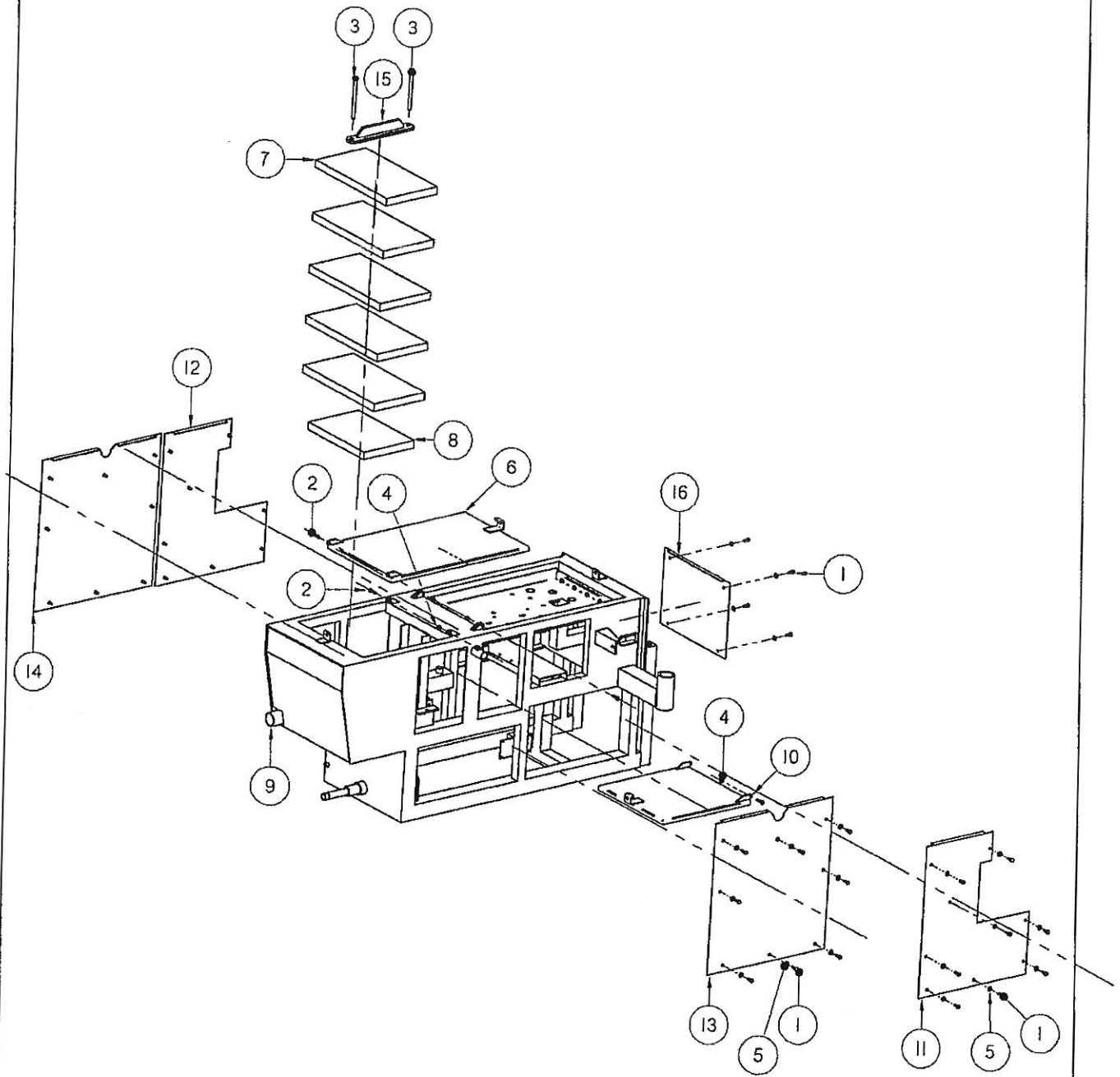


# SIDE PANELS AND COUNTER WEIGHTS



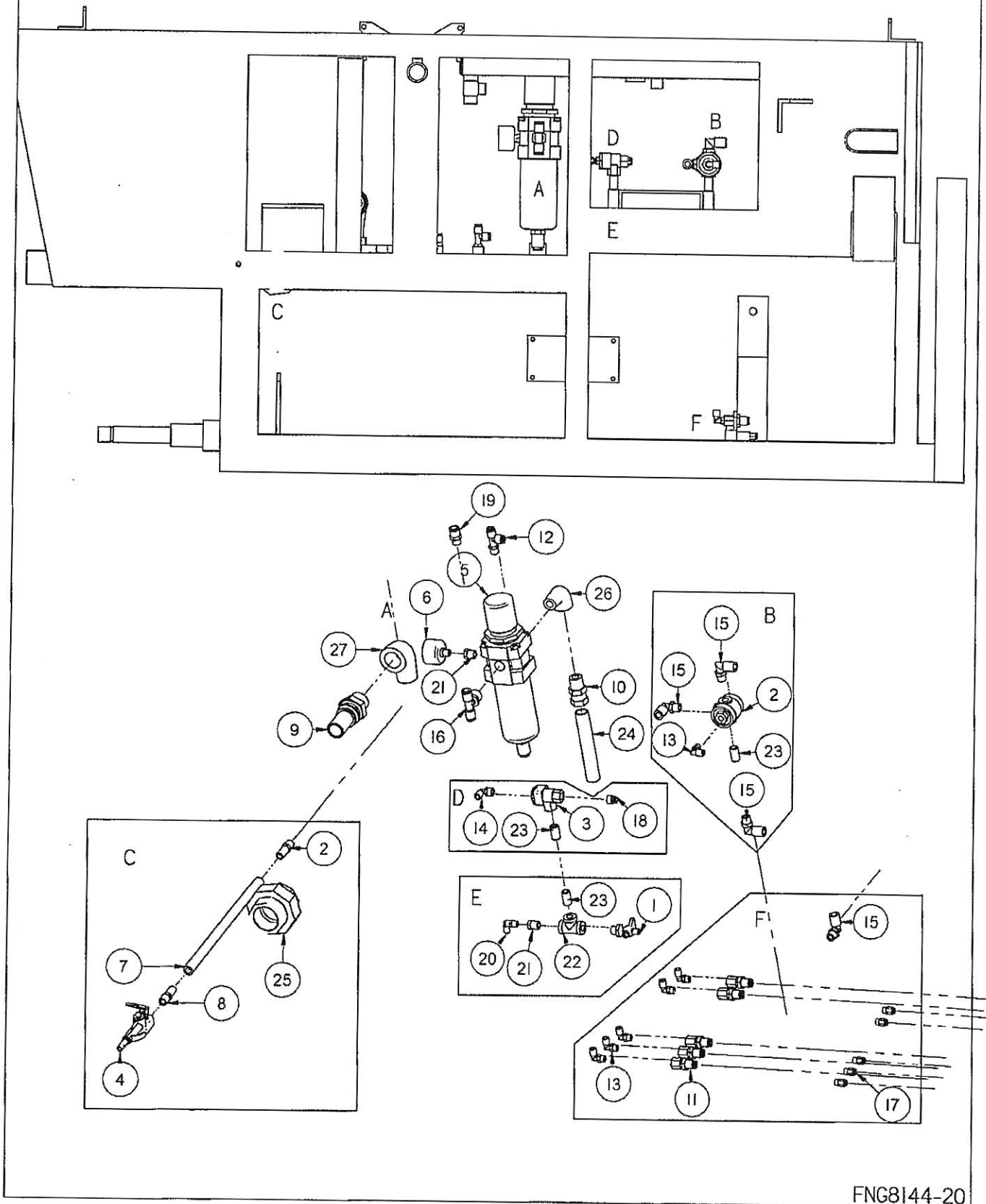
FNG8144-10

# SIDE PANELS AND COUNTER WEIGHTS

Item Number	File Name	Quantity	Description
1	2519BLT.par	36	5/16" X 3/4" BOLT
2	2523BLT.par	4	5/16" X 1 1/4" BOLT
3	2578BLT.par	2	1/2" X 6 1/2" BOLT
4	2719NUT.par	4	5/16" NYLON LOCK NUT
5	2801WAS.par	36	1/4" FLAT WASHER
6	SRS1601.par	1	HOOD
7	SRS1627.par	5	COUNTER WEIGHT (LONG)
8	SRS16270.par	1	COUNTER WEIGHT (SHORT)
9	SRS1632.asm	1	MAIN FRAME
10	SRS1641.par	1	BACK HOOD
11	SRS1642.par	1	SIDE PANEL FRONT RIGHT
12	SRS1643.par	1	SIDE PANEL FRONT LEFT
13	SRS1644.par	1	SIDE PANEL RIGHT REAR
14	SRS1645.par	1	SIDE PANEL LEFT REAR
15	SRS1646.par	1	WEIGHT HOLD DOWN
16	SRS1654.par	1	FRONT INSPECTION COVER

FNG8144-10

# MAIN FRAME MANIFOLD ASSEMBLY



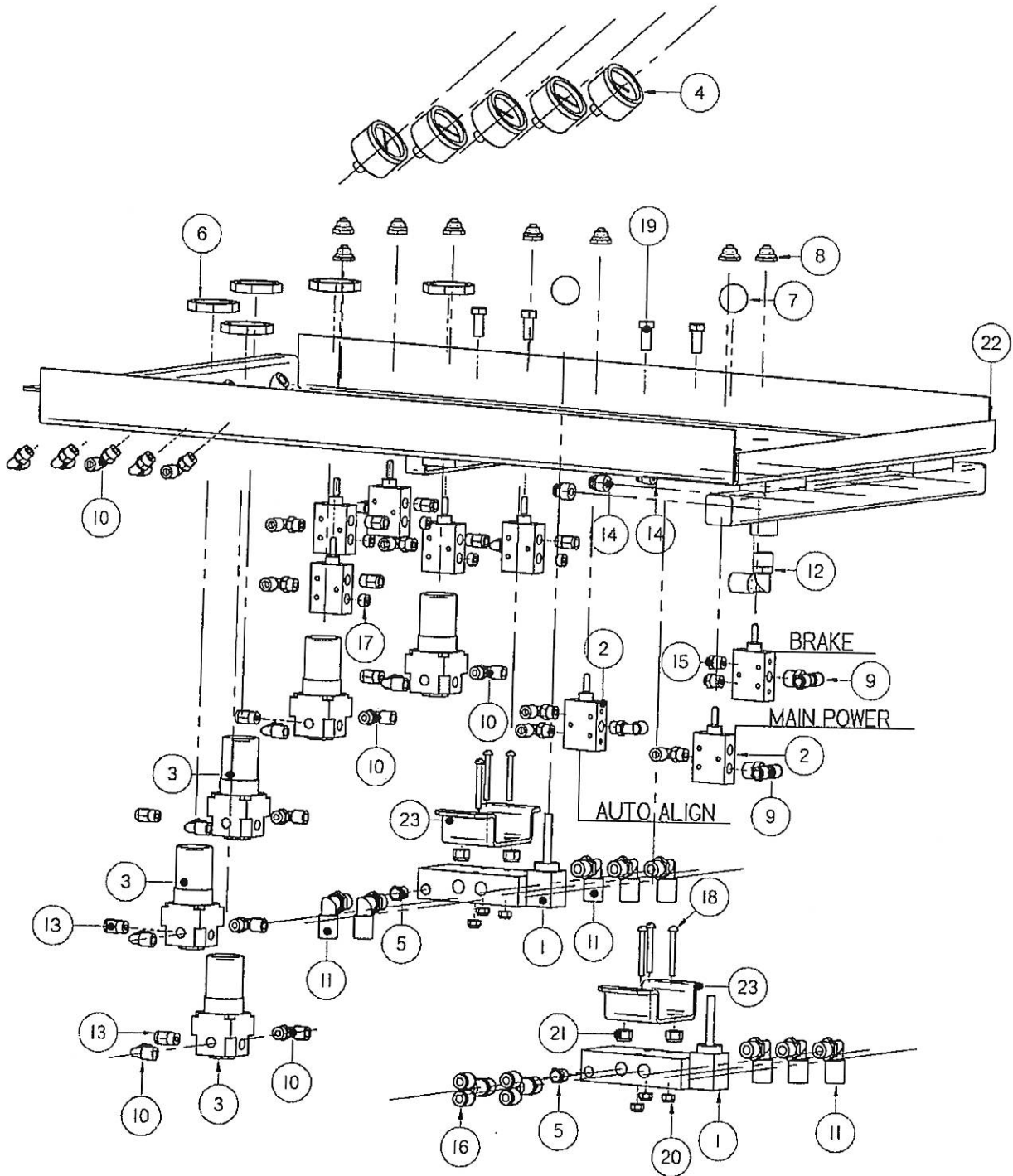
FNG8144-20

# MAIN FRAME MANIFOLD ASSEMBLY

Item Number	File Name	Quantity	Description
1	06056VAL.par	1	BUTTERFLY BLEEDER VALVE
2	06115VAL.par	1	1/4" AIR PILOTED DIAPHRAM
3	06140VAL.par	1	SHUTTLE VALVE
4	06155VAL.par	1	BLOW GUN
5	08081REG.par	1	1/2" REGULATOR WITH AUTO DRAIN
6	09023GAU.par	1	0-160 GAUGE
7	19055HOS.par	1	3/8" ID HOSE
8	19985FIT.par	2	1/4" BLOW HOSE FITTING
9	19991FIT.par	1	1" MP X 1" HOSE SWIVEL
10	2001FIT.par	1	1/2" SWIVEL CONNECTOR
11	2031FIT.par	5	1/4" X 1/8" NPT BULK HEAD UNION
12	2035FIT.par	1	1/4" X 1/4" MALE RUN T
13	2050FIT.par	6	1/4" TO 1/8" 90 DEG. FITTING
14	2051FIT.par	1	1/4" TO 1/4" 90 DEG. FITTING
15	2053FIT.par	4	3/8" TO 1/4" MALE 90
16	2054IFIT.par	1	3/8" X 1/2" MALE BRANCH TEE
17	2066FIT.par	5	1/4" TO 1/8" MALE CONNECTOR
18	2067FIT.par	1	1/4" TO 1/4" MALE CONNECTOR
19	2070FIT.par	1	3/8" TO 1/4" MALE CONNECTOR
20	2075IFIT.par	1	1/8" X 1/8" 90 DEG. SWIVEL
21	20755FIT.par	2	1/4" X 1/8" BUSHING
22	21023PFT.par	1	1/4" PIPE TEE
23	2109PFT.par	3	1/4" CLOSE NIPPLE
24	21117PFT.par	1	1/2" X 5" STANDARD NIPPLE
25	21479PFT.asm	1	1 1/2" GROUND UNION
26	2154PFT.par	1	1/2" STREET ELL
27	2160PFT.par	1	1" STREET ELBOW



# CONTROL PANEL ASSEMBLY



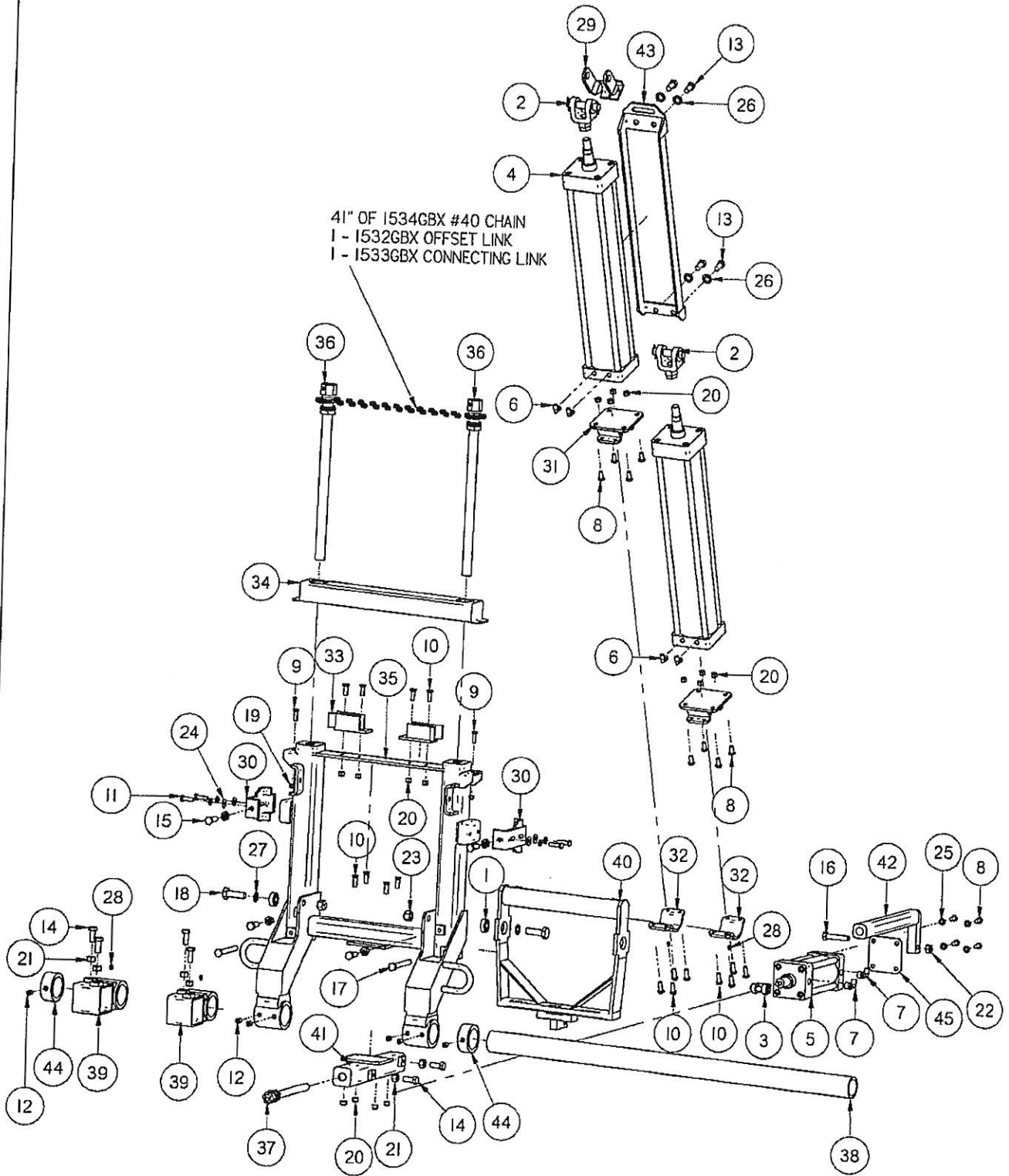
FNG8144-30

# CONTROL PANEL ASSEMBLY

Item Number	File Name	Quantity	Description
1	060102VAL.par	2	3 WAY POSITION VALVE WITH KNOB
2	06095VAL.par	8	TOGGLE SWITCH
3	08101REG.par	5	REGULATOR WITH LOCK RING
4	09022GAU.par	5	GAUGE 0-60 1/8" MPT
5	1001BRV.par	2	1/8" BREATHER VENT
6	17056RPT.par	5	LOCK RING FOR 08101REG
7	174201RPT.par	2	KNOB
8	1828GRO.par	8	RED BOOT FOR 06095VAL
9	2041FIT.par	2	1/4" BRANCH T
10	2050FIT.par	24	1/4" TO 1/8" 90 DEG. FITTING
11	2053FIT.par	8	3/8" TO 1/4" MALE 90
12	2054FIT.par	1	3/8" X 3/8" 90 DEG. FITTING
13	2066FIT.par	10	1/4" TO 1/8" MALE CONNECTOR
14	2067FIT.par	5	1/4" TO 1/4" MALE CONNECTOR
15	20750FIT.par	2	1/8" X 1/8" MALE FITTING
16	20753FIT.par	2	1/4" TO 1/4" BRANCH Y
17	21010PFT.par	5	1/8" PIPE PLUG
18	2478BLT.par	6	8/32" X 1 1/2" BOLT
19	2519BLT.par	4	5/16" X 3/4" BOLT
20	2712NUT.par	6	8/32" NYLON LOCK NUT
21	2719NUT.par	4	5/16" NYLON LOCK NUT
22	SRS1632.par	1	CONTROL PANEL
23	SRUI3460.psm	2	VALVE SPACER

FNG8144-30

# MAST ASSEMBLY



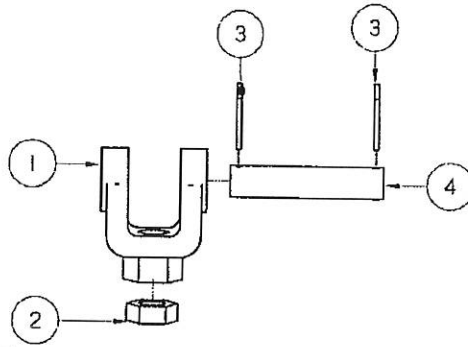
# MAST ASSEMBLY

Item Number	File Name	Quantity	Description
1	04030BRG.par	2	5/8" X 1 3/8" BEARING WITHOUT FLANGE
2	0500CYL.asm	2	CLEVIS FOR 1" ROD
3	0501CYL.asm	1	CLEVIS WITH PIN FOR 5/8" ROD
4	05208CYL.asm	2	4" X 20" CYLINDER
5	05212CYL.asm	1	3 1/4" X 5" CYLINDER
6	2051FIT.par	4	1/4" TO 1/4" 90 DEG. FITTING
7	2052FIT.par	2	1/4" TO 3/8" 90 DEG. FITTING
8	25162BLT.par	12	3/8" X 3/4" FINE THREAD BOLT
9	2520BLT.par	2	5/16" X 1" BOLT
10	2538BLT.par	16	3/8" X 1" BOLT
11	2540BLT.par	4	3/8" X 1 1/4" BOLT
12	25590BLT.par	6	1/2" X 1/2" 13 SET SCREW
13	2559BLT.par	4	1/2" X 1" BOLT
14	2560BLT.par	8	1/2" X 1 1/4" BOLT
15	2562BLT.par	2	1/2" X 1 1/2" BOLT
16	2564BLT.par	1	1/2" X 2 1/2" BOLT
17	2570BLT.par	2	1/2" X 4" BOLT
18	2582BLT.par	2	5/8" X 2" BOLT
19	2719NUT.par	2	5/16" NYLON LOCK NUT
20	2727NUT.par	16	3/8" LOCKNUT
21	2732NUT.par	10	1/2" STANDARD NUT
22	2734NUT.par	1	1/2" LOCKNUT
23	2743NUT.par	2	5/8" NYLON LOCK NUT
24	2800WAS.par	4	5/16" FLAT WASHER
25	2821WAS.par	8	3/8" LOCK WASHER
26	2832WAS.par	4	1/2" LOCK WASHER
27	2840WAS.par	2	5/8" 14GA. WASHER
28	9501MIS.par	4	GREASE ZERT
29	SRG1123.par	1	SAFETY LATCH
30	SRS1618.par	2	MAST ADJUSTER
31	SRS1619.par	2	CYLINDER MOUNTING BRACKET
32	SRS16190.par	2	CYLINDER MOUNTING BRACKET CAP
33	SRS1624.par	2	CHAIN TIGHTNER
34	SRS1625.par	1	CHAIN COVER
35	SRS1629.par	1	MAST
36	SRS1630.asm	2	MAST SCREW JACK ASSEMBLY
37	SRS16310.asm	1	AUTO ALIGN SCREW JACK ASSEMBLY
38	SRS1634.par	1	UPPER TOOL BAR FOR EQUIPMENT MOUNT DRILLS
39	SRS1635.par	2	HINGE
40	SRS1636.par	1	AUTO ALIGN PIVOT
41	SRS1637.par	1	AUTO OUTSIDE SLIDE
42	SRS1638.par	1	AUTO INSIDE SLIDE
43	SRS16470.par	1	4" CYLINDER SUPPORT BRACKET
44	SRS16502.par	2	UPPER TOOL BAR LOCK RING
45	SRS1664.par	1	AUTO ALIGN CYL BRACKET MULTIGANG

FNG8144-40

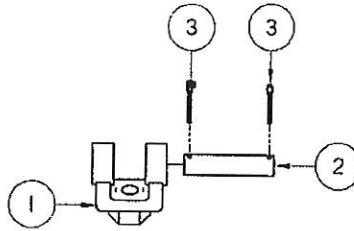


# CYLINDER CLEVIS ASSEMBLY



0500CYL

Item Number	File Name	Quantity	Description
1	0500CYL01.par	1	CLEVIS FOR 1" ROD
2	27699NUT.par	1	3/4" JAM NUT
3	30221PIN.par	2	1/8" X 1 1/4" COTTER PIN
4	SRS1663.par	1	SAFETY LATCH PIN

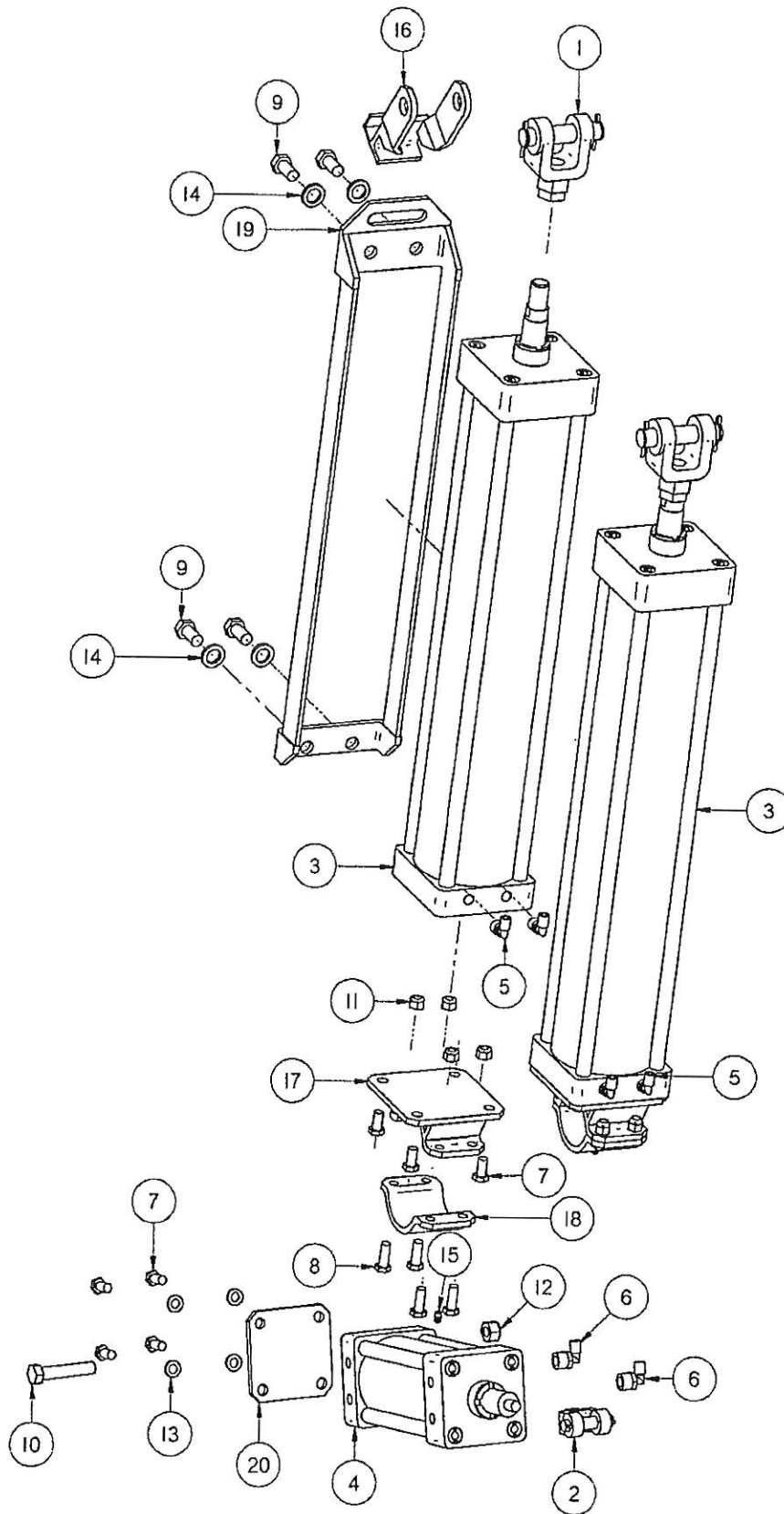


0501CYL

Item Number	File Name	Quantity	Description
1	0501CYL.par	1	CYLINDER CLEVIS
2	0501CYL02.par	1	CLEVIS PIN
3	0501CYL03.par	2	COTTER PIN

FNG8144-50

# RAISE AND LOWER AND AUTO ALIGN CYLINDERS



FNG8144-60

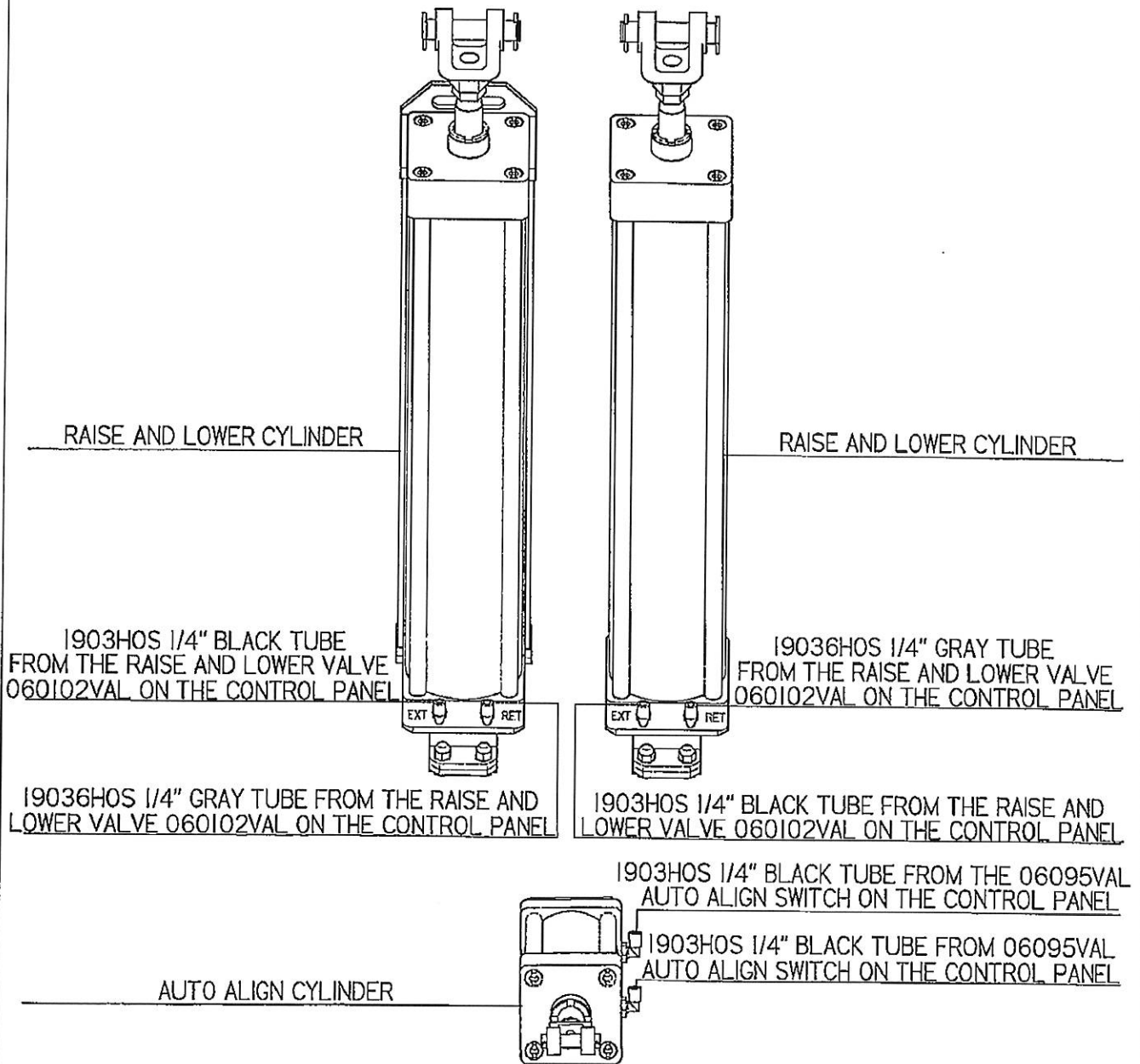
# RAISE AND LOWER AND AUTO ALIGN CYLINDERS

Item Number	File Name	Quantity	Description
1	0500CYL.asm	2	CLEVIS FOR 1" ROD
2	0501CYL.asm	1	CLEVIS WITH PIN FOR 5/8" ROD
3*	05208CYL.asm	2	4" X 20" CYLINDER
4	05212CYL.asm	1	3 1/4" X 5" CYLINDER
5	2051FIT.par	4	1/4" TO 1/4" 90 DEG. FITTING
6	2052FIT.par	2	1/4" TO 3/8" 90 DEG. FITTING
7*	25162BLT.par	12	3/8" X 3/4" FINE THREAD BOLT
8*	2538BLT.par	6	3/8" X 1" BOLT
9	2559BLT.par	4	1/2" X 1" BOLT
10	2564BLT.par	1	1/2" X 2 1/2" BOLT
11*	2727NUT.par	6	3/8" LOCKNUT
12*	2734NUT.par	1	1/2" LOCKNUT
13	2821WAS.par	8	3/8" LOCK WASHER
14	2832WAS.par	4	1/2" LOCK WASHER
15*	9501MIS.par	2	GREASE ZERT
16	SRG1123.par	1	SAFETY LATCH
17*	SRS1619.par	2	CYLINDER MOUNTING BRACKET
18*	SRS16190.par	2	CYLINDER MOUNTING BRACKET CAP
19	SRS16470.par	1	4" CYLINDER SUPPORT BRACKET
20	SRS1664.par	1	AUTO ALIGN CYL BRACKET MULTIGANG

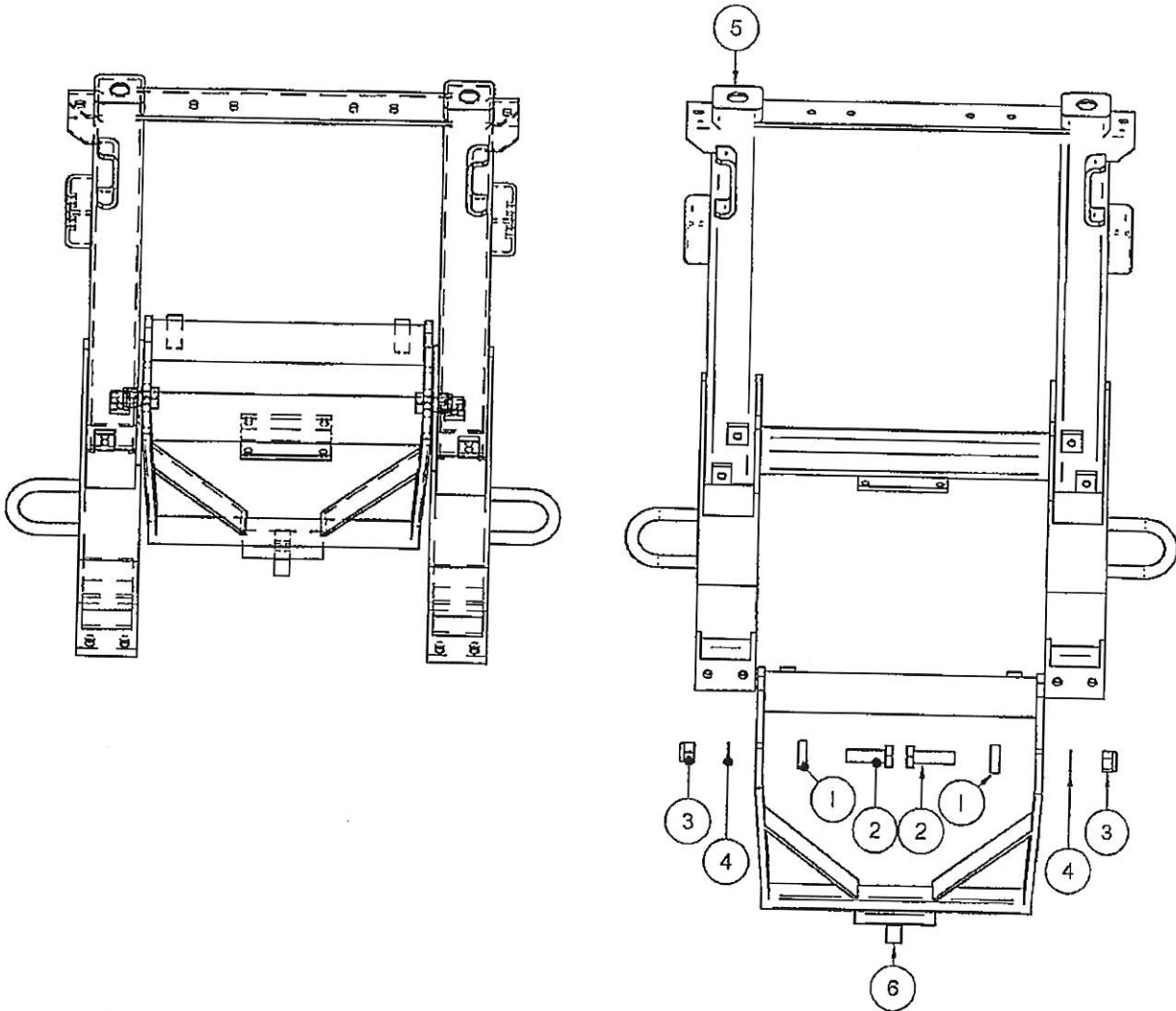




# RAISE AND LOWER AND AUTO ALIGN CYLINDERS



# AUTO-ALIGN PIVOT



Item Number	File Name	Quantity	Description
1	04030BRG.par	2	5/8" X 1 3/8" BEARING WITHOUT FLANGE
2	2582BLT.par	2	5/8" X 2" BOLT
3	2743NUT.par	2	5/8" NYLON LOCK NUT
4	2840WAS.par	2	5/8" 14GA. WASHER
5	SRSI629.par	1	MAST
6	SRSI636.par	1	AUTO ALIGN PIVOT

FNG8144-70

# SCREW JACK ASSEMBLIES

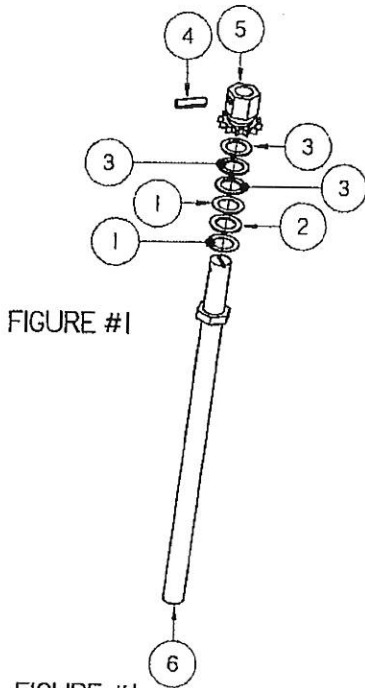


FIGURE #1

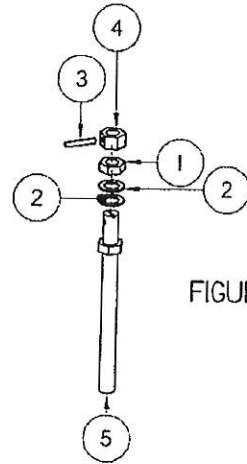


FIGURE #2

FIGURE #1

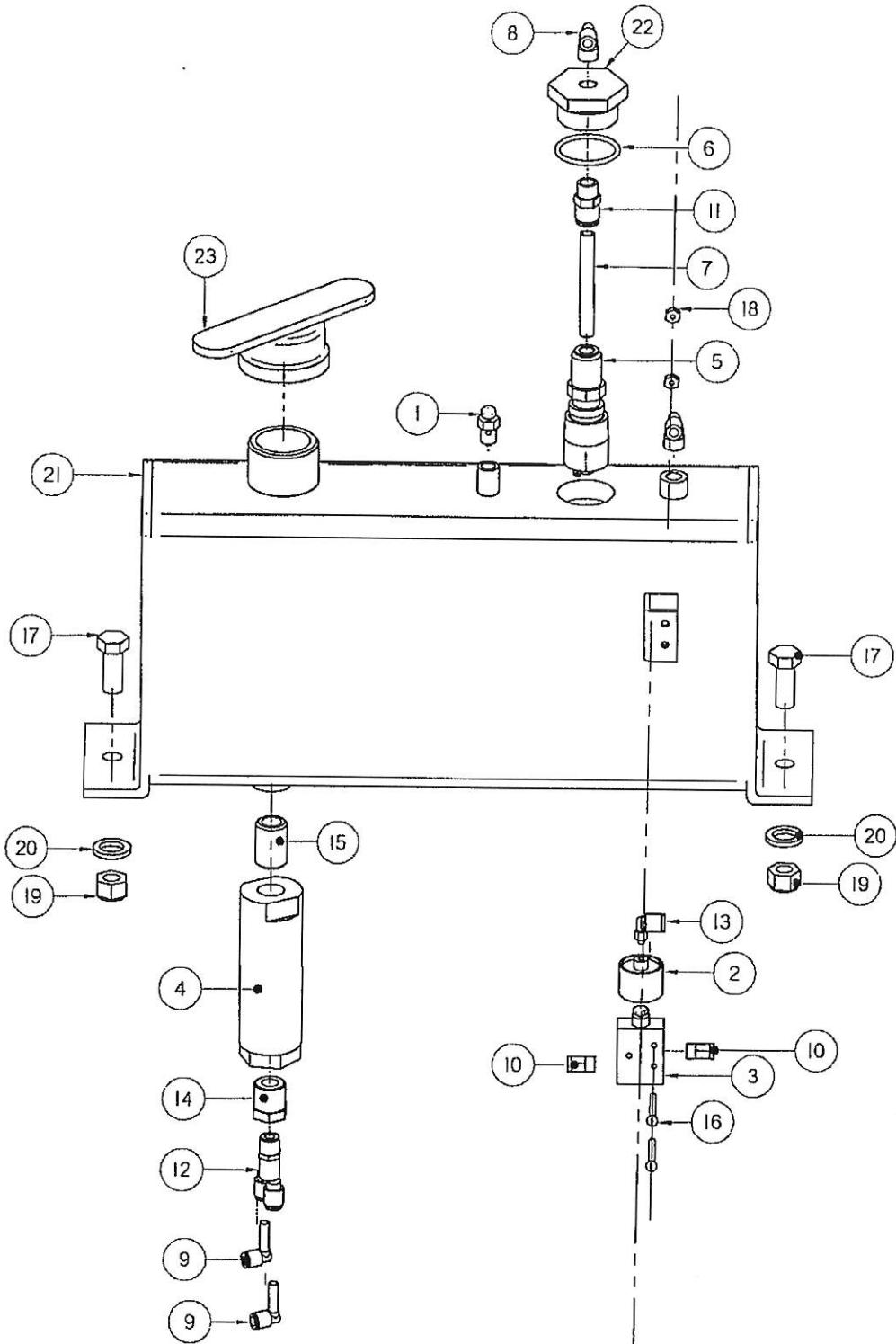
Item Number	File Name	Quantity	Description
1	04080BRG.par	2	THRUST BEARING WASHER
2	0408BRG.par	1	THRUST BEARING
3	2860WAS.par	3	1 1/2" OD X 1" ID 5GA. WASHER
4	3006PIN.par	1	3/8" X 1 1/2" ROLL PIN
5	SRSI630_.par	1	SCREW JACK TOP
6	SRSI630.par	1	SCREW JACK

FIGURE #2

Item Number	File Name	Quantity	Description
1	2756NUT.par	1	3/4" JAM NUT
2	28510WAS.par	2	3/4" THIN MACHINE WASHER
3	30102PIN.par	1	1/4" X 1 1/2" ROLL PIN
4	SRSI6310_.par	1	3/4" STANDARD NUT
5	SRSI6310.par	1	AUTO ALIGNMENT ADJUST

FNG8144-80

# OIL TANK ASSEMBLY



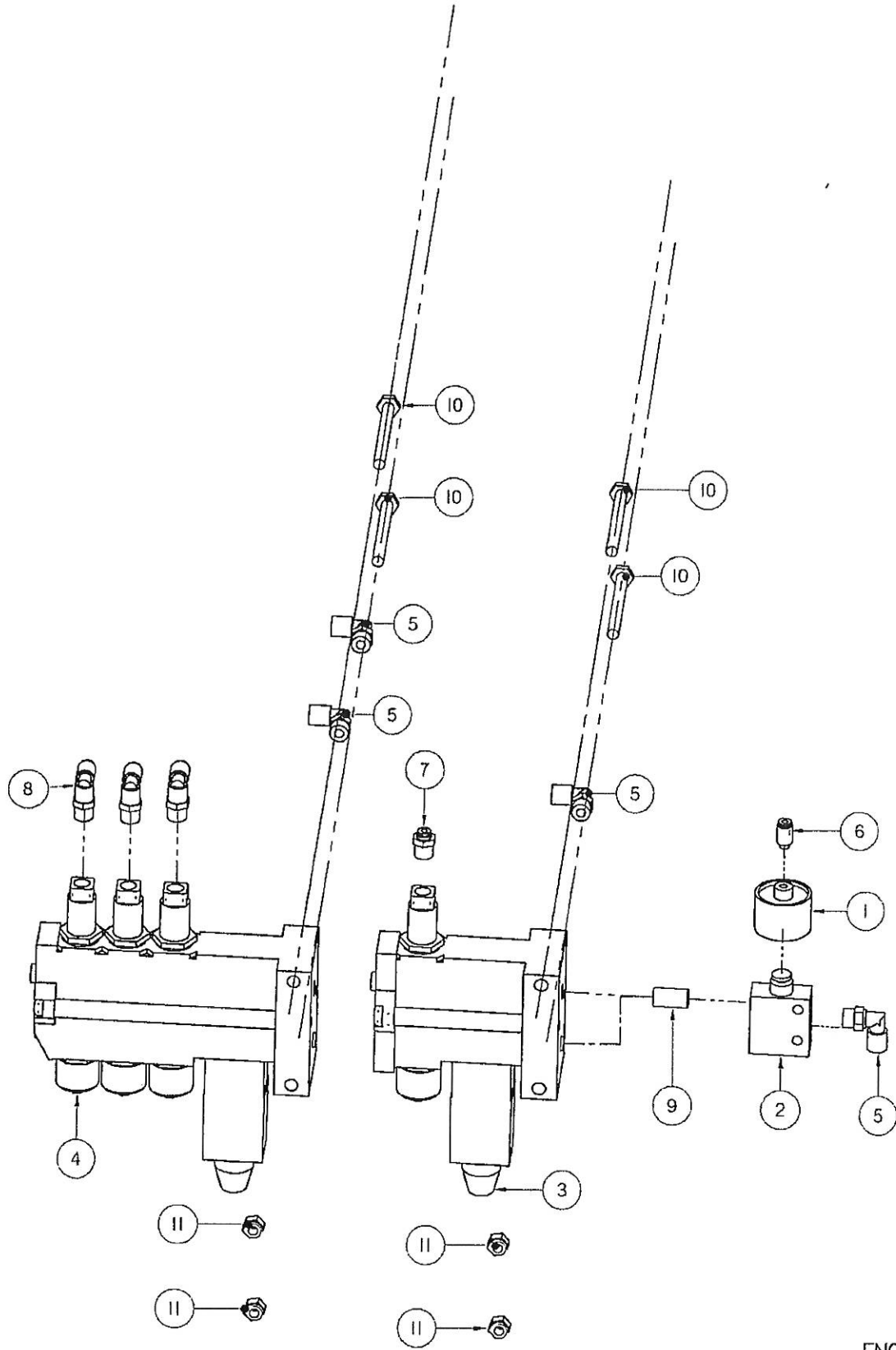
FNC8144-90

# OIL TANK ASSEMBLY

Item Number	File Name	Quantity	Description
1	06055VAL.par	1	BUTTON BLEEDER VALVE
2	06096VAL.par	1	DRUM VALVE
3	06310VAL.par	1	4 WAY PUSH BUTTON VALVE
4*	1006BRV.par	1	1/2" HYDRAULIC FILTER
5	170742RPT.par	1	AUTO DRAIN ASSEMBLY
6	18302GRO.par	1	O'RING 1 3/4" OD X 1 1/2" ID X 1/8" CROSS SECTION
7	1905HOS.par	1	3/8" BLACK TUBING
8	2051FIT.par	2	1/4" TO 1/4" 90 DEG. FITTING
9	20580FIT.par	2	1/4" PLUG IN ELBOW
10*	2066FIT.par	2	1/4" TO 1/8" MALE CONNECTOR
11	2070FIT.par	1	3/8" TO 1/4" MALE CONNECTOR
12	20753FIT.par	1	1/4" TO 1/4" BRANCH Y
13	20754FIT.par	1	1/4" to 10/32" 90 DEG. FITTING
14*	2076FIT.par	1	1/2" TO 1/4" REDUCER
15*	2111PFT.par	1	1/2" X 1" NIPPLE
16	2478BLT.par	2	8/32" X 1 1/2" BOLT
17	2560BLT.par	2	1/2" X 1 1/4" BOLT
18	2712NUT.par	2	8/32" NYLON LOCK NUT
19	2734NUT.par	2	1/2" LOCKNUT
20	2831WAS.par	2	7/8"OD X 1/2"ID WASHER 10GA.
21	SRS1626.par	1	MULTIGANG OIL TANK
22	SRS16269.par	1	OILTANK PLUG
23	SRS1648.par	1	OIL TANK CAP

FNG8144-90

# OILER ASSEMBLY



FNG8144-100

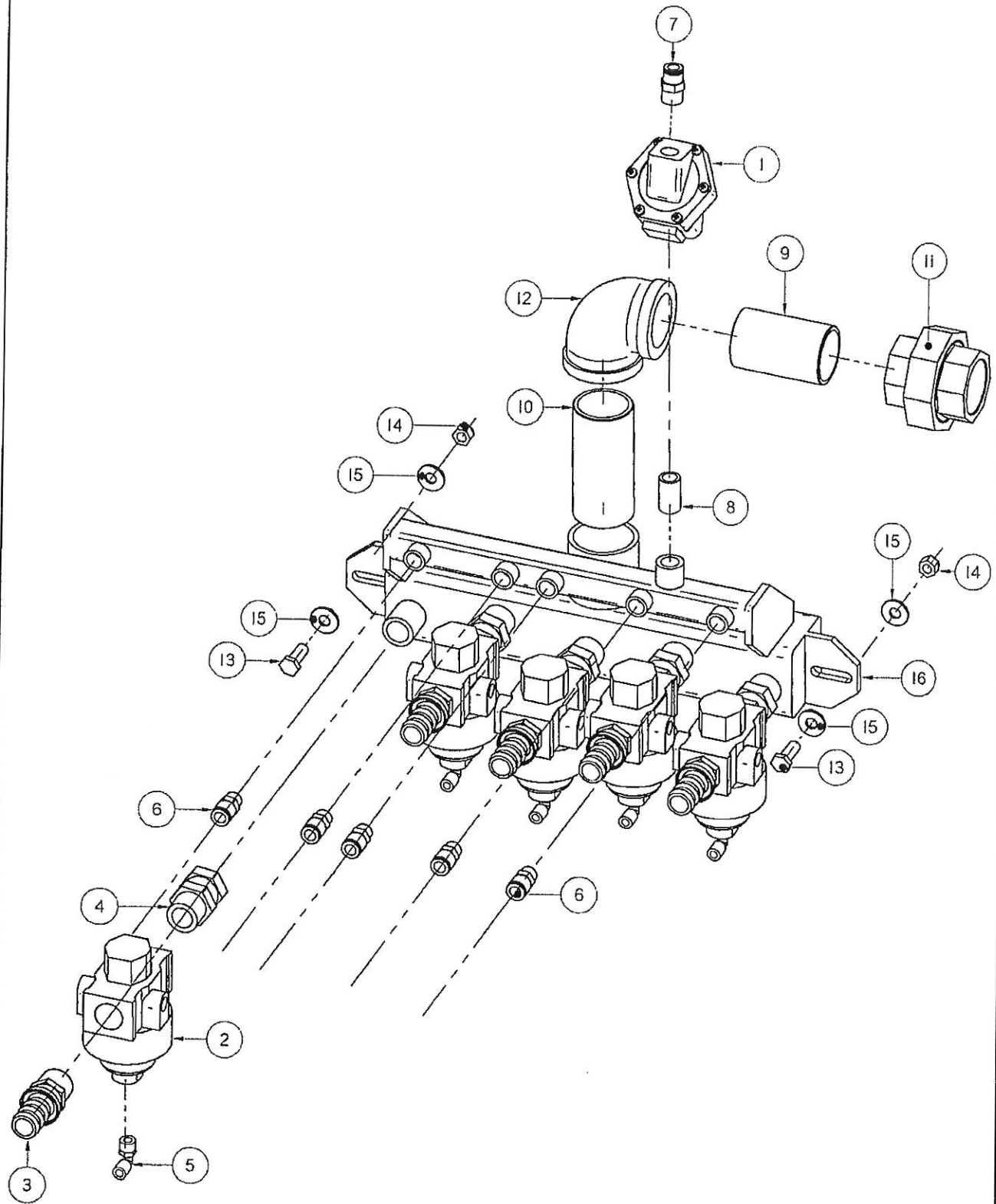
# OILER ASSEMBLY

Item Number	File Name	Quantity	Description
1	06096VAL.par	1	DRUM VALVE
2	06097VAL.par	1	PUSH BUTTON VALVE
3	1607OIL.par	1	SINGLE BANK OILER
4	1608OIL.par	1	3 BANK OILER
5	2050FIT.par	4	1/4" TO 1/8" 90 DEG. FITTING
6	20670FIT.par	1	1/8" - 10/32" STRAIGHT FITTING
7	20750FIT.par	1	1/8" X 1/8" MALE FITTING
8	20751FIT.par	3	1/8" X 1/8" 90 DEG. SWIVEL
9	2105PFT.par	1	1/8" CLOSE NIPPLE
10	2509BLT.par	4	1/4" X 2 1/2" BOLT
11	2716NUT.par	4	1/4" NYLON LOCK NUT

FNG8144-100



# RETRACT AND PILOT PRESSURE MANIFOLD



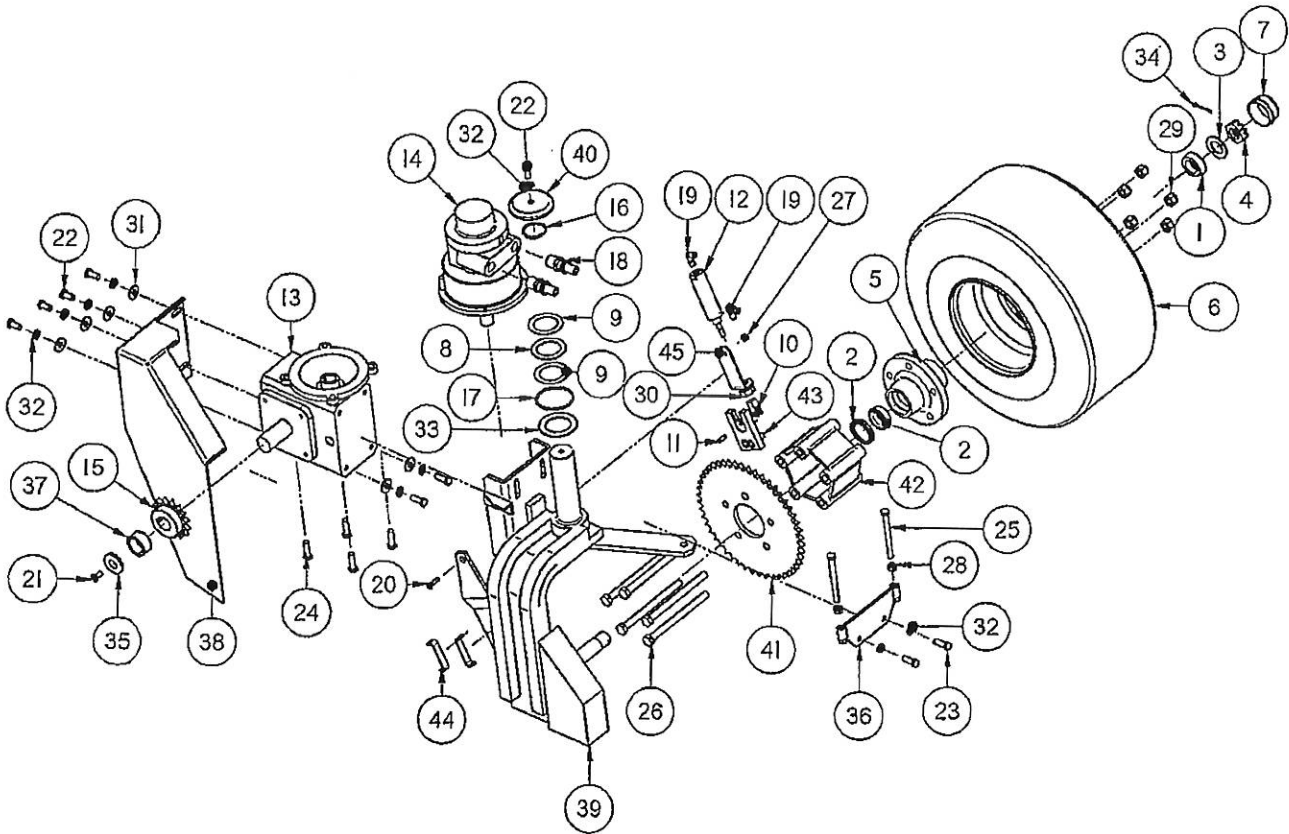
FNG8144-110

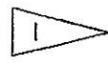
# RETRACT AND PILOT PRESSURE MANIFOLD

Item Number	File Name	Quantity	Description
1	0604VAL.par	1	QUICK EXHAUST VALVE
2	08113REG.par	5	3/4" REGULATOR
3	1999FIT.par	5	3/4" X 3/4" HOSE SWIVEL
4	20010FIT.par	5	3/4" SWIVEL CONNECTOR
5	205IFIT.par	5	1/4" TO 1/4" 90 DEG. FITTING
6	2070FIT.par	5	3/8" TO 1/4" MALE CONNECTOR
7	207IFIT.par	1	3/8" TO 3/8" MALE CONNECTOR
8	2124PFT.par	1	3/8" X 1" NIPPLE
9	212735PFT.par	1	1 1/2" X 3" NIPPLE
10	21277PFT.par	1	1 1/2" X 4" NIPPLE
11	21479PFT.asm	1	1 1/2" GROUND UNION
12	21526PFT.par	1	1 1/2" 90 DEG ELBOW
13	2538BLT.par	2	3/8" X 1" BOLT
14	2727NUT.par	2	3/8" LOCKNUT
15	2800WAS.par	4	5/16" FLAT WASHER
16	SRS1614.par	1	RETRACT MANIFOLD

FNG8144-110

# LEFT SPINDLE ASSEMBLY




 SPROCKET ITEM NO. 15 SUPPLIED WITH 2X CUP POINT ALLEN HD.  
 SET SCREWS 1/4-20UNC X .38" LONG

FNG8144-120

# LEFT SPINDLE ASSEMBLY

Item Number	File Name	Quantity	Description
1	021160whl.par	2	BEARING
2	021161whl.par	1	BEARING SEAL
3	021162whl.par	1	SPINDLE WASHER
4	021163whl.par	1	SPINDLE NUT
5	02116whl.par	1	HUB
6	02118whl.par	1	18.5 X 8.5 WHEEL AND FOAM FILLED TIRE
7	0252whl.par	1	SPINDLE CAP
8	04051brg.par	1	1 3/4" THRUST BEARING
9	04052brg.par	2	THRUST BEARING WASHER
10	05000cyl.par	1	CLEVIS
11	05000cyl02.par	1	CLEVIS PIN
12	05040cyl.par	1	BRAKE CYLINDER
13	15030gbx.par	1	LEFT GEAR BOX
14	1504gbx.par	1	AIR MOTOR
15'	15196BX.par	1	15 TOOTH SPROCKET 1 1/8" BORE
16	18302gro.par	1	O'RING 1 3/4" OD X 1 1/2" ID X 1/8" CROSS SECTION
17	18303gro.par	1	O'RING 2 3/4" OD X 2 1/2" ID 1/8" CROSS SECTION
18	19987fit.par	2	1/2" X 1/2" HOSE SWIVEL
19	20751fit.par	2	1/8" X 1/8" 90 DEG. SWIVEL
20	25030blt.par	1	1/4" X 1" BRASS FLATHEAD BOLT
21	25190blt.par	1	5/16" X 3/4" FLAT HEAD SCREW
22	2537blt.par	5	3/8" X 3/4" BOLT
23	2538blt.par	4	3/8" X 1" BOLT
24	2540blt.par	4	3/8" X 1 1/4" BOLT
25	25520blt.par	2	3/8" X 4" TAP BOLT
26	25740blt.par	5	1/2" X 6 1/2" FINE THREAD BOLT
27	2716nut.par	1	1/4" NYLON LOCK NUT
28	2725nut.par	2	3/8" STANDARD NUT
29	2733nut.par	5	1/2" STANDARD NUT
30	27698nut.par	1	5/8" JAM NUT
31	2820was.par	6	3/8" FLAT WASHER
32	2821was.par	9	3/8" LOCK WASHER
33	2866was.par	1	2 3/4" OD X 1 7/8" ID MACHINE BUSHING WASHER
34	30221pin.par	1	1/8" X 1 1/4" COTTER PIN
35	srs16080.par	1	GEARBOX WASHER CAP
36	srs1609.par	1	CHAIN ADJUSTER
37	srs16090.par	1	GEAR BOX SPACER
38'	srs1610.par	1	CHAIN COVER LEFT
39	srs1612.par	1	LEFT SPINDLE ASSEMBLY
40	srs1628.par	1	SPINDLE WASHER CAP
41	srs1650.par	1	5 HOLE DRIVE WHEEL SPROCKET
42	srs1652.par	1	WHEEL SPACER
43	SRS1675.asm	1	BRAKE ASSEMBLY
44	srs1676.par	2	WEAR PAD
45'	srs1677.par	1	BRAKE CYLINDER MOUNT

FNG8144-120



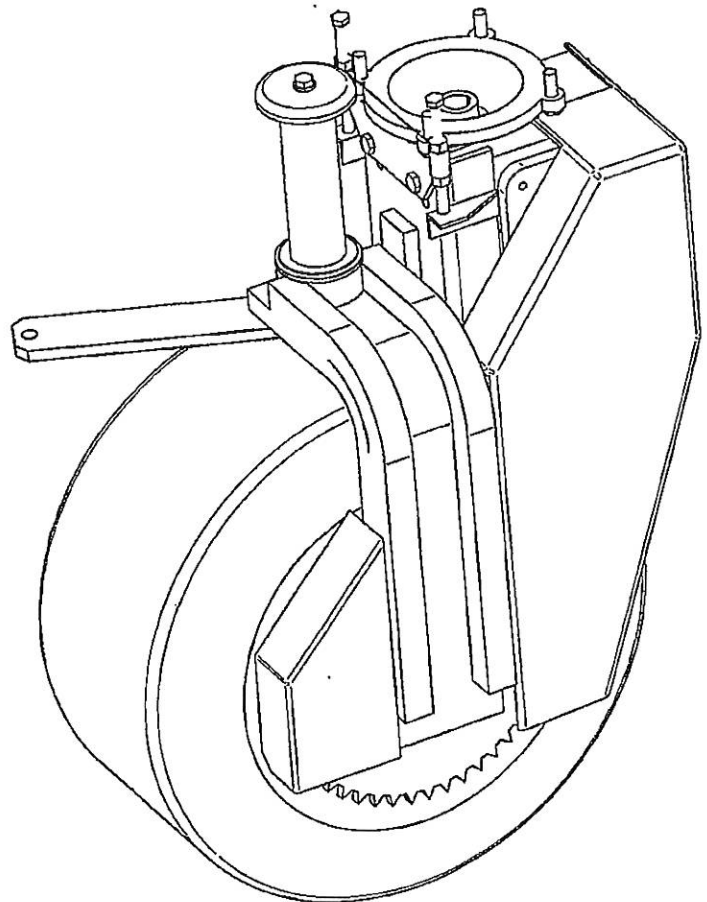
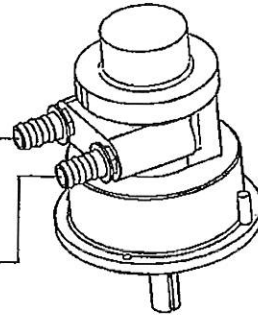
# RIGHT SPINDLE ASSEMBLY

Item Number	File Name	Quantity	Description
1	021160whl.par	2	BEARING
2	021161whl.par	1	BEARING SEAL
3	021162whl.par	1	SPINDLE WASHER
4	021163whl.par	1	SPINDLE NUT
5	02116whl.par	1	HUB
6	02118whl.par	1	18.5 X 8.5 WHEEL AND FOAM FILLED TIRE
7	0252whl.par	1	SPINDLE CAP
8	04051brg.par	1	1 3/4" THRUST BEARING
9	04052brg.par	2	THRUST BEARING WASHER
10	1503gbx.par	1	RIGHT GEAR BOX
11	1504gbx.par	1	AIR MOTOR
12	1519gbx.par	1	15 TOOTH SPROCKET 1 1/8" BORE
13	18302gro.par	1	O'RING 1 3/4" OD X 1 1/2" ID X 1/8" CROSS SECTION
14	18303gro.par	1	O'RING 2 3/4" OD X 2 1/2" ID 1/8" CROSS SECTION
15	19990fit.par	2	1/2" TO 3/4" SWIVEL
16	25190blt.par	1	5/16" X 3/4" FLAT HEAD SCREW
17	2537blt.par	5	3/8" X 3/4" BOLT
18	2538blt.par	4	3/8" X 1" BOLT
19	2540blt.par	4	3/8" X 1 1/4" BOLT
20	25520blt.par	2	3/8" X 4" TAP BOLT
21	25740blt.par	5	1/2" X 6 1/2" FINE THREAD BOLT
22	2725nut.par	2	3/8" STANDARD NUT
23	2733nut.par	5	1/2" STANDARD NUT
24	2820was.par	6	3/8" FLAT WASHER
25	2821was.par	7	3/8" LOCK WASHER
26	2866was.par	1	2 3/4" OD X 1 7/8" ID MACHINE BUSHING WASHER
27	30221pin.par	1	1/8" X 1 1/4" COTTER PIN
28	srs16080.par	1	GEARBOX WASHER CAP
29	srs1609.par	1	CHAIN ADJUSTER
30	srs16090.par	1	GEAR BOX SPACER
31	srs1611.par	1	CHAIN COVER RIGHT
32	srs1613.par	1	SPINDLE ASSEMBLY RIGHT
33	srs1628.par	1	SPINDLE WASHER CAP
34	srs1650.par	1	5 HOLE DRIVE WHEEL SPROCKET
35	srs1652.par	1	WHEEL SPACER

# RIGHT SIDE AIR MOTOR

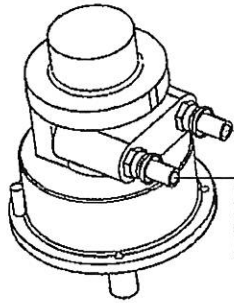
HOSI506 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY

HOSI507 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY



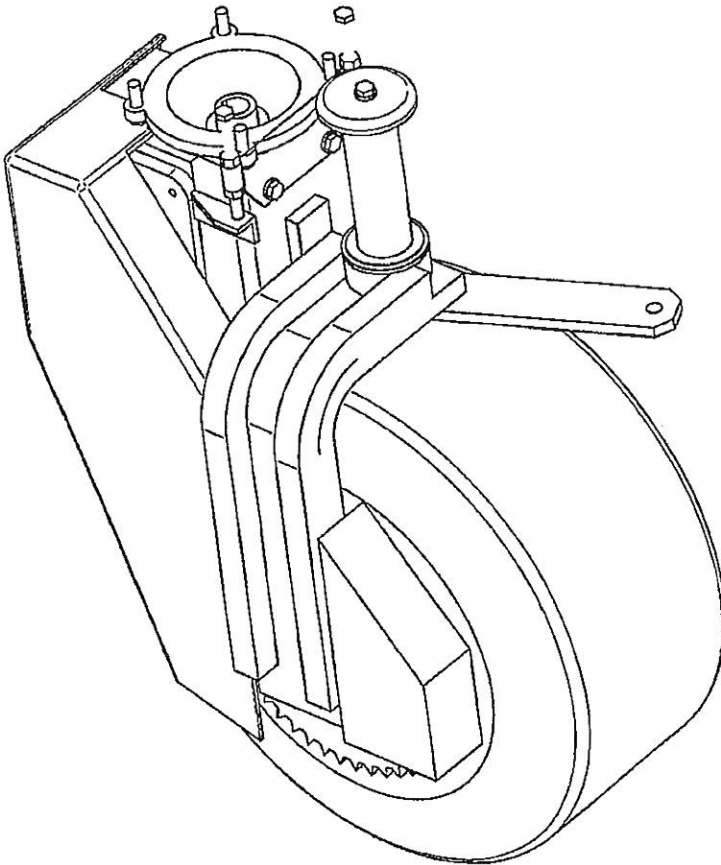
FNG8144-260

# LEFT SIDE AIR MOTOR



HOSI506 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY

HOSI507 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY



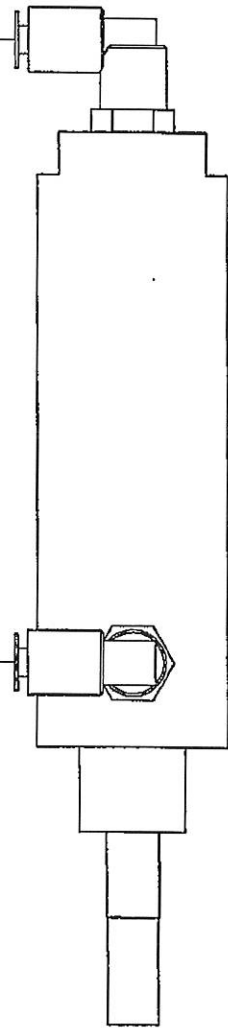
FNG8144-240



# BRAKE CYLINDER

1899IH0S 1/8" BLACK TUBE FROM THE 06095VAL BRAKE ON/OFF SWITCH

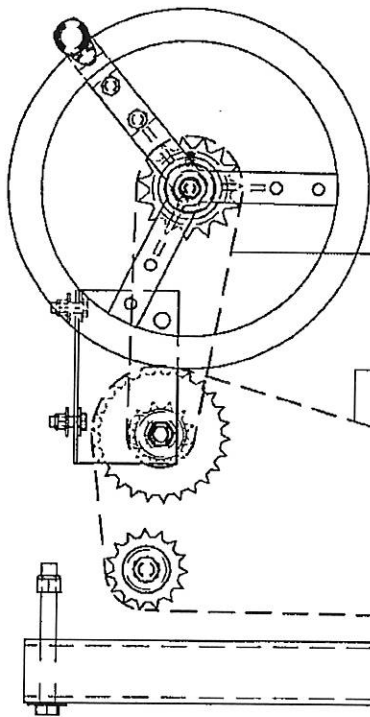
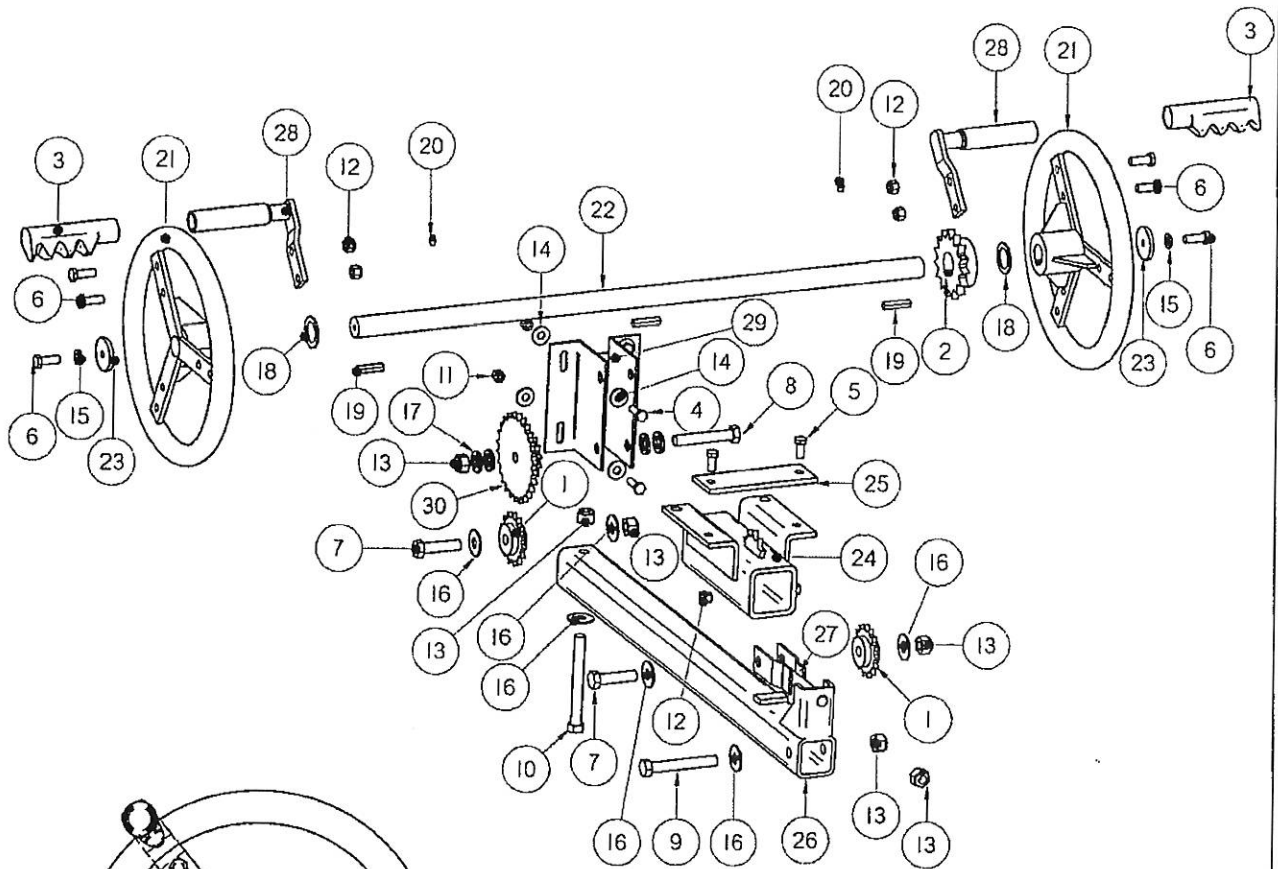
1899IH0S 1/8" BLACK TUBE FROM THE 06095VAL BRAKE ON/OFF SWITCH



FNG8144-250



# STEERING DRIVE ASSEMBLY



24" OF 1534GBX #40 CHAIN WITH (I) 1533GBX MASTER LINK

52" OF 1534GBX #40 CHAIN WITH (II) 1533GBX MASTER LINK

FNG8144-140

# STEERING DRIVE ASSEMBLY

Item Number	File Name	Quantity	Description
1	15151GBX.par	2	IDLER SPROCKET
2	1519GBX.par	1	15 TOOTH SPROCKET 1 1/8" BORE
3	1820GR0.par	2	HANDLE GRIP
4	2520BLT.par	4	5/16" X 1" BOLT
5	2537BLT.par	2	3/8" X 3/4" BOLT
6	2538BLT.par	6	3/8" X 1" BOLT
7	2563BLT.par	2	1/2" X 2" BOLT
8	2567BLT.par	1	1/2" X 3" BOLT
9	2568BLT.par	1	1/2" X 3 1/2" BOLT
10	2572BLT.par	1	1/2" X 4 1/2" BOLT
11	2719NUT.par	4	5/16" NYLON LOCK NUT
12	2727NUT.par	6	3/8" LOCKNUT
13	2734NUT.par	6	1/2" LOCKNUT
14	2800WAS.par	5	5/16" FLAT WASHER
15	2821WAS.par	2	3/8" LOCK WASHER
16	2830WAS.par	6	1/2" WASHER
17	2831WAS.par	4	7/8"OD X 1/2"ID WASHER 10GA.
18	2860WAS.par	2	1 1/2" OD X 1" ID 5GA. WASHER
19	4265MIS.par	3	1/4" KEYWAY
20	9501MIS.par	2	GREASE ZERT
21	SRS1602.par	2	STEERING WHEEL
22	SRS1607.par	1	STEERING WHEEL SHAFT
23	SRS1608.par	2	STEERING WASHER CAP
24	SRS1615.par	1	STEERING SLIDE
25	SRS1616.par	1	CHAIN HOLD DOWN
26	SRS1639.par	1	STEERING SLIDE BAR
27	SRS1640.par	1	STEERING CHAIN ADJUSTER
28	SRS1651.par	2	STEERING WHEEL SPINNER
29	SRUI313.par	1	CHAIN TIGHTENER
30	SRUI330.par	1	TRANSMISSION GEAR SPROCKET

FNG8144-140

# STEERING DRIVE LINKAGE ASSEMBLY

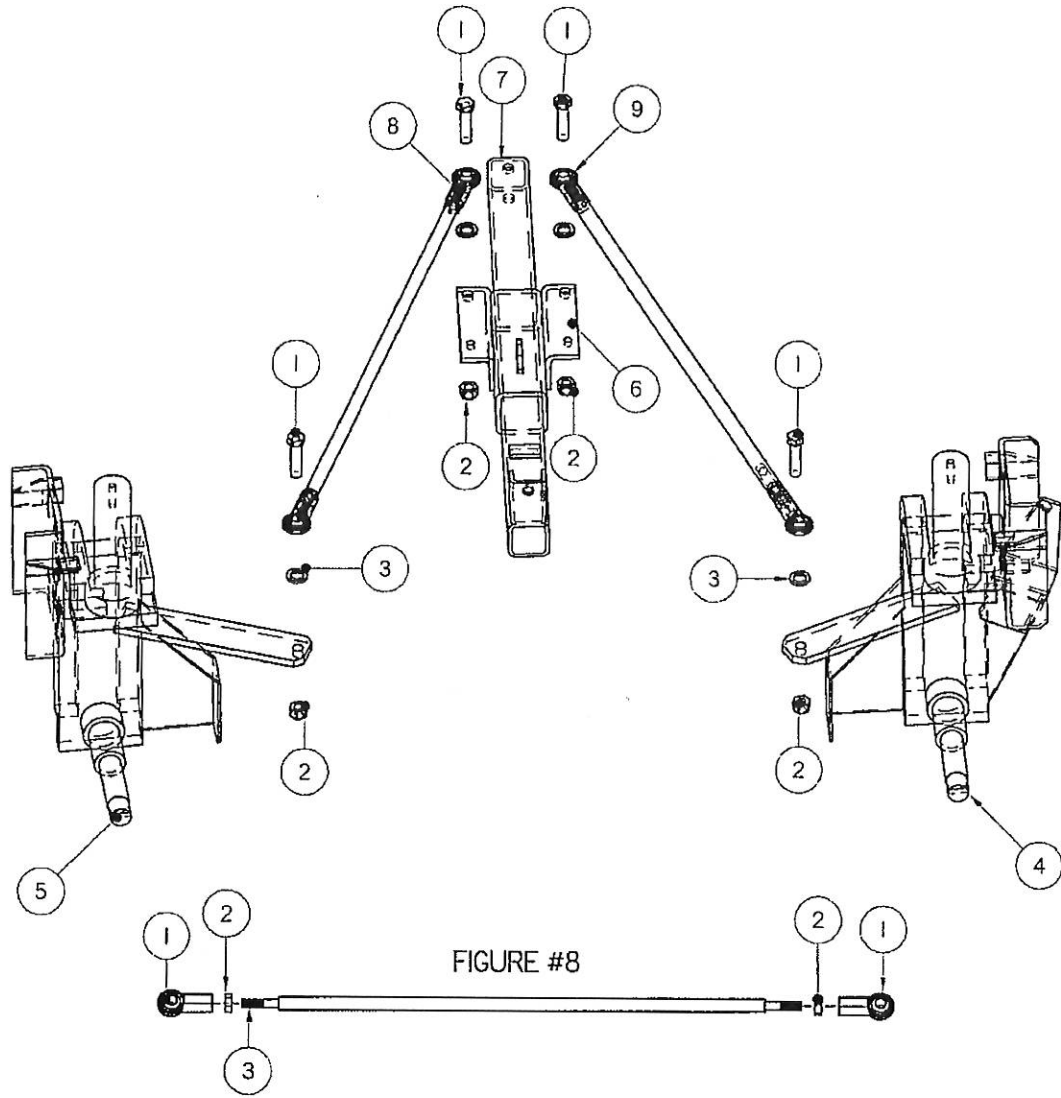


FIGURE #8

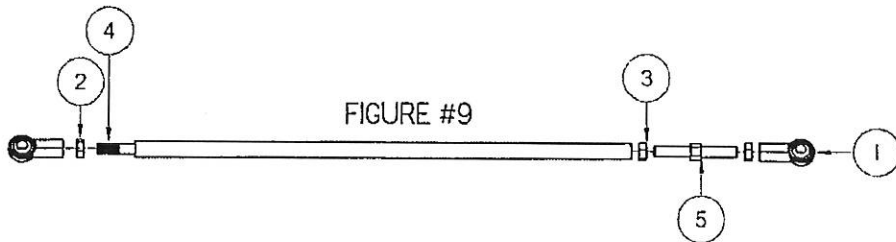


FIGURE #9

FNG8144-150

# STEERING DRIVE LINKAGE ASSEMBLY

Item Number	File Name	Quantity	Description
1	2563BLT.par	4	1/2" X 2" BOLT
2	2734NUT.par	4	1/2" LOCKNUT
3	2831WAS.par	4	7/8"OD X 1/2"ID WASHER 10GA
4	srs1612.par	1	LEFT SPINDLE ASSEMBLY
5*	SRS1613.par	1	SPINDLE ASSEMBLY RIGHT
6*	SRS1615.par	1	STEERING SLIDE
7	SRS1639.par	1	STEERING SLIDE BAR
8*	STEERINGLINKAG E.asm	1	
9	STEERINGLINKAG E2.asm	1	

FIGURE #8

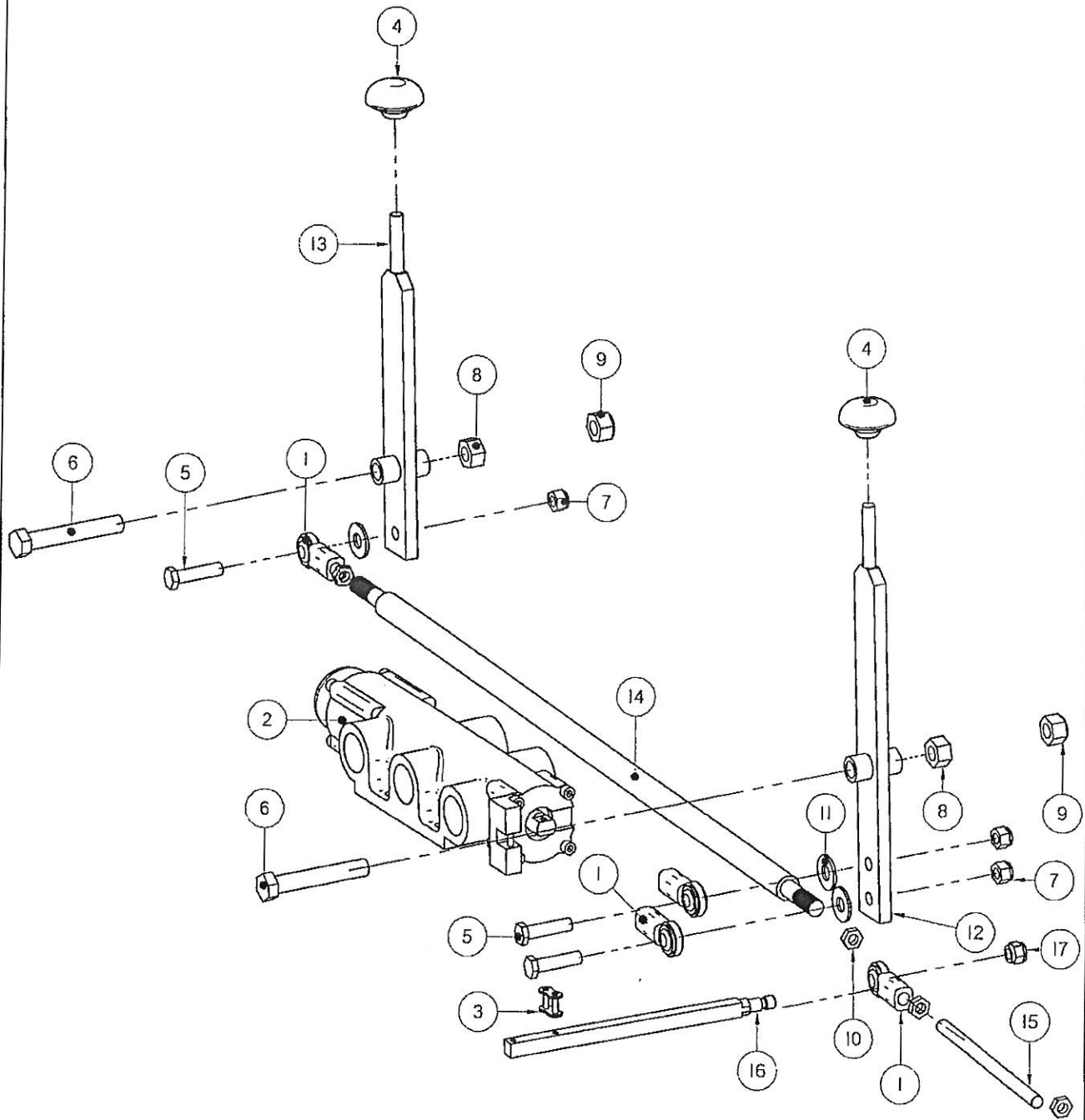
Item Number	File Name	Quantity	Description
1	04015BRG.par	2	1/2" ROD END BEARING
2	27696NUT.par	2	1/2" JAM NUT
3	SRS1617.par	1	STEERING TIE ROD

FIGURE #9

Item Number	File Name	Quantity	Description
1	04015BRG.par	2	1/2" ROD END BEARING
2	27696NUT.par	2	1/2" JAM NUT
3	27697NUT.par	1	1/2" JAM NUT LEFT HANDED
4	SRS16170.par	1	TIE ROD WITH NUT
5	SRS161700.par	1	STEERING ROD

FNG8144-150

# DIRECTIONAL DRIVE ASSEMBLY



FNG8144-160

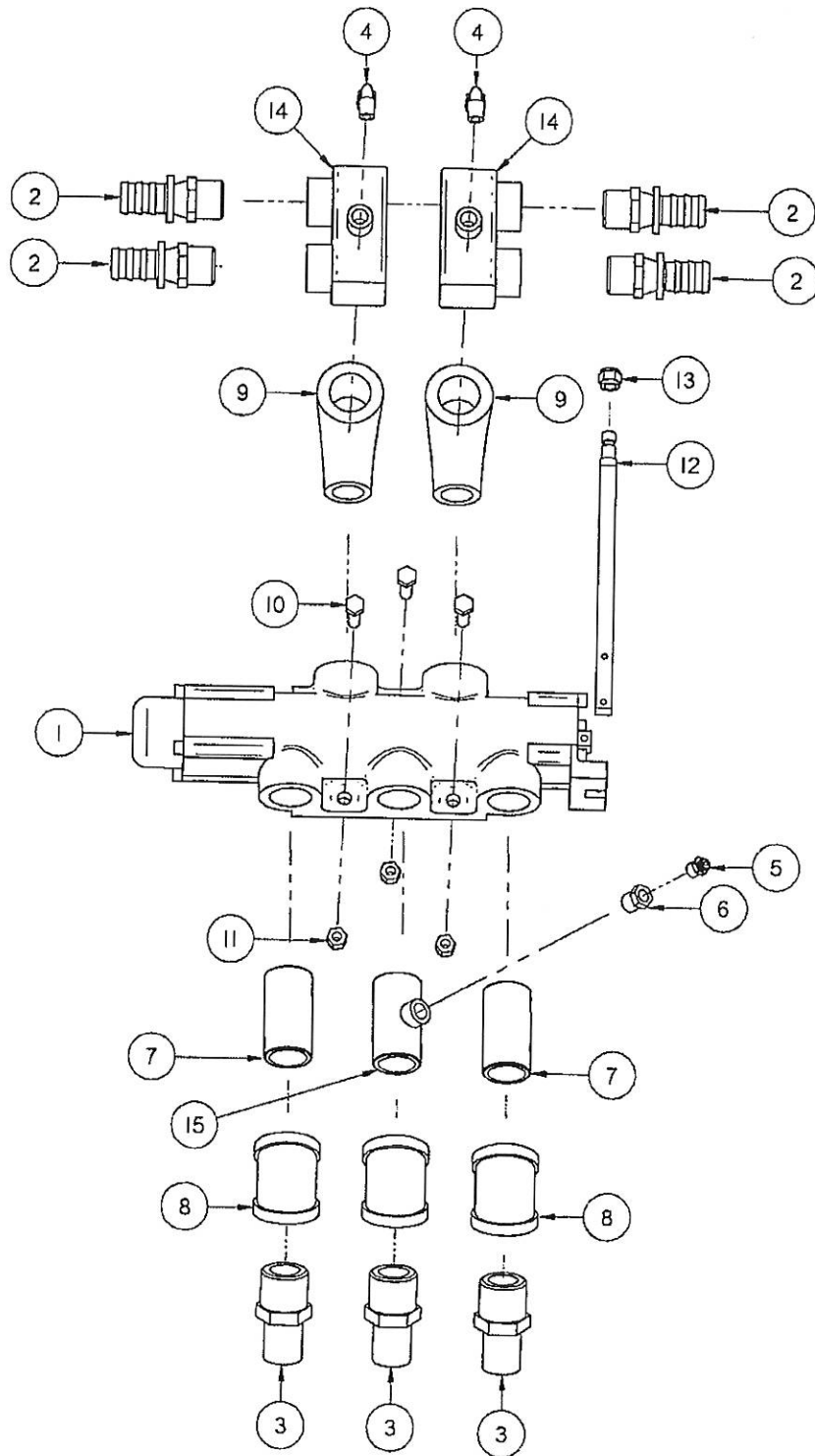
# DIRECTIONAL DRIVE ASSEMBLY

Item Number	File Name	Quantity	Description
1	0401BRG.par	4	3/8" ROD END BEARING
2*	06195VAL.par	1	1" STEERING VALVE
3	1533GBX.par	1	CONNECTING LINK # 40 CHAIN
4	1718RPT.par	2	KNOB
5	254IBLT.par	3	3/8" X 1 1/2" BOLT
6*	2567BLT.par	2	1/2" X 3" BOLT
7	2727NUT.par	3	3/8" LOCKNUT
8	2732NUT.par	2	1/2" STANDARD NUT
9	2734NUT.par	2	1/2" LOCKNUT
10	27692NUT.par	4	3/8" JAM NUT
11*	2820WAS.par	3	3/8" FLAT WASHER
12	SRSI603.par	1	TRAVEL LEVER RIGHT
13	SRSI604.par	1	TRAVEL LEVER LEFT
14*	SRSI605.par	1	TIE ROD TRAVEL 2'
15	SRSI606.par	1	TIE ROD TRAVEL 6"
16	SRSI6060.par	1	TRAVEL VALVE HANDLE
17	SRSI6061.par	1	3/8" LOCKNUT

FNG8144-160



# TRAVEL VALVE ASSEMBLY

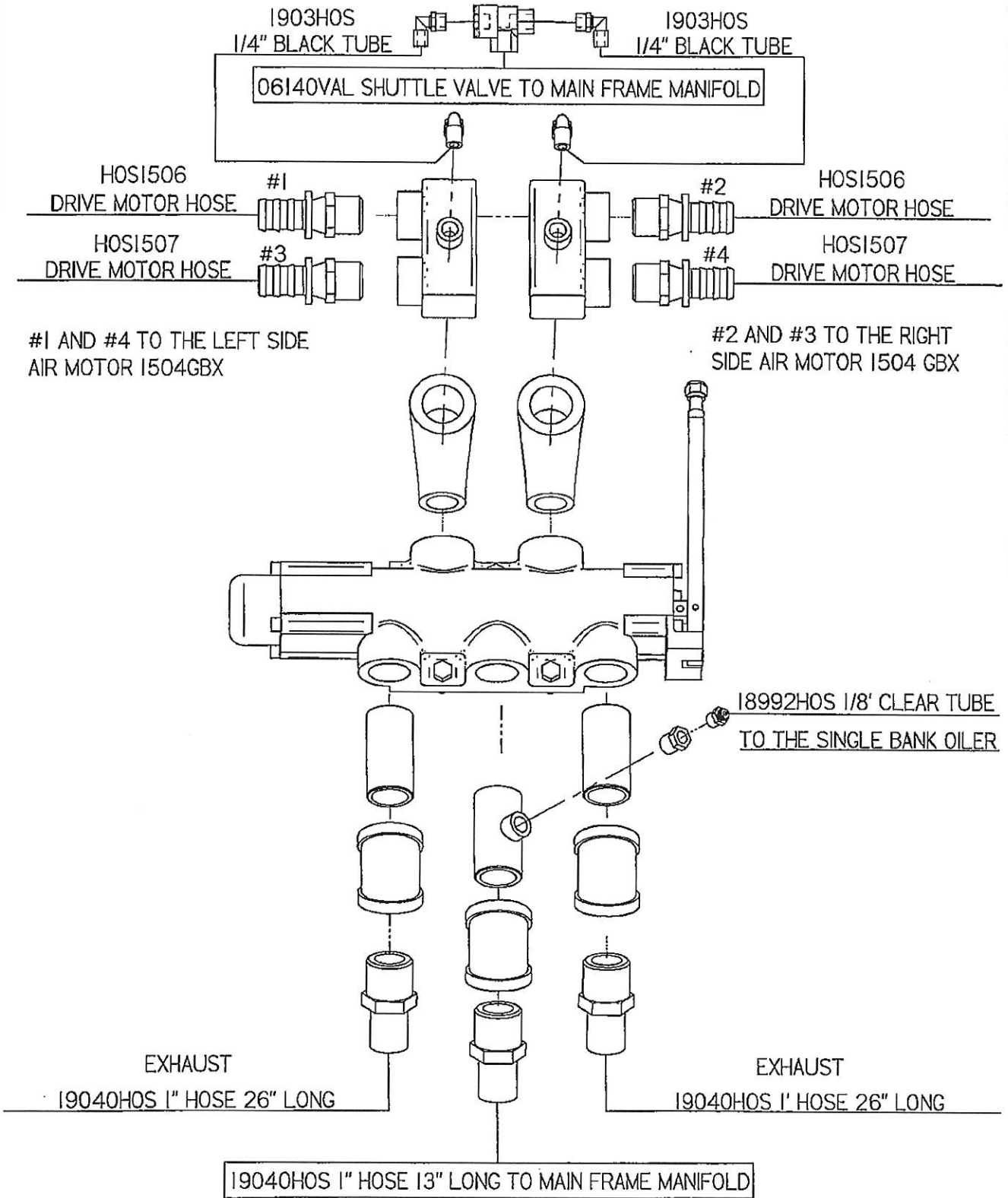


# TRAVEL VALVE ASSEMBLY

Item Number	File Name	Quantity	Description
1	06195VAL.par	1	1" STEERING VALVE
2	1999FIT.par	4	3/4" X 3/4" HOSE SWIVEL
3	2003IFIT.par	3	1" HOSE FITTING
4	205IFIT.par	2	1/4" TO 1/4" 90 DEG. FITTING
5	20750FIT.par	1	1/8" X 1/8" MALE FITTING
6	20755FIT.par	1	1/4" X 1/8" BUSHING
7	2125PFT.par	2	1" X 2 1/2" PIPE NIPPLE
8	2151PFT.par	3	1" X 45 DEG FEMALE ELBOW
9	2160PFT.par	2	1" STREET ELBOW
10	2520BLT.par	3	5/16" X 1" BOLT
11	2719NUT.par	3	5/16" NYLON LOCK NUT
12	SRSI6060.par	1	TRAVEL VALVE HANDLE
13	SRSI6061.par	1	3/8" LOCKNUT
14	SRSI622.par	2	TRAVEL MANIFOLD
15	SRSI6670.par	1	DRIVE OIL MANIFOLD

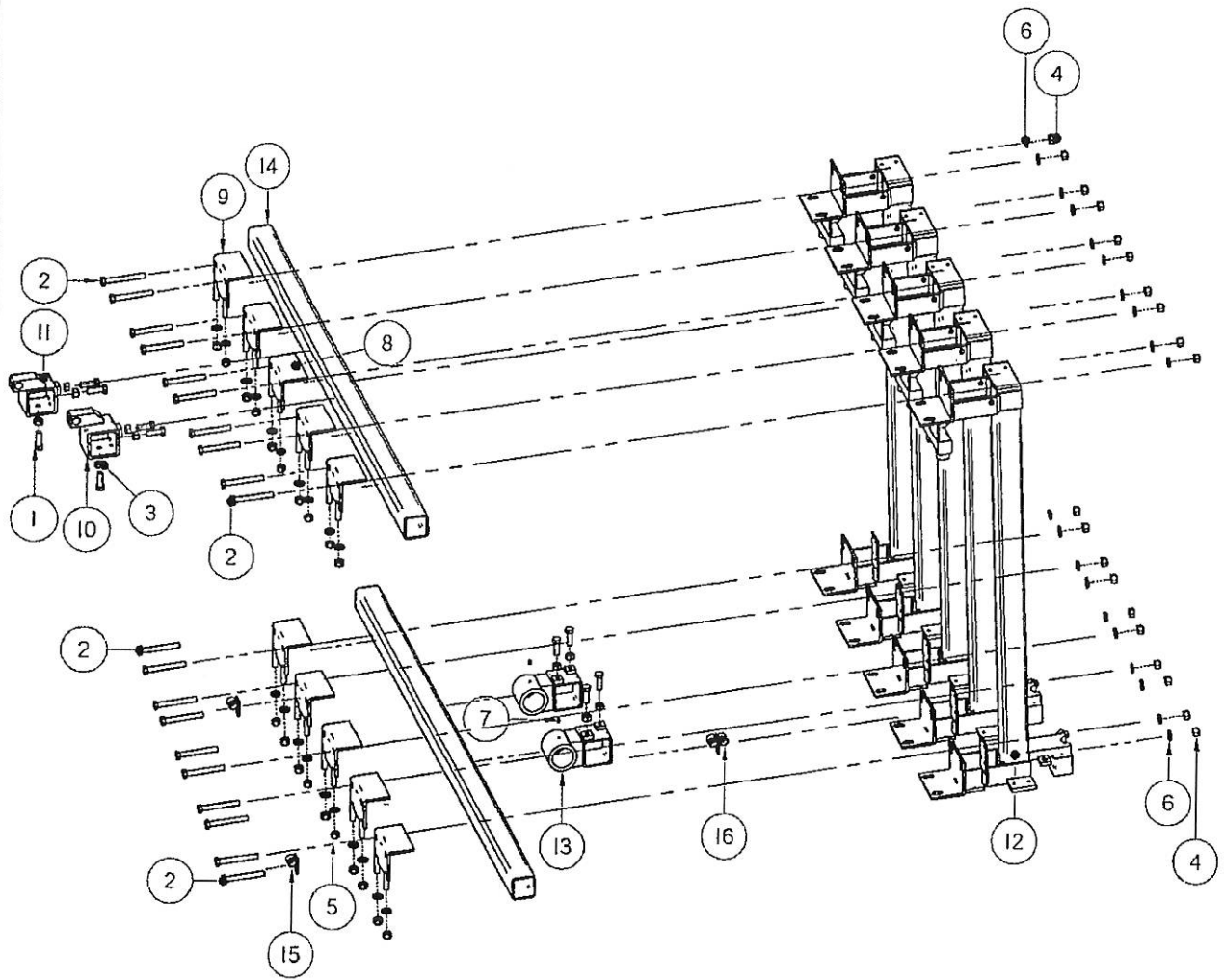


# TRAVEL VALVE ASSEMBLY



FNG8144-230

# TOOL BAR ASSEMBLY



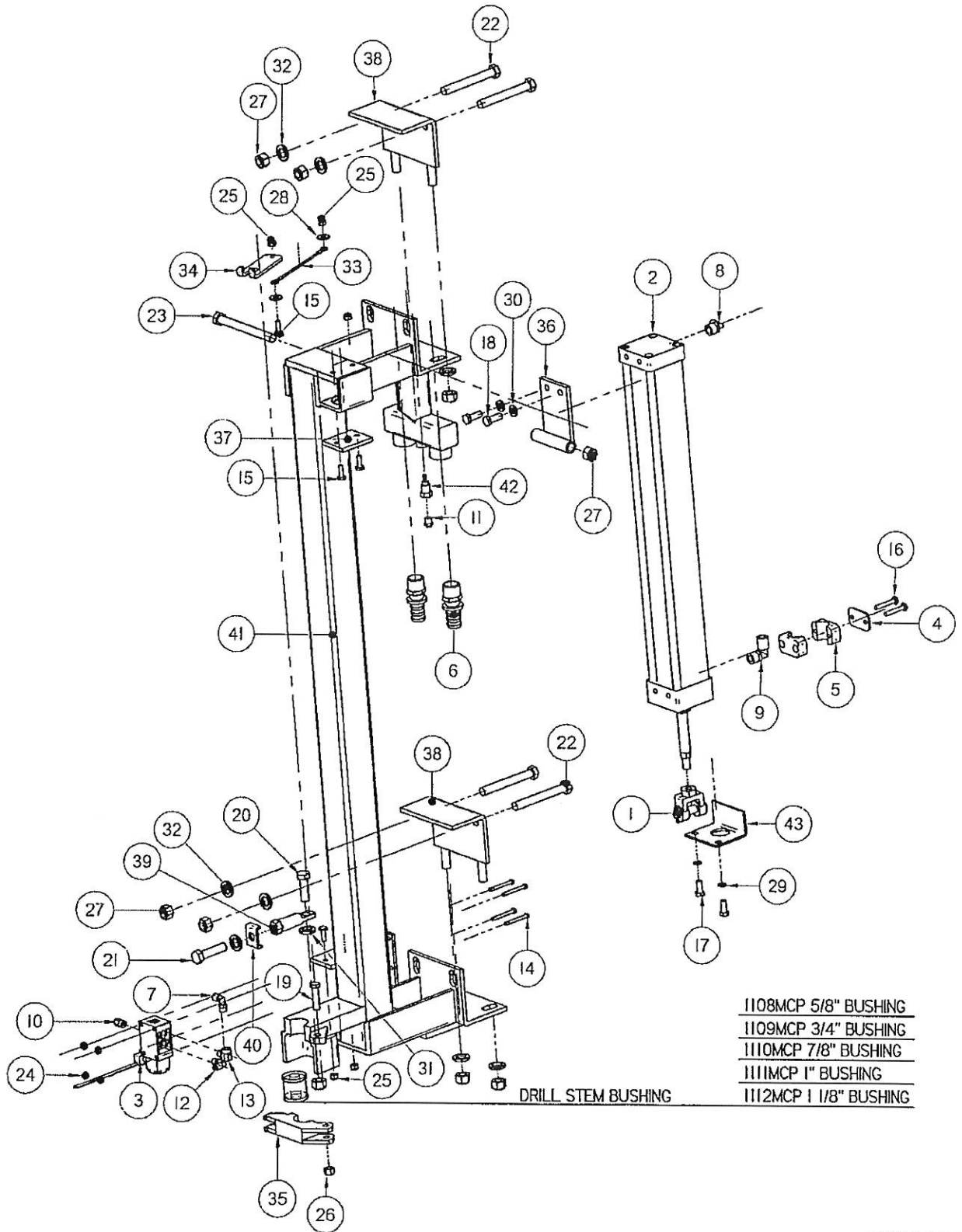
FNG8144-180

# TOOL BAR ASSEMBLY

Item Number	File Name	Quantity	Description
1	2562BLT.par	10	1/2" X 1 1/2" BOLT
2	2570BLT.par	20	1/2" X 4" BOLT
3	2732NUT.par	10	1/2" STANDARD NUT
4	2734NUT.par	38	1/2" LOCKNUT
5	2735NUT.par	2	1/2" SIDE LOCK NUT
6	2831WAS.par	40	7/8"OD X 1/2"ID WASHER 10GA.
7	9501MS.par	2	GREASE ZERT
8	MFA06410.par	1	5" FRAME CLAMP WITH SHORTEND BOLT
9	MFA0642.par	9	5" FRAME CLAMP
10	SRS1620.par	1	ROD END CYLINDER MOUNT RT
11	SRS1621.par	1	ROD END CYLINDER MOUNT LT
12	SRS1633.par	5	FEED BAR
13	SRS1635.par	2	HINGE
14	SRS1649.par	2	TOOL BAR VARIABLE LENGHTS
15	SRS1690.par	2	WIRE LOOM BRACKET
16	SRS1691.par	1	DUAL WIRE LOOM BRACKET

FNG8144-180

# FEED BAR ASSEMBLY



FNG8144-190

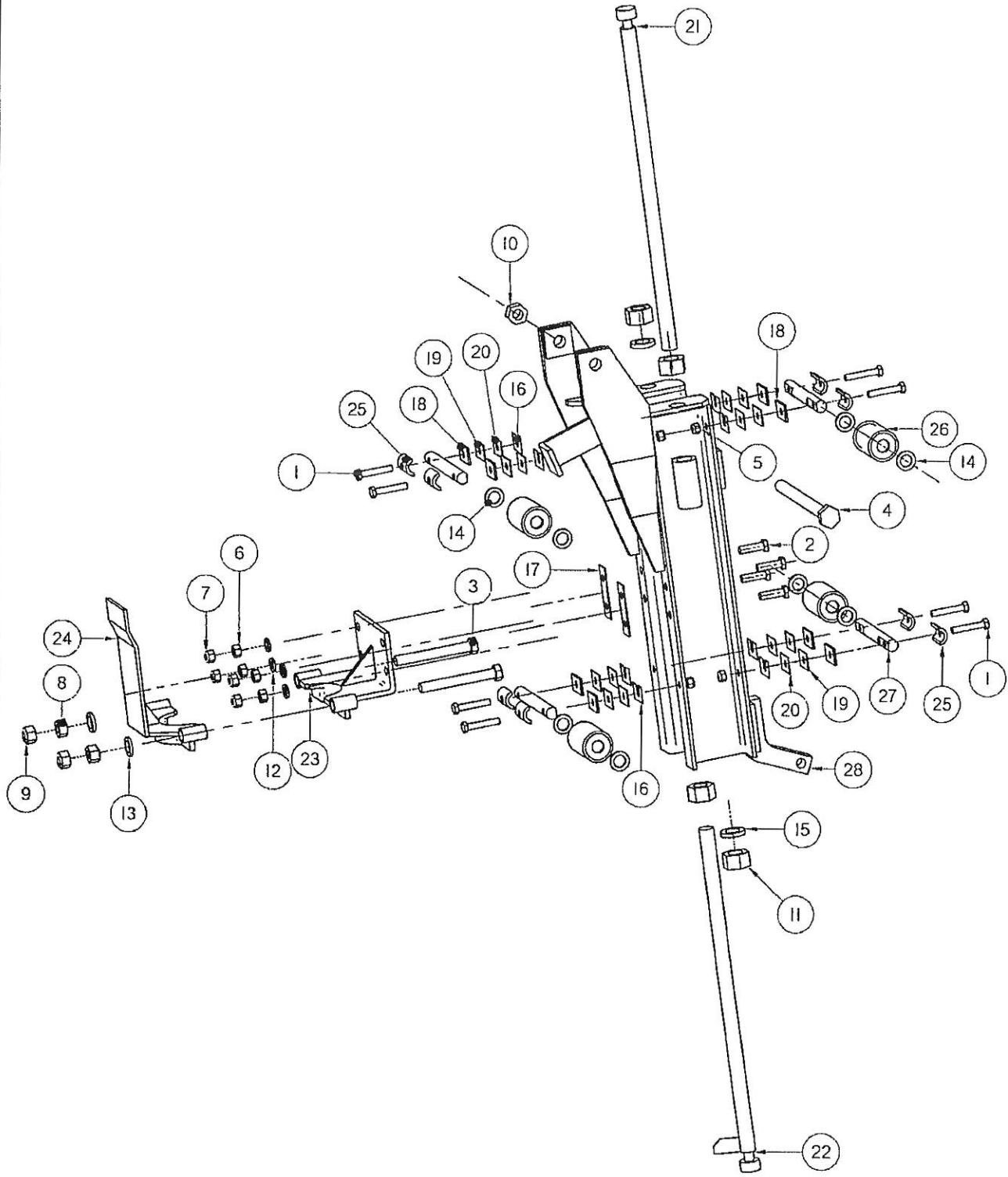
# FEED BAR ASSEMBLY

Item Number	File Name	Quantity	Description
1	0501CYL.asm	1	CLEVIS WITH PIN FOR 5/8" ROD
2	05140CYL.asm	1	2.5" X 20" FEED CYLINDER
3	0608VAL.par	1	AUTOMATIC SHUT OFF VALVE
4	192309HOS.par	1	1" VIBRATION DAMPING HOSE CLAMP
5	192309HOS.par	2	1" VIBRATION DAMPING HOSE CLAMP
6	1999FIT.par	2	3/4" X 3/4" HOSE SWIVEL
7	2050FIT.par	1	1/4" TO 1/8" 90 DEG. FITTING
8	2052FIT.par	1	1/4" TO 3/8" 90 DEG. FITTING
9	2054FIT.par	1	3/8" X 3/8" 90 DEG. FITTING
10	2066FIT.par	1	1/4" TO 1/8" MALE CONNECTOR
11	20750FIT.par	1	1/8" X 1/8" MALE FITTING
12	20751FIT.par	1	1/8" X 1/8" 90 DEG. SWIVEL
13	2153PFT.par	1	1/8" BRASS 90
14	2484BLT.par	4	3/16" X 1 3/4" BOLT
15	2501BLT.par	4	1/4" X 3/4" BOLT
16	2506BLT.par	2	1/4" X 1 1/2" BOLT
17	2516BLT.par	2	5/16" X 3/4" FINE THREAD BOLT
18	2538BLT.par	2	3/8" X 1" BOLT
19	2541BLT.par	1	3/8" X 1 1/2" BOLT
20	2562BLT.par	1	1/2" X 1 1/2" BOLT
21	2563BLT.par	1	1/2" X 2" BOLT
22	2570BLT.par	4	1/2" X 4" BOLT
23	2575BLT.par	1	1/2" X 5" BOLT
24	2713NUT.par	4	3/16" NYLON LOCK NUT
25	2716NUT.par	5	1/4" NYLON LOCK NUT
26	2727NUT.par	1	3/8" LOCKNUT
27	2734NUT.par	9	1/2" LOCKNUT
28	2801WAS.par	2	1/4" FLAT WASHER
29	2810WAS.par	2	5/16" LOCK WASHER
30	2821WAS.par	2	3/8" LOCK WASHER
31	2831WAS.par	1	7/8"OD X 1/2"ID WASHER 10GA.
32	2832WAS.par	8	1/2" WASHER
33	3030PIN.par	1	6" LANYARD WITH LOOPS
34	CRA0218.par	1	CARRIAGE LOCK
35	MFA0609.par	1	BIT GUIDE
36	MFA0625.par	1	FEED CYLINDER MOUNT BRACKET
37	MFA0626.par	2	STOP PAD
38	MFA0642.par	2	5" FRAME CLAMP
39	MFA0674.par	1	SWIVEL BOLT
40	MFA0690.par	1	BIT GUIDE KEEPER
41	SRS1633.par	1	FEED BAR
42	SRS1666.par	1	OIL INJECTOR
43	SRS16800.par	1	1" HOSE MOUNT BRACKET

FNG8144-190



# CARRIAGE ASSEMBLY



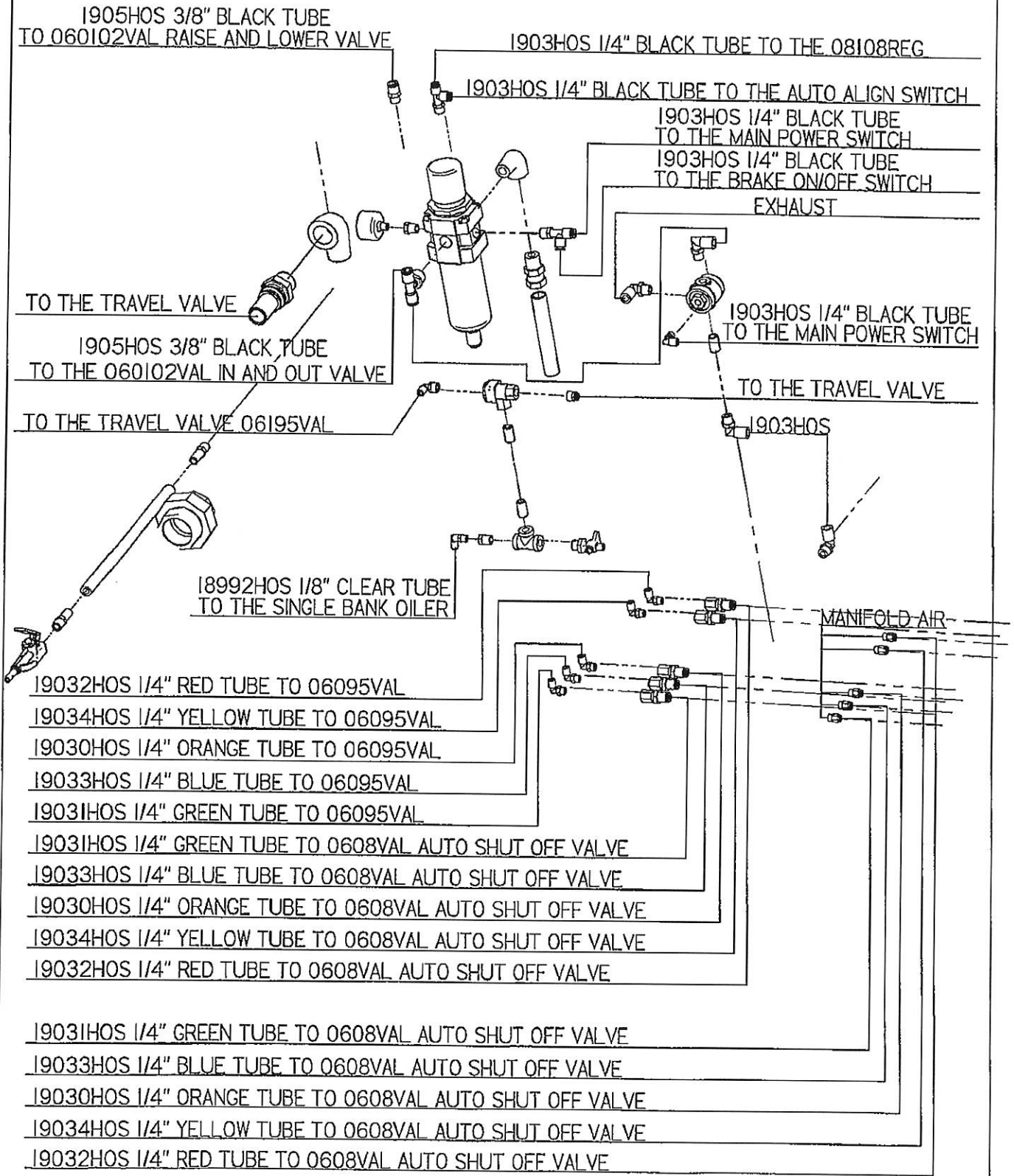
FNG8144-200

# CARRIAGE ASSEMBLY

Item Number	File Name	Quantity	Description
1	2526BLT	8	5/16" X 1-1/2" BOLT
2	2540BLT.par	4	3/8" X 1 1/4" BOLT
3	2570BLT.par	2	1/2" X 4" BOLT
4	2590BLT.par	1	5/8" X 8" BOLT
5	2719NUT.par	4	5/16" NYLON LOCK NUT
6	2725NUT.par	4	3/8" STANDARD NUT
7	2727NUT.par	4	3/8" LOCKNUT
8	2732NUT.par	2	1/2" STANDARD NUT
9	2734NUT.par	2	1/2" LOCKNUT
10	2742NUT.par	1	5/8" LOCKNUT
11	27490NUT.par	4	3/4" COIL ROD NUT
12	2821WAS.par	4	3/8" LOCK WASHER
13	2832WAS.par	2	1/2" WASHER
14	2841WAS.par	8	5/16" WASHER
15	2852WAS.par	2	3/4" LOCK WASHER
16	7009TAB.par	8	STAINLESS STEEL SHIM (AS NEEDED)
17	7010TAB.par	2	16 GA. TWO HOLE SHIM
18	7011TAB.par	8	12 GA. SHIM (AS NEEDED)
19	7012TAB.par	8	18 GA. SHIM (AS NEEDED)
20	7013TAB.par	8	22 GA. SHIM (AS NEEDED)
21	Cra02030.Par	1	18" STOP ROD
22	CRA02040.par	1	18" STOP ROD WITH TAB
23	CRA0214.par	1	UPPER DRILL BRACKET
24	CRA0216.par	1	LOWER DRILL BRACKET
25	CRA0230.par	8	BEARING KEEPER
26	CRA0233.par	4	ROLLER BEARING DRUM
27	CRA0234.par	4	ROLLER BEARING AXLE
28	CRG0104I.par	1	CARRIAGE

FNG8144-200

# MAIN FRAME MANIFOLD



FNG8144-210

# MAIN POWER, BRAKE AND AUTO ALIGN SWITCHES

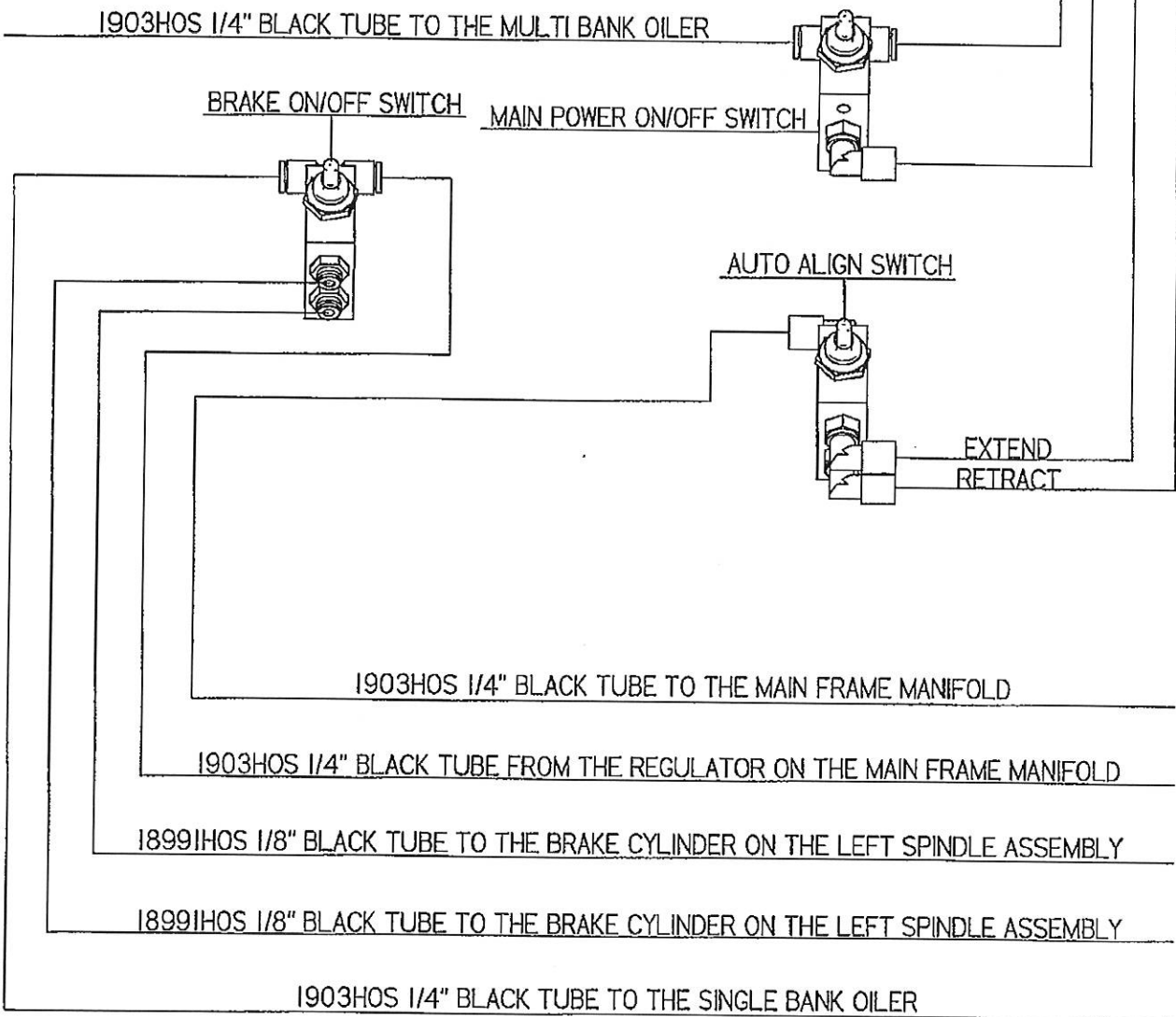
1903HOS 1/4" BLACK TUBE TO THE 05212CYL AUTO ALIGN CYLINDER RETRACT ON THE MAST ASSEMBLY

1903HOS 1/4" BLACK TUBE TO THE 05212CYL AUTO ALIGN CYLINDER EXTEND

1903HOS 1/4" BLACK TUBE FROM THE REGULATOR ON THE MAIN FRAME MANIFOLD

1903HOS 1/4" BLACK TUBE TO THE PILOT OPERATED VALVE ON THE MAIN FRAME MANIFOLD

1903HOS 1/4" BLACK TUBE TO THE MULTI BANK OILER



BRAKE ON/OFF SWITCH

MAIN POWER ON/OFF SWITCH

AUTO ALIGN SWITCH

EXTEND  
RETRACT

1903HOS 1/4" BLACK TUBE TO THE MAIN FRAME MANIFOLD

1903HOS 1/4" BLACK TUBE FROM THE REGULATOR ON THE MAIN FRAME MANIFOLD

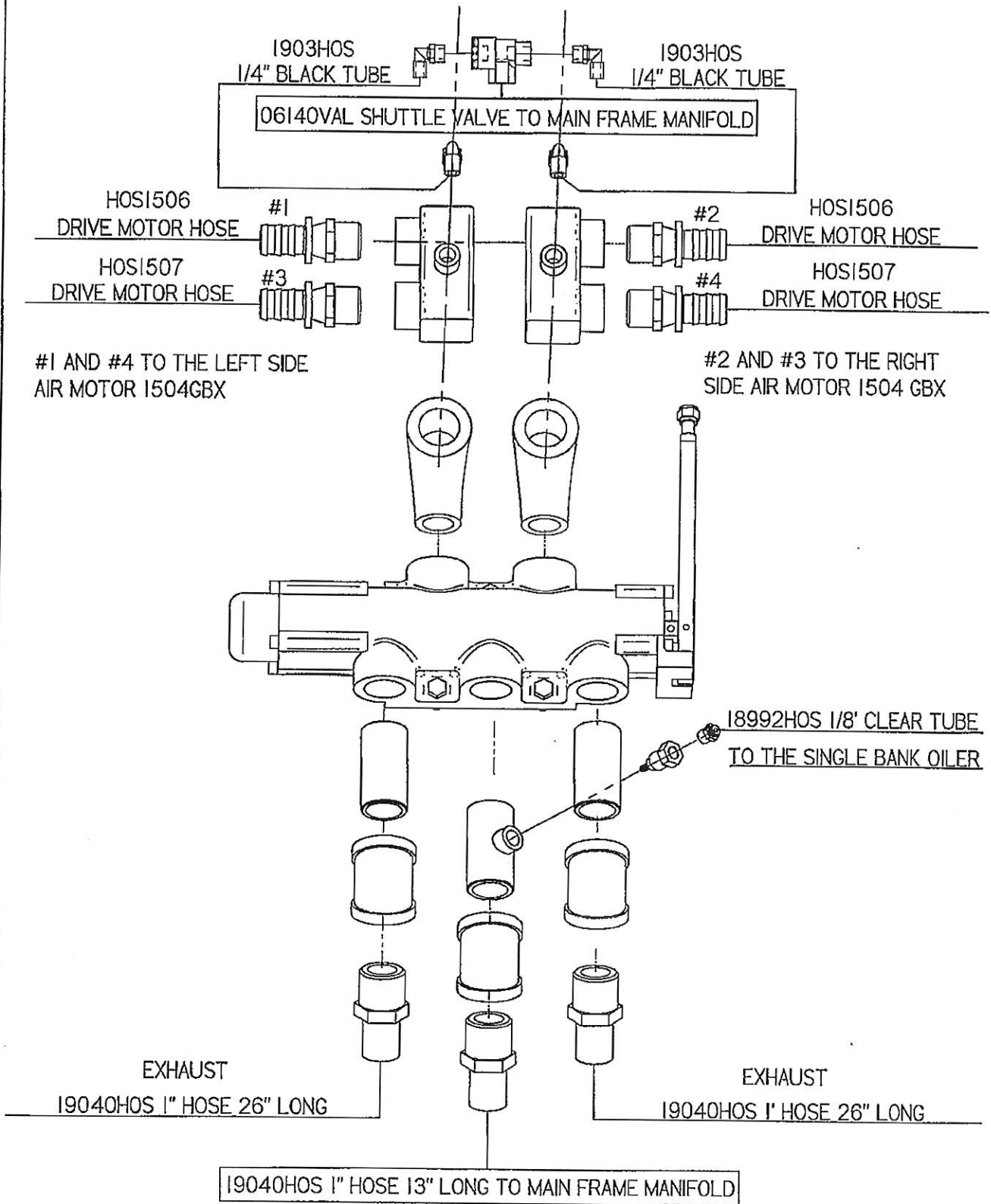
18991HOS 1/8" BLACK TUBE TO THE BRAKE CYLINDER ON THE LEFT SPINDLE ASSEMBLY

18991HOS 1/8" BLACK TUBE TO THE BRAKE CYLINDER ON THE LEFT SPINDLE ASSEMBLY

1903HOS 1/4" BLACK TUBE TO THE SINGLE BANK OILER

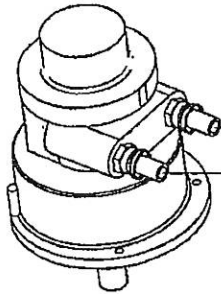
FNG8144-220

# TRAVEL VALVE ASSEMBLY



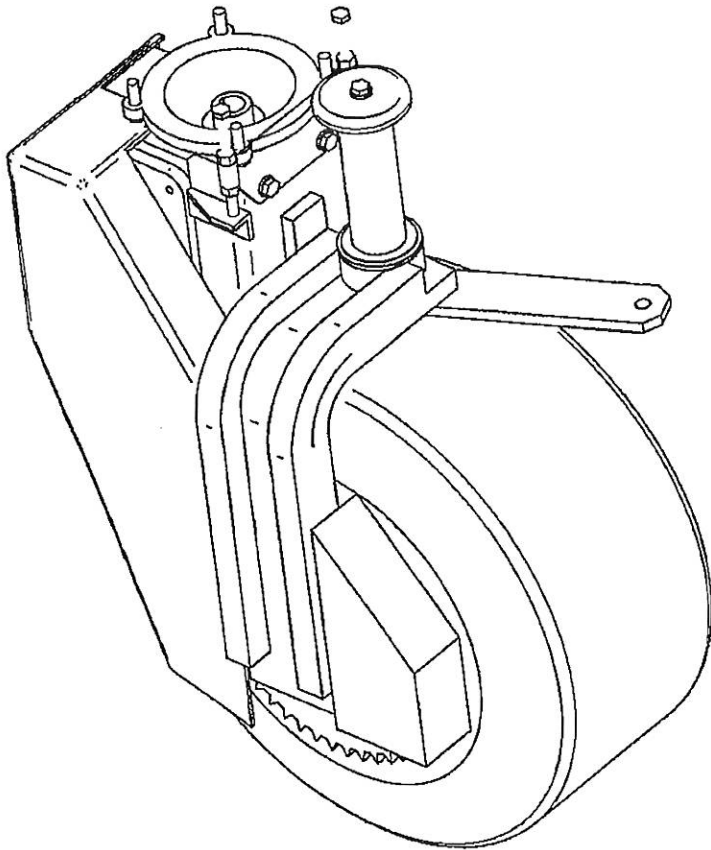
FNG8144-230

# LEFT SIDE AIR MOTOR



HOSI506 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY

HOSI507 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY

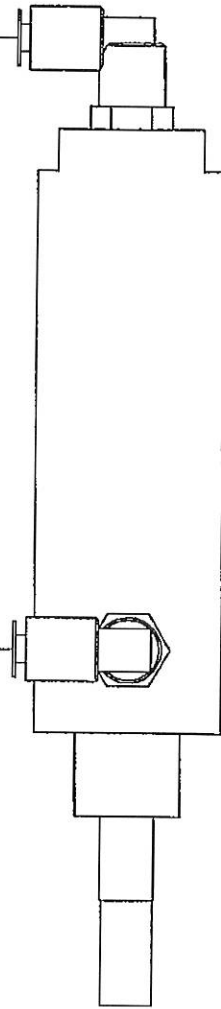


FNG8144-240

# BRAKE CYLINDER

1899IHOS 1/8" BLACK TUBE FROM THE 06095VAL BRAKE ON/OFF SWITCH

1899IHOS 1/8" BLACK TUBE FROM THE 06095VAL BRAKE ON/OFF SWITCH

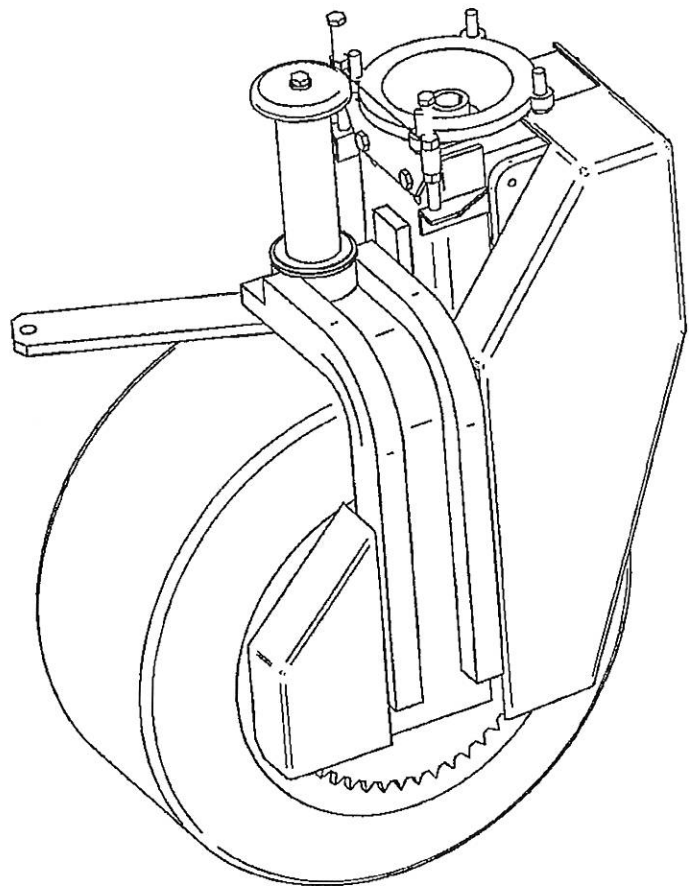
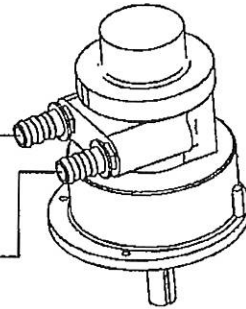


FNG8144-250

# RIGHT SIDE AIR MOTOR

HOSI506 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY

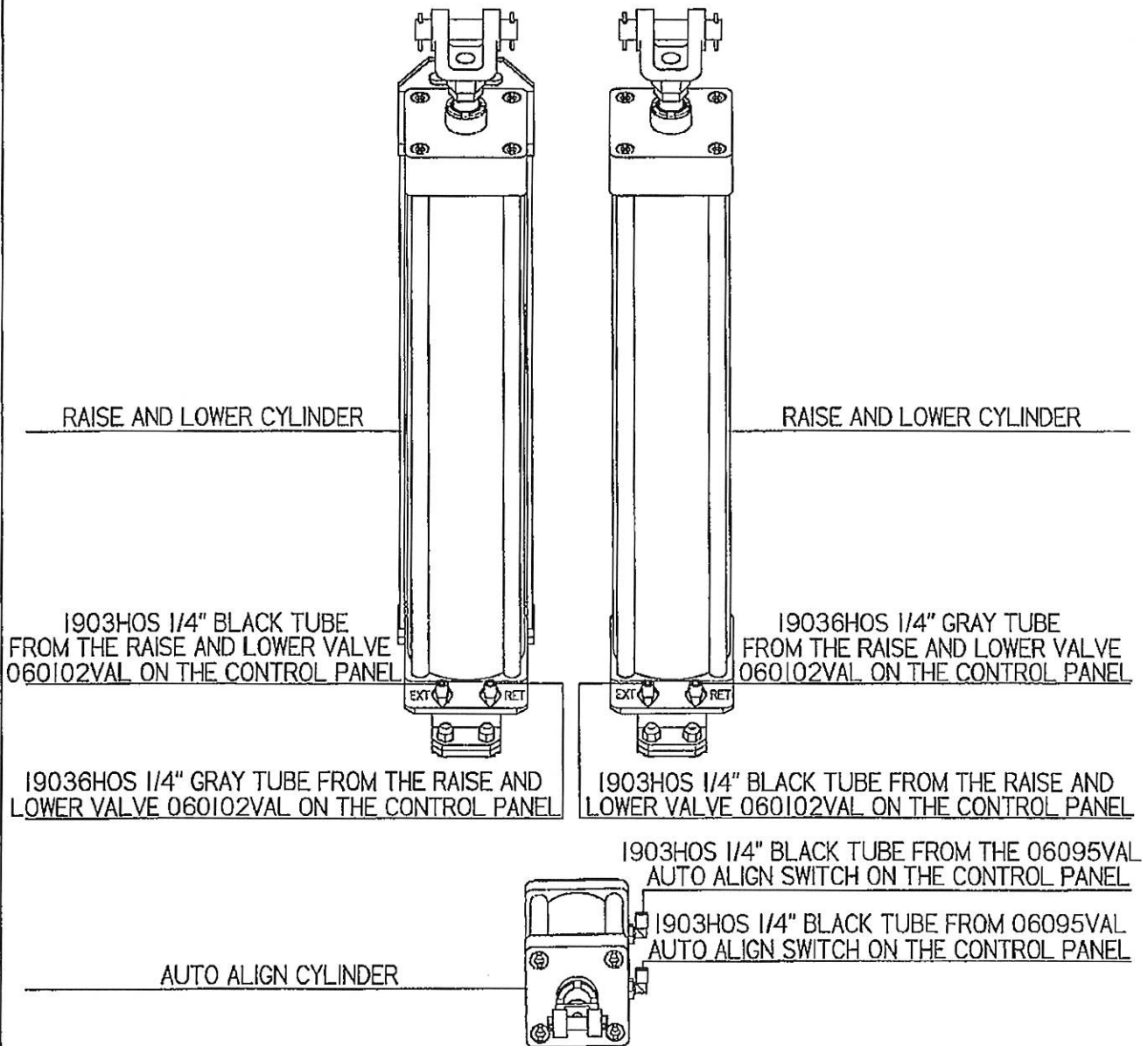
HOSI507 DRIVE MOTOR HOSE FROM THE TRAVEL VALVE ASSEMBLY



FNG8144-260



# RAISE AND LOWER AND AUTO ALIGN CYLINDERS



FNG8144-270

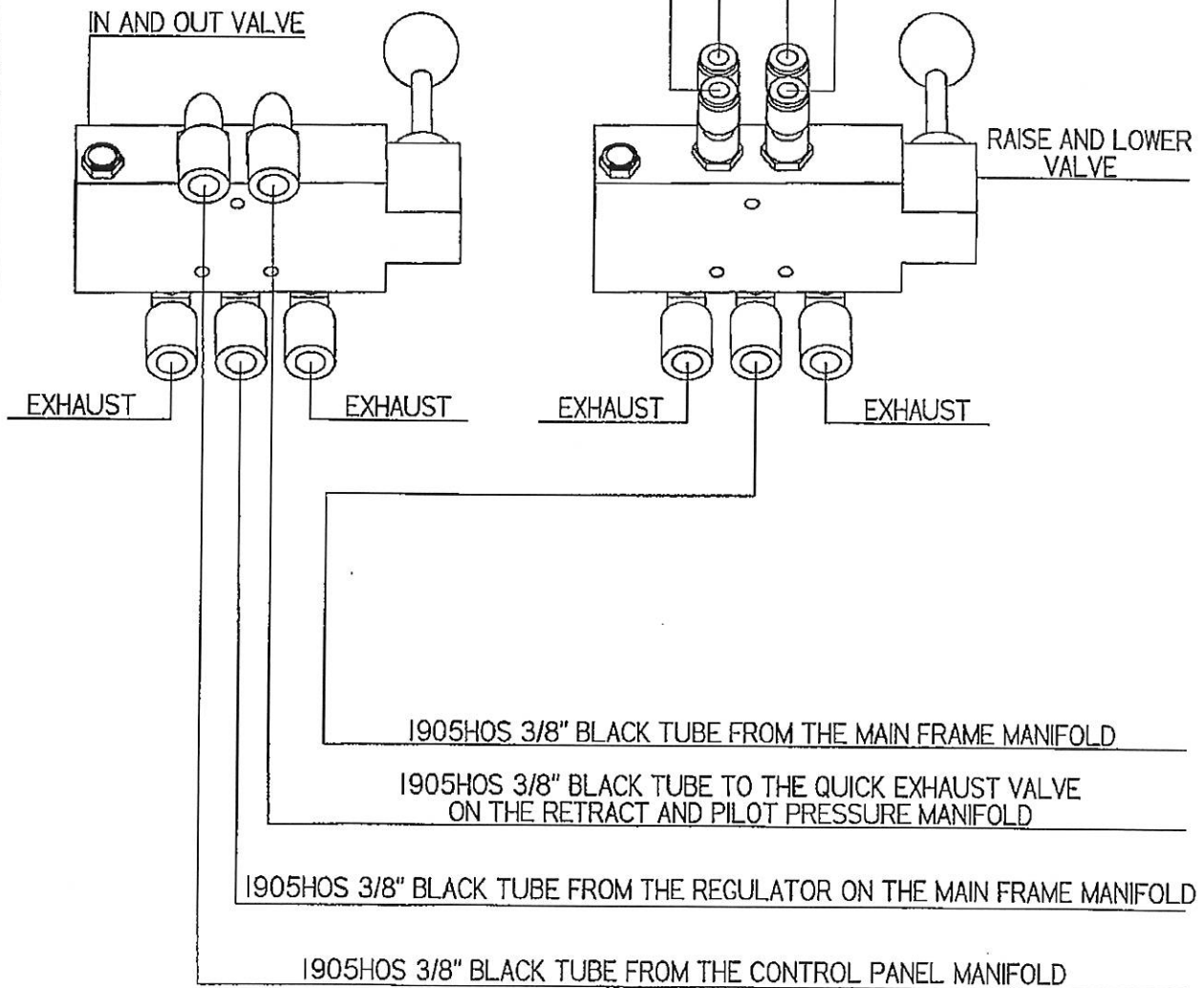
# IN AND OUT AND RAISE AND LOWER VALVES

1903HOS 1/4" BLACK TUBE TO THE 05208CYL  
RAISE AND LOWER CYLINDER RETRACT

1903HOS 1/4" BLACK TUBE TO THE 05208CYL  
RAISE AND LOWER CYLINDER RETRACT

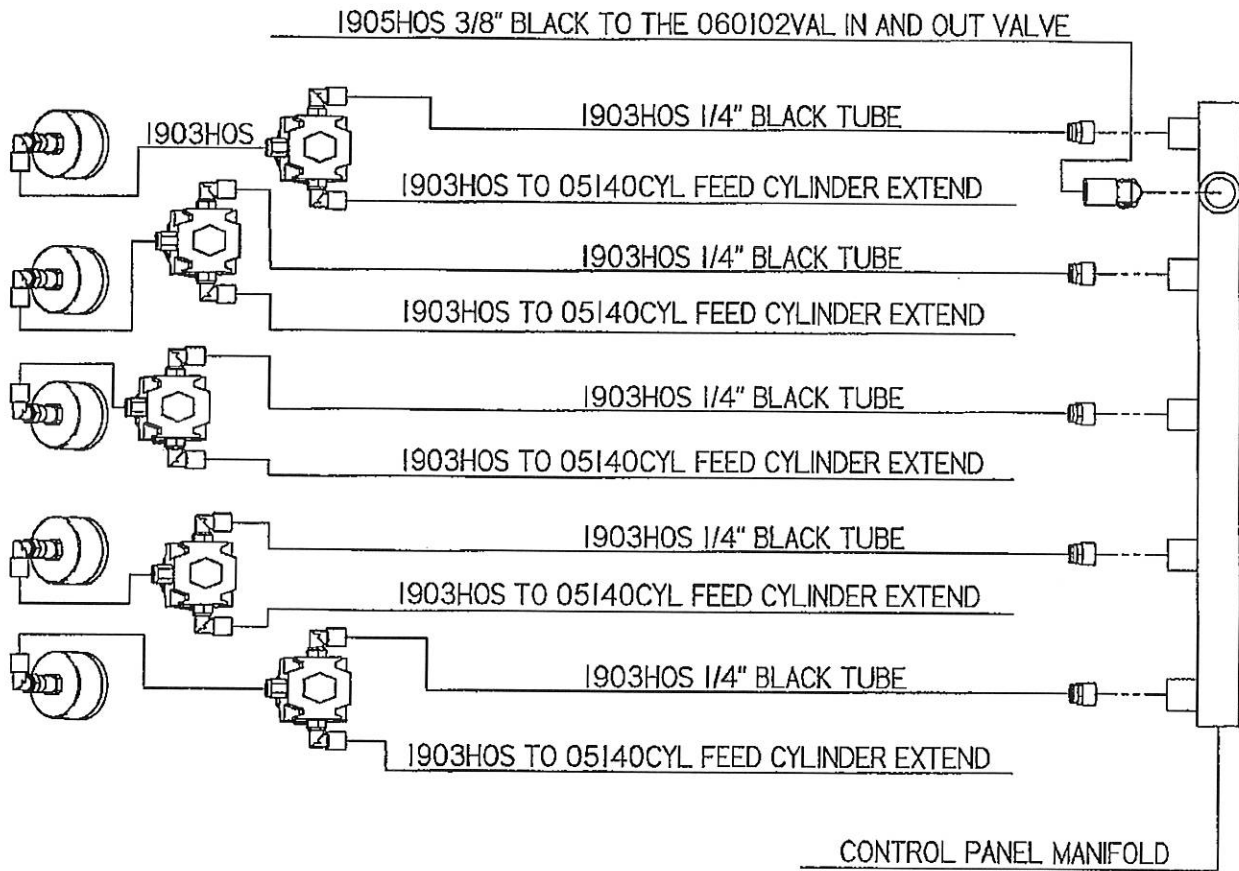
19036HOS 1/4" GRAY TUBE TO THE 05208CYL  
RAISE AND LOWER CYLINDER EXTEND

19036HOS 1/4" GRAY TUBE TO THE 05208CYL  
RAISE AND LOWER CYLINDER EXTEND



FNG8144-280

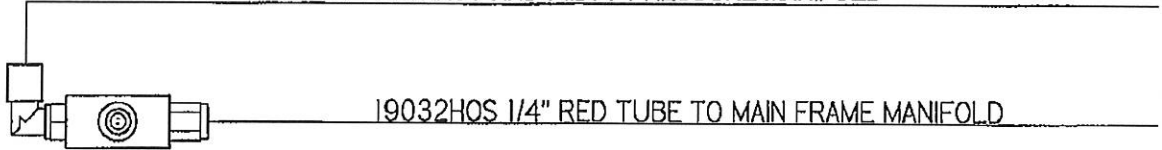
# FEED SYSTEM REGULATORS



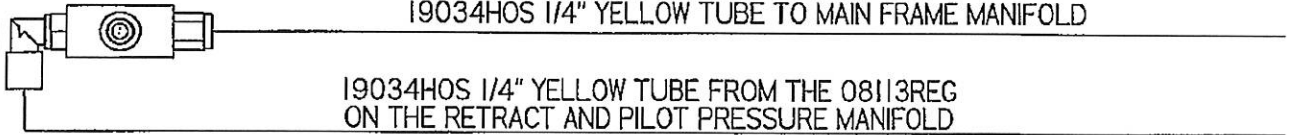
FNG8144-290

# FEED SYSTEM SWITCHES

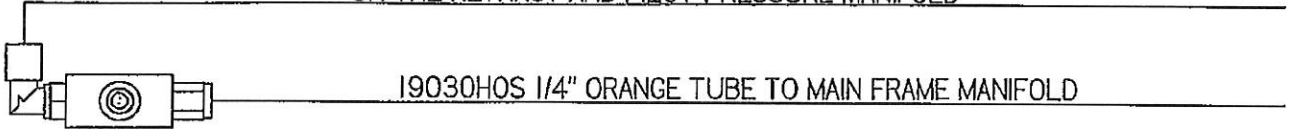
19032HOS 1/4" RED TUBE FROM THE 08113REG  
ON THE RETRACT AND PILOT PRESSURE MANIFOLD



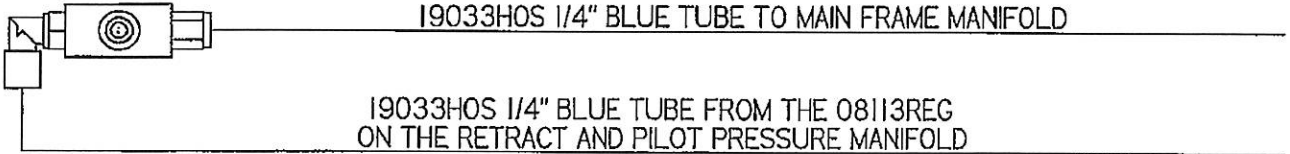
19034HOS 1/4" YELLOW TUBE TO MAIN FRAME MANIFOLD



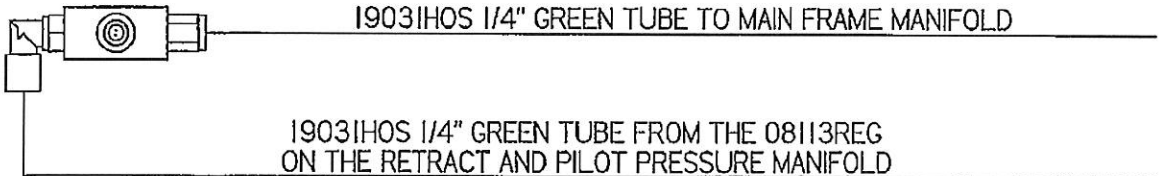
19030HOS 1/4" ORANGE TUBE FROM 08113REG  
ON THE RETRACT AND PILOT PRESSURE MANIFOLD



19033HOS 1/4" BLUE TUBE TO MAIN FRAME MANIFOLD

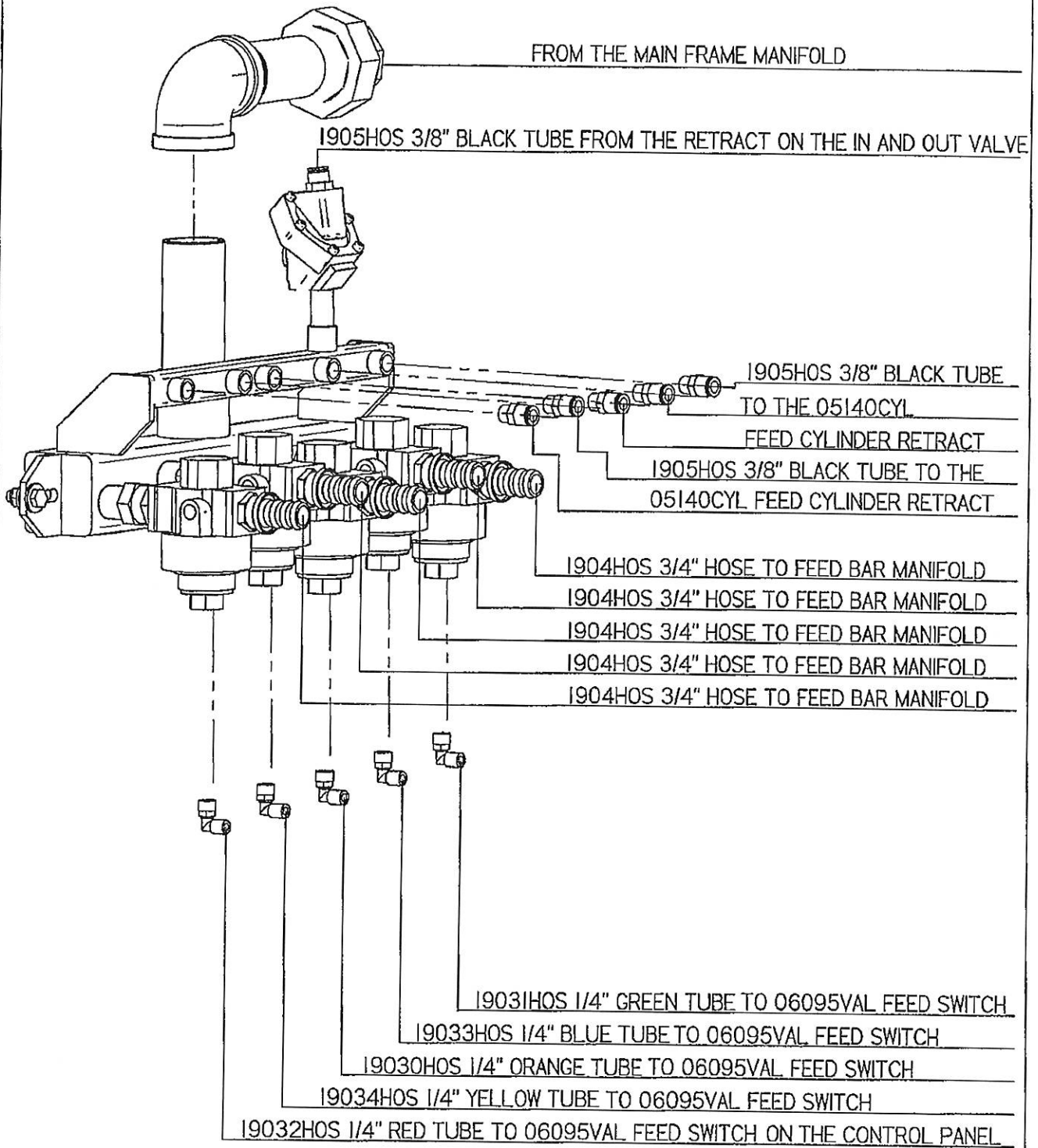


19031HOS 1/4" GREEN TUBE TO MAIN FRAME MANIFOLD



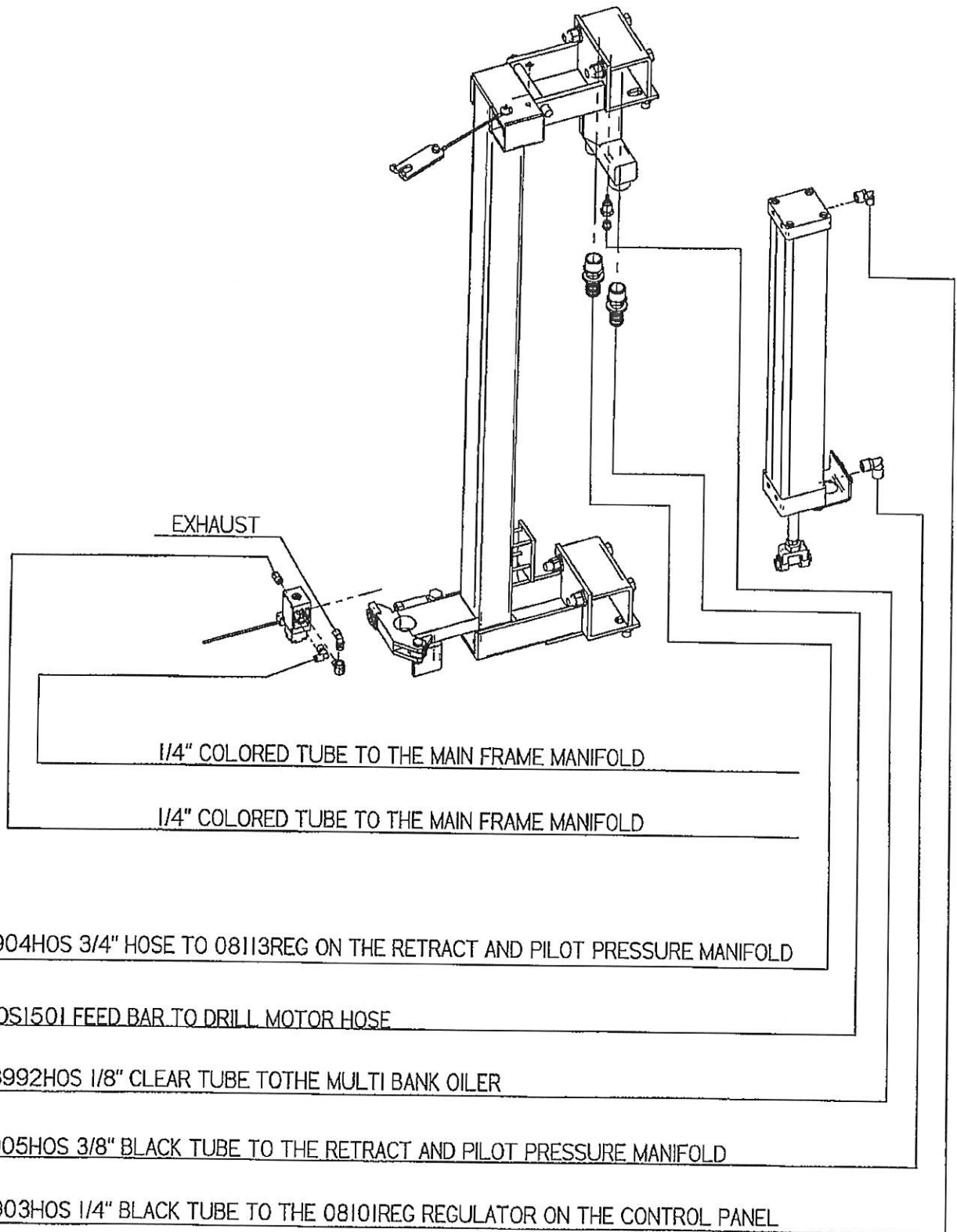
FNG8144-300

# RETRACT AND PILOT PRESSURE MANIFOLD



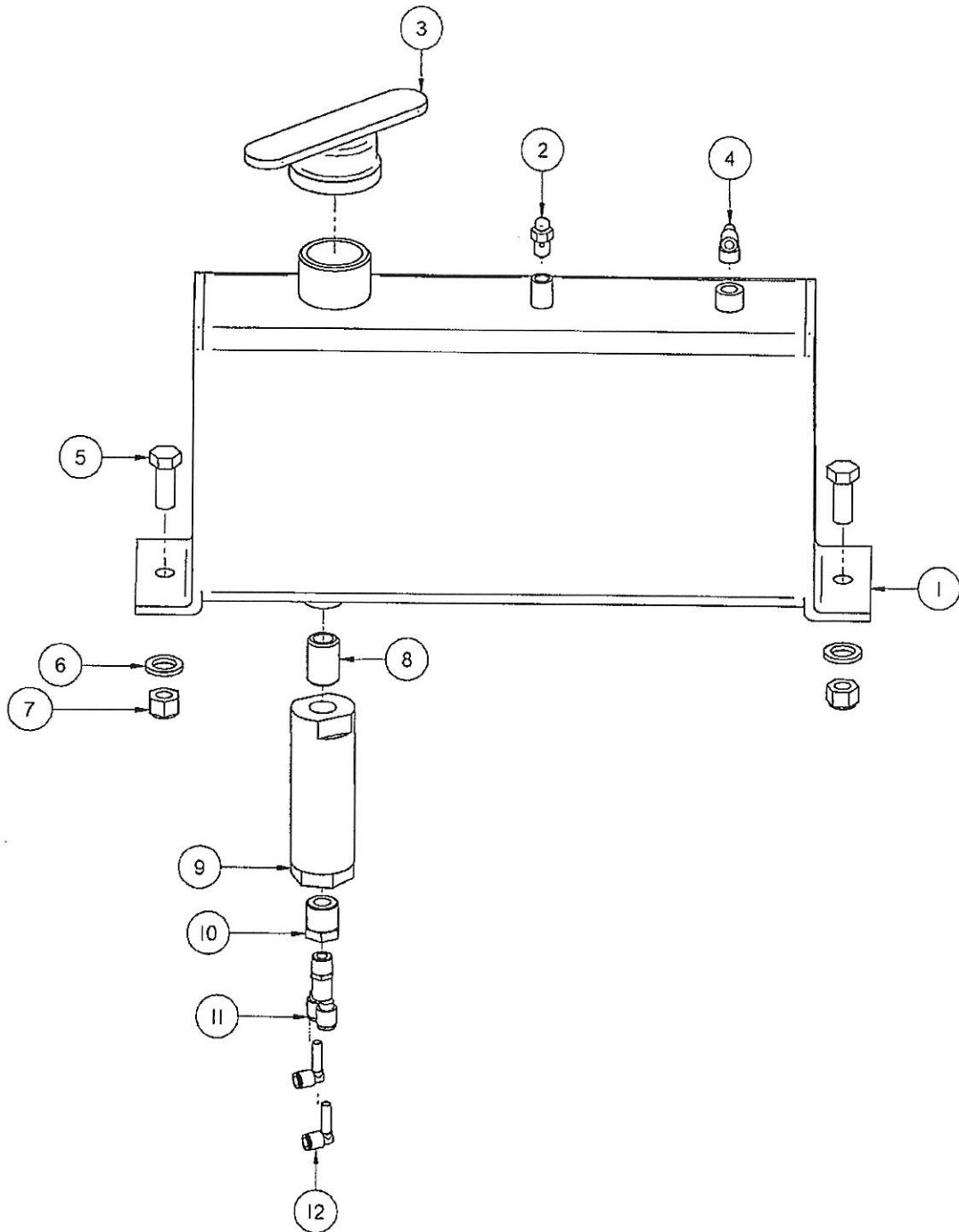
FNG8144-310

# FEED SYSTEM AND AUTO SHUT OFF



FNG8144-320

# OIL TANK ASSEMBLY



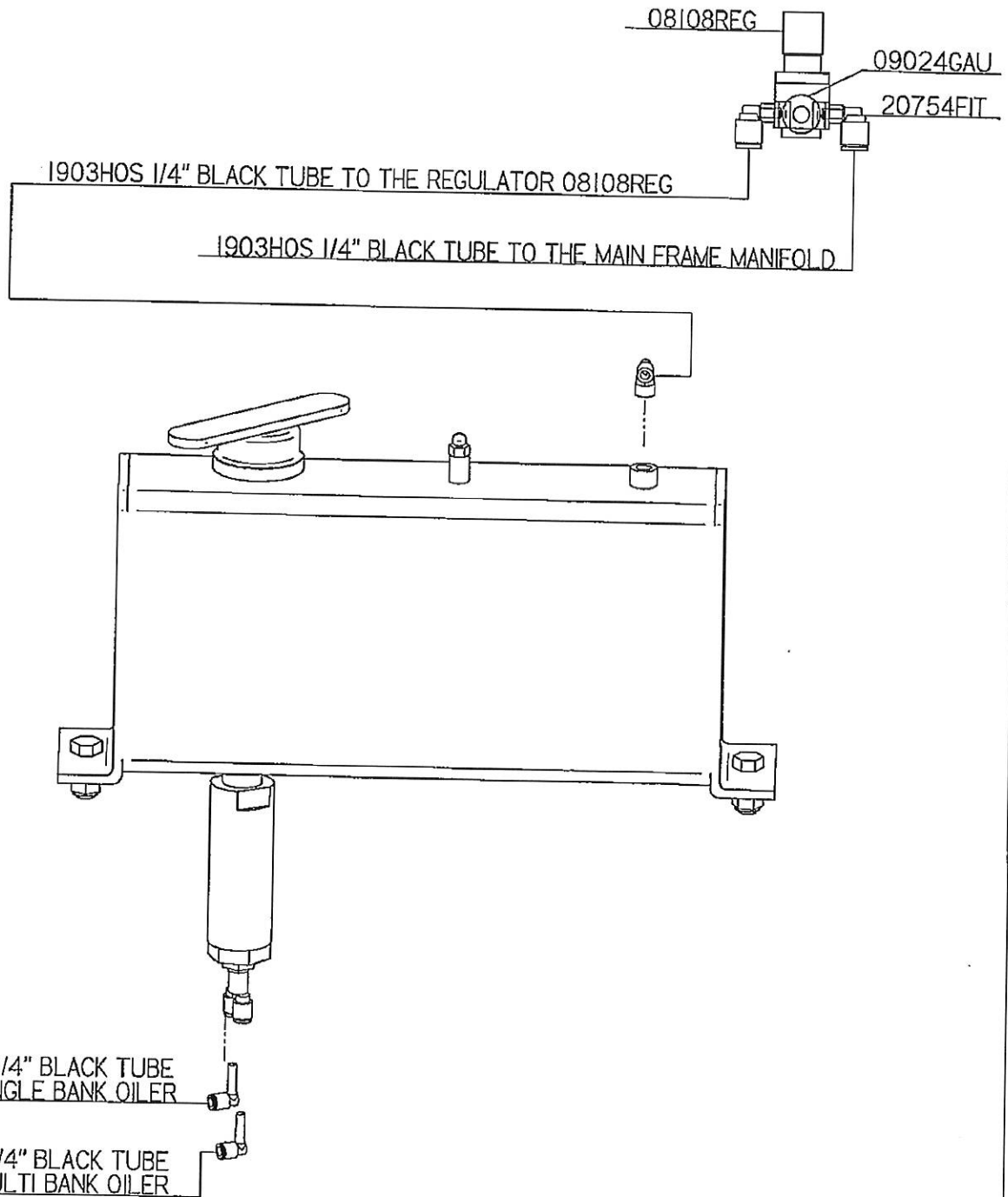
FNG8144-90

# OIL TANK ASSEMBLY

Item Number	File Name	Quantity	Description
1	SRS1626.par	1	MULTIGANG OIL TANK
2	06055VAL.par	1	BUTTON BLEEDER VALVE
3	SRS1648.par	1	OIL TANK CAP
4	2051FIT.par	1	1/4" TO 1/4" 90 DEG. FITTING
5	2560BLT.par	2	1/2" X 1 1/4" BOLT
6	2831WAS.par	2	7/8"OD X 1/2"ID WASHER 10GA.
7	2734NUT.par	2	1/2" LOCKNUT
8	2111PFT.par	1	1/2" X 1" NIPPLE
9	1006BRV.par	1	1/2" HYDRAULIC FILTER
10	2076FIT.par	1	1/2" TO 1/4" REDUCER
11	20753FIT.par	1	1/4" TO 1/4" BRANCH Y
12	20580FIT.par	2	1/4" PLUG IN ELBOW
13	SRS1632.asm	1	MULTI GANG MAIN FRAME

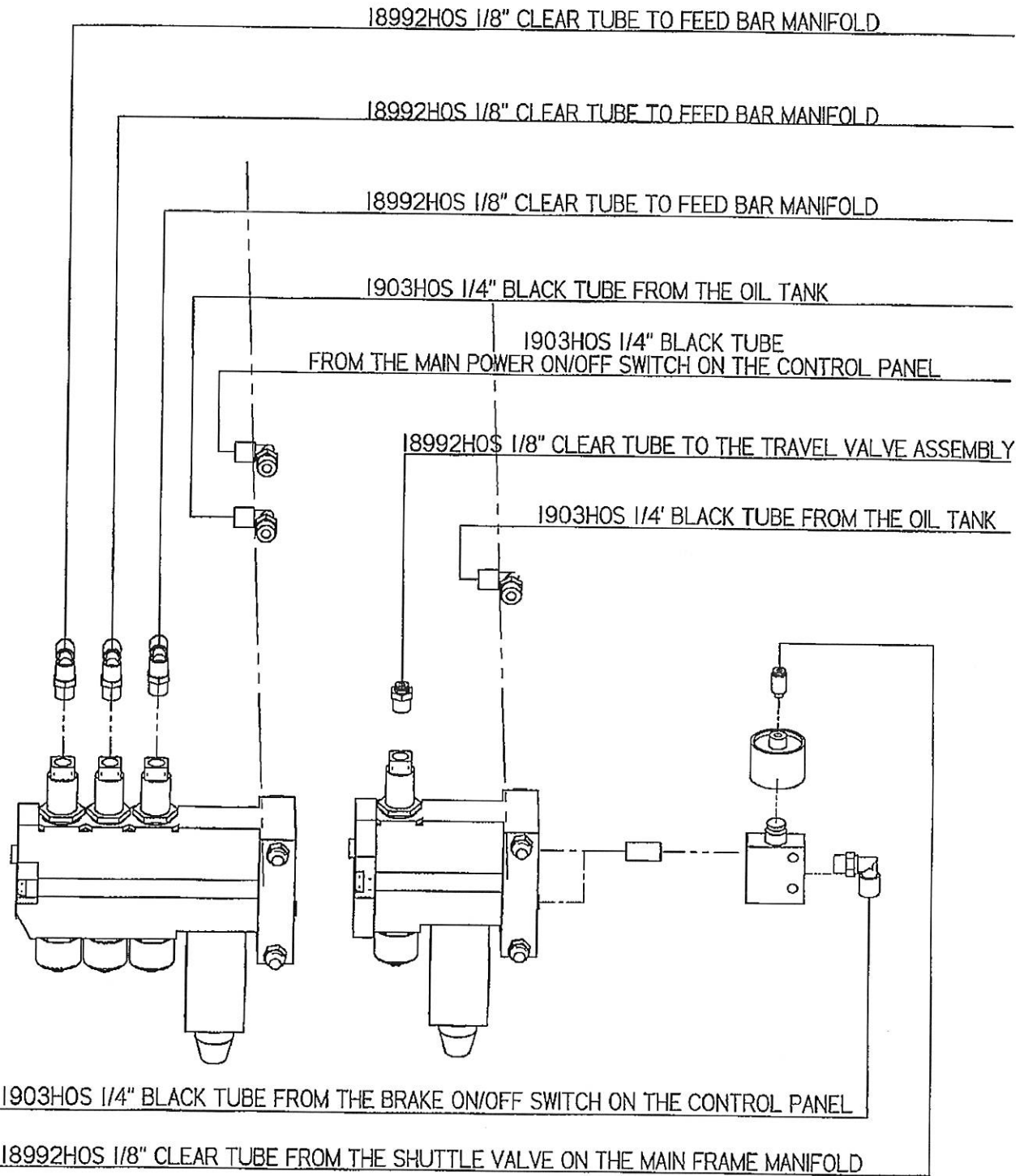


# OIL TANK ASSEMBLY



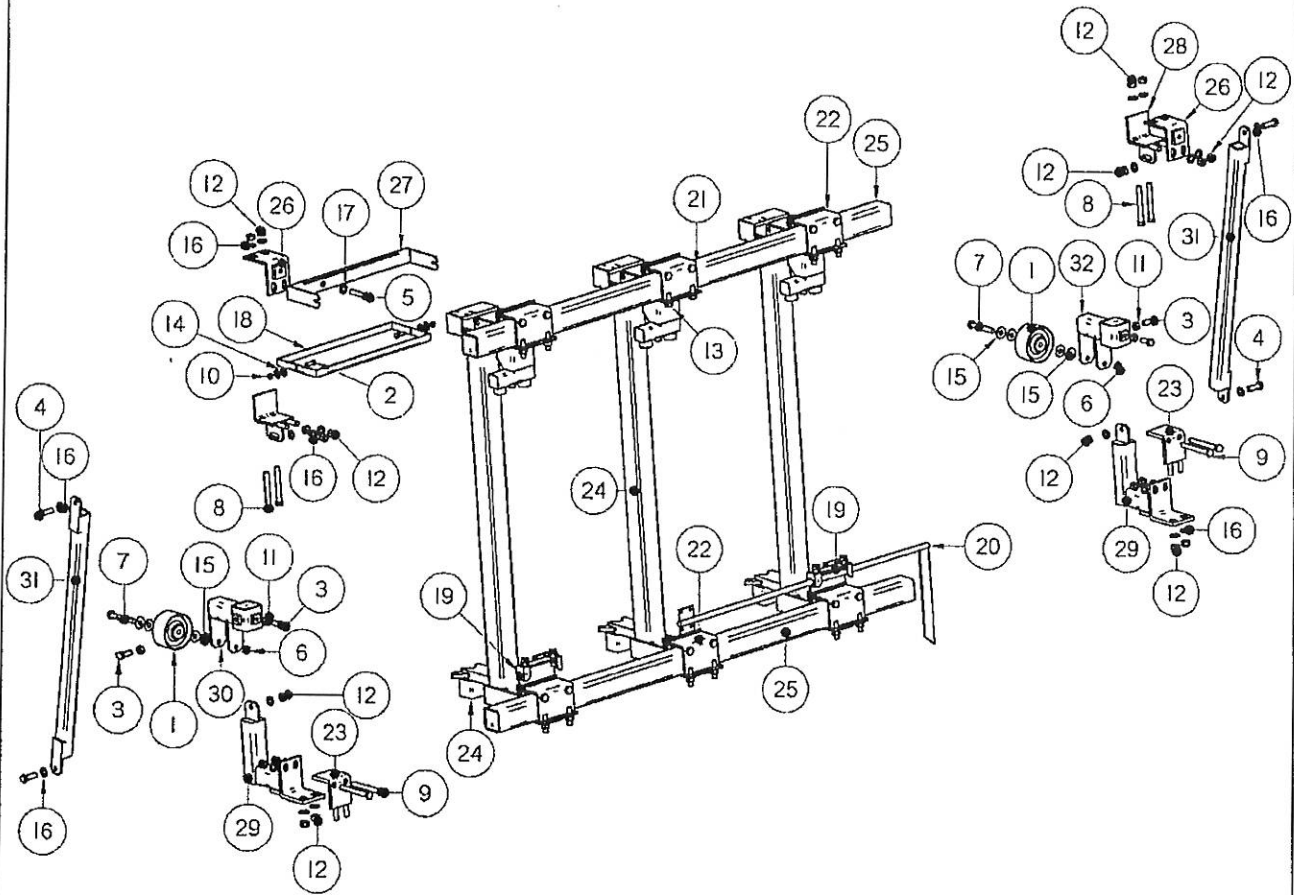
FNG8144-330

# OILER ASSEMBLY



FNG8144-340

# GUIDE WHEEL AND MIRROR ASSEMBLY



FNG8144-350

# GUIDE WHEEL AND MIRROR ASSEMBLY

Item Number	File Name	Quantity	Description
1	0214WHL.par	2	STEEL GUIDE WHEEL
2	2520BLT.par	2	5/16" X 1" BOLT
3	2560BLT.par	4	1/2" X 1 1/4" BOLT
4	2562BLT.par	8	1/2" X 1 1/2" BOLT
5	2564BLT.par	1	1/2" X 2 1/2" BOLT
6	25675BLT.par	2	GREASE BOLT NUT
7	25675BLT.par	2	GREASE BOLT
8	2570BLT.par	16	1/2" X 4" BOLT
9	2572BLT.par	4	1/2" X 4 1/2" BOLT
10	2719NUT.par	2	5/16" NYLON LOCK NUT
11	2732NUT.par	8	1/2" STANDARD NUT
12	2734NUT.par	42	1/2" LOCKNUT
13	2735NUT.par	2	1/2" SIDE LOCK NUT
14	2800WAS.par	4	5/16" FLAT WASHER
15	2830WAS.par	8	1/2" WASHER
16	2831WAS.par	48	7/8"OD X 1/2"ID WASHER 10GA.
17	2832WAS.par	1	1/2" WASHER
18	9008MIS.par	1	MIRROR
19	MFA0634.par	2	HOLE SPACING BRACKET 210 SP
20	MFA0635.par	1	POINTER
21	MFA06410.par	1	5" FRAME CLAMP WITH SHORTEND BOLT
22	MFA0642.par	5	5" FRAME CLAMP
23	SRG1117.par	2	GUIDE BRACKET MOUNT
24	SRS1633.par	3	FEED BAR
25	SRS1649.par	2	TOOL BAR VARIABLE LENGHTS
26	SRS1667.par	2	MIRROR MOUNT
27	SRS1668.par	1	MIRROR BRACKET
28	SRS1669.par	2	MIRROR CLAMP
29	SRS16720.par	2	GUIDE WHEEL BRACKET MOUNT SHORT
30	SRS1673.par	1	GUIDE WHEEL BRACKET RIGHT
31	SRS16730.par	2	GUIDE WHEEL SUPPORT ARM
32	SRS167300.par	1	GUIDE WHEEL BRACKET LEFT

FNG8144-350



# TOW PACKAGE ASSEMBLY

Item Number	File Name	Quantity	Description
1	0204WHL.asm	1	RIGHT WHEEL
2	0252WHL.par	1	SPINDLE CAP
3	04050BRG.par	2	THRUST BEARING WASHER
4	0405BRG.par	1	THRUST BEARING
5	18301GRO.par	1	O-RING (1 1/4" X 1/16")
6	1830GRO.par	1	O-RING (2" X 1/8")
7	250IBLT.par	1	1/4" X 3/4" BOLT
8	2560BLT.par	4	1/2" X 1 1/4" BOLT
9	2734NUT.par	8	1/2" LOCKNUT
10	2802WAS.par	1	1/4" LOCK WASHER
11	2831WAS.par	8	7/8"OD X 1/2"ID WASHER 10GA.
12	2860WAS.par	2	1 1/2" OD X 1" ID 5GA. WASHER
13	30220PIN.par	1	1/8" X 2" COTTER PIN
14	30221PIN.par	2	1/8" X 1 1/4" COTTER PIN
15	9501MIS.par	1	GREASE ZERT
16	SRS1653.par	1	FRAME CLAMP
17	SRS1655.par	1	HITCH SUPPORT
18	SRS1656.par	1	HITCH PIN LONG
19	SRS1657.par	1	HITCH
20	SRS16570.par	1	SPINDLE CAP FOR TOW PACKAGE
21	SRS1658.par	1	COMPRESSOR MOUNT
22	SRS1665.par	1	HITCH PIN SHORT
23	SRS1674.par	1	AXLE ASSEMBLY
24	SRS1678.par	2	AIR COMPRESSOR MOUNTING BRACKET

FNG8144-360



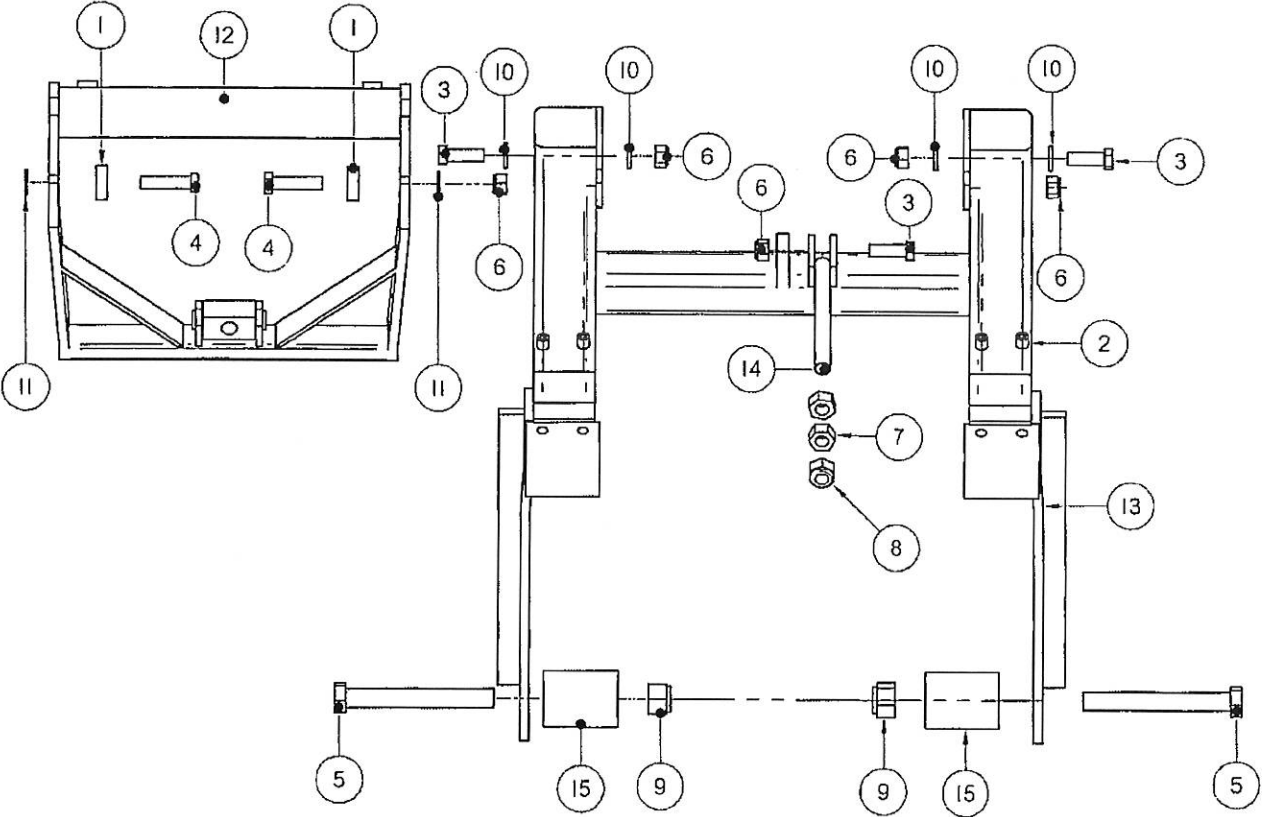
# TOW PACKAGE ASSEMBLY

Item Number	File Name	Quantity	Description
1	0204WHL.asm	1	RIGHT WHEEL
2	0252WHL.par	1	SPINDLE CAP
3	04050BRG.par	2	THRUST BEARING WASHER
4	0405BRG.par	1	THRUST BEARING
5	18301GR0.par	1	O-RING (1 1/4" X 1/16")
6	1830GR0.par	1	O-RING (2" X 1/8")
7	2501BLT.par	1	1/4" X 3/4" BOLT
8	2560BLT.par	4	1/2" X 1 1/4" BOLT
9	25997BLT.par	1	3/4" X 6" BOLT
10	2734NUT.par	8	1/2" LOCKNUT
11	2749NUT.par	1	3/4" NYLON LOCK NUT
12	2802WAS.par	1	1/4" LOCK WASHER
13	2831WAS.par	8	7/8"OD X 1/2"ID WASHER 10GA.
14	2860WAS.par	2	1 1/2" OD X 1" ID 5GA. WASHER
15	30220PIN.par	1	1/8" X 2" COTTER PIN
16	30221PIN.par	2	1/8" X 1 1/4" COTTER PIN
17	9501MIS.par	1	GREASE ZERT
18	SRS1653.par	1	FRAME CLAMP
19	SRS1655.par	1	HITCH SUPPORT
20	SRS1656.par	1	HITCH PIN LONG
21	SRS1657.par	1	HITCH
22	SRS16570.par	1	SPINDLE CAP FOR TOW PACKAGE
23	SRS1658.par	1	COMPRESSOR MOUNT
24	SRS1665.par	1	HITCH PIN SHORT
25	SRS1674.par	1	AXLE ASSEMBLY
26	SRS1683.par	1	PINTLE HITCH
27	SRS1684.par	1	PINTLE HITCH CLAMP PLATE

FNG8144-370



# ON GRADE CONVERSION KIT



FNG8144-380

# ON GRADE CONVERSION KIT

Item Number	File Name	Quantity	Description
1	04030BRG.par	2	5/8" X 1 3/8" BEARING WITHOUT FLANGE
2	25590BLT.par	4	1/2" X 1/2" 13 SET SCREW
3	2562BLT.par	3	1/2" X 1 1/2" BOLT
4*	2563BLT.par	2	1/2" X 2" BOLT
5*	25997BLT.par	2	3/4" X 6" BOLT
6	2734NUT.par	5	1/2" LOCKNUT
7	2740NUT.par	2	5/8" STANDARD NUT
8	2743NUT.par	1	5/8" NYLON LOCK NUT
9	2749NUT.par	2	3/4" NYLON LOCK NUT
10	2831WAS.par	4	7/8"OD X 1/2"ID WASHER 10GA.
11	2840WAS.par	2	5/8" 14GA. WASHER
12*	SRSI659.par	1	AUTO ALIGN PIVOT ON GRADE CONVERSION
13	SRSI660.par	1	MAST CONVERSION
14*	SRSI661.par	1	ADJUSTABLE CLEVIS
15	SRSI662.par	2	ON GRADE CONVERSION BUSHING

FNG8144-380

**INSTRUCTIONS FOR INSTALLING "ON-GRADE CONVERSION KIT"  
FOR E-Z DRILL MODEL 210-3 SRA, MODEL 210-4 SRA, & MODEL 210-5 SRA**

(Refer to "ON GRADE CONVERSION KIT" pages in Parts Book/Operators Manual)

To begin, the machine, which is set up in the "slab-rider" configuration, will have to have the drill systems dropped down in the horizontal position. Since the drill systems, in the horizontal position, will be below the wheels, you will either need to block up the wheels off the ground, or move the machine over to the edge of a concrete slab at least 9" thick.

Turn off air and disconnect the main air from the air compressor. Begin to disconnect entire drill systems assembly from the main frame assembly.

- (1) Disconnect all hoses and tubing at the drill systems.
- (2) Remove both "raise and lower" cylinders (05208 CYL).
- (3) Remove both lower tool bars (2-1/2" square tube – SRS 1649) and upper tool bar (black round pipe – SRS 1634) and hinges (SRS 1635) by loosening all clamps (MFA 0642).
- (4) Where the upper tool bar was, install the bushings (SRS 1662).
- (5) Take the conversion mast (SRS 1660) and match up the "ears" on it to "ears" on the main frame mast; bolt it on.
- (6) Slide the upper tool bar (round black tube – SRS 1634) that was earlier removed through the bosses on the conversion mast and the hinges; tighten set screws (25590 BLT)

Move the main frame around to the other end of the feed systems.

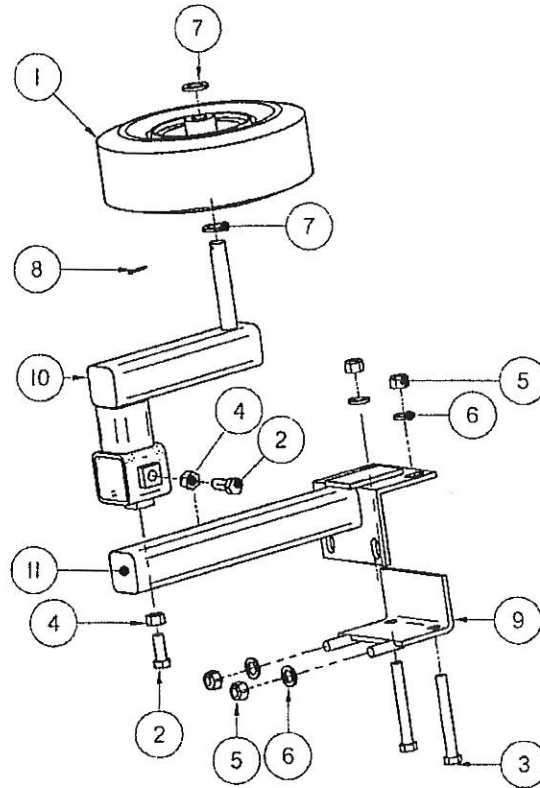
- (1) Lower the mast (by turning the large nuts on top of the mast – loosen 1/2" bolts on the side of the mast first). Lower it down until you can slide the lower tool through the clamps on the feed systems (the one that is closest to the main frame) and the hinges (SRS 1635). Center it and tighten the clamps.

**IMPORTANT: BE SURE TO CENTER THE CYLINDER MOUNTS (SRS 1620 & SRS 1621) AND PLACE THEM SO THAT THEY ARE POINTING STRAIGHT UP**

- (2) Install both "raise and lower" cylinders (05208 CYL)
- (3) Be sure that nuts on the adjustable clevis (SRS 1661) are backed away from the auto align pivot (SRS 1659) approximately 1" from either side. This lets the drill systems "float", allowing for changes in the subgrade and keeps the drill systems horizontal.
- (4) Connect all hoses and tubing

Install both wheel assemblies on to the outer tool bar close to the center of the frame. The wheels will ride on top of the slab. Adjust the height of the wheels to level the drills. Also, adjust screw jack on main frame to level the other end of the drill systems. **IMPORTANT:** Remember to loosen 1/2" bolts on side of the mast before adjusting screw jacks. Re-tighten after making the adjustment.

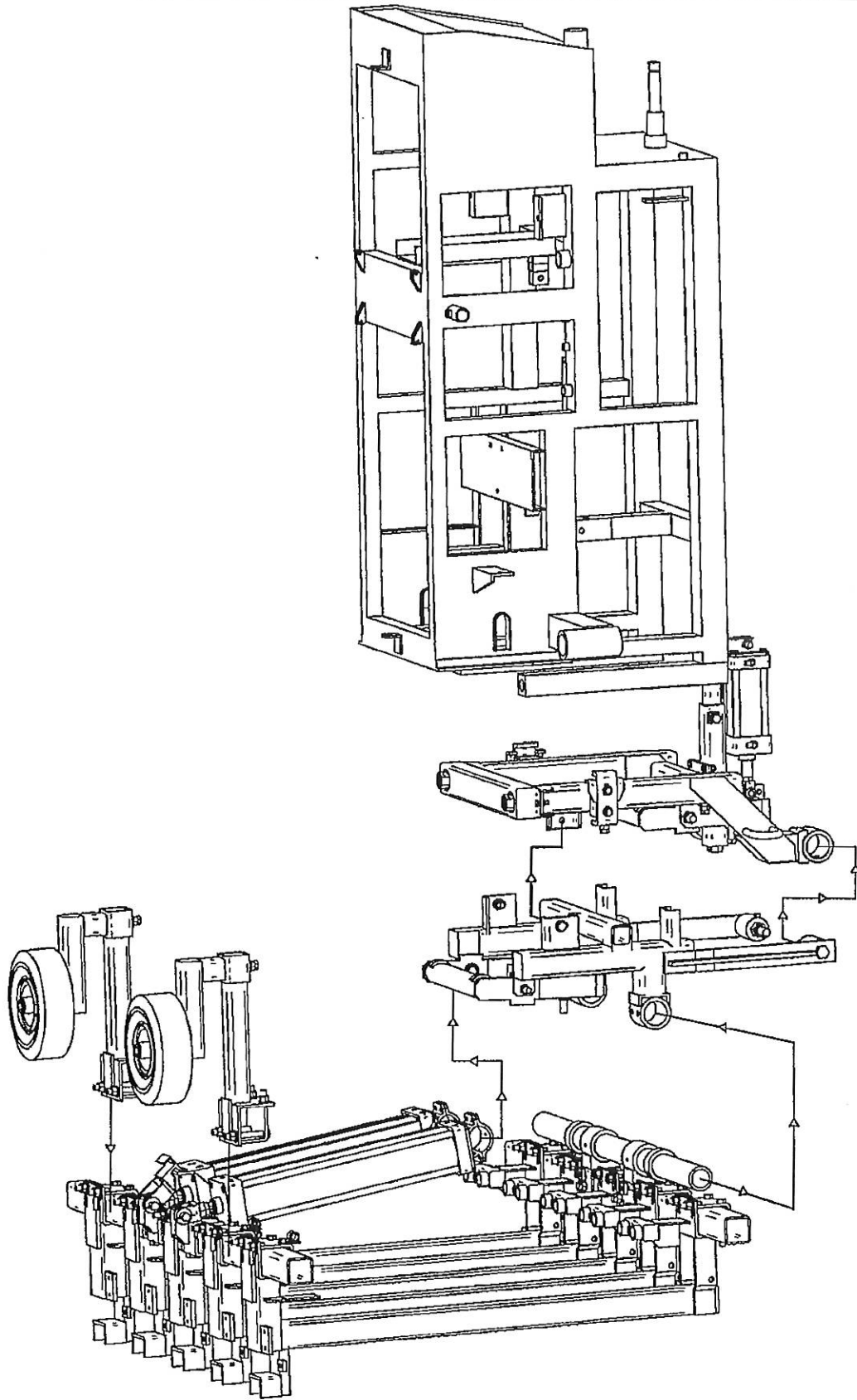
# GUIDE WHEEL ASSEMBLY FOR ON GRADE CONVERSION KIT



Item Number	File Name	Quantity	Description
1	0202WHL.asm	1	REAR WHEEL
2	2560BLT.par	2	1/2" X 1 1/4" BOLT
3	2570BLT.par	2	1/2" X 4" BOLT
4	2732NUT.par	2	1/2" STANDARD NUT
5	2734NUT.par	4	1/2" LOCKNUT
6	2831WAS.par	4	7/8"OD X 1/2"ID WASHER 10GA.
7	2851WAS.par	2	3/4" X 10 GA. WASHER
8	3022PIN.par	1	1/8" X 1" COTTER PIN
9	MFA0642.par	1	5" FRAME CLAMP
10	SRUI335.par	1	SPINDLE ADJUSTOR
11	SRUI336.par	1	SPINDLE ADJUSTOR MOUNTING BRACKET

FNG8144-390

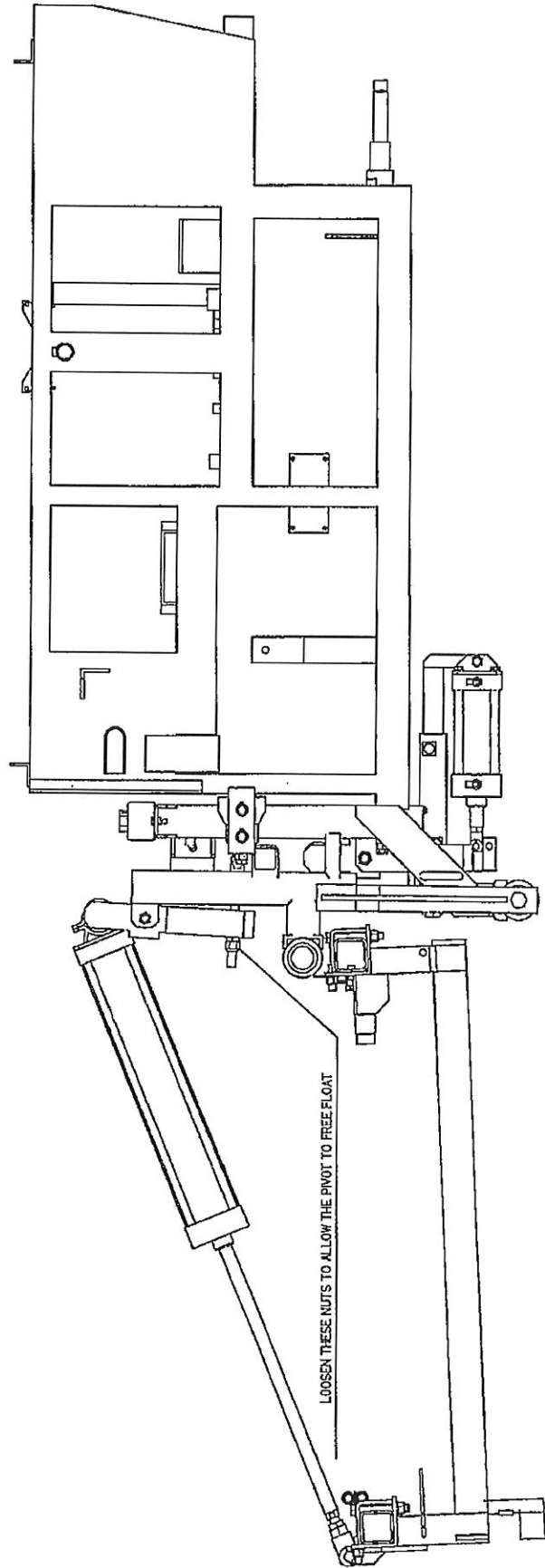
# ON GRADE CONVERSION KIT



PICTURE SHOWS THE FEED BARS IN THE UP POSITION

FNG8144-400

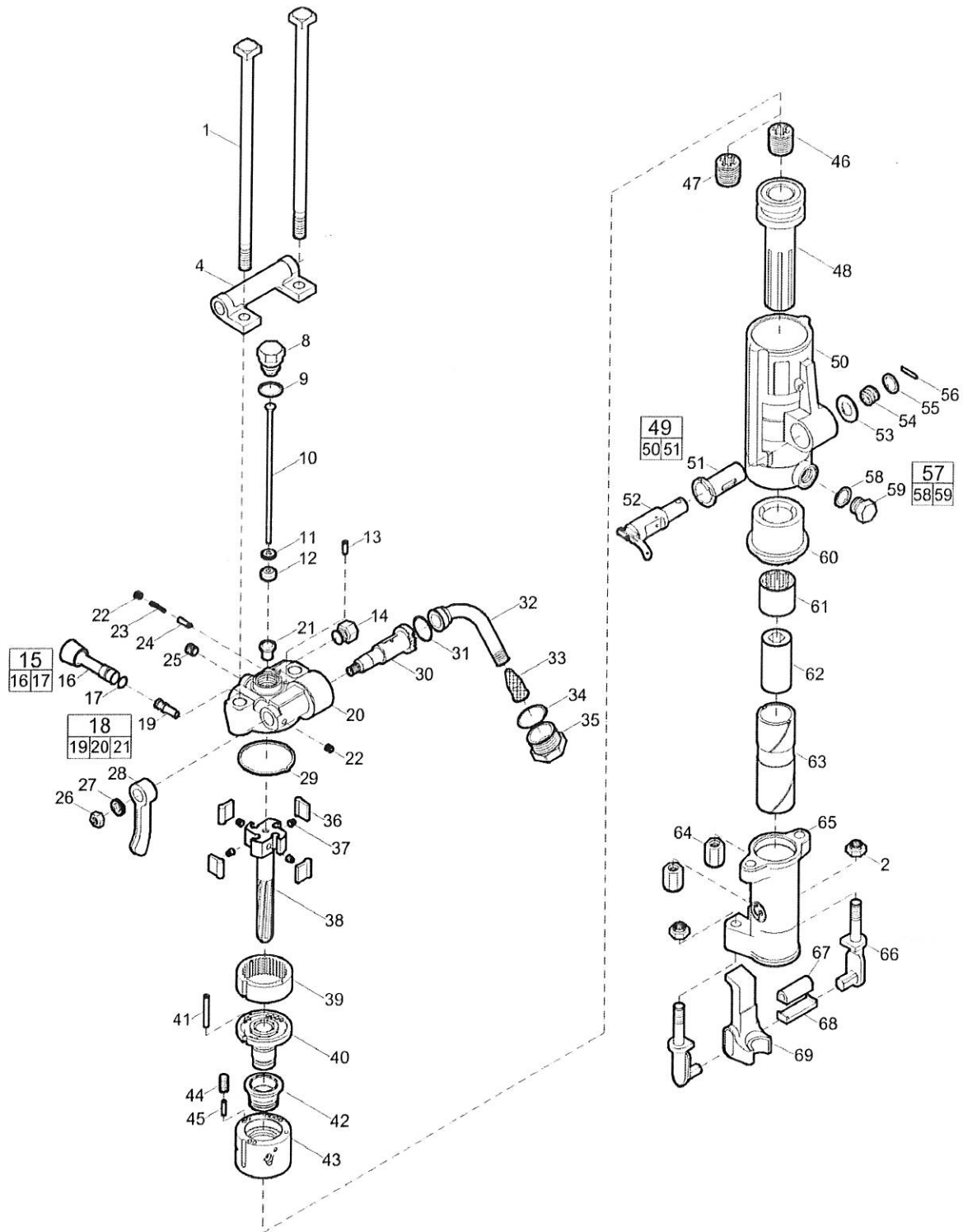
# ON GRADE CONVERSION KIT



PICTURE SHOWS THE FEED BARS IN THE DOWN POSITION

FNG8144-410

Spare parts list CP 0032 A 7/8" x 3 1/4"



Refer to the Parts Online web page for most up-to-date information. The printed information might be outdated.

Item	Part No.	Name	Qty	L
1	R086623	Bolt - Thru	2	
2	R005742	Nut - Elastic stop	2	A
4	R086608	Bracket - Handle	1	
8	R076793	Plug - Air tube	1	
9	R000537	Gasket - Tube plug	2	
10	R077184	Tube - Air	1	
11	R075449	Washer - Air tube	1	
12	R075099	Rubber - Air tube	1	
13	R075802	Pin - Valve plunger	1	
14	R076372	Plug - Water valve	1	
15	R079130	Water valve port plug, complete	1	
16	-	Water valve port plug	1	
17	C079489	O-ring	1	
18	R087948	Backhead, complete	1	
19	R098054	Bushing - Water valve	1	
20	-	Backhead	1	
21	R137738	Bushing - Blow tube	1	
22	C068064	Plug - Pipe	2	
23	R085671	Spring - Valve plunger	1	
24	R086627	Plunger - Throttle valve	1	
25	C068799	Plug - pipe, Ø 1/4 in., Ø 6.5 mm	1	C
26	P002149	Nut - Hexagon	1	D
27	C036717	Lockwasher - Head latch	1	E
28	R079124	Handle - Throttle valve	1	
29	H0979432	Gasket	1	
30	R086628	Valve - Throttle	1	
31	P103521	O-ring	1	
32	R075265	Swivel - Air inlet	1	
33	R005584	Screen - Air inlet	1	
34	R110317	O-ring	1	
35	R000530	Air swivel nut	1	
36	R075267	Pawl	4	
37	R086654	Spring - Pawl	4	
38	R086622	Bar - Rifle	1	

Refer to the Parts Online web page for most up-to-date information. The printed information might be outdated.



Item	Part No.	Name	Qty	L
39	R076194	Ring - Ratchet	1	
40	R098085	Bushing - Valve guide	1	
41	R075772	Pin - Valve case dowel	1	
42	R076263	Valve	1	
43	R076264	Case - Valve	1	
44	R098084	Plug - Oil regulating	1	
45	R085625	Stem - Oil regulating	1	
46	R075839	Nut - Rifle bar	1	F
47	R075826	Nut - Rifle bar	1	G
48	R000088	Piston	1	
49	R087990	Cylinder, complete	1	
50	--	Cylinder	1	
51	R086611	Bushing - Blower valve	1	
52	R086612	Valve - Blower	1	
53	R075777	Washer - Blower valve	1	
54	R075778	Spring - Blower valve	1	
55	R075780	Washer - Valve spring	1	
56	R076266	Pin - Spring	1	
57	R085611	Oil plug, complete	1	
58	R091176	Gasket - Oil plug	1	
59	--	Oil plug	1	
60	R042161	Bushing - Cylinder	1	
61	R086733	Nut - Chuck rotation	1	
62	R099374	Chuck, 7/8" x 31/4" (22 x 82.5 mm)	1	
63	R041321	Sleeve - Chuck, 7/8" x 31/4" (22 x 82.5 mm)	1	
64	R085756	Nut - Thru bolt	2	
65	R041320	Fronthead, 7/8" x 31/4" (22 x 82.5 mm)	1	
66	R093896	Tunnion - Retainer	2	
67	R093897	Buffer - Retainer	1	
68	R093898	Retainer - Latch shoe	1	
69	R093913	Retainer, 7/8" (22 mm)	1	

Comments for Page: CP 0032 A 7/8" x 3/4"

## (L)OCAL REMARKS

A | 5/8" - 11

B | 1/8"

C | 1/4"

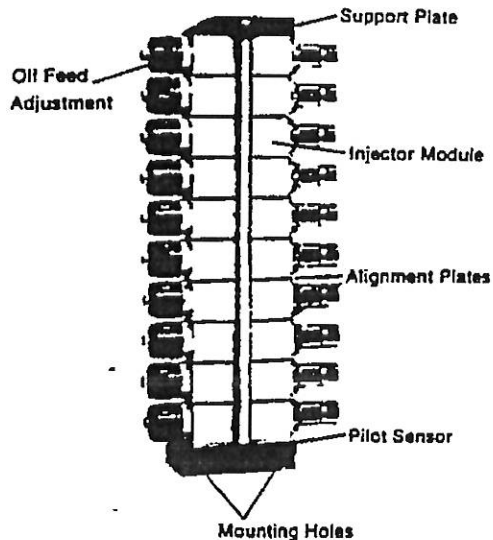
Refer to the Parts Online web page for most up-to-date information. The printed information might be outdated.



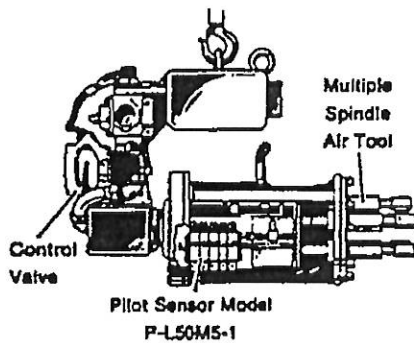
## L50M2 Multi-Point Injection Lubricator

Operating Pressure Range 30-150 PSIG

Max. Press.	Max. Temp.	Oil Flow Delivery Range	Oil Viscosity
150 PSI	120° F	0-1 Drop	150 thru 1200 SSU



Typical Installation (A)  
(Pilot Sensor)



**WARNING!** Never use these polycarbonate plastic bowls in air supplied by a compressor lubricated with synthetic oils or oils containing phosphate esters or chlorinated hydrocarbons. They can carry-over into the air distribution system and chemically attack and possibly rupture the bowls. On these applications use a metal bowl. Also, do not expose these polycarbonate plastic bowls to materials such as carbon tetrachloride, trichloroethylene, acetone, paint thinner, cleaning fluids, or other harmful materials, for they too will craze and/or rupture the bowl. If materials harmful to polycarbonate are present either outside or inside the bowl, use a metal bowl.

### Installation, Operating and Maintenance Instructions

#### Application

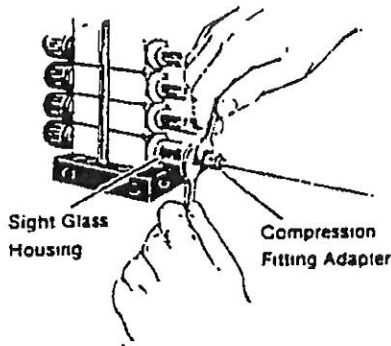
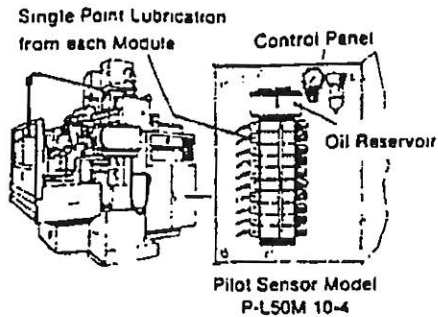
The Watts L50M2 Multi-point Injection Lubricator is specifically designed to lubricate intermittently operated air rotary tools, cylinders and valves. If equipment operates continuously, the L50M2 must be triggered by a separate signal such as from a timer and solenoid valve arrangement. Unlike conventional mist type lubricators, the L50M2 delivers, via capillary tubes, small, precisely controlled amounts of lubricant right to the end lubrication points in the system every time the equipment is cycled (operated). The L50M2 consists of a sensor (pilot), one to ten injector modules, alignment plates, support plate as described below, and oil reservoir (see Fig. 3).

#### Sensor

The sensor is a pilot sensor (Fig. 1). The pilot sensor receives a pressure pulse (signal) from an external source and transmits it to all the injector modules in the stack. The pilot sensor is normally used on multiple spindle rotary air tools. As shown in Typical Installation (A), the pilot signal is tapped off at a point downstream of the control valve so that injector is fired during the "ON" cycle. Also, it is essential that the pilot signal be removed (vented to atmosphere through the tool) during the "OFF" cycle. The pilot sensor is also used on cylinder and valve circuits by taking the pilot signal from the downstream side of the valve. A separate three-way solenoid operated or air pilot operated valve may be used if it is not convenient or possible to obtain pilot signal directly from the operating circuit. If it is desirable to lubricate one group of points during one portion of the machine (circuit) operating cycle, and another group at a different time, two L50M2's must be used.

**NOTE:** Install filter and regulator, such as Watts G20 FR, upstream of L50M2.

### Typical Installation (B)



### Injector Modules

The injector modules are basically air operated, positive displacement, adjustable delivery oil pumps. The oil feed rate is adjustable from 0-1 drop (0-032 cc's) per pulse. Air signal and oil supply passes through each injector module to the next one in the stack. Sight glass, tamperproof oil feed adjustment and manual override pump are provided for ease of operation.

### Reservoir

Any reservoir may be used to store and supply oil to the L50M2 injector module stack. It can be gravity fed or pressurized (up to 100 psi)\*. Normally the 8 ounce (No. 610-4RQ)\*, one quart (BKL50B)\*\* or two quart (BKL50C)\*\* reservoir is used. Where there are many L50M2's, oil can be supplied from a central fill system which is supplied by a 55-gallon drum as the reservoir.

\*Only the (610-4RQ) can be pressurized.

\*\*Must be remote mount.

### Capillary Tubing

Oil is delivered from each injector module to the point of use via a 1/8" O.D. capillary tube. Either a compression or barbed adapter is used to connect the tubing to each 1/8" NPT female injector oil outlet. A ball check adapter (1/8" O. D. Tubex 1/8" NPT male) is used on the other end of tubing. The ball check prevents foaming of oil in tubing during "Off" cycle. It is preferable to inject oil into air line immediately upstream of equipment to be operated. Then, oil is transported into equipment on the "On" cycle where it disperses over the wetted surfaces. Once equipment is initially "wetted down", only a very, very small amount of lubricant—normally 0.1 to 0.2 drops per cycle are required to maintain the desired lubrication.

### Installation

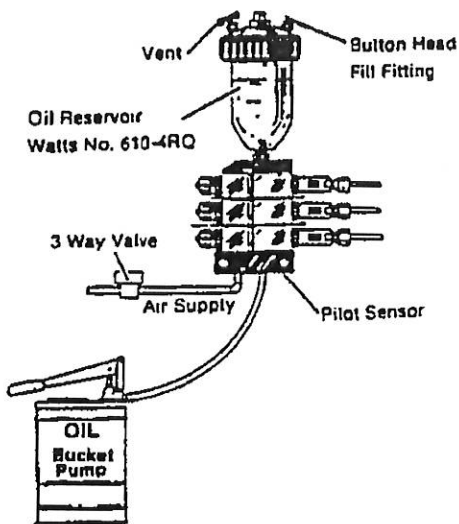
Install L50M2 Injector module stack in a convenient location on or close to operating equipment. It is preferable that machine operator can observe movement of red indicator inside sight glass (see Fig. 2) and be able to make changes to oil feed adjustment as may be desired.

Normally the stack is installed in a vertical position primarily so that air bubbles in the oil will rise to the top. Mount L50M2 rigidly to equipment or to separate support via two mounting holes in pilot sensor (see Fig. 1).

Connect oil feed capillary tubing to each injector sight glass outlet, utilizing 1/8" NPT male to 1/8" O. D. tube compression fitting adapter (Part No. SA-L50Y139). Grip wrench flats on outer sight glass housing to prevent it from rotating when installing tubing adapter—(see Fig. 2). Once installed, rotate sight glass housing so that red plunger inside the sight glass may be conveniently observed.

Next, run capillary tubing to point of use, appropriately securing tubing to supporting member (pipeline, column, machine frame, etc.) along the way. Since the injector is a positive displacement device, capillary may be run for hundreds of feet, uphill, downhill without jeopardizing L50M2's performance. Do not pass tubing next to extremely hot (steam lines) or cold (refrigeration units) points for it will impair capillary's strength and change oil's viscosity. At point of use, which is as close to inlet port of air operated equipment as possible, cut capillary and install ball check connector (Part No. SA-606Z26).

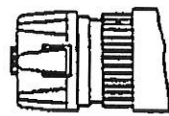
Next, place oil reservoir in location where it will be convenient to observe oil level and refill when necessary. (Do not let reservoir run dry). It is preferable to locate reservoir so that oil may flow by gravity to the top or bottom (or both) supply connection in the support plate of the stack. If reservoir must be located below the top of injector module stack, provide means for delivering oil (via pump or pressurized reservoir—up to 100 psi) to L50M2. It is preferable to install shut-off valve, Watts P2-1/4" x 1/8", in oil supply line between reservoir and injector so that maintenance may be performed on one without having to disturb the other.



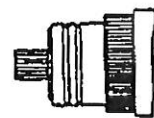
### OIL FEED ADJUSTMENT



1. Push forward to adjust oil delivery.



2. Pull to rear to lock position.



3. Completely remove knob to make setting tamperproof.

### Priming System

Once system is completely piped in, the next step is to fill the reservoir, purge air from system and fill capillary tubing. The simplest way is to install a button head fill fitting (Watts Part No. SA-606Y107) on one of the oil supply ports in the support plate or sensor body. Open vent on reservoir, then, with the aid of a bucket pump, pump oil back up into the reservoir, then, with the aid of a bucket pump, pump oil back up into the reservoir, then, with the aid of a bucket pump, pump oil back up into the reservoir. Once reservoir is full, close vent and continue to pump. (If reservoir is not pressure type, close shut-off valve in supply line.) The bucket pump will overcome check valve in injector and oil will be forced down each injector's capillary tube. Once longest tube is filled, disconnect bucket pump and open reservoir vent (open oil supply shut-off valve if previously closed).

Manual filling is more time-consuming. Reservoir is first filled, and air is purged from stack by removing lower-most plug. Then, each injector is adjusted to maximum setting (see "Oil Feed Adjustment") and cycled manually be repeatedly pushing and releasing manual pump or automatically by cycling equipment. Approximately 50 cycles are required to purge each foot of capillary tube.

### Oil Feed Adjustment

Push in red adjustment knob (see Fig. 4) to unlock. Turn knob clockwise to stop. The injector is now adjusted for maximum oil output—approximately 1 drop per cycle (.032 cc).

Operate downstream equipment until all wetted surfaces are coated with oil and excessive oil mist is discharging from operating equipment exhaust ports. Next, reduce oil adjustment by turning red knob counter-clockwise. Each counter-clockwise turn reduces oil rate by 0.1 drop/cycle. A normal setting is 2½ to 3½ turns counter-clockwise (i.e. 0.3-0.2 drops/cycle). Operate equipment for few cycles and re-adjust to a higher (clockwise) or lower (counter-clockwise) oil delivery setting as may be required. When set, pull knob rearward one click to lock setting. Remove knob to make tamperproof. To completely shut off oil feed, turn knob 6-8 turns counter-clockwise. Repeat procedures for each injector in the stack.

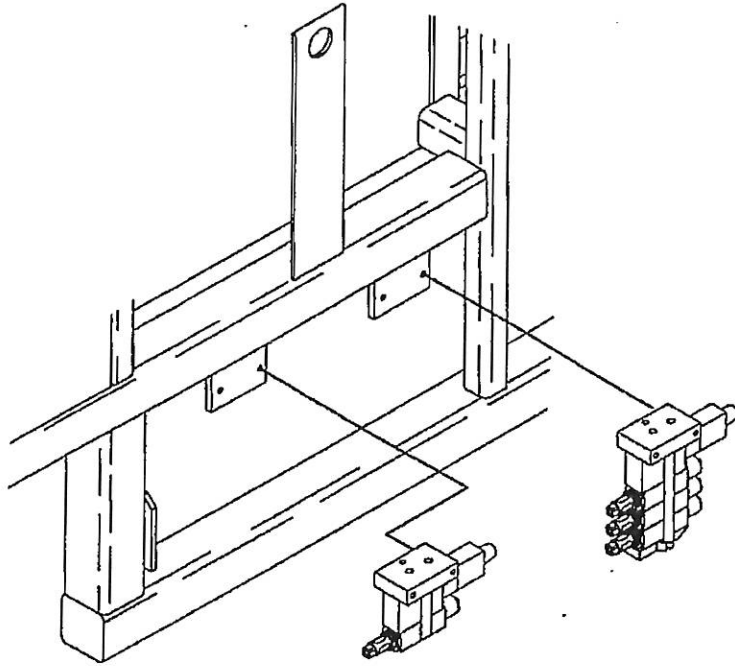
### Troubleshooting

First indication of malfunction is the red indicator in the sight glass (see Fig. 6) is not moving when injector is cycled and all other parts, such as manual pump, sensor, etc. function normally. To correct problem, first re-adjust oil feed setting to maximum by turning red oil feed adjustment knob all the way clockwise and observing number of turns and location of arrow on the end of knob. If the red indicator now moves when injector is cycled, it is functioning properly and can be re-adjusted back to lower setting. However, continue to observe if red indicator does move as knob is turned counter-clockwise. Normally motion will not be noticeable below 3½ to 4 turns back and lubricator will be completely shut off at 5½ to 6 turns back. If indicator still does not move after oil delivery is at maximum, the malfunction may be caused by an air pocket in injector oil passages. To remedy, purge the injector module stack by removing the ¼" pipe oil plug in plate (see Fig. 6). Recycle injector. If injector was air-bound, normally a few small air bubbles will now emerge in the sight glass and be purged out through capillary tubing. Prevent the formation of air pockets by not allowing reservoir to run out of oil.

If neither of the above simple procedures correct problem, it is normally good practice to replace the malfunctioning module with a new one and put equipment back into operation. Then, the malfunctioning module can be disassembled, cleaned and repaired at leisure (see Fig. 5).

If manual pump is not moving when equipment is cycled, air signal is not reaching injector(s).

First determine if signal is being delivered to modules. If not, check air circuit and/or control valve for proper operation.



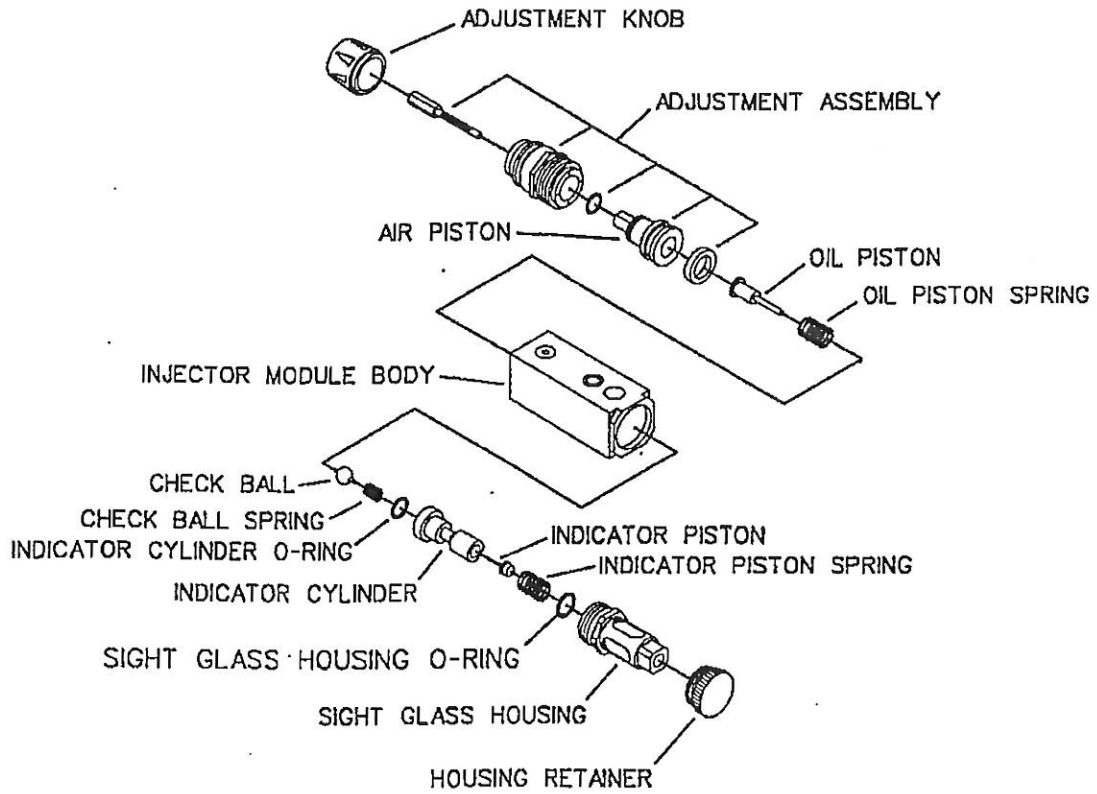
REPAIR KITS:

1757RPT

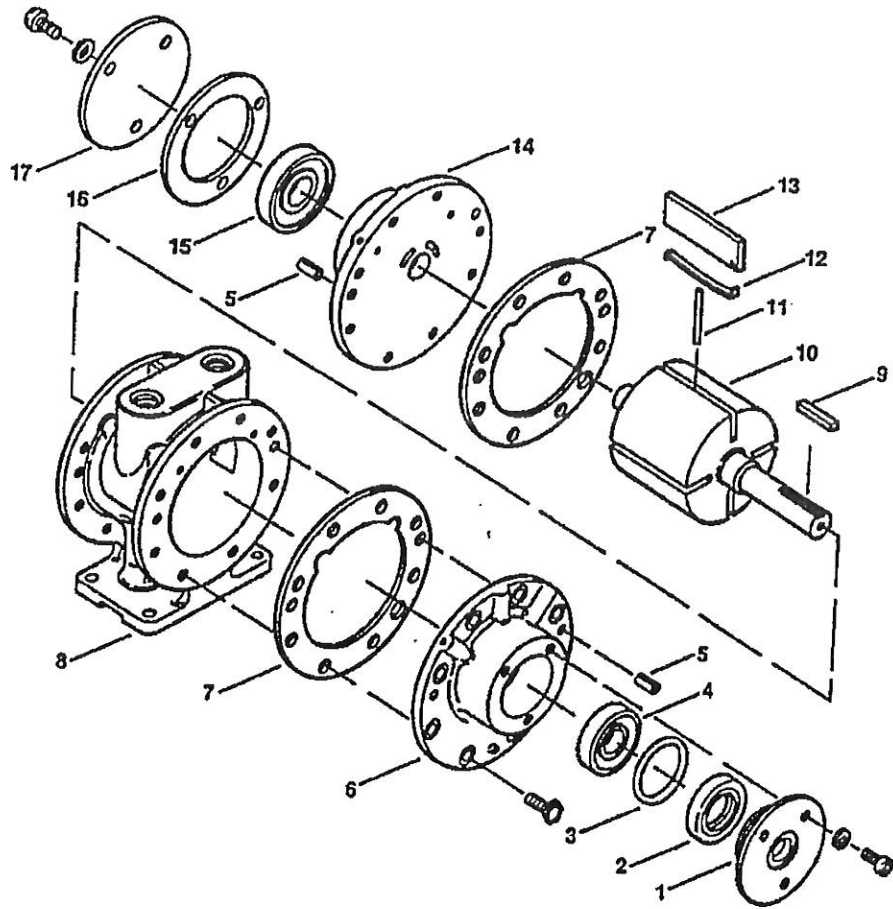
- OIL PISTON SPRING
- OIL PISTON
- ADJUSTMENT KNOB
- ADJUSTMENT ASSEMBLY

17570RPT

- INDICATOR CYLINDER
- INDICATOR CYLINDER O-RING
- INDICATOR PISTON
- INDICATOR PISTON SPRING
- CHECK BALL
- CHECK BALL SPRING
- HOUSING RETAINER
- SIGHT GLASS HOUSING
- SIGHT GLASS HOUSING O-RING



# DRIVE MOTOR

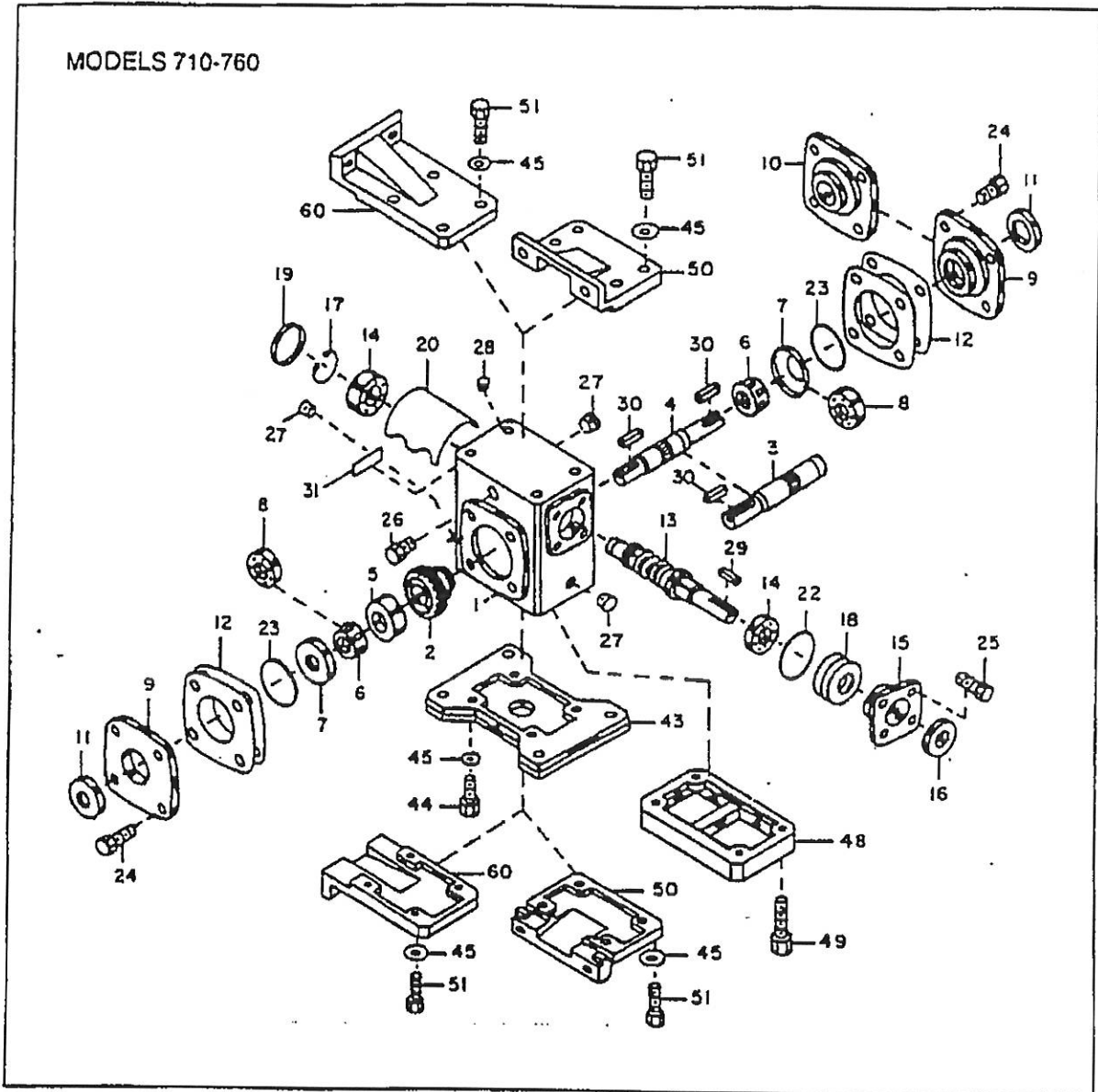


# DRIVE MOTOR

ITEM	PART NO	QTY	DESCRIPTION
1	17330RPT	1	END CAP, DRIVE END
2 *	17331RPT	1	SHAFT SEAL
3 *	17332RPT	1	O-RING
4 *	AB927	1	BEARING, DRIVE END
5	AB162	4	DOWEL PIN
6	17333RPT	1	END PLATE, DRIVE
7 *	AC888	2	BODY GASKET
8	AC878C	1	BODY
9	AB136D	1	KEY
10	AC986	1	ROTOR ASSEMBLY
11 *	AC879	2	PUSH PIN
12 *	AC817	4	VANE, SPRING
13 *	AC816	4	VANE
14	AC964	1	END PLATE, DEAD
15 *	AC894B	1	BEARING, DEAD END
16 *	AC837	1	ENDCAP, GASKET
17	AC836	1	END CAP, DEAD END
	1733RPT	1	REPAIR KIT

\* DENOTES PARTS INCLUDED IN THE SERVICE KIT.

**700 SERIES WORM GEAR SPEED REDUCERS  
PARTS LIST - SINGLE REDUCTION MODELS**

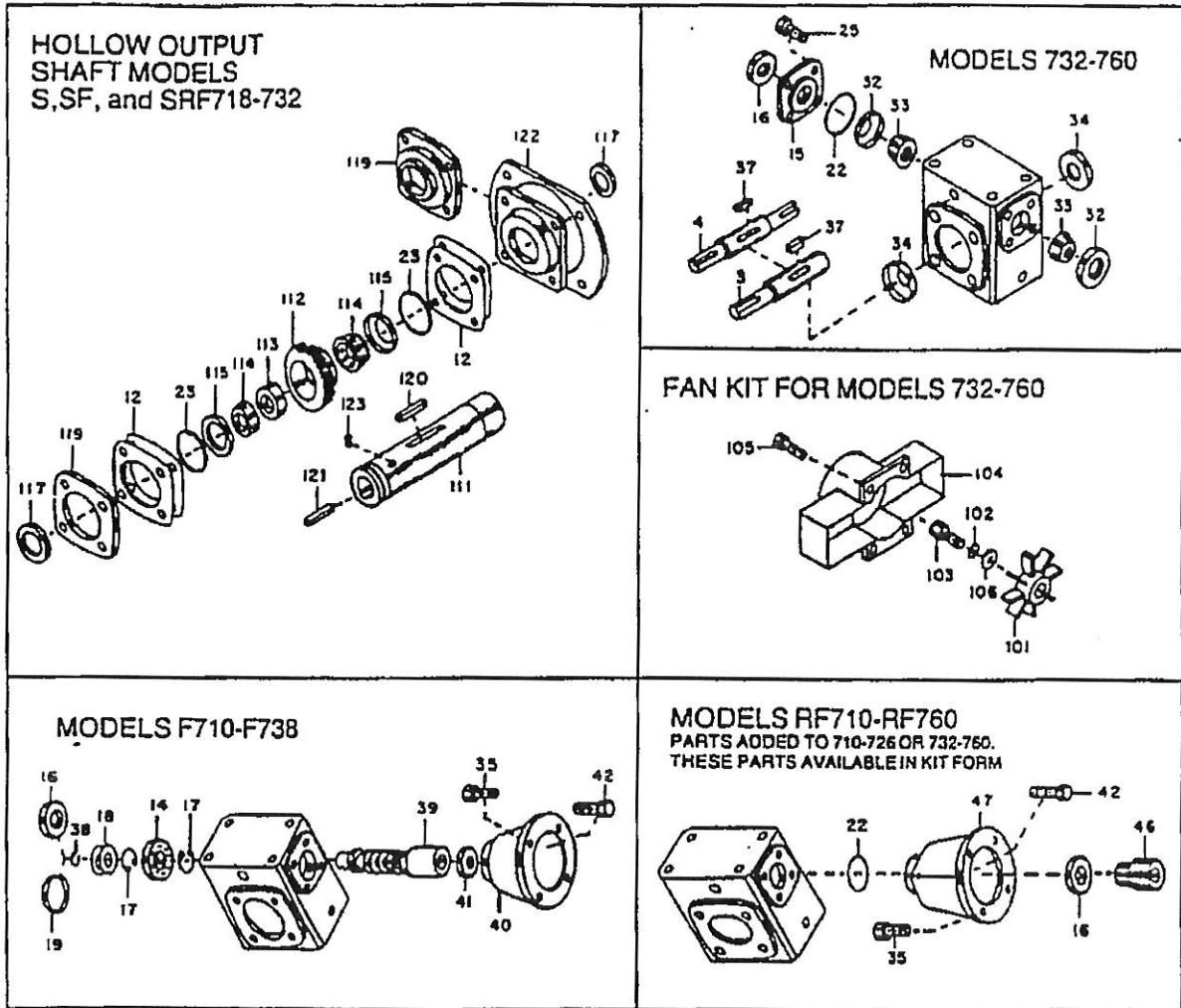


**PART ORDERING INFORMATION**

1. Be sure to provide complete Boston Gear catalog number from speed reducer nameplate, along with part description and number. For example, "One output oil seal, Part No. 11, for RF718-30-B5-G".
2. Output shaft components for Boston Gear models 710 through 726 are available only as complete assemblies that include Parts 2, 3, 5, 6, 11, 12 and 23 for single projecting shafts; and Parts 2, 4, 5, 6, 11, 12 and 23 for double projecting shafts. When ordering, specify "output shaft assembly" and full Boston Gear catalog number from nameplate.



# 700 SERIES WORM GEAR SPEED REDUCERS OPTIONS & ACCESSORIES - SINGLE REDUCTION MODELS



PART NO.	DESCRIPTION
1	HOUSING
2*	WORM GEAR
3*	SINGLE PROJECTING OUTPUT SHAFT
4*	DOUBLE PROJECTING OUTPUT SHAFT
5*	GEAR SPACER
6*	OUTPUT BEARING (CONE) - MODELS 712-760
7	OUTPUT BEARING (CLIP) - MODELS 713-760
8	OUTPUT BEARING - MODEL 710 ONLY
9	BEARING CARRIER (OPEN)
10	BEARING CARRIER (CLOSED)
11*	OUTPUT OIL SEAL
12*	ADJUSTMENT SHIMS
13	INPUT WORM SHAFT
14	INPUT BEARING - MODELS 710-738
15	INPUT BEARING RETAINER
16	INPUT OIL SEAL - MODELS 710-760
17	RETAINING RING
18	ADJUSTMENT SHIMS
19	ROSE PLUG - MODELS 710-738
20	INTERNAL BAFFLE - MODELS 712-760
22	INPUT "O" RING
23*	OUTPUT "O" RING
24	HEX HEAD CAP SCREW
25	HEX HEAD CAP SCREW

PART NO.	DESCRIPTION
26	VENT PLUG - 2 PIECE
27	PIPE PLUG
28	PROTECTIVE CAP PLUG
29	INPUT KEY
30	OUTPUT KEY
31	NAMEPLATE
32	INPUT BEARING (CLIP) - MODELS 732-760
33	INPUT BEARING (CONE) - MODELS 732-760
34	GREASE CLIPS - MODELS 732-760
35	HEX HEAD CAP SCREW
37	OUTPUT SHAFT KEY - MODELS 732-760
38	RETAINING RING - MODELS - 710-738
39	MOTOR SHAFT - MODELS 710-738
40	MOTOR FLANGE - MODELS 710-738
41	OIL SEAL - MODELS 710-738
42	HEX HEAD CAP SCREW
43	HORIZONTAL BASE
44	HEX HEAD CAP SCREW
45	LOCKWASHER
46	2 PIECE FC COUPLING - WITH INSERT
47	RETAINING MOTOR FLANGE
48	RESIN BLOCK
49	HEX HEAD CAP SCREW
50	VERTICAL BASE (HIGH OR LOW)

PART NO.	DESCRIPTION
51	HEX HEAD CAP SCREW
60	VERTICAL BASE (X & Y ASSEMBLY)
901	FAN
102	SPACER
103	HEX HEAD CAP SCREW
104	FAN GUARD
105	HEX HEAD CAP SCREW
106	WASHER
111	HOLLOW OUTPUT SHAFT
112	WORM GEAR
113	GEAR SPACER
114	OUTPUT BEARING (CONE)
115	OUTPUT BEARING (CLIP)
117	OIL SEAL
119	BEARING CARRIER (OPEN)
120	KEY (EXTERNAL)
121	KEY (INTERNAL)
122	"Y" TYPE BASE
123	SOCKET SETSCREW

\*For Models 710 to 726, these parts are available only as complete assemblies. See Part Ordering Information, #2, at left.



Pneumatic Division North America  
Richland, Michigan 49083

Installation and Service  
Instructions: 2R200BP  
1/8", 1/4", & 3/8" 10R Economy  
1/4", 3/8" & 1/2" 11R Compact  
3/8", 1/2" & 3/4" 12R Standard  
Pilot Controlled Regulator  
ISSUED: January, 1999  
Supersedes: June, 1997  
ECN# P26862

### WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air supply should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

### Application Limits

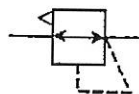
These products are intended for use in general purpose compressed air systems only.

#### Operating Pressure:

	kPa	psig	bar
Maximum Inlet Pressure	1720	250	17.2

Ambient Temperature Range: 0°C to 80°C (32°F to 175°F)

### Symbols



Relieving



Non-Relieving

### Operation and Service

1. Before turning on the air supply, turn the adjusting knob on the master regulator until compression is released from the pressure control spring. Turn on air supply to the master regulator and the pilot controlled regulator. Adjust the downstream pressure by turning adjusting knob on the master regulator until the desired downstream pressure is obtained.

### Installation

1. The regulator should be installed with reasonable accessibility for service whenever possible – repair service kits are available. Keep pipe or tubing lengths to a minimum with inside clean and free of dirt and chips. Pipe joint compound should be used sparingly and applied only to the male pipe – never into the female port. Do not use Teflon<sup>†</sup> tape to seal pipe joints – pieces have a tendency to break off and lodge inside the unit, possibly causing malfunction.
2. Install regulator so that air flow is in the direction of arrow. Installation must be upstream (high pressure) side and as close to the devices it is to service (lubricator, valve, cylinder or tool). Mounting may be in any position.
3. Gauge ports are located on both sides of the regulator body for your convenience. It is necessary to install a gauge or socket pipe plug into each port during installation.
4. For protection against rust, pipe scale and other foreign matter, install a filter on the upstream (high pressure) side as closely to the regulator as possible.

<sup>†</sup> Trademark E.I. Du Pont de Nemours & Co.

### WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

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2. To decrease regulated pressure setting, always reset from a pressure lower than the final setting required. Example, lowering the secondary pressure from 80 PSIG to 60 PSIG is best accomplished by dropping the secondary pressure to 50 PSIG, then adjusting upward to 60 PSIG.
3. To service the regulator piston, poppet assembly and seat insert (10R, 11R & 12R):
  - A. Shut off air supply and depressurize the unit. Turn the adjusting knob on the master regulator until pilot pressure is relieved on the pilot controlled regulator.
  - B. Unscrew the threaded collar and remove the bonnet assembly.
  - C. Disassemble, clean and carefully inspect parts for wear or damage. If replacement is necessary, use parts from the service kits.
  - D. Lubricate poppet bore, poppet stem, lower balancing seal, and all o-rings with grease found in kit.
  - E. Lubricate bonnet bore with grease found in kit. Carefully install piston seals as shown in assembly drawing. The V side of each seal must be installed facing the end of the piston. Install vent seal if repairing a relieving regulator. Install piston assembly into bonnet.
  - F. (10R) Install poppet assembly, cap's o-ring to o-ring groove on cap. Then screw cap into body until the cap bottoms out in body.  
(11R & 12R) Install poppet return spring, poppet assembly, o-rings, and seat insert.
  - G. Assemble bonnet assembly to body and tighten threaded collar hand tight plus 1/4 turn.
4. Turn on air pressure and check regulator for leakage. If leakage occurs, DO NOT OPERATE — conduct repairs again.  
If you have questions concerning how to service this unit, contact your local authorized dealer or your customer service representative.

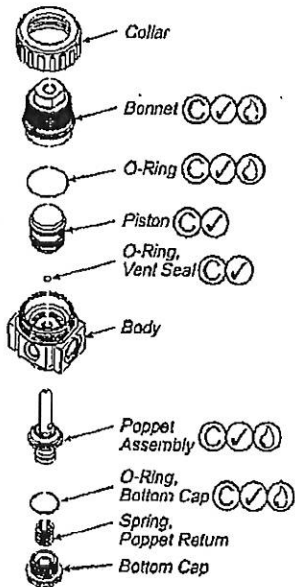


Figure 1:  
10R Regulator

### Service Kits Available

	Economy 10R	Compact 11R	Standard 12R
Regulator (Standard)			
Repair Kit (Relieving)	PS949P	PS749P	PS849P
Regulator (Reverse Flow)			
Repair Kit (Relieving)	N/A	PS749RP	PS849RP
Regulator (Standard) Repair Kit (Non-Relieving)	PS947P	PS747P	PS847P
Regulator (Reverse Flow) Repair Kit (Non-Relieving)	N/A	PS747RP	PS847RP
Seat Insert Repair Kit (Standard)	N/A	PS713P	PS813P
Gauges:			
Low Pressure 0 to 410 kPa (0 to 60 psig)	PS530154	P781641	P781641
Standard Pressure 0 to 1100 kPa (0 to 160 psig)	P77413	P781642	P781642
High Pressure 0 to 2070 kPa (0 to 300 psig)	N/A	P781643	P781643

- Ⓐ Lightly grease with provided lubricant.
- ✓ Inspect for nicks, scratches, and surface imperfections. If present, reduced service life is probable and future replacement should be planned.
- Ⓒ Clean with lint-free cloth.

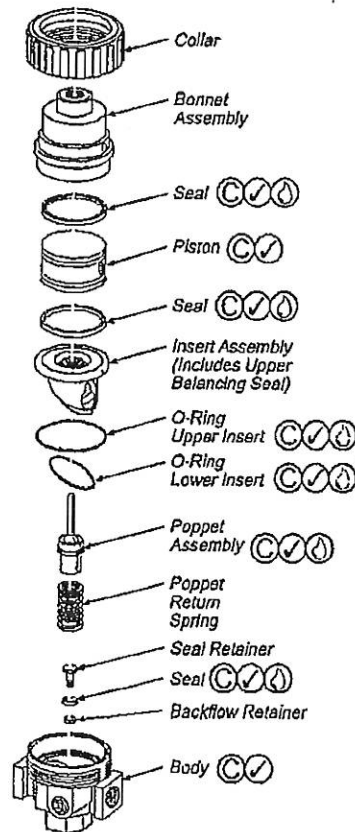


Figure 2:  
11R & 12R Regulator