SUPERIOR

AGGRESSIVE®

AGGRESSIVE PORTABLE PIPE LATHE MACHINE INSTRUCTION MANUAL

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THIS INSTRUCTION MANUAL

This Instruction Manual describes how to safely install, operate, and maintain the Aggressive Portable Pipe Lathe Machine. It is an essential part of the equipment, and it is important that you take the time to read it thoroughly.

Additional copies are available for purchase from Superior Plant Rentals, LLC (SPR) or from an authorized agent.

HEALTH AND SAFETY AT WORK

This document should be read carefully and fully understood before proceeding to install, use, maintain, or service the equipment.

DO NOT USE THE EQUIPMENT UNTIL YOU KNOW ITS INTENDED FUNCTION AND HOW IT WORKS.

The equipment described in this document is intended to be used by professional personnel in an industrial environment.

Installation, operation, maintenance, and servicing should only be carried out by suitably qualified and experienced personnel.

The following symbols are used to highlight important areas of this document which relate to potential hazards and residual risks:

Important statements regarding the use, handling, or operation of the equipment.

Warnings to prevent injury to operator and/or local personnel.

Cautions to prevent misuse and damage to the equipment.

IMPORTANT NOTICE

SPR has made every effort to ensure that the information given in this document is as accurate and as up-to-date as possible at the time of publication.

SPR will not be held responsible for any accident or equipment failure that may occur due to misuse, unauthorized modification, inadequate maintenance, use of non-genuine parts, or use by unsuitable personnel.

SPR reserves the right to update, correct, or otherwise change any information relating to this equipment, at any time and without obligation.

SPR also reserves the right not to provide updated, corrected, or amended versions of this publication.

The specification and design of the Aggressive Portable Pipe Lathe Machine (including the copyright, design right or other intellectual property in them) shall, at all times, remain the property of SPR. Where any designs or specifications have been supplied by the client for manufacture by SPR or to the order of the client, then the client warrants that the use of those designs or specifications for the manufacture, processing, assembly, or supply of the Aggressive Portable Pipe Lathe Machine shall not infringe the rights of any third party.

WARRANTY, SPARES AND AFTER SALES SERVICE

Subject to the provisions of any bespoke terms and conditions of sale, this Aggressive Portable Pipe Lathe Machine is guaranteed for twelve (12) months from the date of purchase against faulty materials and/or workmanship. During this period, it will be repaired or have parts replaced free of charge provided that:

1 it is returned immediately to SPR with evidence of the purchase date,

2 it has been purchased by the user and has not been used for hire purposes,

3 it has not been misused or handled carelessly and has been stored and maintained in accordance with any instructions provided by SPR,

4 repairs have not been attempted other than by a member of the SPR service team or by a service provider duly authorized by SPR to carry out such repairs, and

5 the cost of such repair or replacement does not exceed the original purchase value.

A full spare parts service is available from SPR or from an authorized agent. Additionally, SPR can supply a recommended spare parts kit suitable for a specified period of normal service life.

Also offered is a Factory Service, in which the equipment can be returned to SPR for inspection. A quotation may then be given for the overhaul, repair, or replacement of the equipment.

SPR warrants that the Aggressive Portable Pipe Lathe Machine supplied will at the time of delivery correspond to the description given by SPR. All other warranties, conditions, or terms relating to fitness for purpose, quality, or condition of the Aggressive Portable Pipe Lathe Machine, whether express or implied by statute or common law or otherwise, are excluded to the fullest extent permitted by law.

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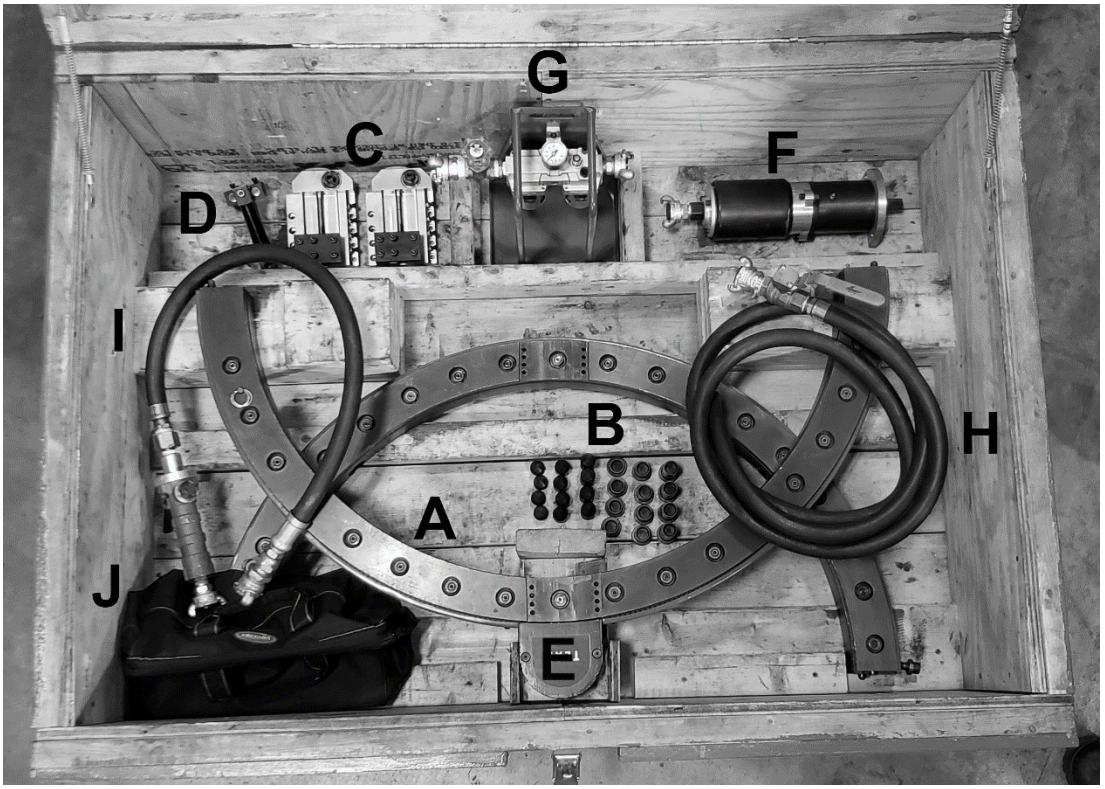


Fig. 1 Standard Component Parts of the Pipe Lathe

A. Frame assembly

B. Locating pads, various sizes and types

C. Tool slides

D. Trip assembly

E. Motor mount (Drive gear)

F. Motor (pneumatic or hydraulic)

G. Filter/lubricator pack (air Caddy)

H . Air Whip Hose

I. Remote Valve (Deadman)

J. Tool Bag (all required hand tools)

Not shown Instruction manual, Cutting Tools

SECTION 1 TECHNICAL DESCRIPTION

1.1 INTRODUCTION

The Aggressive Portable Pipe Lathe Machine is constructed from the highest quality materials and great care has been taken in its design and manufacture. Its design will give every satisfaction, provided that it is properly installed, operated and maintained in accordance with the information contained within this manual.

Take care of this manual; it is an essential source of information.

1.2 EQUIPMENT DESCRIPTION

The purpose of the Aggressive Portable Pipe Lathe Machine is designed to machine thin or heavy wall pipe, flanges, 90° bends and reducers. All of the machine split frames have the capabilities of sever and bevel with form tooling, bevel with signal point attachment, mitre, counter bore, and deep bore turning.

Split frames from 4” to 80” (102mm to 2032mm) enable machining of pipes from 2.373” to 80” (60.3mm to 2032mm) in diameter, at any location having a minimum pneumatic air supply 1.6 m^3/m, 6 bar (90 cfm,90 psi) or hydraulic supply of 15 gpm.

The machine consists of six main assemblies (see Fig. 1):

1. Frame assembly
2. Positioning leg assembly
3. Tool slide assembly
4. Trip assembly
5. Motor unit and motor mount assembly
6. Filter/lubricator pack (air caddy)

1.2.1 Frame assembly

Reference: Section 8, figs. 30 and 31.

The frame assembly is made up of two main parts that split in the middle to attach to any in-line work piece. These two parts are the base ring and the gear ring.

The base ring is a stationary ring of the frame that is mounted to the work piece and contains the guards, motor housing, trip slot, and positioning legs.

The gear ring is the half of the frame that rotates to perform the cutting action and contains the bearings, driven gear, and tool slide placement slot.

1.2.2 Positioning leg assembly

Reference: Section 8, fig. 35.

The positioning leg assembly consists of position leg and locating pad. The number of positioning legs is frame size dependent and are used to attach the base ring to the work piece.

Fitted into each leg is a locating pad to allow for different pipe sizes. There are two types of locating pad:

1. Flat-faced locating pads for mounting to a straight work piece. These are available in four sizes: standard, 1”, 2”, and 3”.
2. Pointed locating pads for mounting on odd-shaped work pieces, such as 90° bends, valves, and mitres. These are available in four sizes: standard, 1”, 2”, and 3”.

1.2.3 Tool slide assembly

Reference: Section 8, figs. 36 to 38.

The tool slide is used to feed the cutting blades into the work piece. The standard size is a 5” tool slide. In addition, 3”, 4”, 6”, and 10” sizes are available as well as a low clearance tool slide. The application determines the size required.

Generally, the 4” slides are used for low clearance or thin wall. The 5” tool slide offers 3” of travel for medium wall cut-offs. The 6” and 10” tool slides are used for heavy wall cut-offs. In addition, flange facing slides are available. A wide tooling setup with carbide inserts for severing up to a 6" wall is also available.

Alternative tools can be fitted to the tool post depending on the finish and cut required.

1.2.4 Trip assembly

Reference: Section 8, figs. 40 to 42.

The trip assembly is used to engage the star wheel of the tool slide to feed the tool into the work piece. It is bolted onto the back of the base ring at the correct height in relation to the star wheel of the tool slide to enable accurate engagement.

The pneumatic trip assembly attaches to the base ring in the same manner as the standard trip assembly. It is engaged through a pneumatic line that is attached to the remote valve switch.

1.2.5 Motor unit and motor mount assembly

Reference: Section 8, figs. 32 to 34.

The motor mount is used to attach the drive motor to the drive gearbox. The motor provides drive to the split frame gear ring through a keyed drive gear.

Three motors are available for use with the machine:

1. Right angle air motor for standard duty applications, requiring a 100psi / 100cfm of air supply.
2. In-line air motor for heavy duty applications, requiring a 100psi / 100cfm of air supply.
3. In-line hydraulic motor for heavy duty applications, requiring 8 gpm from a hydraulic power pack.

Also available are a:

1. Front drive gear box which enable relocation of the motor to front of the machine in rear obstructed operating conditions.
2. Right angle motor adapter for use with heavy duty motors in restricted space conditions.

1.2.6 Filter/lubricator pack (air caddy)

Item H in fig.1.

The filter/lubricator pack (air caddy) consists of an air filter, pressure gauge, and lubricator.

The air supply must always be connected to the machine using the filter lubricator pack supplied. Use of the machine without the filter lubricator pack will result in premature motor failure.

SECTION 2 SPECIFICATIONS

2.1 MACHINE SPECIFICATIONS - IMPERIAL UNITS

Machine Size	Standard Range	Machine I.D.	Machine O.D.	Machine Height	Cut Line	Number of Legs	Approximate Weight (lbs)
4"	2"-4.5"	4.750"	9.250"	3.185"	5.056"	4	38
6"	4"-6.625"	7.6"	13.5"	3.13"	4.875"	4	72.5
8"	4"-8.625"	9.6"	15.5"	3.13"	4.875"	4	85.5
10"	6"-10.750"	11.6"	17.5"	3.13"	4.875"	4	93
12"	8"-12.750"	13.6"	19.5"	3.13"	4.875"	4	115
14"	8"-14"	15"	21"	3.13"	4.875"	4	121.5
16"	10"-16"	17"	23"	3.13"	4.875"	4	135
18"	12-18"	19"	25"	3.13"	4.875"	4	147
20"	14"-20"	21"	27"	3.13"	4.875"	4	156
22"	16"-22"	23"	29"	3.13"	4.875"	4	175
24"	18"-24"	25"	31"	3.13"	4.875"	8	189
26"	20"-26"	27"	33"	3.25"	4.875"	8	206
28"	22"-28"	29"	35"	3.25"	4.875"	8	225
30"	24"-30"	31"	37"	3.25"	4.875"	8	241
32"	26"-32"	33"	39"	3.25"	4.875"	8	257
34"	28"-34"	35"	41"	3.25"	4.875"	8	273
36"	30"-36"	37"	43"	3.25"	4.875"	8	289
38"	32"-38"	39"	45"	3.25"	4.875"	8	305
40"	34"-40"	41"	47"	3.25"	4.875"	8	321
42"	36"-42"	43"	49"	3.25"	4.875"	8	337
44"	38"-44"	45"	51"	3.25"	4.875"	8	353
46"	40"-46"	47"	53"	3.25"	4.875"	8	369
48"	42"-48"	49"	55"	3.25"	4.875"	8	385
50"	44"-50"	51"	57"	3.25"	4.875"	8	401
52"	46"-52"	53"	59"	3.25"	4.875"	8	417
62"	56"-62"	63"	69"	3.25"	4.875"	8	590
70"	64"-70"	71"	78"	4.406"	6.292"	8	850
80"	74"-80"	81"	88"	4.406"	6.292"	8	1000

2.2 MACHINE SPECIFICATIONS - METRIC UNITS

Machine Size	Standard Range	Machine I.D.	Machine O.D.	Machine Height	Cut Line	Number of Legs	Approximate Weight (kg)
4"	51 - 114 mm	121 mm	235 mm	81 mm	128 mm	4	17.2
6"	102 - 168 mm	193 mm	343 mm	80 mm	124 mm	4	32.9
8"	102 - 219 mm	244 mm	394 mm	80 mm	124 mm	4	38.8
10"	152 - 273 mm	295 mm	445 mm	80 mm	124 mm	4	42.2
12"	203 - 324 mm	345 mm	495 mm	80 mm	124 mm	4	52.2
14"	203 - 356 mm	381 mm	533 mm	80 mm	124 mm	4	55.1
16"	254 - 406 mm	432 mm	584 mm	80 mm	124 mm	4	61.2
18"	305 - 457 mm	483 mm	635 mm	80 mm	124 mm	4	66.7
20"	356 - 508 mm	533 mm	686 mm	80 mm	124 mm	4	70.7
22"	406 - 559 mm	584 mm	737 mm	80 mm	124 mm	4	79.4
24"	457 - 610 mm	635 mm	787 mm	80 mm	124 mm	8	85.7
26"	508 - 660 mm	686 mm	838 mm	83 mm	124 mm	8	93.4
28"	406 - 711 mm	737 mm	889 mm	83 mm	124 mm	8	102.0
30"	610 - 762 mm	787 mm	940 mm	83 mm	124 mm	8	109.3
32"	660 - 813 mm	838 mm	991 mm	83 mm	124 mm	8	116.6
34"	711 - 864 mm	889 mm	1041 mm	83 mm	124 mm	8	123.8
36"	762 - 914 mm	940 mm	1092 mm	83 mm	124 mm	8	131.1
38"	813 - 965 mm	991 mm	1143 mm	83 mm	124 mm	8	138.3
40"	864 - 1016 mm	1041 mm	1194 mm	83 mm	124 mm	8	145.6
42"	914 - 1067 mm	1092 mm	1245 mm	83 mm	124 mm	8	152.8
44"	965 - 1118 mm	1143 mm	1295 mm	83 mm	124 mm	8	160.1
46"	1016 - 1168 mm	1194 mm	1346 mm	83 mm	124 mm	8	167.3
48"	1067 - 1219 mm	1245 mm	1397 mm	83 mm	124 mm	8	174.6
50"	1118 - 1270 mm	1295 mm	1448 mm	83 mm	124 mm	8	181.9
52"	1168 - 1321 mm	1346 mm	1499 mm	83 mm	124 mm	8	189.1
62"	1422 - 1575 mm	1600 mm	1753 mm	83 mm	124 mm	8	267.6
70"	1626 - 1778 mm	1803 mm	1981 mm	112 mm	160 mm	8	385.5
80"	1880 - 2032 mm	2057 mm	2235 mm	112 mm	160 mm	8	453.5

2.3 NOISE EMISSION

	Ingersoll Rand 4800U Motor	Cleco 75-NL-2X-6 Motor
Emission sound pressure level	98 dB(A)	89 dB(A)
Instantaneous sound pressure value. Indicate either less than 63 Pa (130 dB) or actual value if above.	<130dB	<130dB
Emission sound power level. Indicate either less than 80 dB (A) or actual value if above.	101 dB(A)	104 dB(A)

2.4 MOTOR INFORMATION

AIR MOTOR INFORMATION

Type:	HD Air Motor	HD Air Motor
Maximum power output Maximum	2.61 kW, 3.5 hp	350 ft-lbs, 75 Nm
speed free running Minimum	185 rpm	140 rpm
recommended air supply	90 psi 90 cfm	90 psi 90 cfm
Air inlet thread	1/2" NPT	1/2" NPT

HYDRAULIC MOTOR INFORMATION

Type:	Gerotor, Fixed Displacement
Maximum torque output	3,784 Inch - Lb
Maximum speed free running	256 RPM
Minimum recommended hydraulic supply	6 GPM, 5 horsepower
Hydraulic connection	Parker Dripless Disconnects or Equiv.

2.5 ATTACHMENT SPECIFICATIONS

SLIDES	COMPONENT FEATURES	APPLICATION PARAMETERS
Bridge Slide	Bridge Slide for 12”-16” Split Frames	Capable of single pointing, flange facing, counter boring, and deep boring. Note: an extension plate is required for 38” to 52” Split Frames
	Bridge Slide for 18”-24” Split Frames	
	Bridge Slide for 26”-30” Split Frames	
	Bridge Slide for 32”-36” Split Frames	
4" Tool Slides	Fits any size split frame. Slide can sever, bevel and hold counter bore attachments. Standard with Split Frames from 4” to 12”. Slide can bevel up to 1.625” pipe wall thickness standard Aggressive tooling.	Requires a radial clearance of 6.25” from the outside diameter of pipe surface
5" Tool Slides	Fits any size split frame. Slide can sever, bevel and hold counter bore attachments. Standard with Split Frames from 14” and higher. Slide can bevel up to 1.625” pipe wall thickness using standard Aggressive tooling.	Requires radial clearance of 7.25” from the outside diameter of pipe surface
6" Tool Slides	Fits any size split frame. Slide can sever bevel and hold counter bore attachments. Slide can bevel up to 1.625” pipe wall thickness using standard Aggressive tooling.	Requires a radial clearance of 8.25” from the outside diameter of pipe surface
10” Tool Slide	Fits any size split frame. Slide can sever, bevel and hold counter bore attachments.	Requires a radial clearance of 12.25” from the outside diameter of pipe surface
Heavy Wall Bevelling Slide	Fits any size split frame. Slide can bevel up to 2.5” pipe wall thickness.	Requires a radial clearance of 8.25” from the outside diameter of pipe surface
Heavy Wall Severing Tool Slide	Used for severing wall thickness over 3". Tool is 2" wide for extra rigidity.	Requires a radial clearance of 8.25” from the outside diameter of pipe surface
Low Radial Clearance Tool Slide	Fits any size split frame. Slide fits within the profile of the split frame for restricted radial clearance applications	Requires a radial clearance of 4” from the outside diameter of pipe surface
Out of Round Slide	Fits any size split frame. Compensation for up to 1” out-of-round pipe condition.	Requires a radial clearance of 6” from the outside diameter of pipe surface
Fixed Counter Bore Attachment	Standard Counter bore attachment. Mounts to any tool slide.	Requires a linear clearance of 8” from face of split frame

SLIDES	COMPONENT FEATURES	APPLICATION PARAMETERS
Swivel Counter Bore (compound geometry)	CG Counter Bore mounts to any tool slide. Provides variable transition positions from centre line to 30 degrees either direction. Graduated marking for angles and transition ratios. Adjustable depth up to 10”.	SCB-1005 requires a linear clearance of 8” from face of split frame. SCB-1008 requires a linear clearance of 11” from face of split frame.
Axial Feed Attachment	Advances the counter bore bit axially into the pipe. With this attachment, various types of counter bores can be achieved.	
Front Drive Gear Box	Relocates motor to front of machine in rear obstructed operating conditions.	Use with all motors.
Right Angle Motor Adapter	For use in a restricted space conditions.	Use with heavy duty motors

2.6 LOCATING PAD SIZE SELECTION

The locating pad size required is dependent on the work piece diameter and split frame selected.

Refer to Tables 1a and 1b to select the correct size of locating pad.

Example: If the pipe being cut is 20” O.D. and the machine being used is a SF2014 model which has a 21” I.D., the correct locating pad is the standard pad (S). If the same machine were to be used on an 18” O.D. pipe, the correct locating pad would be the 1” pad (1).

Pipe Size (O.D.)	Split Frame Sizes																
	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
2.375”	1	2															
2.875”	S	2															
3.5”	S	2	3														
4”	S	1	2														
4.5”	S	1	2														
5.563”		1	1	3													
6.625”		S	1	2	3												
8.625”			S	1	2	3											
10.75”				S	1	2	3										
12.75”					S	1	2	3									
14”						S	1	2	3								
16”							S	1	2	3							
18”								S	1	2	3						
20”									S	1	2	3					
22”										S	1	2	3				
24”											S	1	2	3			
26”												S	1	2	3		
28”													S	1	2	3	
30”	S – Standard Length Locating Pad													S	1	2	3
32”	1 – 1” Length Locating Pad														S	1	2
34”	2 – 2” Length Locating Pad															S	1
36”	3 – 3” Length Locating Pad (special order, not recommended on heavy wall pipe)																S

Table 1a Locating pad size selection (continued below)

Pipe Size (O.D.)	Split Frame Sizes											
	38	40	42	44	46	48	50	52	56	62	70	80
32”	3											
34”	2	3										
36”	1	2	3									
38”	S	1	2	3								
40”		S	1	2	3							
42”			S	1	2	3						
44”				S	1	2	3					
46”					S	1	2	3				
48”						S	1	2				
50”							S	1	3			
52”								S	2			
54”									1			
56”									S	3		
58”										2		
60”										1	S	
62”										S	S	
64”											S	
66”											S	
68”											S	
70”											S	S
72”												S
74”		S – Standard Length Locating Pad										S
76”		1 – 1” Length Locating Pad										S
78”		2 – 2” Length Locating Pad										S
80”		3 – 3” Length Locating Pad (special order, not recommended on heavy wall pipe)										S

Table 1b Locating pad size selection (continued)

SECTION 3 SAFETY INFORMATION

3.1 WARNINGS AND CAUTIONS

GENERAL:

ALL SAFETY PROCEDURES MUST BE OBSERVED AND STRICTLY ADHERED TO WHEN INSTALLING, USING, MAINTAINING AND SERVICING THIS EQUIPMENT.

ONLY TRAINED AND COMPETENT PERSONNEL SHOULD INSTALL, USE, MAINTAIN AND SERVICE THIS EQUIPMENT.

ENSURE AN EMERGENCY STOP IS ALWAYS WITHIN REACH OF THE OPERATOR.

INTENDED USE OF THIS EQUIPMENT:

THIS EQUIPMENT IS FOR USE BY PROFESSIONAL, TRAINED PERSONNEL WORKING IN AN INDUSTRIAL ENVIRONMENT.

THIS EQUIPMENT IS INTENDED FOR USE ON METALS AND ANALOGOUS SUBSTANCES.

THIS EQUIPMENT IS NOT INTENDED FOR USE ON WOOD, PLASTIC OR SIMILAR ANALOGOUS SUBSTANCES.

USE OUTDOORS:

THIS EQUIPMENT SHOULD NOT BE USED DURING SEVERE WEATHER CONDITIONS.

PERSONNEL SHOULD NOT OPERATE THIS EQUIPMENT IN WEATHER CONDITIONS WHICH MAY GIVE RISE TO THE FOLLOWING:

- **INADEQUATE VISIBILITY**
- **THE BUILD-UP OF ICE, SNOW, WATER, SAND OR DUST ON PLATFORMS, LADDERS, CONTROLS, VISUAL INDICATORS, MOVING PARTS, ETC.**
- **RISK OF INJURY DUE TO STRONG OR GUSTING WINDS**

THIS EQUIPMENT SHOULD BE SUITABLY PROTECTED FROM ALL SEVERE WEATHER CONDITIONS.

PERSONAL PROTECTIVE EQUIPMENT:

THE USE OF PERSONAL PROTECTIVE EQUIPMENT IS RECOMMENDED WHEN WORKING WITH THIS EQUIPMENT.

SUGGESTIONS INCLUDE SAFETY HAT, GAUNTLET GLOVES, SAFETY GOGGLES, SAFETY SHOES, AND FLAME RETARDANT COVERALLS.

BREATHING APPARATUS MAY BE NECESSARY WHEN A TOXIC ATMOSPHERE EXISTS.

OTHER PROTECTIVE EQUIPMENT MAY BE REQUIRED AS PER THE PLANT OPERATOR'S REQUIREMENTS.

PERSONNEL WORKING ABOVE GROUND LEVEL MUST ALSO WEAR A SAFETY HARNESS CONNECTED TO A SUITABLE ANCHOR POINT OR FALL ARRESTOR.

LIFTING:

ENSURE LIFTING IS CARRIED OUT IN A SAFE AND PROPER MANNER, IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY REGULATIONS.

ALWAYS KNOW THE WEIGHT OF THE EQUIPMENT AND THE COMPONENT PARTS. REFER TO THE SPECIFICATION PAGE IN THIS MANUAL OR THE MARKING PLATE ON THE EQUIPMENT.

THE USE OF MECHANICAL LIFTING DEVICES MAY BE A MANDATORY REQUIREMENT FOR LIFTING THIS EQUIPMENT.

INSTALLATION AND REMOVAL:

THIS EQUIPMENT IS INTENDED TO BE PORTABLE AND MAY BE USED IN A VARIETY OF LOCATIONS AND ORIENTATIONS. ALWAYS ENSURE THAT THIS EQUIPMENT IS PROPERLY SUPPORTED AND RESTRAINED DURING THE INSTALLATION AND REMOVAL PROCESS.

PNEUMATICS (ONLY APPLICABLE IF AN AIR MOTOR IS USED)

ENSURE THE CORRECT HOSES, VALVES AND FITTINGS ARE USED. DO NOT PRESSURISE THIS EQUIPMENT IF ANY OF THE HOSES, VALVES OR FITTINGS ARE LEAKING OR DAMAGED.

DO NOT PRESSURISE THIS EQUIPMENT UNTIL YOU ARE SURE THE EQUIPMENT HAS BEEN CORRECTLY INSTALLED AND THE CONTROL VALVES ARE CLOSED.

DO NOT USE AIR MOTORS WITH DEFECTIVE SILENCERS. THIS MAY CAUSE UNNECESSARY NOISE AND IMPAIR THE PERFORMANCE OF THE EQUIPMENT.

NEVER PLACE ANY BODY PARTS ADJACENT TO AN AIR EXHAUST. COMPRESSED AIR FORCED INTO THE SKIN IS DANGEROUS AND MAY RESULT IN A SERIOUS SKIN DISORDER.

ENSURE THE PNEUMATIC SYSTEM IS ISOLATED AND DE-PRESSURISED BEFORE MAKING ANY ADJUSTMENTS TO THIS EQUIPMENT.

ENSURE THE PNEUMATIC SYSTEM IS ISOLATED AND DE-PRESSURISED BEFORE DISCONNECTING ANY HOSES.

DO NOT ALLOW THE LUBRICATOR TO SUPPLY EXCESSIVE AMOUNTS OF OIL TO THE PNEUMATIC SYSTEM. DEPENDING ON MOTOR SIZE 5 TO 8 DROPS PER MINUTE AT FULL MOTOR SPEED IS RECOMMENDED.

NEVER LEAVE THE PNEUMATIC SYSTEM PRESSURISED WHILE UNATTENDED.

HYDRAULICS (ONLY APPLICABLE IF A HYDRAULIC MOTOR IS USED)

HYDRAULIC OIL CAN BE A SKIN IRRITANT. WASH OFF IMMEDIATELY IF OIL COMES INTO CONTACT WITH SKIN OR CLOTHING. WEAR GLOVES AND GOGGLES FOR PROTECTION AGAINST OIL SPLASHES.

DO NOT ALLOW THE OIL TO BECOME A FIRE HAZARD, CLEAN UP SPILLS IMMEDIATELY. OIL SPILLS CAN CAUSE ACCIDENTS AND INJURIES, CLEAN UP IMMEDIATELY.

ENSURE THE CORRECT PRESSURE RATED HOSES ARE USED. ENSURE

AN EMERGENCY STOP IS ALWAYS IN REACH OF THE MACHINE OPERATOR.

THE OPERATOR MUST ENSURE THAT THE HYDRAULIC PUMP IS TURNED OFF BEFORE MAKING ADJUSTMENTS TO THE EQUIPMENT.

NEVER ALLOW ANOTHER PERSON TO OPERATE THE HYDRAULIC PUMP. REMEMBER ONE MACHINE ONE OPERATOR.

DO NOT PRESSURISE THE EQUIPMENT IF ANY OF THE SUPPLY HOSES OR CONNECTIONS ARE SUSPECT.

HYDRAULIC POWER UNITS USED TO OPERATE THIS EQUIPMENT MUST HAVE INSTALLED PRESSURE CONTROL VALVES AND RELIEF VALVES FITTED TO PREVENT CONTINUOUS OVER PRESSURISATION OF THE HYDRAULIC MOTOR.

SECTION 4 CONTROLS AND BASIC OPERATION

4.1 LOCATION AND FUNCTION OF THE CONTROLS

The following controls are incorporated into the machine:

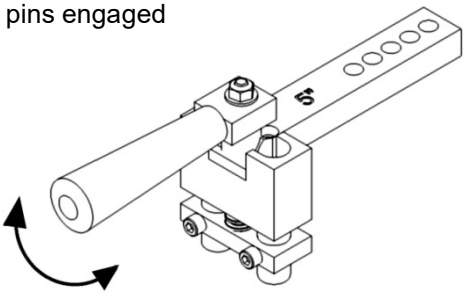
4.1.1 Trip control

If handle is positioned as shown in Fig. 2 then the trips are engaged. Swing the handle in either direction to disengage. The following determines the amount of engagement for each trip pin per revolution:

.002 per revolution with single trip pin engaged

.004 per revolution with both trip pins engaged

Fig. 2 Trip control



4.1.2 Filter/lubricator (air caddy) controls

A gate valve on the pack is used to set the machine speed at the desired RPM when the control valve is fully open.

The filter/lubricator (air caddy) is adjusted to provide a lubrication rate of 5 drops every 1 minute at full motor speed.

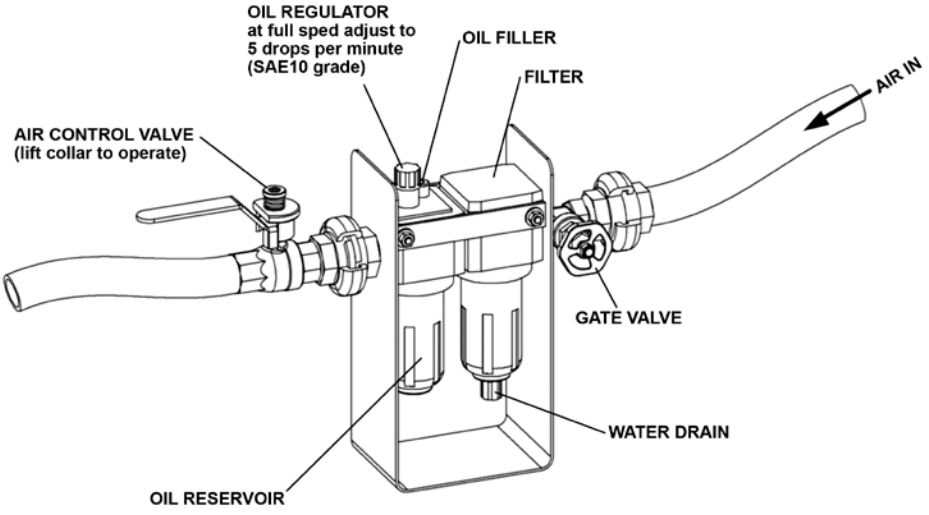


Fig. 3 Filter/lubricator (air caddy) controls

4.1.3 Hand operated motor control lever (optional)

The split frame may be operated using an optional hand operated motor control lever. Personnel shall request and utilize the hand operated motor control lever in accordance with operator's independent safety policies pertaining to application of this type of motor control device by their personnel.

Fig. 4 Optional hand operated motor control lever

4.2 BASIC OPERATION OF THE EQUIPMENT

The basic operation of the machine follows the routine and assumes that the three operations: pipe severing, pipe counter boring and pipe beveling are all being performed:

1. Lifting the machine from its packing case.
2. Checking the machine for completeness and condition.
3. Set up the machine for severing the pipe

   Select the appropriate locating pads to suit the work piece diameter.

   Mount the split frame to the pipe and align to the O.D.

   Remove shipping pins before starting the motor.

   Attach the tool slides to the split frame.

   Set the cut-off tools.

   Set the trip assembly

   Install the air motor (or the hydraulic motor if being used)

   Engage the trip, start the motor and perform the cut.

4. Set up the machine for pipe counter boring Disengage

   the trip and remove the motor Remove one

   tool slide from the split frame.

   Fit the counter boring attachment to the tool slide

   Centre the split frame to the I.D. of the pipe

   Re-fit the motor

   Start the motor and perform the counter bore cut.

   Remove the counter boring attachment

5. Set up the machine for pipe beveling

   Remove the motor

   Set the bevel tool.

   Re-fit the motor

   Start the motor and perform the bevel cut.

6. Removal of the machine on completion and preservation and packing.

4.3 LIFTING AND SLINGING ARRANGEMENTS

DO NOT ATTEMPT TO MANUALLY MOVE THE SPLIT FRAME ASSEMBLY UNLESS ITS WEIGHT IS LIGHT ENOUGH TO DO SO SAFELY. REFER TO SECTION 2 FOR THE WEIGHT OF EACH SIZE OF SPLIT FRAME ASSEMBLY.

IF IT IS NOT SAFE TO MANUALLY LIFT THE SPLIT FRAME ASSEMBLY OUT OF THE PACKING CASE THEN A MECHANICAL LIFTING DEVICE MUST BE USED.

WHEN SETTING UP THE MACHINE PIPE ADEQUATE PROVISION MUST BE MADE TO PREVENT THE MACHINE FROM FALLING UNTIL IT HAS BEEN FULLY SECURED.

SECTION 5 SITE OPERATION

5.1 WARNINGS AND CAUTIONS

When operating this equipment observe all warning and cautions detailed below and in Section 3.

IN ADDITION TO THE CONTENT OF THIS PUBLICATION, JOB SPECIFIC AND SITE SPECIFIC SAFETY PROCEDURES MUST BE ADHERED TO AT ALL TIMES.

BEFORE OPERATING THIS EQUIPMENT A SAFE WORKING "NO GO" AREA MUST BE CORDONED OFF AROUND THE WORK AREA TO ELIMINATE ACCIDENTAL INTRUSION BY UNAUTHORISED PERSONNEL.

THIS EQUIPMENT HAS DANGEROUS MOVING PARTS, KEEP WELL CLEAR AT ALL TIMES.

THE OPERATOR MUST TAKE GREAT CARE WHEN OPERATING THIS MACHINE DUE TO THE ROTATING TOOL SLIDE(S).

DO NOT ATTEMPT TO MAKE ADJUSTMENTS WHILE THE EQUIPMENT IS OPERATING. ALWAYS STOP AND ISOLATE FIRST.

DO NOT ATTEMPT TO MANUALLY MOVE THE SPLIT FRAME ASSEMBLY UNLESS ITS WEIGHT IS LIGHT ENOUGH TO DO SO SAFELY. REFER TO SECTION 2 FOR THE WEIGHT OF EACH SIZE OF SPLIT FRAME ASSEMBLY.

IF IT IS NOT SAFE TO MANUALLY LIFT THE SPLIT FRAME ASSEMBLY OUT OF THE PACKING CASE THEM A MECHANICAL LIFTING DEVICE MUST BE USED.

THIS EQUIPMENT MAY BE USED IN CONJUNCTION WITH OTHER JOB SPECIFIC EQUIPMENT SUCH AS LIFTING ACCESSORIES AND CUTTING TOOLS. SUCH EQUIPMENT MUST BE INSPECTED FOR SUITABILITY PRIOR TO USE.

DO NOT ATTEMPT TO FEED OR RETRACT THE TOOLPOST IF THE TOOLPOST IS LOCKED IN POSITION.

ON COMPLETION OF A JOB THE MACHINE MUST BE CLEANED AND PRESERVED IN ACCORDANCE WITH THE INFORMATION CONTAINED IN THE PRESERVATION AND PACKAGING SECTION OF THIS MANUAL (SECTION 5.6).

5.2 SETTING UP AND OPERATING THE EQUIPMENT

The following instructions are for installing Aggressive Portable Pipe Lathe Machine in position prior to operating the equipment. It is assumed that an appropriate air supply or hydraulic supply, as appropriate, is available for connection to the machine.

5.2.1 Unpacking the machine

PACKING CASE CONTENTS

The machine and its associated equipment are housed in a transportable wooden crate. Unless otherwise requested, the standard crate is packed as follows. Cutting tools not shown.

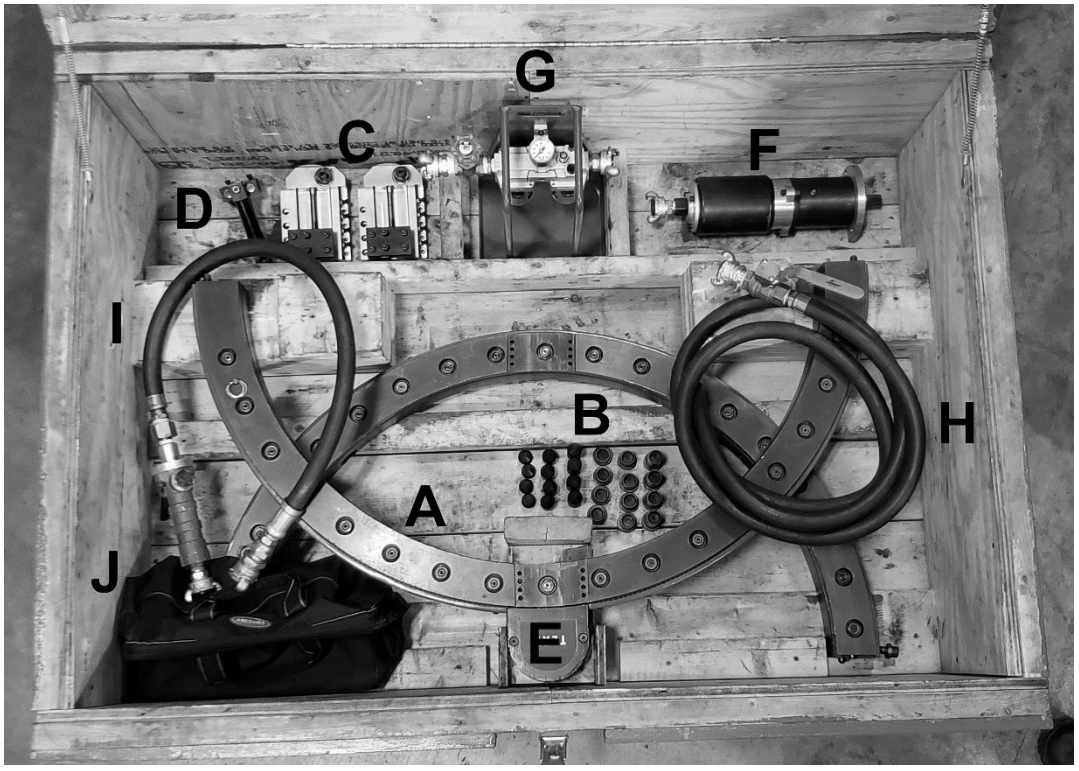


Fig. 5 Packing case contents

A. Frame assembly
B. Locating pads, various sizes and types
C. Tool slides
D. Trip assembly
E. Motor Mount (Drive Gear)
F. Motor (pneumatic or hydraulic)
G. Filter/lubricator pack (air caddy)
H. Air Whip Hose
I. Remote Valve (Deadman)
J. Tool Kit (all required hand tools)

Not Shown: Instructional Manual (Attached to inside of crate lid)

5.2.2 Set up for horizontal run pipe cut-off

The installation procedure detailed sets up the machine in the vertical position, i.e. on a horizontal pipe. If the machine is to set up in the inverted horizontal position follow the set up procedure but extreme care must be taken due to the greater risk of the machine falling off the pipe during the setting and adjusting procedure.

1. Observe all Warnings and Cautions, refer to Sections 4.2 and 5.1.

2. The machine split frame and its associated equipment should be removed from the case and visually inspected for signs of wear, damage or corrosion

3. Inspect the split frame to insure that all guards are in place and properly secured. Each split frame has orange sheet metal guards over the gear teeth of the gear ring and a housing cover over the drive gear.

4. Excessive oil should be removed from the equipment before each use.

5. The split frame must have the correct locating pads fitted onto the legs for each job. To change locating pads, simply turn the leg bolt to the right (clockwise) with a 5/16” hex wrench until the locating pad is exposed. Pull the locating pad towards the I.D. of the split frame to remove. Select the proper locating pads for the job and place them onto the legs (refer to Section 2.6).

Fig. 6 Fitting of the locating pads

Place the top half of the split frame (half with the motor mount) on top of the work piece. The gear ring should be facing cut line.

Fig. 7 Top half of the split frame

6. Lift the bottom half of the split frame up to match the top half. Once in place, the swing bolts on the bottom half of base ring should be latched to the top half and tightened. **The gear ring also has two bolts at the split that must be tightened.**

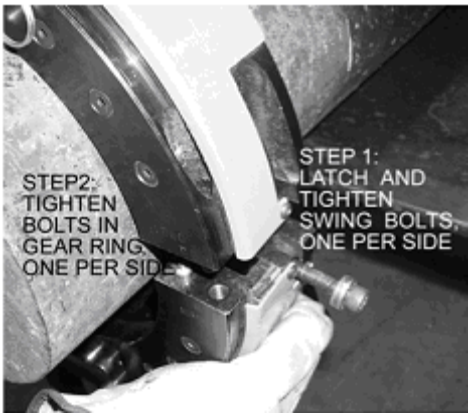


Fig. 8 Attaching the bottom half of the split frame

7. Pull the two shipping pins out of the gear ring. There is one pin in each half. When the pins are removed from the split frame the gear ring will be able to rotate.

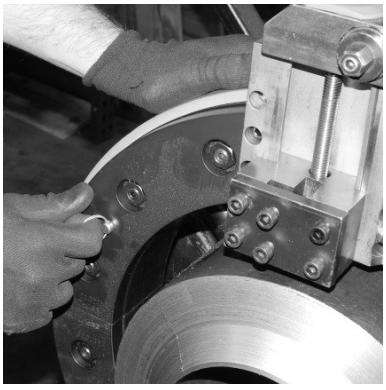


Fig. 9 Removing one of the shipping pins

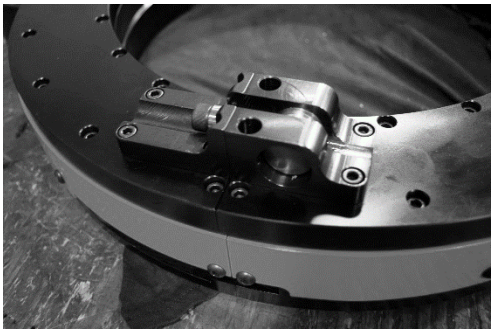


Fig. 10 Aluminum split frame showing different swing bolt arrangement

8. The tool slides should be bolted onto the split frame. The slides are fastened to the split frame using 5/16”-18 x 5/8” SHCS provided in the toolbox. The tool holder may be set at various heights, but both slides must be set at the same height on split frame. If they are not set to the same height the trip assembly will not be able to engage with both slides properly. Insert a 1/4” cut-off blade into one slide. Use the cut-off blade to roughly set the split frame to the cut line. The leg bolts should be tightened to the pipe to maintain position. While the leg bolts are being tightened, roughly square and center the split frame.

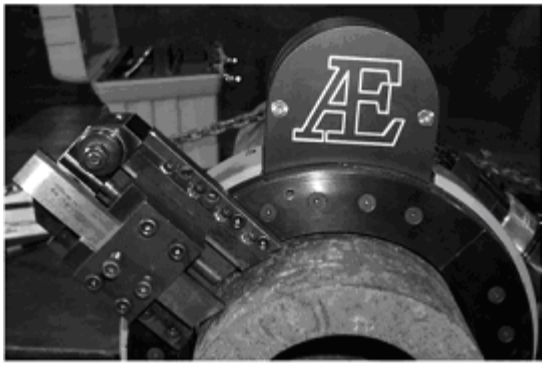


Fig. 11 Attaching the tool slide

9. Once the split frame is positioned to the cut line, final squaring and centering must be done. The leg bolts are positioned 90° apart so that the equipment can be properly aligned to the work piece. To align the split frame to the work piece, opposing legs are used to work together. In our set up, the motor mount is at 0° or top dead center and the leg bolts are at 45°, 135°, 225° and 315° from 0°. The leg bolts at 45° and 225° we will call group “**A”** and the leg bolts at 135° and 315° we will call group “**B”.**

   To square and center the split frame to the work piece, make sure that group “**A”** leg bolts are snug. Loosen group “**B”** so that the split frame can be rotated along the axis of the work piece. Use the machinist square provided in the toolbox to insure that the split frame is square to the work piece. This must be checked at the locating pad area. Both sides of group “**B”** must be checked. Snug the leg bolts in group “**B”** to maintain your position. Measure the distance at group “**A”** locating pads from the O.D. of pipe to the I.D. of the split frame. Adjust group “**A”** leg bolts to even measurements on each side. Once group “**A”** is centered, tighten the leg bolts in group “**B”.** Repeat this process with opposite legs until the split frame is square and centered.

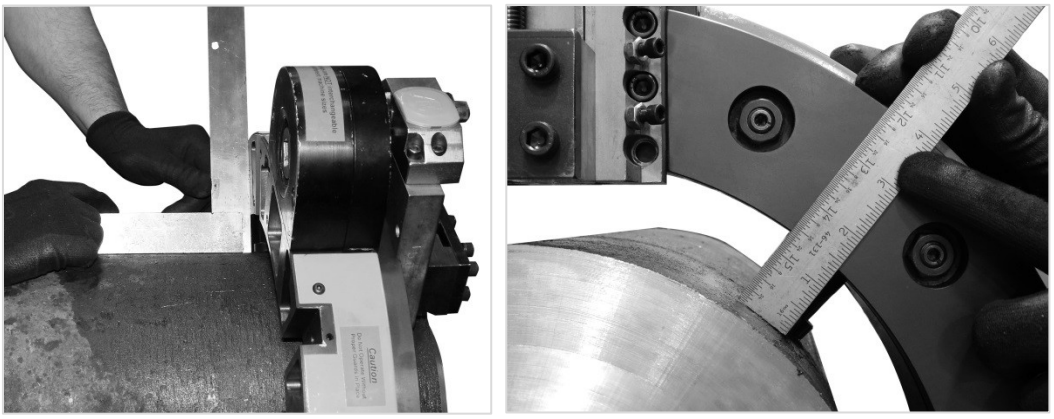


Fig. 12 Aligning the split frame

10. Make sure all of the leg bolts are tight before any steps are continued. If the leg bolts are not tight, the split frame may move during cutting.

11. Set cut-off blades.

    The tool holder of the slide should be raised sufficiently so there is enough travel to sever the work piece. Tool holder of the slide is raised by rotating the 9/16” hex on the front side of the gearbox at the top of the slide. A speed wrench and 9/16” socket are provided in the toolbox.

    A 3/16” cut-off blade should be placed into one tool holder. Allow the 3/16” sever blade to touch the work piece. Snug the bolts in the tool holder cover plate to hold the blade in place. Rotate the gear ring by hand counter clockwise around the work piece. This will set the cut-off blade to the highest point that it needs to be. Tighten the bolts in the cover plate to hold the blade firmly.

WHEN ROTATING THE GEAR RING, AVOID PLACING HANDS AND FINGERS IN PINCH POINTS.

Insert a 1/4” cut-off blade into the opposite tool holder 1/32” - 1/16” further from the work piece than the 3/16” cut-off blade. Tighten the bolts in the cover plate.

12. Set the trip assembly to the correct height so that the slides and trip assembly work together properly. The trip assembly is attached with a 3/8” shoulder bolt that is provided in the toolbox.

    The gear ring should be rotated to check each tool slide’s star wheel alignment with the trip assembly.

WHEN ROTATING THE GEAR RING, AVOID PLACING HANDS AND FINGERS IN PINCH POINTS.

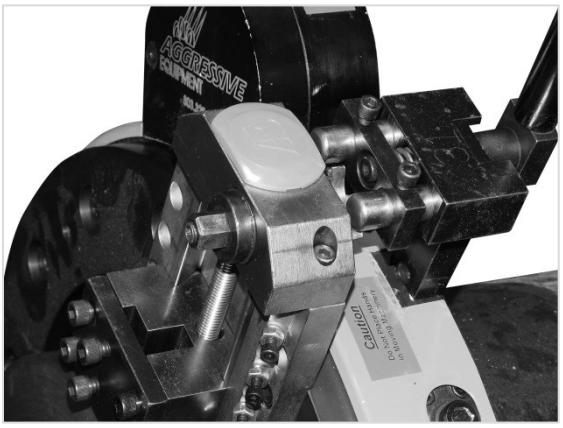


Fig. 13 Setting up the trip

13. To install the motor, insert the motor shaft into the opening of the motor mount housing. If the right angle motor is used, set the motor at the desired angle. Tighten the two motor mount screws into the housing. The motor mount screws are provided in the toolbox.

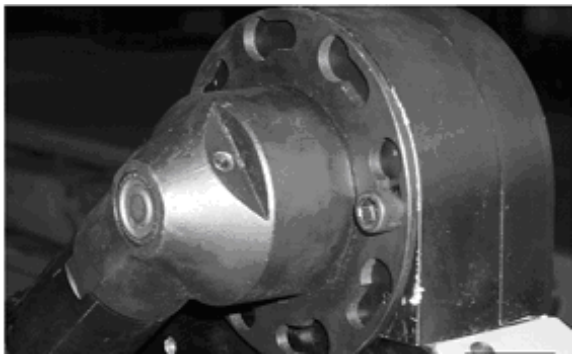


Fig. 14 Attaching the motor

14. Connect the air whip to the motor and air filter/lubricator (air caddy). Extensions can be placed between the air whip and air filter/lubricator if the air filter/lubricator cannot be located within 10’ (3m) of work area. Extension must not exceed 50’ (15.2m) in length. The air whip must be attached to the discharge side of the air filter/lubricator. The air supply must be attached to the supply side. The oil level of the air filter/lubricator should be checked before the air supply is attached.

Supply Side →

→ Discharge Side

Fig. 15 Filter/lubricator pack (air caddy)

15. Engage the trip assembly. The trip assembly is engaged by rotating the handle to the up position. The trip should be engaged before the motor is started.

16. Start the air motor by squeezing the hand lever on the motor.

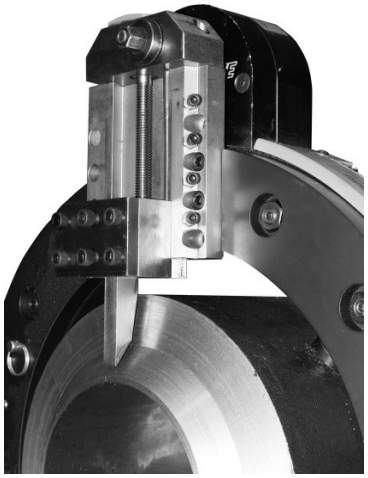


Fig. 16 Performing the cut

WARNING: THE MACHINE HAS DANGEROUS MOVING PARTS WHEN OPERATED, THEREFORE KEEP WELL CLEAR.

WARNING: SHOULD THE AIR SUPPLY FAIL FOR ANY REASON, THE OPERATOR MUST SHUT THE AIR CONTROL VALVE SO THAT IT LOCKS IN THE CLOSED POSITION UNTIL THE AIR SUPPLY HAS BEEN RESTORED.

WARNING: DO NOT ATTEMPT TO MAKE ADJUSTMENTS WHILE THE MACHINE IS OPERATING. ALWAYS STOP THE MACHINE FIRST.

WARNING: THE MOTOR CONTROL LEVEL ACTS AS A "DEAD MAN HANDLE" IT MUST NOT BE SECURED OPEN USING TAPE, WIRE, A CABLE TIE OR BY ANY OTHER MEANS.

17. Once the work piece has been severed, release the hand lever of the motor.

18. Ensure that the tool slide is fully retracted and remove the cutting tool.

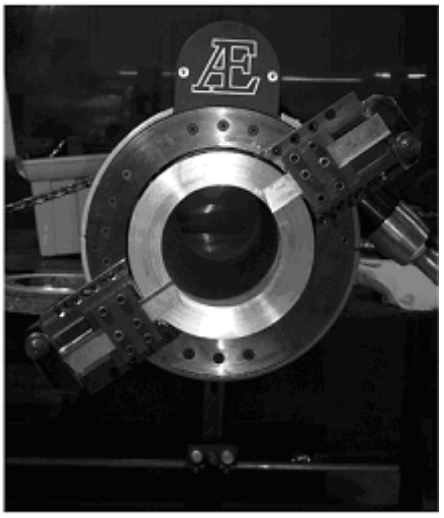


Fig. 17 Completed severing of the work piece

5.2.3 Set up for horizontal run pipe counter bore

1. Observe all Warnings and Cautions, refer to Sections 4.2 and 5.1.

NOTE The motor must be removed before setting up to counter bore the work piece.

2. When counter boring, only one tool slide is required and the trip assembly must be disengaged. The counter boring attachment should be bolted to the slide tool block. To attach it, the tool block cover plate must first be removed. Use the four bolts from the tool block cover plate to attach the counter bore attachment to the tool block. Position the counter bore attachment so that the tool holder of the counter bore attachment is about 1” (25mm) past the I.D. of the work piece.

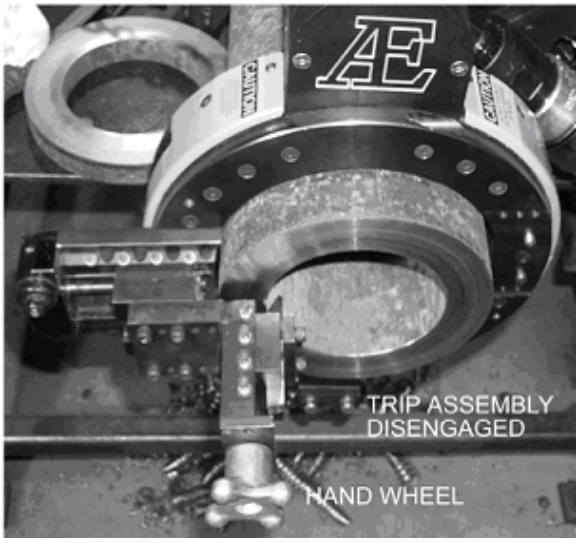


Fig. 18 Set up for pipe counter boring

3. The split frame should be aligned to the I.D. of the work piece so that the counter boring is even.

4. To center the split frame to the I.D.

   Insert the counter bore tool into the counter bore tool holder (cutting edge toward work piece). The counter bore tool must protrude out far enough to allow the entire cutting edge and relief angle to be exposed. Tighten the cover plate to hold the tool.

   Use the hand wheel on the back of the counter bore attachment to feed the cutting edge of the tool slightly inside the work piece to about 1/8”. The tool must not touch the I.D. of the work piece during set up. If the tool is touching the I.D. of the work piece, rotate the 9/16” hex on the tool slide gearbox counter clockwise to feed the tool slide tool block towards the work piece.

   Centre the split frame to the I.D. of the pipe by adjusting the leg bolts. Measure from the counter bore tool to the I.D. of the pipe. The tool slide should be in line with one of the legs of the split frame when the measurement is taken. Opposing legs of the split frame are used to center the split frame from side to side.

5. Next, bring the counter bore tool to the work piece by rotating 9/16” hex on the tool slide gearbox clockwise. The I.D. of the work piece maybe out of round. The counter bore tool should be touched off at the smallest I.D. dimension.

6. Rotate the hand wheel of the counter bore attachment clockwise to retract the tool from the work piece.

7. To increase the cut of the tool in the counter bore attachment, rotate the tool slide star wheel clockwise. Each revolution of the star wheel will move the tool block .008” (0.2mm).

WHEN ROTATING THE GEAR RING, AVOID PLACING HANDS AND FINGERS IN PINCH POINTS.

8. Attach the motor. Refer to Section 5.2.2 points 14.

9. Connect the air supply to the air motor. Refer to Section 5.2.2 point 15.

BEFORE CONNECTING THE AIR SUPPLY, MAKE SURE MOTOR HAND LEVER IS NOT ENGAGED. THIS COULD CAUSE THE SPLIT FRAME TO ROTATE UNEXPECTEDLY, WHICH COULD INJURE PERSONNEL.

10. Start the air motor by opening the air supply.

WARNING: SHOULD THE AIR SUPPLY FAIL FOR ANY REASON, THE OPERATOR MUST SHUT THE AIR CONTROL VALVE SO THAT IT LOCKS IN THE CLOSED POSITION UNTIL THE AIR SUPPLY HAS BEEN RESTORED.

WARNING: DO NOT ATTEMPT TO MAKE ADJUSTMENTS WHILE THE MACHINE IS OPERATING. ALWAYS STOP THE MACHINE FIRST.

11. As the split frame rotates, feed the counter bore tool into the work piece by turning the hand wheel counter clockwise. Feed the tool to the desired depth. Then retract the tool by turning the hand wheel clockwise.

WARNING: THE MACHINE HAS DANGEROUS MOVING PARTS WHEN OPERATED, THEREFORE KEEP WELL CLEAR.

WARNING: SHOULD THE AIR SUPPLY FAIL FOR ANY REASON, THE OPERATOR MUST SHUT THE AIR CONTROL VALVE SO THAT IT LOCKS IN THE CLOSED POSITION UNTIL THE AIR SUPPLY HAS BEEN RESTORED.

WARNING: APART FROM FEEDING THE TOOL, DO NOT ATTEMPT TO MAKE ADJUSTMENTS WHILE THE MACHINE IS OPERATING. ALWAYS STOP THE MACHINE FIRST.

12. Repeat steps 6 and 12 until the I.D. measurement is to the desired size.

13. Ensure that the tool slide is fully retracted and remove the cutting tool.

14. Remove the counter bore attachment when the counter bore is complete.

5.2.4 Set up for horizontal run pipe beveling

1. Observe all Warnings and Cautions, refer to Sections 4.2 and 5.1.

The motor must be removed before setting up to bevel the work piece.

If counter boring was not performed, refer to Section 5.2.3 point 4 to center the split frame to the I.D. of the work piece. Centering the split frame to the I.D. of the work piece will produce a more even land when the beveling process is complete.

2. Only one tool slide is required when beveling. Raise the tool slide tool block if it is not in the up position.

3. In our set up, the bevel that will be cut is a 37°/10° compound bevel.

4. Attach the cover plate to the tool block so that the bevel tool can be locked into place. Insert the bevel tool into the 1/2” slot in the tool block. Tighten the bolts to lock the bevel tool in place.

5. The standard bevel tool (37°) will bevel approximately a ¾" (19mm) wall.

   In addition:
   Standard 37-10° tooling will bevel up to approximately a 1⅝" (41mm) wall
   Heavy wall standard bevel (37°) will bevel approximately a 1" (25mm) wall
   Heavy wall 37-10° tooling will bevel approximately a 2.5" (64 mm) wall.

6. Set the bevel tool so that all of cutting surface of tool is outside of the tool block towards the work piece. The bevel tool should not be touching the work piece.

Fig. 19 Fitting of the beveling tool

7. Engage the trip assembly. The trip assembly is engaged by rotating the handle to the up position. If the tool slide has been moved since the severing process, it must be checked for proper alignment with the trip assembly. Refer to Section 5.2.2 point 13.

WHEN ROTATING THE GEAR RING, AVOID PLACING HANDS AND FINGERS IN PINCH POINTS.

8. Attach the motor. Refer to Section 5.2.2 point 14.

9. Connect the air supply to the air motor. Refer to Section 5.2.2 point 15.

BEFORE CONNECTING THE AIR SUPPLY, MAKE SURE MOTOR HAND LEVER IS NOT ENGAGED. THIS COULD CAUSE THE SPLIT FRAME TO ROTATE UNEXPECTEDLY, WHICH COULD INJURE PERSONNEL.

10. Start the air motor by opening the air supply.

WARNING: THE MACHINE HAS DANGEROUS MOVING PARTS WHEN OPERATED, THEREFORE KEEP WELL CLEAR.

WARNING: SHOULD THE AIR SUPPLY FAIL FOR ANY REASON, THE OPERATOR MUST SHUT THE AIR CONTROL VALVE SO THAT IT LOCKS IN THE CLOSED POSITION UNTIL THE AIR SUPPLY HAS BEEN RESTORED.

WARNING: DO NOT ATTEMPT TO MAKE ADJUSTMENTS WHILE THE MACHINE IS OPERATING. ALWAYS STOP THE MACHINE FIRST.

11. Once the beveling process is complete, turn off the motor.

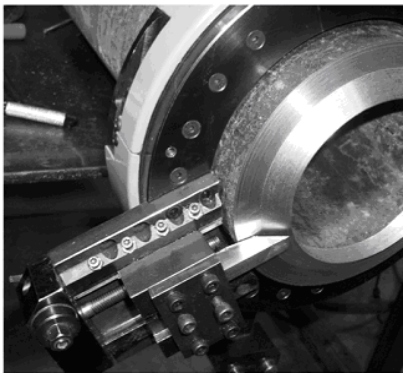


Fig. 20 Pipe beveling completed

12. Ensure that the tool slide is fully retracted and remove the cutting tool.

13. Remove the split frame from the work piece and clean. Equipment should be returned to the shipping container or staged for the next job.

5.3 SETTING UP AND OPERATING OPTIONAL ACCESSORIES

5.3.1 Bridge slide

Reference: Section 8, fig. 45.

1. Observe all Warnings and Cautions, refer to Sections 4.2 and 5.1.
2. After the pipe has been severed remove tool slides.
3. Mount the bridge slide into the slide pockets using 5/16 x 3/8 shoulder bolts.
4. Once bridge slide is mounted install the ½" x ½" turning tool.
5. Rotate star wheel cap nut to set the transition height. Once the transition is set install proper templates for the desired preparation configuration, for example, a 37°/10° compound bevel for the cut.
6. To install the template rotate the jacking bolt on top of the bridge slide until the roller bearing is in the transition on the template. Tighten 10-32 shoulder bolts to lock template in place. Remove jacking bolt.
7. Retract the tool from face of pipe. Rotate star wheel cap nut until tool is outside the O.D. of the pipe.
8. Feed tool in to the desired depth of cut, no more than 3/8" (9.5mm) in one pass. Engage motor and trip.
9. Repeat this step until machining is complete.

5.3.2 Axial feed slide

Reference: Section 8, fig. 43.

1. Observe all Warnings and Cautions, refer to Sections 4.2 and 5.1.
2. The axial feed slide is used for turning the O.D. and removing weld caps.
3. Centre and square the machine to the O.D. of the pipe.
4. Install the ½" x ½" turning tool in the axial slide tool holder.
5. Attach the axial slide to the split frame in the slide pocket using 5/16"-18 bolts.
6. Attach the trip assembly so it properly engages with the outermost portion of the star wheel. The trip assembly is attached with a 3/8" shoulder bolt. The trip assembly has locating holes so that the star wheel and trip engage properly. Proper height of trip assembly is determined by slide location and slide length. With trip engaged the pin should be extended far enough to fully engage with star wheel but not contact tool slide gear box. Rotate dial on the top of the slide to set the depth of cut. The depth of cut should not exceed 1/8" (3mm) per pass.
7. After the depth is set engage the trip and start the motor.
8. Repeat these steps until the desired diameter is achieved.

5.3.3 Out of round attachment

Reference: Section 8, fig. 46.

1. Observe all warnings and cautions, refer to Sections 4.2 and 5.1.
2. Prior to assembling Out of Round Attachment to the Split Frame, tighten two jacking screws to draw the roller wheel and tool holder back to the middle of the overall travel length.
3. Bolt the attachment to the split frame using 5/16-18 bolts where the roller is close but not touching the OD of the pipe.
4. Retract the jacking screws to rest on the OD of the pipe.
5. Rotate the machine full 360 degrees to make sure the roller stays in contact with the OD of the pipe.
6. Ensure that star wheel engages correctly.
7. Rotate star wheel until you achieve the desired amount of tool post travel.
8. Insert desired tooling.

5.3.4 Swivel counter bore attachment

Reference: Section 8, fig. 43.

1. Observe all warnings and cautions, refer to Sections 4.2 and 5.1.
2. When using the Swivel Counter bore, only one attachment is required and the trip assembly must be disengaged.
3. Bolt the attachment to the Split Frame in the slide pockets using 5/16-18 bolts. Position the attachment so that the tool holder is about 1” (25mm) past the I.D. of the work piece.
4. The split frame should be aligned to the I.D. of the work piece so that the counter boring is even.
5. To center the Split Frame to the I.D., see section 5.2.3 Paragraph 4.
6. Set attachment on the desired counter bore angle using the etching on either side of the attachment.
7. Insert tooling and tighten up the set screws to hold tool.
8. Bring the counter bore tool to the work piece by rotating 9/16” hex on the tool slide gearbox clockwise. The I.D. of the work piece may be out of round. The tool should be touched off at the smallest I.D. dimension.
9. Rotate the hand wheel of the counter bore attachment clockwise to retract the tool from the work piece.

10. To increase the cut of the tool in the counter bore attachment, rotate the tool slide star wheel clockwise. Each revolution of the star wheel will move the tool block .008” (0.2mm)
11. Attach and engage the motor.

5.3.5 Split frame flange facer attachment

Reference: Section 8, fig. 47.

1. Observe all warnings and cautions, refer to Sections 4.2 and 5.1.
2. Set up split frame center and square to the face that needs to be machined.
3. Attach Flange facer with 5/16-18 bolts in the slide pocket located where you have enough travel to cover the length of the face.
4. Bolt the trip and make sure star wheel engages correctly.
5. If you feed from the outside in, the pins must engage from outer most point of the star wheel. If you want to feed from inside out, the pins must engage from the bottom side of the star wheel.
6. For 125 finish use one trip pin. For 250 finish use two trip pins.
7. Select proper tool for the finish you are trying to achieve.
8. Insert tool into tool holder.
9. Rotate the star wheel until the cutting tool is over top of the face. Use the hand wheel on the attachment to touch tool off to face.
10. Rotate star wheel to retract the tool to the OD of the face.
11. Rotate hand wheel on Attachment to achieve depth of desired cut.
12. Attach and engage motor.

5.4 HYDRAULIC POWER PACK REQUIREMENTS

ONLY APPLICABLE WHEN USING THE OPTIONAL HYDRAULIC MOTOR

The user must supply a suitable power pack capable of providing 8 US gallons (30 litres) per minute at 1000 psi (67 bar).

To avoid damage to the valve, the hydraulic power pack should not be set to deliver a flow rate in excess of 39.6 US Gallons (150 litres) per minute, nor a pressure in excess of 3045 psi (210 bar).

Hydraulic power units used to operate this equipment must have installed pressure control valves and relief valves fitted to prevent continuous over pressurization of the hydraulic motor.

5.5 REMOVING THE EQUIPMENT

1. Observe all warnings and cautions, refer to Sections 3 and 5.1.
2. Isolate the machine from the air supply (or hydraulic supply as appropriate) and disconnect.
3. Ensure that the cutting tool has been removed from the toolpost.
4. Remove all swarf and thoroughly clean the machine.
5. Remove the machine from the pipe; this procedure is the reverse of the installation procedure.

UNLESS IT IS SAFE TO MAUALLY LIFT THE MACHINE, USE A MECHANICAL LIFT TO REMOVE THE MACHINE FROM THE PIPE.

5.6 STORING THE EQUIPMENT

After removing the equipment from the job site the equipment should be thoroughly cleaned and inspected. Any faults should be rectified before the equipment is re-used or returned to storage.

After cleaning and inspecting the equipment, the unprotected parts must be protected from corrosion by smearing them with a thin coat of oil.

The equipment should finally be returned to the transportation box and an inventory made of the parts to ensure that all components are present.

SECTION 6 FAULT DIAGNOSIS

6.1 INTRODUCTION

A fault diagnosis chart is provided to assist the user to identify basic faults. The chart is not exhaustive and the recommended action may not be the only solution to a fault.

In order to prevent possible injury to personnel or damage to equipment it is recommended that faults are corrected as soon as they arise.

6.2 FAULT DIAGNOSIS CHART

Symptom	Possible cause	Action
The machine will not rotate when the air/hydraulic supply valve is opened.	1. Air/hydraulic supply not available	Check air/hydraulic supply
	2. Air/hydraulic supply is below the minimum required to operate the machine	Check air/hydraulic supply
	3. Faulty air filter lubrication pack	Check operation of gate valve and air control valve
	4. Faulty air/hydraulic motor	Check operation. Refer to manufacturer's literature. Replace the motor
	5. Faulty gearbox	Check operation
	6. Shipping pins engaged	Remove shipping pins
	7. Bearing pin adjustment incorrect	Check adjustment
The machine will not traverse.	1. Trip incorrectly positioned	Check that the trip engages correctly

Fault diagnosis chart continued…

Symptom	Possible cause	Action
Excessive vibration and/or chatter	1. Split frame assembly loose	Check and tighten all legs
	2. Depth of cut too deep	Reduce cut
	3. Feed rate too high, (chip thickness too great)	Reduce feed rate
	4. Poor tool profile or worn tool	Check tool and regrind if necessary
	5. Tool not locked in position	Check and tighten, if required
	6. Worn or damaged split frame bearings	Check and renew if necessary

SECTION 7 MAINTENANCE INSTRUCTIONS

7.1 INTRODUCTION

The following information sets out recommendations for the maintenance of this equipment. Periodic maintenance, when carried out as specified, will help to prevent premature failure of the equipment. Should a component fail or its operation become suspect the equipment should not be used until the fault has been rectified.

7.2 PERIODIC MAINTENANCE

The following maintenance tasks are those required to help prevent premature failure of the equipment. It is recommended that all the tasks should be carried out when specified.

PERIOD	TASK
Daily when in use or on completion of a job	Clean the equipment.
	Check that all the components are present and in good working order. Check for correct operation of all the control devices. Check all fasteners are properly tight. Grind the cutting tools Wipe all components with a small quantity of light machine oil
Weekly when in use	Complete the daily tasks.
	Check the air motor bearings, gears and vanes for wear/damage – see manufacturer's literature in Appendix D
Monthly when in use	Complete the daily and weekly tasks.
	Grease the motor gearbox using 3 shots Moly-based general purpose grease Grease the saddle (1 point) using 2 shots Moly-based general purpose grease

Periodic maintenance chart continued…

PERIOD	TASK
Returning to storage	Complete the daily, weekly and monthly tasks.
	Protect all the exposed areas of the machine from corrosion.
Annually when in storage	Un-pack the equipment and check for signs of corrosion or other deterioration.
	Check that all the components are present and in good working order.

WARNINGS:

WHEN OILING AIR MOTOR WEAR FACE MASK TO AVOID INHALATION OF OIL MIST AND FUMES.

DO NOT USE FLAMMABLE LIQUIDS TO LUBRICATE OR FLUSH THROUGH THE AIR MOTOR. ONLY USE A RECOMMENDED AIR MOTOR LUBRICANT.

7.3 RECOMMENDED LUBRICANTS

These are the recommended lubricants for the Pipe Lathe Machine.

Component	Lubricant type	Product name or specification
Air motor	Oil	Light machine oil
Gear ring	Oil	Light machine oil
Tool slides	Oil	Light machine oil

The main bearing system uses seal bearings that do not require greasing.

7.4 REMOVAL AND REFIT PROCEDURES

The following Procedures are given for the removal and refitting of the main assemblies so that maintenance or repair work can be carried out.

Observe all warnings and cautions; refer to Sections 3 and 5.1.

7.4.1 Split frame

1. The split frame has four main body parts: two base ring halves and two gear ring halves.

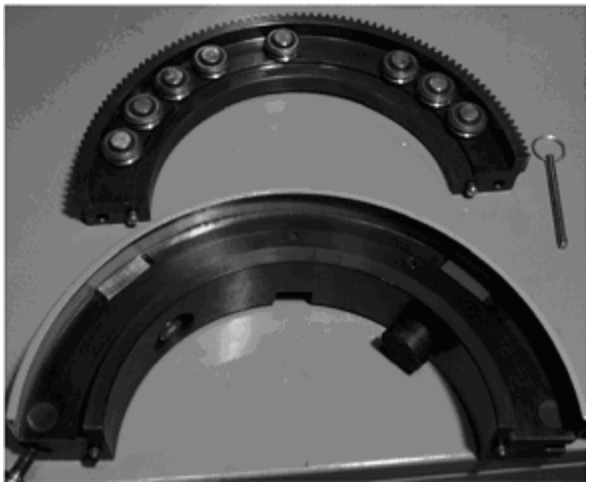


Fig. 21 Split frame components

2. The base ring has three major parts: the “V” groove, motor mount and leg assemblies.

   The “V” groove is where the “V” bearings on the gear ring ride. The gear ring should be removed from the base ring after each use to remove any swarf that may have collected inside the split frame. Swarf in the split frame can scar the “V” groove and damage the riding surface of the “V” bearings. Apply a Teflon spray to the “V” groove.

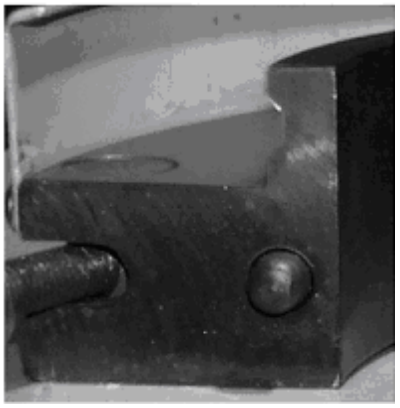


Fig. 22 “V” groove

The leg assemblies should be operated and cleaned of any swarf. If the legs become scarred, it can cause the legs to be hard to move and reduce the rigidity of the split frame. Anti-seize lubricant should be applied to the leg assemblies.

Fig. 23 Leg assembly

The motor mount may also collect swarf. It is important to remove the housing cover and remove any swarf from around the gear. Swarf lodged in the gears may cause damage to the gear teeth.

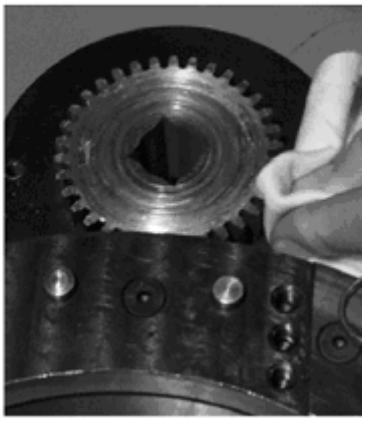


Fig. 24 Drive gear of the gear ring

The gear ring has 2 major areas that must be checked, the gear and the bearings.

The gear of the gear ring is very important to the operation of the split frame. It is imperative that the gear be properly cleaned of swarf and inspected for wear or damage. After cleaning and inspection, a light coat of oil should be applied.

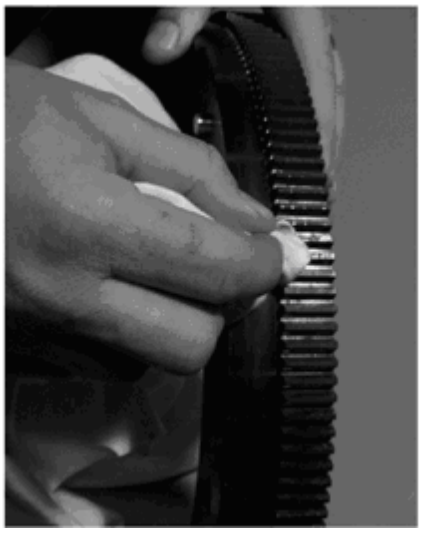


Fig. 25 Cleaning the gear ring

The split frame bearings are “V” shaped. This allows the bearing to properly ride on the ground “V” groove of the base. Bearings must be cleaned and inspected for wear and damage during cleaning of the machine. The bearings that are used in the split frames are sealed and do not require greasing. If the bearings appear worn or the seals damaged, then the bearings should be replaced. After the machine is assembled back together, refer to Split Frame Indication Bearing Adjustment steps in Section 4.2 of the ***Post Job Service Procedure # FMS-9101 for Pipe Cutters.***

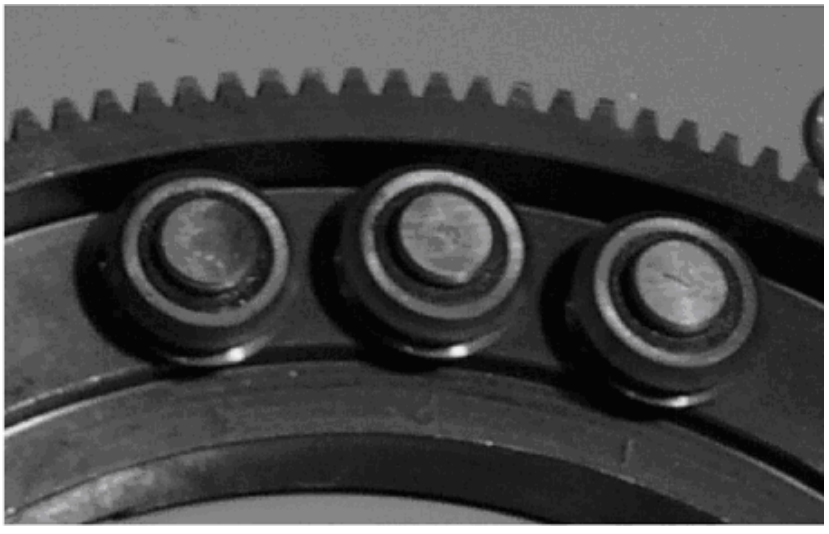


Fig. 26 Split frame bearings

7.4.2 Tool Slides

The tool slide is composed of 3 major parts: the slide base, the tool holder and the gearbox.

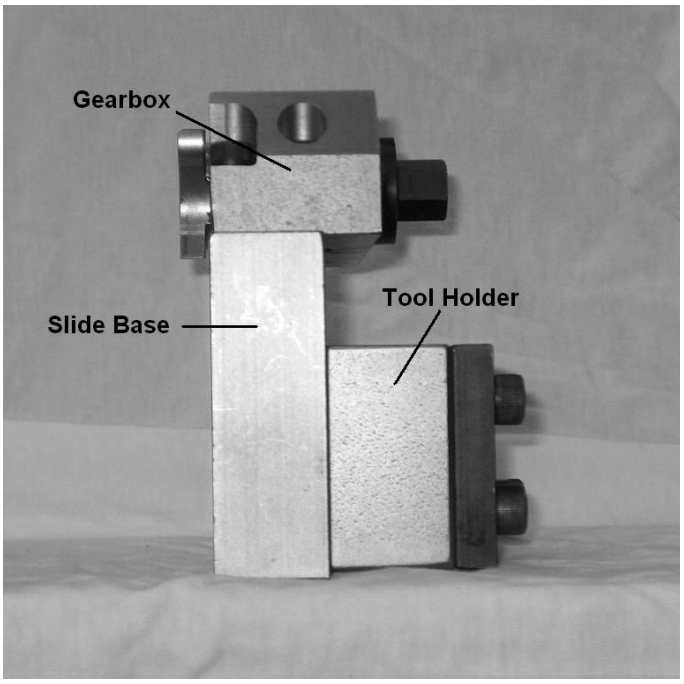


Fig. 27 Tool slide components

1. **Slide Base**

   The slide base is used to attach the slide assembly to the split frame. It is also used as a guide system for the tool holder. It is important to clean the slide base of any swarf after each use. Swarf may scar the slide base wear surfaces. This will cause the tool holder to have difficulty traveling down the slide base.

2. **Tool Holder**

   The tool holder is used to hold the cutting tool in position during the cutting process. It should be cleaned of any swarf after each tool change and before it is placed back into the storage container.

3. **Gearbox**

   The gearbox is comprised of 7 main parts: gearbox, lead screw, star wheel cap nut, star wheel trip cam, spur gear, bronze washer and two needle trust bearing assemblies. All of these parts must work together for the gearbox to feed the tool holder properly.

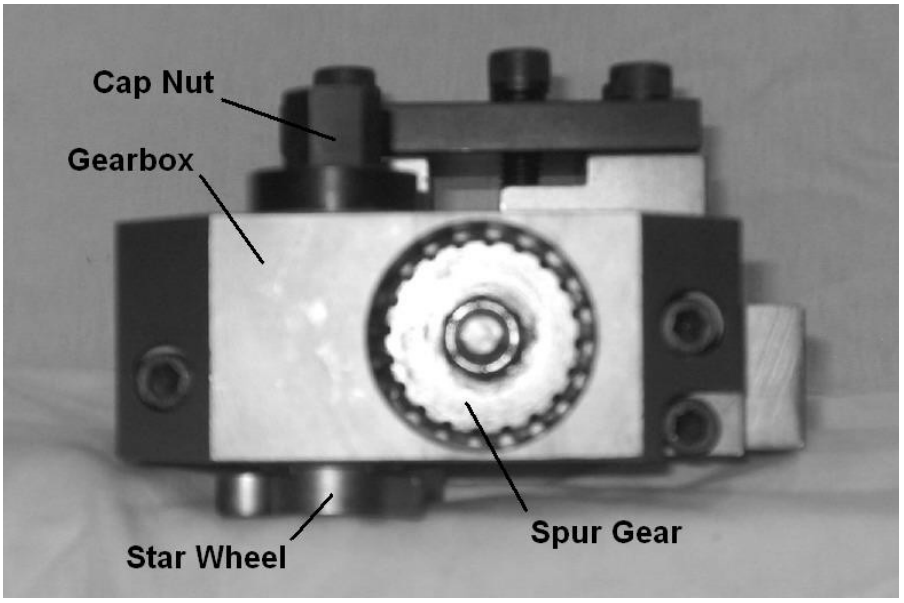


Fig. 28 Tool slide gear box components

Lead Screw - This part feeds the tool holder up and down the slide base.

Star Wheel Cap Nut - The star wheel cap nut is used to retain the star wheel in the gearbox.

Star Wheel Trip Cam - This part serves a dual purpose. It engages with the trip assembly and rotates the spur gear. The star wheel portion should be checked for wear and tightness.

Spur Gear - The spur gear is connected to the lead screw and engages with the star wheel trip cam. It should be inspected for wear. Make sure that the nylock nut that holds it to the lead screw is tight.

Needle Trust Bearing Assembly - These are located on top and bottom of the gearbox. One is between the cap nut and gearbox and the other is between the gearbox and star wheel. They should be inspected and greased every 100 hours of use or if they have been exposed to a harsh environment. Each bearing is enclosed between two hardened washers.

Bronze Washer - This part is between the lead screw and the gearbox. Its purpose is to provide a replaceable area of wear between the lead screw and the gearbox. It should be measured to inspect the amount of wear and should be replaced if it measures below .100” (2.5mm) thick.

7.4.3 Air filter/lubricator unit (air caddy)

The life of the air motor depends on the quality of air that it is supplied with. The air filter/lubricator unit (air caddy) that is supplied with our split frame is designed to deliver the best possible quality air to the air motor. The air caddy is comprised of 5 parts: filter, regulator, pressure gauge, oiler and housing.

Fig. 29 Air filter/lubricator unit (air caddy)

1. **Filter**

The filter should remove almost all water and foreign materials in the supply air. To clean or change the filter, remove the reservoir and unscrew the baffle plate. If cleaning, the filter should be cleaned and blown dry from the inside out.

2. **Regulator**

The regulator allows for adjustment to the amount of pressure and air flow to the air motor

3. **Pressure Gauge**

The pressure gage allows the operator to check the air pressure at the work area.

4. **Oiler**

The oiler should be set to approximately 6 drips of oil in sight glass per minute. The sight glass is located on top of the oilier. To fill oil reservoir, simply remove the reservoir and fill or by using the opening located on top of the unit under the plastic oil filter screw.

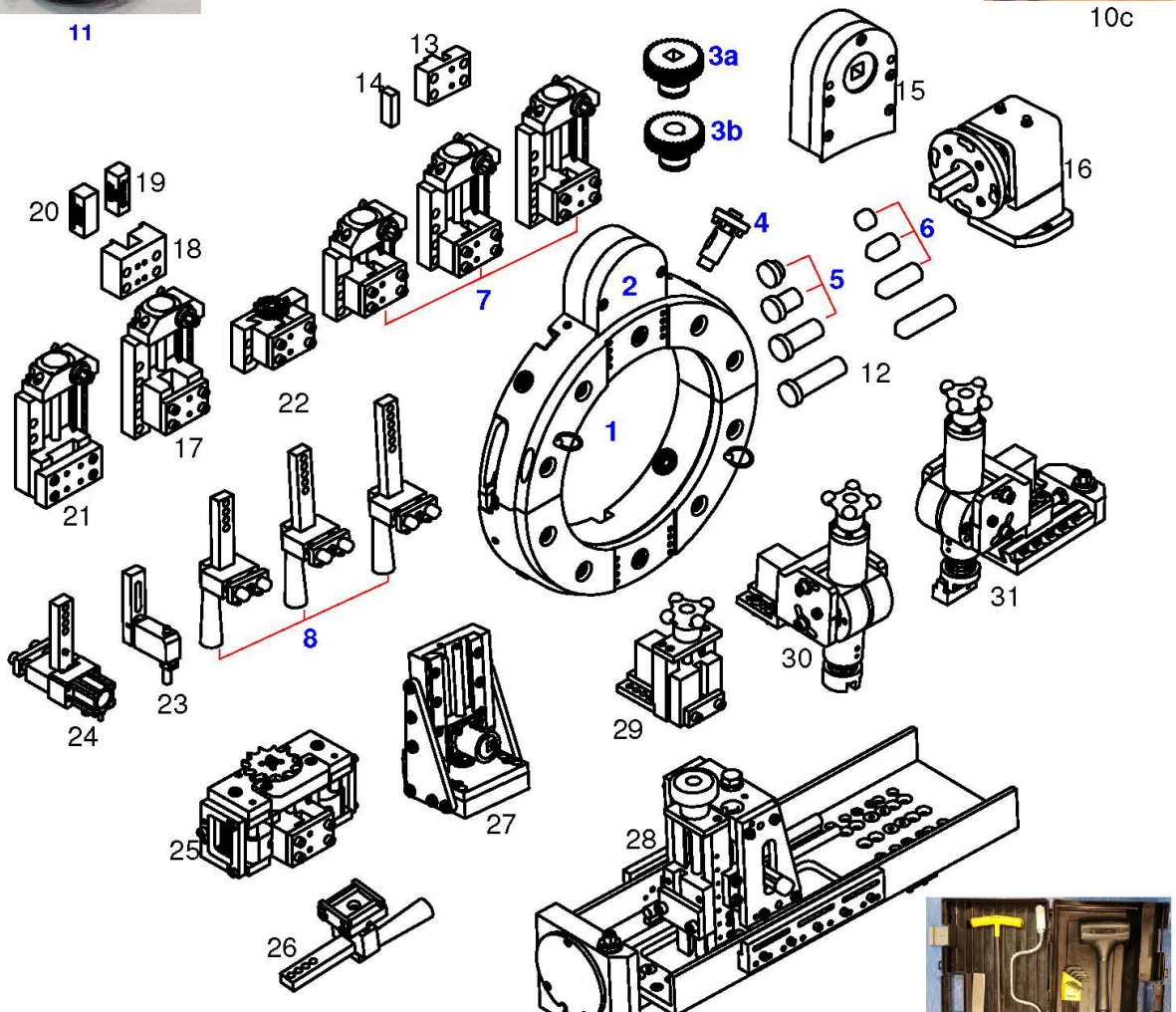
SECTION 8 ACCESSORIES & PARTS LISTS

11

10a

10b

10c



9

STANDARD RENTAL KIT:

1. SPLIT FRAME
2. STANDARD GEAR BOX
3. a. DRIVE GEAR PNEUMATIC, **OR**
   b. DRIVE GEAR HYDRAULIC
4. LEG BOLT ASSEMBLY
5. MOUNTING PADS, FLAT (STD, 1", & 2")
6. MOUNTING PADS, POINTED (STD, 1" & 2")
7. TOOL SLIDES (4", 5" **OR** 6")
8. TRIPS (4", 5" **OR** 6")
9. HAND TOOLS
10. MOTOR
    a. HD AIR, **OR**
    b. RIGHT ANGLE AIR, **OR**
    c. HYDRAULIC
11. AIR CADDY & AIR WHIP

SPECIALTY ATTACHMENTS & ACCESSORIES:

12. EXTENDED MOUNTING PADS, 3"
13. STANDARD BEVEL AWAY TOP HAT
14. STANDARD BEVEL AWAY SPACER
15. DOUBLE/FRONT DRIVE GEAR BOX
16. RIGHT ANGLE GEAR BOX
17. HEAVY WALL TOOL SLIDE
18. HEAVY WALL TOP HAT FOR BEVEL AWAY
19. HEAVY WALL SEVER SPACER
20. HEAVY WALL BEVEL AWAY SPACER
21. WIDE TOOL SLIDE
22. LOW CLEARANCE TOOL SLIDE
23. LOW CLEARANCE TRIP
24. PNEUMATIC TRIP
25. OUT OF ROUND ATTACHMENT
26. OUT OF ROUND TRIP
27. AXIAL FEED ATTACHMENT
28. BRIDGE SLIDE ATTACHMENT
29. STANDARD COUNTER BORE ATTACHMENT
30. SWIVEL COUNTER BORE ATTACHMENT
31. FLANGE FACING ATTACHMENT

8.1 SPLIT FRAME STEEL BODY ASSEMBLY

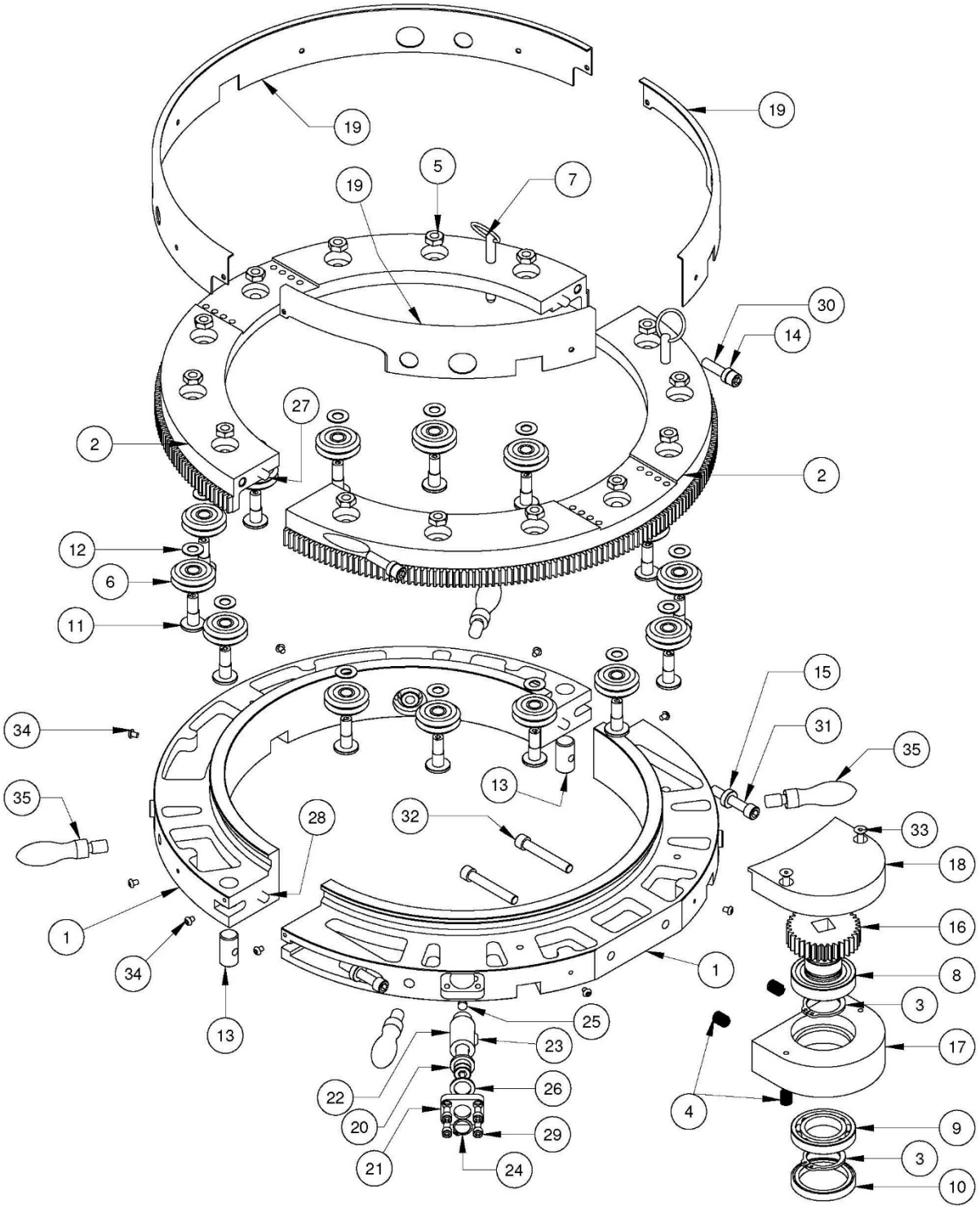


Fig. 31 4”-62” Steel Body Split Frame Assembly

8.1.1 4” STEEL BODY SPLIT FRAME ASSEMBLY

Refer to Fig. 31.

ITEM No.	PART No.	QTY	DESCRIPTION
1	SF-XX-B **	1	BASE
2	SF-XX-G **	1	GEAR
3	SF-0002	2	RETAINING RING
4	HELI037516X0562	4	HELICAL INSERTS, 3/8-16 (OR THREAD INSERTS)
5	SF-0019	6	ECCENTRIC BEARING PIN NUT, 4” SF
6	SF-0018	6	V-GROOVE BEARING, 4” SF
7	SF-0013	2	SHIPPING PIN
8	SF-0014	1	DRIVE GEAR BEARING, 9/16”
9	SF-0015	1	DRIVE GEAR BEARING, 7/16” OPEN
10	SF-0025	1	BEARING COVER SEAL
11	EP-04-01	6	ECCENTRIC BEARING PIN, 4” SF
12	BP-0003	6	BEARING SHIM, .050”
13	SH-0001	2	SWING HINGE PIN, 3/4”
14	SH-0002	2	SPACER NUT, GEAR, 4” – 24”
15	SH-0003	2	SPACER NUT, BASE, 4” – 24”
16	GR-0001	1	DRIVE GEAR, PNEUMATIC (SQUARE DRIVE)
	GR-0003	1	DRIVE GEAR, HYDRAULIC (ROUND DRIVE)
17	GB-00XX **	1	GEAR BOX HOUSING
18	GC-00XX **	1	GEAR COVER
19	SG-00XX **	1	GUARD
20-26, 29	LB-1000	4	LEG BOLT ASSEMBLY
27	DP0375X0750	2	DOWEL PIN, 3/8” DIA X 3/4" LONG
28	DP0375X1000	2	DOWEL PIN, 3/8” DIA X 1” LONG
29	SHCS025020X0500	16	SOCKET HEAD CAP SCREW 1/4"-20 X 1/2" LONG
30	SHCS037516X1500	2	SOCKET HEAD CAP SCREW 3/8”-16 X 1-1/2” LONG
31	SHCS037516X2000	2	SOCKET HEAD CAP SCREW 3/8”-16 X 2” LONG
32	SHCS037516X1500	2	SOCKET HEAD CAP SCREW 3/8”-16 X 1-1/2” LONG, 4” SF
33	FHCS025020X1500	2	FLAT HEAD CAP SCREW 1/4”-20 X 1-1/2” LONG
34	BHCS1032X0250	#	BUTTON HEAD CAP SCREW 10-32 X 1/4" LONG

** Denotes non-universal part. Part number is specific to machine size.
# Denotes that quantity varies by machine size.

8.1.2 6” – 24” STEEL BODY SPLIT FRAME ASSEMBLY

Refer to Fig. 31.

ITEM No.	PART No.	QTY	DESCRIPTION
1	SF-XX-B **	1	BASE
2	SF-XX-G **	1	GEAR
3	SF-0002	2	RETAINING RING
4	HELI037516X0562	4	HELICAL INSERTS, 3/8-16 (OR THREAD INSERTS)
5	SF-0010	#	ECCENTRIC BEARING PIN NUT, 6” – 62” SF
6	SF-0012	#	V-GROOVE BEARING, 6” – 62” SF
7	SF-0013	2	SHIPPING PIN
8	SF-0014	1	DRIVE GEAR BEARING, 9/16”
9	SF-0015	1	DRIVE GEAR BEARING, 7/16” OPEN
10	SF-0025	1	BEARING COVER SEAL
11	EBS-0001	#	ECCENTRIC BEARING PIN, 6” – 62” SF
12	BP-0003	#	BEARING SHIM, .050”
13	SH-0001	2	SWING HINGE PIN, 3/4”
14	SH-0002	2	SPACER NUT, GEAR, 4” – 24”
15	SH-0003	2	SPACER NUT, BASE, 4” – 24”
16	GR-0001	1	DRIVE GEAR, PNEUMATIC (SQUARE DRIVE)
	GR-0003	1	DRIVE GEAR, HYDRAULIC (ROUND DRIVE)
17	GB-00XX **	1	GEAR BOX HOUSING
18	GC-00XX **	1	GEAR COVER
19	SG-00XX **	1	GUARD
20-26, 29	LB-1000	#	LEG BOLT ASSEMBLY
27	DP0375X0750	2	DOWEL PIN, 3/8” DIA X 3/4" LONG
28	DP0375X1000	2	DOWEL PIN, 3/8” DIA X 1” LONG
29	SHCS025020X0500	#	SOCKET HEAD CAP SCREW 1/4"-20 X 1/2" LONG
30	SHCS037516X1500	2	SOCKET HEAD CAP SCREW 3/8”-16 X 1-1/2” LONG
31	SHCS037516X2000	2	SOCKET HEAD CAP SCREW 3/8”-16 X 2” LONG
32	SHCS037516X2500	2	SOCKET HEAD CAP SCREW 3/8”-16 X 2-1/2” LONG, 6”-62” SF
33	FHCS025020X1500	2	FLAT HEAD CAP SCREW 1/4”-20 X 1-1/2” LONG
34	BHCS1032X0250	#	BUTTON HEAD CAP SCREW 10-32 X 1/4" LONG
35	LIFTHANDLE050013	#	LIFT HANDLE, 1/2”-13 (14” SF AND UP)

** Denotes non-universal part. Part number is specific to machine size.
# Denotes that quantity varies by machine size.

8.1.3 26” – 62” STEEL BODY SPLIT FRAME ASSEMBLY

Refer to Fig. 31.

ITEM No.	PART No.	QTY	DESCRIPTION
1	SF-XX-B **	1	BASE
2	SF-XX-G **	1	GEAR
3	SF-0002	2	RETAINING RING
4	HELI037516X0562	4	HELICAL INSERTS, 3/8-16 (OR THREAD INSERTS)
5	SF-0010	#	ECCENTRIC BEARING PIN NUT, 6” – 62” SF
6	SF-0012	#	V-GROOVE BEARING, 6” – 62” SF
7	SF-0013	2	SHIPPING PIN
8	SF-0014	1	DRIVE GEAR BEARING, 9/16”
9	SF-0015	1	DRIVE GEAR BEARING, 7/16” OPEN
10	SF-0025	1	BEARING COVER SEAL
11	EBS-0001	#	ECCENTRIC BEARING PIN, 6” – 62” SF
12	BP-0003	#	BEARING SHIM, .050”
13	SH-0006	2	SWING HINGE PIN, 1”
14	SH-0005	2	SPACER NUT, GEAR, 26” – 62”
15	SH-0004	2	SPACER NUT, BASE, 26” – 62”
16	GR-0002	1	DRIVE GEAR, PNEUMATIC (SQUARE DRIVE)
	GR-0004	1	DRIVE GEAR, HYDRAULIC (ROUND DRIVE)
17	GB-00XX **	1	GEAR BOX HOUSING
18	GC-00XX **	1	GEAR COVER
19	SG-00XX **	1	GUARD
20-26, 29	LB-1000	#	LEG BOLT ASSEMBLY
27	DP0375X1000	2	DOWEL PIN, 3/8” DIA X 1” LONG
28	DP0375X1000	2	DOWEL PIN, 3/8” DIA X 1” LONG
29	SHCS025020X0500	#	SOCKET HEAD CAP SCREW 1/4"-20 X 1/2" LONG
30	SHCS037516X1500	2	SOCKET HEAD CAP SCREW 3/8”-16 X 1-1/2” LONG
31	SHCS037516X2000	2	SOCKET HEAD CAP SCREW 3/8”-16 X 2” LONG
32	SHCS037516X2500	2	SOCKET HEAD CAP SCREW 3/8”-16 X 2-1/2” LONG
33	FHCS025020X1500	2	FLAT HEAD CAP SCREW 1/4”-20 X 1-1/2” LONG
34	BHCS1032X0250	#	BUTTON HEAD CAP SCREW 10-32 X 1/4" LONG
35	LIFTHANDLE050013	#	LIFT HANDLE, 1/2”-13 (14” SF AND UP)

** Denotes non-universal part. Part number is specific to machine size.
# Denotes that quantity varies by machine size

8.1.4 SPLIT FRAME ALUMINUM BODY ASSEMBLY

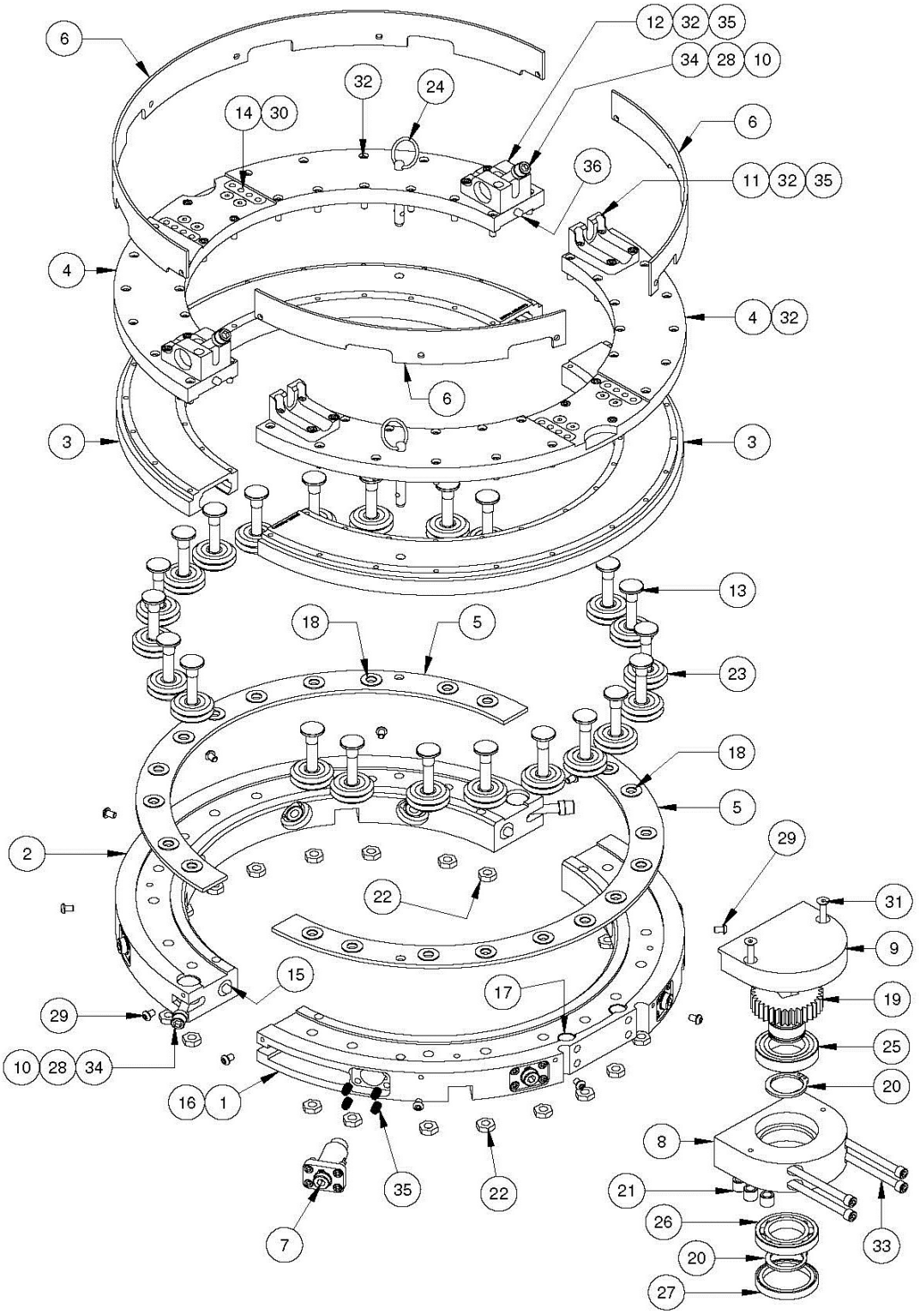


Fig. 32 12”-30” Aluminum Body Split Frame Assembly

ALUMINIUM SPLIT FRAME ASSEMBLY 12" – 30" Refer to Fig. 32.

ITEM No.	PART No.	QTY	DESCRIPTION
1,2	LWSF-XX-B **	1	BASE
3	LWSF-XX-G **	1	GEAR
4	LWSF-XX-R **	2	TOP RING
5	LWSF-XX-S **	2	SPACER PLATE
6	LWSG-00XX	1	GUARD
7	LB-1000	#	LEG BOLT ASSEMBLY
8	LW-0001	1	GEAR BOX HOUSING (12" – 24")
	LW-0006	1	GEAR BOX HOUSING (26" – 30")
9	LW-0002	1	GEAR COVER (12" – 24")
	LW-0007	1	GEAR COVER (26" – 30")
10	LW-0003	4	SWING HINGE
11	LW-0004	2	SWING BOLT BLOCK
12	LW-0005	2	SWING BOLT HINGE BLOCK
13	LW-0010	#	ECCENTRIC BEARING PIN
14	LW-0011	4	TOP RING STEEL INSERT
15	LW-0012	2	FLANGED ALIGNMENT PIN
16	LW-0013	2	ALIGNMENT PIN LINER
17	LW-0014	2	GEAR BOX INSERT PIN
18	BP-0003	#	BEARING SHIM, .050"
19	GR-0001	1	DRIVE GEAR, **PNEUMATIC** (SQUARE DRIVE) (12" – 24")
	GR-0003	1	DRIVE GEAR, **HYDRAULIC** (ROUND DRIVE) (12" – 24")
	GR-0002	1	DRIVE GEAR, **PNEUMATIC** (SQUARE DRIVE) (26" – 30")
	GR-0004	1	DRIVE GEAR, **HYDRAULIC** (ROUND DRIVE) (26" – 30")
20	SF-0002	2	RETAINING RING
21	SF-0003	6	THREADED INSERT
22	SF-0010	#	ECCENTRIC BEARING PIN NUT
23	SF-0012	#	V-GROOVE BEARING
24	SF-0013	2	SHIPPING PIN
25	SF-0014	1	DRIVE GEAR BEARING, 9/16"
26	SF-0015	1	DRIVE GEAR BEARING, 7/16" OPEN
27	SF-0025	1	BEARING COVER SEAL
28	SH-0002	4	SPACER NUT
29	BHCS025020X0375	#	BUTTON HEAD CAP SCREW 1/4"-20 X 3/8" LONG
30	FHCS025020X0500	8	FLAT HEAD CAP SCREW 1/4"-20 X 1/2" LONG
31	FHCS025020X1500	2	FLAT HEAD CAP SCREW 1/4"-20 X 1-1/2" LONG
32	SHCS025020X0750	#	SOCKET HEAD CAP SCREW 1/4"-20 X 3/4" LONG
33	SHCS031318X3500	4	SOCKET HEAD CAP SCREW 5/16"-18 X 3-1/2" LONG
34	SHCS037516X2000	4	SOCKET HEAD CAP SCREW 3/8"-16 X 2" LONG
35	HELI025020X0500	#	HELICAL INSERTS, 1/4"-20 (OR THREAD INSERTS)
36	DP0313X1000	2	DOWEL PIN, 5/16" DIA X 1" LONG

** Denotes non-universal part. Part number is specific to machine size.
# Denotes that quantity varies by machine size.

8.2 MOTOR MOUNT / DRIVE OPTIONS

8.2.1 STANDARD MOTOR MOUNT DRIVE GEAR BOX

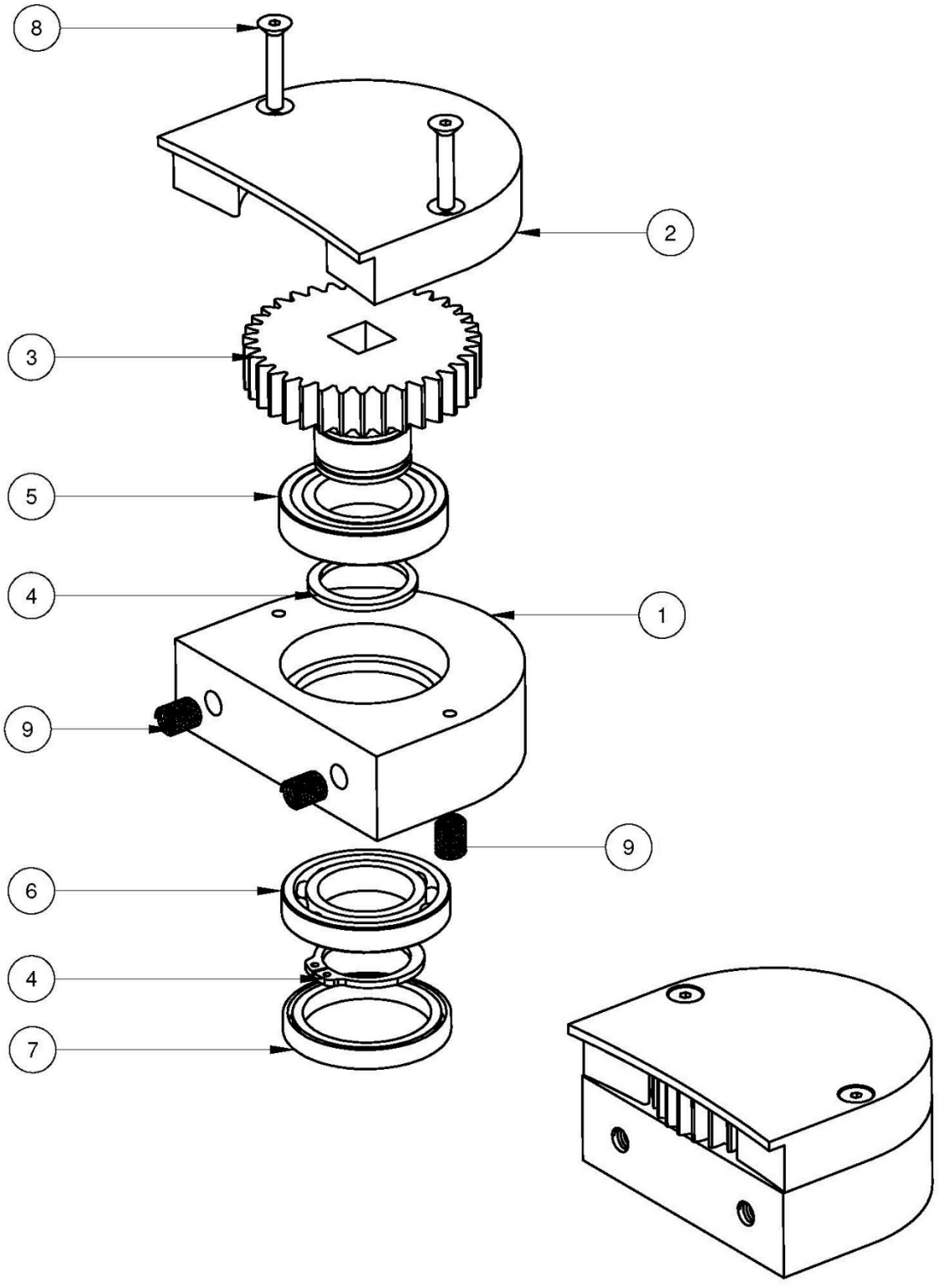


Fig. 33 - Standard Drive Gear Box Assembly

4” – 24” STANDARD DRIVE GEAR BOX ASSEMBLY

Refer to Fig. 33.

4” – 24” SPLIT FRAME DRIVE GEAR ASSEMBLY

ITEM No.	PART No.	QTY	DESCRIPTION
1	GB-00XX **	1	GEAR BOX HOUSING
2	GC-00XX **	1	GEAR COVER
3	GR-0001	1	DRIVE GEAR, PNEUMATIC (SQUARE DRIVE)
	GR-0003	1	DRIVE GEAR, HYDRAULIC (ROUND DRIVE)
4	SF-0002	2	RETAINING RING
5	SF-0014	1	DRIVE GEAR BEARING, 9/16”
6	SF-0015	1	DRIVE GEAR BEARING, 7/16” OPEN
7	SF-0025	1	BEARING COVER SEAL
8	FHCS025020X1500	2	FLAT HEAD CAP SCREW 1/4"-20 X 1-1/2” LONG
9	HELI037516X0562	4	HELICAL INSERTS, 3/8-16 (OR THREAD INSERTS)

**Note: These parts are not interchangeable. Use part numbers as follows:

Split Frame	Part Number	Description
4”	GC-0004	GEAR COVER
	GB-0004	GEAR BOX HOUSING
6”	GC-0006	GEAR COVER
	GB-0006	GEAR BOX HOUSING
8”	GC-0008	GEAR COVER
	GB-0008	GEAR BOX HOUSING
10”	GC-0010	GEAR COVER
	GB-0010	GEAR BOX HOUSING
12”	GC-0012	GEAR COVER
	GB-0012	GEAR BOX HOUSING
14”	GC-0014	GEAR COVER
	GB-0014	GEAR BOX HOUSING
16”	GC-0016	GEAR COVER
	GB-0016	GEAR BOX HOUSING
18”	GC-0018	GEAR COVER
	GB-0018	GEAR BOX HOUSING
20”	GC-0020	GEAR COVER
	GB-0020	GEAR BOX HOUSING
22”	GC-0022	GEAR COVER
	GB-0022	GEAR BOX HOUSING
24”	GC-0024	GEAR COVER
	GB-0024	GEAR BOX HOUSING

26” – 62” STANDARD DRIVE GEAR BOX ASSEMBLY

Refer to Fig. 33.

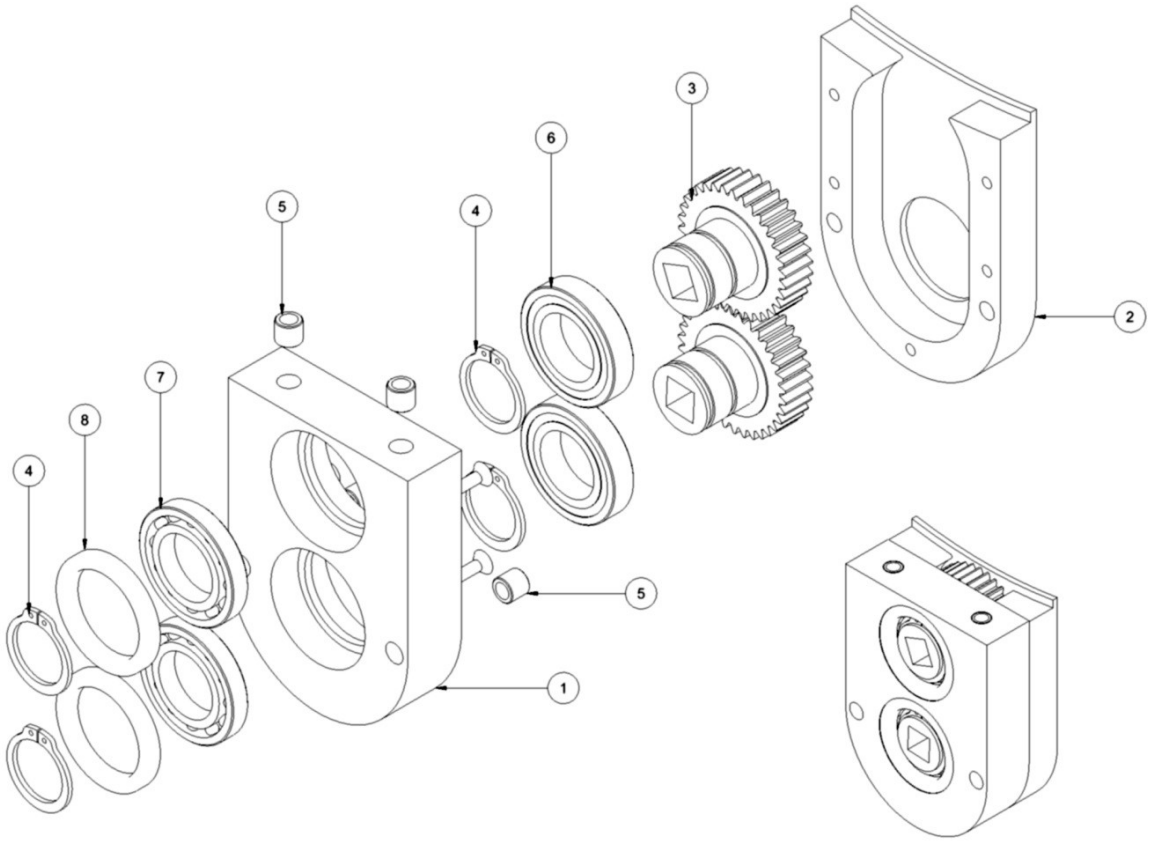
26” – 62” SPLIT FRAME DRIVE GEAR ASSEMBLY

ITEM No.	PART No.	QTY	DESCRIPTION
1	GB-00XX **	1	GEAR BOX HOUSING
2	GC-00XX **	1	GEAR COVER
3	GR-0002	1	DRIVE GEAR, PNEUMATIC (SQUARE DRIVE)
	GR-0004	1	DRIVE GEAR, HYDRAULIC (ROUND DRIVE)
4	SF-0002	2	RETAINING RING
5	SF-0014	1	DRIVE GEAR BEARING, 9/16”
6	SF-0015	1	DRIVE GEAR BEARING, 7/16” OPEN
7	SF-0025	1	BEARING COVER SEAL
8	FHCS025020X1500	2	FLAT HEAD CAP SCREW 1/4"-20 X 1-1/2” LONG
9	HELI037516X0562	4	HELICAL INSERTS, 3/8-16 (OR THREAD INSERTS)

**Note: These parts are not interchangeable. Use part numbers as follows:

Split Frame	Part Number	Description
26”	GC-0026	GEAR COVER
	GB-0026	GEAR BOX HOUSING
28”	GC-0028	GEAR COVER
	GB-0028	GEAR BOX HOUSING
30”	GC-0030	GEAR COVER
	GB-0030	GEAR BOX HOUSING
32”	GC-0032	GEAR COVER
	GB-0032	GEAR BOX HOUSING
34”	GC-0034	GEAR COVER
	GB-0034	GEAR BOX HOUSING
36”	GC-0036	GEAR COVER
	GB-0036	GEAR BOX HOUSING
38”	GC-0038	GEAR COVER
	GB-0038	GEAR BOX HOUSING
40”	GC-0040	GEAR COVER
	GB-0040	GEAR BOX HOUSING
42”	GC-0042	GEAR COVER
	GB-0042	GEAR BOX HOUSING
44”	GC-0044	GEAR COVER
	GB-0044	GEAR BOX HOUSING
46”	GC-0046	GEAR COVER
	GB-0046	GEAR BOX HOUSING
48”	GC-0048	GEAR COVER
	GB-0048	GEAR BOX HOUSING
50”	GC-0050	GEAR COVER
	GB-0050	GEAR BOX HOUSING
52”	GC-0052	GEAR COVER
	GB-0052	GEAR BOX HOUSING
62”	GC-0062	GEAR COVER
	GB-0062	GEAR BOX HOUSING

8.2.2 DOUBLE/FRONT DRIVE GEAR BOX



ONLY FOR USE WITH 4” TOOL SLIDES

WITH THE MOTOR ASSEMBLY FROM THE FRONT IT WILL NOT ALLOW A LARGER TOOL SLIDE TO BE ADJUST OUTWARDS

Size	Assembly Part #	Description
6”-24”	GBA-DBL-0624	6”-24” DOUBLE GEAR BOX ASSEMBLY
26”-52”	GBA-DBL-2652	26”-52” DOUBLE GEAR BOX ASSEMBLY

Fig. 34 Split frame double drive gear assembly

DOUBLE/FRONT DRIVE GEAR BOX

Refer to Fig. 34.

ITEM No.	PART No.	QTY	DESCRIPTION

6” – 24” SF Drive Gear Assembly – GBA-DBL-0624

1	GB-DBL-0624	1	DOUBLE GEARBOX
2	GC-DBL-0624	1	DOUBLE GEARBOX COVER
3	GR-0001	2	3” DRIVE GEAR (PNEUMATIC, SQUARE DRIVE)
	GR-0003	2	3” DRIVE GEAR (HYDRAULIC, ROUND DRIVE)
4	SF-0002	4	RETAINING RING
5	HELICAL	4	HELICAL INSERT 3/8-16 X 9/16”
6	SF-0014	2	9/16” SEALED BEARING
7	SF-0015	2	7/16” OPEN BEARING
8	SF-0025	2	BEARING SEAL
9	FHSCS1/4-20Dx1-1/2L	4	FHSCS 1/4-20 X 1-1/2”

26” – 52” SF Drive Gear Assembly – GBA-DBL-2652

1	GB-DBL-2652	1	DOUBLE GEARBOX
2	GC-DBL-2652	1	DOUBLE GEARBOX COVER
3	GR-0002	2	3.7” DRIVE GEAR (PNEUMATIC, SQUARE DRIVE)
	GR-0004	2	3.7” DRIVE GEAR (HYDRAULIC, ROUND DRIVE)
4	SF-0002	4	RETAINING RING
5	HELICAL	4	HELICAL INSERT 3/8-16 X 9/16”
6	SF-0014	2	9/16” SEALED BEARING
7	SF-0015	2	7/16” OPEN BEARING
8	SF-0025	2	BEARING SEAL
9	FHSCS1/4-20Dx1-1/2L	4	FHSCS 1/4-20 X 1-1/2”

8.2.3 RIGHT ANGLE MOTOR GEAR BOX

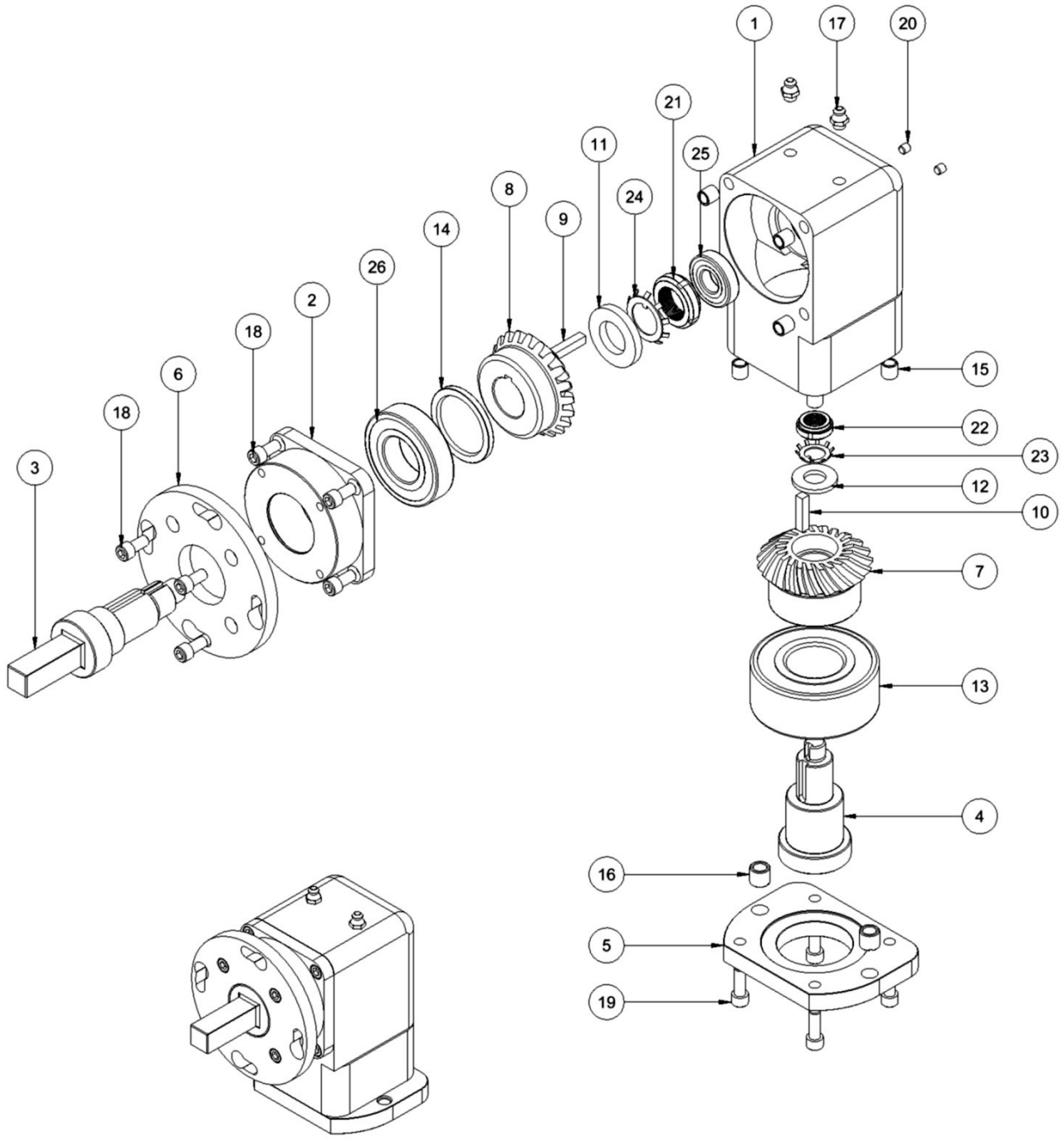


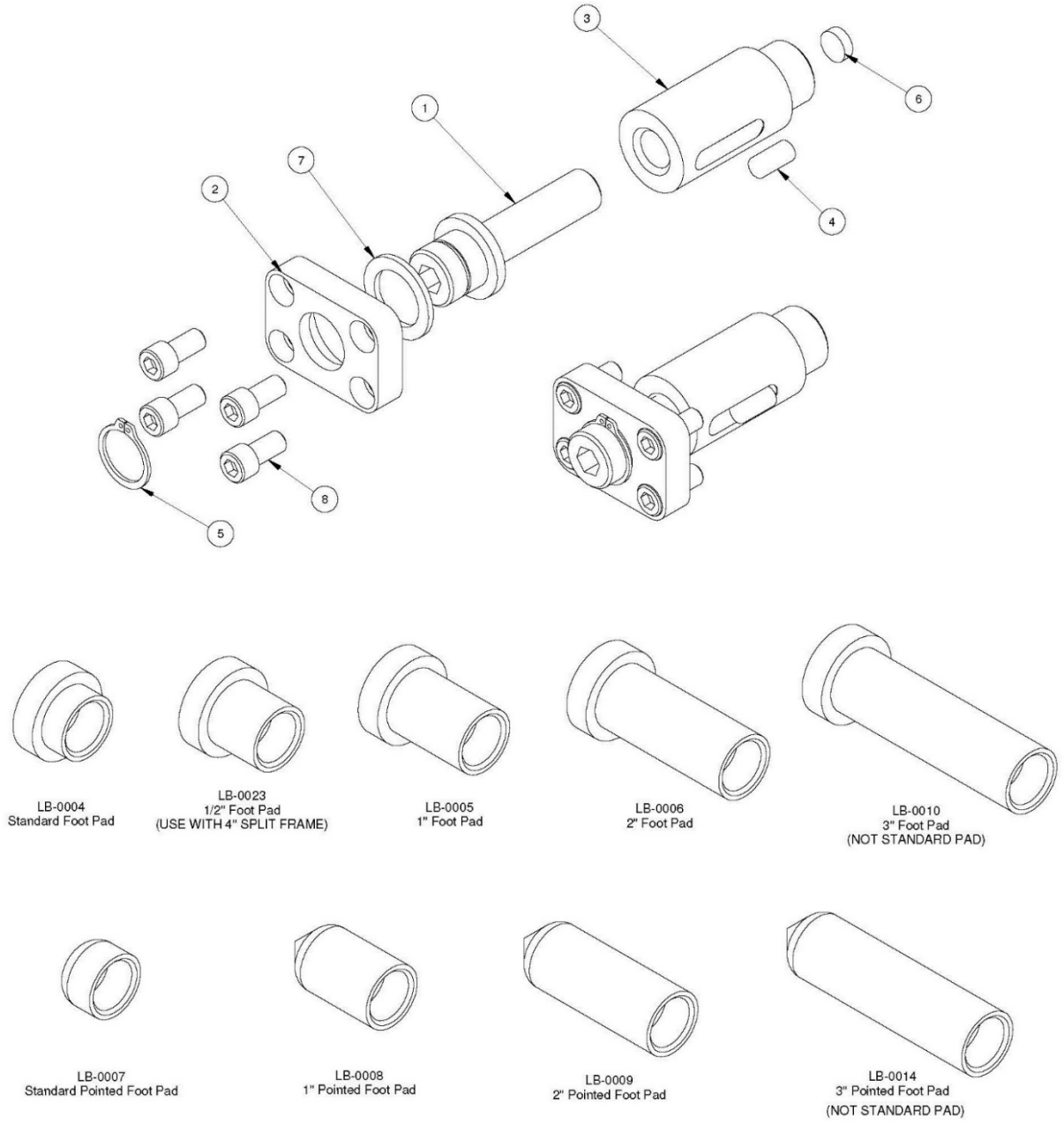
Fig. 35 Right angle gearbox assembly RAGB-1000

RIGHT ANGLE MOTOR GEAR BOX

Refer to Fig. 35.

ITEM No.	PART No.	QTY	DESCRIPTION
1	RAGB-0001	1	GEAR HOUSING
2	RAGB-0002	1	HOUSING COVER
3	RAGB-0003	1	OUTPUT SHAFT
4	RAGB-0004	1	INPUT SHAFT
5	RAGB-0005	1	COVER PLATE
6	RAGB-0006	1	ADAPTER PLATE
7	RAGB-0007	1	SPIRAL MITER GEAR, LEFT HAND
8	RAGB-0008	1	SPIRAL MITER GEAR, RIGHT HAND
9	RAGB-0009	1	KEY 1/4 SQ X 1-1/4”
10	RAGB-0010	1	KEY 1/4 SQ X 1-1/8”
11	RAGB-0011	1	WASHER 1.8 OD
12	RAGB-0012	1	WASHER 1.3 OD
13	RAGB-0013	1	BEARING 90MM OD
14	SEAL	1	RADIAL SEAL SHAFT
15	INSERT	8	THREADED INSERT 5/16-18
16	INSERT	2	THREADED INSERT 3/8-16
17	GREASE FITTING	2	1/8” GREASE FITTING
18	SOCKET HEAD CAP SCREW	8	SHCS 5/16-18 X 5/8L
19	SOCKET HEAD CAP SCREW	4	SHCS 5/18-18 X 7/8L
20	SET SCREW	2	SS 1/4-20 X 1/4 L
21	LOCK NUT	1	LOCK NUT .969-32
22	LOCK NUT	1	LOCK NUT .586-32
23	LOCK WASHER	1	LOCK WASHER
24	LOCK WASHER	1	LOCK WASHER
25	BEARING	1	BEARING 40MM
26	BEARING	1	BEARING 72MM

8.3 LEG BOLT ASSEMBLY & MOUNTING PADS



LB-4000	**Leg Assembly for 4” Split Frames**
LB-1000	**Leg Assembly for 6” – 62” Split Frames**

Fig. 36 Leg Assembly

LEG BOLT ASSEMBLY & MOUNTING PADS

Refer to Fig. 36.

ITEM No.	PART No.	QTY	DESCRIPTION
1	LB-0001	1	LEG BOLT, 6” – 62” SF
	LB-0021	1	LEG BOLT, 4” SF
2	LB-0002	1	LEG RETAINER PLATE
3	LB-0003	1	LEG SUPPORT, 6” – 62” SF
	LB-0022	1	LEG SUPPORT, 4” SF
4	LB-0011	1	KEY, 6” – 62” SF
	LB-0015	1	KEY, 4” SF
5	LB-0012	1	RETAINER CLIP
6	LB-0013	1	MAGNET
7	LB-0016	1	BRASS WASHER
8	SHCS025020X0500	4	SOCKET HEAD CAP SCREW 1/4-20 X 1/2” LONG

MOUNTING FOOT PADS			
	LB-0004	#	STANDARD FLAT FOOT PAD
	LB-0005	#	1” FLAT FOOT PAD
	LB-0006	#	2” FLAT FOOT PAD
	LB-0007	#	STANDARD POINTED FOOT PAD
	LB-0008	#	1” POINTED FOOT PAD
	LB-0009	#	2” POINTED FOOT PAD
OPTIONAL			
	LB-0010	#	3” FLAT FOOT PAD
	LB-0014	#	3” POINTED FOOT PAD
	LB-0023	#	1/2" FLAT FOOT PAD **(SPECIFIC TO 4” SPLIT FRAME)**

Quantity of Foot Pads is specific to Split Frame Size.

Note: 4” – 22” have four (4) leg assemblies
24” – 62” have eight (8) leg assemblies

8.4 TOOL POST ASSEMBLIES

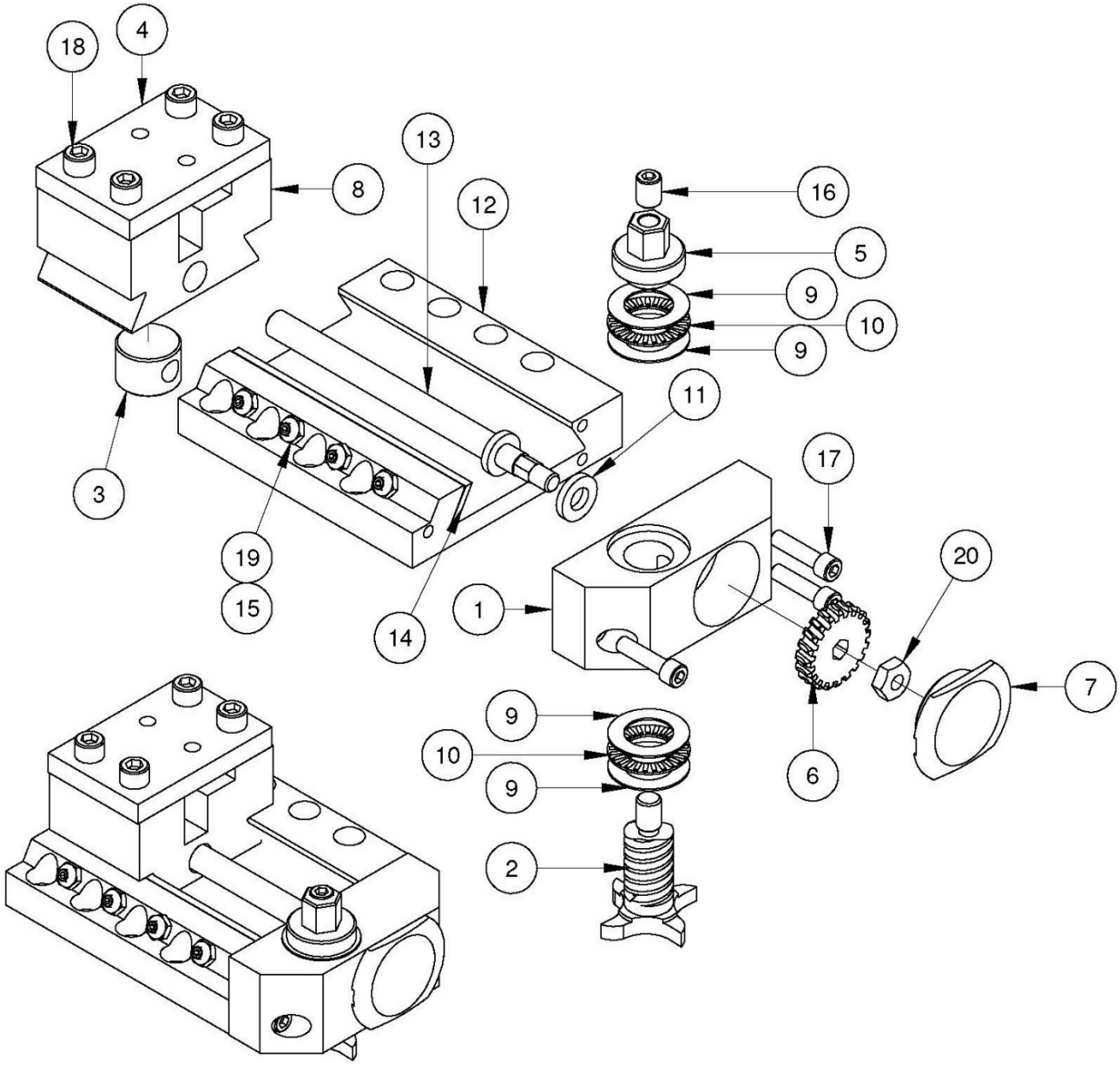


Fig. 37 Standard tool slide assembly

Size	Assembly Part #	Description
4”	TS01-4000	4” TOOL SLIDE ASSEMBLY
5”	TS01-5000	5” TOOL SLIDE ASSEMBLY
6”	TS01-6000	6” TOOL SLIDE ASSEMBLY
10”	TS01-1000	10” TOOL SLIDE ASSEMBLY

8.4.1 STANDARD TOOL POST ASSEMBLIES (4”, 5”, 6” & 10”)

Refer to Fig. 37.

ITEM No.	PART No.	QTY	DESCRIPTION
1	TS-0001	1	GEAR BOX
2	TS-0003	1	STAR WHEEL TRIP CAM
3	TS-0004	1	SLIDE NUT, 7/16-14
4	TS-0007	1	TOOL COVER, TOP HAT
5	TS-0008	1	CAP NUT
6	TS-0009	1	BRASS WORM GEAR
7	TS-0017	1	PLASTIC CAP
8	TS-0021	1	TOOL HOLDER
9	TS-0029	4	WASHER
10	TS-0030	2	NEEDLE BEARING
11	TS-0033	1	BRONZE WASHER
12	TS-0020	1	4” SLIDE BASE
	TS-0002	1	5” SLIDE BASE
	TS-0019	1	6” SLIDE BASE
	TS-0046	1	10” SLIDE BASE
13	TS-0039	1	4” LEADSCREW
	TS-0005	1	5” LEADSCREW
	TS-0037	1	6” LEADSCREW
	TS-0048	1	10” LEADSCREW
14	TS-0041	1	4” GIB
	TS-0034	1	5” GIB
	TS-0042	1	6” GIB
	TS-0044	1	10” GIB
15	SHCS1032X1000	4	SOCKET HEAD CAP SCREW 10-32 X 1” LONG
16	SS037516X0500	1	SET SCREW 3/8”-16 X 1/2" LONG
17	SHCS025020X1000	3	SOCKET HEAD CAP SCREW 1/4"-20 X 1” LONG
18	SHCS031318X0750	4	SOCKET HEAD CAP SCREW 5/16”-18 X 3/4” LONG
19	NUT1032	4	HEX NUT 10-32
20	NUT031318-N	1	NYLOCK NUT 5/16”-18
21*	TS-0018	1	BEVEL AWAY TOP HAT
22*	AETB01-034	1	BEVEL AWAY SPACER

*Not pictured. Additional Items required for Bevel Away applications.

8.4.2 LOW CLEARANCE TOOL SLIDE ASSEMBLY

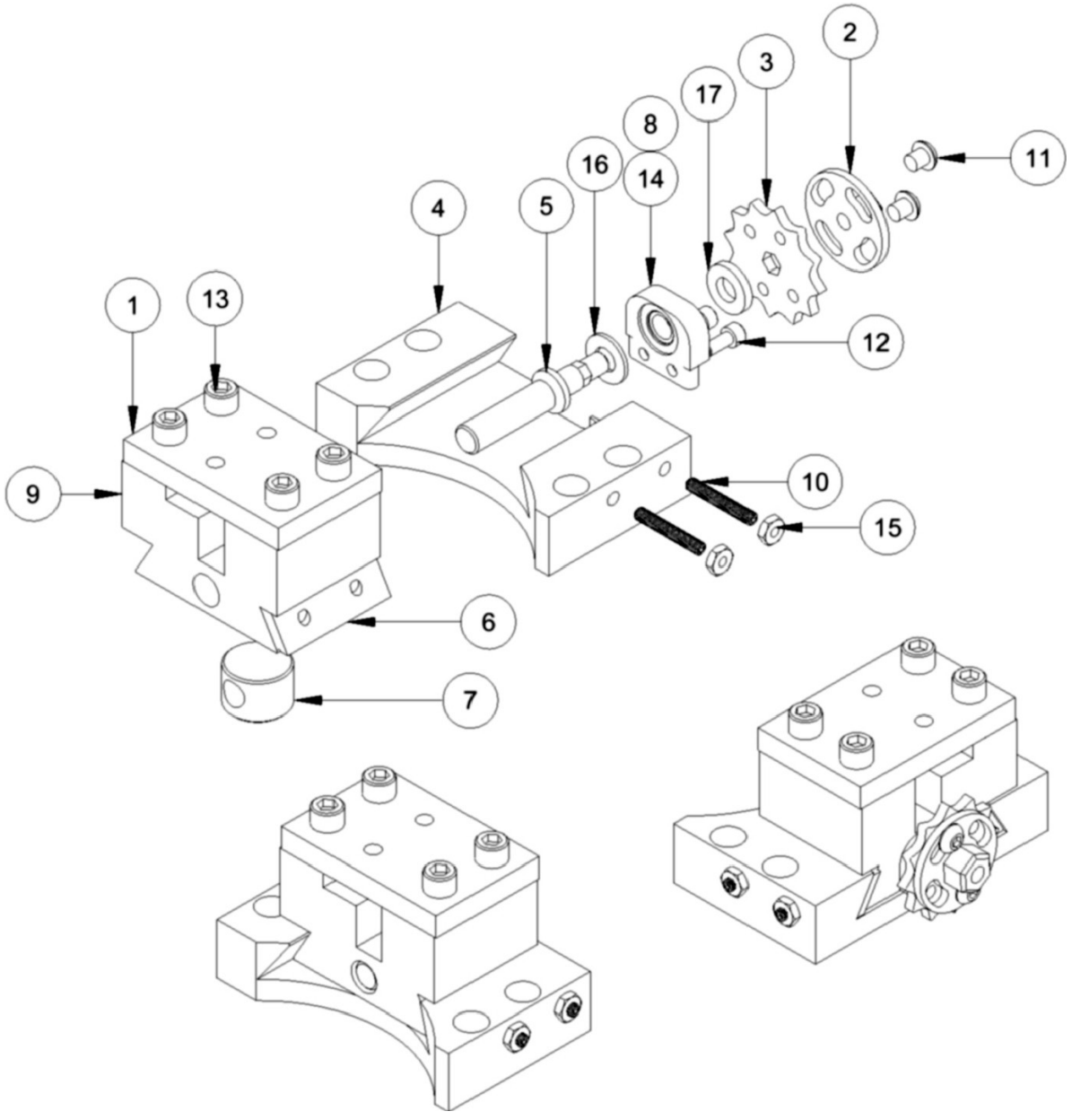


Fig. 38 Low Clearance Tool Slide Assembly TS01-1003

LOW CLEARANCE TOOL SLIDE ASSEMBLY

Refer to Fig. 38

ITEM No.	PART No.	QTY	DESCRIPTION
1	TS-0007	1	TOOL COVER, TOP HAT
2	TS-0061	1	CAP NUT
3	TS-0064	1	STAR WHEEL
4	TS-0065	1	SLIDE BASE
5	TS-0066	1	LEADSCREW, 7/16-40
6	TS-0067	1	GIB
7	TS-0068	1	SLIDE NUT, 7/16-40
8	TS-0069	1	BLOCK
9	TS-0070	1	TOOL HOLDER
10	SS1032X1250	2	SET SCREW 10-32 X 1-1/4” LONG
11	BHCS025020X0250	2	BUTTON HEAD CAP SCREW 1/4”-20 X 1/4” LONG
12	SHCS1032X0438	2	SOCKET HEAD CAP SCREW 10-32 X 7/16” LONG
13	SHCS031318X0750	4	SOCKET HEAD CAP SCREW 5/16”-18 X 3/4” LONG
14	BEARING0375X0500X0250	1	BRONZE BEARING, 3/8” SHAFT, 1/4" THK
15	NUT1032	2	HEX NUT 10-32
16	BEARING0375X0750X0063	1	BRONZE BEARING, 3/8” SHAFT, 1/16” THK
17	BEARING0375X0750X0125	1	BRONZE BEARING, 3/8” SHAFT, 1/8” THK

8.4.3 HEAVY WALL TOOL SLIDE ASSEMBLY

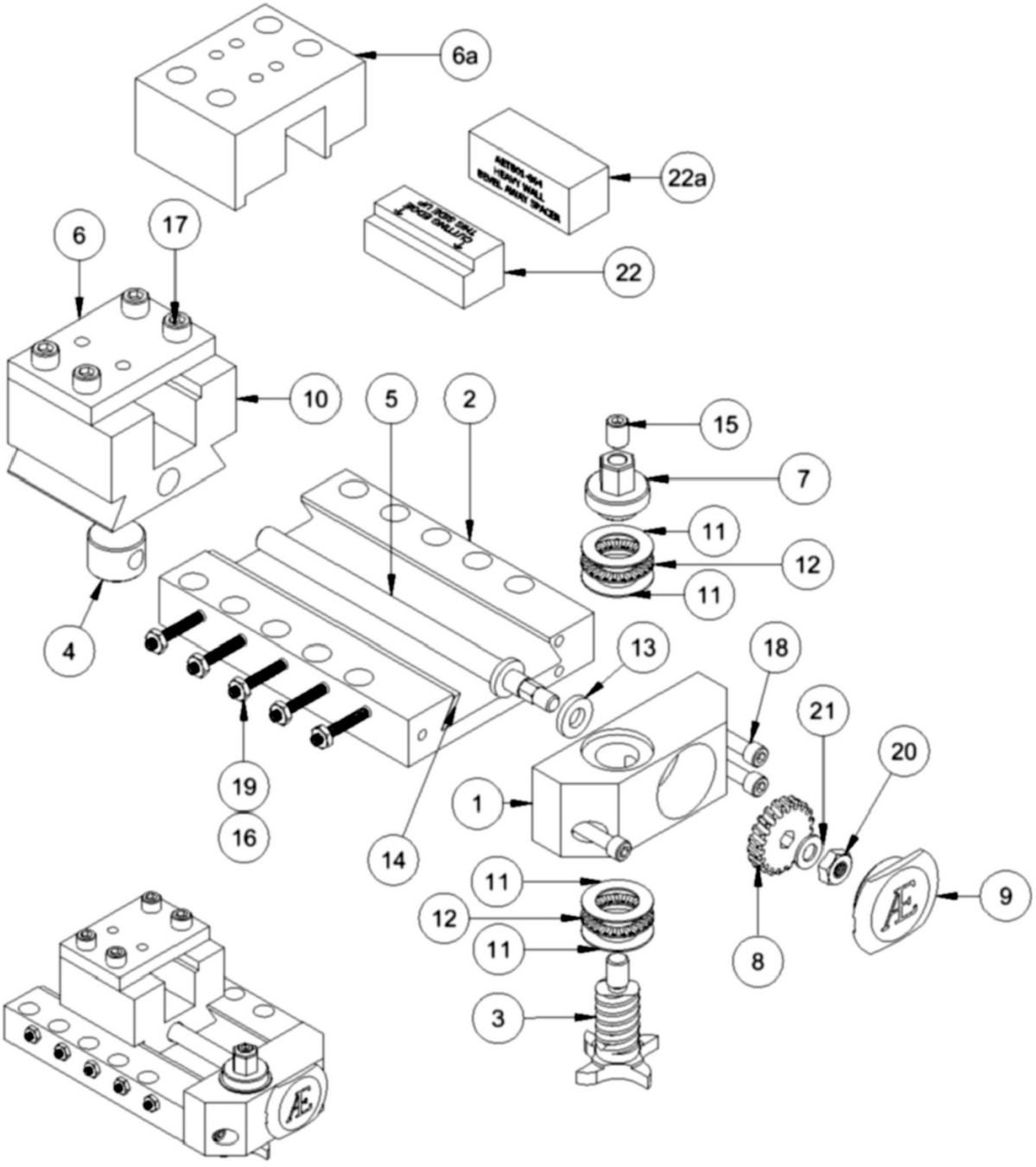


Fig.39 Heavy wall 6" tool slide assembly TS01-6001

HEAVY WALL 6” TOOL SLIDE ASSEMBLY TS01-6001

Refer to Fig. 39.

ITEM No.	PART No.	QTY	DESCRIPTION
1	TS-0001	1	GEAR BOX
2	TS-0019	1	6” SLIDE BASE
3	TS-0003	1	STAR WHEEL TRIP
4	TS-0004	1	SLIDE NUT, 7/16-14
5	TS-0037	1	6” LEADSCREW
6	TS-0007	1	TOOL COVER, TOP HAT
6a	TS-0057*	1	TOOL COVER, TOP HAT, HEAVY WALL
7	TS-0008	1	CAP NUT
8	TS-0009	1	BRASS WORM GEAR
9	TS-0017	1	PLASTIC CAP
10	TS-0055	1	TOOL HOLDER, HEAVY WALL
11	TS-0029	4	WASHER
12	TS-0030	2	NEEDLE BEARING
13	TS-0033	1	BRONZE WASHER
14	TS-0042	1	6” GIB
15	SS3/8-16Dx1/2L	1	SET SCREW 3/8-16 X 1/2"
16	SHCS1032X1000	4	SOCKET CAP SCREW 10-32 X 1”
17	SHCS5/16-18Dx3/4L	4	SHCS 5/16-18 X 3/4"
18	SHCS1/4-20Dx1L	3	SHCS 1/4-20 X 1”
19	HEXNUT10-32	4	HEX NUT 10-32
20	NYLOCKNUT5/16-18	1	NYLOCK NUT 5/16-18
21	WASHER5/16x5/8	1	WASHER 5/16” ID x 5/8” OD
22	TS-0056*	1	SEVER INSERT, HEAVY WALL
22a	AETB01-064*	1	BEVEL AWAY INSERT, HEAVY WALL

*Additional Items required for Sever and Bevel Away applications.

8.4.4 WIDE HOLDER TOOL SLIDE ASSEMBLY

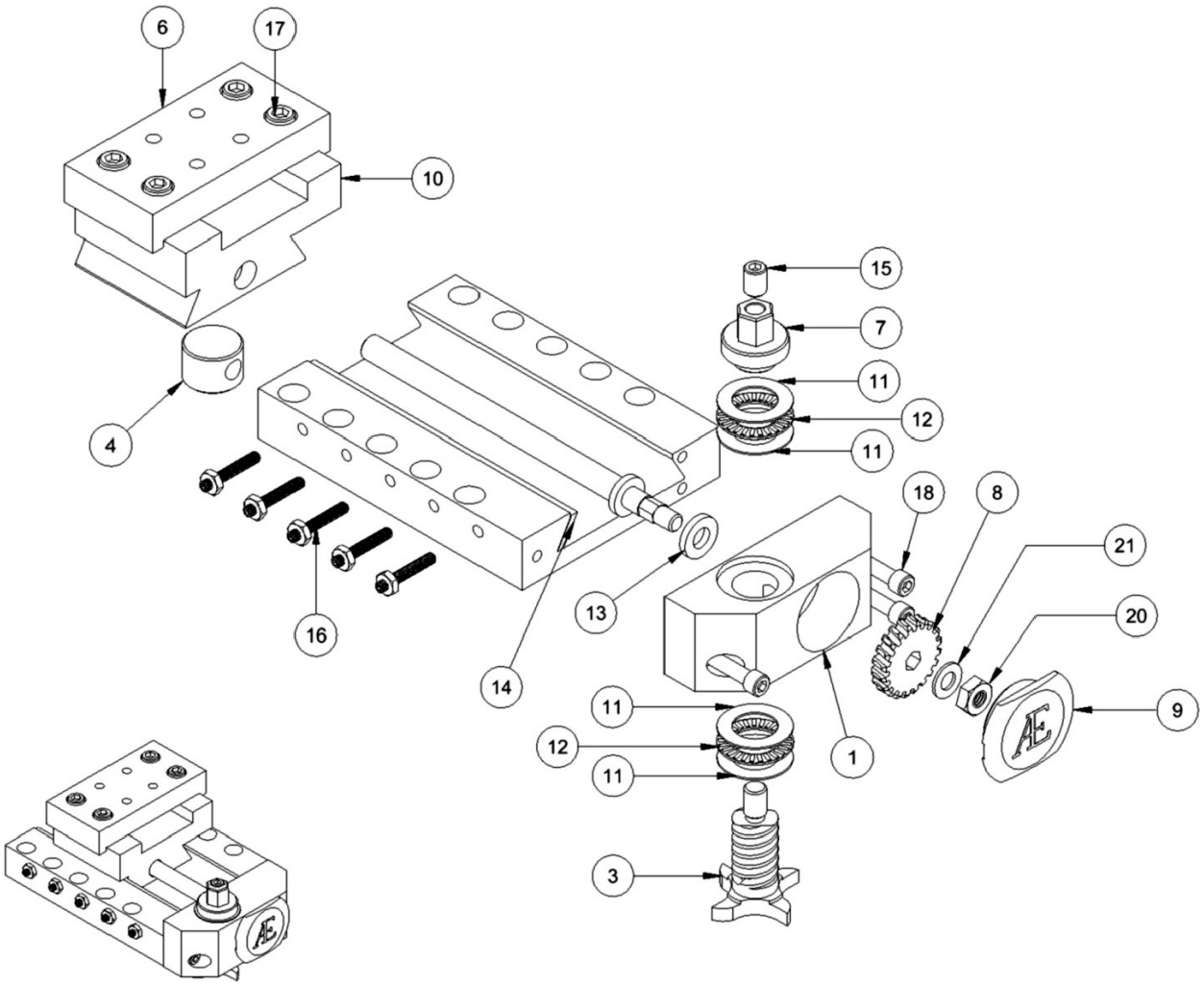


Fig. 40 Wide tool slide assembly TS01-6003

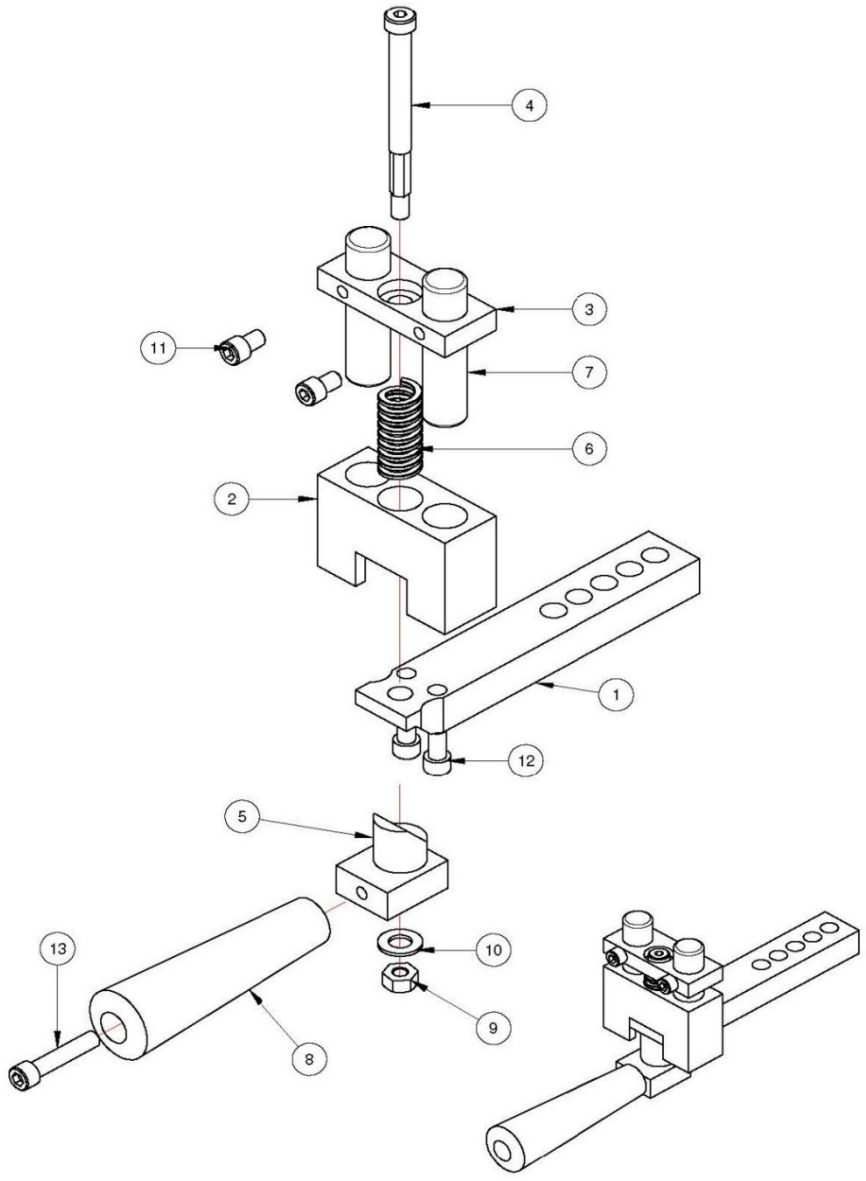
WIDE TOOL SLIDE ASSEMBLY TS01-6003

Refer to Fig. 40.

ITEM No.	PART No.	QTY	DESCRIPTION
1	TS-0001	1	GEAR BOX
2	TS-0019	1	6” SLIDE BASE
3	TS-0003	1	STAR WHEEL TRIP
4	TS-0004	1	SLIDE NUT, 7/16-14
5	TS-0037	1	6” LEADSCREW
6	TS-0018	1	WIDE TOOL COVER, TOP HAT
7	TS-0008	1	CAP NUT
8	TS-0009	1	BRASS WORM GEAR
9	TS-0017	1	PLASTIC CAP
10	TS-0015	1	WIDE TOOL HOLDER
11	TS-0029	4	WASHER
12	TS-0030	2	NEEDLE BEARING
13	TS-0033	1	BRONZE WASHER
14	TS-0042	1	6” GIB
15	SS3/8-16Dx1/2L	1	SET SCREW 3/8-16 X 1/2"
16	SHCS1032X1000	4	SOCKET CAP SCREW 10-32 X 1”
17	SHCS5/16-18Dx3/4L	4	SHCS 5/16-18 X 3/4"
18	SHCS1/4-20Dx1L	3	SHCS 1/4-20 X 1”
19	HEXNUT10-32	4	HEX NUT 10-32
20	NYLOCKNUT5/16-18	1	NYLOCK NUT 5/16-18
21	WASHER5/16x5/8	1	WASHER 5/16” ID x 5/8” OD

8.5 TRIP ASSEMBLIES

8.5.1 STANDARD TRIP ASSEMBLY



Size	Assembly Part #	Description
4”	TR01-1004	4” TRIP ASSEMBLY
5”	TR01-1005	5” TRIP ASSEMBLY
6”	TR01-1006	6” TRIP ASSEMBLY
10”	TR01-1000	10” TRIP ASSEMBLY

Fig. 41 Standard trip assembly

STANDARD TRIP ASSEMBLY

Refer to Fig. 41.

ITEM No.	PART No.	QTY	DESCRIPTION
1	ST-0013	1	4” TRIP ARM
	ST-0001	1	5” TRIP ARM
	ST-0014	1	6” TRIP ARM
	ST-0015	1	10” TRIP ARM
2	ST-0002	1	TRIP HEAD
3	ST-0003	1	FACE PLATE
4	ST-0004	1	PULL PIN
5	ST-0005	1	SWING ARM
6	ST-0006	1	DIE SPRING
7	ST-0007	2	TRIP DOWEL PIN
8	ST-0008	1	PLASTIC HANDLE
9	HEXNUT1/4-20	1	HEX NUT 1/4-20
10	WASHER5/16x5/8x.052	1	FLAT WASHER 5/16” SCREW X 5/8” OD
11	SHCS025020X0375	1	SOCKET CAP SCREW 1/4"-20 X 3/8” LONG
12	SHCS025020X0500	2	SOCKET CAP SCREW 1/4"-20 X 1/2" LONG
13	SHCS025020X1250	2	SOCKET CAP SCREW 1/4”-20 X 1-1/4” LONG

8.5.2 LOW CLEARANCE TRIP ASSEMBLY

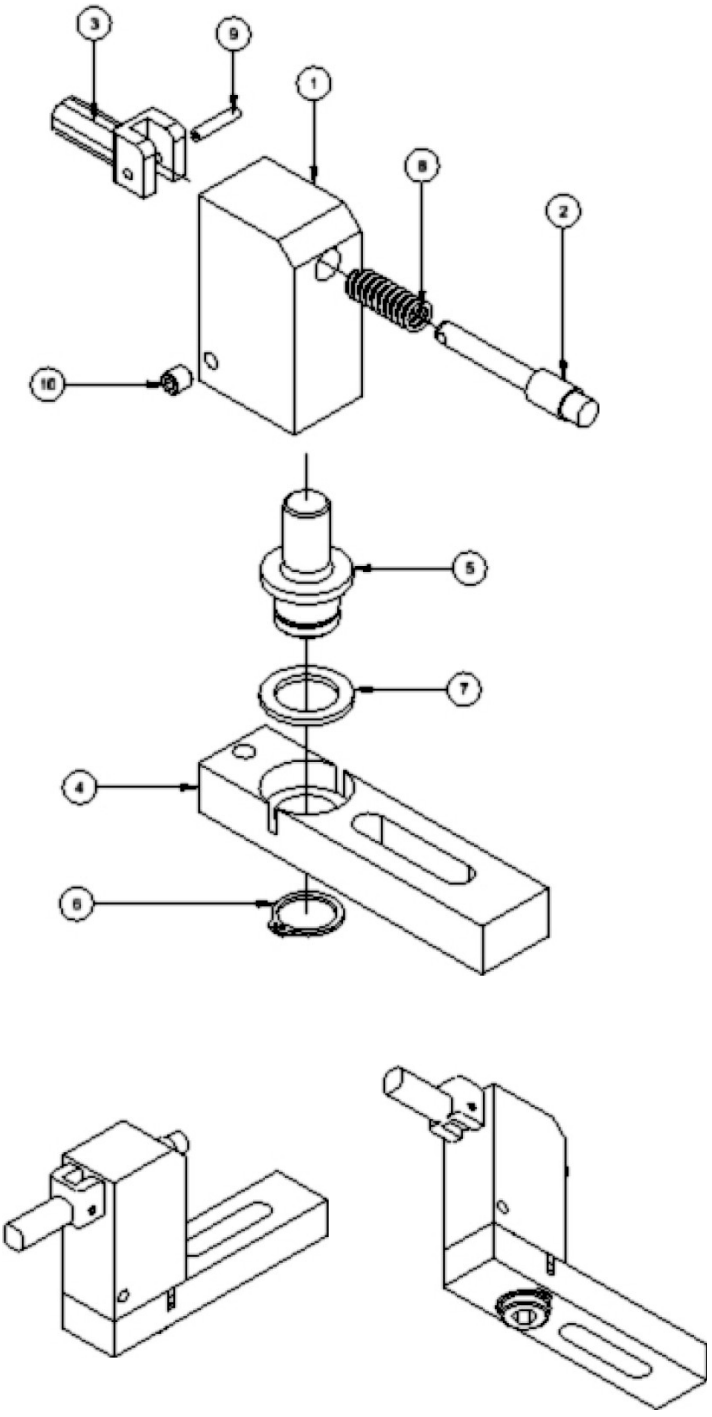


Fig. 42 Low clearance trip assembly TR01-1003

LOW CLEARANCE TRIP ASSEMBLY TR01-1003

Refer to Fig. 42.

ITEM No.	PART No.	QTY	DESCRIPTION
1	ST-0021	1	TRIP BODY
2	ST-0022	1	TRIP PIN
3	ST-0023	1	HANDLE
4	ST-0024	1	TRIP ARM
5	ST-0025	1	ADJUSTMENT BOLT
6	LB-0012	1	RETAINER CLIP
7	LB-0016	1	BRASS WASHER
8	SPRING1.0	1	1” FREE LENGTH SPRING
9	SPRINGPIN1/8	1	1/8” SLOTTED SPRING PIN
10	SS1/4-20Dx1/4L	1	SET SCREW 1/4-20 X 1/4"

8.5.3 PNEUMATIC TRIP ASSEMBLY

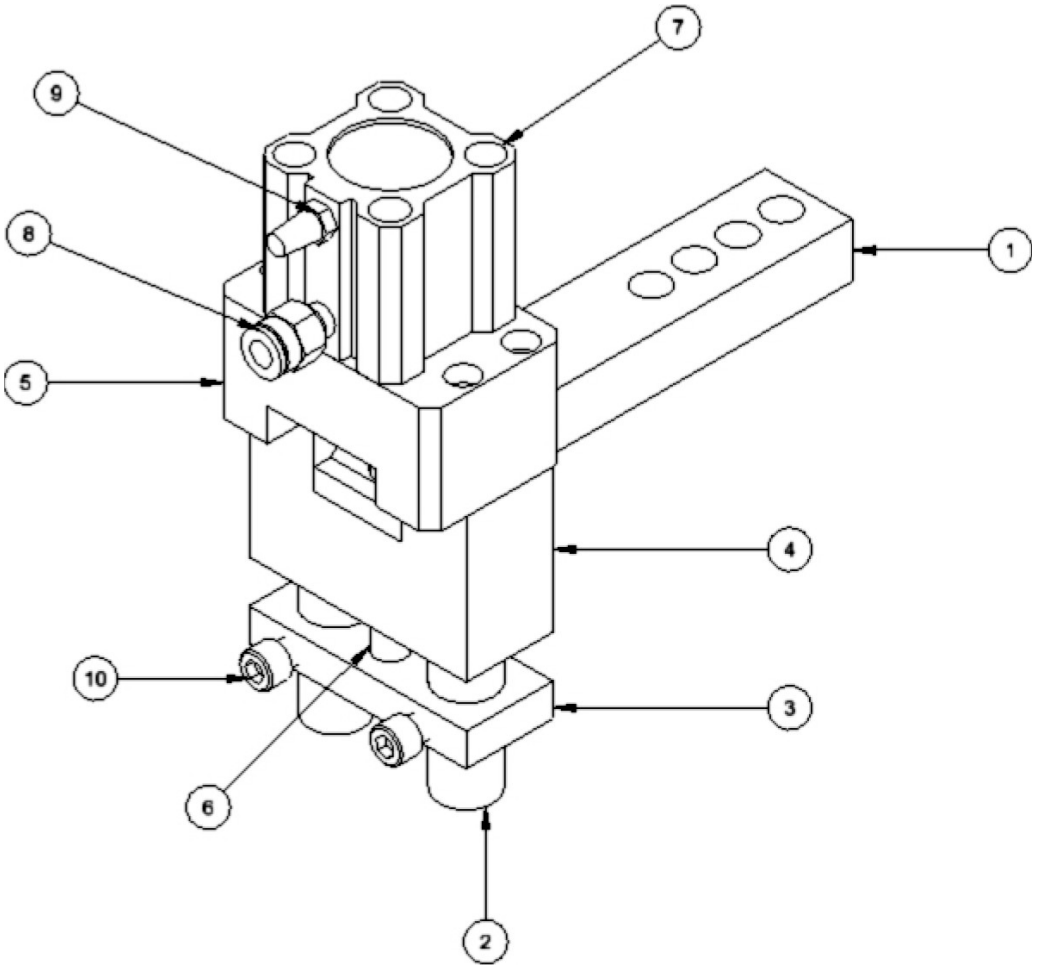


Fig. 43 Pneumatic (air) trip assembly AT-1000

PNEUMATIC (AIR) TRIP ASSEMBLY AT-1000

Refer to Fig. 43.

ITEM No.	PART No.	QTY	DESCRIPTION
1	ST-0013	1	4” TRIP ARM
2	ST-0007	2	TRIP DOWEL PIN
3	ST-0003	1	FACE PLATE
4	AT-0001	1	TRIP HEAD
5	AT-0002	1	ADAPTER PLATE
6	AT-0003	1	PULL PIN
7	AT-0004	1	VALVE BLOCK
8	RV-1019	1	STRAIGHT FITTING, 1/4-20 X 10-32
9	RV-1020	1	MUFFLER, 10-32
10	SHCS1/4-20x3/8L	2	SHCS 1/4-20 X 3/8 L

8.5.4 OUT OF ROUND TRIP ASSEMBLY OR-1001

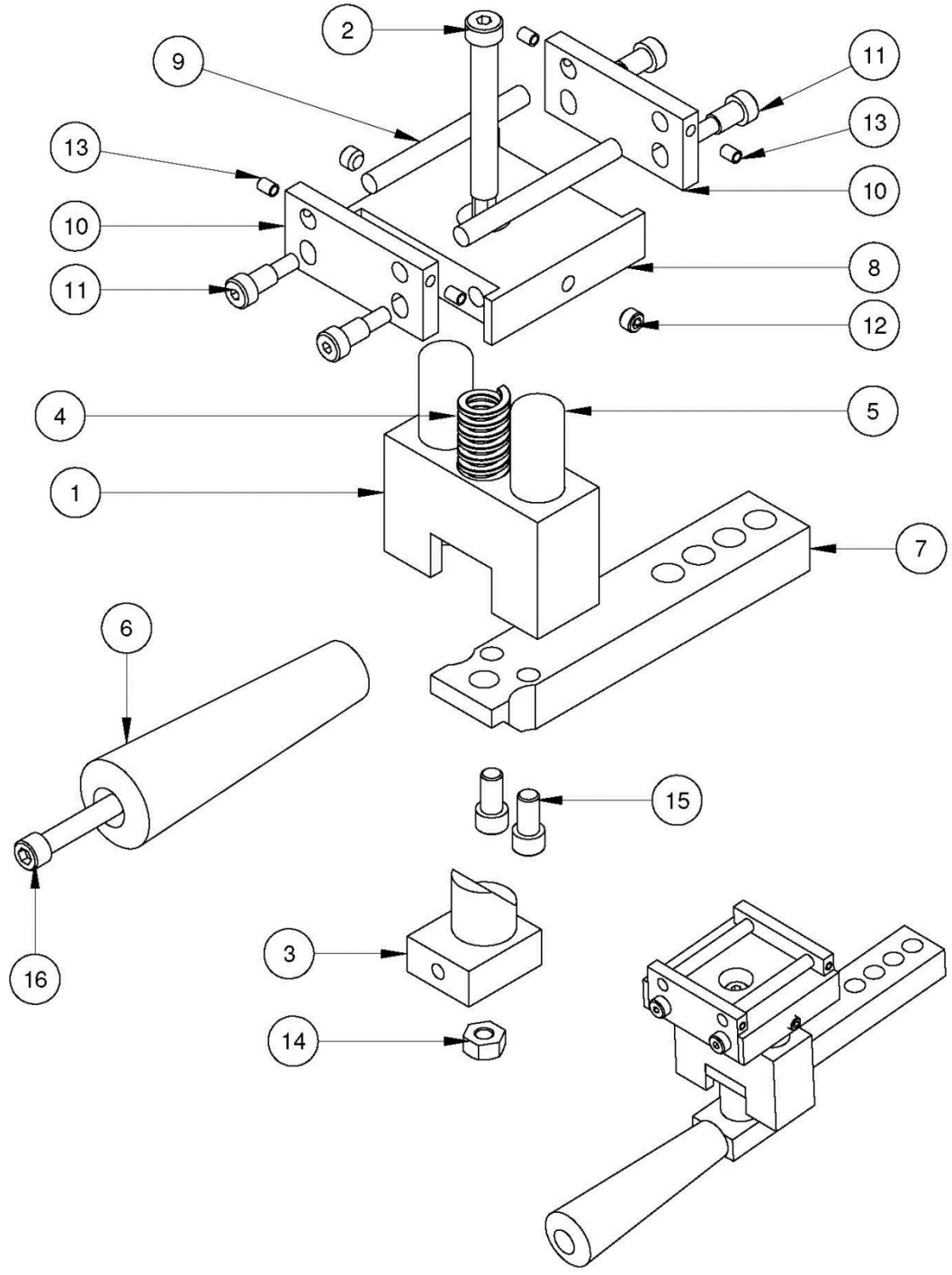


Fig. 44 Out of Round Trip Assembly

OUT OF ROUND TRIP ASSEMBLY OR-1001

Refer to Fig. 44.

ITEM No.	PART No.	QTY	DESCRIPTION
1	ST-0002	1	TRIP HEAD
2	ST-0004	1	PULL PIN
3	ST-0005	1	SWING ARM
4	ST-0006	1	DIE SPRING
5	ST-0007	2	DOWEL TRIP PIN
6	ST-0008	1	PLASTIC HANDLE
7	ST-0013	1	TRIP ARM, 4”
8	OR-0018	1	TRIP FACE PLATE
9	OR-0019	2	TRIP PIN
10	OR-0038	2	TRIP PIN HOLDER
11	SHSCS1024X0375S	4	SHOLDER CAP SCREW 10-24 X 3/8” L SHOULDER
12	SS025020X0188	2	SET SCREW 1/4”-20 X 3/16”
13	SS1024X0250	4	SET SCREW 10-24 X 1/4” L
14	NUT025020	1	HEX NUT 1/4"-20
15	SHCS025020X0500	2	SOCKET HEAD CAP SCREW 1/4"-20 X 1/2" LONG
16	SHCS025020X1250	1	SOCKET HEAD CAP SCREW 1/4"-20 X 1-1/4” LONG

8.6 SPECIALTY ATTACHMENTS

8.6.1 COUNTER BORE ATTACHMENT ASSEMBLY

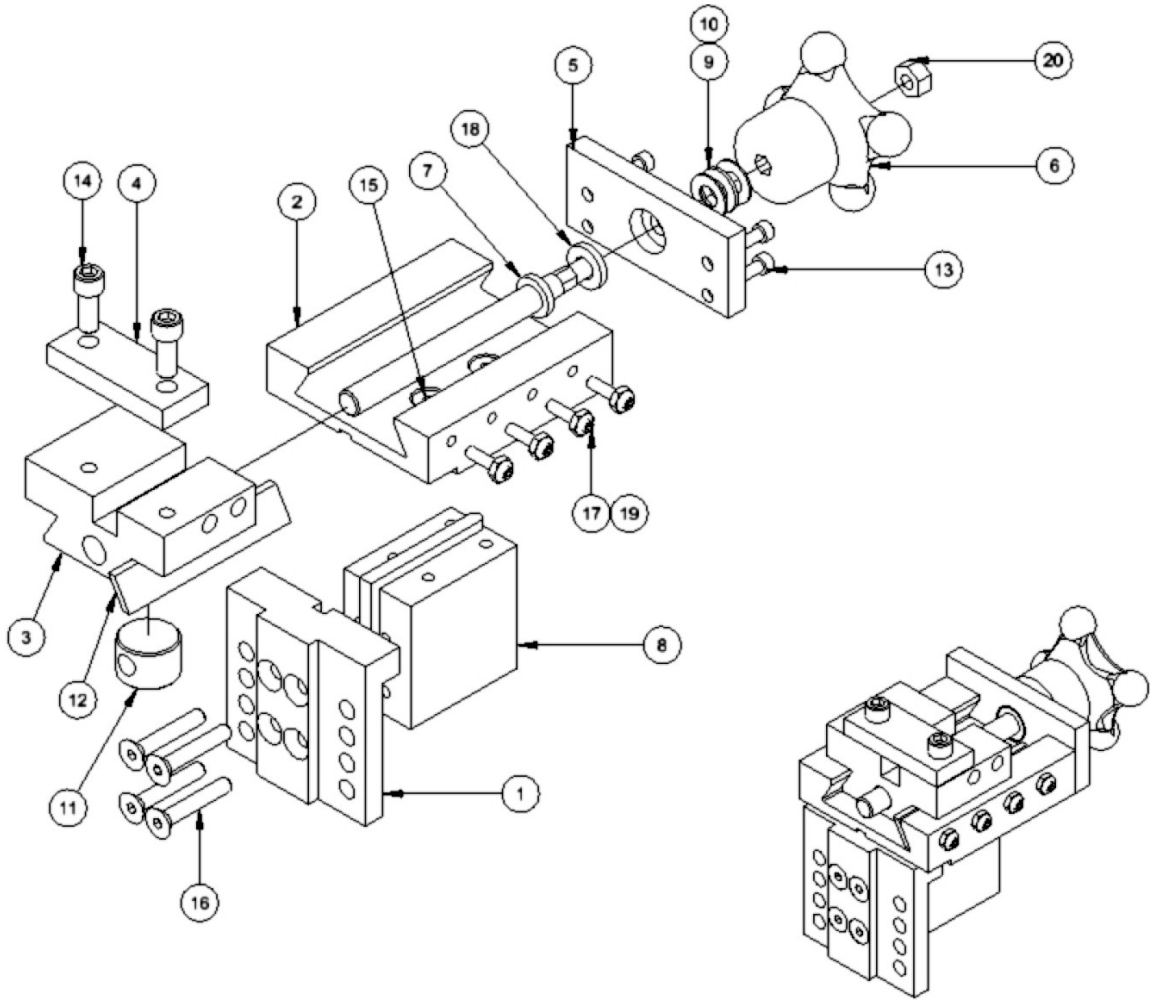


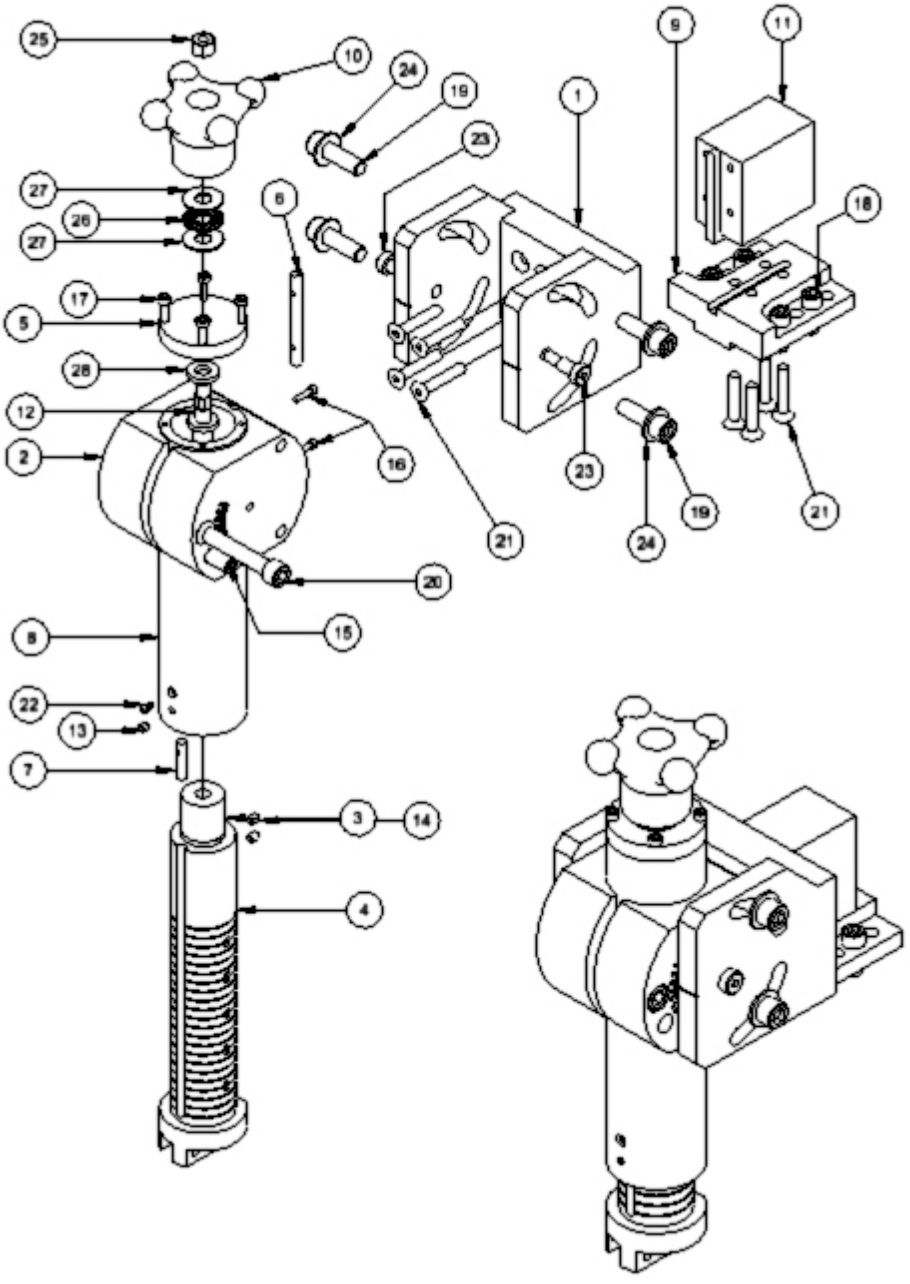
Fig.45 Counter bore attachment assembly
CB01-4000

COUNTER BORE ATTACHMENT ASSEMBLY CB01-4000

Refer to Fig. 45.

ITEM No.	PART No.	QTY	DESCRIPTION
1	CB-0001	1	BASE
2	CB-0002	1	SLIDE PLATE
3	CB-0003	1	TOOL HOLDER
4	CB-0004	1	TOP HAT
5	CB-0005	1	PRESSURE PLATE
6	CB-0006	1	HANDLE
7	CB-0008	1	LEADSCREW 7/16-14
8	CB-0012	1	GUSSET BLOCK
9	CB-0021	1	NEEDLE THRUST BEARING 3/8
10	CB-0022	2	NEEDLE THRUST WASHER 3/8
11	TS-0004	1	SLIDE NUT, 7/16-14
12	TS-0041	1	GIB, 4”
13	SHCS10-32x5/8L	4	SHCS 10-32 X 5/8
14	SHCS5/16-18x3/4L	2	SHCS 5/16-18 X 3/4
15	FHSCS1/4-20x3/4L	4	FHSCS 1/4-20 X 3/4
16	FHSCS1/4-20x1-1/2L	4	FHSCS 1/4-20 X 1-1/2
17	SS10-32x7/8L	4	SS 10-32 X 7/8
18	BEARING3/8SHAFT	1	BRONZE THRUST BEARING 3/8
19	NUT10-32	4	HEX NUT 10-32
20	NUT5/16-18	1	HEX NUT 5/16-18

8.6.2 SWIVEL COUNTER BORE ATTACHMENT ASSEMBLY



Size	Assembly Part #	Description
4”	SCB-2000	4” SWIVEL C-BORE
8”	SCB-1000	8” SWIVEL C-BORE

Fig. 46 Swivel counter bore attachment assembly

SWIVEL COUNTER BORE ATTACHMENT ASSEMBLY

Refer to Fig. 46.

ITEM No.	PART No.	QTY	DESCRIPTION
1	SCB-0001	1	BASE
2	SCB-0002	1	SWIVEL BLOCK
3	SCB-0003	1	BRASS NUT
4	SCB-0005	1	4” TOOL HOLDER BAR
	SCB-0006	1	8” TOOL HOLDER BAR
5	SCB-0007	1	CAP
6	SCB-0008	1	DOWEL PIN 2-1/2 LONG
7	SCB-0009	1	DOWEL PIN 1 LONG
8	SCB-0004	1	4” TOOL HOLDER HOUSING
	SCB-0010	1	8” TOOL HOLDER HOUSING
9	CB-0001	1	BASE
10	CB-0006	1	HANDLE
11	CB-0012	1	GUSSET BLOCK
12	TS-0005	1	LEADSCREW, 5”
	TS-0037	1	LEADSCREW, 6”
13	SS10-32x3/16L	1	SET SCREW 10-32 X 3/16
14	SS10-32x1/4L	2	SET SCREW 10-32 X 1/4
15	SS3/8-16x1L	1	SET SCREW 3/8-16 X 1
16	SHCS5-40x1/2L	2	SHCS 5-40 X 1/2
17	SHCS8-32x3/4L	4	SHCS 8-32 X 3/4
18	SHCS5/16-18x3/4L	4	SHCS 5/16-18 X 3/4
19	SHCS3/8-16x1-1/8L	4	SHCS 3/8-16 X 1-1/8
20	SHCS3/8-16x2L	1	SHCS 3/8-16 X 2
21	FHSCS1/4-20x1-3/8L	8	FLAT HEAD SCS 1/4-20 X 1-3/8
22	BHSCS5-40x1/4L	1	BUTTON HEAD SCS 5-40 X 1/4
23	SHSCS1/4-20x1/2LSH	2	SHOULDER SHCS 1/4-20 X 1/2L SHOLDER
24	WASHER3/8x1/16T	4	WASHER 3/8 ID X 1/16 THK
25	NUT5/16-18	1	NUT 5/16-18
26	BEARING10mm	1	NEEDLE THRUST BEARING 10mm
27	WASHER10mm	2	NEEDLE THRUST WASHER 10mm
28	BEARING3/8	1	BRONZE THRUST BEARING 3/8 ID

8.6.3 AXIAL FEED ATTACHMENT ASSEMBLY

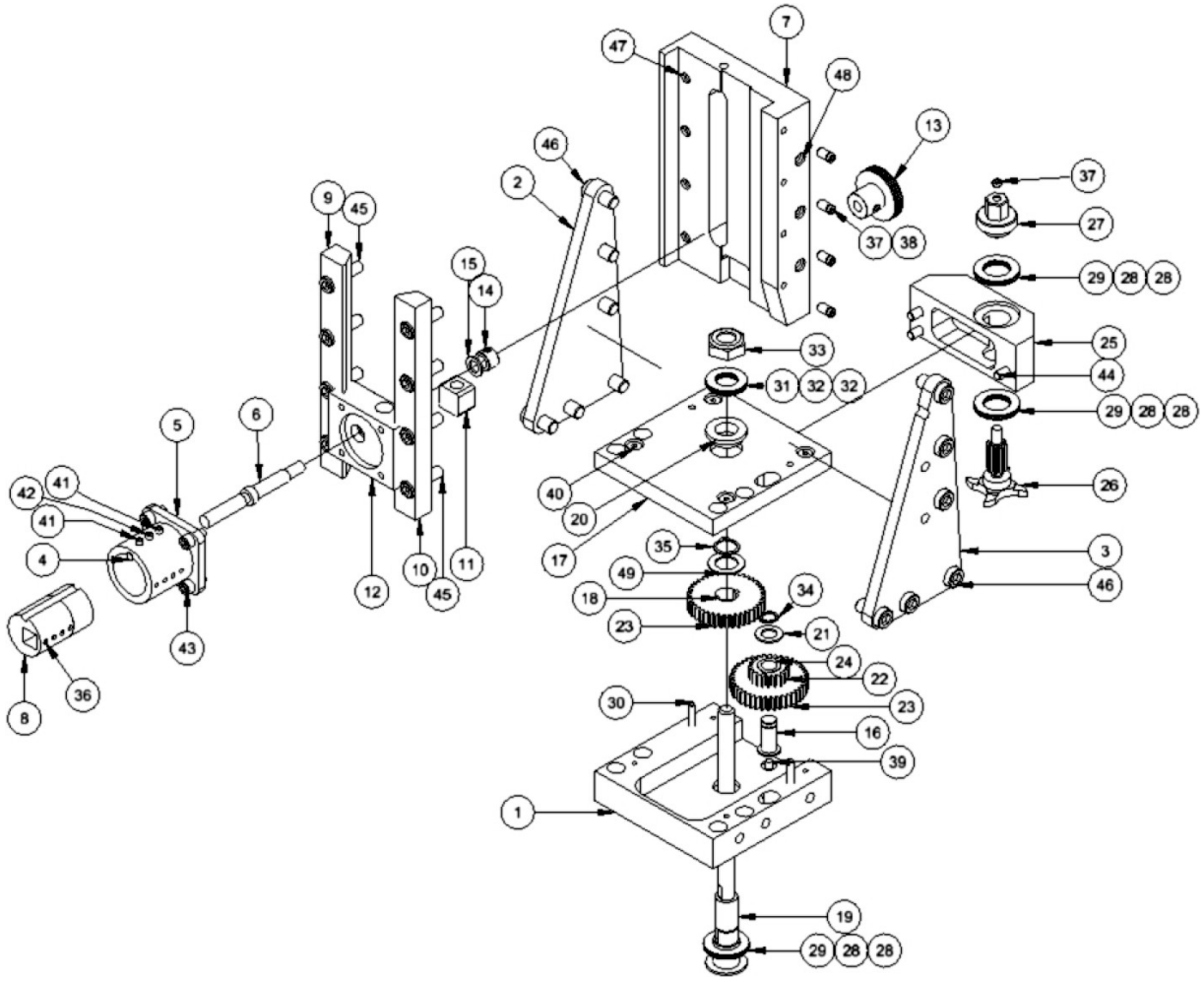


Fig. 47 Axial feed attachment assembly
AF-1000

AXIAL FEED ATTACHMENT ASSEMBLY AF-1000

Refer to Fig. 47.

ITEM No.	PART No.	QTY	DESCRIPTION
1	AF-1101	1	MOUNTING BASE
2	AF-1001	1	BRACKET, LEFT
3	AF-1002	1	BRACKET, RIGHT
4	AF-1003	1	RADIAL FEED KEY
5	AF-1004	1	RADIAL TOOL SLIDE
6	AF-1005	1	RADIAL FEED SCREW
7	AF-1006	1	AXIAL FEED SLIDE
8	AF-1007	1	TOOL HOLDER
9	AF-1008	1	FIXED DOVETAIL RAIL
10	AF-1009	1	ADJUSTABLE DOVETAIL RAIL
11	AF-1010	1	AXIAL FEED NUT, 7/16-14
12	AF-1011	1	AXIAL TOOL SLIDE
13	AF-1012	1	KNOB, 1-1/2 DIAM
14	AF-1013	1	3/8 SHAFT COLLAR ASSY
15	AF-1014	1	3/8 THRUST WASHER
16	AF-1102	1	CHANGE GEAR SHAFT
17	AF-1103	1	BASE COVER
18	AF-1104	2	KEY, 1/8 X 1/8 X 5/16
19	AF-1105	1	AXIAL FEED SCREW
20	AF-1106	1	BEARING, 5/8 ID
21	AF-1107	1	BRASS WASHER, 7/16 ID
22	AF-1108	1	SPUR GEAR, 20T
23	AF-1109	2	SPUR GEAR, 40T
24	AF-1110	1	CHANGE GEAR BUSHING
25	AF-1201	1	GEARBOX HOUSING
26	AF-1202	1	STAR WHEEL GEAR SHAFT
27	AF-1203	1	CAP NUT
28	TS-0029	6	WASHER, 3/4
29	TS-0030	3	NEEDLE THRUST BEARING, 3/4
30	DP3/16Dx1-1/8L	2	DOWEL PIN 3/16 DIAM X1-1/8L
31	NB5/8SHAFT	1	NEEDLE THRUST BEARING, 5/8
32	W5/8SHAFT	2	WASHER, 5/8
33	LOCKNUT5/8-11	1	LOCKNUT 5/8-11
34	RR7/16	1	EXT. RETAINING RING, 7/16 SHAFT DIA
35	RR5/8	1	EXT. RETAINING RING, 5/8 SHAFT DIA
36	SS10-32x1/8L	4	SET SCREW 10-32 X 1/8
37	SS1/4-20x1/8L	5	SET SCREW 1/4-20 X 1/8
38	SS1/4-20x3/8L	4	SET SCREW 1/4-20 X 3/8
39	FHSCS10-24x1/2L	1	FLAT HEAD SHCS 10-24 X 1/2
40	FHSCS10-24x5/8L	4	FLAT HEAD SHCS 10-24 X 5/8

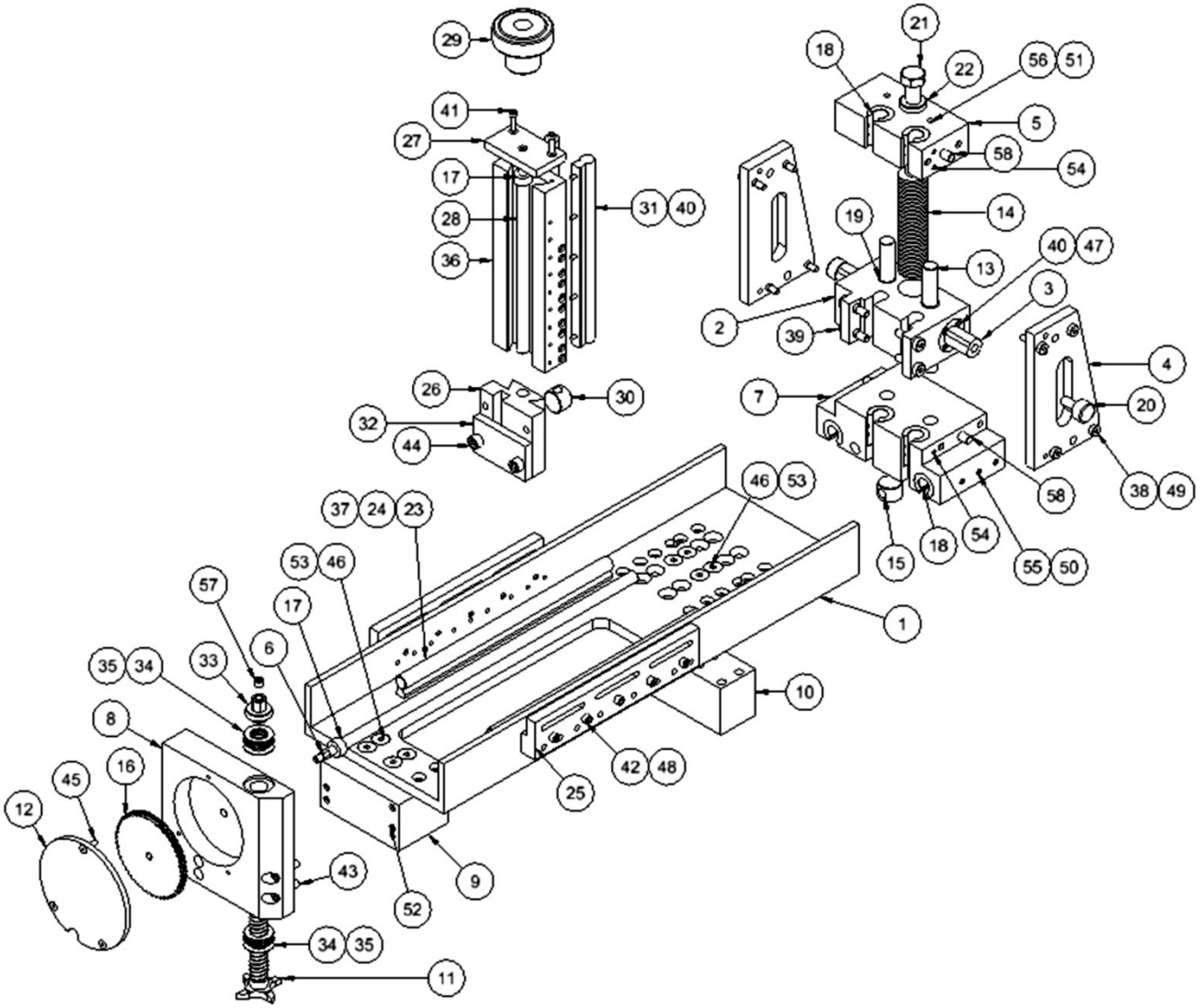
CONTINUED ON NEXT PAGE

ITEM No.	PART No.	QTY	DESCRIPTION

CONTINUED FROM PREVIOUS PAGE

41	SHCS5-40x3/16L	SHCS 5-40 X 3/16
42	SHCS5-40x1/4L	SHCS 5-40 X 1/4
43	SHCS1/4-20x1/2L	SHCS 1/4-20 X 1/2
44	SHCS1/4-20x1L	SHCS 1/4-20 X 1
45	SHCS5/16-18x1L	SHCS 5/16-18 X 1
46	SHCS3/8-16x5/8L	SHCS 3/8-16 X 5/8
47	HELICAL	HELICAL INSERT 5/16-18 X 5/8
48	HELICAL	HELICAL INSERT 3/8-16 X 3/8
49	SHIM5/8	BRASS SHIM 5/8 ID X 1 OD X .045 THK

8.6.4 BRIDGE SLIDE ATTACHMENT ASSEMBLY



Size	Assembly Part #	Description
12” – 16”	BS1216	Bridge Slide Attachment for 12” – 16” SF
18” – 24”	BS1824	Bridge Slide Attachment for 18” – 24” SF
26” – 30”	BS2630	Bridge Slide Attachment for 26” – 30” SF
32” – 36”	BS3236	Bridge Slide Attachment for 32” – 36” SF

Fig. 48 Bridge slide attachment assembly

BRIDGE SLIDE ATTACHMENT ASSEMBLY

Refer to Fig. 48.

ITEM No.	PART No.	QTY	DESCRIPTION
1	BDS-0091	1	BRIDGE RAIL, 8” – 10”
	BDS-0092	1	BRIDGE RAIL, 12” – 16”
	BDS-0093	1	BRIDGE RAIL, 18” – 24”
	BDS-0094	1	BRIDGE RAIL, 26” – 30”
	BDS-0095	1	BRIDGE RAIL, 32” – 36”
2	BDS-0001	1	CENTER HOUSING
3	BDS-0002	2	TRACK FOLLOWER, EXT ARM
4	BDS-0003	2	SIDE PLATE
5	BDS-0004	1	TOP SUPPORT
6	BDS-0005	1	LEADSCREW 1/2-13, LEFT HAND
7	BDS-0006	1	BOTTOM SUPPORT
8	BDS-0007	1	GEAR BOX
9	BDS-0008	1	BRIDGE MOUNT, STATIONARY
10	BDS-0009	1	BRIDGE MOUNT, ADJUSTABLE
11	BDS-0010	1	STAR WHEEL TRIP WORM
12	BDS-0011	1	GEAR COVER
13	BDS-0012	2	SLIDE SHAFT 5/8”
14	BDS-0013	1	DIE SPRING
15	BDS-0015	1	SLIDE NUT 1/2-13, LEFT HAND
16	BDS-0016	1	WORM GEAR, 50T
17	BDS-0017	2	SHAFT COLLAR
18	BDS-0018	8	LINEAR BEARING 5/8” OD
19	BDS-0019	2	BRONZE SLEEVE BEARING
20	BDS-0021	2	TRACK ROLLER
21	BDS-0104	1	HEX HEAD CAP SCREW
22	BDS-0105	1	FLANGED DRILL BUSHING
23	BDS-0106	2	RADIAL RAIL
24	BDS-0107	2	SUPPORT SHAFT
25	BDS-0114	2	TEMPLATE HOLDER, ADJUSTABLE
26	BA-0002	1	TOOL HOLDER
27	BA-0005	1	LEAD SCREW BRACKET
28	BA-0006	1	LEAD SCREW 1/2-13, RIGHT HAND
29	BA-0007	1	KNOB HANDLE
30	BA-0009	1	SLIDE NUT, 1/2-13, RIGHT HAND
31	BA-0011	2	SHAFT/RAIL ASSEMBLY
32	BA-0012	1	TOP CAP
33	TS-0008	1	CAP NUT
34	TS-0029	4	THRUST WASHER
35	TS-0030	2	THRUST BEARING
36	TS-0050	1	BASE, 9”
37	SHOULDER SCREW	6	SHSCS 8-32 X 3/4" L SH
38	SHOULDER SCREW	8	SHSCS 1/4-20 X 5/8” L SH

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ITEM No.	PART No.	QTY	DESCRIPTION

CONTINUED FROM PREVIOUS PAGE

39	SHSCS 5/16-18 X 5/8” L SH	4	SHOULDER SCREW
40	SOCKET HEAD CAP SCREW	18	SHCS 8-32
41	SOCKET HEAD CAP SCREW	2	SHCS 10-32
42	SOCKET HEAD CAP SCREW	10	SHCS 1/4-20
43	SOCKET HEAD CAP SCREW	4	SHCS 5/16-18
44	SOCKET HEAD CAP SCREW	2	SHCS 3/8-16
45	FLAT HEAD CAP SCREW	3	FHCS 10-32
46	FLAT HEAD CAP SCREW	8	FHCS 3/8-16
47	HELICAL INSERT	8	HELICAL 8-32
48	HELICAL INSERT	10	HELICAL 1/4-20
49	HELICAL INSERT	8	HELICAL 1/4-20
50	HELICAL INSERT	6	HELICAL 1/4-20
51	HELICAL INSERT	2	HELICAL 1/4-20
52	HELICAL INSERT	4	HELICAL 5/16-18
53	HELICAL INSERT	8	HELICAL 3/8-16
54	SET SCREW	6	SS 10-32
55	SET SCREW	6	SS 1/4-20 X 3/8” L
56	SET SCREW	2	SS 1/4-20 X 1-1/8” L
57	SET SCREW	1	SS 3/8-16 X 5/16” L
58	DOWEL PIN	4	DP 3/8” DIAM X 1” L

8.6.5 OUT OF ROUND ATTACHMENT ASSEMBLY

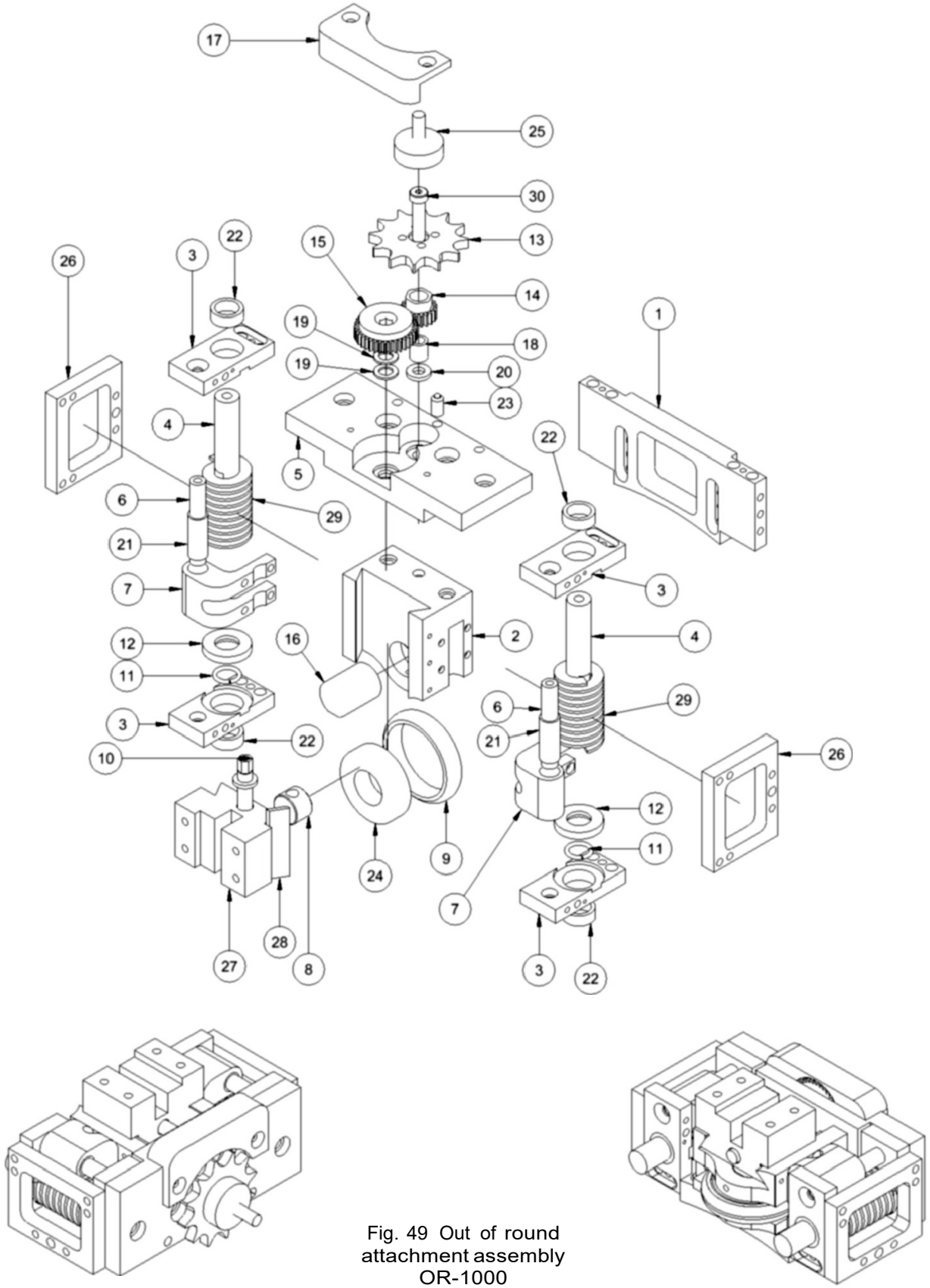


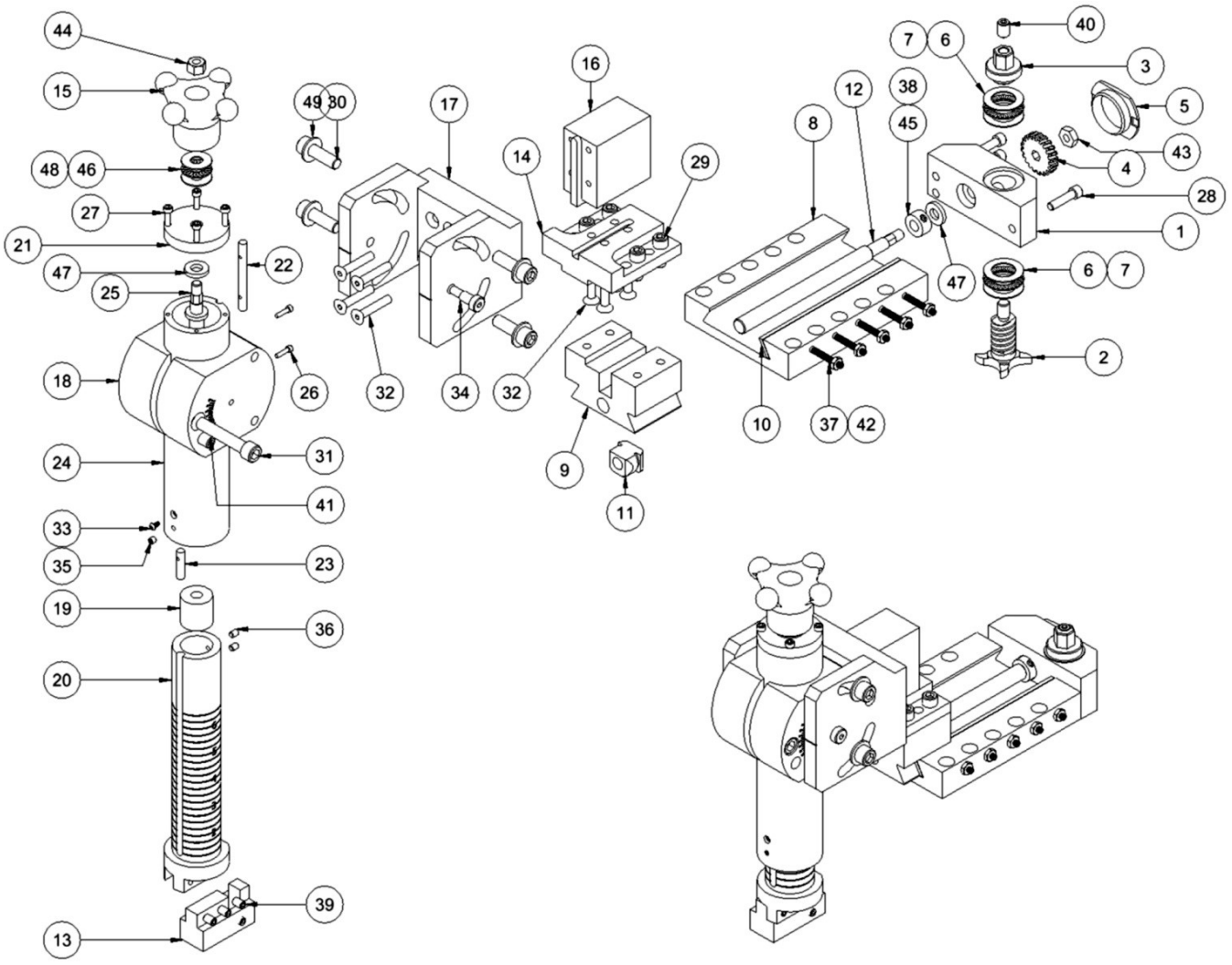
Fig. 49 Out of round attachment assembly OR-1000

OUT OF ROUND ATTACHMENT ASSEMBLY

Refer to Fig. 49.

ITEM No.	PART No.	QTY	DESCRIPTION
1	OR-0001	1	BASE PLATE
2	OR-0002	1	SLIDE BASE
3	OR-0003	4	SIDE ARMS
4	OR-0004	2	SPRING ROD 3/4”
5	OR-0005	1	TOP PLATE
6	OR-0006	2	ROD 1/2”
7	OR-0007	2	ROD FOLLOWER
8	OR-0008	1	SLIDE NUT
9	OR-0009	1	ROLLER BEARING SLEEVE
10	OR-0010	1	LEAD SCREW 7/16-20 LH
11	OR-0011	2	RING
12	OR-0012	2	RING CAP
13	OR-0013	1	STAR WHEEL 12T
14	OR-0014	1	20T GEAR
15	OR-0015	1	36T GEAR
16	OR-0016	1	BEARING SHAFT
17	OR-0017	1	GEAR COVER
18	OR-0020	1	NEEDLE ROLLER BEARING 3/8
19	OR-0021	2	BRONZE WASHER 1/16 THK
20	OR-0022	1	BRONZE WASHER 1/8 THK
21	OR-0024	2	BRONZE SLEEVE BEARING 1/2
22	OR-0025	4	BRONZE SLEEVE BEARING 3/4
23	OR-0026	1	BALL PLUNGER 3/8-16
24	OR-0027	1	BEARING 30mm
25	OR-0042	1	KNOB
26	OR-0045	2	GUSSETT BLOCK
27	TS-0021	1	TOOL HOLDER
28	TS-0040	1	GIB, 3”
29	OR-0023	2	DIE SPRING 3/4"
30	SHSCS5/16-18x1-1/2L	1	SHOULDER SHCS 5/16-18 x 1-1/2 L SHOULDER

8.6.6 SPLIT FRAME FLANGE FACER ATTACHMENT ASSEMBLY



Size	Assembly Part #	Description
6”	FF-1006	Flange Facer Attachment, short
10”	FF-1010	Flange Facer Attachment, long

Fig. 50 Split frame flange facer attachment assembly

SPLIT FRAME FLANGE FACER ATTACHMENT ASSEMBLY

Refer to Fig. 50.

ITEM No.	PART No.	QTY	DESCRIPTION
1	TS-0001	1	GEAR BOX
2	TS-0003	1	STAR WHEEL TRIP CAM
3	TS-0008	1	CAP NUT
4	TS-0009	1	BRASS WORM GEAR
5	TS-0017	1	PLASTIC CAP
6	TS-0029	4	THRUST WASHER
7	TS-0030	2	THRUST BEARING
8	TS-0019	1	BASE, 6”
	TS-0046	1	BASE 10”
9	TS-0021	1	TOOL HOLDER, STANDARD
	TS-0063	1	TOOL HOLDER, EXTENDED
10	TS-0042	1	GIB, 6”
	TS-0044	1	GIB, 10”
11	TS-0058	1	1/2-10 ACME NUT
12	TS-0062	1	1/2-10 ACME LEADSCREW, 6”
	TS-0059	1	1/2-10 ACME LEADSCREW, 10”
13	FF-0029	1	TOOL BIT HOLDER
14	CB-0001	1	BASE
	CB-0032	1	BASE, EXTENDED
15	CB-0006	1	HANDLE
16	CB-0012	1	GUSSET BLOCK
	CB-0033	1	GUSSET BLOCK, EXTENDED
17	SCB-0001	1	SWIVEL BASE
18	SCB-0002	1	SWIVEL BLOCK
19	SCB-0003	1	BRASS NUT
20	SCB-0006	1	TOOL HOLDER BAR, 8”
21	SCB-0007	1	CAP
22	SCB-0008	1	DOWEL PIN 2-1/2”
23	SCB-0009	1	DOWEL PIN 1”
24	SCB-0010	1	TOOL HOLDER HOUSING, 8”
25	TS-0037	1	LEADSCREW 6”
26	SOCKET HEAD CAP SCREW	2	SHCS 5-40
27	SOCKET HEAD CAP SCREW	4	SHCS 8-32
28	SOCKET HEAD CAP SCREW	3	SHCS 1/4-20
29	SOCKET HEAD CAP SCREW	4	SHCS 5/16-18
30	SOCKET HEAD CAP SCREW	4	SHCS 3/8-16
31	SOCKET HEAD CAP SCREW	1	SHCS 3/8-16
32	FLAT HEAD CAP SCREW	8	FHCS 1/4-20
33	BUTTON HEAD CAP SCREW	1	BHCS 5-40
34	SHOULDER CAP SCREW	2	SHSCS 1/4-20
35	SET SCREW	1	SS 10-32 X 3/16

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ITEM No.	PART No.	QTY	DESCRIPTION
36	SET SCREW	2	SS 10-32 X 1/4"
37	SET SCREW	5	SS 10-32 X 1-1/4”
38	SET SCREW	1	SS 1/4-20 X 3/16”
39	SET SCREW	4	SS 1/4-20 X 3/8”
40	SET SCREW	1	SS 3/8-16 X 1/2"
41	SET SCREW	1	SS 3/8-16 X 1”
42	NUT	5	NUT 10-32
43	NUT	1	NUT 5/16-18
44	NUT	1	NUT 5/16-18
45	SHAFT COLLAR	1	3/8” SHAFT COLLAR
46	NEEDLE ROLLER BEARING	1	10MM NEEDLE BEARING
47	BRONZE THRUST BEARING	2	3/8” THRUST BEARING
48	THRUST WASHER	2	10MM THRUST WASHER
49	FLAT WASHER	4	3/8” FLAT WASHER

8.7 HAND TOOLS

Fig. 51 Hand Tools

ITEM No.	PART No.	QTY	DESCRIPTION
1	HT01-001	1	3/8 DRIVE SPEED HANDLE
2	HT01-002	1	9/16 SOCKET, 3/8 DRIVE 6 POINT
3	HT01-003	1	.050-3/8" Ball End Hex Key Set
4	HT01-004	1	5/16" Ball End T-Handle Hex Key
5	HT01-007*	1	3/8" Ball End T-Handle Hex Key (26” SF AND UP)
6	HT01-011	1	STEEL SQUARE
7	HT01-012	1	BLACK TOOL BOX/BAG
8	HT01-014	1	3LB DEAD BLOW HAMMER

*Not pictured.

8.8 FILTER/LUBRICATOR PACK (AIR CADDY)

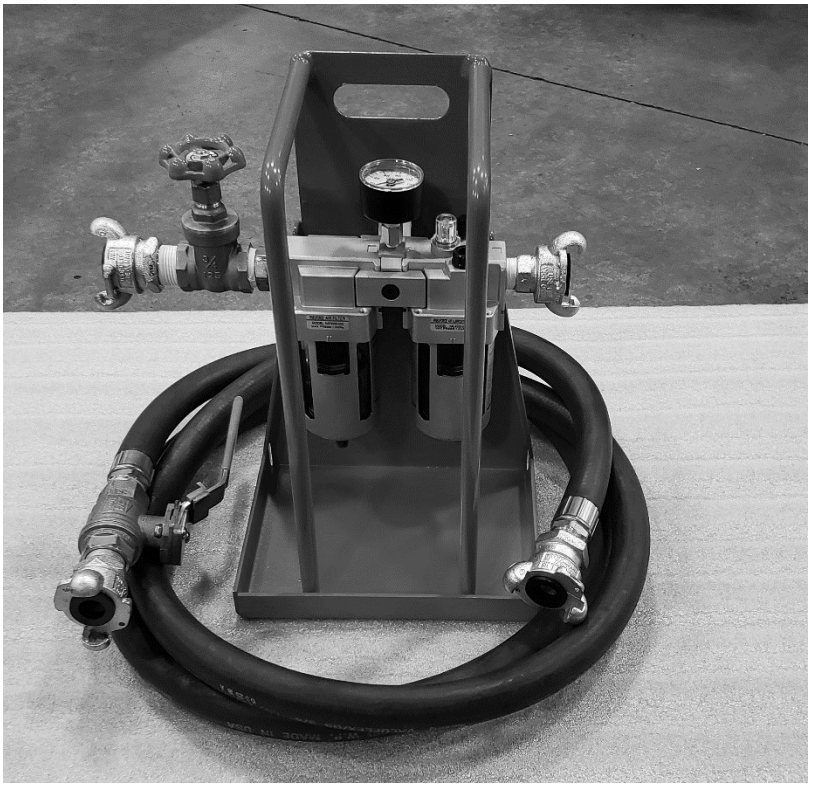


Fig. 52 Air Caddy & Air Whip

ITEM No.	PART No.	QTY	DESCRIPTION
AC-1000			
1	AC-0001	1	FRL FILTER/REGULATOR W/ GAUGE
2	AC-0002	1	3/4" MALE CHICAGO COUPLING
3	AC-0004	1	FRAME/HOUSING
4	AC-0006	1	1/2" MALE CHICAGO COUPLING
5	ACAW-0004	1	3/4" GATE VALVE
ACAW-1000			
1	ACAW	1	10’ AIR WHIP w/ 3/4" MALE COUPLING END
2	ACAW-0003	1	3/4" LOCKING BALL VALVE
3	AC-0002	1	3/4" MALE CHICAGO COUPLING

APPENDIX A TOOL SLIDE CLEARANCE TABLE

AGGRESSIVE EQUIPMENT

04" - 62" SPLIT FRAME - SPEC SHEET (inches)

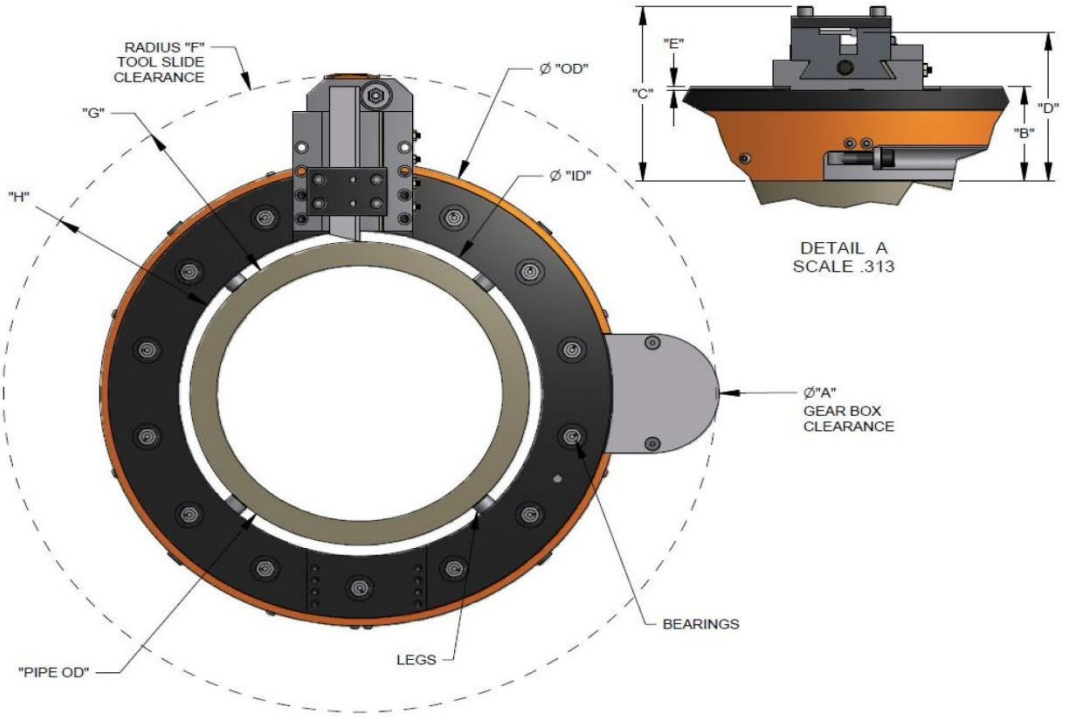
	SF4	SF6	SF8	SF10	SF12	SF14	SF16	SF18	SF20	SF22	SF24	SF26	SF28	SF30
ID	4.75"	7.67"	9.67"	11.67"	13.67"	15.00"	17.00"	19.00"	21.00"	23.00"	25.00"	27.00"	29.00"	31.00"
OD	9.37"	13.54"	15.54"	17.54"	19.54"	20.87"	22.87"	24.87"	26.87"	28.87"	30.87"	32.98"	34.98"	36.98"
# of LEGS	4	4	4	4	4	4	4	4	4	4	8	8	8	8
# of BEARINGS	6	10	10	10	14	14	18	18	20	20	20	24	28	28
*A	16.89"	21.00"	23.00"	25.00"	27.00"	28.33"	30.33"	32.33"	34.33"	36.33"	38.33"	41.10"	43.10"	45.10"
B	3.18"	3.18"	3.18"	3.18"	3.18"	3.18"	3.18"	3.18"	3.18"	3.18"	3.18"	3.30"	3.30"	3.30"
C	5.97"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"
D	5.113"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"
E	0	.125"	.125"	.125"	.125"	.125"	.125"	.125"	.125"	.125"	.125"	.25"	.25"	.25"
**WEIGHT (APPROX)	38 lbs *not lightened*	61 lbs	70 lbs	78 lbs	89 lbs	101 lbs	110 lbs	116 lbs	122 lbs	143 lbs	140 lbs	158 lbs	177 lbs	236 lbs

** Dimension A is referencing the clearance for the Gearbox;*

*** Weigths are based on 4" - 28" with lightened pockets; 30" and above are not lightened. Listed weight does not include any accessories; this is machine only weight.*

Tool Slide Clearances:

PIPE OD		4.5	6.625	8.625	10.75	12.75	14	16	18	20	22	24	26	28	30
F	0"	5.25	7.19	8.19	9.19	10.19	10.88	11.88	12.88	13.88	14.88	15.88	16.88	17.88	18.88
	3"	6.50	8.50	9.50	10.50	11.50	12.13	13.13	14.13	15.13	16.13	17.13	18.13	19.13	20.13
	4"	**7.50**	**9.50**	**10.50**	**11.50**	**12.50**	13.13	14.13	15.13	16.13	17.13	18.13	19.13	20.13	21.13
	5"	-	-	-	-	13.50	**14.13**	**15.13**	**16.13**	**17.13**	**18.13**	**19.13**	**20.13**	**21.13**	**22.13**
G	0"	3.00	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88
	3"	4.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13
	4"	**5.13**	**6.13**	**6.13**	**6.13**	**6.13**	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13
	5"	-	-	-	-	7.13	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**
H	0"	2.88	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
	3"	4.25	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63
	4"	**5.25**	**5.63**	**5.63**	**5.63**	**5.63**	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63
	5"	-	-	-	-	6.63	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**



TOOL CLEARANCE TABLE (continued)

AGGRESSIVE EQUIPMENT

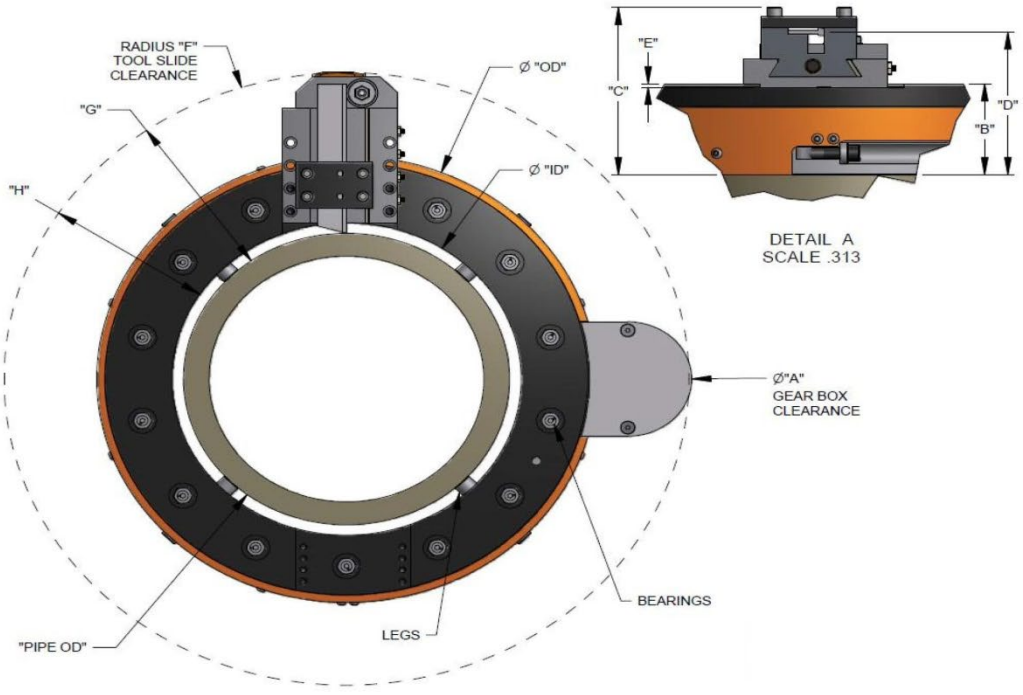
04" - 62" SPLIT FRAME - SPEC SHEET (inches)

SF32	SF34	SF36	SF38	SF40	SF42	SF44	SF46	SF48	SF50	SF52	SF54	SF56	SF58	SF60	SF62	
33.00"	35.00"	37.00"	39.00"	41.00"	43.00"	45.00"	47.00"	49.00"	51.00"	53.00"	55.00"	57.00"	59.00"	61.00"	63.00"	ID
38.98"	40.98"	42.98"	44.98"	46.98"	48.98"	50.98"	52.98"	54.98"	56.98"	58.98"	60.98"	62.98"	64.98"	66.98"	68.98"	OD
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	# of LEGS
32	32	36	36	40	40	44	44	48	48	52	52	56	56	60	60	# of BEARINGS
47.10"	49.10"	51.10"	53.10"	55.10"	57.10"	59.10"	61.10"	63.10"	65.10"	67.10"	69.10"	71.10"	73.10"	75.10"	77.10"	*A
3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	3.30"	B
5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	5.84"	C
4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	4.984"	D
.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	.25"	E
242 lbs	264 lbs	276 lbs	290 lbs	308 lbs	316 lbs	336 lbs	348 lbs	365 lbs	374 lbs	392 lbs	n/a	n/a	n/a	n/a	460 lbs	**WEIGHT (APPROX)

** Dimension A is referencing the clearance for the Gearbox;*

*** Weigths are based on 4" - 28" with lightened pockets; 30" and above are not lightened. Listed weight does not include any accessories; this is machine only weight.*

32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	OD of Pipe	
19.88	20.88	21.88	22.88	23.88	24.88	25.88	26.88	27.88	28.88	29.88	30.88	31.88	32.88	33.88	34.88	0"	
21.13	22.13	23.13	24.13	25.13	26.13	27.13	28.13	29.13	30.13	31.13	32.13	33.13	34.13	35.13	36.13	3"	F
22.13	23.13	24.13	25.13	26.13	27.13	28.13	29.13	30.13	31.13	32.13	33.13	34.13	35.13	36.13	37.13	4"	
23.13	**24.13**	**25.13**	**26.13**	**27.13**	**28.13**	**29.13**	**30.13**	**31.13**	**32.13**	**33.13**	**34.13**	**35.13**	**36.13**	**37.13**	**38.13**	5"	
3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	0"	
5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	3"	G
6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	4"	
7.13	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	**7.13**	5"	
3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	0"	
4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	3"	H
5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	4"	
6.63	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	**6.63**	5"	



APPENDIX B AIR MOTOR MANUFACTURER INFORMATION

Fig 53

AE-4800U	HEAVY DUTY AIR MOTOR
MM-0002	MOTOR MOUNT PLATE

Manufacturer: Ingersol Rand

Fig 54

AE-75NL-2X-6	RIGHT ANGLE AIR MOTOR
MM-0001	MOTOR MOUNT PLATE

Manufacturer: Atlas Copco

Fig 55

AE-1000HYD	HYDRAULIC MOTOR
MM-0005	MOTOR MOUNT PLATE

Manufacturer: Parker Hydraulics