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SAFETY PRECAUTIONS

IN GENERAL

When using rotating head cutting equipment, basic safety precautions should always be followed to reduce the risk of personal injury.

Operate this tool only in accordance with specific operating instructions.

WARNING:

Do not override the deadman switch on the power unit. Locking down, obstructing, or in any way defeating the deadman switch on the power drive unit may result in serious injury.

DRESS CONSIDERATIONS

Use standard safety equipment. Hard hats, safety shoes, safety harnesses, protective clothes, and other safety devices should always be used when appropriate.

Use safety glasses. Do not operate cutting tools without eye protection.

Dress properly. Do not wear loose clothing or jewelry. They can be caught in rotating and moving parts. Avoid slippery floors or wear nonskid footwear. If you have long hair, wear protective hair covering to contain it.

WORK AREA

Keep the work area clean. Cluttered work areas and benches invite injuries.

Consider the work area environment. Keep the area well lit. Keep electrical cords, cables, rags, rigging straps, and etc. clear of rotating equipment. Do not use power-cutting tools in the presence of flammable liquids and gasses.

Keep visitors away. Do not let visitors or untrained personnel at or near operating tools. Enforce eye protection requirements for all observers.

Do not over reach. Keep proper footing at all times.

Stay alert. Watch what you are doing. Use common sense. Do not operate tools when you are tired.

TOOL CARE

Maintain tools with care. Keep tools in good operating condition. Sharp tool bits perform better and safer than dull tool bits. Well maintained tools function properly when needed.

Check for damaged parts. If a tool has malfunctioned, been dropped or hit, it must be checked for damage. Run no-load tests and feed function checks. Do a complete visual inspection.

Electric motors. Use only with proper AC voltage power sources and observe all normal electric shock hazard procedures.

Do not abuse power and control cords. Pulling or running over cords and cables can result in electrical shock hazards and malfunctions. Keep control and power cords out of all cutting fluids and water.

Hydraulic drives. Observe proper procedures for electrically driven power sources. Avoid damage to hydraulic lines. Keep quick-disconnects clean. Grit contamination causes malfunctions.

Air tools. Check the exhaust muffler. Broken or damaged mufflers can restrict air flow or cause excessive noise. Use air motors only with a filtered, lubricated and regulated air supply. Dirty air, low-pressure air or over pressure air will cause malfunctions, including delayed starting.

AREA EQUIPMENT

Secure work. Whenever possible use clamps, vises, chains and straps to secure pipe.

Make sure the tool is secured; it is safer to have both hands free to operate the tool.

TOOL USE

Use the right tool and tool bit for the job. Do not use a tool, which is incorrect for the job you are doing.

Keep the tool bits fully engaged in the tool bit holders. Loose bits are a safety hazard.

Disconnect power supply during setup and maintenance. Use all 'Stop' or Shut off' features available when changing or adjusting tool bits, maintaining the tool, or when the tool is not in use.

Remove adjusting keys and wrenches before applying power to the equipment. Develop a habit of checking the tool before turning it on to make sure that all keys and wrenches have been removed.

Do not force tools. Tools and tool bits function better and safer when used at the feed and speed rate for which they were designed.

Do not reach into rotating equipment. Do not reach into the rotating head stock to clear chips, to make adjustments, or to check surface finish. A machine designed to cut steel will not stop for a hand or an arm.

Handle chips with care. Chips have very sharp edges and are hot. Do not try to pull chips apart with your hands; they are very tough.

Avoid unintentional starts. Do not carry or handle tools with your hand on the operating switches or levers. Do not lay the tool down in a manner that will start the drive. Do not allow the tool to flip around or move when adjusting or changing tool bits.

Store idle tools properly. Disconnect tools from the power source and store in a safe place. Remove tool bits for safe handling of the tool.

MAINTENANCE

All components should be cleaned and coated with a light film of oil prior to use.

Use a clean non-detergent oil, preferably SAE 10 (90 SSU or lighter).

If the Header Prep machine is operated in such a manner that the Slide collects debris while cutting, the Drive Housing Assembly and the Feed Screw should be cleaned after each machining operation.

CAUTION:

Tool life may be severely shortened, unless chips and/or other debris that have been deposited on the Cutter Head during the machining operation are removed.

MAINTENANCE SCHEDULE

Daily

When the Header Prep Machine is used under severe humidity conditions, wipe the unit down and spray with rust preventative.

Visually inspect for loose screws, missing screws, damage etc.

Every 20 Hours of Actual Operation

Lubricate the Drive Housing Slides and the Feed Screw.

STORAGE

When the Header Prep Machine is to be stored or if it will remain out of service for a significant period of time (30 days or more), it should be thoroughly cleaned, lubricated and sprayed with a rust preventative prior to storage.

Remove the airline Quick Disconnect and spray it with a lightweight oil.

Squirt oil into the male Quick Disconnect.

Reconnect the airline and turn on the Air Motor for 1 to or 2 seconds to disperse oil throughout the vanes and rotor.

LUBRICANT RECOMMENDATIONS

The Gear Box Gears require a high string lubricating grease such as “Chevron Utility Grease” (P/N 68-0020).

The Slide Rails and the Drive Housing require a light oil such as SAE 10 light machine oil.

The Feed Screw for the Drive Housing Assembly requires an SAE 10 light machine oil for normal conditions and under dusty conditions a silicone, graphite or molybdenum disulfide ‘dry’ lubricant.

NOTE:

A light film of all-purpose grease may be used, but it must be checked for grit contamination frequently.

The Air Motor requires a Class 2 lubricant, viscosity of 100 to 200 SSU at 100° F (38° C) minimum aniline point of 200° F (93° C).

- TRI TOOL Inc. - Air Tool Lubricant (P/N 68-0022)
- AMOCO - American Industrial Oil No. 32
- Atlantic Richfield - Duro Oil S - 150
- Chevron - A. W. Machine Oil 32
- Exxon - Nuto H32
- Shell - Tellus Oil 32

The bearings in the Air Motor are sealed and do not require any lubrication.

OPERATION

INSTALLING THE AIR MOTOR

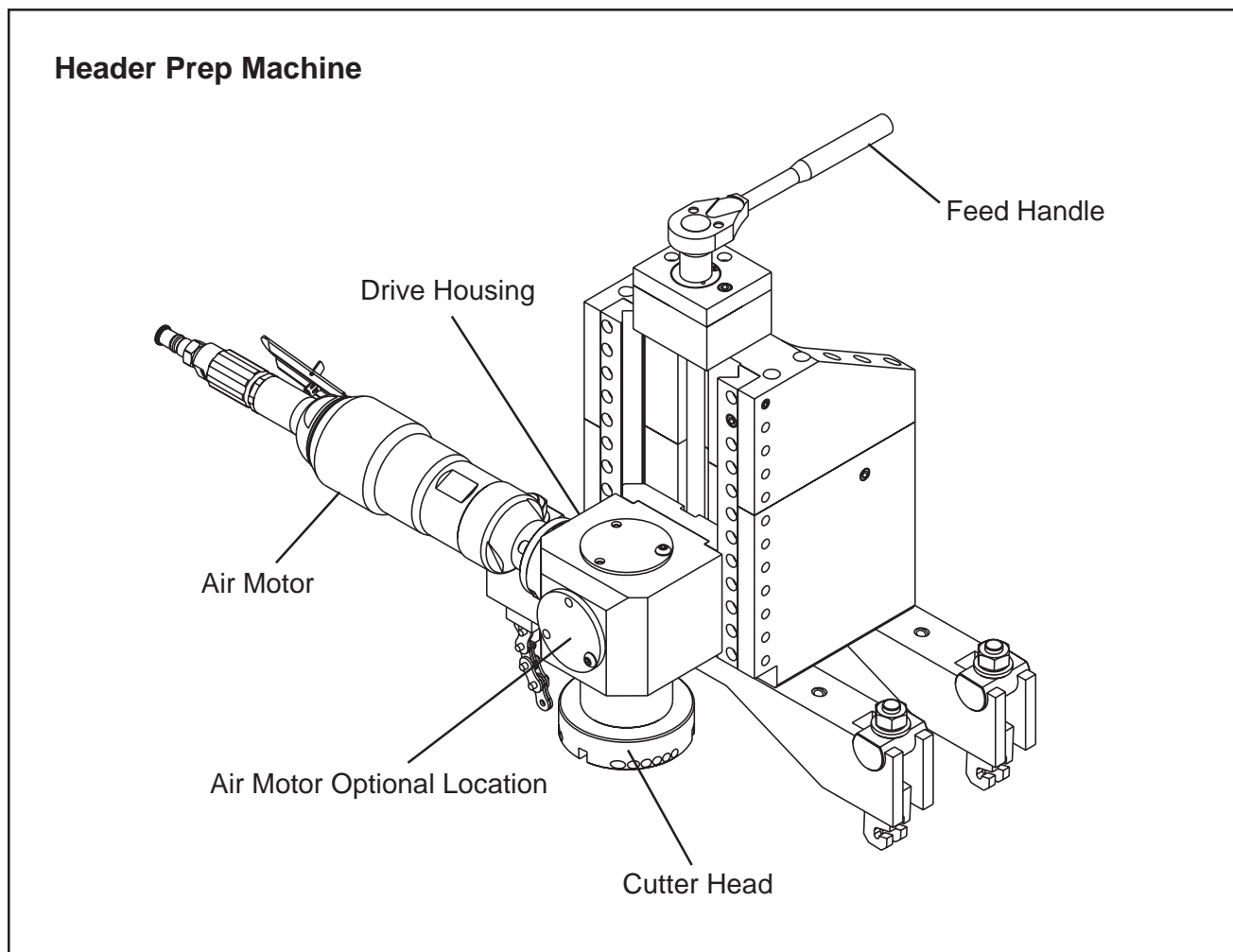
Pick one of the (2) two locations into which to install the Air Motor.

Place the Motor Adaptor into the location which best serves the present job.

The Motor Adaptor is held in position with (3) three Cap Screws.

Place the Cover on the remaining location.

The Cover is held in place with (3) three Button Head Screws.



SET UP FOR THE HEADER PREP MACHINE

Prepare the Header prep machine for machining a tube in the header.

Mount the Cutter Head into the end of the Main Shaft.

Secure the Cutter Head by tightening the Set Screw in the side of the Main Shaft.

Position the Header Prep Machine over the desired tube to be machined.

Secure the Header Prep to the header.

Re-position the Mounting Blocks as required so that they miss the other tubes or other obstructions on the OD of the header.

NOTE:

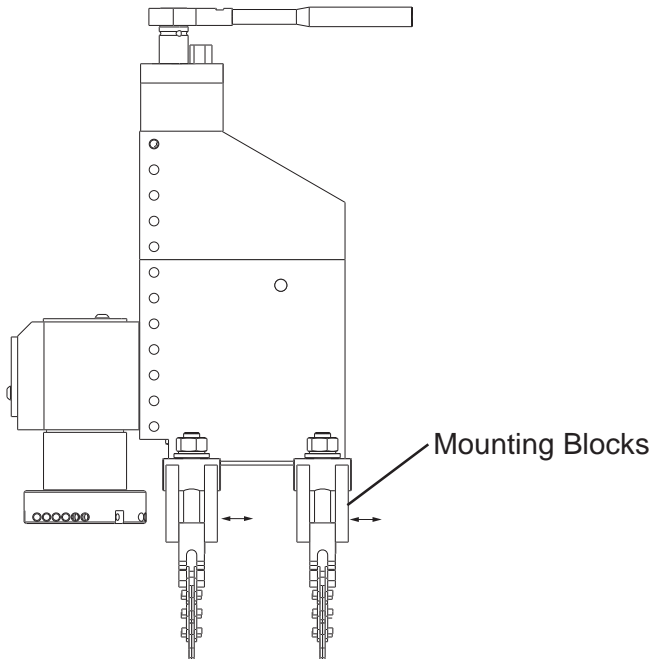
Optional Cutters can be used with the Header Prep Machine. Consult Tri Tool Inc. for specific applications.

Position the Header Prep Machine over the desired tube to be machined.

Re-position the Mounting Blocks as required so that they miss the other tubes or other obstructions on the OD of the header.

Loosen the (4) Cap Screws and remove each Mounting Block and remount in another set of holes.

Positioning the Mounting Blocks



NOTE: The Mounting Blocks work in pairs and both should be lined up across the Header Prep Machine.

Place the adjustable Pivot Block with the Chain attached in the slot on the Mounting Block.

Place the second Pivot Block with the Chain Clamping clevis attached to the opposite end of the Mounting Block.

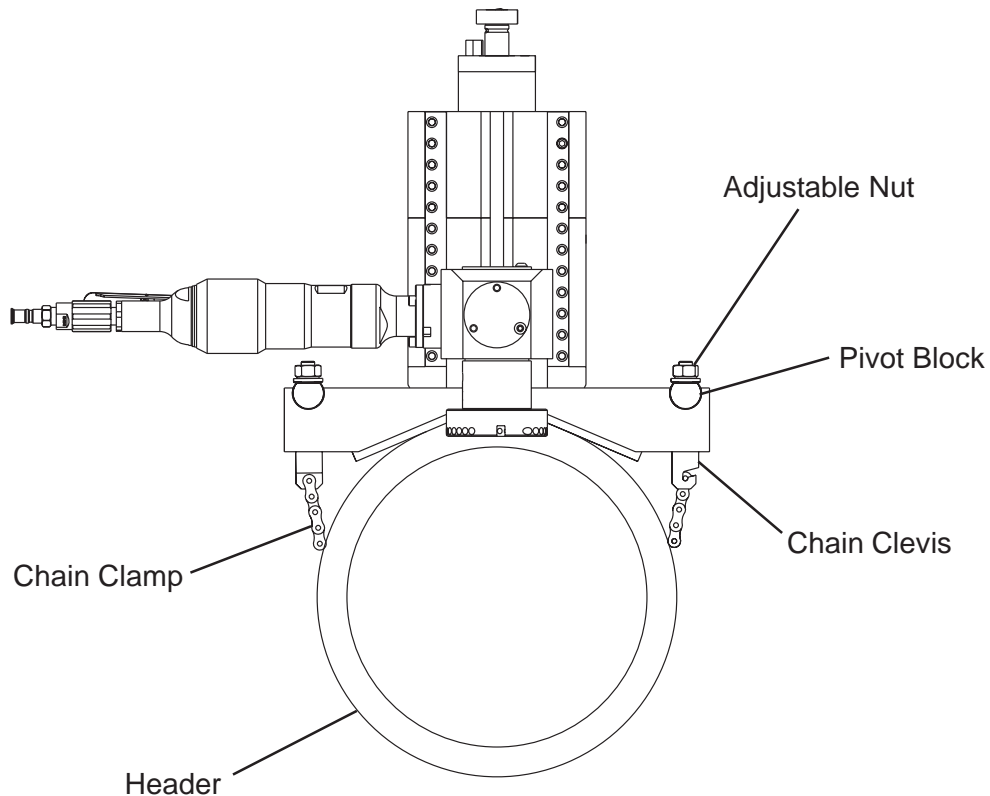
Roll the Chain around the header.

Attach the Chain to the Clamping clevis.

Tighten the Chain Clamp by tightening the both Adjustable Nuts equally.
When the Chain Clamp is tight around the header repeat the operation with the other Chain Clamp.

Check the position of the Cutter Head in the tube.

Using the Chain Clamp



MACHINING THE HEADER TUBE

Retract the Drive Housing Assembly to the top of it's Slide.

Rotate the Feed Handle clockwise.

Place a Tool Bit into one of the three Tool Bit slots in the Cutter head.

Position it as desired and then tighten the Set screws.

Load one or two other Tool Bits in the other slots as required.
Turn the Air Motor on.

Rotate the Feed Handle counter-clockwise to feed the Cutter Head into the end of the tube.

When the desired cut has been achieved turn the Air Motor off.

Rotate the Feed Handle clockwise to retract the Cutter Head from the header.

USING THE PILOT SHAFT TO POSITION THE HEADER PREP

Prepare the Header Prep Machine as stated previously.

Mount the Pilot Shaft into the Cutter Head.

Secure the Pilot Shaft by tightening the three (3) set screws in the cutter head assy.

Position the Head Prep Machine over the desired tube to be machined.

Lower the Pilot Shaft so that it will center the machine to the center of the tube.

Secure the Header Prep Machine to the header as stated previously.

Remove the Pilot Shaft before installing the Tool Bits and machining the header tube.

TROUBLE SHOOTING

Problem: The Tool Bit Chatters

The tool bit is loose or overextended.
The tool bit is damaged.
The tool holder is too loose in the slides.
The cutting speed is too fast.
The clamping pads are loose on the pipe or tube.
Cutting fluid is required.
The main bearing pre-load is loose.

Problem: There's Excessive Tool Bit Wear

The pipe or tube material is too hard or abrasive.
The cutting speed is too fast.
Cutting fluid is required.
A dull Tool Bit is causing surface hardening conditions (Stainless pipe or tubing).
There is scale or other foreign matter on the pipe or tube, which is dulling the tool bit at the start of the cut.
The tool bit is incorrect for the material being cut.

Problem: The Surface Finish is Rough

The tool bit is dull, chipped, etc.
Metal build-up on the cutting edge of the tool bit is creating a false cutting edge.
Cutting fluid is required.

Problem: The Tool Holder is Not Feeding

The feed pin is broken or out of position.
The feed sprocket shear pin is broken.
The feed screw is stripped.
The feed nut is stripped.
The slide rails are too tight.

Problem: There's a Loss of Air Power

The air supply pressure is too low.
The air filter is plugged.
The air line size is insufficient.
The air line is too long.

Problem: There's a Loss of Hydraulic Power

The hydraulic supply pressure is too low.
The hydraulic filter is plugged.
The hydraulic line size is insufficient.
The hydraulic line is too long.

Problem: The Tool Bit Will Not Reach the Work

Incorrect tool blocks are installed for the size of the pipe or tube being worked on.
Incorrect tool bit is installed.

Problem: The Air Motor Will Not Start

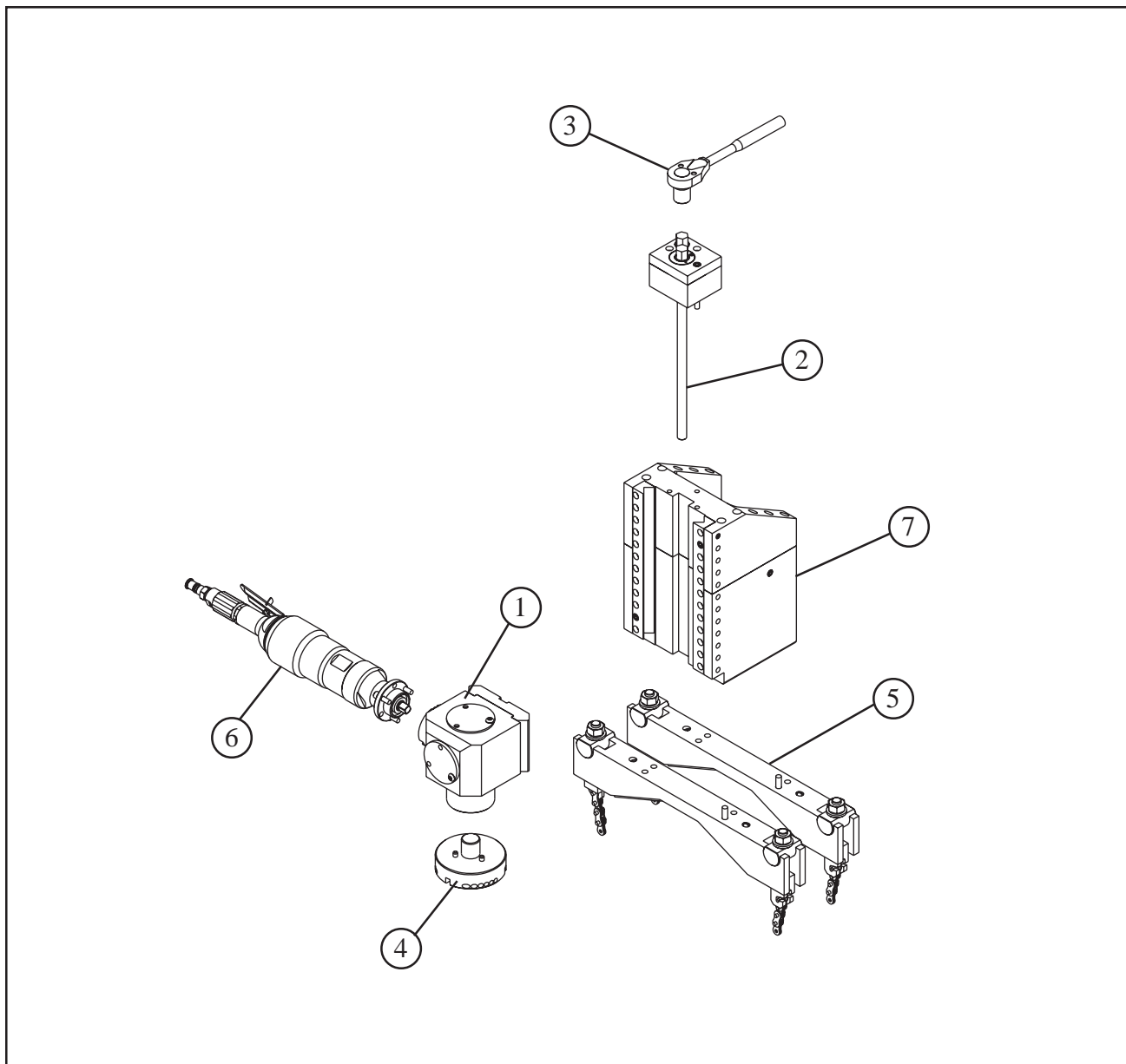
The air power supply is shut off.
The air motor is damaged and will not run free.
The air motor needs lubrication.
 Add lubrication and do not run the air motor for a few minutes, then try running the motor. Tap on the side of the air motor casing lightly with a piece of wood or with a soft rubber mallet just in case the vanes may be sticking.
Sand or other foreign material may be in the vanes of the air motor.

Problem: The Hydraulic Motor Will Not Start

The hydraulic power supply is shut off.
The hydraulic motor is damaged and will not run free.

ILLUSTRATED PARTS BREAKDOWN

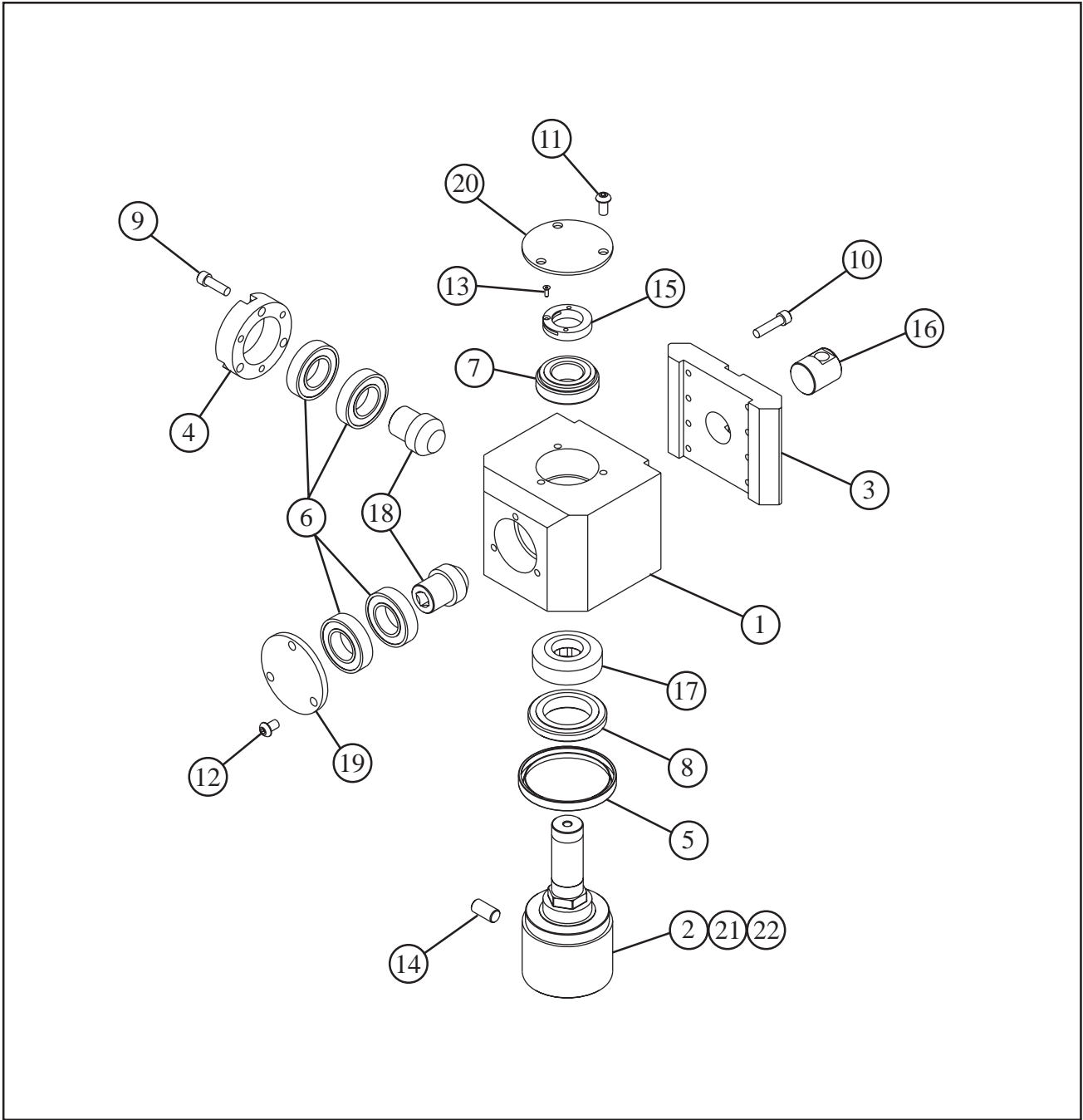
HEADER PREP MACHINE (P/N 01-1802)



Parts List, Header Prep Machine (P/N 01-1802)

Item No.	Part No.	Description	Qty
1.	04-0114	ASSEMBLY, DRIVE HOUSING	1
2.	04-0115	ASSEMBLY, DRIVE FEED	1
3.	05-1374	WRENCH KIT, HEADER PREP	1
4.	21-0409	ASSEMBLY, CUTTER HEAD	1
5.	37-0034	ASSEMBLY, CHAIN BAR	2
6.	57-0168	MOTOR ASSEMBLY, AIR	1
7.	82-0159	MACHINE ASSEMBLY, HEADER PREP	1

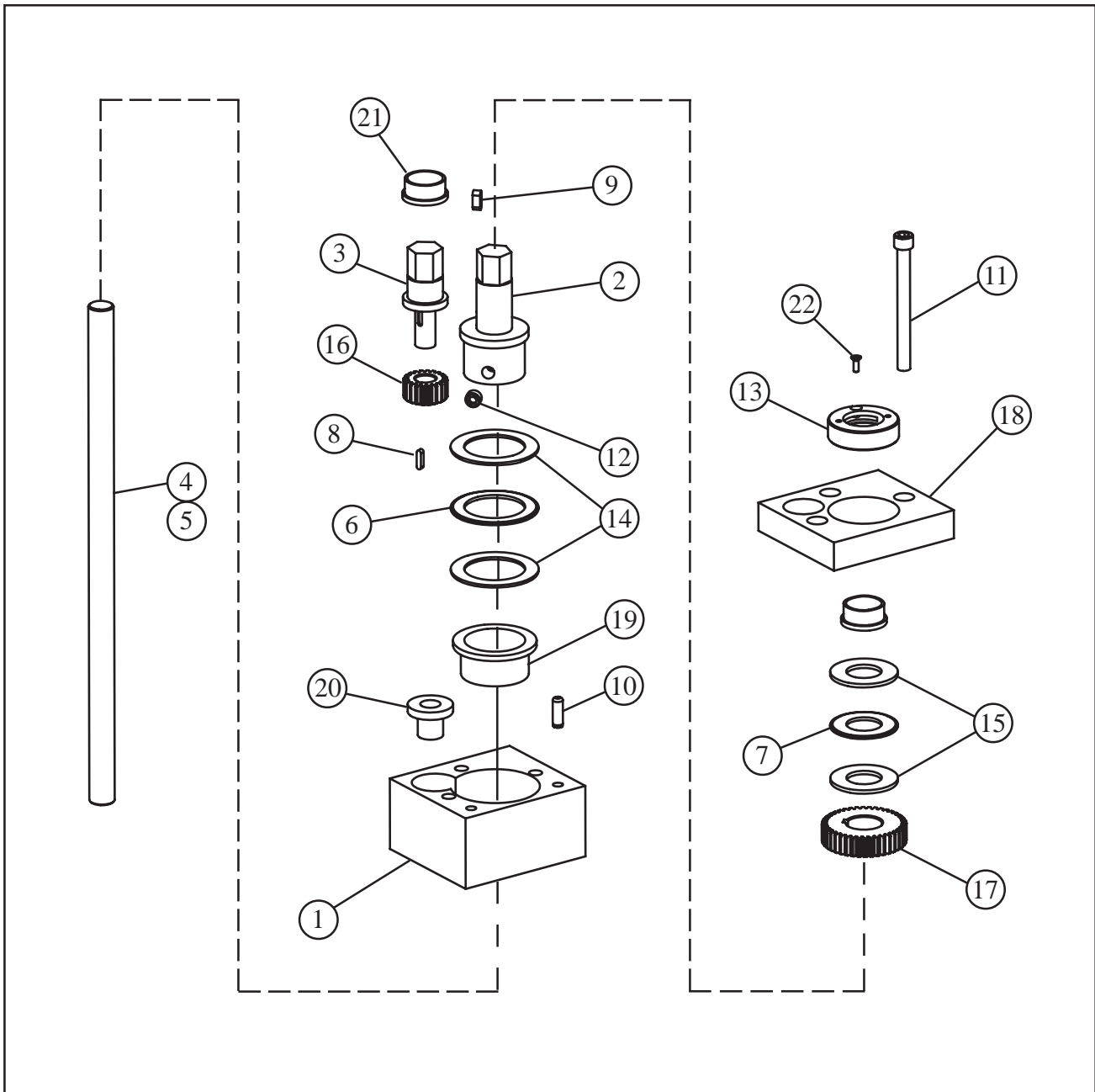
DRIVE HOUSING ASSEMBLY (P/N 04-0114)



Parts List, Drive Housing Assembly (P/N 04-0114)

Item No.	Part No.	Description	Qty
1.	19-0810	HOUSING, GEAR	1
2.	20-1160	SHAFT, MAIN	1
3.	24-1563	PLATE, SLIDE	1
4.	27-0426	ADAPTOR, MOTOR	1
5.	28-0310	SEAL	1
6.	29-0263	BEARING, ROLLER	4
7.	29-0286	BEARING, SET	1
8.	29-0289	BEARING, SET	1
9.	33-0056	SCREW, CAP, 5/16-18 X 1	3
10.	33-0057	SCREW, CAP, 5/16-18 X 1 1/4	8
11.	33-0057	SCREW, CAP, 5/16-18 X 1 1/4	8
12.	33-0292	SCREW, BUTTON, 5/16-18 X 5/8	3
13.	33-0337	SCREW, FLAT,#5-40 X 3/8	1
14.	33-0663	SCREW, SET, 1/2-20UNF X 1	2
15.	35-0367	NUT, LOCK	1
16.	35-0617	NUT, FEED	1
17.	39-0639	GEAR, DRIVE	1
18.	39-0640	GEAR, PINION	2
19.	43-0386	COVER	1
20.	43-0387	COVER	1
21.	21-0663	HEAD, TOOL HOLDER	1
22.	33-0076	SCREW, CAP, 3/8-16 X 2 1/4"	3

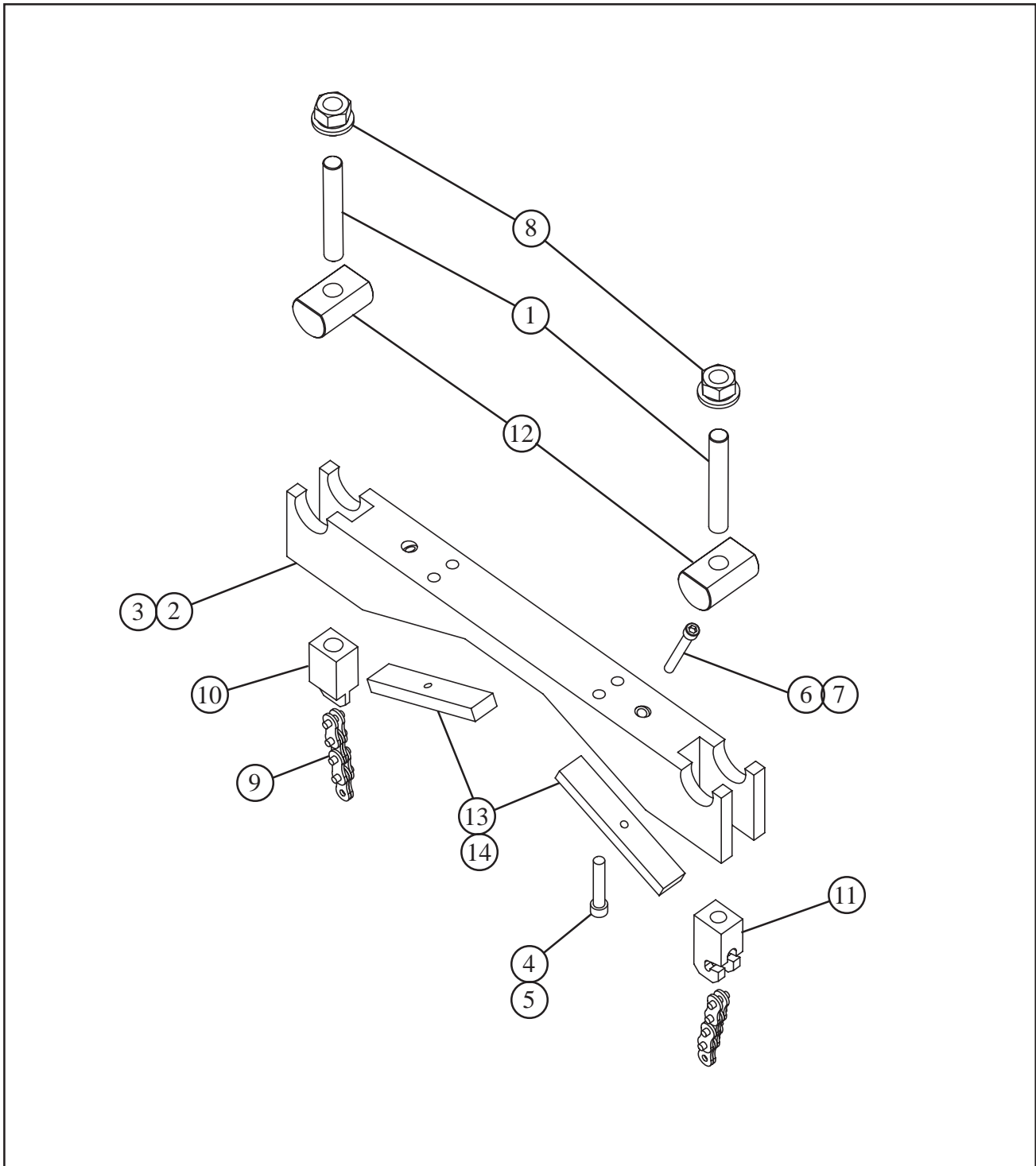
GEAR REDUCTION ASSEMBLY (P/N 04-0115)



Parts List, Gear Reduction Assembly (P/N 04-0115)

Item No.	Part No.	Description	Qty
1.	19-0812	HOUSING, GEAR REDUCTION	1
2.	20-0690	SHAFT, MAIN FEED	1
3.	20-0691	SHAFT, FEED	1
4.	23-0384	ROD, FEED, LONG	1
5.	23-0385	ROD, FEED, SHORT	1
6.	29-0242	THRUST BEARING	1
7.	29-0420	THRUST BEARING	1
8.	31-0212	KEY, .125" SQ X .500"	1
9.	31-0213	KEY, .188" SQ X .500"	1
10.	32-0140	PIN, DOWEL, 1/4" DIA X 3/4"	2
11.	33-0065	SCREW, CAP, 5/16-18 X 3 1/4"	3
12.	33-0526	SCREW, SET, 3/8-16 X 5/16"	1
13.	33-2341	SCREW, CAP, 1 3/4-16	1
14.	34-0170	THRUST WASHER	2
15.	34-0408	THRUST WASHER	2
16.	39-0421	GEAR, SPUR, 20DP, 20T	1
17.	39-0954	GEAR, SPUR, 20DP, 40T	1
18.	43-0513	COVER, GEAR HOUSING	1
19.	45-0339	BUSHING, BZ, FLANGED	1
20.	45-0340	BUSHING, BZ, FLANGED	1
21.	45-0345	BUSHING, BZ, .875" ID	2
22.	33-0337	SCREW, FLAT, #5-40 X 3/8"	1

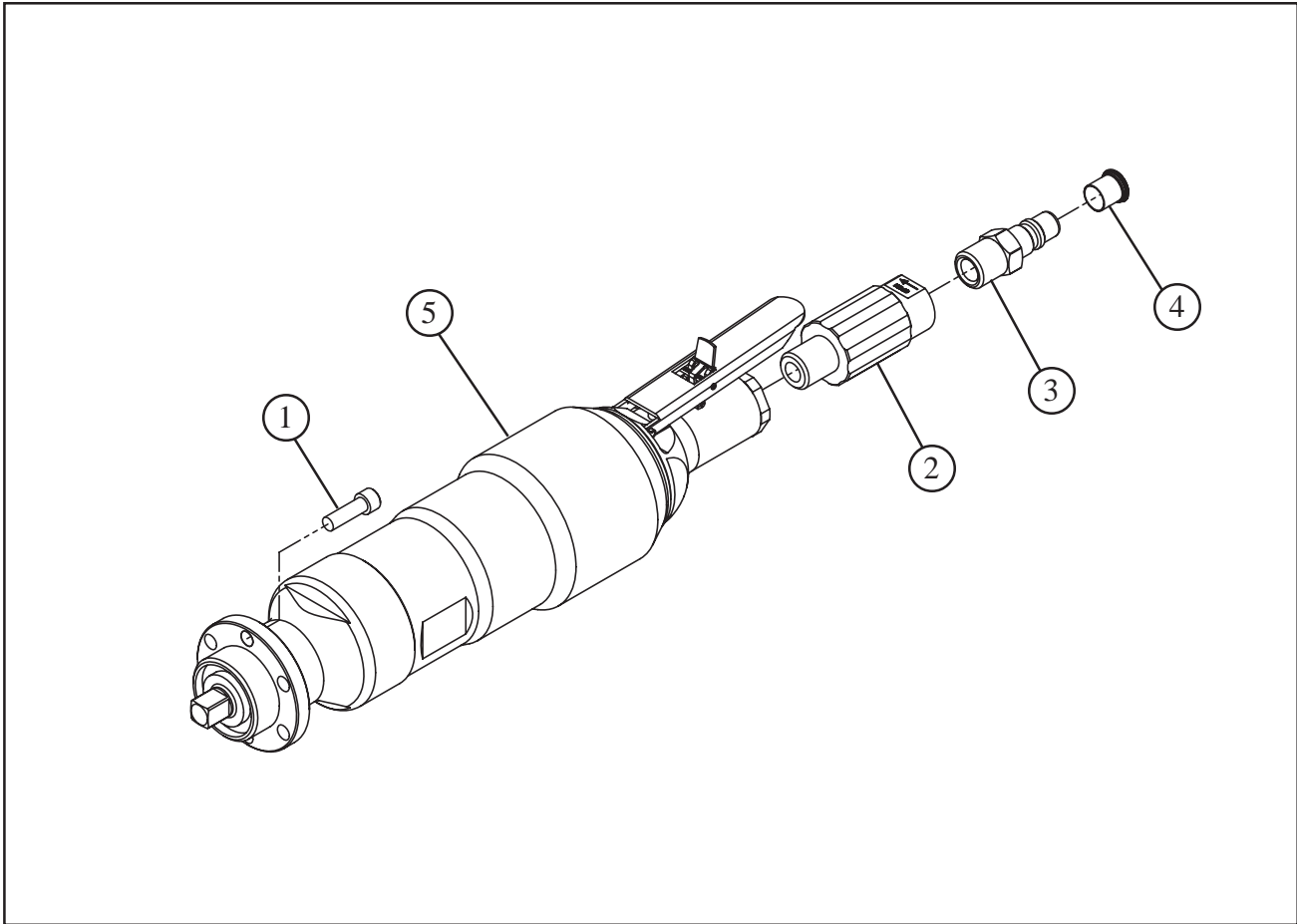
CHAIN BAR ASSEMBLY (P/N 37-0034)



Parts List, Chain Bar Assembly (P/N 37-0034)

Item No.	Part No.	Description	Qty
1.	23-0314	ROD, THREADED	2
2.	26-1482	BAR, CHAIN, SHORT	1
3.	26-1483	BAR, CHAIN, LONG	1
4.	33-0062	SCREW, CAP, 5/16-18 X 2 1/2"	2
5.	33-0063	SCREW, CAP, 5/16-18 X 2 3/4"	2
6.	33-0075	SCREW, CAP, 3/8-16 X 2"	4
7.	33-0077	SCREW, CAP, 3/8-16 X 2 1/2"	4
8.	35-0087	NUT, FLANGE	2
9.	37-0024	CHAIN, WRENCH, 60WR	75 IN
10.	37-0027	CLEVIS, CHAIN	1
11.	37-0028	CLEVIS, CHAIN	1
12.	48-1130	BLOCK, PIVOT, CHAIN	2
13.	48-1131	PAD, SHORT	2
14.	48-1132	PAD, LONG	2

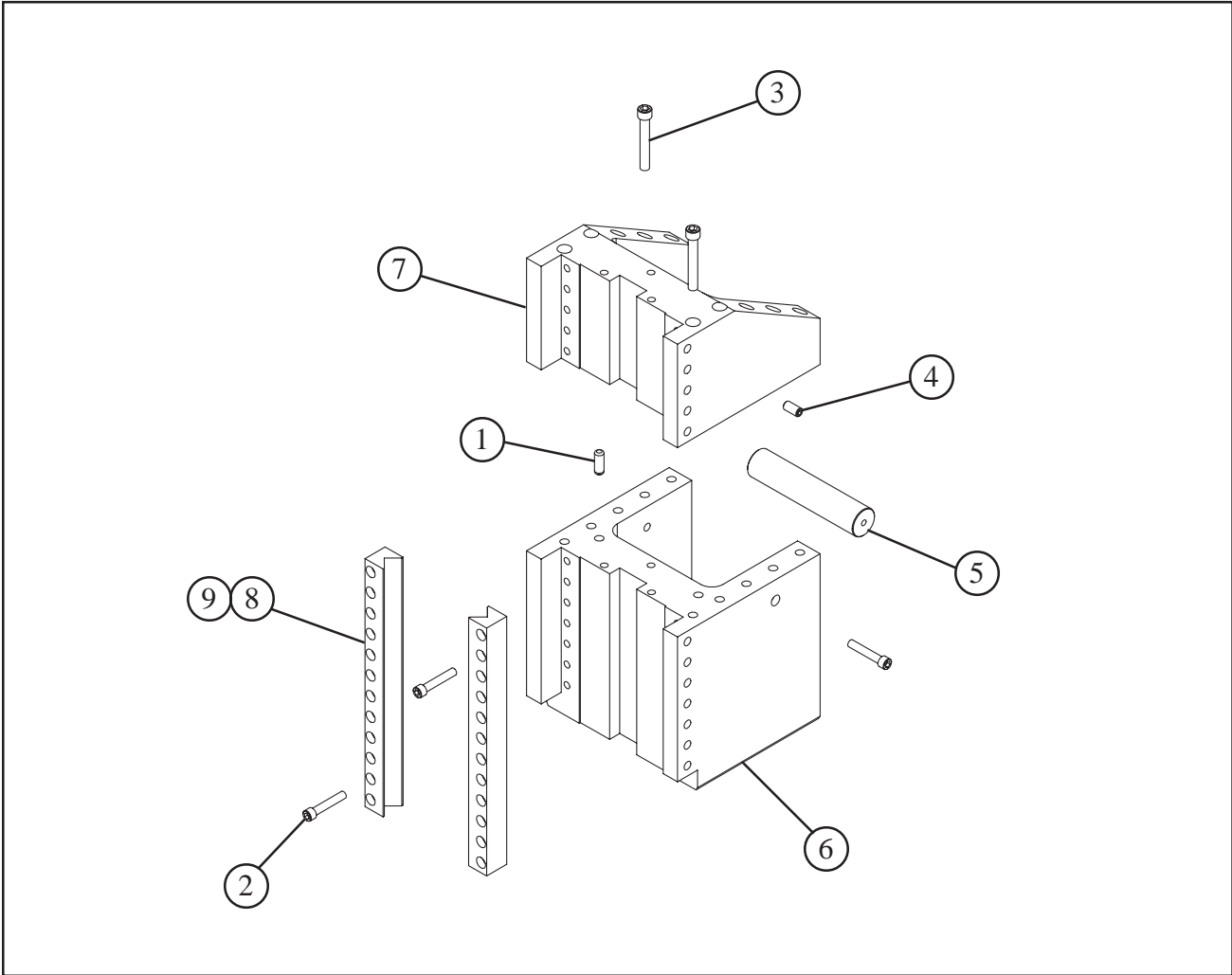
MOTOR ASSEMBLY, AIR (P/N 57-0168)



Parts List, Motor Assembly, Air (P/N 57-0168)

Item No.	Part No.	Description	Qty
1.	33-0056	SCREW,VCAP,V5/16-18 X 1"	3
2.	53-0046	VALVE,VFLOW CONTROL,V1/2" NPT	1
3.	54-0126	COUPLING,VMALE QD TO 1/2" EPIPE	1
4.	54-0201	CAP, YELLOW	1
5.	57-0161	AIR MOTOR, INLINE, 1/2" SQ	1

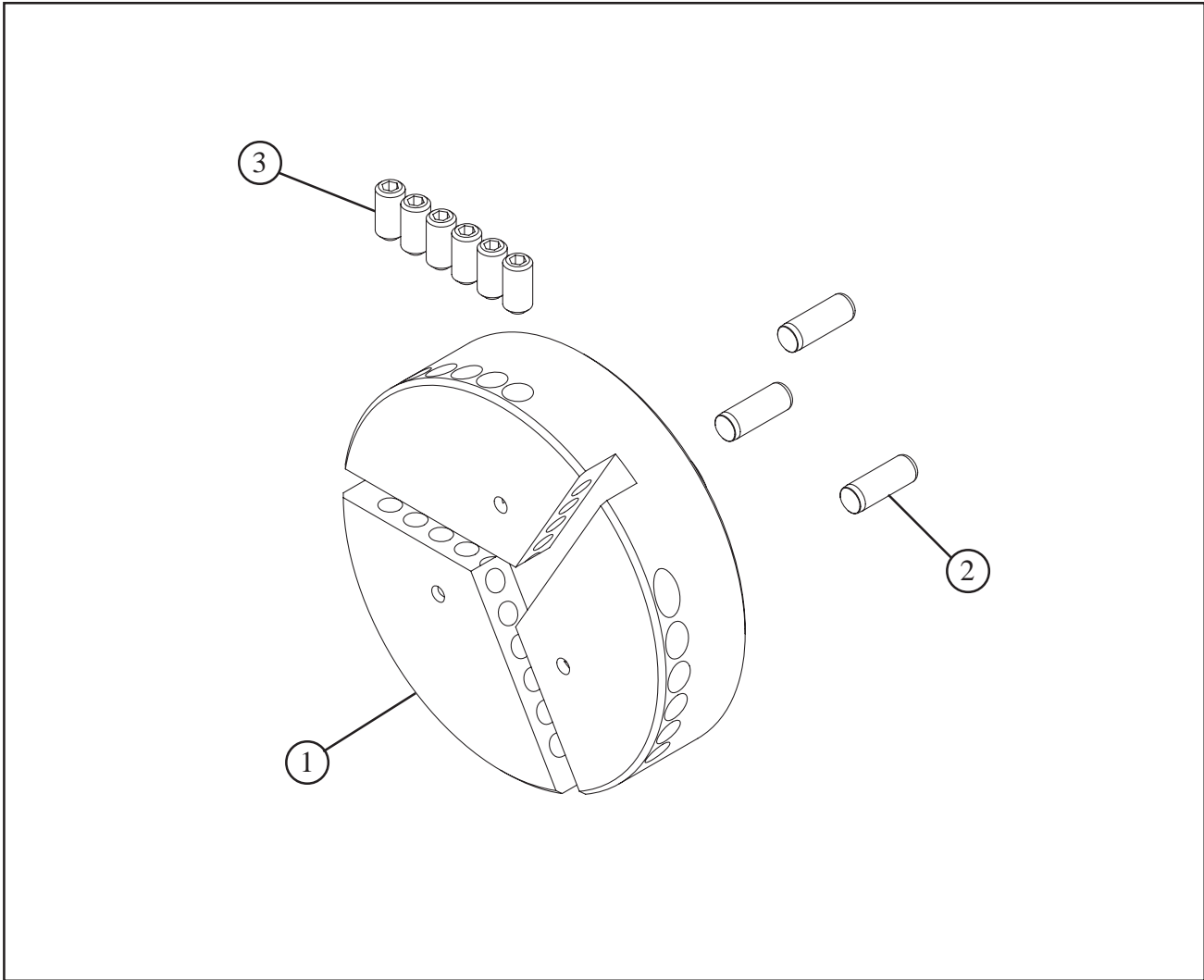
MACHINE ASSEMBLY, HEADER PREP (P/N 82-0159)



Parts List, Machine Assembly, Header Prep (P/N 82-0159)

Item No.	Part No.	Description	Qty
1.	32-0105	PIN, DOWEL, 3/8" X 1"	2
2.	33-0058	SCREW, CAP, 5/16-18 X 1 1/2"	24
3.	33-0077	SCREW, CAP, 3/8-16 X 2 1/2"	12
4.	33-1261	SCREW, SET, 3/8-24 X 3/4"	12
5.	41-0175	HANDLE, HEADER PREP	1
6.	48-1128	BLOCK, MAIN HOUSING	1
7.	48-1129	BLOCK, EXTENSION	1
8.	66-0170	RAIL, SLIDE, LONG	2
9.	66-0171	RAIL, SLIDE, SHORT	2

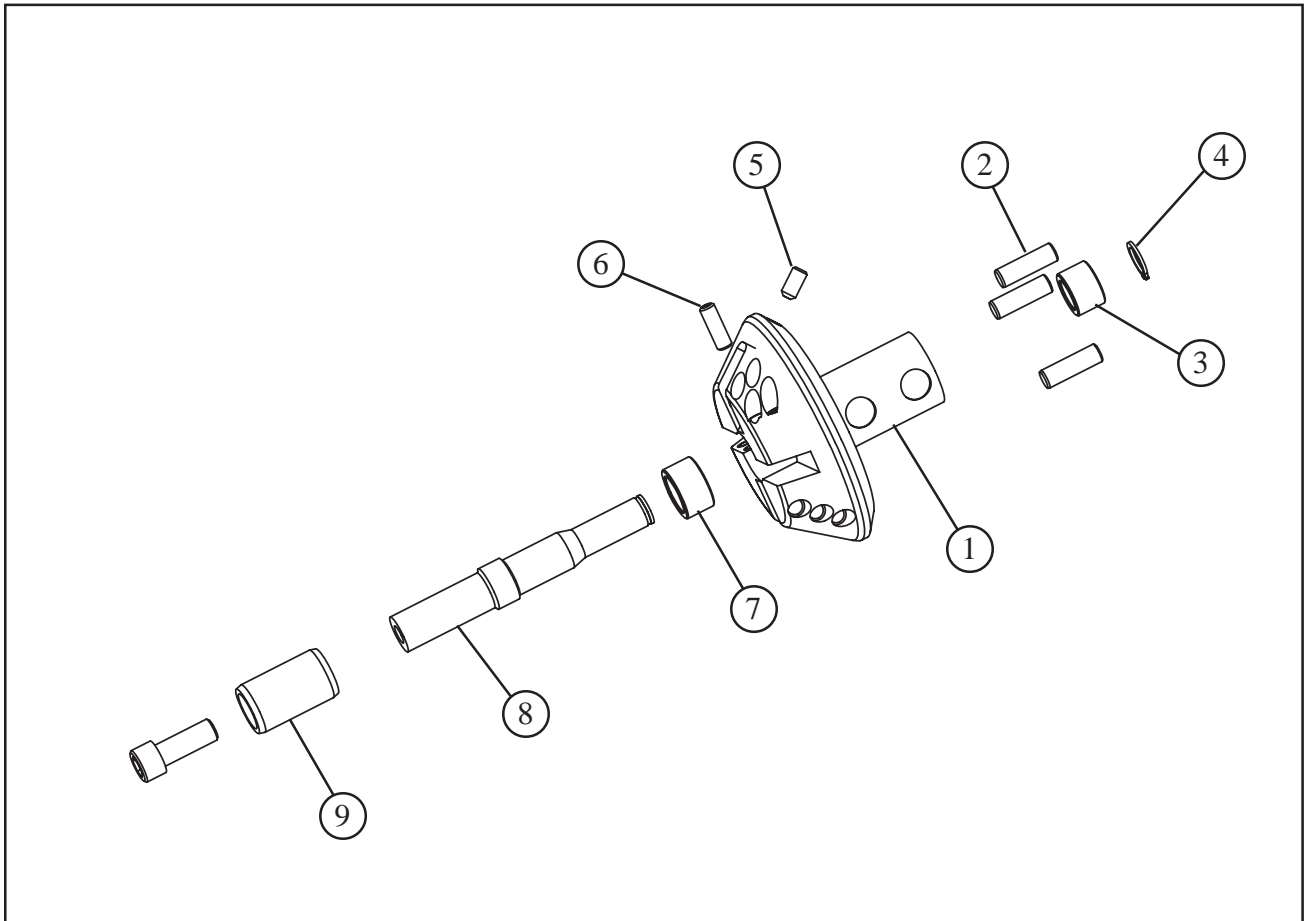
CUTTER HEAD ASSEMBLY (P/N 21-0596)



Parts List, Cutter Head Assembly (P/N 21-0596)

Item No.	Part No.	Description	Qty
1.	21-0595	HEAD, CUTTER	1
2.	32-0257	PIN, DOWEL	3
3.	33-0517	SCREW, SET, 5/16-18 X 5/8"	18
NOT SHOWN			
	36-0006	WRENCH, L, 5/32" HEX	1

**HEAD ASSEMBLY, HEADER PREP
WITH PILOT AND 4 SLOTS (P/N 21-0676) - OPTIONAL**



Parts List, Head Assembly, Header Prep with Pilot and 4 Slots (P/N 21-0676)

Item No.	Part No.	Description	Qty
1.	21-0671	HEAD, CUTTER, 4 SLOTS	1
2.	32-0100	PIN, DOWEL, 5/16" DIA X 1"	3
3.	45-0415	BUSHING, UPPER	1
4.	30-3742	RING, RETAINING, 1/2"	1
5.	33-0516	SCREW, SET, 5/16-18 X 1/2" CUP PT	3
6.	33-0518	SCREW, SET, 5/16-18 X 3/4" CUP PT	14
7.	20-1147	SHAFT, PILOT	1
8.	45-0413	BUSHING, LOWER	1
9.	33-0071	SCREW, CAP, 3/8-16 X 1"	1

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Parts List, Wrench Kit, Header Prop (P/N 05-1374) - NOT SHOWN

Item No.	Part No.	Description	Qty
1.	36-0053	WRENCH, COMBINATION, 1 1/16"	1
2.	36-0008	WRENCH, L, 3/16" HEX	1
3.	36-0010	WRENCH, L, 1/4" HEX	1
4.	36-0011	WRENCH, L, 5/16" HEX	1
5.	36-0106	SOCKET, 1/2" DRIVE X 3/4" HEX	1
6.	36-0186	RATCHET, 1/2" DRIVE	1