

# *OWI 35C-7/ 35C-7H*

## *PIPE SPINNER*



## **OIL WORKS, INC.**

.... manufactures the OWI 35C-7 pipe spinner in Pneumatic and Hydraulic Versions at our facility in Odessa, TX. We offer new and rebuilt units, and stock a full line of replacement parts and assemblies.

New and remanufactured units are available for exchange or outright sale. Complete service, parts, and repair available on all makes and models of pipe spinners.

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# INTRODUCTION

## SAFETY

The OWI 35C-7 virtually eliminates the danger of costly rig floor accidents and injuries caused by conventional methods of using spinning chains.

The crew and equipment on the rig floor are free from excess foreign matter being thrown about to cause eye injuries or soiled clothing. The OWI 35C-7 is extremely clean in its operation and crews appreciate this factor.

## ECONOMY

More constant make up torque eliminates forked lines and reduces heat and wear on cathead clutches, whereby constant torque measurement is maintained. The OWI 35C-7 saves costly repairs to make up cathead clutches due to overheating and fatigue.

## CONCLUSION

Engineering logic coupled with existing adverse conditions, leads to the conclusion that this tool has many great applications in our modern day oilfield.

# **GUARANTEE and Field Service**

Inter-American Oil Works, Inc wants to provide all OWI 35C-7 users with the best tool possible along with the highest degree of dependability and satisfaction. With this in mind, we offer the following guarantee:

Your OWI 35C-7 must be free of material and workmanship defects for a period of six months from the date of delivery. If any part fails due to a manufacturing defect, within that period of time that part will be replaced by Inter-American Oil Works, Inc.

Replacement of parts will be accomplished either at Inter-American Oil Works, Inc. or at a designated service point. This guarantee does not include the chain as its normal replacement cycle usually falls within this six month period unless it can be established that the failure was caused by a defect and not from normal wear and tear or misuse of the tool.

Inter-American Oil Works, Inc. liability is limited to replacement of defective parts only and does not include the cost of labor, communications, transportation or handling connected with the replacement of such parts.

Inter-American Oil Works, Inc. will in no event be liable for consequential damages or contingent liabilities arising out of the failure of any parts to operate properly.

No expressed, implied, or statutory guarantee other than herein set forth is made, or authorized to be made, by Inter-American Oil Works, Inc.

## **CAUTION**

Factory specifications for pneumatics, lubricants, adjustments and safety precautions as set forth in the operations and maintenance manual are for the mutual protection of the owner and the company. Failure to adhere to these specifications can reduce the efficiency or life of the equipment.

## II MAINTENANCE

Since the corrosive environment normally encountered at a drilling site, especially offshore, is extremely damaging to metal surfaces, all possible care should be taken to protect the OWI 35C-7 through frequent washings and lubrication. Please consider the following recommendations as a minimum requirement.

### A. CLEANING

The OWI 35C-7 should be washed with rig soap and a brush after each trip or when it visibly needs it.

### B. LUBRICATION

#### 1. Air Motor (Model OWI 35C-7)

An airline lubricator must also be used during operation and should be set at 1-3 drops per minute. (Use #10 pneumatic tool oil, NEVER use automotive engine oil.)

#### 2. Reducer Assembly (Model OWI 35C-7)

This unit is oil lubricated. The oil level should be checked at least every 24 operating hours. This is accomplished as follows: Remove plug that is marked oil level. Remove ¼" breathe in top of reducer. Fill reducer with 30 wt. non-detergent oil until fluid reaches oil level. Then pump grease into the upper zerk fitting until it is again forced out of the hole. Use only specified lubricant or equivalent.

#### 3. Idler & Drive Sprockets

Idler sprocket bearings are greased by means of zerk fittings located on the top of each pin. Pump grease into zerk fittings before each trip and after cleaning the OWI 35C-7.

#### 4. Adjustment Screw

Access to the adjustment screw is at the rear longitudinal adjusting slot. Apply oil to the threads at each cleaning and as necessary to provide easy rotation.

## 5. Chain

Prior to each trip the chain must be lubed. A good copper base pipe dope is by far the first choice for this job. The next best lubricant is a zinc base pipe dope. Apply a liberal amount to the entire length of the chain on the tooth side using a dope brush. Never allow dope to coat the side that contacts the pipe. Clean this surface if necessary. This will ensure a long trouble free chain life. NEVER UNDER ANY CONDITIONS should weight material or any other dry materials be applied to the chain to increase gripping power; they will only hinder its performance.

## C. ADJUSTMENT AND REPAIR

### 1. Air Motor (Model OWI 35C-7)

Trained personnel should do air motor servicing, but simple problems like sluggishness can be remedied by flushing with a cleaning solvent. If rebuilding is necessary, an air motor rebuild kit can be ordered from the assembly drawing and parts list.

### 2. Idler Sprockets

If sprockets are not free to rotate, bearings could be worn or damaged. Disassemble, clean thoroughly, and inspect if normal lubricating procedure fails to correct condition. (See section A-A and B-B on OWI 35C-7 assembly drawing.)

### 3. Chain Replacement

File head off one pin and drive it out, causing chain to separate. Connect new chain to old one by turning on air motor very slowly, drive old chain out and pull new chain in. (Make sure motor is turning in proper direction.) Insert new split bushings, pins, and washers, and brad pin at both ends.

### 4. Safety Cables & Springs

Inspect safety cables and hanger springs (prior to each trip.) Replace immediately any part that appears to be damaged or worn. Springs and safety cables can be ordered from OWI 35C-7 assembly drawing.

5. Air Cylinder Assembly (Model OWI 35C-7)

The air cylinders should give long, trouble free service provided they are supplied with clean, lubricated air. Probable causes of malfunction are:

- (a) Dirty air will combine with the lubricating oil to "gum up" the interior walls of the ram.
- (b) O'Ring failure. In either case, remove cylinder from unit and disassemble. Wash all parts in solvent. Replace all O'Rings and seals using a rebuild kit ordered by part number. (See assembly drawing on page 17.)

# III OPERATION

## A. OWI 35C-7 RIG-UP

### 1. Proper Suspension

The OWI 35C-7 comes with two hanging springs. These provide for slight variations in vertical movement. The spinner should be suspended on a counter balanced line similar to the rig tongs.

#### CAUTION

**MAKE SURE BACK-UP LINE IS SECURED IN THE PROPER DIRECTION TO MAKE UP TORQUE LOADS.**

### 2. How to Adjust to Desired Pipe Size

Adjustment of the chain is achieved by first loosening the three mount bolts located on the gear reducer mount. The drive assembly should now be free to slide along longitudinal adjust slots located on top of spinner housing. On the rear of the spinner is a nut protruding from the case. Using the adjustment wrench provided, rotate this nut clockwise for smaller pipe size and counter-clockwise for larger size. For proper pipe adjustment, a gap of 1-1/4 inches should exist between chain in front when closing arms are locked in place by air rams. **MAKE SURE THE THREE MOUNT BOLTS ARE RE-TIGHTENED BEFORE OPERATING SPINNER.**

B. TO OPERATE

1. Pipe Engagement

Move spinner to its proper place to engage pipe and actuate cylinder valve handle, closing arms around pipe. Make sure valve is kept in this position long enough for cylinders to receive maximum line pressure and then release handle. Disengagement from pipe is achieved by actuating valve handle back away from pipe. Let arms open fully before releasing valve handle.

2. Spinning Pipe

Spin pipe by actuating throttle lever. Any RPM range can be utilized by varying the amount of valve lever movement.

3. Reversing Rotation (Model OWI 35C-7)

As an added safety feature, the OWI 35C-7 requires changing the supply/exhaust hoses before rotational direction can be reversed. This makes it impossible to have an accident by mishandling a reversing control lever.

**CAUTION**

**MAKE SURE BACK -UP LINE IS SECURED IN PROPER DIRECTION TO TAKE UP TORQUE LOADS.**

## SPECIFICATION SHEET- AIR

LENGTH: 42 in.  
 WIDTH: 32 in.  
 HEIGHT: 42 in.  
 WEIGHT: 750 lbs.  
 PIPE SIZE RANGE: 2-7/8" drill pipe through 7.0" drill collars  
 AIR REQUIRED: 240 cfm @ 100 psi

## PERFORMANCE- AIR

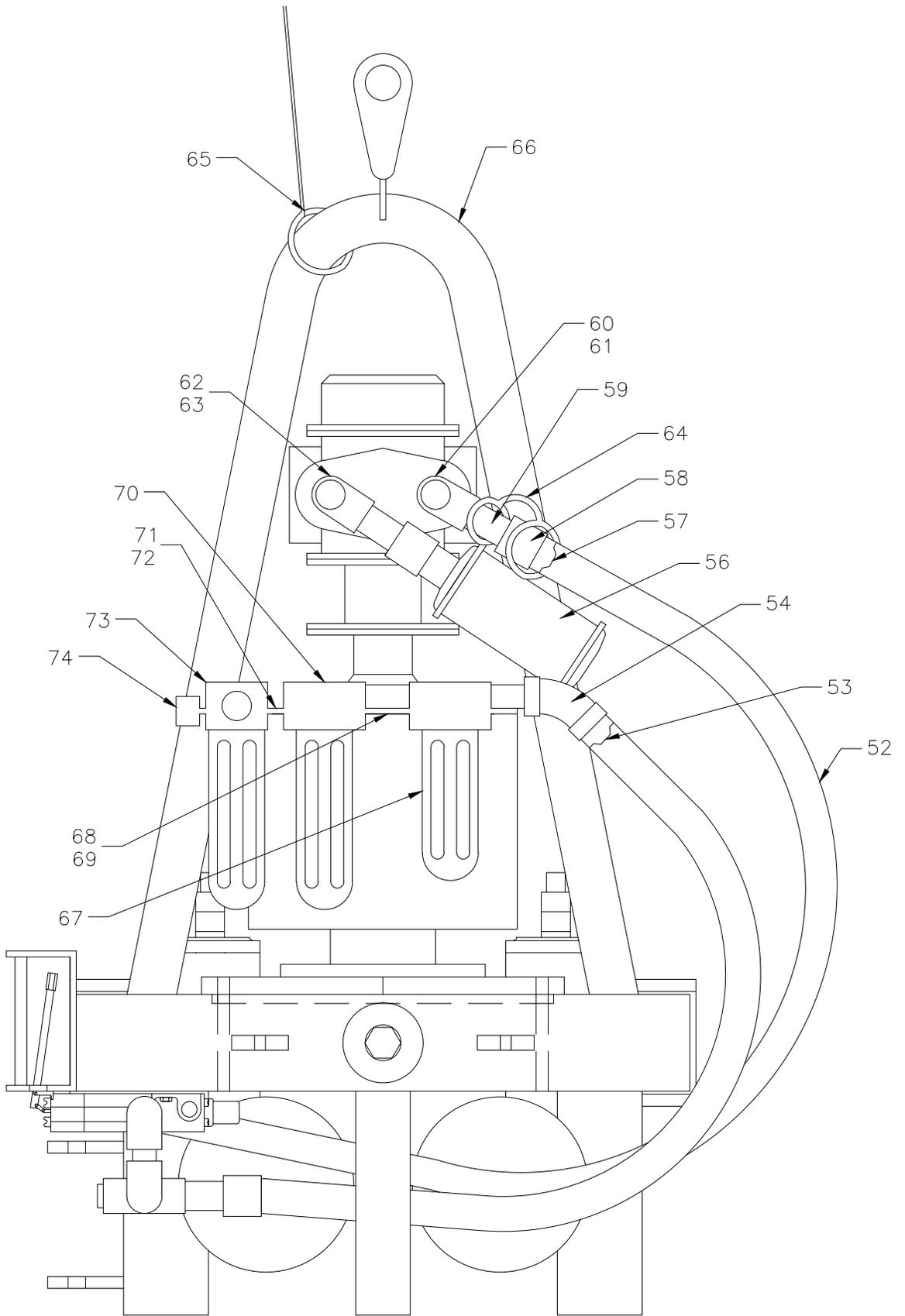
MODEL  OWI 35C-7	Torque @ 100 psi @ 240 cfm No chain slip RPM at above torques	SIZE:	3-1/2"	4"	4-1/2"	5"	5-1/2"	7"
		TORQUE FT./LB.	810	930	1040	1160	1270	1620
		R.P.M.	170	150	134	120	110	85

## SPECIFICATION SHEET- HYDRAULIC

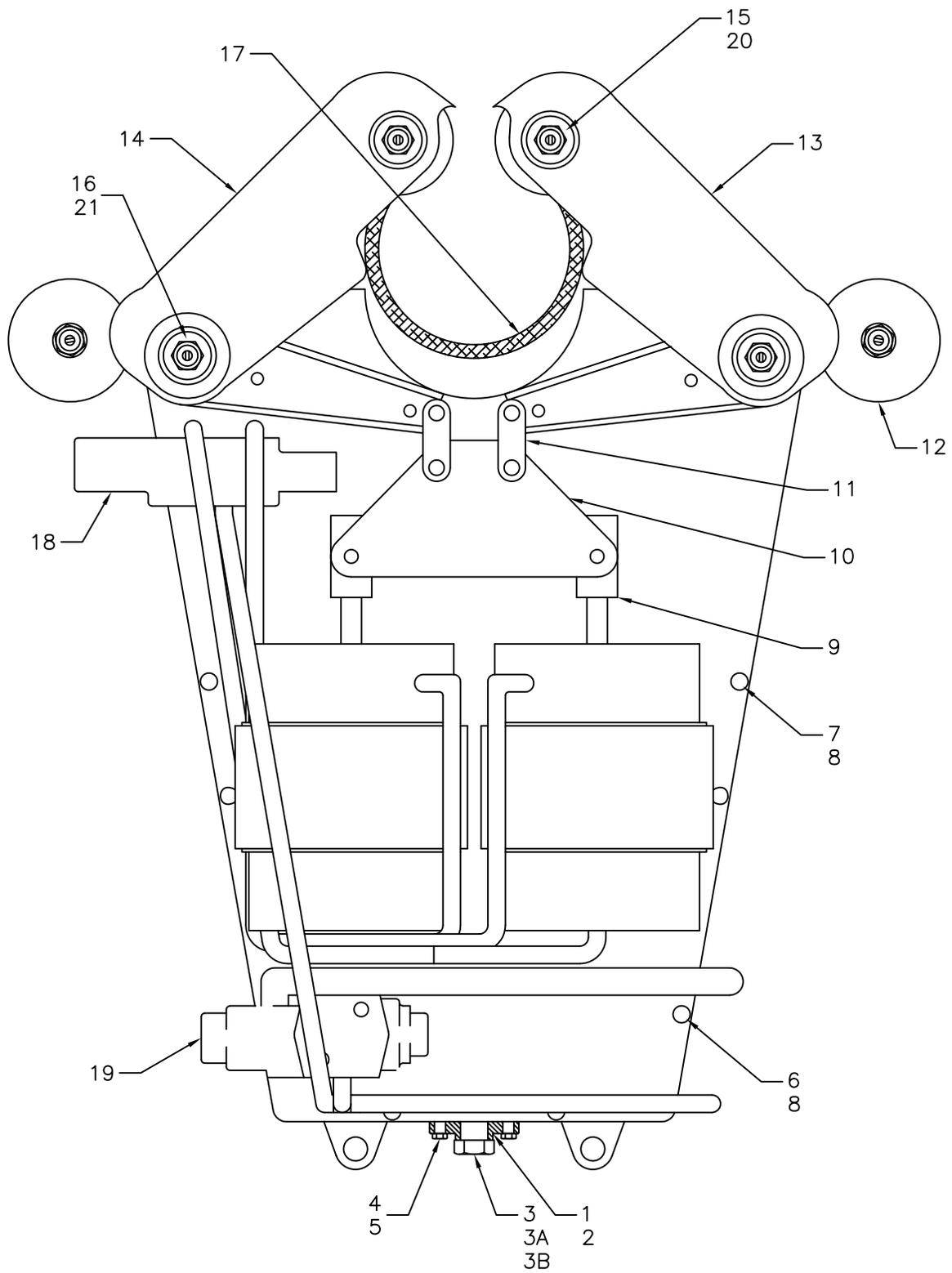
LENGTH: 42 in.  
 WIDTH: 32 in.  
 HEIGHT: 37 in.  
 WEIGHT: 750 lbs.  
 PIPE SIZE RANGE: 2-7/8" drill pipe through 7.0" drill collars  
 HYD REQUIREMENT: 20GPM @ 2000 PSI

## PERFORMANCE- HYD

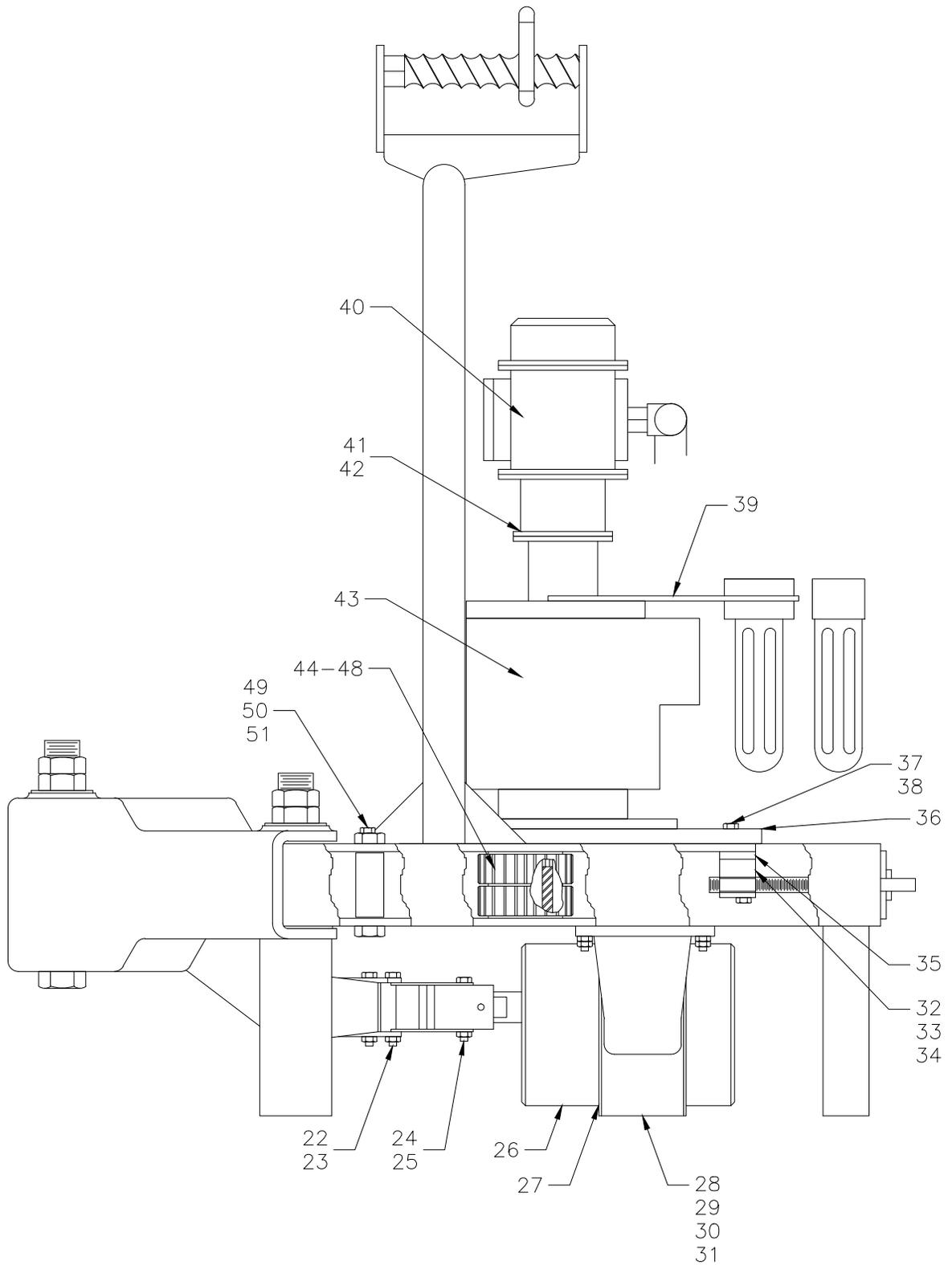
20 GPM @ 2000 PSI  
 1200 FT. LBS. TORQUE  
 RPM AVG.



BACK VIEW (OWI 35C7)



BOTTOM VIEW (OWI 35C7)

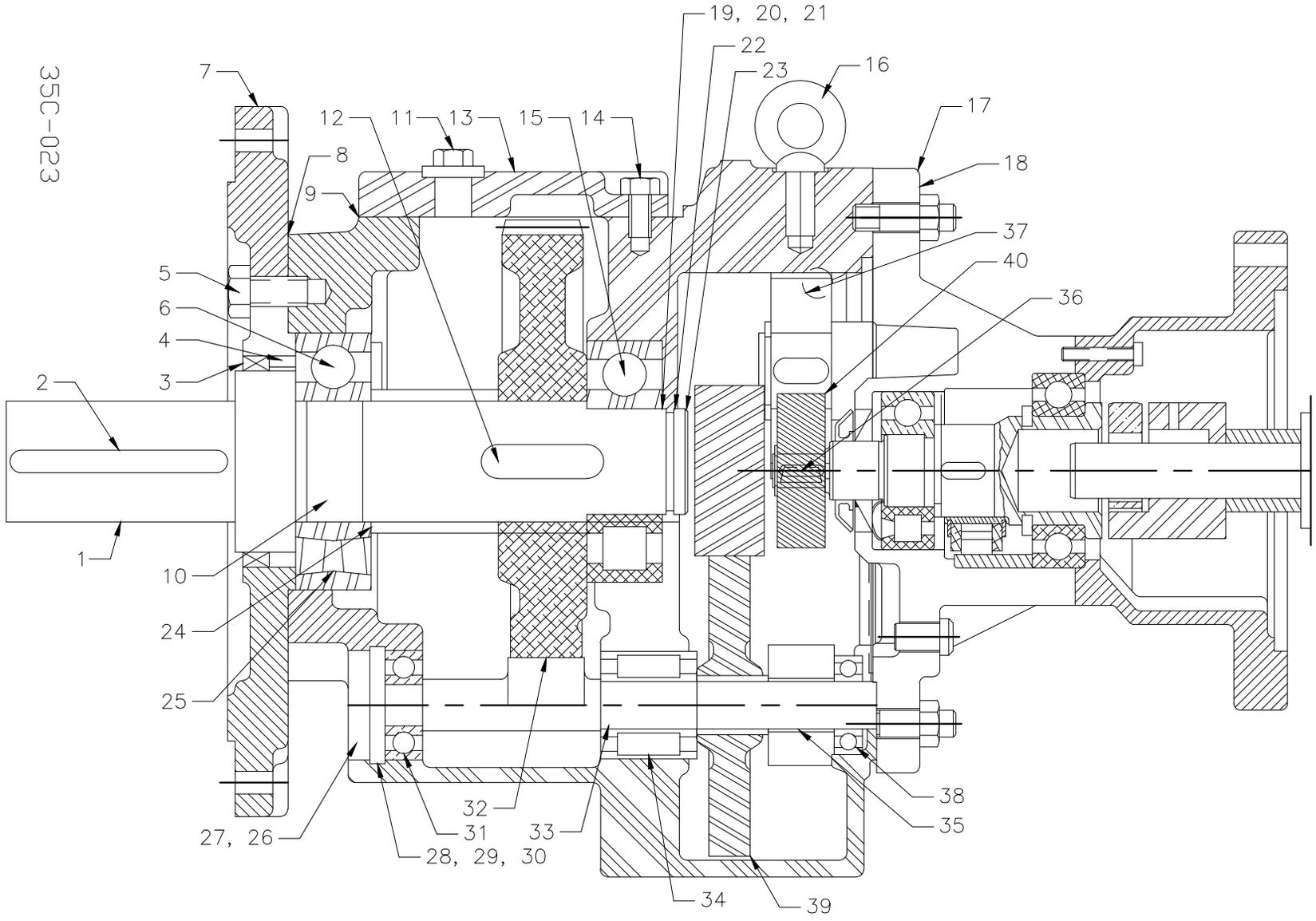


SIDE VIEW (OWI 35C7)

ITEM	OWI PART #	DESCRIPTION	REQ'D
1	35C-009	CASE BUSHING	1
2	35C-033	SHOULDER BUSHING	1
3	35C-007	ADJUST SCREW	1
3A	35C-007-A	COLLAR, ADJUST SCREW	1
3B	35C-007-B	PIN, ADJUST SCREW ROLL	1
4	35C-032	CASE BUSHING BOLT	2
5	35C-045	CASE BUSHING LOCKWASHER	2
6	35C-039	CASE BLOCK/SPACER BOLT, 3/8-16x4 1/2	8
7	35C-072	CASE HANGER FEET BOLT, 3/8-16x5	4
8	35C-040	CASE BLOCK LOCK NUT, 3/8 NYLN	12
9	35C-106	7" CYLINDER ROD HEAD	2
10	35C-013	CLEVIS PLATE ASSY.	1
11	35C-005	SHACKLE	4
12	35C-008Q	KNUCKLE SAVER HANDLE ASSY.	2
13	35C-008-1	LH ARM ASSEMBLY	1
14	35C-008-2	RH ARM ASSEMBLY	1
15	35C-008R	SMALL DOOR BUSHING	2
16	35C-008S	LARGE DOOR BUSHING	2
17	35C-024	SILENT 90" CHAIN	1
18	35C-400	1/2" DOOR VALVE	1
19	35C-300	THROTTLE VALVE ASSEMBLY	1
20	35C-240	DRIVE ROLLER ASSEMBLY	2
21	35C-220	IDLER SPROCKET ASSEMBLY	2
22	35C-019	SHACKLE BOLT, 1/2x3 1/2	4
23	35C-074	SHACKLE LOCK NUT, 1/2 NYLOCK	4
24	35C-018	ROD HEAD BOLT, 1/2x3	2
25	35C-074	ROD HEAD LOCK NUT, 1/2 NYLOCK	2
26	35C-100	CYLINDER ASSEMBLY	2
27	35C-108	SPIROLOX 7-1/2 RING	4
28	35C-016	CYLINDER MOUNT ASSEMBLY	4
29	35C-073	CYLINDER PLATE BOLT, 3/8-16x1 1/4	4
30	35C-040	CYLINDER PLATE LOCK NUT, 3/8-16 NYLN	8
31	35C-124	CYLINDER PLATE BOLT, 3/8-16x1	3
32	35C-003	ADJUST NUT	1
33	35C-057	ADJUST NUT BOLT, 3/8-16x2 1/4	2
34	35C-045	ADJUST NUT LOCK WASHER, 3/8 LW	2
35	35C-021	ADJUST PLATE ASSY	1
36	35C-022	UPPER MOUNT ASSEMBLY	1
37	35C-041	ADJUST PLATE BOLT, 1/2x1 1/4	3
38	35C-052	ADJUST PLATE LOCK WASHER, 1/2 LW	3
39	35C-075A	AIR PIPING BRACKET	1
40	35C-500	AIR MOTOR ASSEMBLY	1
41	35C-124	AIR MOTOR BOLT, 3/8x1	4
42	35C-045	AIR MOTOR LOCK WASHER, 3/8 LW	4
43	35C-023	GEAR REDUCER	1
44	35C-010-A	SPROCKET ADAPTER	1
45	35C-010	DRIVE SPROCKET	1
46	35C-010-B	ADAPTER SPROCKET SCREW	1
47	35C-011	OUTPUT SHAFT SPACER	1
48	35C-010-C	OUTPUT SHAFT KEY	1
49	35C-004	CASE SPACER	4
50	35C-039	CASE SPACER BOLT, 3/8-16x4 1/2	4
51	35C-040	CASE SPACER LOCK NUT, 3/8 NYLN	4
52	35C-029	1 1/4 AIR HOSE	2
53	35C-081	16MP-20MJ ADAPTER	1
54	35C-082	1" 45' FITTING	1
55	35C-083	1" CLOSE NIPPLE	1
56	35C-028	EXHAUST MUFFLER	1
57	35C-084	20MP-20MJ ADAPTER	1
58	35C-027	1 1/4 SOCKET COUPLER	2
59	35C-026	1 1/4 PLUG COUPLER	2
60	35C-085	1 1/4 90° FITTING	1
61	35C-086	1 1/4 CLOSE NIPPLE	1
62	35C-087	1 1/4 90° STREET ELL	1
63	35C-088	1 1/4x4 NIPPLE	1
64	35C-020	AIR MOTOR SAFETY CABLE	2
65	35C-050	CASE HANGER SAFETY CABLE	1
66	35C-017	CASE HANGER ASSEMBLY	1
67	35C-062-A	1" LUBRICATOR	1
68	35C-064	1" x 3" NIPPLE	1
69	35C-063	PLUMBING BRACKET U-BOLT	2
70	35C-061-A	1" FILTER	1
71	35C-083	1" CLOSE NIPPLE	2
72	35C-089	1" 90° FITTING	1
73	35C-079-A	1" AIR REGULATOR	1
74			
*	35C-080	OIL,LUBRICATOR QT.	1
*	35C-025	CHAIN REPAIR KIT	1

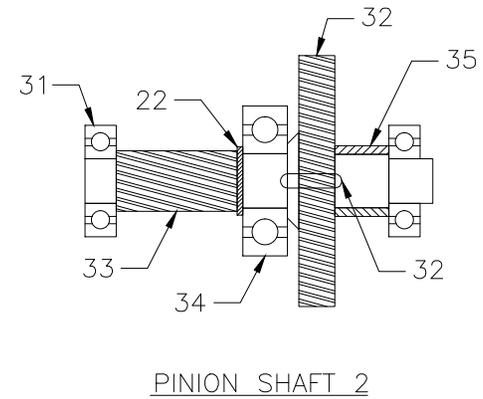
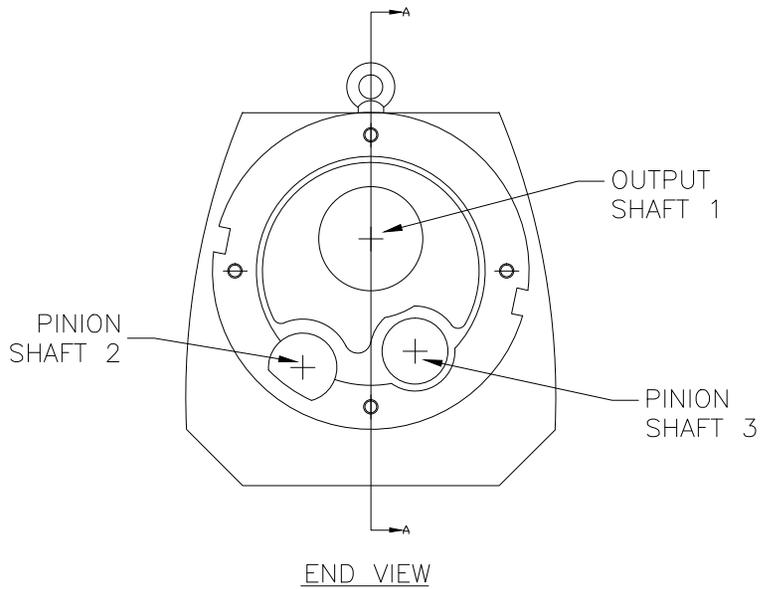
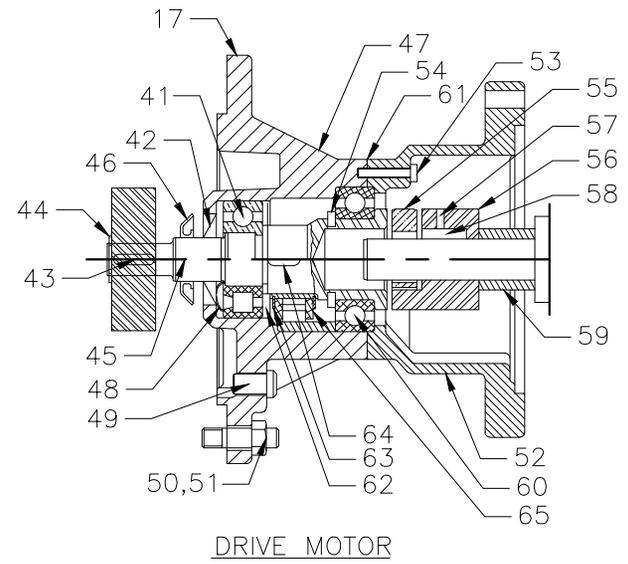
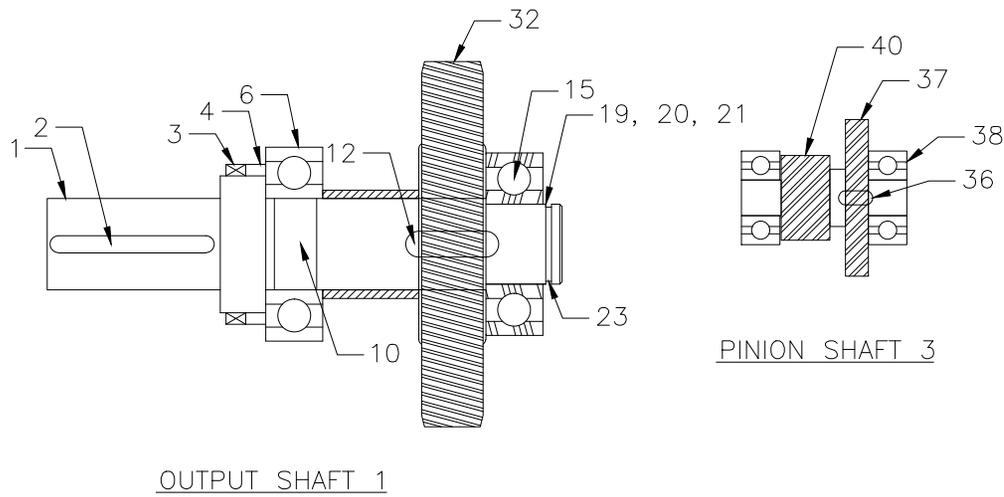
OWI 35C7 PARTS LIST

35C-023



GEAR REDUCER ASSEMBLY

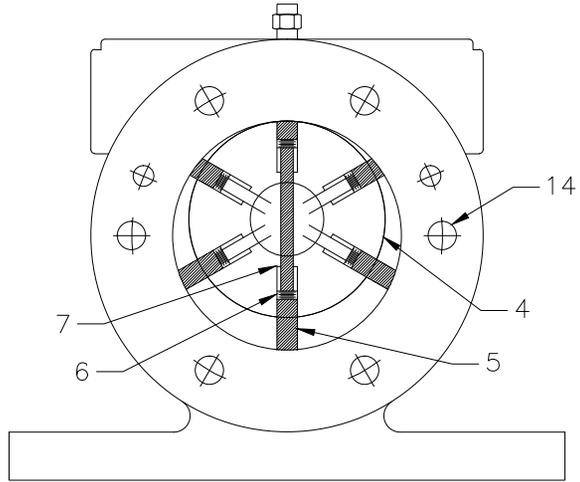
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GEAR REDUCER PARTS LIST

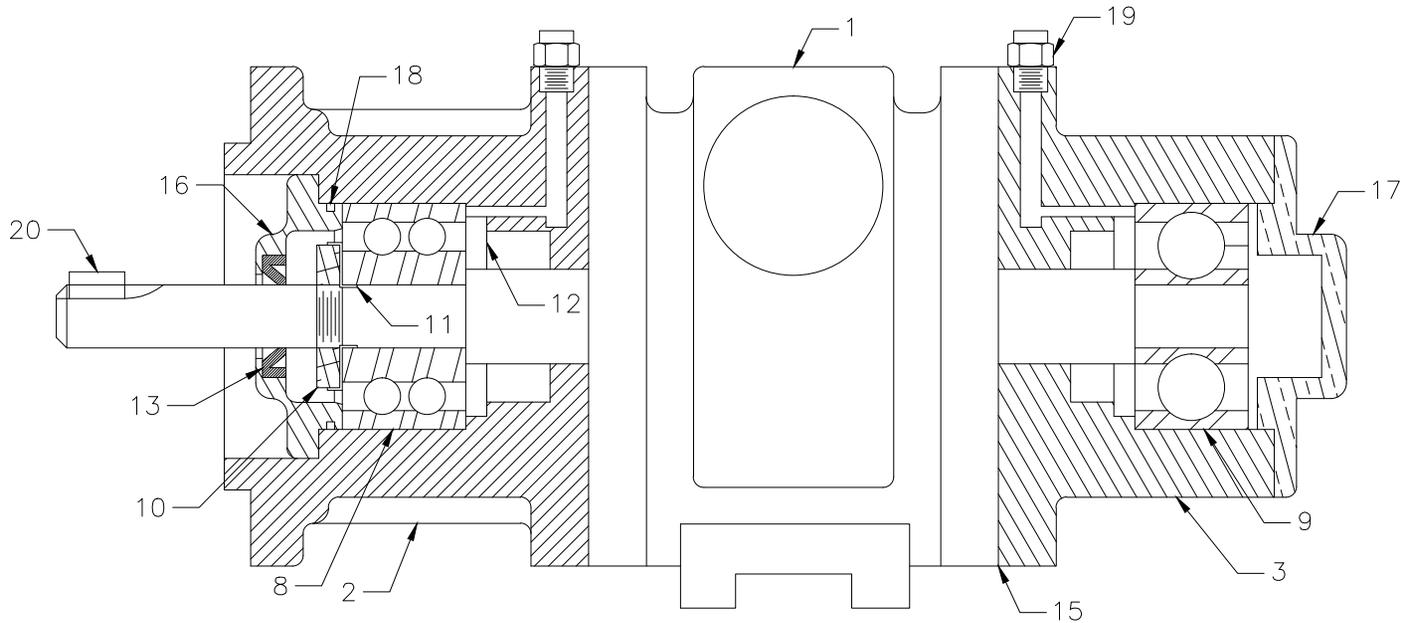
ITEM	DESCRIPTION	PART #	REQ'D	ITEM	DESCRIPTION	PART #	REQ'D
1	OUTPUT SHAFT	35C-601	1	34	BEARING	35C-634	1
2	OUTPUT KEY	35C-602	1	35	SPACER	35C-635	1
3	OIL SEAL	35C-603	1	36	KEY	35C-636	1
4	OIL SEAL	35C-604	1	37	DRAIN PLUG	35C-637	5
5	HEX HEAD SCREW	35C-605	9	38	BEARING	35C-638	1
6	BEARING	35C-606	1	39	GEAR	35C-639	1
7	OUTPUT FLANGE	35C-607	1	40	PINION	35C-640	1
8	ANAEROBIC SEALANT	35C-608	X	41	BEARING	35C-641	1
9	GASKET	35C-609	1	42	OIL SEAL	35C-642	1
10	SPACER	35C-610	1	43	KEY	35C-643	1
11	BREATHER PLUG	35C-611	1	44	RETAINER RING	35C-644	1
12	KEY	35C-612	1	45	SHAFT	35C-645	1
13	INSPECTION COVER	35C-613	1	46	OIL SLINGER	35C-646	1
14	HEX HEAD SCREW	35C-614	8	47	INPUT HOUSING	35C-647	1
15	BEARING	35C-615	1	48	SPRING WASHER	35C-648	1
16	EYE BOLT	35C-616	1	49	BREATHER PLUG	35C-649	1
17	GEAR CASE	35C-617	1	50	HEX NUT	35C-650	4
18	ANAEROBIC SEALANT	35C-618	X	51	HEX HEAD SCREW	35C-651	4
19	SHIM	35C-619	X	52	INPUT FLANGE	35C-652	1
20	SHIM	35C-620	X	53	HEX HEAD SCREW	35C-653	4
21	SHIM	35C-621	X	54	RETAINER RING	35C-654	1
22	THRUST WASHER	35C-622	1	55	SPIDER	35C-655	1
23	RETAINER RING	35C-623	1	56	HALF COUPLING	35C-656	1
24	NILOS RING	35C-625	1	57	SET SCREW	35C-657	1
25	O-RING	35C-625	1	58	KEY	35C-658	1
26	RETAINER RING	35C-626	1	59	DISTANCE PEICE	35C-659	1
27	RETAINER CAP	35C-627	1	60	BEARING	35C-660	1
28	SHIM	35C-628	X	61	ANAEROBIC SEALANT	35C-661	X
29	SHIM	35C-629	X	62	NILOS RING	35C-662	1
30	SHIM	35C-630	X	63	RETAINER RING	35C-663	1
31	BEARING	35C-631	1	64	KEY	35C-664	1
32	GEAR	35C-632	1	65	BACK STOP	35C-665	1
33	PINION SHAFT	35C-633	1				

35C-500



ITEM	DESCRIPTION	PART #	REQ'D
1	BODY	35C-502	1
2	PLATE, DRIVE END	35C-503	1
3	PLATE, DEAD END	35C-504	1
4	ASSEMBLY, ROTOR	35C-505	1
5	VANE	35C-506	6
6	SPRING, VANE	35C-507	6
7	PIN, PUSH	35C-508	3
8	BEARING, DRIVE	35C-509	1
9	BEARING, DEAD	35C-510	1
10	NUT, LOCK	35C-511	1
11	WASHER, LOCK	35C-512	1
12	SPACER	35C-513	2
13	SEAL	35C-514	1
14	DOWEL	35C-515	4
15	GASKET	35C-516	2
16	CAP, DRIVE END	35C-517	1
17	CAP, DEAD END	35C-518	1
18	O-RING	35C-519	2
19	OILER	35C-520	2
20	KEY, DRIVE	35C-521	1
21	KIT, AIRMOTOR REPAIR	35C-501	17

AIR MOTOR

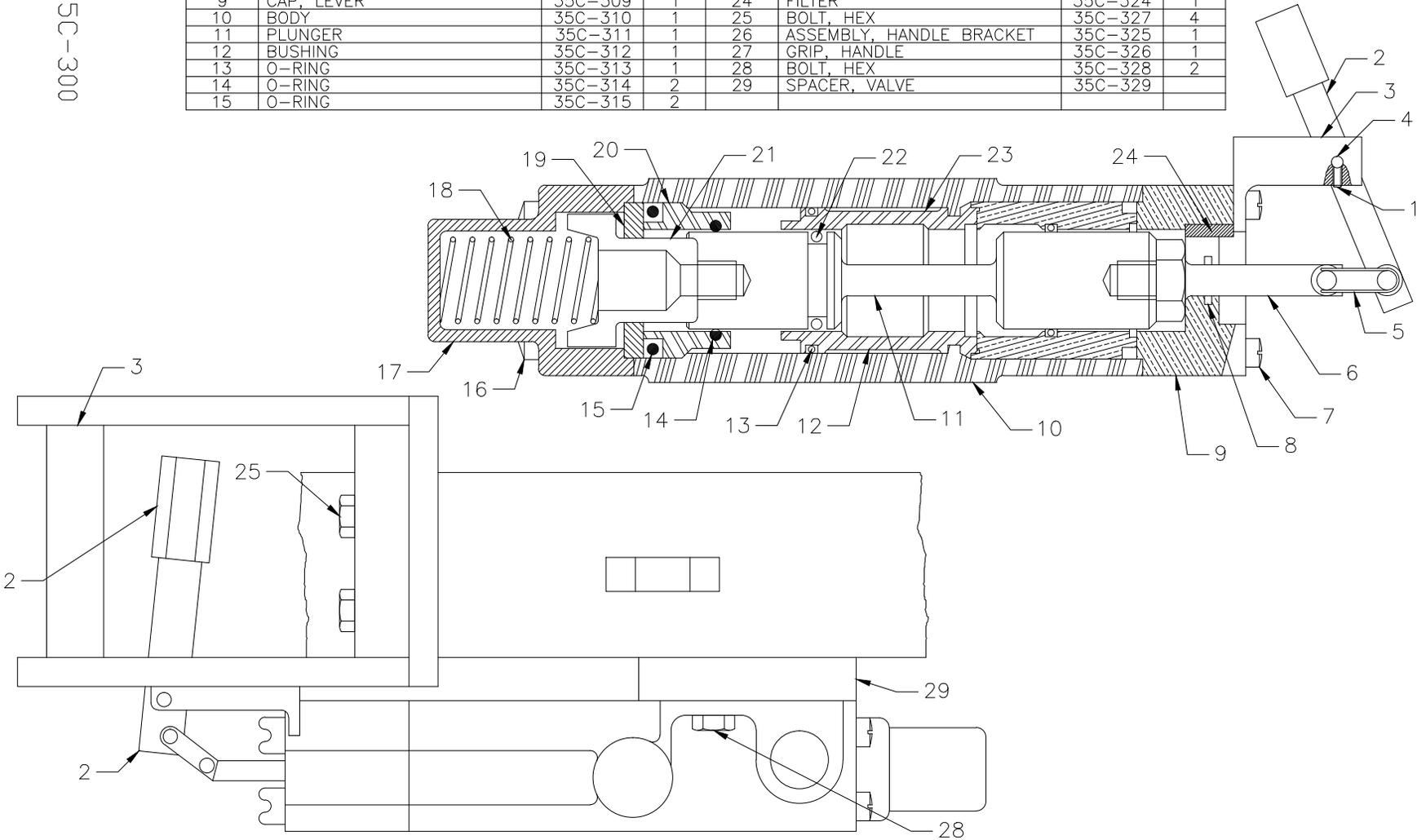


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35C-300

ITEM	DESCRIPTION	PART #	REQ'D	ITEM	DESCRIPTION	PART #	REQ'D
1	SCREW, SET	35C-301	1	16	SCREW	35C-316	4
2	ASSEMBLY, HANDLE	35C-302	1	17	CAP, SPRING	35C-317	1
3	BRACKET	35C-303	1	18	SPRING	35C-318	1
4	PIN	35C-304	1	19	WASHER	35C-319	1
5	ASSEMBLY, LINK	35C-305	1	20	BEARING	35C-320	1
6	ROD	35C-306	1	21	CUP, SPRING	35C-321	1
7	SCREW	35C-307	4	22	O-RING	35C-322	1
8	O-RING	35C-308	1	23	RETAINER	35C-323	1
9	CAP, LEVER	35C-309	1	24	FILTER	35C-324	1
10	BODY	35C-310	1	25	BOLT, HEX	35C-327	4
11	PLUNGER	35C-311	1	26	ASSEMBLY, HANDLE BRACKET	35C-325	1
12	BUSHING	35C-312	1	27	GRIP, HANDLE	35C-326	1
13	O-RING	35C-313	1	28	BOLT, HEX	35C-328	2
14	O-RING	35C-314	2	29	SPACER, VALVE	35C-329	
15	O-RING	35C-315	2				

THROTTLE VALVE ASSEMBLY

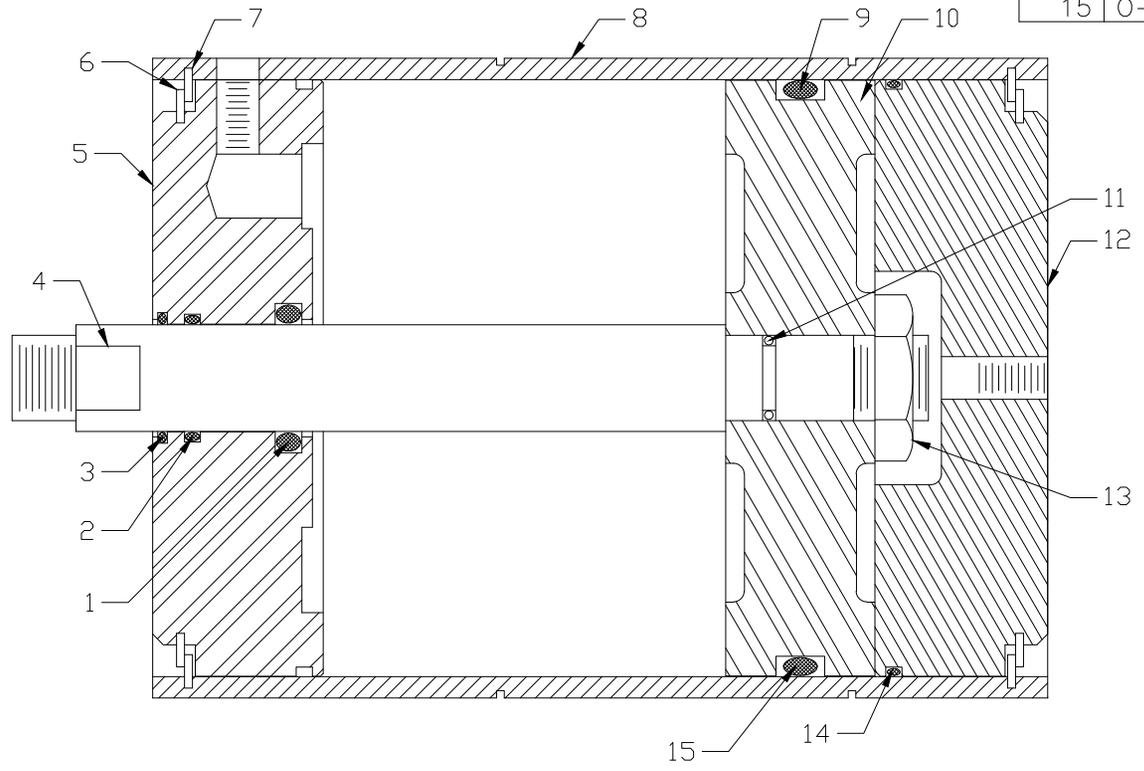




35C-100

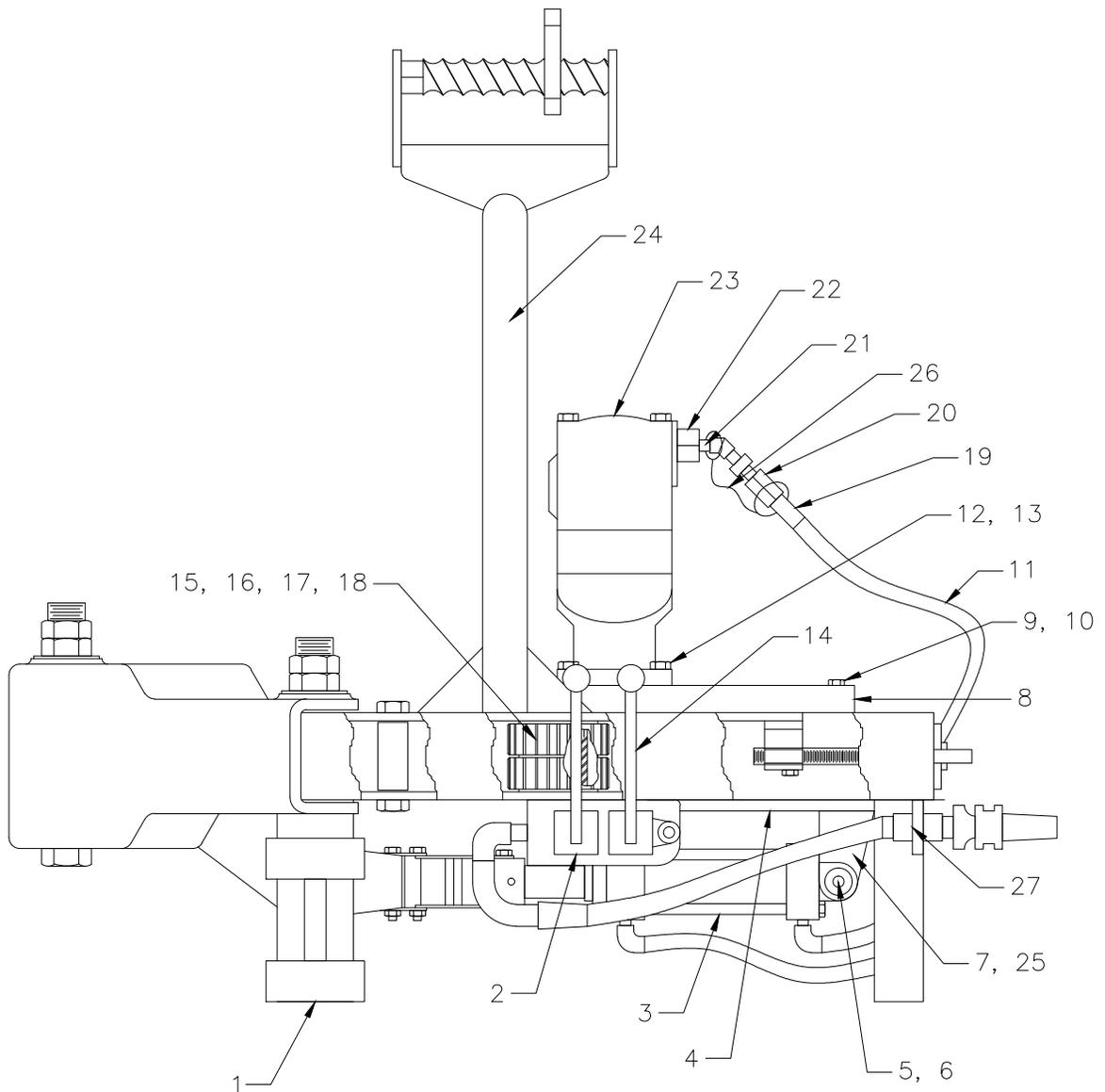
CYLINDER ASSEMBLY

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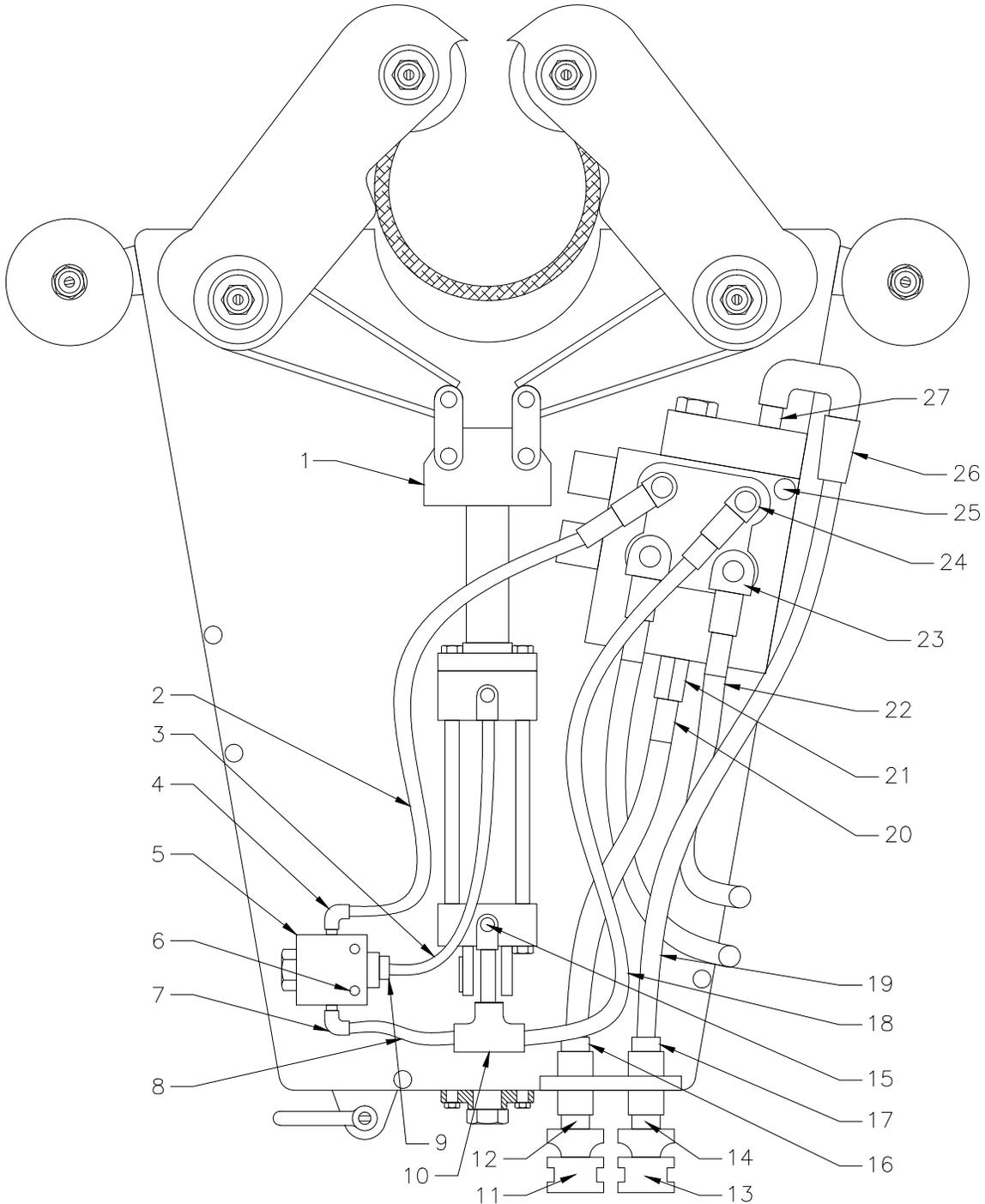
ITEM	DESCRIPTION	PART #	REQ'D
1	U-CUP	35C-112	1
2	O-RING, GLAND	35C-117	1
3	WIPER	35C-113	1
4	ROD, CYLINDER	35C-102	1
5	GLAND, CYLINDER	35C-103	1
6	RING, BASE/GLAND SNAP	35C-110	2
7	RING, BASE/GLAND SNAP	35C-109	2
8	BODY, CYLINDER	35C-101	1
9	BACK-UP	35C-111	2
10	PISTON, CYLINDER	35C-102	1
11	O-RING, ROD	35C-115	1
12	BASE, CYLINDER	35C-104	1
13	NUT, CYLINDER ROD LOCK	35C-107	1
14	O-RING, BASE/GLAND	35C-116	2
15	O-RING, PISTON	35C-114	1

ITEM	DESCRIPTION	PART #	REQ'D	ITEM	DESCRIPTION	PART #	REQ'D
1	KNUCKLE SAVER	35C-0082	2	16	DRIVE SPROCKET	35C-706	1
2	HYDRAULIC VALVE	35C-718	1	17	SPROCKET ADAPTER	35C-707	1
3	HYDRAULIC CYLINDER	35C-711	1	18	SPROCKET ADAPTER SCREW	35C-708	1
4	HOUSING WELD PLATE	35C-710	1	19	ADAPTER	35C-750	2
5	CYLINDER PIN	35C-714	1	20	QUICK CONNECT 1/2"	35C-751	2
6	CYLINDER SAFETY PIN	35C-715	1	21	ADAPTER	35C-752	2
7	CYLINDER MOUNT	35C-712	1	22	BUSHING	35C-753	2
8	UPPER MOUNT ASSY.	35C-702	1	23	HYDRAULIC MOTOR	35C-701	1
9	BOLT	35C-747	3	24	HANGER TUBE ASSY.	35C-709	1
10	LOCK WASHER	35C-748	3	25	CYLINDER MOUNT BUSHING	35C-713	1
11	HOSE	35C-741	2	26	HYDRAULIC SAFETY CABLE	35C-754	2
12	HYD. MOTOR BOLT	35C-703	4	27	HOSE MOUNT PLATE ASSY.	35C-755	1
13	HYD. MOTOR LOCK WASHER	35C-704	4				
14	HYDRAULIC VALVE HANDLE	35C-749	2				
15	OUTPUT SHAFT SPACER	35C-705	1				

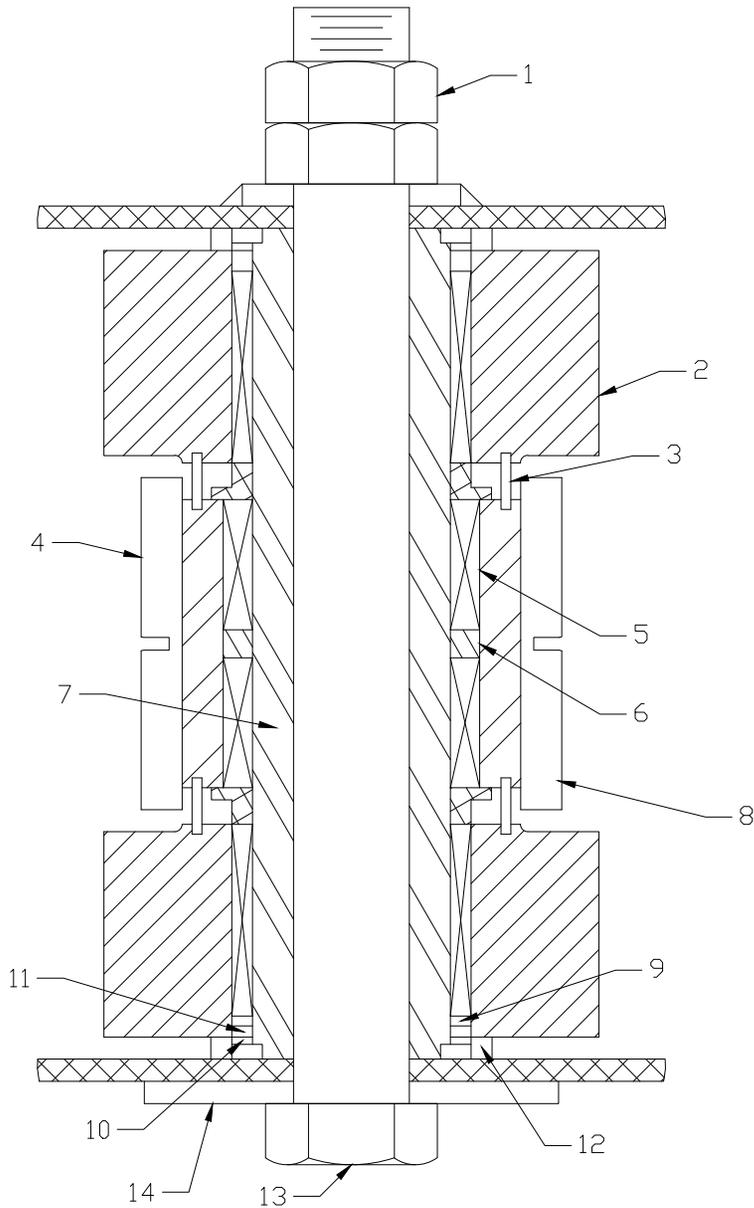


SIDE VIEW - HYDRAULIC

ITEM	DESCRIPTION	PART #	REQ'D	ITEM	DESCRIPTION	PART #	REQ'D
1	CLEVIS BLOCK	35C-716	1	16	STR. ADAPTER	35C-735	1
2	HOSE	35C-722	1	17	STR. ADAPTER	35C-736	1
3	HOSE	35C-723	1	18	HOSE	35C-737	1
4	90° ADAPTER	35C-724	1	19	HOSE	35C-738	1
5	PILOT OPERATED CHECK VALVE	35C-717	1	20	HOSE	35C-739	1
6	BOLT	35C-725	2	21	STR. ADAPTER	35C-740	1
7	90° ADAPTER	35C-726	1	22	HOSE	35C-741	2
8	HOSE	35C-727	1	23	90° ADAPTER	35C-742	2
9	STR. ADAPTER	35C-728	1	24	90° ADAPTER	35C-743	2
10	TEE ADAPTER	35C-729	1	25	BOLT	35C-744	2
11	3/4" QUICK CONNECT	35C-730	1	26	HOSE	35C-745	1
12	CLOSE NIPPLE	35C-731	1	27	STR. ADAPTER	35C-746	1
13	1" QUICK CONNECT	35C-732	1				
14	CLOSE NIPPLE	35C-733	1				
15	STR. ADAPTER	35C-734	2				

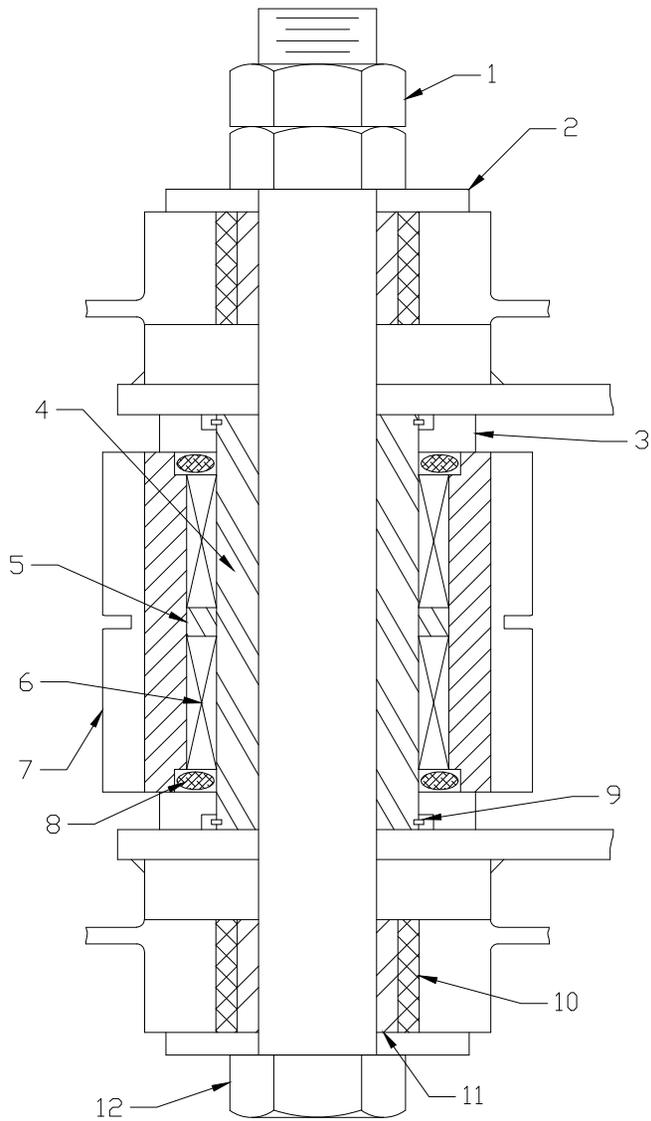


BOTTOM VIEW - HYDRAULIC



ITEM	DESCRIPTION	PART #	REQ'D
1	NUT, ROLLER JAM	35C-201	2
2	ROLLER, DRIVE	35C-243	2
3	PIN, ROLLER DOWEL	35C-246	4
4	SPROCKET, ROLLER	35C-244	1
5	BEARING, ROLLER	35C-204	4
6	SPACER, BEARING	35C-202	3
7	SHAFT, LONG ROLLER	35C-242	1
8	SLEEVE, SPACER	35C-247	2
9	RING, DRIVE ROLLER SNAP	35C-245	2
10	RING, ROLLER SNAP	35C-206	2
11	SEAL, ROLLER OIL	35C-203	2
12	SPACER, TEFLON	35C-205	2
13	PIN, DRIVE ROLLER	35C-241	1
14	WASHER, FLAT	35C-224	1

35C-240  
EXCLUDES  
ITEMS 1, 13, 14

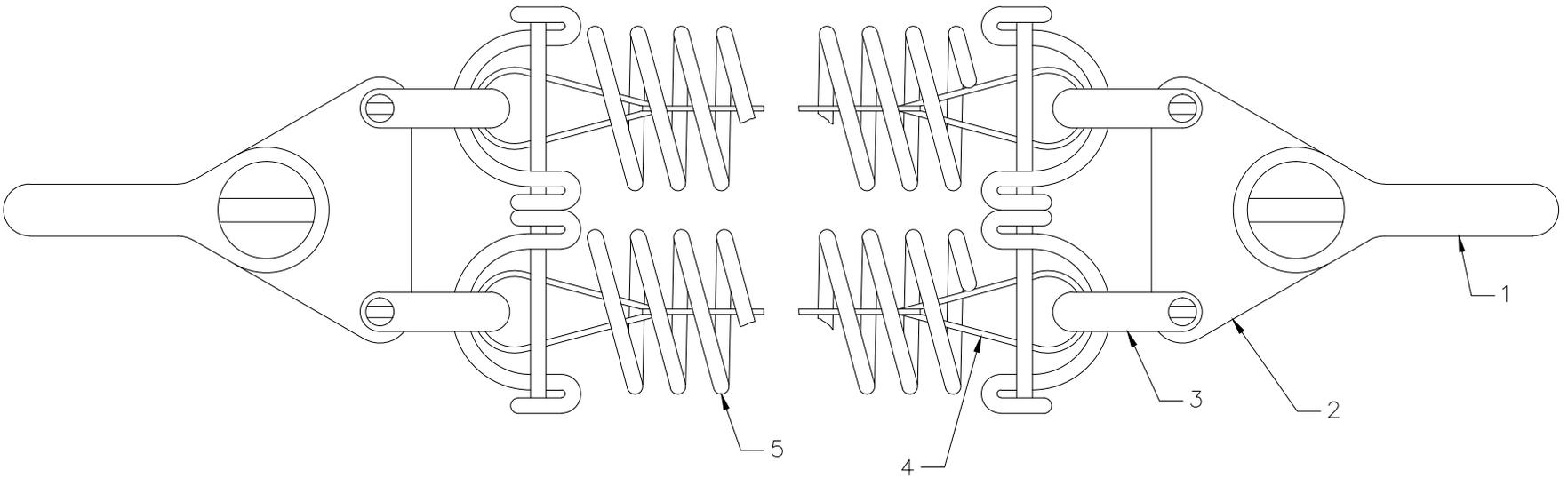


ITEM	DESCRIPTION	PART #	REQ'D
1	NUT, ROLLER JAM	35C-201	2
2	WASHER, FLAT	35C-224	2
3	SPACER, TEFLON	35C-205	2
4	SHAFT, SHORT ROLLER	35C-223	1
5	SPACER, BEARING	35C-202	1
6	BEARING, ROLLER	35C-204	2
7	SPROCKET, IDLER	35C-225	1
8	SEAL, ROLLER OIL	35C-203	2
9	RING, ROLLER SNAP	35C-206	2
10	BUSHING, ROLLER	35C-226	2
11	BUSHING, PIVOT	35C-222	2
12	PIN, IDLER SPROCKET	35C-221	1

35C-220  
 EXCLUDES  
 ITEMS 1, 2, 12,  
 10, 11

ITEM	DESCRIPTION	PART #	REQ'D
1	SHACKLE	35C-045	2
2	DUAL BRACKET	35C-046	2
3	SHACKLE	35C-047	4
4	SAFETY CABLE	35C-048	2
5	SPRING HANGER	35C-049	2

SPRING HANGER ASSEMBLY



35C-046