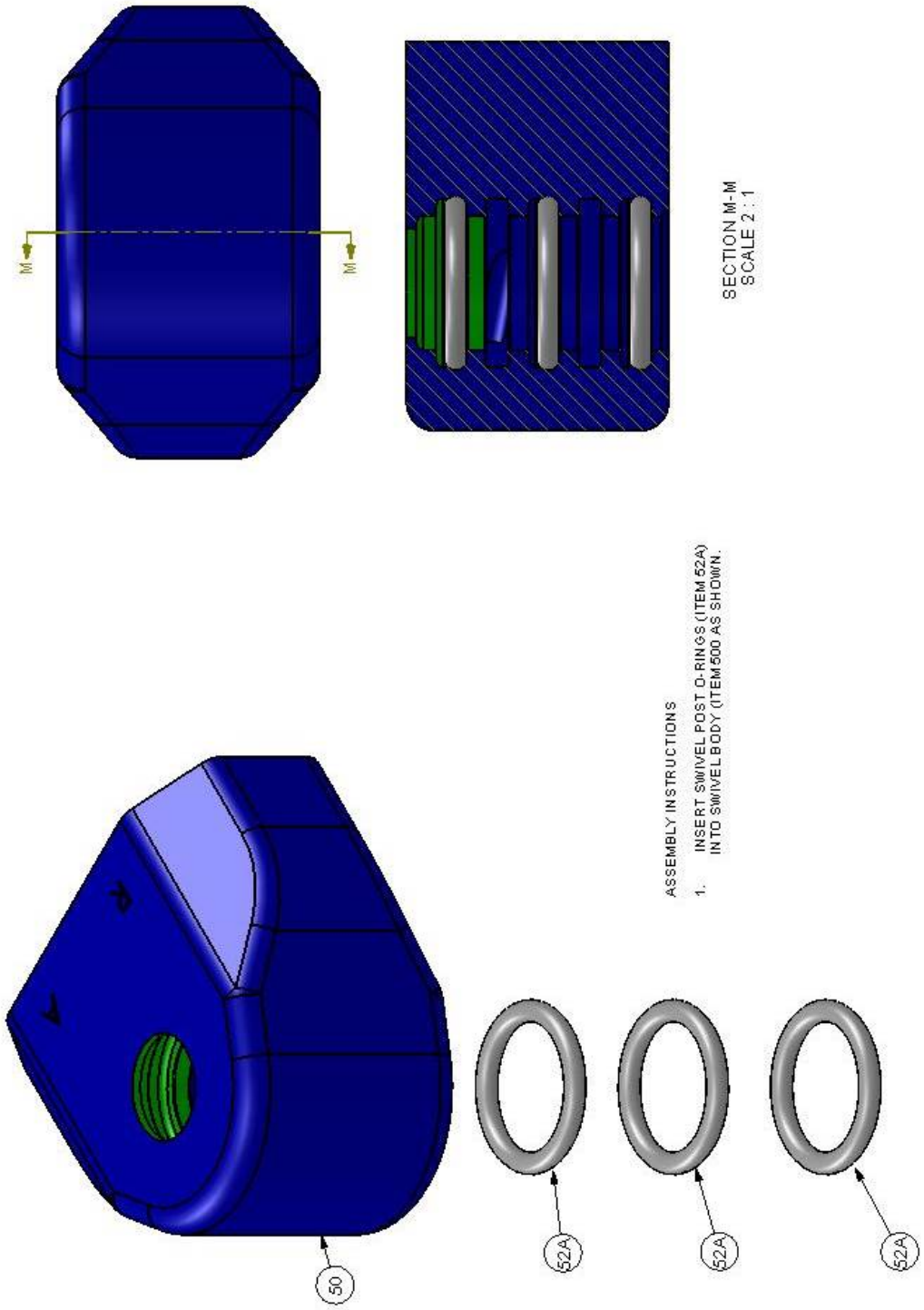
ASSEMBLY INSTRUCTIONS

1. PRESS CYLINER BUSHING (ITEM 3) INTO CYLINDER UNTIL BUSHING IS FULLY SEATED IN CYLINDER.
2. AFTER PLACING THE PISTON CONE (90) ON THE END OF THE PISTON INSERT PISTON ASSEMBLY (ITEM 1C) INTO CYLINDER. CARE MUST BE TAKEN SO THAT PISTON ASSEMBLY IS PROPERLY ALIGNED WITH THE CYLINDER BORE. **IF THIS IS NOT DONE PERMANENT DAMAGE TO THE SEALS WILL OCCUR.

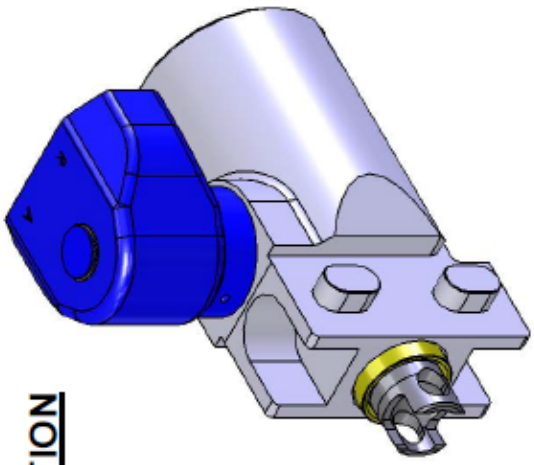
   NOTE 1: PISTON ASSEMBLY MAY NEED PRESSED INTO CYLINDER.

   NOTE 2: THE CYLINDER AND PISTON MUST BE CLEAN FROM ALL DIRT OR FOREIGN MATTER PRIOR TO ASSEMBLY.
3. THREAD CYLINDER END CAP (ITEM 8) INTO CYLINDER THE USE OF A SPANNER WRENCH (ITEM NO. 81) SEE SHEET #13 IS REQURED FOR PROPER TIGHTNESS.

SWIVEL SEAL INSTALLATION

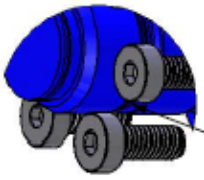


SWIVEL INSTALLATION



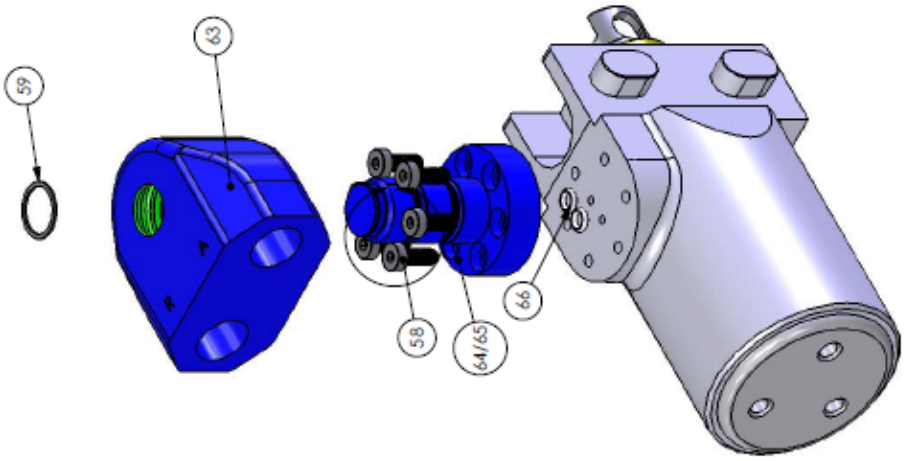
ASSEMBLY INSTRUCTIONS

1. INSERT SMALL ORINGS (ITEM 66) INTO BOTTOM OF SWIVEL POST (ITEM 64/65).
2. ATTACH SWIVEL POST (ITEM 64/65) TO CYLINDER ASSEMBLY WITH THE CAP SCREWS (ITEM 58)ENSURING THAT THE HYDRAULIC PORT HOLES ON THE SWIVEL POST LINE UP WITH THOSE ON THE CYLINDER ASSEMBLY. (USE LOCTITE 242 ON THESE FASTENERS: APPLY ONE DROP TO BOTH THE HOLE AND SCREW) (TIGHTEN TO TORQUE SPEC LOCATED IN THE BACK OF THIS MANUAL.
3. SLIDE SWIVEL BODY (ITEM 63) OVER SWIVEL POST AND ATTACH SWIVEL POST SNAP RING (ITEM 59).



DETAIL J
SCALE 2 : 1

MAKE SURE TOP HOLE FACES REAR OF CYLINDER

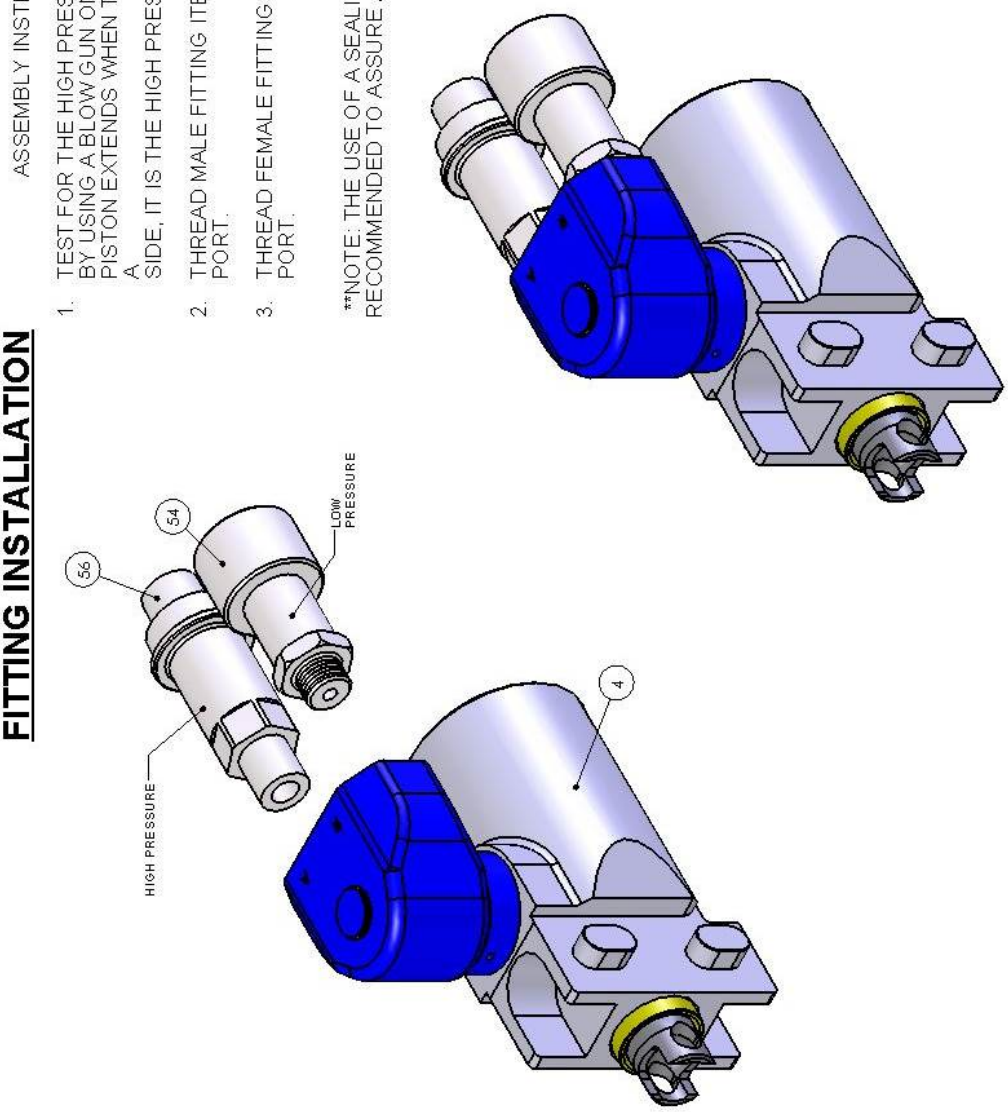


FITTING INSTALLATION

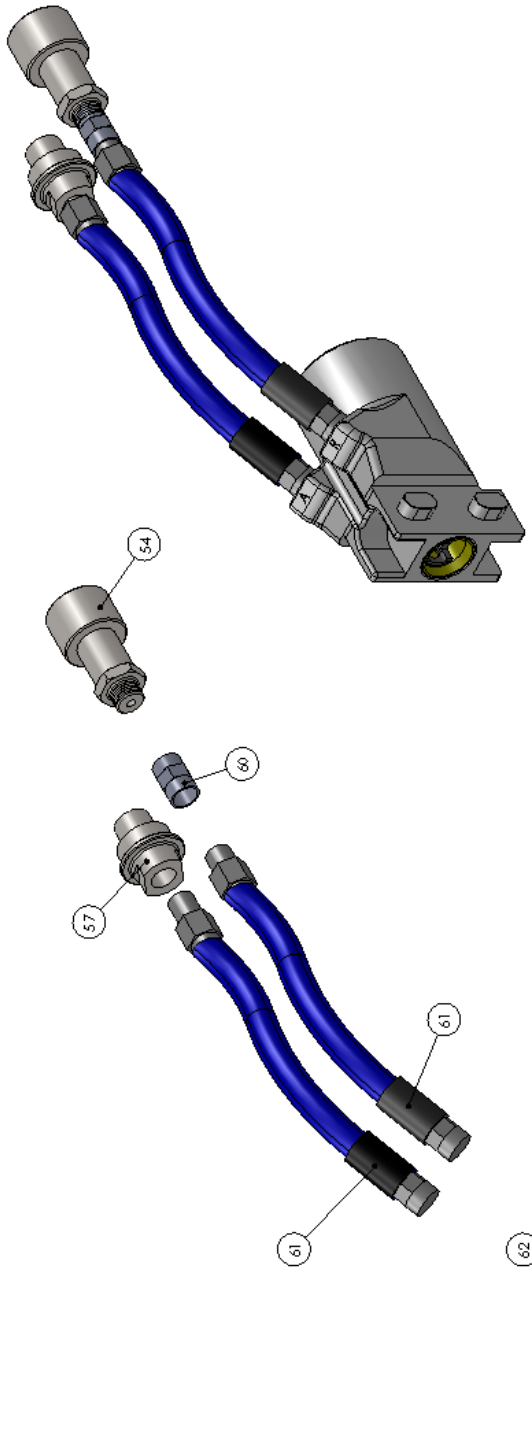
ASSEMBLY INSTRUCTIONS

1. TEST FOR THE HIGH PRESSURE ADVANCE SIDE BY USING A BLOW GUN ON EACH SIDE, IF THE PISTON EXTENDS WHEN THE BLOW GUN IS USED ON A SIDE, IT IS THE HIGH PRESSURE SIDE (ADVANCE).
2. THREAD MALE FITTING ITEM 56 INTO THE ADVANCE PORT.
3. THREAD FEMALE FITTING ITEM 54 INTO THE RETRACT PORT.

**NOTE: THE USE OF A SEALING PIPE TAPE IS RECOMMENDED TO ASSURE A PROPER SEAL.



DIRECT PORT OPTION

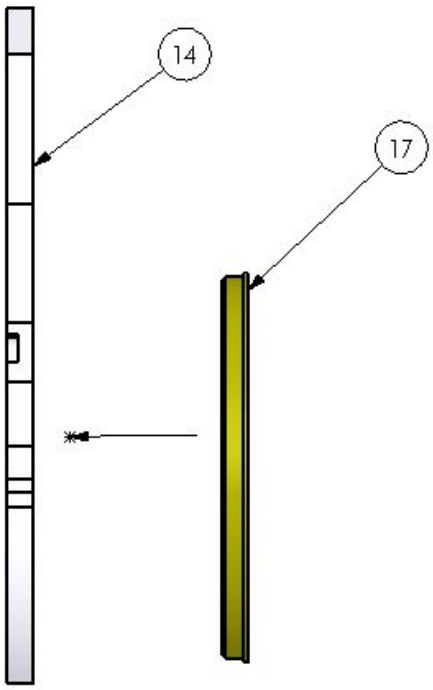


ASSEMBLY INSTRUCTIONS

1. INSTALL FEMALE HYDRAULIC CONNECTOR (ITEM 54) INTO (ITEM 60) (RETRACT)
2. INSTALL ASSEMBLED ITEMS (54 / 60) ONTO WHIP HOSE (ITEM 61)
3. INSTALL MALE HYDRAULIC CONNECTOR (ITEM 56) INTO OTHER WHIP HOSE (ITEM 61) (ADVANCE)
4. INSTALL BOTH WHIP HOSE ASSEMBLIES INTO CYLINDER INTO PROPER ADVANCE / RETRACT
5. USE SEALING PIPE TAPE FOR ALL HYDRAULIC CONNECTIONS TO ENSURE A PROPER SEAL.
6. TEST CYLINDER ASSEMBLY FOR PROPER OPERATING DIRECTION.

TL4-CYL-SXS-DP-WHIP HOSE ASSEMBLY

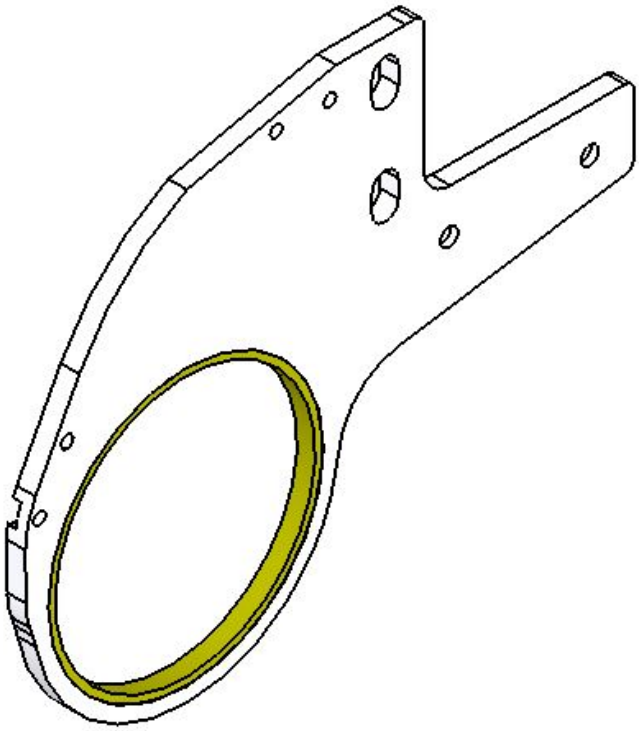
HOUSING BUSHING INSTALLATION



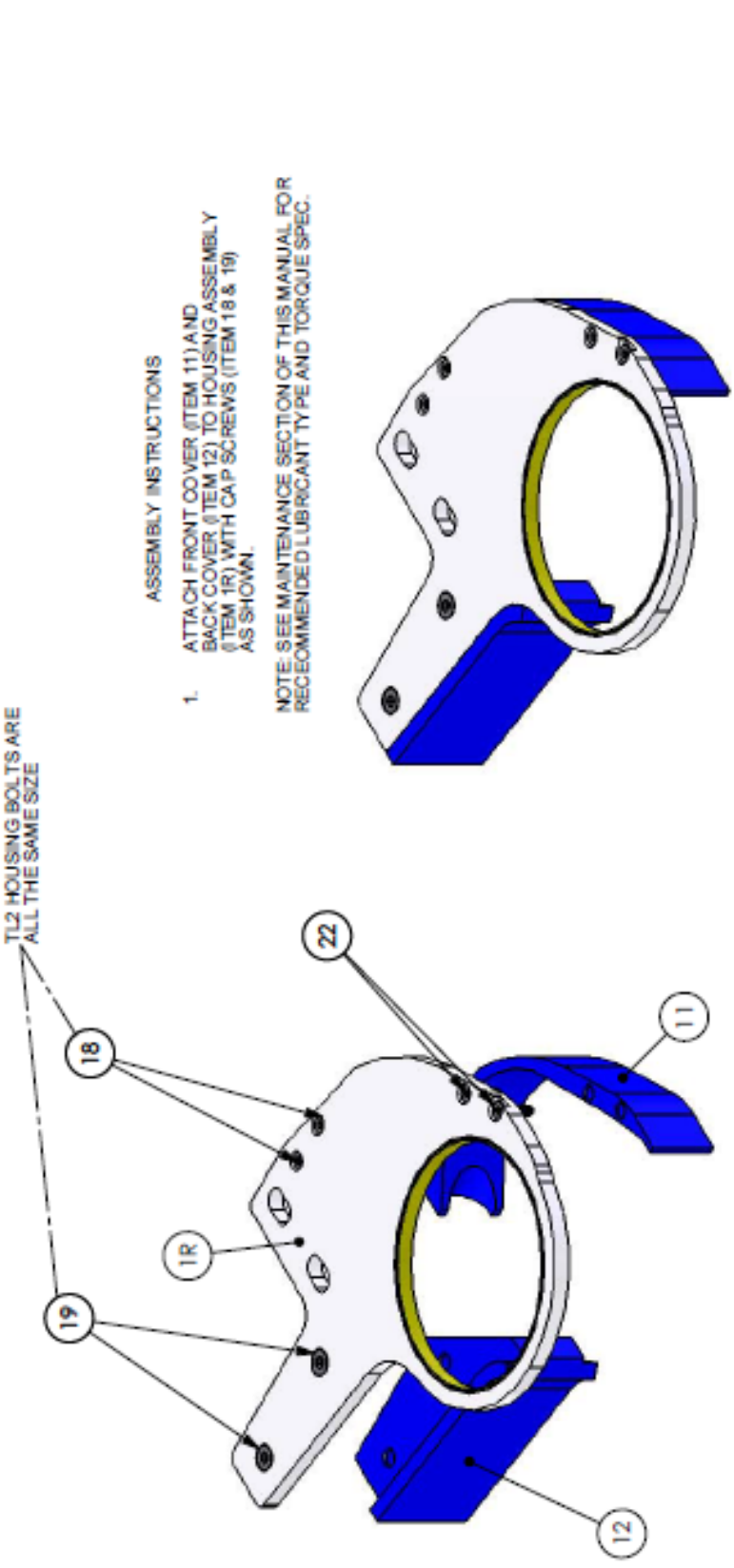
ASSEMBLY INSTRUCTIONS

1. INSERT HOUSING BUSHINGS (ITEM 17) INTO HOUSING (ITEM 14 SHOWN, ITEM 15 OPPOSITE) AS SHOWN IN THE DIAGRAM.

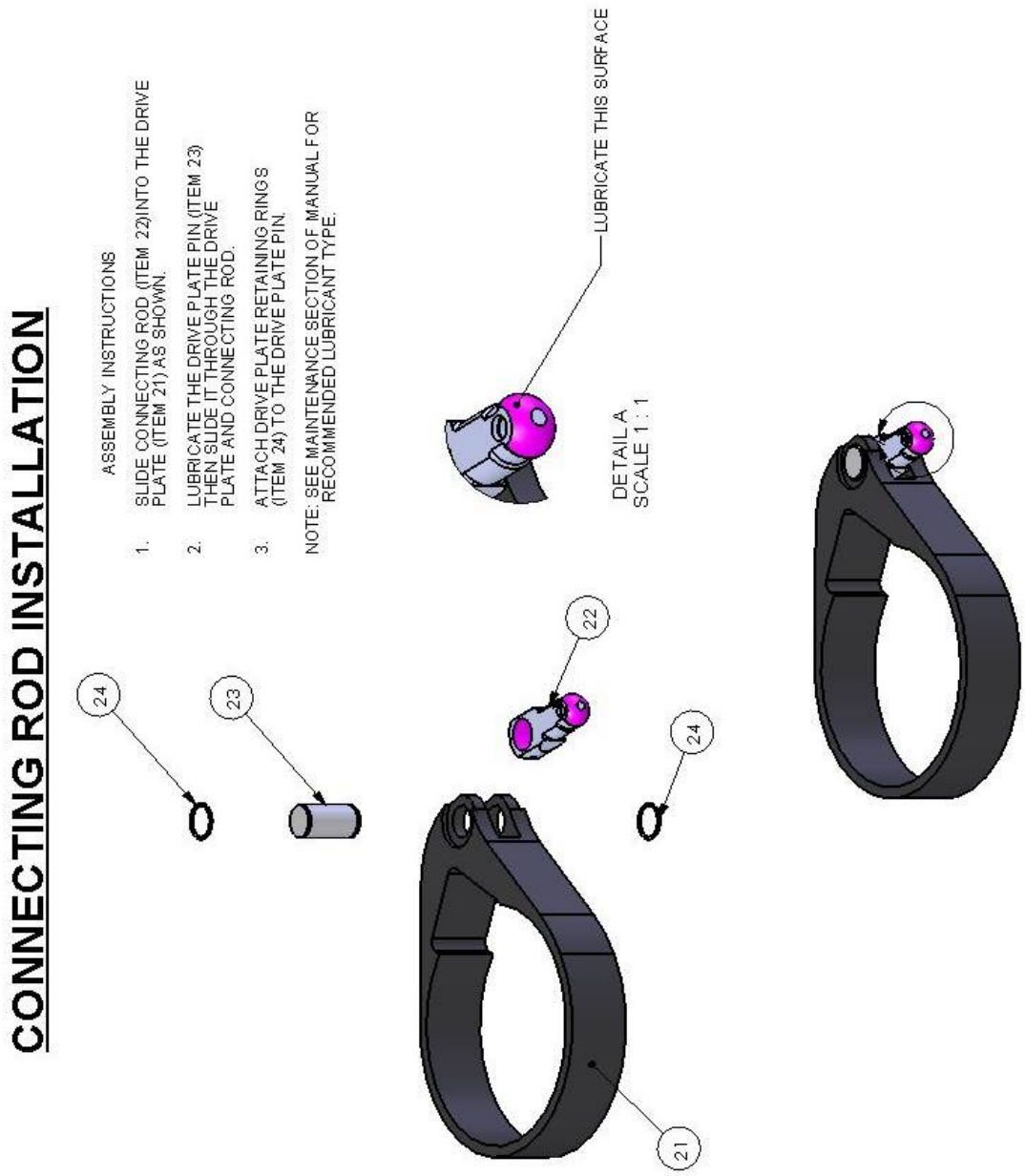
**NOTE: HOUSING BUSHING MUST BE FULLY SEATED IN THE HOUSING.



HOUSING SPACER AND REACTION BLOCK INSTALLATION



CONNECTING ROD INSTALLATION



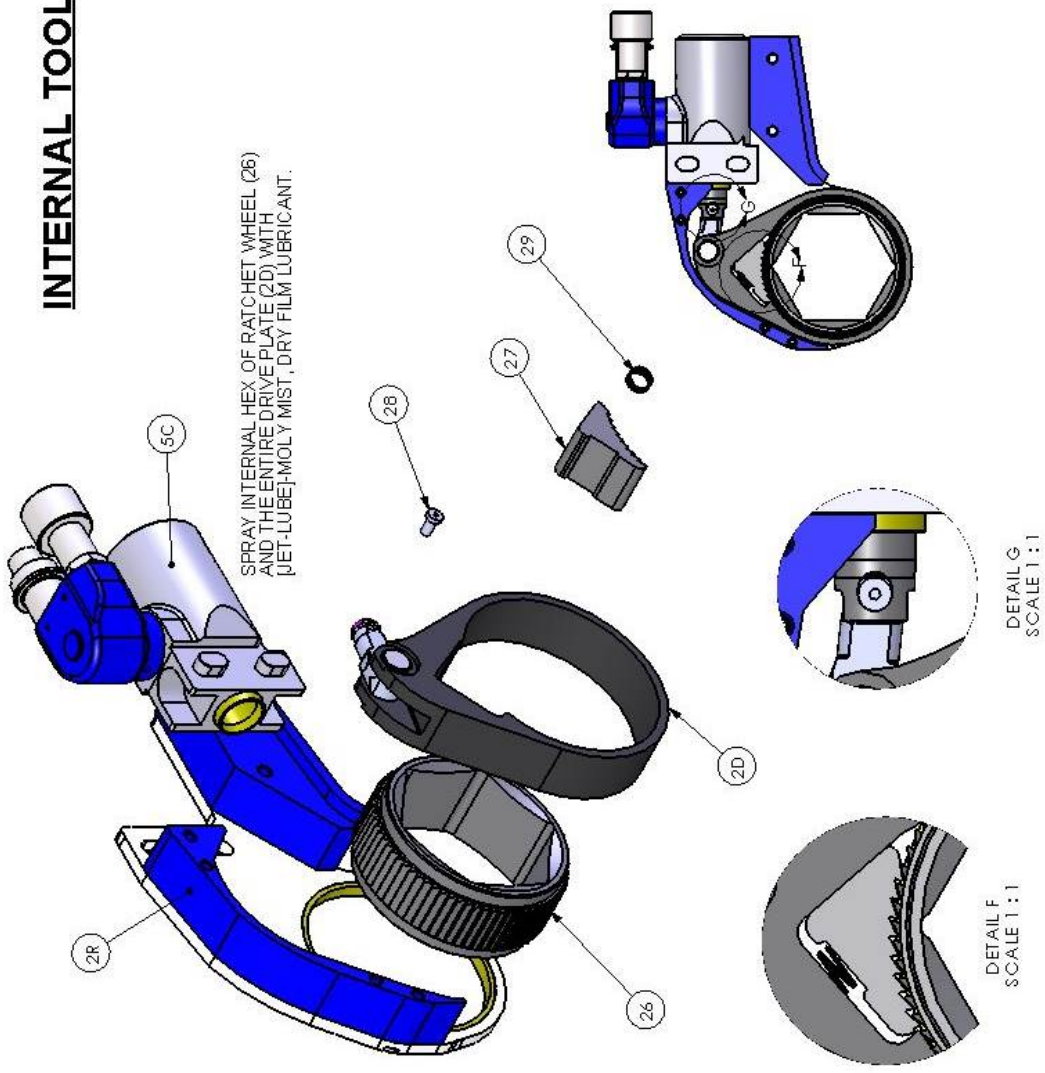
INTERNAL TOOL INSTALLATION

ASSEMBLY INSTRUCTIONS

1. LUBRICATE AROUND THE INSIDE DIAMETER OF THE HOUSING BUSHING AS WELL AS THE INSIDE SURFACE OF THE HOUSING THAT WILL CONTACT THE DRIVE PLATE. ALSO LUBRICATE THE SLOT IN THE DRIVE PLATE THAT THE PAWL RIDES AGAINST.
2. INSERT THE RACHET W/HEEL (ITEM 26) INTO HOUSING ASSEMBLY 2R AS SHOWN.
3. PLACE DRIVE PLATE ASSEMBLY 2D OVER OVER RACHET W/HEEL AS SHOWN.
4. INSERT PAWL (ITEM 27) INTO DRIVE PLATE SLOT AS SHOWN, ENSURE RACHET W/HEEL AND PAWL TEETH ARE ALIGNED AS SHOWN IN DETAIL A.
5. INSERT PAWL SPRING (ITEM 29) AS SHOWN IN DETAIL A.
6. INSERT CYLINDER ASSEMBLY 5C AS SHOWN AND ATTACH TO DRIVE PLATE ASSEMBLY 2D VIA PULL BACK BOLT (ITEM 28) AS SHOWN IN DETAIL B. ENSURE PULL BACK BOLT IS COMPLETELY SEATED WITHIN THE SLOT IN THE PISTON.

NOTE: SEE THE MAINTENANCE SECTION OF THIS MANUAL FOR RECOMMENDED LUBRICANT TYPE.

SPRAY INTERNAL HEX OF RATCHET WHEEL (26) AND THE ENTIRE DRIVE PLATE (2D) WITH [JET-LUBE]-MOLY MIST, DRY FILM LUBRICANT.

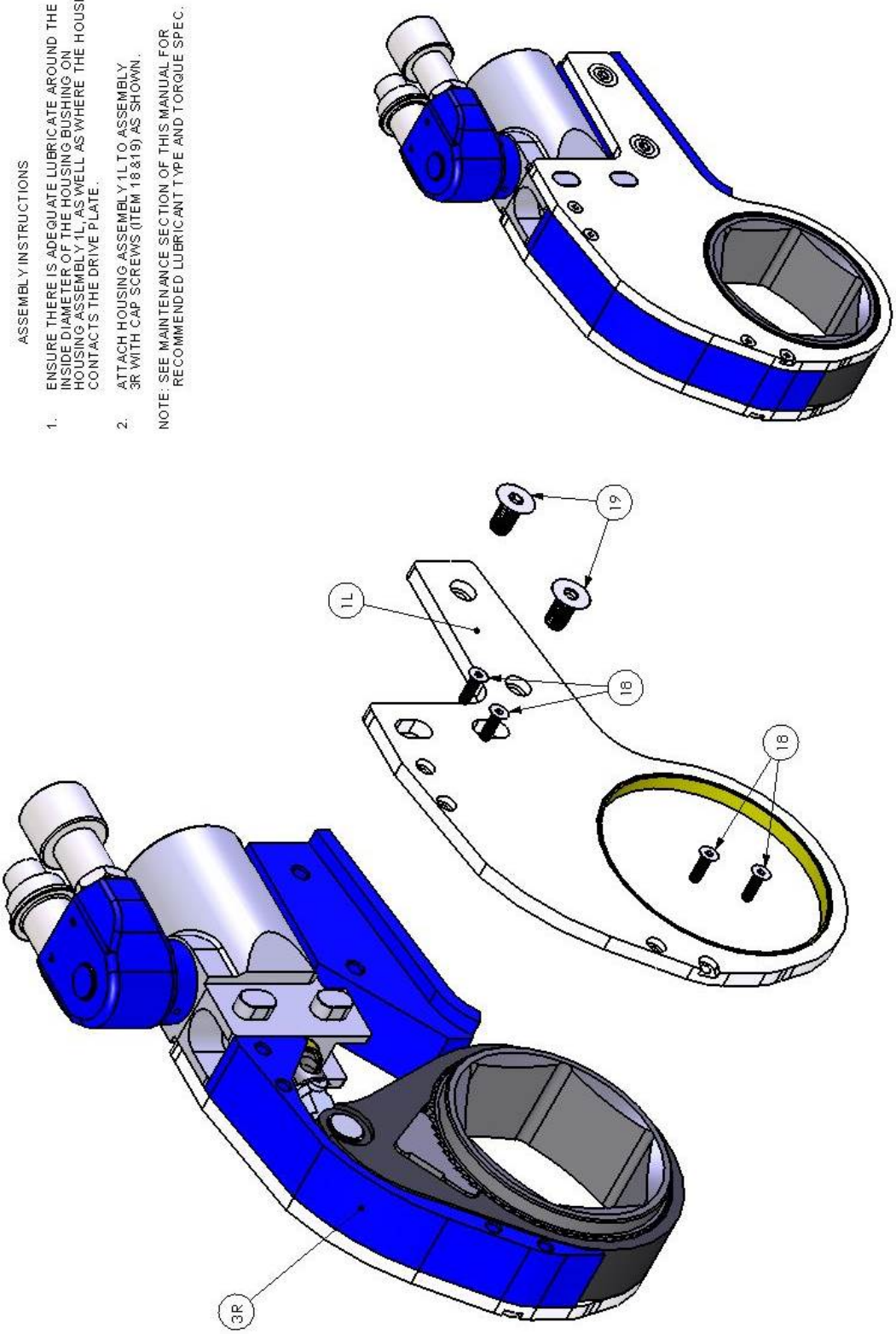


HOUSING PLATE INSTALLATION

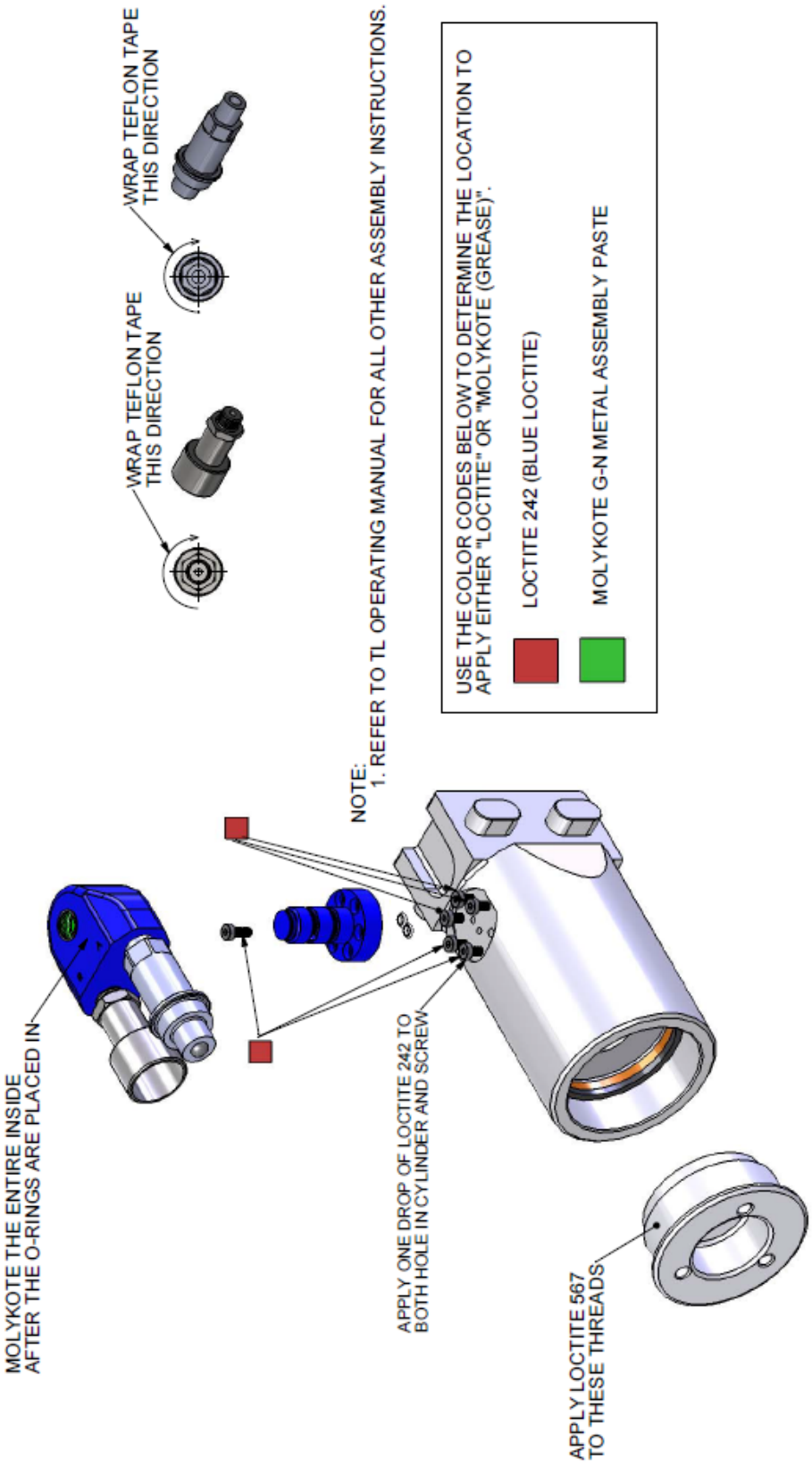
ASSEMBLY INSTRUCTIONS

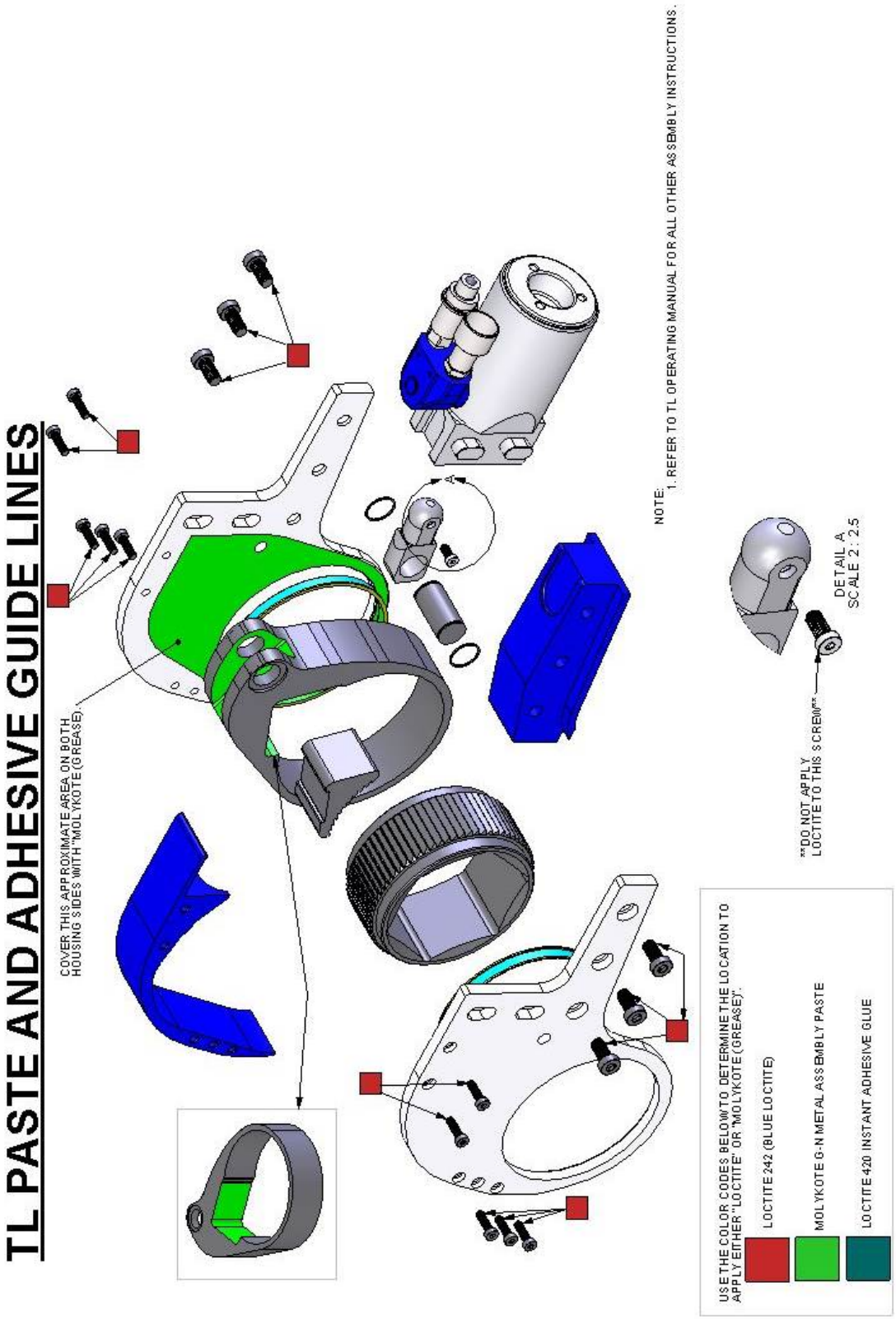
1. ENSURE THERE IS ADEQUATE LUBRICATE AROUND THE INSIDE DIAMETER OF THE HOUSING BUSHING ON HOUSING ASSEMBLY 1L, AS WELL AS WHERE THE HOUSING CONTACTS THE DRIVE PLATE.
2. ATTACH HOUSING ASSEMBLY 1L TO ASSEMBLY 3R WITH CAP SCREWS (ITEM 18 &19) AS SHOWN.

NOTE: SEE MAINTENANCE SECTION OF THIS MANUAL FOR RECOMMENDED LUBRICANT TYPE AND TORQUE SPEC.



TL PASTE AND ADHESIVE GUIDE LINES




TL PASTE AND ADHESIVE GUIDE LINES
COVER THIS APPROXIMATE AREA ON BOTH HOUSING SIDES WITH "MOLYKOTE (GREASE).
NOTE:
1. REFER TO TL OPERATING MANUAL FOR ALL OTHER ASSEMBLY INSTRUCTIONS.
DETAIL A
SCALE 2 : 2.5
DO NOT APPLY LOCTITE TO THIS SCREW
USE THE COLOR CODES BELOW TO DETERMINE THE LOCATION TO APPLY EITHER "LOCTITE" OR "MOLYKOTE (GREASE)".
LOCTITE 242 (BLUE LOCTITE)
MOLYKOTE G-N METAL ASSEMBLY PASTE
LOCTITE 420 INSTANT ADHESIVE GLUE

TL BUSHING PASTE AND ADHESIVE GUIDELINES

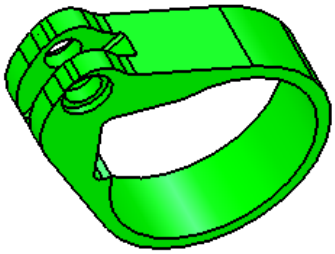
STEP 1: APPLY LOCTITE 420 INSTANT ADHESIVE GLUE

DURING HOUSING ASSEMBLY:

STEP 2: INSERT INTO HOUSING

MOLYMIST GUIDELINES

BEFORE ASSEMBLY

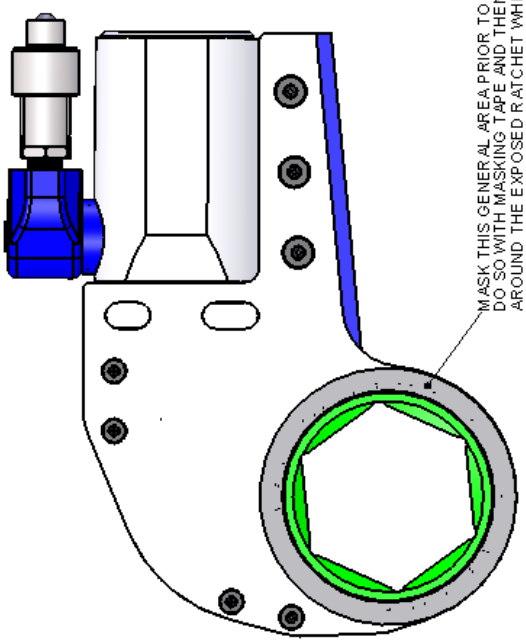


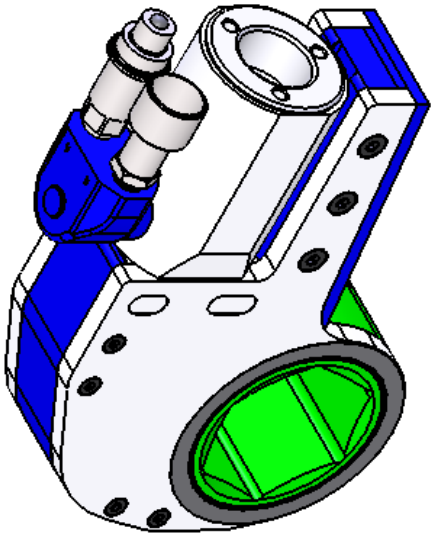
COLOR CODE

: MASK GENERAL AREA SHOWN IN GRAY

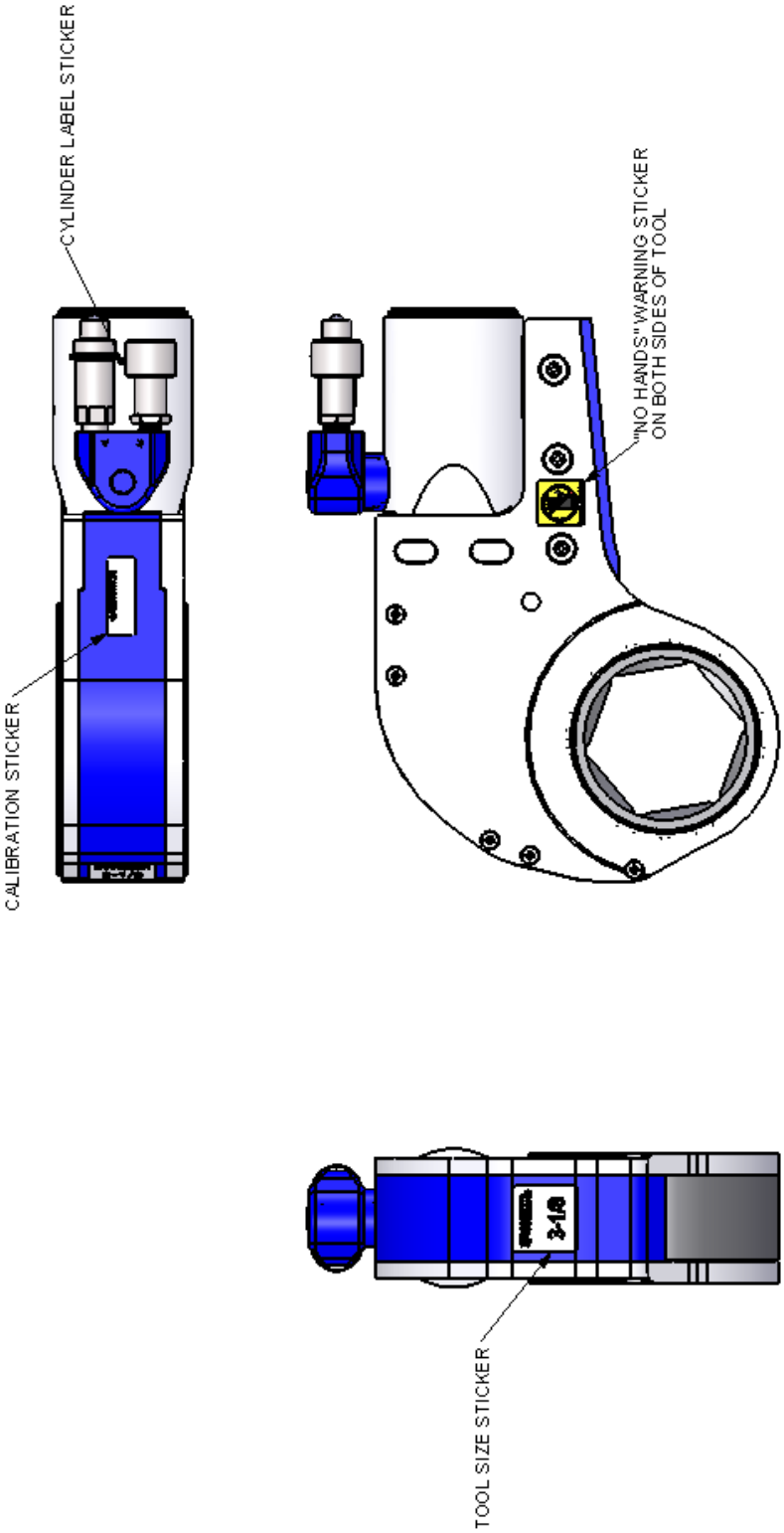
: APPLY MOLYMIST TO GREEN AREAS SHOWN

AFTER ASSEMBLY





TL STICKER LOCATIONS



NOTE:
1. BEFORE PLACING STICKERS ON THE SURFACE, CLEAN THE SURFACE WITH BRAKE CLEANER AND THEN WIPE WITH A CLEAN RAG.

RATCHET NOT SUPPLIED
BY BOLTTECH-MANNINGS
NEW END CAP SPANNER WRENCH
(81)
91
83

TL2 CYLINDER PARTS LIST			
ITEM #	PART NAME	PART #	QUANTITY
1A	PISTON ROD	TL202BE-1	1
1B	PISTON END	QD202BE2	1
4	CYLINDER	TL201	1
8	CYLINDER END CAP	TL205	1
3	CYLINDER BUSHING	TL206	1
49	COMPLETE SEAL KIT	TL2_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL2-T01	1
82	PISTON WRENCH	QD2-T03	1
91	END CAP SPANNER SCREW	91251A242	3
	HYDRAULIC CONNECTORS		
56	MALE QUICK CONNECT	SW06N	1
54	FEMALE QUICK CONNECT	SW05N	1
63	SWIVEL BODY	SWS3	1
64	SWIVEL POST	SWS10-S	1
58	SWIVEL POST CAP SCREWS	M4X10MMLHCSN	6
59	SWIVEL POST RETAINING RING	WS-50N	1
	SWIVEL SEAL KIT	SWS-1-SK	1

TL2 CYLINDER DIRECT PORT PARTS LIST			
ITEM #	PART NAME	PART #	QUANTITY
1A	PISTON ROD	TL202BE-1	1
1B	PISTON END	QD202BE2	1
62	CYLINDER DIRECT PORT	TL201-DP	1
8	CYLINDER END CAP	TL205	1
3	CYLINDER BUSHING	TL206	1
49	COMPLETE SEAL KIT	TL2_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL2-T01	1
82	PISTON WRENCH	QD2-T03	1
91	END CAP SPANNER SCREW	91251A242	3
	HYDRAULIC CONNECTORS DIRECT PORT OPTION		
57	MALE QUICK CONNECT	SW04N	1
60	1/4 X 1/4 NIPPLE	FZ-1605	1
54	FEMALE QUICK CONNECT	SW05N	1
61	10K PSI WHIP HOSE	WH-BLUE	2

TL4 CYLINDER PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	TL402BEN	1
4	CYLINDER	TL401	1
8	CYLINDER END CAP	TL405	1
3	CYLINDER BUSHING	TL406	1
49	COMPLETE SEAL KIT	TL4_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL4-T01	1
90	PISTON CONE TOOL	QD4-T04	1
91	END CAP SPANNER SCREW	91251A537	3
	HYDRAULIC CONNECTORS		
56	MALE QUICK CONNECT	SW06N	1
54	FEMALE QUICK CONNECT	SW05N	1
63	SWIVEL BODY	SWS3	1
64	SWIVEL POST	SWS10-S	1
58	SWIVEL POST CAP SCREWS	M4X10MMLHCSN	6
59	SWIVEL POST RETAINING RING	WS-50N	1
	SWIVEL SEAL KIT	SWS-1-SK	1

TL4 CYLINDER DIRECT PORT PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	TL402BEN	1
62	CYLINDER DIRECT PORT	TL401-DP	1
8	CYLINDER END CAP	TL405	1
3	CYLINDER BUSHING	TL406	1
49	COMPLETE SEAL KIT	TL4_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL4-T01	1
90	PISTON CONE TOOL	QD4-T04	1
91	END CAP SPANNER SCREW	91251A537	3
	HYDRAULIC CONNECTORS DIRECT PORT OPTION		
57	MALE QUICK CONNECT	SW04N	1
60	1/4 X 1/4 NIPPLE	FZ-1605	1
54	FEMALE QUICK CONNECT	SW05N	1
61	10K PSI WHIP HOSE	WH-BLUE	2

TL8 CYLINDER PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	TL802BEN	1
4	CYLINDER	TL801	1
8	CYLINDER END CAP	TL805	1
3	CYLINDER BUSHING	TL806	1
49	COMPLETE SEAL KIT	TL8_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL8-T01	1
90	PISTON CONE TOOL	QD8-T04	1
91	END CAP SPANNER SCREW	91251A621	3
	HYDRAULIC CONNECTORS		
56	MALE QUICK CONNECT	SW06N	1
54	FEMALE QUICK CONNECT	SW05N	1
63	SWIVEL BODY	SWS3	1
64	SWIVEL POST	SWS10-S	1
58	SWIVEL POST CAP SCREWS	M4X10MMLHCSN	6
59	SWIVEL POST RETAINING RING	WS-50N	1
	SWIVEL SEAL KIT	SWS-1-SK	1

TL8 CYLINDER DIRECT PORT PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	TL802BEN	1
62	CYLINDER DIRECT PORT	TL801-DP	1
8	CYLINDER END CAP	TL805	1
3	CYLINDER BUSHING	TL806	1
49	COMPLETE SEAL KIT	TL8_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL8-T01	1
90	PISTON CONE TOOL	QD8-T04	1
91	END CAP SPANNER SCREW	91251A621	3
	HYDRAULIC CONNECTORS DIRECT PORT OPTION		
57	MALE QUICK CONNECT	SW04N	1
60	1/4 X 1/4 NIPPLE	FZ-1605	1
54	FEMALE QUICK CONNECT	SW05N	1
61	10K PSI WHIP HOSE	WH-BLUE	2

TL14 CYLINDER PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	QD1403E	1
4	CYLINDER	TL1401	1
8	CYLINDER END CAP	TL1405	1
3	CYLINDER BUSHING	TL1406	1
49	COMPLETE SEAL KIT	TL14_SEAL_KIT	
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL14-T01	1
90	PISTION CONE TOOL	QD14-T04	1
91	END CAP SPANNER SCREW	91251A621	3
	HYDRAULIC CONNECTORS		
56	MALE QUICK CONNECT	SW06N	1
54	FEMALE QUICK CONNECT	SW05N	1
63	SWIVEL BODY	SWS3	1
64	SWIVEL POST	SWS10-L	1
58	SWIVEL POST CAP SCREWS	M4X10MMLHCSN	6
59	SWIVEL POST RETAINING RING	WS-50N	1
	SWIVEL SEAL KIT	SWS-1-SK	1

TL14 CYLINDER DIRECT PORT PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	QD1403E	1
62	CYLINDER DIRECT PORT	TL1401-DP	1
8	CYLINDER END CAP	TL1405	1
3	CYLINDER BUSHING	TL1406	1
49	COMPLETE SEAL KIT	TL14_SEAL_KIT	
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL14-T01	1
90	PISTION CONE TOOL	QD14-T04	1
91	END CAP SPANNER SCREW	91251A621	3
	HYDRAULIC CONNECTORS DIRECT PORT OPTION		
57	MALE QUICK CONNECT	SW04N	1
60	1/4 X 1/4 NIPPLE	FZ-1605	1
54	FEMALE QUICK CONNECT	SW05N	1
61	10K PSI WHIP HOSE	WH-BLUE	2

TL20 CYLINDER PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	QD2001E	1
4	CYLINDER	TL2001	1
8	CYLINDER END CAP	TL2005	1
3	CYLINDER BUSHING	TL2006	1
49	COMPLETE SEAL KIT	TL20_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL20-T01	1
90	PISTON CONE TOOL	QD20-T04	1
91	END CAP SPANNER SCREW	91251A621	3
	HYDRAULIC CONNECTORS		
56	MALE QUICK CONNECT	SW06N	1
54	FEMALE QUICK CONNECT	SW05N	1
63	SWIVEL BODY	SWS3	1
64	SWIVEL POST	SWS10-L	1
58	SWIVEL POST CAP SCREWS	M4X10MMLHCSN	6
59	SWIVEL POST RETAINING RING	WS-50N	1
	SWIVEL SEAL KIT	SWS-1-SK	1

TL20 CYLINDER DIRECT PORT PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	QD2001E	1
62	CYLINDER DIRECT PORT	TL2001-DP	1
8	CYLINDER END CAP	TL2005	1
3	CYLINDER BUSHING	TL2006	1
49	COMPLETE SEAL KIT	TL20_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL20-T01	1
90	PISTON CONE TOOL	QD20-T04	1
91	END CAP SPANNER SCREW	91251A621	3
	HYDRAULIC CONNECTORS DIRECT PORT OPTION		
57	MALE QUICK CONNECT	SW04N	1
60	1/4 X 1/4 NIPPLE	FZ-1605	1
54	FEMALE QUICK CONNECT	SW05N	1
61	10K PSI WHIP HOSE	WH-BLUE	2

TL30 CYLINDER PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	QD3001E	1
4	CYLINDER	TL3001	1
8	CYLINDER END CAP	TL3005	1
3	CYLINDER BUSHING	TL3006	1
49	COMPLETE SEAL KIT	TL30_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL30-T01	1
90	PISTION CONE TOOL	QD30-T04	1
91	END CAP SPANNER SCREW	91251A794	3
	HYDRAULIC CONNECTORS		
56	MALE QUICK CONNECT	SW06N	1
54	FEMALE QUICK CONNECT	SW05N	1
63	SWIVEL BODY	SWS3	1
64	SWIVEL POST	SWS10-L	1
58	SWIVEL POST CAP SCREWS	M4X10MMLHCSN	6
59	SWIVEL POST RETAINING RING	WS-50N	1
	SWIVEL SEAL KIT	SWS-1-SK	1

TL30 CYLINDER DIRECT PORT PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
1	PISTON	QD3001E	1
62	CYLINDER DIRECT PORT	TL3001-DP	1
8	CYLINDER END CAP	TL3005	1
3	CYLINDER BUSHING	TL3006	1
49	COMPLETE SEAL KIT	TL30_SEAL_KIT	1
	TOOL KIT		
81	CYLINDER END CAP WRENCH	TL30-T01	1
90	PISTION CONE TOOL	QD30-T04	1
91	END CAP SPANNER SCREW	91251A794	3
	HYDRAULIC CONNECTORS DIRECT PORT OPTION		
57	MALE QUICK CONNECT	SW04N	1
60	1/4 X 1/4 NIPPLE	FZ-1605	1
54	FEMALE QUICK CONNECT	SW05N	1
61	10K PSI WHIP HOSE	WH-BLUE	2

TL2 1-1/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-10625	1
15	LEFT HOUSING	TL2-001L-10625	1
21	DRIVE PLATE	QD2-002-10625	1
11	HOUSING SPACER	TL2-012-10625	1
12	REACTION BLOCK **	TL2-013-10625 **	1
26	RACHET WHEEL	QD2-003-10625	1
27	PAWL	QD2-004-10625	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-10625	2
18	HOUSING BOLTS	M4X10MMLHCSN	14
29	PAWL SPRING	CO37-M2-S17	1

TL2 1-1/4" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-1250	1
15	LEFT HOUSING	TL2-001L-1250	1
21	DRIVE PLATE	QD2-002-1250	1
11	HOUSING SPACER	TL2-012-1250	1
12	REACTION BLOCK **	TL2-013-1250 **	1
26	RACHET WHEEL	QD2-003-1250	1
27	PAWL	QD2-004-1250	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-1250	2
18	HOUSING BOLTS	M4X10MMLHCSN	12
29	PAWL SPRING	CO37-M2-S17	1

TL2 1-7/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-14375	1
15	LEFT HOUSING	TL2-001L-14375	1
21	DRIVE PLATE	QD2-002-1438	1
11	HOUSING SPACER	TL2-012-14375	1
12	REACTION BLOCK **	TL2-013-14375	1
26	RACHET WHEEL	QD2-003-1438	1
27	PAWL	QD2-004-1438	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-1438	2
18	HOUSING BOLTS	M4X10MMLHCSN	12
29	PAWL SPRING	CO37-M2-S17	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL2 1-5/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-1625	1
15	LEFT HOUSING	TL2-001L-1625	1
21	DRIVE PLATE	QD2-002-1625	1
11	HOUSING SPACER	TL2-012-1625	1
12	REACTION BLOCK **	TL2-013-1625 **	1
26	RACHET WHEEL	QD2-003-1625	1
27	PAWL	QD2-004-1625	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-1625	2
18	HOUSING BOLTS	M4X10MMLHCSN	12
29	PAWL SPRING	CO37-M2-S17	1

TL2 1-13/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-18125	1
15	LEFT HOUSING	TL2-001L-18125	1
21	DRIVE PLATE	QD2-002-1813	1
11	HOUSING SPACER	TL2-012-18125	1
12	REACTION BLOCK **	TL2-013-18125 **	1
26	RACHET WHEEL	QD2-003-1813	1
27	PAWL	QD2-004-1813	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-1813	2
18	HOUSING BOLTS	M4X10MMLHCSN	14
29	PAWL SPRING	CO37-M2-S17	1

TL2 2" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-2000	1
15	LEFT HOUSING	TL2-001L-2000	1
21	DRIVE PLATE	QD2-002-2000	1
11	HOUSING SPACER	TL2-012-2000	1
12	REACTION BLOCK **	TL2-013-2000 **	1
26	RACHET WHEEL	QD2-003-2000	1
27	PAWL	QD2-004-2000	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-2000	2
18	HOUSING BOLTS	M4X10MMLHCSN	14
29	PAWL SPRING	CO37-M2-S17	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL2 2-3/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-21875	1
15	LEFT HOUSING	TL2-001L-21875	1
21	DRIVE PLATE	QD2-002-2188	1
11	HOUSING SPACER	TL2-012-21875	1
12	REACTION BLOCK **	TL2-013-21875 **	1
26	RACHET WHEEL	QD2-003-2188	1
27	PAWL	QD2-004-2188	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-2188	2
18	HOUSING BOLTS	M4X10MMLHCSN	14
29	PAWL SPRING	CO37-M2-S17	1

TL2 2-3/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL2-001R-2375	1
15	LEFT HOUSING	TL2-001L-2375	1
21	DRIVE PLATE	QD2-002-2375	1
11	HOUSING SPACER	TL2-012-2375	1
12	REACTION BLOCK **	TL2-013-2375 **	1
26	RACHET WHEEL	QD2-003-2375	1
27	PAWL	QD2-004-2375	1
23	DRIVE PLATE PIN	QD206E	1
24	DRIVE PLATE PIN RETAINING RING	5100-37N	2
22	CONNECTING ROD	QD2CR	1
28	CONNECTING ROD BOLT	TL202BE-3	1
17	HOUSING BUSHING	QD2-007-2375	2
18	HOUSING BOLTS	M4X10MMLHCSN	14
29	PAWL SPRING	CO37-M2-S17	1

TL4 1-5/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-1625	1
15	LEFT HOUSING	TL4-001L-1626	1
21	DRIVE PLATE	QD4-002-1625	1
11	HOUSING SPACER	TL4-012-1625	1
12	REACTION BLOCK **	TL4-013-1625 **	1
26	RACHET WHEEL	QD4-003-1625	1
27	PAWL	QD4-004-1625	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-1625	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL4 1-13/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-18125	1
15	LEFT HOUSING	TL4-001L-18125	1
21	DRIVE PLATE	QD4-002-1813	1
11	HOUSING SPACER	TL4-012-18125	1
12	REACTION BLOCK **	TL4-013-18125 **	1
26	RACHET WHEEL	QD4-003-1813	1
27	PAWL	QD4-004-1813	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-1813	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

TL4 2" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-2000	1
15	LEFT HOUSING	TL4-001L-2000	1
21	DRIVE PLATE	QD4-002-2000	1
11	HOUSING SPACER	TL4-012-2000	1
12	REACTION BLOCK **	TL4-013-2000 **	1
26	RACHET WHEEL	QD4-003-2000	1
27	PAWL	QD4-004-2000	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-2000	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

TL4 2-3/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-21875	1
15	LEFT HOUSING	TL4-001L-21875	1
21	DRIVE PLATE	QD4-002-2188	1
11	HOUSING SPACER	TL4-012-21875	1
12	REACTION BLOCK **	TL4-013-21875 **	1
26	RACHET WHEEL	QD4-003-2188	1
27	PAWL	QD4-004-2188	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-2188	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL4 2-3/8" PARTS LIST			
ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-2375	1
15	LEFT HOUSING	TL4-001L-2375	1
21	DRIVE PLATE	QD4-002-2375	1
11	HOUSING SPACER	TL4-012-2375	1
12	REACTION BLOCK **	TL4-013-2375 **	1
26	RACHET WHEEL	QD4-003-2375	1
27	PAWL	QD4-004-2375	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-2375	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

TL4 2-9/16" PARTS LIST			
ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-25625	1
15	LEFT HOUSING	TL4-001L-25625	1
21	DRIVE PLATE	QD4-002-2563	1
11	HOUSING SPACER	TL4-012-25625	1
12	REACTION BLOCK **	TL4-013-25625 **	1
26	RACHET WHEEL	QD4-003-2563	1
27	PAWL	QD4-004-2563	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-2563	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

TL4 2-3/4" PARTS LIST			
ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-2750	1
15	LEFT HOUSING	TL4-001L-2750	1
21	DRIVE PLATE	QD4-002-2750	1
11	HOUSING SPACER	TL4-012-2750	1
12	REACTION BLOCK **	TL4-013-2750 **	1
26	RACHET WHEEL	QD4-003-2750	1
27	PAWL	QD4-004-2750	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-2750	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL4 2-15/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-29375	1
15	LEFT HOUSING	TL4-001L-29375	1
21	DRIVE PLATE	QD4-002-2938	1
11	HOUSING SPACER	TL4-012-29375	1
12	REACTION BLOCK **	TL4-013-29375 **	1
26	RACHET WHEEL	QD4-003-2938	1
27	PAWL	QD4-004-2938	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-2938	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	8
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

TL4 3-1/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL4-001R-3125	1
15	LEFT HOUSING	TL4-001L-3125	1
21	DRIVE PLATE	QD4-002-3125	1
11	HOUSING SPACER	TL4-012-3125	1
12	REACTION BLOCK **	TL4-013-3125 **	1
26	RACHET WHEEL	QD4-003-3125	1
27	PAWL	QD4-004-3125	1
23	DRIVE PLATE PIN	QD406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-53N	2
22	CONNECTING ROD	QD4CR	1
28	CONNECTING ROD BOLT	10-24X3/8LHCSN	1
17	HOUSING BUSHING	QD4-007-3125	2
18	HOUSING BOLTS SMALL	M4X12MMLHCSN	10
19	HOUSING BOLTS LARGE	M6X12MMLHCSN	4
29	PAWL SPRING	C062-L2-S17N	1

TL8 2" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-2000	1
15	LEFT HOUSING	TL8-001L-2000	1
21	DRIVE PLATE	QD8-002-2000	1
11	HOUSING SPACER	TL8-012-2000	1
12	REACTION BLOCK **	TL8-013-2000 **	1
26	RACHET WHEEL	QD8-003-2000	1
27	PAWL	QD8-004-2000	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-2000	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL8 2-3/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-21875	1
15	LEFT HOUSING	TL8-001L-21875	1
21	DRIVE PLATE	QD8-002-2188	1
11	HOUSING SPACER	TL8-012-21875	1
12	REACTION BLOCK **	TL8-013-21875 **	1
26	RACHET WHEEL	QD8-003-2188	1
27	PAWL	QD8-004-2188	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-2188	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

TL8 2-3/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-2375	1
15	LEFT HOUSING	TL8-001L-2375	1
21	DRIVE PLATE	QD8-002-2375	1
11	HOUSING SPACER	TL8-012-2375	1
12	REACTION BLOCK **	TL8-013-2375 **	1
26	RACHET WHEEL	QD8-003-2375	1
27	PAWL	QD8-004-2375	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-2375	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

TL8 2-9/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-25625	1
15	LEFT HOUSING	TL8-001L-25625	1
21	DRIVE PLATE	QD8-002-2563	1
11	HOUSING SPACER	TL8-012-25625	1
12	REACTION BLOCK **	TL8-013-25625 **	1
26	RACHET WHEEL	QD8-003-2563	1
27	PAWL	QD8-004-2563	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-2563	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL8 2-3/4" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-2750	1
15	LEFT HOUSING	TL8-001L-2750	1
21	DRIVE PLATE	QD8-002-2750	1
11	HOUSING SPACER	TL8-012-2750	1
12	REACTION BLOCK **	TL8-013-2750 **	1
26	RACHET WHEEL	QD8-003-2750	1
27	PAWL	QD8-004-2750	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-2750	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

TL8 2-15/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-29375	1
15	LEFT HOUSING	TL8-001L-29375	1
21	DRIVE PLATE	QD8-002-2938	1
11	HOUSING SPACER	TL8-012-29375	1
12	REACTION BLOCK **	TL8-013-29375 **	1
26	RACHET WHEEL	QD8-003-2938	1
27	PAWL	QD8-004-2938	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-2938	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

TL8 3-1/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-3125	1
15	LEFT HOUSING	TL8-001L-3125	1
21	DRIVE PLATE	QD8-002-3125	1
11	HOUSING SPACER	TL8-012-3125	1
12	REACTION BLOCK **	TL8-013-3125 **	1
26	RACHET WHEEL	QD8-003-3125	1
27	PAWL	QD8-004-3125	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-3125	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL8 3-1/2" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-3500	1
15	LEFT HOUSING	TL8-001L-3500	1
21	DRIVE PLATE	QD8-002-3500	1
11	HOUSING SPACER	TL8-012-3500	1
12	REACTION BLOCK **	TL8-013-3500 **	1
26	RACHET WHEEL	QD8-003-3500	1
27	PAWL	QD8-004-3500	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-3500	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	8
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

TL8 3-7/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL8-001R-3875	1
15	LEFT HOUSING	TL8-001L-3875	1
21	DRIVE PLATE	QD8-002-3875	1
11	HOUSING SPACER	TL8-012-3875	1
12	REACTION BLOCK **	TL8-013-3875 **	1
26	RACHET WHEEL	QD8-003-3875	1
27	PAWL	QD8-004-3875	1
23	DRIVE PLATE PIN	QD806E	1
24	DRIVE PLATE PIN RETAINING RING	WS-68N	2
22	CONNECTING ROD	QD8CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD8-007-3875	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M8X20MMLHCSN	6
29	PAWL SPRING	C075-L1-S17N	1

TL14 2-15/16" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL14-001R-2938	1
15	LEFT HOUSING	TL14-001L-2938	1
21	DRIVE PLATE	QD14-002-2938	1
11	HOUSING SPACER	TL14-012-29375	1
12	REACTION BLOCK **	TL14-013-29375 **	1
26	RACHET WHEEL	QD14-003-2938	1
27	PAWL	QD14-004-2938	1
23	DRIVE PLATE PIN	QD1406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-87N	2
22	CONNECTING ROD	QD14CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD14-007-2938	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL14 3-1/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL14-001R-3125	1
15	LEFT HOUSING	TL14-001L-3125	1
21	DRIVE PLATE	QD14-002-3125	1
11	HOUSING SPACER	TL14-012-3125	1
12	REACTION BLOCK **	TL14-013-3125 **	1
26	RACHET WHEEL	QD14-003-3125	1
27	PAWL	QD14-004-3125	1
23	DRIVE PLATE PIN	QD1406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-87N	2
22	CONNECTING ROD	QD14CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD14-007-3125	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL14 3-1/2" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL14-001R-3500	1
15	LEFT HOUSING	TL14-001L-3500	1
21	DRIVE PLATE	QD14-002-3500	1
11	HOUSING SPACER	TL14-012-3500	1
12	REACTION BLOCK **	TL14-013-3500 **	1
26	RACHET WHEEL	QD14-003-3500	1
27	PAWL	QD14-004-3500	1
23	DRIVE PLATE PIN	QD1406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-87N	2
22	CONNECTING ROD	QD14CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD14-007-3500	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL14 3-7/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL14-001R-3875	1
15	LEFT HOUSING	TL14-001L-3875	1
21	DRIVE PLATE	QD14-002-3875	1
11	HOUSING SPACER	TL14-012-3875	1
12	REACTION BLOCK **	TL14-013-3875 **	1
26	RACHET WHEEL	QD14-003-3875	1
27	PAWL	QD14-004-3875	1
23	DRIVE PLATE PIN	QD1406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-87N	2
22	CONNECTING ROD	QD14CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD14-007-3875	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL14 4-1/4" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL14-001R-4250	1
15	LEFT HOUSING	TL14-001L-4250	1
21	DRIVE PLATE	QD14-002-4250	1
11	HOUSING SPACER	TL14-012-4250	1
12	REACTION BLOCK **	TL14-013-4250 **	1
26	RACHET WHEEL	QD14-003-4250	1
27	PAWL	QD14-004-4250	1
23	DRIVE PLATE PIN	QD1406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-87N	2
22	CONNECTING ROD	QD14CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD14-007-4250	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL14 4-5/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL14-001R-4625	1
15	LEFT HOUSING	TL14-001L-4625	1
21	DRIVE PLATE	QD14-002-4625	1
11	HOUSING SPACER	TL14-012-4625	1
12	REACTION BLOCK **	TL14-013-4625 **	1
26	RACHET WHEEL	QD14-003-4625	1
27	PAWL	QD14-004-4625	1
23	DRIVE PLATE PIN	QD1406E	1
24	DRIVE PLATE PIN RETAINING RING	WS-87N	2
22	CONNECTING ROD	QD14CR	1
28	CONNECTING ROD BOLT	1/4-20X1/2LHCSN	1
17	HOUSING BUSHING	QD14-007-4625	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL20 3-1/2" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL20-001R-3500	1
15	LEFT HOUSING	TL20-001L-3500	1
21	DRIVE PLATE	QD20-002-3500	1
11	HOUSING SPACER	TL20-012-3500	1
12	REACTION BLOCK **	TL20-013-3500 **	1
26	RACHET WHEEL	QD20-003-3500	1
27	PAWL	QD20-004-3500	1
23	DRIVE PLATE PIN	QD2007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-93N	2
22	CONNECTING ROD	QD20CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD20-007-3500	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL20 3-7/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL20-001R-3875	1
15	LEFT HOUSING	TL20-001L-3875	1
21	DRIVE PLATE	QD20-002-3875	1
11	HOUSING SPACER	TL20-012-3875	1
12	REACTION BLOCK **	TL20-013-3875 **	1
26	RACHET WHEEL	QD20-003-3875	1
27	PAWL	QD20-004-3875	1
23	DRIVE PLATE PIN	QD2007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-93N	2
22	CONNECTING ROD	QD20CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD20-007-3875	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL20 4-1/4" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL20-001R-4250	1
15	LEFT HOUSING	TL20-001L-4250	1
21	DRIVE PLATE	QD20-002-4250	1
11	HOUSING SPACER	TL20-012-4250	1
12	REACTION BLOCK **	TL20-013-4250 **	1
26	RACHET WHEEL	QD20-003-4250	1
27	PAWL	QD20-004-4250	1
23	DRIVE PLATE PIN	QD2007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-93N	2
22	CONNECTING ROD	QD20CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD20-007-4250	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	12
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL20 4-5/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL20-001R-4625	1
15	LEFT HOUSING	TL20-001L-4625	1
21	DRIVE PLATE	QD20-002-4625	1
11	HOUSING SPACER	TL20-012-4625	1
12	REACTION BLOCK **	TL20-013-4625 **	1
26	RACHET WHEEL	QD20-003-4625	1
27	PAWL	QD20-004-4625	1
23	DRIVE PLATE PIN	QD2007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-93N	2
22	CONNECTING ROD	QD20CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD20-007-4625	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	12
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL20 5" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL20-001R-5000	1
15	LEFT HOUSING	TL20-001L-5000	1
21	DRIVE PLATE	QD20-002-5000	1
11	HOUSING SPACER	TL20-012-5000	1
12	REACTION BLOCK **	TL20-013-5000 **	1
26	RACHET WHEEL	QD20-003-5000	1
27	PAWL	QD20-004-5000	1
23	DRIVE PLATE PIN	QD2007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-93N	2
22	CONNECTING ROD	QD20CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD20-007-5000	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	14
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL20 5-3/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL20-001R-5375	1
15	LEFT HOUSING	TL20-001L-5375	1
21	DRIVE PLATE	QD20-002-5375	1
11	HOUSING SPACER	TL20-012-5375	1
12	REACTION BLOCK **	TL20-013-5375 **	1
26	RACHET WHEEL	QD20-003-5375	1
27	PAWL	QD20-004-5375	1
23	DRIVE PLATE PIN	QD2007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-93N	2
22	CONNECTING ROD	QD20CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD20-007-5375	2
18	HOUSING BOLTS SMALL	M6X20MMLHCSN	14
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL30 4-1/4" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL30-001R-4250	1
15	LEFT HOUSING	TL30-001L-4250	1
21	DRIVE PLATE	QD30-002-4250	1
11	HOUSING SPACER	TL30-012-4250	1
12	REACTION BLOCK **	TL30-013-4250 **	1
26	RACHET WHEEL	QD30-003-4250	1
27	PAWL	QD30-004-4250	1
23	DRIVE PLATE PIN	QD3007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-100N	2
22	CONNECTING ROD	QD30CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD30-007-4250	2
18	HOUSING BOLTS SMALL	M8X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL30 4-5/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL30-001R-4625	1
15	LEFT HOUSING	TL30-001L-4625	1
21	DRIVE PLATE	QD30-002-4625	1
11	HOUSING SPACER	TL30-012-4625	1
12	REACTION BLOCK **	TL30-013-4625 **	1
26	RACHET WHEEL	QD30-003-4625	1
27	PAWL	QD30-004-4625	1
23	DRIVE PLATE PIN	QD3007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-100N	2
22	CONNECTING ROD	QD30CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD30-007-4625	2
18	HOUSING BOLTS SMALL	M8X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL30 5" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL30-001R-5000	1
15	LEFT HOUSING	TL30-001L-5000	1
21	DRIVE PLATE	QD30-002-5000	1
11	HOUSING SPACER	TL30-012-5000	1
12	REACTION BLOCK **	TL30-013-5000 **	1
26	RACHET WHEEL	QD30-003-5000	1
27	PAWL	QD30-004-5000	1
23	DRIVE PLATE PIN	QD3007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-100N	2
22	CONNECTING ROD	QD30CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD30-007-5000	2
18	HOUSING BOLTS SMALL	M8X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

TL30 5-3/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL30-001R-5375	1
15	LEFT HOUSING	TL30-001L-5375	1
21	DRIVE PLATE	QD30-002-5375	1
11	HOUSING SPACER	TL30-012-5375	1
12	REACTION BLOCK **	TL30-013-5375 **	1
26	RACHET WHEEL	QD30-003-5375	1
27	PAWL	QD30-004-5375	1
23	DRIVE PLATE PIN	QD3007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-100N	2
22	CONNECTING ROD	QD30CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD30-007-5375	2
18	HOUSING BOLTS SMALL	M8X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL30 5-3/4" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL30-001R-5750	1
15	LEFT HOUSING	TL30-001L-5750	1
21	DRIVE PLATE	QD30-002-5750	1
11	HOUSING SPACER	TL30-012-5750	1
12	REACTION BLOCK **	TL30-013-5750 **	1
26	RACHET WHEEL	QD30-003-5750	1
27	PAWL	QD30-004-5750	1
23	DRIVE PLATE PIN	QD3007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-100N	2
22	CONNECTING ROD	QD30CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCSN	1
17	HOUSING BUSHING	QD30-007-5750	2
18	HOUSING BOLTS SMALL	M8X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20MMLHCSN	6
29	PAWL SPRING	C125-L5N	1

TL30 6-1/8" PARTS LIST

ITEM #	PART NAME	PART #	QUANTITY
14	RIGHT HOUSING	TL30-001R-6125	1
15	LEFT HOUSING	TL30-001L-6125	1
21	DRIVE PLATE	QD30-002-6125	1
11	HOUSING SPACER	TL30-012-6125	1
12	REACTION BLOCK **	TL30-013-6125 **	1
26	RACHET WHEEL	QD30-003-6125	1
27	PAWL	QD30-004-6125	1
23	DRIVE PLATE PIN	QD3007E	1
24	DRIVE PLATE PIN RETAINING RING	WS-100N	2
22	CONNECTING ROD	QD30CR	1
28	CONNECTING ROD BOLT	5/16-18X1/2LHCN	1
17	HOUSING BUSHING	QD30-007-6125	2
18	HOUSING BOLTS SMALL	M8X20MMLHCSN	10
19	HOUSING BOLTS LARGE	M10X20LHCSN	6
29	PAWL SPRING	C125-L5N	1

Reaction Block (S) at the end of the part number indicates a steel reaction block. Example:TL2-013-1250S

TL RECOMMENDED BOLT TORQUE	
SIZE	**TORQUE**
M4 X .7	35 in*lbs
M6 X 1	85 in*lbs
M8 X 1.25	18 ft*lbs
M10 X 1.5	35 ft*lbs

TL END CAP TORQUE SPECIFICATION	
TOOL	**TORQUE**
TL2	45 FT*LBS
TL4	55 FT*LBS
TL8	70 FT*LBS
TL14	75 FT*LBS
TL20	85 FT*LBS
TL30	90 FT*LBS

Revision History

Rev No.	Date	Description of Revision	Revised Page(s)	Approved By:
13	6/25/2012	Revised Text on Page 5.	All	B. Gruber
14	3/15/2013	Added Bolt Torque and End Cap Torque Values.	47	M. Rouch
14	3/15/2013	Added Parts lists for Dual Port Cylinders	25-30	M. Rouch
15	7/8/2013	Added note for steel reaction block part numbers	31-45	M. Rouch
16	11/26/2013	Updated Parts Lists to match Discovery	26-46	D. Mierski
17	12/17/2013	Corrected TL2 Spring to C037-M2-S17	32-34	D. Mierski
18	5/19/2014	Added Loctite 242 to TL2 cylinder swivel cap screw install procedure. Added “see maintenance section” note to Housing Spacer and Reaction Block Installation Sheet.	9,16	D. Mierski
19	5/22/2014	Changed M4 Torque spec from 20 in*lbs to 35 in*lbs	47	D. Mierski
20	8/14/2014	Added swivel tightness check to maintenance. Added seal replacement frequency.	8-9	D. Mierski