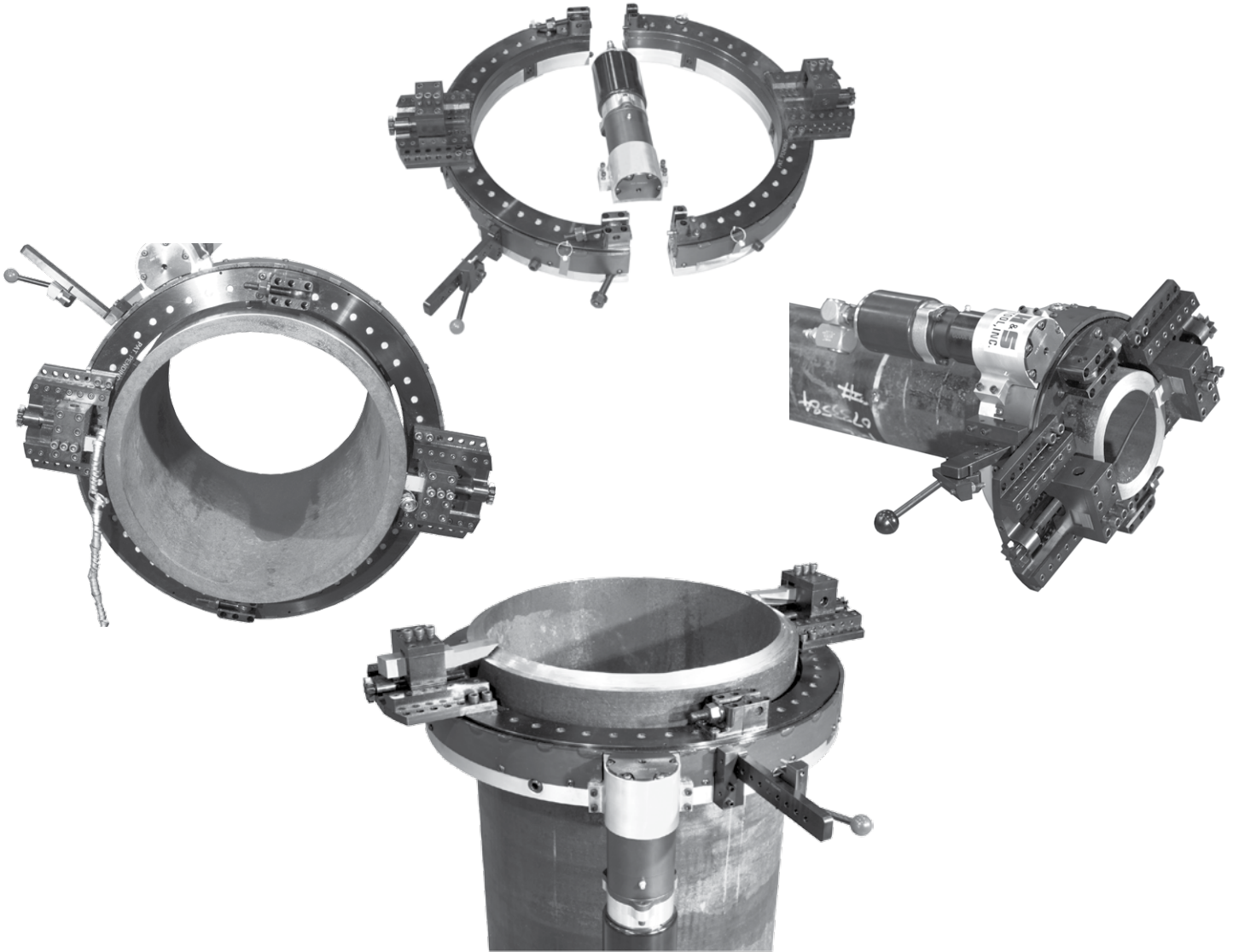


# Split Frame Clamshell Operation and Parts Manual



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A CLIMAX COMPANY

**Corporate**

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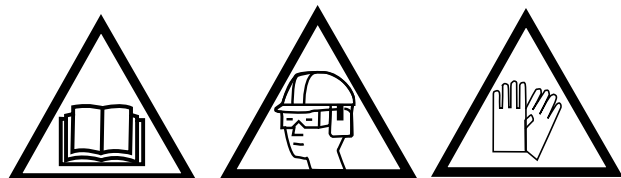
## Pneumatic Operating Safety Instructions

When using a pneumatic motor, make sure the throttle lever (Dead Man Handle - DMH) is locked in the "OFF" position when not in use to avoid unexpected movement or injury. Make sure the DMH throttle lever operates properly before running the machine. Disengage the safety lock and depress the DMH throttle lever to actuate the motor.



### **CAUTION!**

**Read the Operation & Safety instructions thoroughly before attempting to operate this machine. Call the factory or your H&S Tool representative if you have any questions.**



## Operation & Safety Instructions

- 1) Wear appropriate protective safety equipment including: Safety glasses, gloves, hard hat, steel toe shoes, ear plugs, hair restraints, and coveralls.
- 2) Keep loose clothing, long hair, or any unsecured parts away from operating machines and moving parts.
- 3) Keep the work site clean. Use a brush to remove chips from cutting area and equipment DO NOT use your hands or an air hose to remove chips and swarf.
- 4) Ensure adequate work space around the work piece before mounting the clamshell assembly.
- 5) When severing pipe, support both sides of the cut to avoid the bit becoming trapped or breaking.
- 6) Before connecting the power source to the clamshell, make sure the following pieces are tightly secured:
  - a) Clamshell split Line at the aluminum body swing bolts
  - b) Ring gear swing bolts – front of clamshell
  - c) Tool block – tool holder – tool bit inserts
  - d) Locator pads – locator pad extensions
  - e) Tripper Assembly Components
  - f) Motor and motor mounts
- 7) KEEP HANDS AWAY FROM CLAMSHELL WHEN ROTATING!  
Adjustments should only be made when the clamshell is stopped and the power source is disconnected.
- 8) Never move or work on the clamshell without checking that all air, hydraulic or electric has been removed and that there is no chance of any power being supplied to the assembly.
- 9) In the event of a power failure – close all valves and remove hoses and or electric lines to reduce the risk of operator injury when power returns.

**Working Safely is Working Smartly!**

## Introduction

### General Description:

The split frame machines are portable pipe lathes designed to simultaneously sever and bevel in-line pipe, plus form an angle bevel as they cut. The frame is split for easy installation on in-line pipe. The tool bits automatically feed into the work piece with each rotation of the clamshell to assure a smooth, precise finish.

### MACHINING FUNCTION & CAPACITIES:

- Sever In-Line Pipe
- Sever and Bevel In-Line Pipe
- Sever and J-Bevel In-Line Pipe
- Sever and Double Bevel In-Line Pipe
- Counter bore
- Flange Resurfacing

### Drive Assembly:

There are several different drive arrangements available for the H&S clamshells. Drive options can be changed to suite your particular needs or type of environment that the work is being performed in. You have a choice between – Electric, Hydraulic & Pneumatic.

### Tooling:

High speed steel ½" x 1" sever tool bits and 1" x 1" bevel/sever combination tool bits are standard. Tool bits with replaceable carbide inserts are optional. Your local distributor stocks all standard configurations for right and left hand severing and beveling. Specialty and indexable tool bits can be designed as required.

## Components

### Main Body:

An aluminum split ring that is capable of being disassembled for installation on in-line piping and holds the motor assembly and adjustable locator clamping pads & tripper assembly.

### Track Ring:

A precision machined ring, attached to the main body that provides a tough, wear resistant bearing surface for the roller bearings to ride in providing the means for the assembly to rotate.

### Bearing Assemblies:

The cutting head assembly runs on precision bearings mounted on the ring gear. The bearings are encapsulated in the track ring and are designed to provide for axial and radial forces created during cutting operations.

### Ring Gear:

The ring gear provides the front surface that the tool slides and accessories attach to. It also provides the mechanical interface with the drive motor thru gear teeth.

### Drive Assembly:

The drive assembly is an aluminum housing that contains a pinion gear on a shaft that is supported by a patent-pending bearing arrangement. The motor assembly is designed to be removed easily and provide the appropriate gear mesh for smooth operation. Solidly mounted with four bolts, the assembly is consistently located flush with the back of the body ring.

### Tool Slide Assembly:

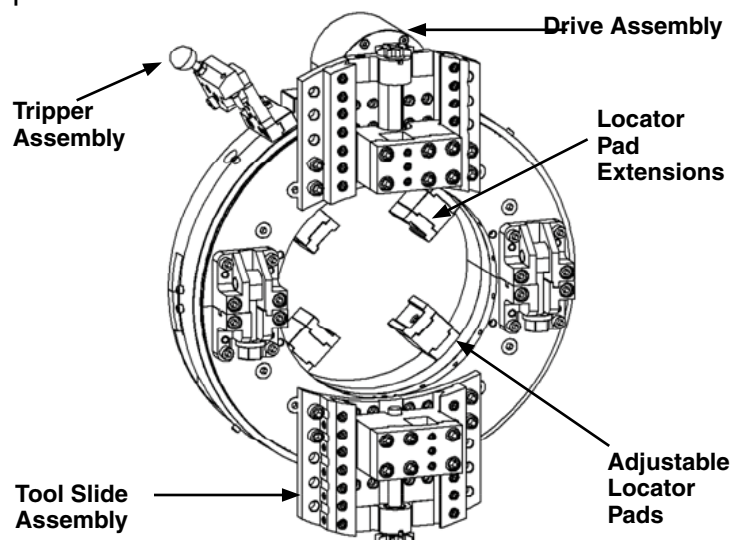
The slide assembly tool block holds the different types of cutting tools. The slide assembly has an adjustable gib and a feed screw that provides the ability to feed the tooling into the work piece. The slide assembly is bolted to the ring gear face of the clamshell and can be adjusted in or out in 3/4" increments by moving four bolts.

### Tripper Assembly:

The tripper assembly is bolted to the outside of the of the body ring and holds the tripper pin. The tripper pin is used to turn the star wheel on the feed screw slide assembly. This "feeds" the tool bit into the work piece. One or more tripper assemblies can be used at a time.

### Locator Pad Assembly:

The H&S Series clamshells use adjustable locator pad assemblies with 3/4" of travel. Turning set screws located on the outside of the body ring actuates the adjustable locators. To mount the clamshell on smaller diameters, locator extensions are bolted to the adjustable locator pads.





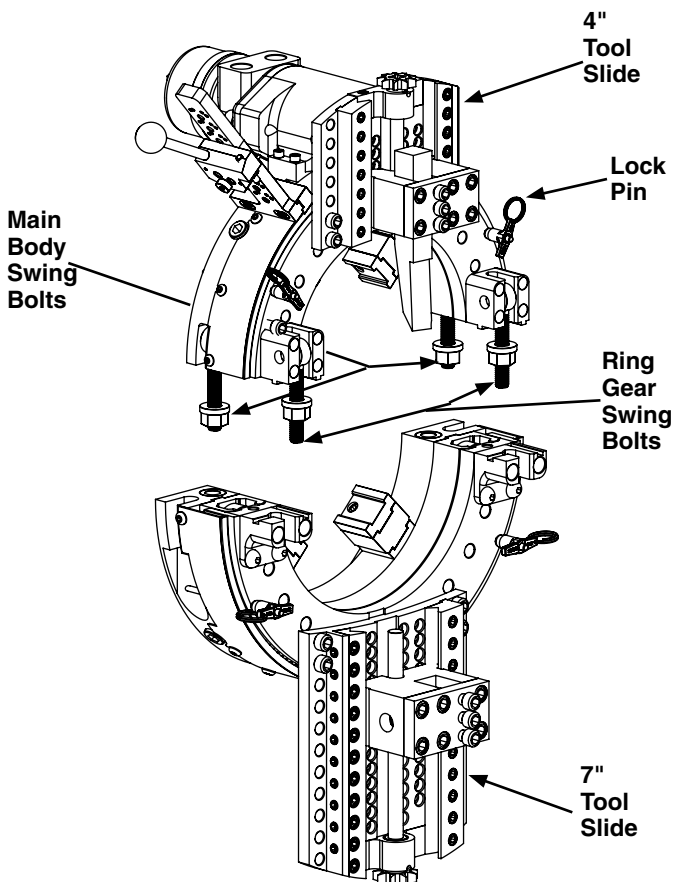
## Machine Set Up

**NOTE:** Models BFC-66 and larger are shipped in 4 sections. See index page for location of pre-assembly instructions.

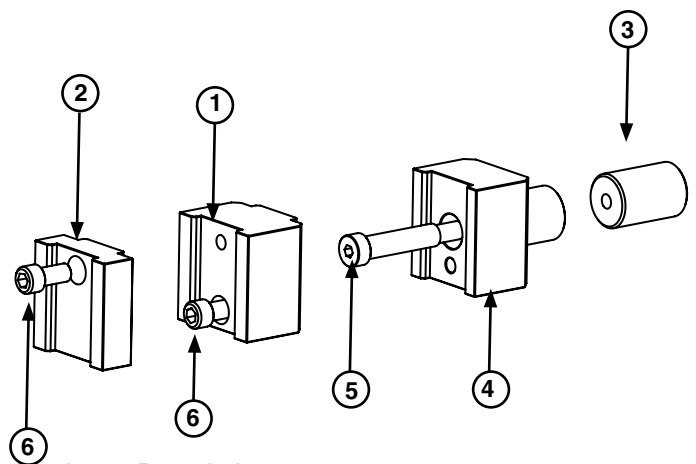
### Separating Clamshell Halves:

1. Rotate the ring gear by hand until both the gear and main body housing split lines are aligned. If the lock pin holes in the gear will not line-up with the holes in the housing, rotate the gear back and forth until the holes are aligned. Place the lock pins thru the gear and housing to hold the halves from any further movement (see illustration below). There are 4 positions and locking pins.
2. Loosen the 2 main body swing bolt flange nuts in the and swing them out of the pockets. Loosen the 2 ring gear swing bolts and swing them out of the way.
3. Separate the clamshell halves by pulling them apart at the split line.

**Caution:** Do not force the halves apart. The soft dead-blow hammer (supplied in your tool kit) can be used to tap the assembly at the split line. The halves must separate evenly.



4. Determine pipe O.D. and select proper locator extensions. If required, bolt the locator extensions to the adjustable locator pads (see illustration below). The locator pads are adjusted by turning the set screws that are accessed from the outside of the housing with a 3/8" hex key. Back-up the locator pads as needed for the proper clearance of the pipe diameter. The optimum condition is to have as much of the foot in the pocket of the body ring as possible. This adds rigidity to the entire machine. Ensure the motor mount area will be accessible when the clamshell is tightened into position.



Item	Description
1	1" Locator Pad Extension
2	1/2" Locator Pad Extension
3	3/4" Set Screw
4	Adjustable Locator Pad
5	5/16" x 1-1/4" Shoulder Bolt
6	1/4"- 20 x 3/4" Socket Head Cap Screw

### Locator Extension

5. Make sure the tool slide assemblies are positioned to clear the work piece but are as close to the O.D. as possible (See Fig. 1 and 2 on the next page). The tool slides can be moved by removing the 4 – 3/8"-16 socket head cap screws at the base of the slides. Reposition them to a new set of holes and replace the bolts.

**Caution:** The 3/8"-16 bolts for the slide assembly are a special length – If the wrong bolts are used they may interfere with the proper operation of the rollers beneath in the track ring.

6. Remove the lock pins so that ring gear can be turned by hand – position the handle of the tripper assembly so that it is in the “engaged” position – check that the alignment with the star wheel is adjusted so that the tripper pin makes adequate contact without any obstructions. The tripper bracket at the base may be adjusted as needed and the length of the tripper pin may be adjusted as needed.

**Caution:** Rotate the ring gear by hand to make sure there are no interferences in the engagement and operation of tripper assembly before running the clamshell under powered conditions.

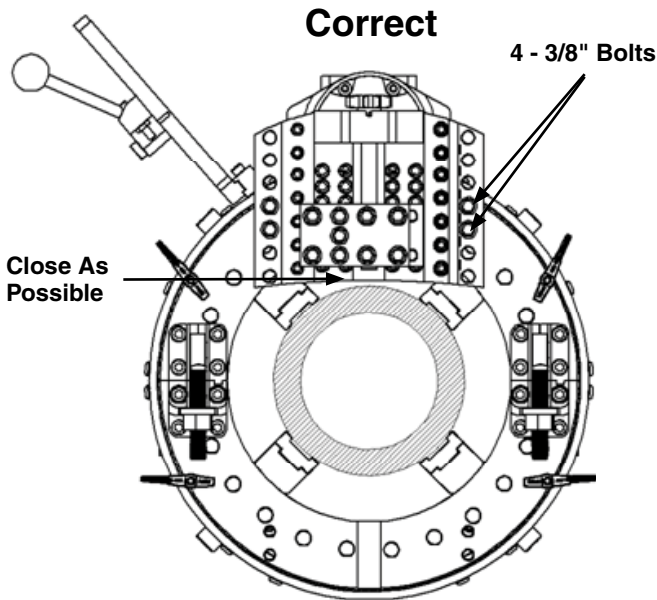


Fig. 1

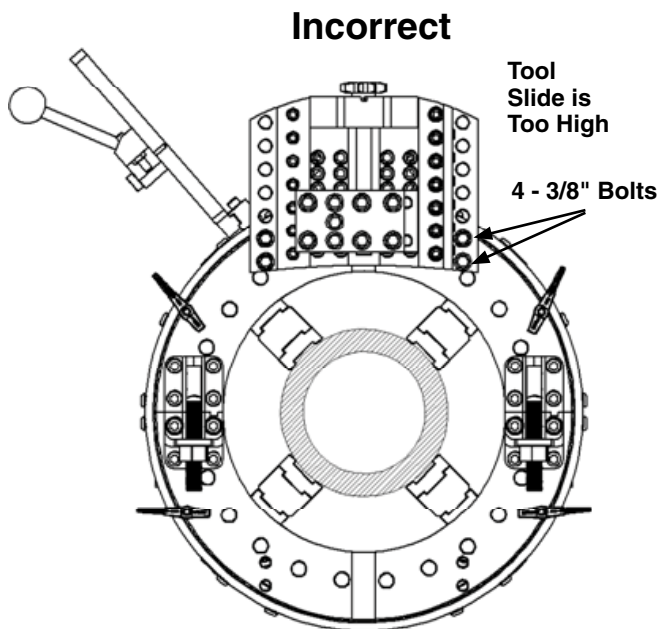
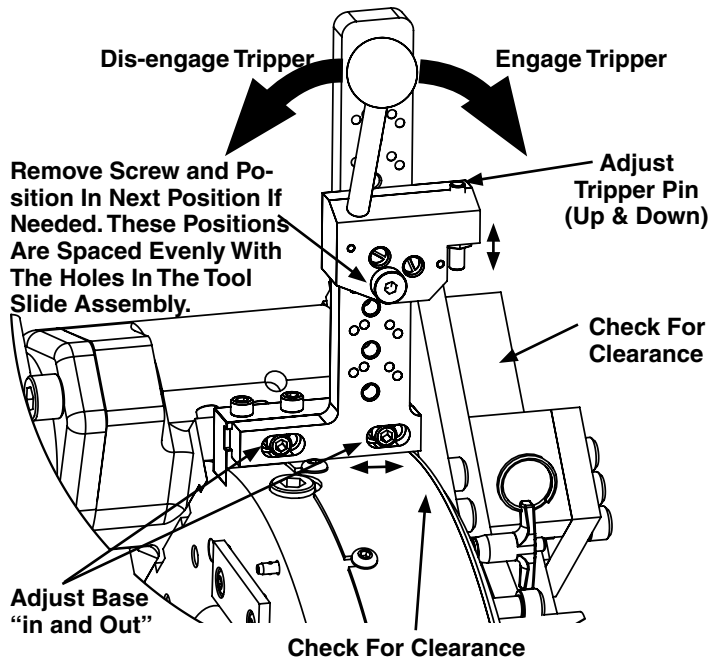


Fig. 2



Note: A tripper pin extension is provided with the tool kit. This extension is required when the 2" tool slide is mounted even with the outside diameter of the main body.

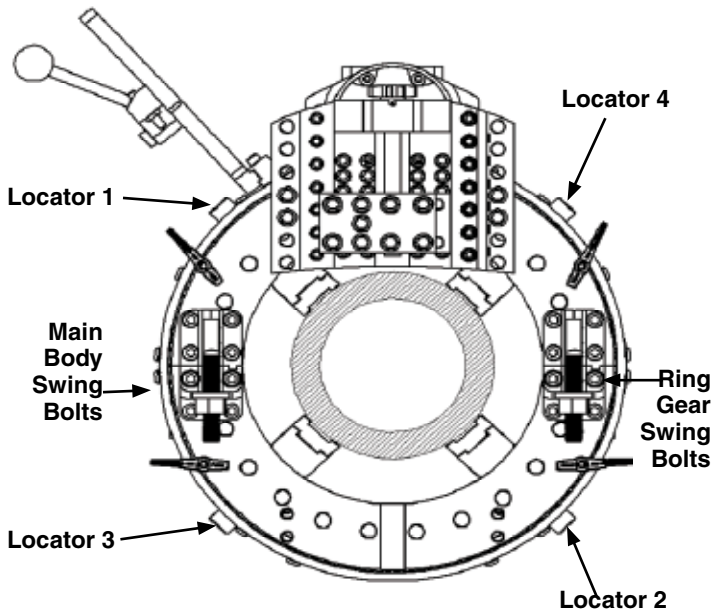
To install the extension, first remove the tripper pin and nut. Thread the 1/4"-20 x 1" socket head cap screw from the top until it contacts the tripper bracket and tighten securely. Screw the hex extension onto the exposed threads underneath the tripper bracket and tighten it securely. Thread the lock nut onto the tripper pin and insert the tripper pin into the hex extension. Adjust the depth of the tripper pin to achieve proper alignment with the star wheel and tighten the lock nut against the hex extension.

## Installation On In-line Pipe

### Joining Clamshell Halves:

1. Install the two halves of the clamshell around the pipe. Tighten the main body swing bolts and the ring gear swing bolts.

**Note:** If clamshell will not close, check the locator pads for proper size and clearance. Adjust the locators if necessary.



2. Lightly tighten two adjustable locator pads directly across from each other (Locators 1 & 2) just enough to secure the clamshell while trying to keep it centered on the work piece. Lightly tighten two more locator pads that are directly across from each other and close to 90° away from the first set of (locators 3 & 4). **DO NOT TIGHTEN** the locators down completely until the clamshell has been squared to the pipe.

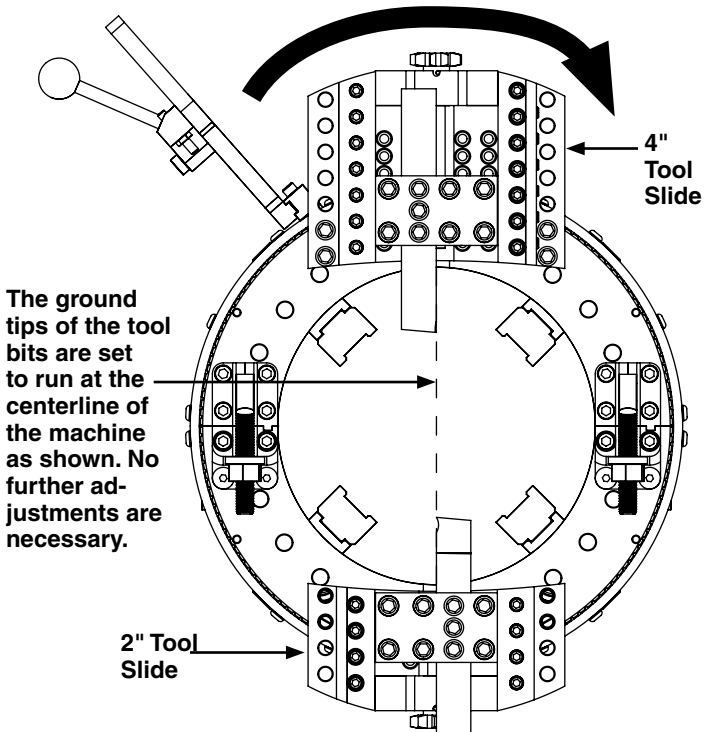
## SQUARING & CENTERING

1. Squaring: Square is checked at the locator positions. Hold the square against the back of the machine housing and the pipe. Move the machine to square and tighten the locator a little more at each location.
2. Centering: Using a scale, measure the distance from the pipe O.D. to the clamshell I.D. at opposing locator positions (#1 and #2, #3 and #4 on the illustration to the left). Adjust the locator pads until they are as close to the same dimension as possible. Tighten the locators securely to lock the machine in position on the pipe. Pull out the locking pins so the ring gear can rotate.
3. Fine Centering: Mount a dial indicator on the gear face with the tip resting on the work piece O.D. Turn the gear so the indicator is positioned over one of the locators then tighten (Locator 1) and set the dial to zero. Slowly rotate the gear 180° to another locator (Locator 3) and take an indicator reading. If the reading is not zero, adjust the locators until the indicator reads one-half of the original reading. Reset the indicator dial to zero and repeat. If the machine cannot be centered and properly locked, different locators are required.
4. Rotate the ring gear so the indicator is positioned over another locator (Locator 2) and tighten, set the dial to zero. Slowly rotate the gear 180° to another locator (Locator 4) and take an indicator reading. If the reading is not zero, adjust the locators until the indicator reads one-half of the original reading. Reset the indicator dial to zero and repeat. The first two locators may need to be slightly loosened in order to zero the clamshell to work piece.
5. Repeat steps 3 and 4 for all of the locators. Most thin wall pipes are out of round, therefore a zero reading all the way around may not be possible.

**SETTING TOOL BITS:**

1. Prior to installation of tool bits, determine which tool bits must be used for your specific machining operations.

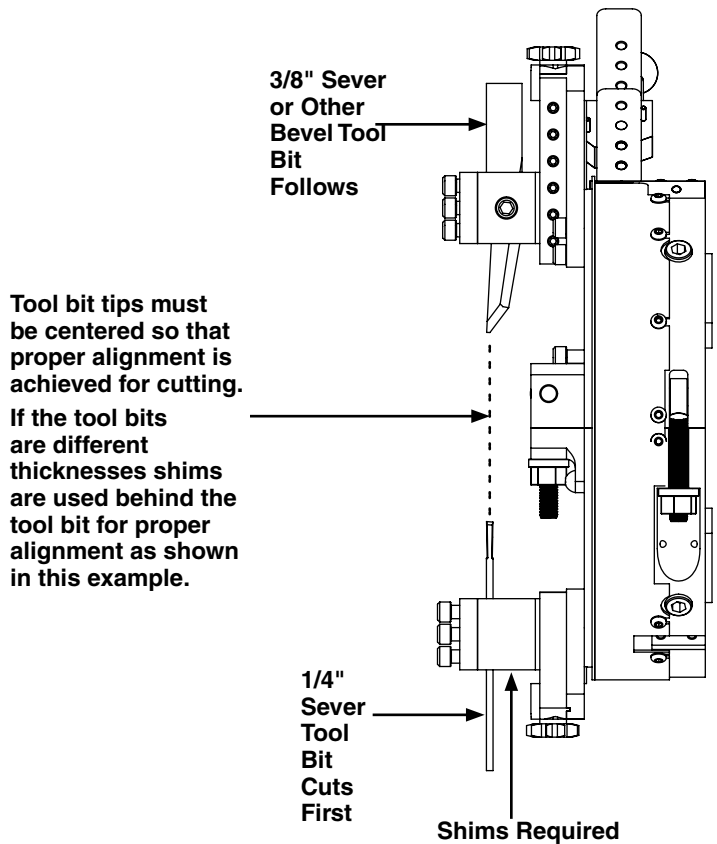
**Note:** The Clamshell cuts in a CLOCKWISE direction, when viewed at its face. There are right hand and left hand bevel and sever bits. Right hand bits bevel on the side which the clamshell is mounted. Left hand bits bevel on the opposite side.



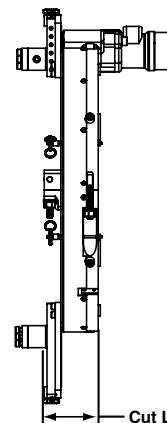
- Using the star wheel wrench, back the tool blocks away from the pipe, to allow enough room for the tool bits to pass completely through the work piece without running the tool block into the work piece. Disengage the feed pin on the tripper assembly.
- Insert the proper beveling and severing tool bits so that the tip of the bit touches the pipe O.D. hold each tool bit with one cap screw, snug but not tight.

4. Manually rotate the cutting head counter-clockwise one revolution. This reverse action will push the tool bits away from any high spots in the pipe that could cause tool damage. After one complete revolution has been made tighten the cap screws on both tool blocks. Back the bevel bit 1/32" away from the work piece with the star wheel wrench.

**Important:** The 1/4" sever bit must always cut ahead of either the 3/8" sever bit or any bevel bit to avoid damage and increase accuracy (see below).



**Cut Line Dimensions**



AFC 5.1" (129.5 mm)  
BFC 7.2" (182.9 mm)



## Motor Installation



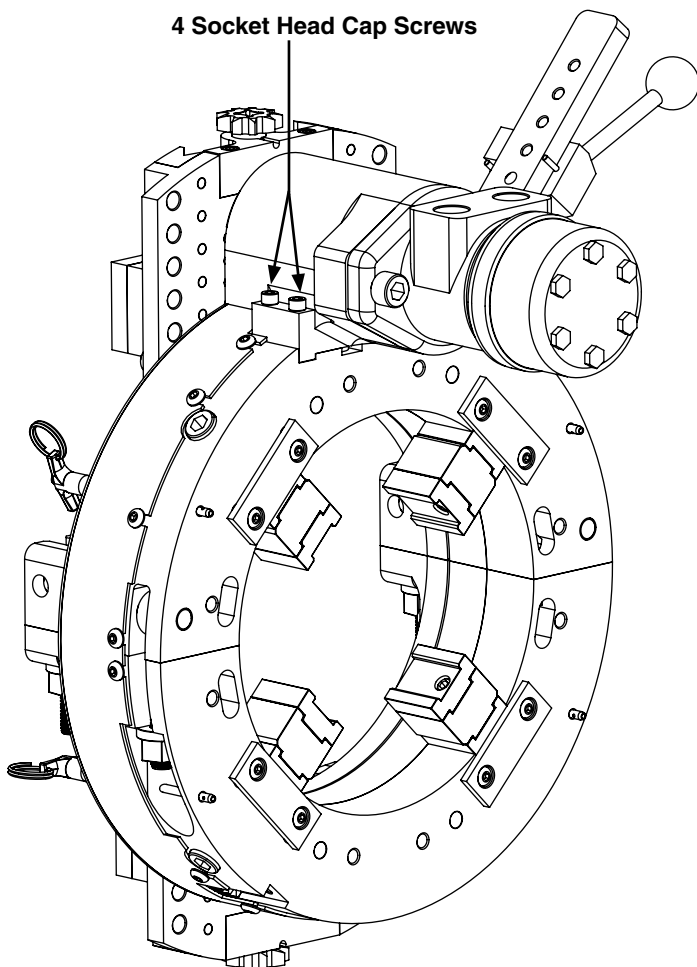
**CAUTION: ALL Locking pins must be removed from the gear face before installing the motor, and all power must be turned off.**

1. There are multiple motor options available for powering the clamshell – electric, pneumatic size 3800, pneumatic size 4800, right angle drive and hydraulic, depending on your requirements at the job sight. Position the drive gear of the motor towards the rear of the body of the clamshell, align the 4 fasteners with their mating holes in the body and snug the fasteners up evenly and tighten.

If there is interference with the motor, adapters can be used to mount the motor out the front, at right angle and one that is bidirectional.

Note: If the motor does not engage, make sure the two gears are properly aligned. Rotate the ring gear by hand if necessary to align gear teeth.

## Machine Operation:



## Severing In-Line Pipe:

1. Follow set-up procedures, replacing the bevel tool bit with another sever tool bit. Back up both tool bits (out approximately 1/32"). Attach the drive motor to the clamshell, disengage the tripper pin and depress the DMH throttle lever slowly to check function and speed.

**Note:** Typical sever tooling includes 1/4" wide & 3/8" wide sever blades run together with the 1/4" blade cutting 1/32" deeper ahead of the 3/8" wide blade.



**CAUTION:** The cutting operation is continuous until terminated by the operator. To stop the cutting feed during rotation, **MOVE THE TRIPPER HANDLE TOWARDS THE REAR OF THE MACHINE TO DISENGAGE** and let the machine rotate a few times to clear the tool bit. Turn off the power to stop the clamshell rotation. Letting the tool bit clear will prevent tool damage and gouging.

2. Start the motor and engage the tripper pin by moving the tripper handle towards the front of the machine. Each rotation will advance the tool bit approximately .0035". Allow the tripper pin to advance the feed of the tool bits until both of the tool bits are cutting. If chatter or vibration occurs, reduce cutting RPM. If the tool bits chip or become dull, replace them immediately with sharp bits. **NEVER TRY TO RE-SHARPEN THE TOOL BITS**, they must be sent back to the factory for regrinding to maintain proper relief angles.

**(DAMAGE TO THE MACHINE COULD OCCUR.)**

Use coolant during the cutting operation to reduce friction and extend bit life.

3. Stop the machine when severing is complete. Retract the tool blocks with the star wheel wrench to the start position.

## Severing and Beveling In-Line Pipe:

1. Follow the tool bit setup procedures replacing both sever tool bits with either left hand or right hand sever, bevel combinations. Retract the bevel tool bit 1/32" above the sever bit and follow the procedures above.



**CAUTION: To prevent damage to the tool bit, the work piece to be cut must be rigged properly to keep the tool from binding when the pipe is severed. Improperly rigged piping may result in personal injury.**

## Using the Counter Bore Attachments

Two types of counter bore attachments are offered - fixed and swivel. Each can be ordered with a 6" or 10" barrel. Beveling and flange reconditioning can also be accomplished with these.

The fixed counter bore bit always enters the work piece at a 90° angle. The swivel bit can enter the work piece from 0° - 30°. The swivel type also offers coverage over a greater range of pipe sizes.

### Mounting the Attachment

1. To mount either counter bore attachment, remove the tool slide cap from the machine that is already mounted on the pipe and bolt the attachment onto the tool block.

2. Insert the bit into the counter bore attachment and secure it with the set screws. The cutting edge side faces the same as the set screws.

### Fixed Type Setup

1. Using the feed handle, adjust the bit position at the proper distance to begin the machining process.
2. Lock the barrel in position.
3. Use the speed handle provided to turn the star wheel on the tool slide and set the horizontal position of the bit at the desired entry point of the pipe wall.

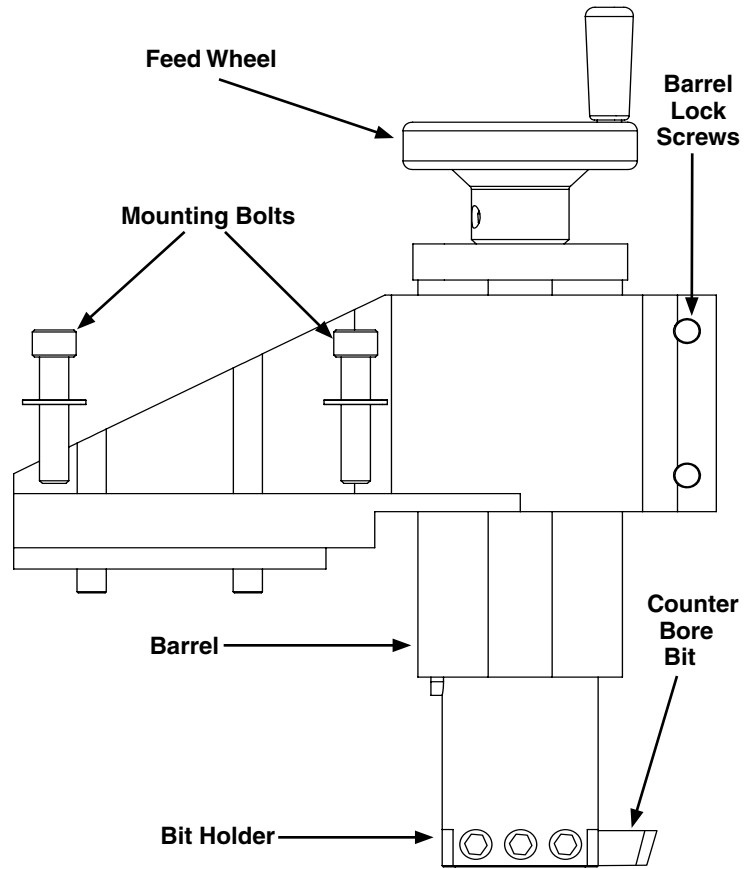
### Swivel Type Setup

1. Loosen the Angle Adjustment Locking Screws and adjust the angle of the barrel to the desired counter bore profile. Tighten the locking screws.
2. Set the barrel height and lock it into position.
3. Turn the feed handle to adjust the height of the tool bit to the entry point of pipe wall.
4. Adjust the horizontal positioning of the bit with the speed wrench in the star wheel on the tool slide. Stop before contacting the pipe wall.

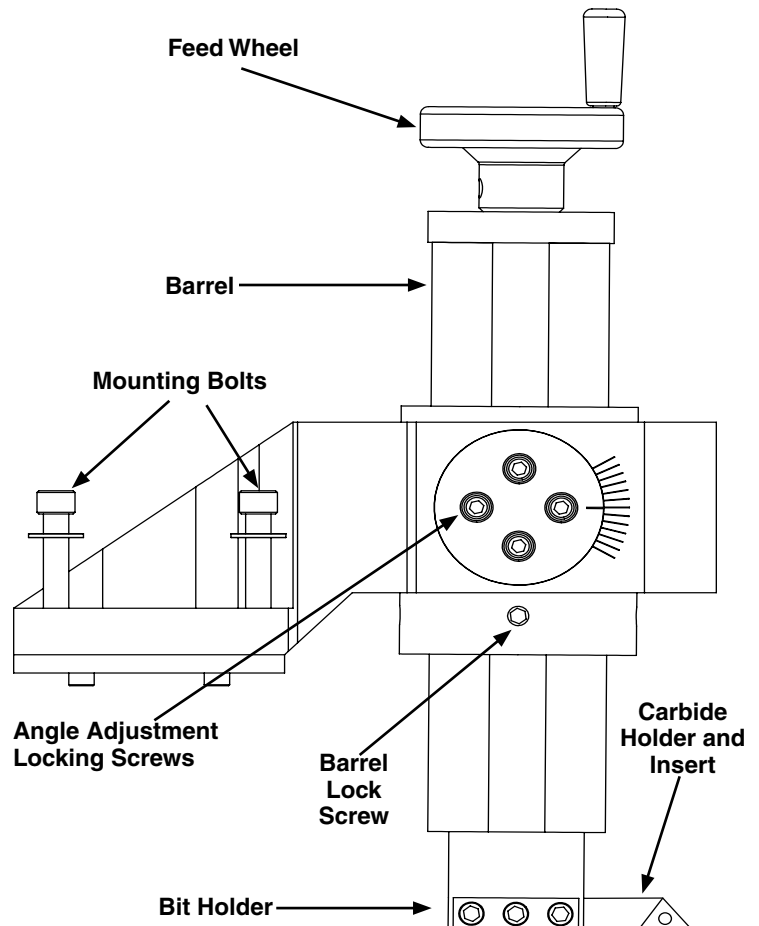
### Operating the Counter Bore Attachment

1. Check that all bolts and screws are tight and that the area is clear for tool operation.
2. Start the motor and turn the feed handle approximately 1/4 turn per revolution. Continue to turn the feed wheel at each revolution until the desired depth is achieved.
4. Stop the motor, reposition the bit to the top entry point of the pipe wall and adjust the horizontal position to just off of the pipe wall. Continue until the desired I.D. and depth have been achieved.

## Fixed Counter Bore Attachment



## Swivel Counter Bore Attachment



## AFC Locator Extensions Coverage

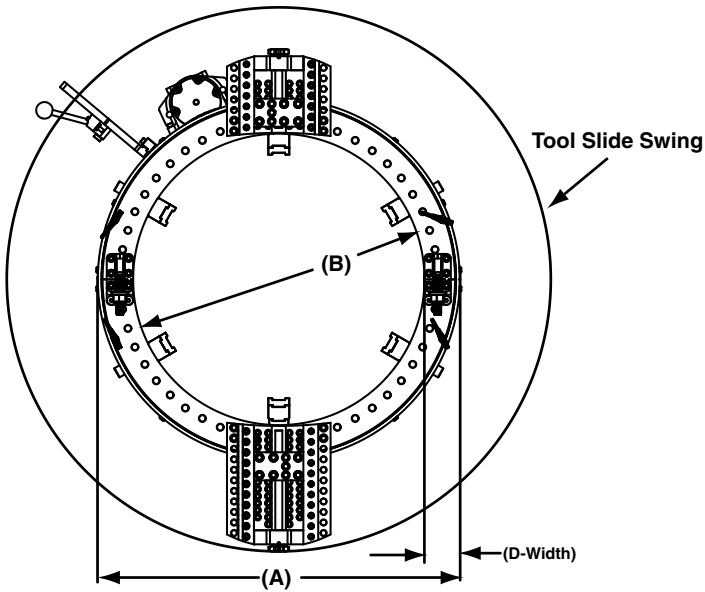
	STANDARD RANGE	½"	1"	1.5"	2"	2.5"	3"	3.5"	4"
AFC4	5.000" - 3.500" mm 127 - 88.9	4.000" - 2.500" 101.6 - 63.5	3.000" - 1.500" 76.2 - 38.1	2.000" - 0.500" 50.8 - 12.7					
AFC6	7.125" - 5.625" mm 181.0 - 142.9	6.125" - 4.625" 155.6 - 117.5	5.125" - 3.625" 130.2 - 92.1	4.125" - 2.625" 104.8 - 66.7	3.125" - 1.625" 79.4 - 41.3				
AFC8	9.125" - 7.625" mm 231.8 - 193.7	8.125" - 6.625" 206.4 - 168.3	7.125" - 5.625" 181.0 - 142.9	6.125" - 4.625" 155.6 - 117.5	5.125" - 3.625" 130.2 - 92.1	4.125" - 2.625" 104.8 - 66.7			
AFC10	11.250" - 9.750" mm 285.8 - 247.7	10.250" - 8.750" 260.4 - 222.3	9.250" - 7.750" 235.0 - 196.9	8.250" - 6.750" 209.6 - 171.5	7.250" - 5.750" 184.2 - 146.1	6.250" - 4.750" 158.8 - 120.7	5.250" - 3.750" 133.4 - 95.3		
AFC12	13.250" - 11.750" mm 336.6 - 298.5	12.250" - 10.750" 311.2 - 273.1	11.250" - 9.750" 285.8 - 247.7	10.250" - 8.750" 260.4 - 222.3	9.250" - 7.750" 235.0 - 196.9	8.250" - 6.750" 209.6 - 171.5	7.250" - 5.750" 184.2 - 146.1	6.250" - 4.750" 158.8 - 120.7	
AFC14	14.500" - 13.000" mm 368.3 - 330.2	13.500" - 12.000" 342.9 - 304.8	12.500" - 11.000" 317.5 - 279.4	11.500" - 10.000" 292.1 - 254.0	10.500" - 9.000" 266.7 - 228.6	9.500" - 8.000" 241.3 - 203.2	8.500" - 7.000" 215.9 - 177.8	7.500" - 6.000" 190.5 - 152.4	6.500" - 5.000" 165.1 - 127.0
AFC16	16.500" - 15.000" mm 419.1 - 381.4	15.500" - 14.000" 393.7 - 356.0	14.500" - 13.000" 368.3 - 330.2	13.500" - 12.000" 342.9 - 304.8	12.500" - 11.000" 317.5 - 279.4	11.500" - 10.000" 292.1 - 254.0	10.500" - 9.000" 266.7 - 228.6	9.500" - 8.000" 241.3 - 203.2	8.500" - 7.000" 215.9 - 177.8
AFC18	18.750" - 17.250" mm 476.3 - 438.2	17.750" - 16.250" 450.9 - 412.8	16.750" - 15.250" 425.5 - 387.4	15.750" - 14.250" 400.1 - 362.0	14.750" - 13.250" 374.7 - 336.6	13.750" - 12.250" 349.3 - 311.2	12.750" - 11.250" 323.9 - 285.8	11.750" - 10.250" 298.5 - 260.4	10.750" - 9.250" 273.1 - 235.0
AFC20	20.750" - 19.250" mm 527.1 - 489.9	19.750" - 18.250" 501.7 - 464.6	18.750" - 17.250" 476.3 - 438.2	17.750" - 16.250" 450.9 - 412.8	16.750" - 15.250" 425.5 - 387.4	15.750" - 14.250" 400.1 - 362.0	14.750" - 13.250" 374.7 - 336.6	13.750" - 12.250" 349.3 - 311.2	12.750" - 11.250" 323.9 - 285.8
AFC24	24.750" - 23.250" mm 628.7 - 590.6	23.750" - 22.250" 603.3 - 565.2	22.750" - 21.250" 577.9 - 539.8	21.750" - 20.250" 552.5 - 514.4	20.750" - 19.250" 527.1 - 489.0	19.750" - 18.250" 501.7 - 463.6	18.750" - 17.250" 476.3 - 438.2	17.750" - 16.250" 450.9 - 362.0	16.750" - 15.250" 425.5 - 387.4
AFC26	26.750" - 25.250" mm 679.5 - 641.4	25.750" - 24.250" 654.0 - 616.0	24.750" - 23.250" 628.65 - 590.6	23.750" - 22.250" 603.25 - 565.2	22.750" - 21.250" 577.9 - 539.8	21.750" - 20.250" 552.5 - 514.4	20.750" - 19.250" 527.1 - 489.0	19.750" - 18.250" 501.7 - 463.6	18.750" - 17.250" 476.3 - 438.2
AFC28	28.750" - 27.250" mm 730.3 - 692.2	27.750" - 26.250" 704.9 - 666.8	26.750" - 25.250" 679.5 - 641.4	25.750" - 24.250" 654.0 - 616.0	24.750" - 23.250" 628.7 - 590.6	23.750" - 22.250" 603.3 - 565.2	22.750" - 21.250" 577.9 - 539.8	21.750" - 20.250" 552.5 - 514.4	20.750" - 19.250" 527.9 - 489.0
AFC30	31.000" - 29.500" mm 787.4 - 749.3	30.000" - 28.500" 762.0 - 723.9	29.000" - 27.500" 736.6 - 698.5	28.000" - 26.500" 711.20 - 673.1	27.000" - 25.500" 685.8 - 647.7	26.000" - 24.500" 660.4 - 622.3	25.000" - 23.500" 635.00 - 596.9	24.000" - 22.500" 609.6 - 571.5	23.000" - 21.500" 584.2 - 546.1
AFC32	33.000" - 31.500" mm 838.2 - 800.1	32.000" - 30.500" 812.8 - 774.7	31.000" - 29.500" 787.4 - 749.3	30.000" - 28.500" 762.0 - 723.9	29.000" - 27.500" 736.6 - 698.5	28.000" - 26.500" 711.2 - 673.1	27.000" - 25.500" 685.8 - 647.7	26.000" - 24.500" 660.4 - 622.3	25.000" - 23.500" 635.0 - 596.9
AFC36	37.000" - 35.500" mm 939.8 - 901.7	36.000" - 34.500" 914.4 - 876.3	35.000" - 33.500" 889.0 - 850.9	34.000" - 32.500" 863.6 - 825.5	33.000" - 31.500" 838.2 - 800.1	32.000" - 30.500" 812.8 - 774.7	31.000" - 29.500" 787.4 - 749.3	30.000" - 28.500" 762.0 - 723.9	29.000" - 27.500" 736.6 - 698.5
AFC39	40.000" - 38.500" mm 1016.0 - 977.9	39.000" - 37.500" 990.6 - 952.5	38.000" - 36.500" 965.2 - 927.1	37.000" - 35.500" 939.8 - 901.7	36.000" - 34.500" 914.4 - 876.3	35.000" - 33.500" 889.0 - 850.9	34.000" - 32.500" 863.2 - 825.5	33.000" - 31.500" 838.2 - 800.1	32.000" - 30.500" 812.8 - 774.7
AFC42	43.000" - 41.500" mm 1092.2 - 1054.1	42.000" - 40.500" 1066.8 - 1028.7	41.000" - 39.500" 1041.4 - 1003.3	40.000" - 38.500" 1016.0 - 977.9	39.000" - 37.500" 990.6 - 952.5	38.000" - 36.500" 965.2 - 927.1	37.000" - 35.500" 939.8 - 901.7	36.000" - 34.500" 914.4 - 876.3	35.000" - 33.500" 889.0 - 850.9
AFC48	49.250" - 47.750" mm 1251.0 - 1212.9	48.250" - 46.750" 1225.6 - 1187.5	47.250" - 45.750" 1200.2 - 1162.1	46.250" - 44.750" 1174.8 - 1136.7	45.250" - 43.750" 1149.4 - 1111.3	44.250" - 42.750" 1124.0 - 1085.9	43.250" - 41.750" 1098.6 - 1060.5	42.250" - 40.750" 1073.2 - 1035.1	41.250" - 39.750" 1047.8 - 1009.7

## BFC Locator Extensions Coverage\*

	STANDARD RANGE	½"	1"	1.5"	2"	2.5"	3"	3.5"	4"
BFC-36	37.000" - 35.500" mm 939.8 - 901.7	36.000" - 34.500" 914.4 - 876.3	35.000" - 33.500" 889.0 - 850.9	34.000" - 32.500" 863.6 - 825.5	33.000" - 31.500" 838.2 - 800.1	32.000" - 30.500" 812.8 - 774.7	31.000" - 29.500" 787.4 - 749.3	30.000" - 28.500" 762.0 - 723.9	29.000" - 27.500" 736.6 - 698.5
BFC-42	43.000" - 41.500" mm 1092.2 - 1054.1	42.000" - 40.500" 1066.8 - 1028.7	41.000" - 39.500" 1041.4 - 1003.3	40.000" - 38.500" 1016.0 - 977.9	39.000" - 37.500" 990.6 - 952.5	38.000" - 36.500" 965.2 - 927.1	37.000" - 35.500" 939.8 - 901.7	36.000" - 34.500" 914.4 - 876.3	35.000" - 33.500" 889.0 - 850.9
BFC-48	49.250" - 47.750" mm 1251.0 - 1212.9	48.250" - 46.750" 1225.6 - 1187.5	47.250" - 45.750" 1200.2 - 1162.1	46.250" - 44.750" 1174.8 - 1136.7	45.250" - 43.750" 1149.4 - 1111.3	44.250" - 42.750" 1124.0 - 1085.9	43.250" - 41.750" 1098.6 - 1060.5	42.250" - 40.750" 1073.2 - 1035.1	41.250" - 39.750" 1047.8 - 1009.7
BFC-56	57.250" - 55.750" mm 1454.2 - 1416.1	56.250" - 54.750" 1428.8 - 1390.7	55.250" - 53.750" 1403.4 - 1365.3	54.250" - 52.750" 1378.0 - 1339.9	53.250" - 51.750" 1352.6 - 1314.5	52.250" - 50.750" 1327.2 - 1289.1	51.250" - 49.750" 1301.8 - 1263.7	50.250" - 48.750" 1276.4 - 1238.3	49.250" - 47.750" 1251.0 - 1200.2
BFC-66	67.500" - 66.000" mm 1714.5 - 1676.4	66.500" - 65.000" 1689.1 - 1651.0	65.500" - 64.000" 1663.7 - 1625.6	64.500" - 63.000" 1638.3 - 1600.2	63.500" - 62.000" 1612.9 - 1574.8	62.500" - 61.000" 1587.5 - 1549.4	61.500" - 60.000" 1562.1 - 1524.0	60.500" - 59.000" 1536.7 - 1498.6	59.500" - 58.000" 1511.3 - 1473.2
BFC-72	73.500" - 72.000" mm 1866.9 - 1828.8	72.500" - 71.000" 1841.5 - 1803.4	71.500" - 70.000" 1816.1 - 1778.0	70.500" - 69.000" 1790.7 - 1752.6	69.500" - 68.000" 1765.3 - 1727.2	68.500" - 67.000" 1739.9 - 1701.8	67.500" - 66.000" 1714.5 - 1676.4	66.500" - 65.000" 1689.1 - 1651.0	65.500" - 64.000" 1663.7 - 1625.6
BFC-86	87.500" - 86.000" mm 2222.5 - 2184.4	86.500" - 85.000" 2197.1 - 2159.0	85.500" - 84.000" 2171.7 - 2133.6	84.500" - 83.000" 2146.3 - 2108.2	83.500" - 82.000" 2120.9 - 2082.8	82.500" - 81.000" 2095.5 - 2057.4	81.500" - 80.000" 2070.1 - 2032.0	80.500" - 79.000" 2044.7 - 2006.6	79.500" - 78.000" 2019.3 - 1981.2
BFC-36		4.5"	5"	5.5"	6"	6.5"	7"	8"	
BFC-36		28.000" - 26.500" mm 711.2 - 673.1	27.000" - 25.500" 685.8 - 647.7	26.000" - 24.500" 660.4 - 622.3	25.000" - 23.500" 635.0 - 596.9	24.000" - 22.500" 609.6 - 571.5	23.000" - 21.500" 584.2 - 546.1	N/A	
BFC-42		34.000" - 32.500" mm 863.6 - 825.5	33.000" - 31.500" 838.2 - 800.1	32.000" - 30.500" 812.8 - 774.7	31.000" - 29.500" 787.4 - 749.3	30.000" - 28.500" 762.0 - 723.9	29.000" - 27.500" 736.6 - 698.5	N/A	
BFC-48		40.250" - 38.750" mm 1022.4 - 984	39.250" - 37.750" 997.0 - 958.9	38.250" - 36.750" 971.6 - 933.5	37.250" - 35.750" 946.2 - 908.1	36.250" - 34.750" 920.8 - 882.7	35.250" - 33.750" 895.4 - 857.3	N/A	
BFC-56		48.250" - 46.750" mm 1022.4 - 1187.5	47.250" - 45.750" 1200.2 - 1162.1	46.250" - 44.750" 1174.8 - 1136.7	45.250" - 43.750" 1149.4 - 1111.3	44.250" - 42.750" 1124.0 - 1085.9	43.250" - 41.750" 1098.6 - 1060.5	42.250" - 40.750" 1073.2 - 1035.1	41.250" - 39.750" 1047.8 - 1009.7
BFC-66		58.500" - 57.000" mm 1485.9 - 1447.8	57.500" - 56.000" 1460.5 - 1422.4	56.500" - 55.000" 1435.1 - 1397.0	55.500" - 54.000" 1409.7 - 1371.6	54.500" - 53.000" 1384.3 - 1346.2	53.500" - 52.000" 1358.9 - 1320.8	52.500" - 51.000" 1333.5 - 1296.1	51.500" - 50.000" 1308.1 - 1270.0
BFC-72		64.500" - 63.000" mm 1638.3 - 1600.2	63.500" - 62.000" 1612.9 - 1574.8	62.500" - 61.000" 1587.5 - 1549.4	61.500" - 60.000" 1562.1 - 1524.0	60.500" - 59.000" 1536.7 - 1498.6	59.500" - 58.000" 1511.3 - 1473.2	58.500" - 57.000" 1485.9 - 1447.8	57.500" - 56.000" 1460.5 - 1422.4
BFC-86		78.500" - 77.000" mm 1993.9 - 1955.8	77.500" - 76.000" 1968.5 - 1930.4	76.500" - 75.000" 1943.1 - 1905.0	75.500" - 74.000" 1917.7 - 1879.6	74.500" - 73.000" 1892.3 - 1854.2	73.500" - 72.000" 1866.9 - 1828.8	72.500" - 71.000" 1841.5 - 1803.4	71.500" - 70.000" 1816.1 - 1778.0

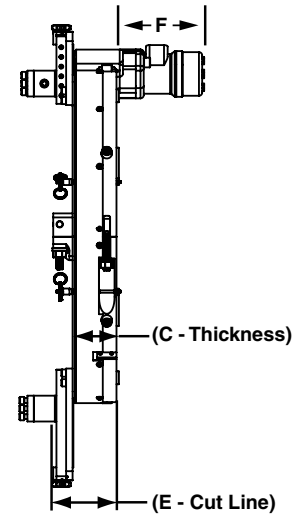
\*All locator extensions over 4" (101.6 mm) are achieved by combining other sizes (i.e. 7"[177.8 mm] can use a 4" and 3" [101.6 and 76.2 mm] or a 4", 2" and 1" [101.6, 50.8 and 25.4 mm]).

## AFC Dimensional Specifications



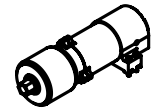
C = 3.4" 86.4 mm  
D = 2.5" 63.5 mm  
E = 5.1" 129.5 mm

F =  
Pneumatic  
MFC-2 = 2.670" 67.8 mm  
AFC-4, -6, -8 & -10 = 9.1" 231.1 mm  
AFC-12 & Larger = 11.0" 279.4 mm  
Electric = 15.1" 383.5 mm  
Hydraulic = 6.9" 175.3 mm



### AFC Series

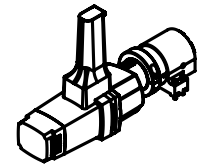
Model	Nom. Pipe Size	A	B	1" Slide Swing	2" Slide Swing	3" Slide Swing	4" Slide Swing	7" Slide Swing	Locator Pads
AFC-4	1" - 4"	10.026"	5.000"	10.649"	12.869"	14.921"	16.921"		4
	mm 33.4 - 114.3	254.7	127.0	270.5	326.9	379.0	429.8		
AFC-6	2" - 6"	12.150"	7.125"	12.801"	15.021"	17.073"	19.073"		4
	mm 60.3 - 168.3	308.6	181.0	325.1	381.5	433.7	484.4		
AFC-8	3" - 8"	14.149"	9.125"	15.149"	17.369"	19.423"	21.421"	27.370"	4
	mm 88.9 - 219.1	359.4	231.8	384.8	441.2	493.3	544.1	695.2	
AFC-10	4" - 10"	16.315"	11.250"	17.468"	19.688"	21.740"	23.740"	29.688"	4
	mm 114.3 - 273.1	414.40	285.75	443.7	500.1	552.2	603.0	754.1	
AFC-12	6" - 12"	18.400"	13.250"	19.014"	21.234"	23.286"	25.286"	31.234"	4
	mm 152.4 - 323.9	467.4	336.6	483.0	539.3	591.5	642.3	793.3	
AFC-14	6" - 14"	19.650"	14.500"	20.228"	22.448"	24.500"	26.500"	32.449"	4
	mm 168.3 - 355.6	499.11	368.3	513.8	570.18	622.3	673.1	824.2	
AFC-16	8" - 16"	21.650"	16.500"	22.117"	24.337"	26.389"	28.389"	34.337"	6
	mm 219.1 - 406.4	549.9	419.1	561.8	618.2	670.3	721.1	872.2	
AFC-18	10" - 18"	23.900"	18.750"	24.540"	26.76"	28.812"	30.812"	36.761"	6
	mm 273.1 - 457.2	607.1	476.2	623.3	679.7	731.8	782.6	933.7	
AFC-20	12" - 20"	25.776"	20.750"	26.520"	28.740"	30.792"	32.792"	38.740"	6
	mm 323.9 - 508.0	654.7	527.1	673.6	730.0	782.1	832.9	984.0	
AFC-24	16" - 24"	29.776"	24.750"	30.439"	32.659"	34.711"	36.711"	42.659"	10
	mm 406.4 - 609.6	756.3	628.7	773.2	829.5	881.7	932.5	1083.5	
AFC-26	18" - 26"	31.900"	26.750"	32.503"	34.723"	36.775"	38.775"	44.723"	10
	mm 457.2 - 660.4	810.3	679.5	825.6	882.0	934.1	984.9	1124.5	
AFC-28	20" - 28"	33.900"	28.750"	34.558"	36.778"	38.830"	40.830"	46.778"	10
	mm 508.0 - 711.2	861.1	730.3	877.8	934.2	986.3	1037.1	1188.2	
AFC-30	22" - 30"	36.150"	31.000"	36.861"	39.081"	41.133"	43.133"	49.082"	10
	mm 558.8 - 762.0	918.2	781.1	934.2	990.6	1042.7	1098.8	1256.7	
AFC-32	24" - 32"	38.150"	33.000"	38.902"	41.122"	43.174"	45.174"	51.123"	10
	mm 609.6 - 812.8	969.0	838.2	988.1	1044.5	1100.9	1157.3	1314.2	
AFC-36	28" - 36"	42.150"	37.000"	42.978"	45.198"	47.250"	49.250"	55.199"	10
	mm 711.2 - 914.4	1070.6	939.8	1091.6	1148.0	1204.4	1260.8	1417.2	
AFC-39	31" - 39"	45.150"	40.000"	46.013"	48.233"	50.285"	52.285"	58.234"	10
	mm 787.4 - 990.6	1146.8	1016.0	1168.7	1225.1	1281.5	1337.9	1494.3	
AFC-42	34" - 42"	48.150"	43.000"	49.049"	51.269"	53.321"	55.321"	61.270"	10
	mm 863.6 - 1066.8	1223.0	1092.2	1245.8	1302.2	1358.6	1415.0	1571.4	
AFC-48	40" - 48"	54.400"	49.250"	54.900"	57.120"	59.172"	61.172"	67.120"	12
	mm 1016.0 - 1219.2	1381.8	1251.0	1394.5	1450.8	1507.1	1563.5	1720.0	



Pneumatic



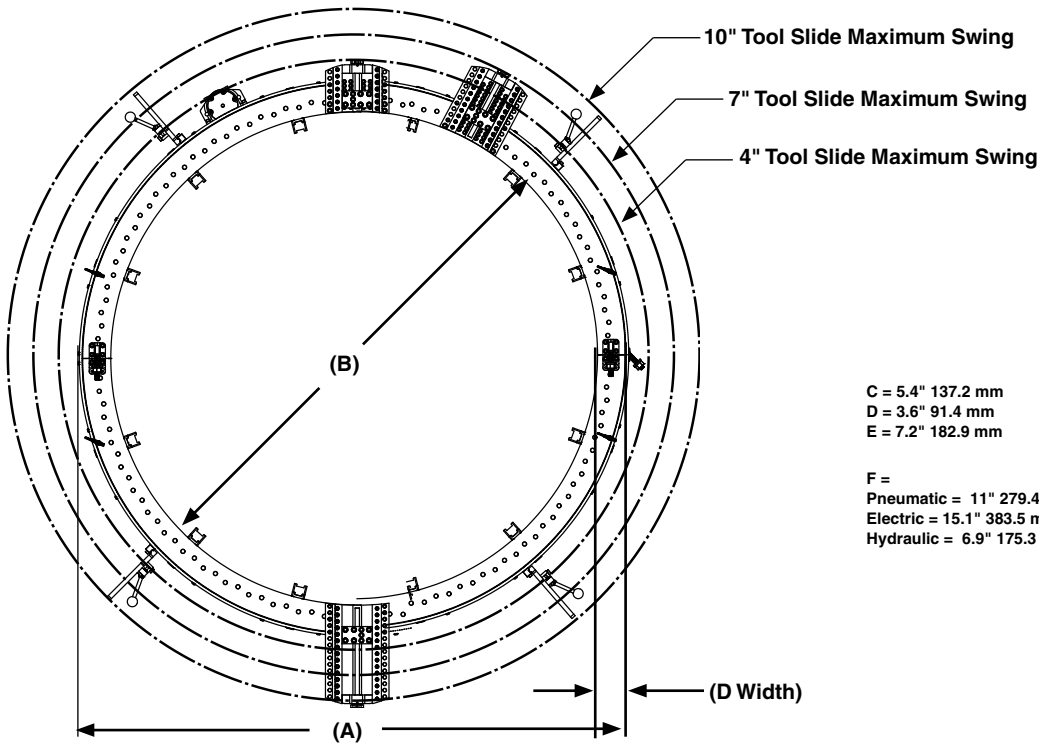
Hydraulic



Electric

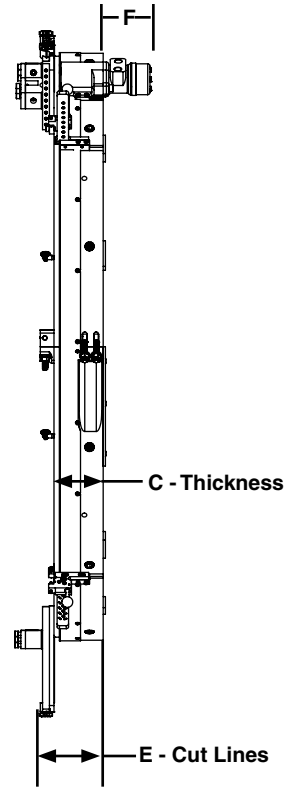


## BFC Dimensional Specifications



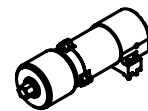
C = 5.4" 137.2 mm  
D = 3.6" 91.4 mm  
E = 7.2" 182.9 mm

F =  
Pneumatic = 11" 279.4 mm  
Electric = 15.1" 383.5 mm  
Hydraulic = 6.9" 175.3 mm



### BFC Series

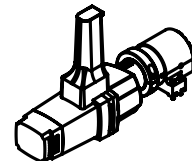
Model	Nom. Pipe Size	A	B	4" Slide Swing	7" Slide Swing	10" Slide Swing	Locator Pads
BFC-36	22" - 36"	44.170"	37.000"	49.118"	55.068"	61.065"	10
	mm 558.8 - 914.4	1121.9	939.8	1247.6	1398.7	1551.1	
BFC-42	28" - 42"	50.170"	43.000"	55.196"	61.146"	67.144"	10
	mm 711.2 - 1066.9	1274.3	1092.2	1402.0	1553.1	1705.5	
BFC-48	34" - 48"	56.420"	49.250"	61.507"	67.457"	73.455"	12
	mm 863.6 - 1219.2	1433.1	1251.0	1562.3	1713.4	1865.8	
BFC-56	42" - 56"	64.420"	57.250"	69.229"	75.179"	81.177"	12
	mm 1066.8 - 1422.4	1636.3	1454.2	1758.4	1909.5	2061.9	
BFC-66	52" - 66"	74.754"	67.500"	79.671"	85.621"	91.619"	12
	mm 1320.8 - 1676.4	1898.8	1714.5	2023.6	2174.8	2327.1	
BFC-72	58" - 72"	80.904"	73.500"	85.672"	91.608"	97.626"	12
	mm 1473.2 - 1828.8	2054.9	1866.9	2176.0	2326.8	2479.7	
BFC-86	72" - 86"	94.904"	87.500"	99.671"	105.621"	111.618"	12
	mm 1828.8 - 2184.4	2410.5	2222.5	2531.6	2682.7	2835.1	



Pneumatic

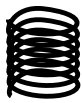
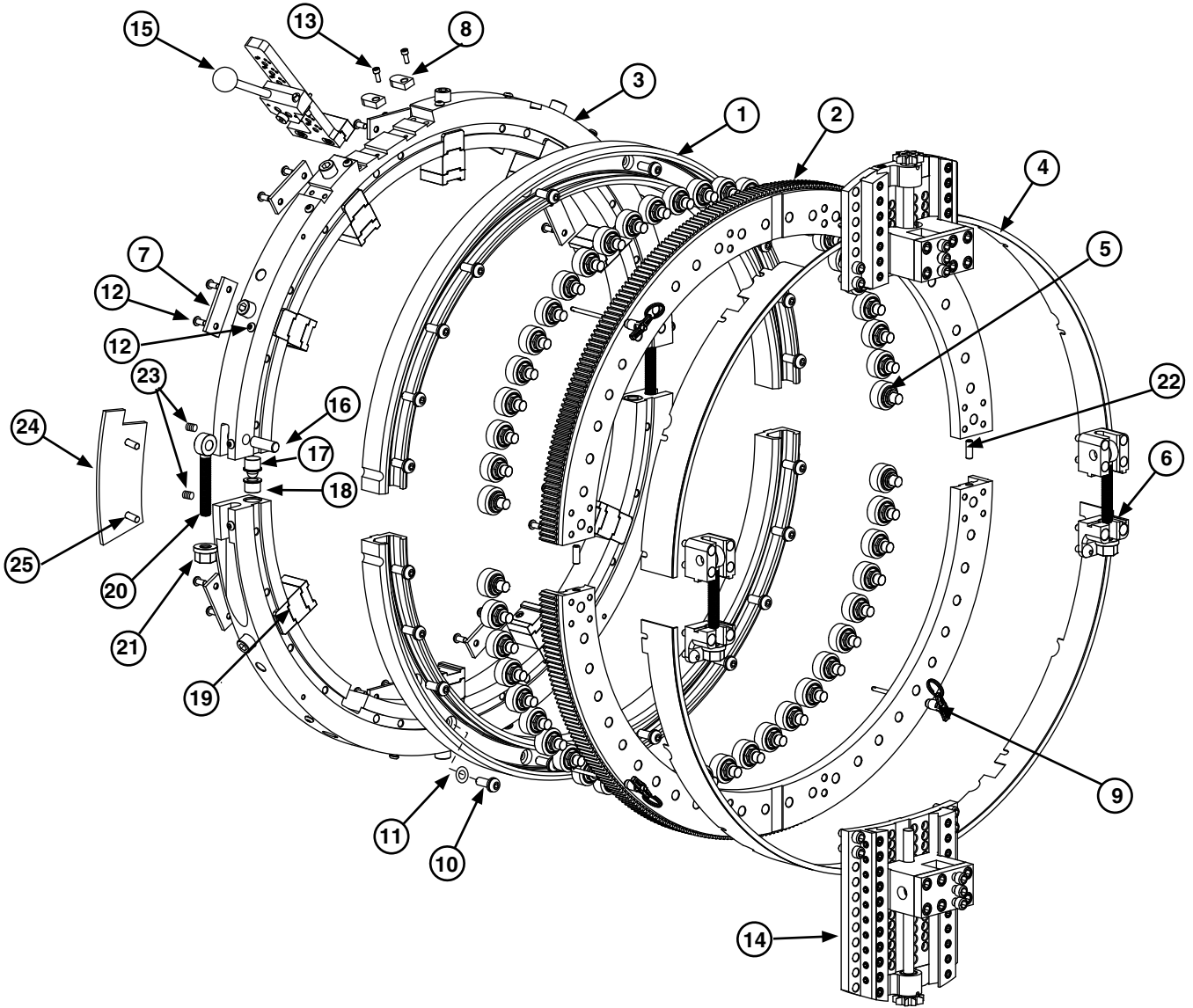


Hydraulic



Electric

# AFC Series



Part No.	Description
500-1080	1/4"-20 Helical Thread Inserts
500-1082	1/2"-13 Helical Thread Inserts
500-1084	3/4"-10 Helical Thread Inserts



Part No.	Description
500-1081	1/4"-20 I.D. x 3/8"-16 O.D. Self-Locking Inserts



Part No.	Description
400-3331	3/8"-16 Swivel Hoist Ring
400-3330	1/2"-13 Swivel Hoist Ring



Part No.	Description
400-2220	3/8"-16 Standard Eye Bolt
400-2221	1/2"-13 Standard Eye Bolt

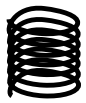
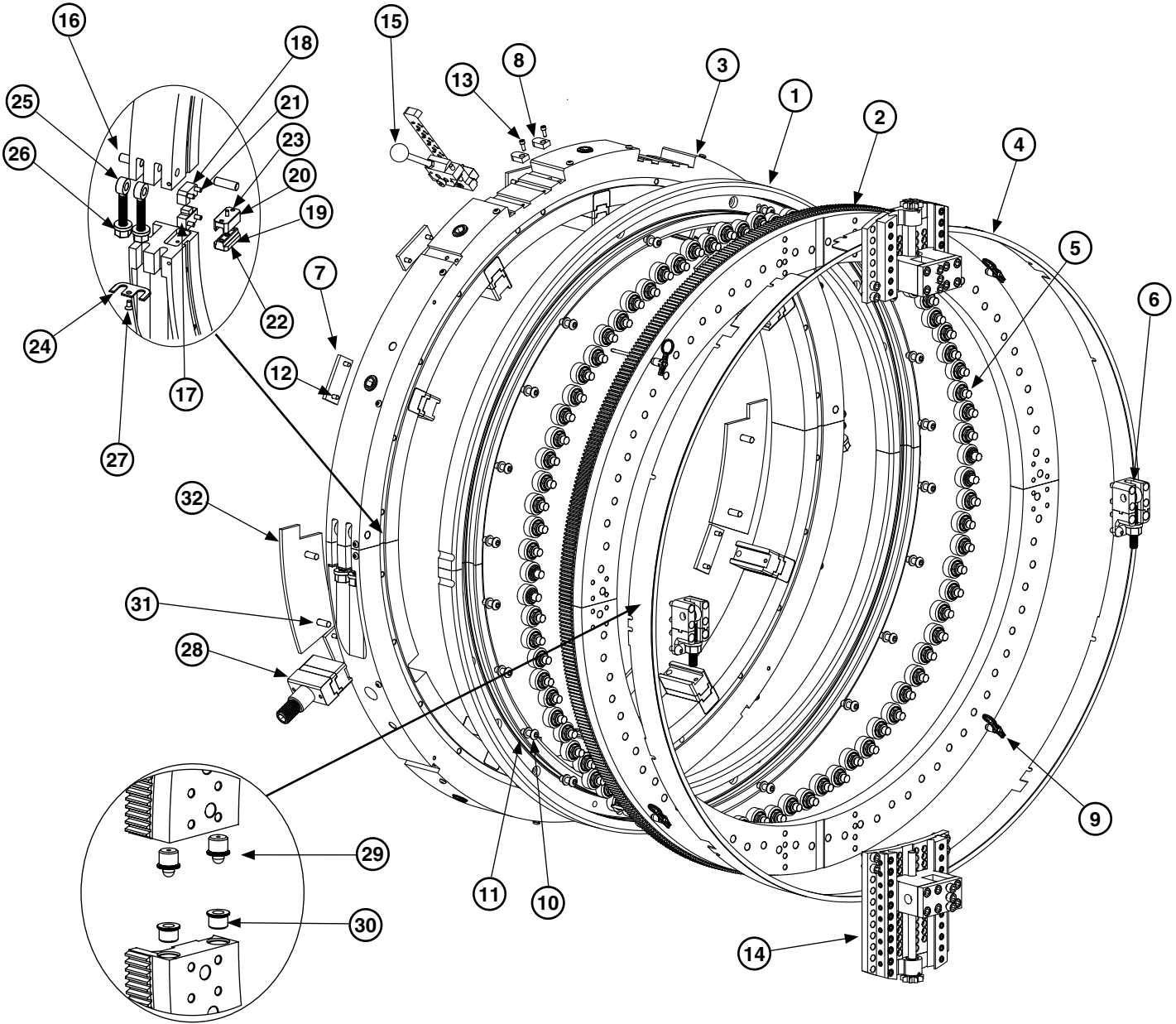
## Common AFC Clamshell Series Parts

Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	(See Chart)	Track Ring		210-0040		Optional, 4" Tool Slide Assembly	As Req'd
2	(See Chart)	Ring Gear			210-0070	Optional, 7" Tool Slide Assembly	As Req'd
3	(See Chart)	Main Body Ring			210-0100	Optional, 10" Tool Slide Assembly	As Req'd
4	(See Chart)	Gear Guard					
5	500-1035	Roller Bearing Guide Assembly	As Req'd	15	500-4444	Optional, 4" Tripper Assembly	As Req'd
6	500-1027	Ring Gear Clamp Assembly	2		500-7777	Optional, 7" Tripper Assembly	As Req'd
7	500-1025	Backing Strap	As Req'd		500-0010	Optional, 10" Tripper Assembly	As Req'd
8	211-9999	Motor Mount Key	2	16	500-1021	1/2" x 1-1/2" Dowel Pin	2
9	500-1024	Locking Pin 3/16" Dia. X 3-1/2"	4	17	500-1085	Bullet Nose Dowel Pin	2
10	500-1076	3/8"-16 x 1" Button Head Cap Screw	As Req'd	18	500-1086	Dowel Pin Liner	2
				19	212-1130	Locator Pad Assembly	As Req'd
11	500-1077	3/8" Lock Washer	As Req'd	20	500-1019	Swing Bolt	4
12	500-1069	1/4"-20 X 3/8" Button Head Cap Screw	As Req'd	21	500-1020	Swivel Flange Nut	4
				22	500-1087	5/16" x 1/2" Dowel Pin	2
13	500-1078	10-24 X 3/8" Socket Head Cap Screw	2	23	500-1091	1/4-20 x 1/4" Set Screw	4
				*24	See Chart	Strike Plate	
14	210-0010	Optional, 1" Tool Slide Assembly	As Req'd	*25	500-1098	3/8"-16 x 1/2" Button Head Cap Screw	
	210-0020	Optional, 2" Tool Slide Assembly	As Req'd	* Refer to Index Page for Strike Plate and Fastener Charts.			
	210-0030	Optional 3" Tool Slide Assembly	As Req'd				

## Model Specific AFC Clamshell Series Parts

Model	Item Number			
	1 Track Ring	2 Ring Gear	3 Main Body Ring	4 Gear Guard
AFC-4	200-2504	300-3504	100-1504	400-4504
AFC-6	200-2506	300-3506	100-1506	400-4506
AFC-8	200-2508	300-3508	100-1508	400-4508
AFC-10	200-2510	300-3510	100-1510	400-4510
AFC-12	200-2512	300-3512	100-1512	400-4512
AFC-14	200-2514	300-3514	100-1514	400-4514
AFC-16	200-2516	300-3516	100-1516	400-4516
AFC-18	200-2518	300-3518	100-1518	400-4518
AFC-20	200-2520	300-3520	100-1520	400-4520
AFC-24	200-2524	300-3524	100-1524	400-4524
AFC-26	200-2526	300-3526	100-1526	400-4526
AFC-28	200-2528	300-3528	100-1528	400-4528
AFC-30	200-2530	300-3530	100-1530	400-4530
AFC-32	200-2532	300-3532	100-1532	400-4532
AFC-36	200-2536	300-3536	100-1536	400-4536
AFC-39	200-2539	300-3539	100-1539	400-4539
AFC-42	200-2542	300-3542	100-1542	400-4542
AFC-48	200-2548	300-3548	100-1548	400-4548

# BFC Series



Part No.	Description
500-1080	1/4"-20 Helical Thread Inserts
500-1082	1/2"-13 Helical Thread Inserts
500-1083	1"-8 Helical Thread Inserts



Part No.	Description
500-1081	1/4"-20 I.D. x 3/8"-16 O.D. Self-Locking Inserts



Part No.	Description
400-3331	3/8"-16 Swivel Hoist Ring
400-3330	1/2"-13 Swivel Hoist Ring



Part No.	Description
400-2220	3/8"-16 Standard Eye Bolt
400-2221	1/2"-13 Standard Eye Bolt



## Common BFC Clamshell Series Parts

Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	(See Chart)	Track Ring		15	555-4444	Optional, 4" Tripper Assembly	As Req'd
2	(See Chart)	Ring Gear					
3	(See Chart)	Main Body Ring			555-7777	Optional, 7" Tripper Assembly	As Req'd
4	(See Chart)	Gear Guard					
5	500-1035	Roller Bearing Guide Assembly	As Req'd		555-1010	Optional, 10" Tripper	
6	500-1027	Ring Gear Clamp Assembly	2	16	500-1021	1/2" x 1-1/2" Dowel Pin	2
7	500-1037	Backing Strap	As Req'd	17	500-1093	Male Plate Lock	2
8	211-9999	Motor Mount Key	2	18	500-1094	Female Plate Lock	2
9	500-1024	Locking Pin 3/16" Dia. X 3-1/2"	4	19	500-1193	Male Interlock	2
10	500-1076	3/8"-16 x 1" Button Head Cap Screw	As Req'd	20	500-1194	Female Interlock	2
11	500-1077	3/8" Lock Washer	As Req'd	21	500-1061	1/4-20 x 3/4" Socket Head Cap Screw	8
12	500-1069	1/4"-20 X 3/8" Button Head Cap Screw	As Req'd	22	500-1066	10-24 x 3/4" Socket Head Cap Screw	2
13	500-1078	10-24 X 3/8" Socket Head Cap Screw	2	23	500-1046	10-24 x 1/2" Socket Head Cap Screw	2
14	210-0010	Optional, 1" Tool Slide Assembly	As Req'd	24	500-1047	Swing Bolt Backing Plate	2
	210-0020	Optional, 2" Tool Slide Assembly	As Req'd	25	500-1019	Swing Bolt	4
	210-0030	Optional 3" Tool Slide Assembly	As Req'd	26	500-1020	Swivel Flange Nut	4
	210-0040	Optional, 4" Tool Slide Assembly	As Req'd	27	500-1048	1/4-20 x 1/2" Flat Socket Head Cap Screw	2
	210-0070	Optional, 7" Tool Slide Assembly	As Req'd	28	312-1130	Locator Pad Assembly	As Req'd
	210-0100	Optional, 10" Tool Slide Assembly	As Req'd	29	500-1185	Bullet Nose Dowel Pin	4
		Assembly	As Req'd	30	500-1186	Dowel Pin Liner	4
		Assembly	As Req'd	* 31	500-1098	3/8"-16 x 1/2" Button Head Cap Screw	
				* 32	See Chart	Strike Plate	

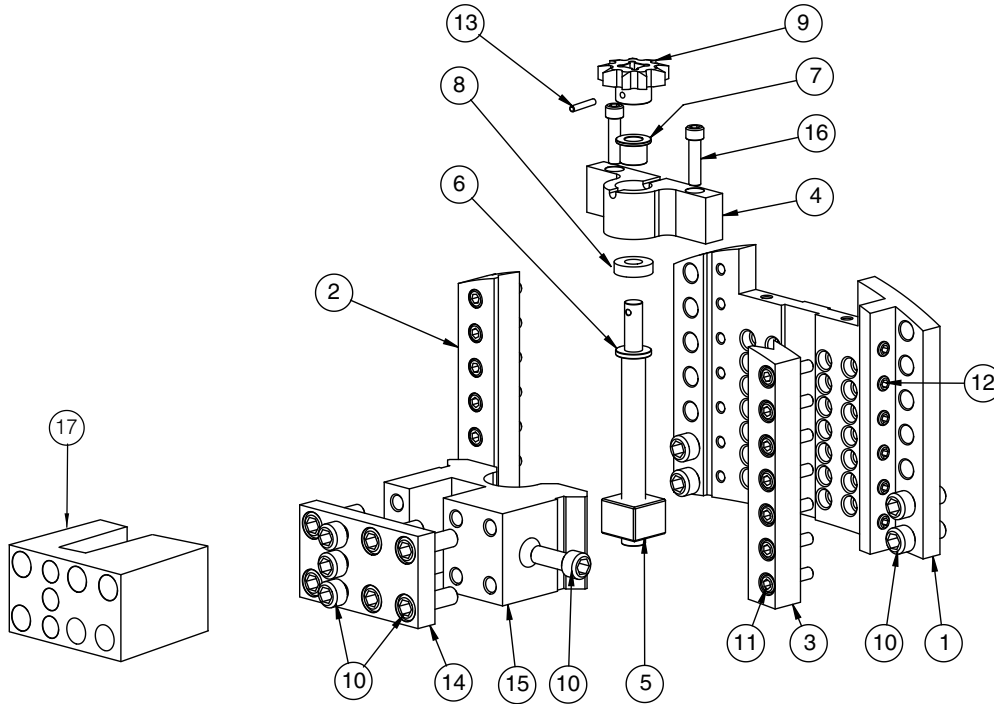
\* Refer to Index Page for Strike Plate and Fastener Charts.

## Model Specific BFC Clamshell Series Parts

Model	Item Number			
	1 Track Ring	2 Ring Gear	3 Main Body Ring	4 Gear Guard
BFC-36	200-2636	300-3636	100-1636	400-4636
BFC-42	200-2642	300-3642	100-1642	400-4642
BFC-48	200-2648	300-3648	100-1648	400-4648
BFC-56	200-2656	300-3656	100-1656	400-4656
BFC-66	200-2666	300-3666	100-1666	400-4666
BFC-72	200-2672	300-3672	100-1672	400-4672
BFC-86	200-2686	300-3686	100-1686	400-4686

**Tool Slide**

**1" Part No. 210-0010**  
**2" Part No. 210-0020**  
**3" Part No. 210-0030**  
**4" Part No. 210-0040**  
**7" Part No. 210-0070**  
**10" Part No. 210-0100**



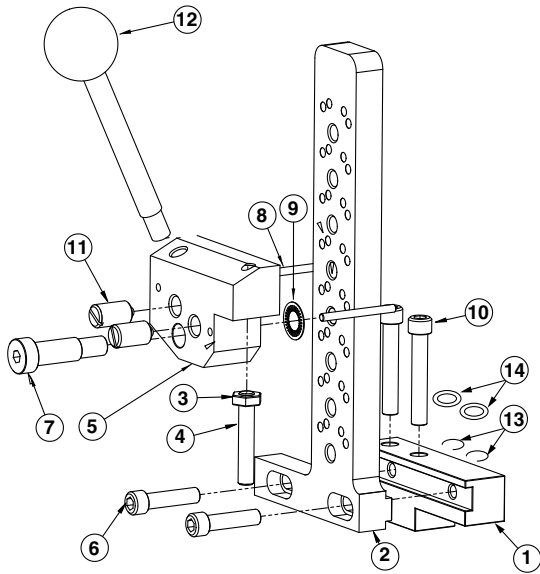
Item No.	Description	Part No.						Quantity
		1"	2"	3"	4"	7"	10"	
1	Tool Slide Base	210-0101	210-0120	210-0130	210-0140	210-0170	210-0110	1
2	L. H. Fixed Gib	210-0102	210-0122	210-0132	210-0142	210-0172	210-0112	1
3	R.H. Adjustable Gib	210-0103	210-0123	210-0133	210-0143	210-0173	210-0113	1
4	Feed Screw Mount	500-1013	500-1013	500-1013	500-1013	500-1013	500-1013	1
5	Feed Screw Nut	500-1014	500-1014	500-1014	500-1014	500-1014	500-1014	1
6	Feed Screw	210-0104	210-0121	210-0131	210-0141	210-0171	210-0111	1
7	Flange Bearing	500-1015	500-1015	500-1015	500-1015	500-1015	500-1015	1
8	Thrust Washer	500-2829	500-2829	500-2829	500-2829	500-2829	500-2829	1
9	Feed Screw Star Wheel	500-1200	500-1200	500-1200	500-1200	500-1200	500-1200	1
10	3/8"-16 x 1" Socket Head Cap Screw	500-1071	500-1071	500-1071	500-1071	500-1071	500-1071	As Required
11	1/4"-20 x 3/4" Socket Head Cap Screw	500-1061	500-1061	500-1061	500-1061	500-1061	500-1061	As Required
12	5/16"-18 x 3/8" Socket Head Set Screw	500-1072	500-1072	500-1072	500-1072	500-1072	500-1072	As Required
13	1/8" x 3/4" Roll Pin	500-1073	500-1073	500-1073	500-1073	500-1073	500-1073	1
14	Tool Block Cap	500-1011	500-1011	500-1011	500-1011	500-1011	500-1011	1
15	Tool Block	500-1010	500-1010	500-1010	500-1010	500-1010	500-1010	1
16	1/4"-20 x 1-1/4" Socket Head Cap Screw	500-1074	500-1074	500-1074	500-1074	500-1074	500-1074	2
17	1" Tool Block Extended Cap	500-1112	500-1112	500-1112	500-1112	500-1112	500-1112	1
	3" Tool Block Extended Cap	500-1012	500-1012	500-1012	500-1012	500-1012	500-1012	1

### Tripper Assembly

4" AFC Part No. 500-4444      BFC Part No. 555-4444

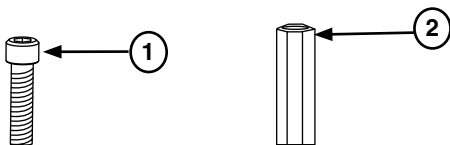
7" AFC Part No. 500-7777      BFC Part No. 555-7777

10" AFC Part No. 500-0010      BFC Part No. 555-1010



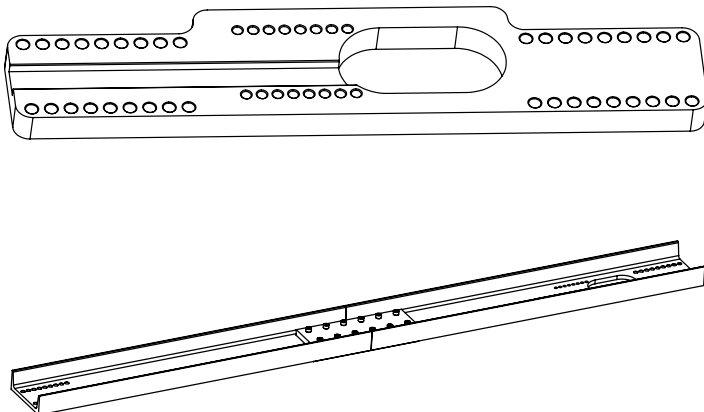
Item No.	AFC Part No.	BFC Part No.	Description	Quantity
1	500-1003	500-1003	Tripper Base	1
2	500-1004	555-1004	4" Tripper Stand	1
	500-1007	555-1007	7" Tripper Stand	1
	500-0110	555-0110	10" Tripper Stand	1
3	500-1002	500-1002	1/4"-20 Hex Nut	1
4	500-1001	500-1001	Tripper Pin	1
5	500-1005	500-1005	Tripper Rocker	1
6	500-1061	500-1061	1/4"-20 x 3/4" Socket Head Cap Screw	2
7	500-1009	500-1009	3/8" x 7/8" Shoulder Bolt	1
8	500-1062	500-1062	1/8" x 1-3/8" Roll Pin	2
9	500-1063	500-1063	5/16" ID x 5/8" O.D. Push Nut	1
10	500-1030	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw	2
11	500-1008	500-1008	3/8"-16 Spring Plunger	2
12	500-1006	500-1006	Ball Knob Handle	1
13	500-1031	500-1031	Retainer Ring	2
14	500-1032	500-1032	1/4" Washer	2

### Tripper Pin Extension Assembly Part No. 500-1000



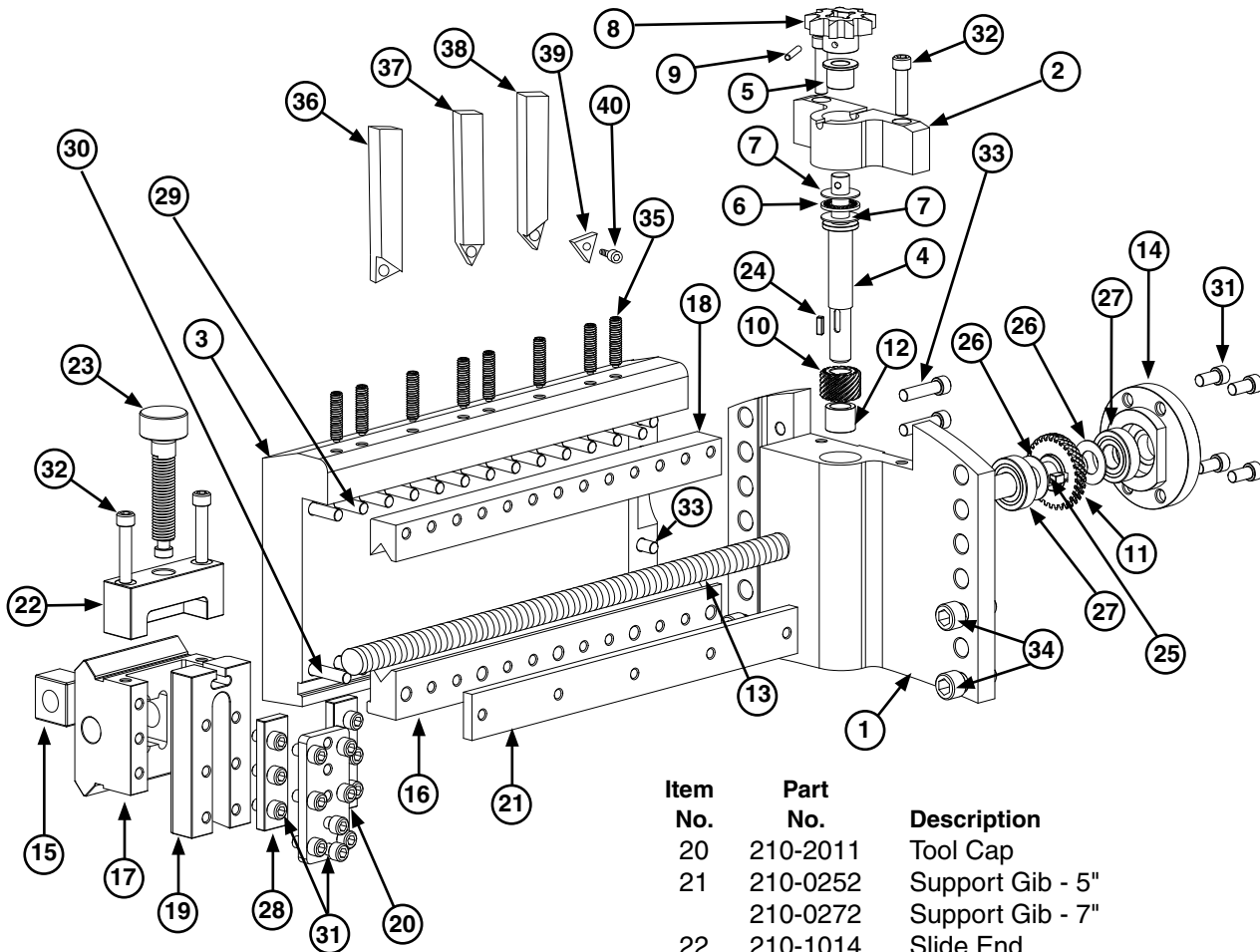
Item No.	Part No.	Description	Quantity
1	500-1421	1/4"-20 x 1" Socket Head Cap Screw	1
2	500-1060	Hex Tripper Pin Extension	1

### Cross Slide



Part No.	Description
217-0814	8" - 14" (203.2 - 355.6 mm)
217-1420	14" - 20" (355.6 - 508.0 mm)
217-2026	20" - 26" (508.0 - 660.4 mm)
217-2632	26" - 32" (660.4 - 812.8 mm)
217-3238	32" - 38" (812.8 - 965.2 mm)
217-3844	38" - 44" (965.2 - 1117.6 mm)
217-4450	44" - 50" (1117.6 - 1270.0 mm)
217-5056	50" - 56" (1270.0 - 1422.4 mm)
217-6268	62" - 68" (1574.8 - 1727.2 mm)
217-6874	68" - 74" (1727.2 - 1879.6mm)
217-8086	80" - 86" (2032.0 - 2184.4 mm)

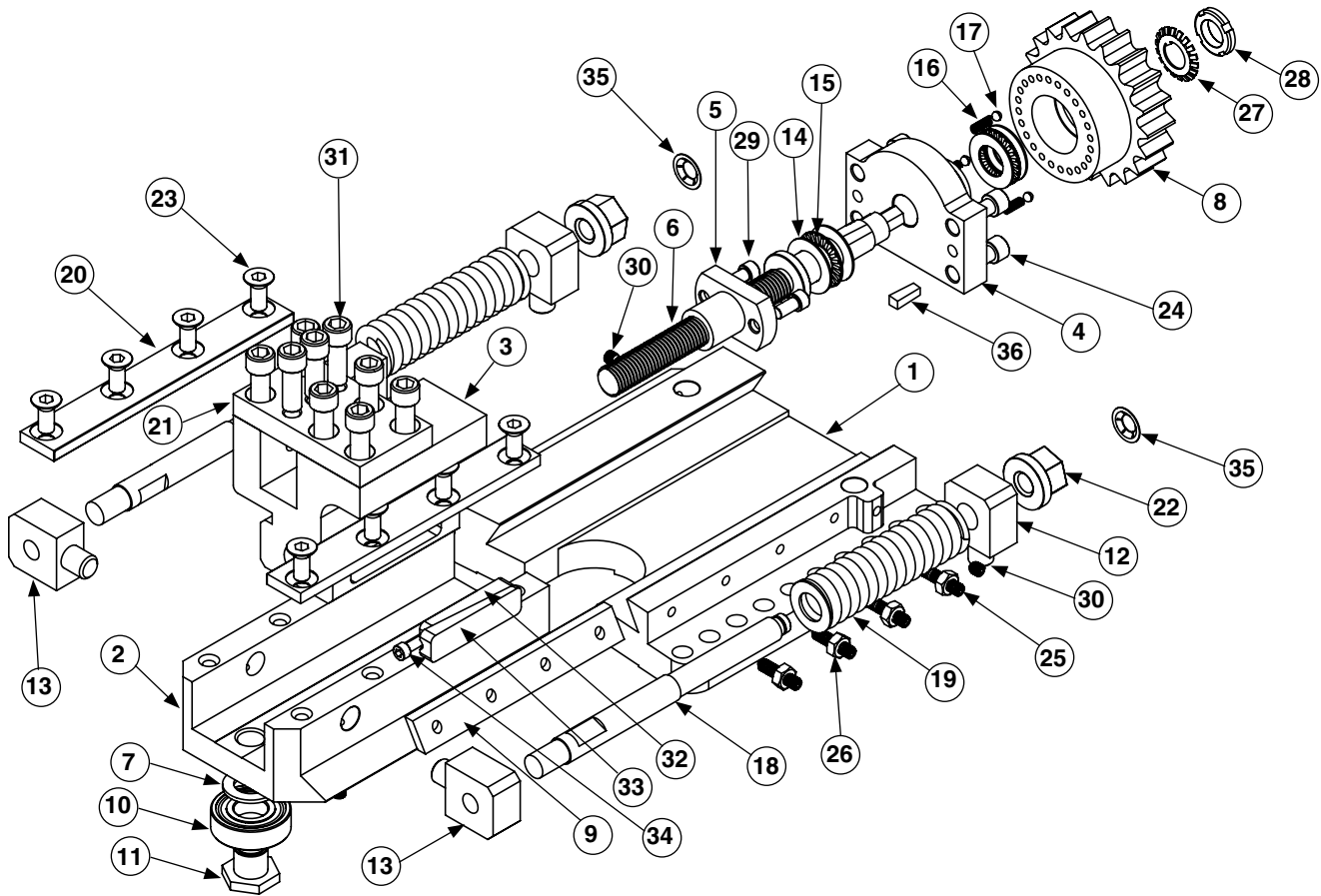
**Axial Tool Slide**  
**5" Part No. 210-0055**  
**7" Part No. 210-0077**



Item No.	Part No.	Description	Qty.	Item No.	Part No.	Description	Qty.
1	210-0200	Base Plate	1	20	210-2011	Tool Cap	1
2	500-1013	Feed Screw Mount	1	21	210-0252	Support Gib - 5"	1
3	210-5555	Upright - 5"	1		210-0272	Support Gib - 7"	1
	210-7777	Upright - 7"	1	22	210-1014	Slide End	1
4	210-0257	Drive Shaft	1	23	210-1013	Thumb Screw	1
5	500-1015	Flange Bearing	1	24	210-0001	1/8" Sq. Key	1
6	500-1029	Needle Roller	1	25	210-0002	3/16" Sq. Key	1
7	500-1028	Thrust Washer	2	26	500-2028	Thrust Washer	2
8	500-1200	Feed Screw Star Wheel	1	27	500-2015	Bearing	2
9	500-1073	1/8" x 3/4" Roll Pin	1	28	210-1015	Tool Slide Gib	2
10	500-2088	Small Helical Gear	1	29	500-1412	1/4-20 x 1-1/2" Socket Head Cap Screw	21
11	500-2087	Large Helical Gear	1	30	500-1030	1/4-20 x 1-3/4" Socket Head Cap Screw	5
12	500-2128	Sleeve Bearing	1	31	500-1420	1/4-20 x 1/2" Socket Head Cap Screw	18
13	210-0251	Feed Screw - 5"	1	32	500-1074	1/4-20 x 1-1/4" Socket head Cap Screw	4
	210-0271	Feed Screw - 7"	1	33	500-1421	1/4-20 x 1" Socket Head Cap Screw	10
14	210-1011	End Cap	1	34	500-1071	3/8-16 x 1" Socket Head Cap Screw	4
15	500-1014	Feed Screw Nut	1	35	500-1422	1/4-20 Set Screw With Brass Tip	8
16	210-0254	Stationary Gib - 5"	1	36	220-1309	Left Hand insert Holder	1
	210-0274	Stationary Gib - 7"	1	37	220-1311	Center Insert Holder	1
17	210-1010	Tool Block Slide	1	38	220-1313	Right Hand Insert Holder	1
18	210-0253	Adjustable Gib - 5"	1	39	INS 3/8N	Carbide Insert	1
	210-0273	Adjustable Gib - 7"	1	40	220-1310	6-32 x 1/2" Socket Head Cap Screw	1
19	210-1012	Tool Slide	1				

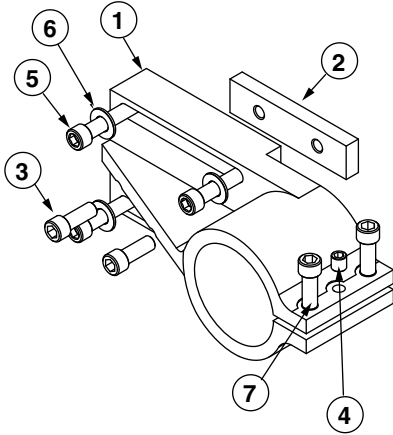


**Out of Round Tool Slide**  
**7" Part No. 210-0099**  
**10" Part No. 210-1000**



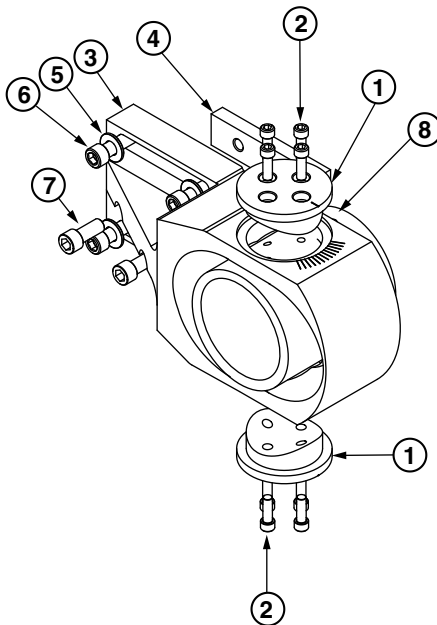
Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	210-1245	Spring Slide Base, 7"	1	21	500-1011	Tool Block Cap	1
	210-1215	Spring Slide Base, 10"	1	22	500-1020	Swivel Flange Nut	2
2	210-1246	Spring Slide-1, 7"	1	23	500-1191	5/16"-18 x 3/4" Flat	
	210-1216	Spring Slide-1, 10"	1			Socket Head Cap Screw	8
3	210-1247	Spring Slide-2	1	24	500-1070	5/16"-18 x 3/4" Socket	
4	210-1248	Slide End Cap	1			Head Cap Screw	4
5	210-1249	Bronze Nut	1	25	913-0001	1/4"-20 x 3/4" Brass Tip	
6	210-1250	Feed Screw, 7"	1			Set Screw	4
	210-1211	Feed Screw, 10"	1	26	500-1002	1/4"-20 Hex Nut	4
7	210-1251	Spacer Washer	1	27	210-1269	Lock Washer	1
8	210-1252	Index Wheel	1	28	210-1270	15 x 1mm Bearing Nut	1
9	210-1253	Adjustable Gib	1	29	500-1094	1/4"-20 x 5/8" Socket Head	
10	R3H-24	Roller Bearing	1			Cap Screw	2
11	210-1255	Bearing Post	1	30	500-1091	1/4"-20 x 1/4" Brass Tip	
12	210-1260	Spring Stud End, Top	2			Set Screw	4
13	210-1261	Spring Stud End, Bottom	2	31	500-1071	3/8"-16 x 1" Socket Head	
14	210-1262	Thrust Washer	4			Cap Screw	9
15	210-1263	Thrust Bearing	2	32	210-1272	Wedge	1
16	210-1264	Spring	3	33	210-1273	Gib	1
17	210-1265	Ball	3	34	500-1100	10-24 x 7/8" Socket Head	
18	210-1266	Spring Stud	2			Cap Screw	1
19	210-1267	Spring	2	35	210-1274	Retainer Clip	2
20	210-1268	Capture Plate	2	36	210-1212	1/8" x 1/2" Square Key	1

**Standard Fixed Counter Bore Base Assembly**  
**Part No. 214-0000**



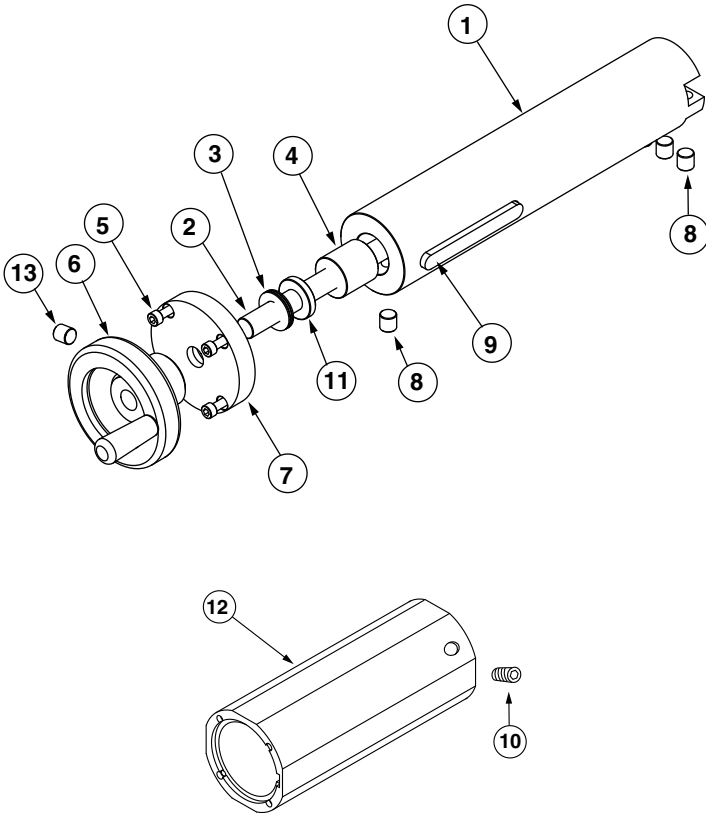
Item No.	Part No.	Description	Quantity
1	214-0065	Body	1
2	214-0066	Boring Bar Key	1
3	500-1064	3/8"-16 X 7/8" Socket Head Cap Screw	2
4	500-1055	3/8"-16 X 3/4" Set Screw	1
5	500-1067	3/8"-16 X 1-3/4" Socket Head Cap Screw	4
6	500-1068	3/8" Flat Washer	4
7	500-1071	3/8"-16 X 1" Socket Head Cap Screw	2

**Swivel Counter Bore Base Assembly**  
**Part No. 214-0011**



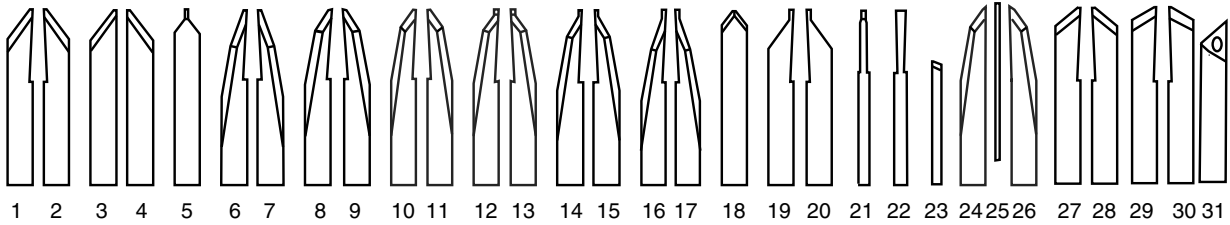
Item No.	Part No.	Description	Quantity
1	214-1018	Side Clamp	2
2	500-1061	1/4"-20 X 3/4" Socket Head Cap Screw	8
3	214-1019	Body	1
4	214-0066	Boring Bar Key	1
5	500-1068	3/8" Flat Washer	4
6	500-1067	3/8"-16 X 1-3/4" Socket Head Cap Screw	4
7	500-1064	3/8"-16 X 7/8" Socket Head Cap Screw	2
8	214-1020	Clamping Sleeve	1

**Counter Bore Barrel Assembly**  
**6" Part No. 214-0600**  
**10" Part No. 214-0100**



Item No.	Part No.	Description	Quantity
1	214-0072	Boring Head, 6"	1
	214-1017	Boring Head, 10"	1
2	214-0067	Feed Screw, 6"	1
	214-1015	Feed Screw, 10"	1
3	214-0069	Thrust Washer	2
4	214-0073	Nut	1
5	500-1066	10-24 X 3/4" Socket Head Cap Screw	4
6	214-0070	Hand Wheel	1
7	214-0075	End Cap	1
8	500-1065	3/8"-16 X 3/8" Set Screw	4
9	214-0074	Key	1
10	214-0082	5/16"-18 x 1/4" Brass Tip Set Screw	1
11	214-0068	Thrust Bearing	1
12	214-0071	Sleeve, 6"	1
	214-1016	Sleeve, 10"	1
13	500-1072	5/16"-18 x 3/8" Socket Head Set Screw	1

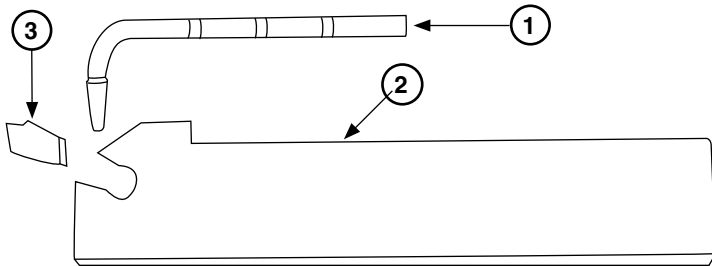
# Standard Tool Bits



Item	Part No.	Description	Item	Part No.	Description
1	220-1013	37° R.H. Bevel, 7"	18	220-1079	37° Double Bevel, 7"
	220-1064	37° R.H. Bevel, 3.5"		220-1019	37° Double Bevel, 3.5"
2	220-1014	37° L.H. Bevel, 7"	19	220-1063	37° R.H. Sever, 7"
	220-1061	37° L.H. Bevel, 3.5"		220-1062	37° R.H. Sever, 3.5"
3*	220-1016	37° R.H. Double Bevel, 7"	20	220-1060	37° L.H. Sever, 7"
	220-1077	37° R.H. Double Bevel, 3.5"		220-1059	37° L.H. Sever, 3.5"
4*	220-1015	37° L.H. Double Bevel, 7"	21	220-1002	1/4" Sever, 7"
	220-1078	37° L.H. Double Bevel, 3.5"		220-1041	1/4" Sever, 3.5"
5	220-1080	37° Double Bevel Sever, 7"	22	220-1001	3/8" Sever, 7"
	220-1020	37° Double Bevel Sever, 3.5"		220-1042	3/8" Sever, 3.5"
6	220-1025	20° - 10° R.H. Bevel, 7"	23	220-1081	10° Counter Bore, 2"
7	220-1023	20° - 10° L.H. Bevel, 7"	24*	220-1018	37° - 10° R.H. Double Bevel, 7"
8	220-1029	30° - 10° R.H. Bevel, 7"	25*	220-1248	1/8" Sever, 6"
9	220-1027	30° - 10° L.H. Bevel, 7"	26*	220-1017	37° - 10° L.H. Double Bevel, 7"
10	220-1009	37° - 10° R.H. Bevel, 7"	27	220-1225	45° R.H. Bevel, 7"
11	220-1012	37° - 10° L.H. Bevel, 7"		220-1223	45° R.H. Bevel, 3.5"
12	220-1010	37° - 10° R.H. Sever, 7"	28	220-1226	45° L.H. Bevel, 7"
13	220-1011	37° - 10° L.H. Sever, 7"		220-1224	45° L.H. Bevel, 3.5"
14	220-1028	30° - 10° R.H. Sever, 7"	29	220-1129	30° R.H. Bevel, 7"
15	220-1026	30° - 10° L.H. Sever, 7"		220-1099	30° R.H. Bevel, 3.5"
16	220-1024	20° - 10° R.H. Sever, 7"	30	220-1131	30° L.H. Bevel, 7"
17	220-1022	20° - 10° L.H. Sever, 7"		220-1125	30° L.H. Bevel, 3.5"
			31	220-1308	Counterbore Insert Holder
				INS38N	Carbide Insert

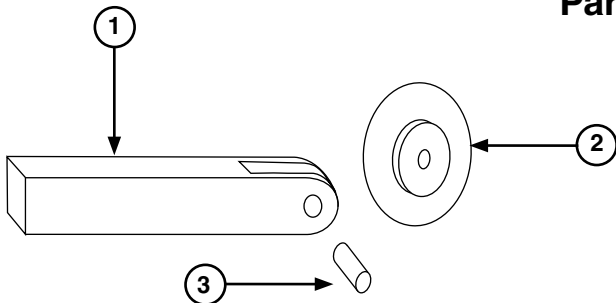
\* Blades used as a set.

## Carbide Insert Holder



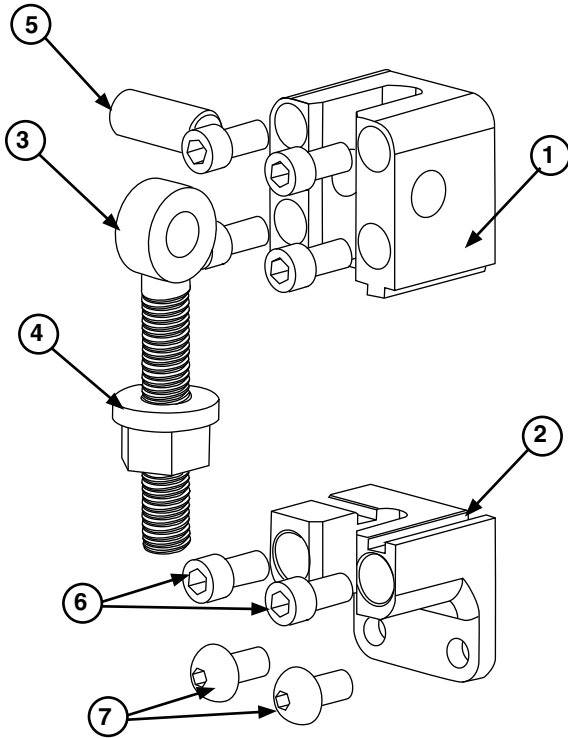
Item No.	Part No.	Description	Quantity
1	220-1307	Insert Extraction Tool	1
2	220-1300	#4 Insert Holder, 5/32" x 5"	1
	220-1303	#6 Insert Holder, 1/4" x 5"	1
3	220-1301	#4 Carbide Insert, 5/32"	1
	220-1304	#6 Carbide Insert, 1/4"	1

## Chipless Cutter Wheel Part No. 220-1395



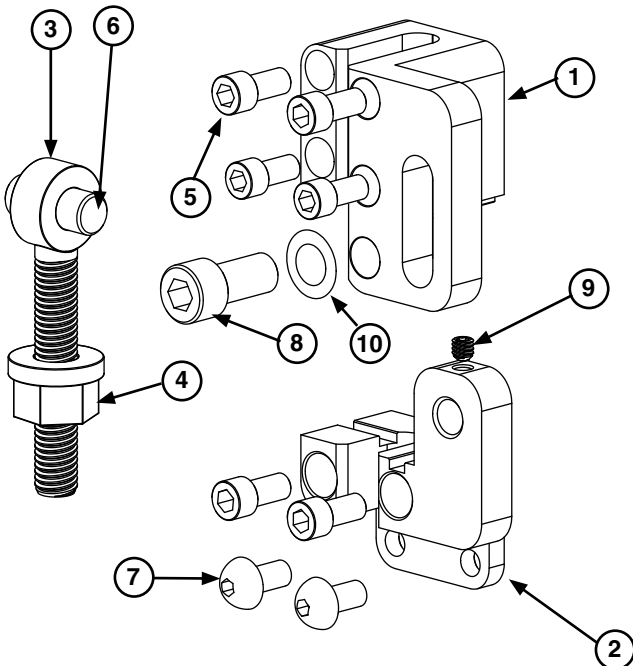
List No.	Part No.	Description	Quantity
1	220-1390	Holder	1
2	220-1391	Cutter Wheel	1
3	500-1088	3/8" X 1-1/4" Dowel Pin	1

**Gear Clamp**  
**Part No. 500-1027**



Item No.	Part No.	Description	Quantity
1	500-1017	Male Gear Clamp	1
2	500-1018	Female Gear Clamp	1
3	500-1019	Swing Bolt	1
4	500-1020	Swivel Flange Nut	1
5	500-1021	1/2" x 1-1/2" Dowel Pin	1
6	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	6
7	500-1075	5/16"-18 x 3/4" Button Head Cap Screw	2

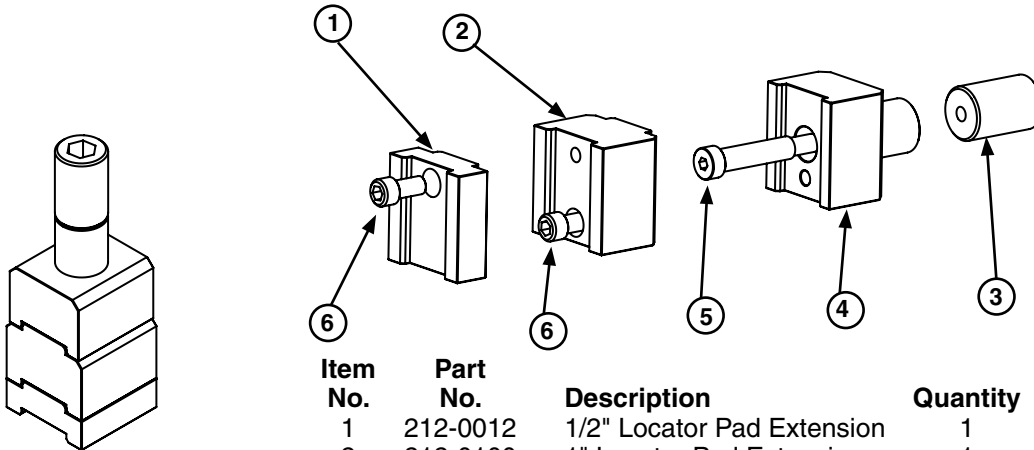
**Hinge Clamp**  
**Part No. 500-1095**



List No.	Part No.	Description	Quantity
1	500-1096	Male Hinge Gear Clamp	1
2	500-1097	Female Hinge Gear Clamp	1
3	500-1019	Swing Bolt	1
4	500-1020	Swivel Flange Nut	1
5	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	6
6	500-1021	1/2" x 1-1/2" Dowel Pin	1
7	500-1075	5/16"-18 x 3/4" Button Head Cap Screw	2
8	500-1090	1/2"-13 x 1" Socket Head Cap Screw	1
9	500-1091	1/4"-20 x 1/4" Set Screw	1
10	500-1092	1/2" Flat Washer	1

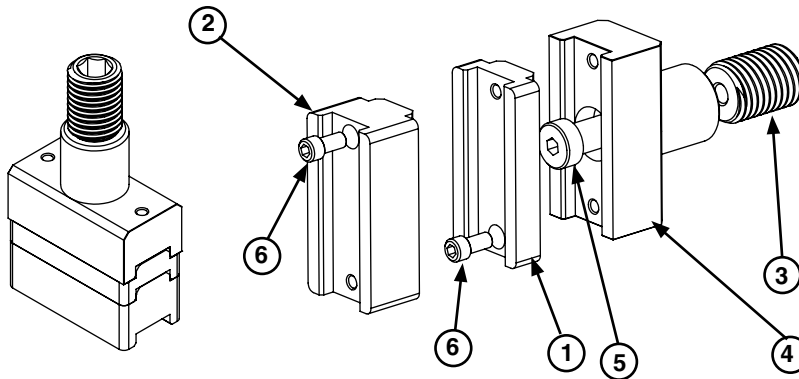


**Locator Pad and Extensions**  
**AFC Part No. 212-1130 (Consists of Items #3, 4, & 5)**



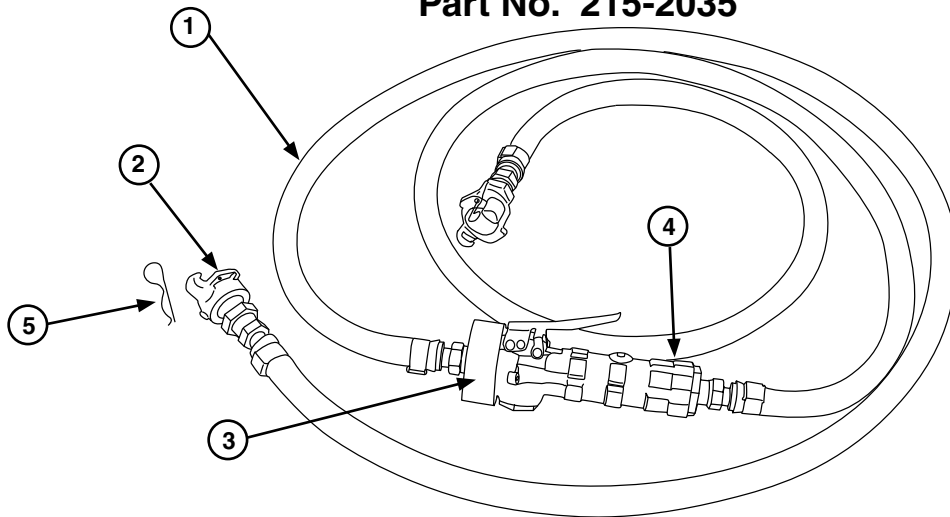
Item No.	Part No.	Description	Quantity
1	212-0012	1/2" Locator Pad Extension	1
2	212-0100	1" Locator Pad Extension	1
	212-0200	2" Locator Pad Extension	1
	212-0300	3" Locator Pad Extension	1
	212-0400	4" Locator Pad Extension	1
3	212-1234	3/4" Set Screw	1
4	212-1034	Adjustable Locator Pad	1
5	212-1134	5/16" x 1-1/4" Shoulder Bolt	1
6	500-1058	1/4"-20 x 5/8" Socket Head Cap Screw	2

**BFC Part No. 312-1130 (Consists of Items #3, 4, & 5)**



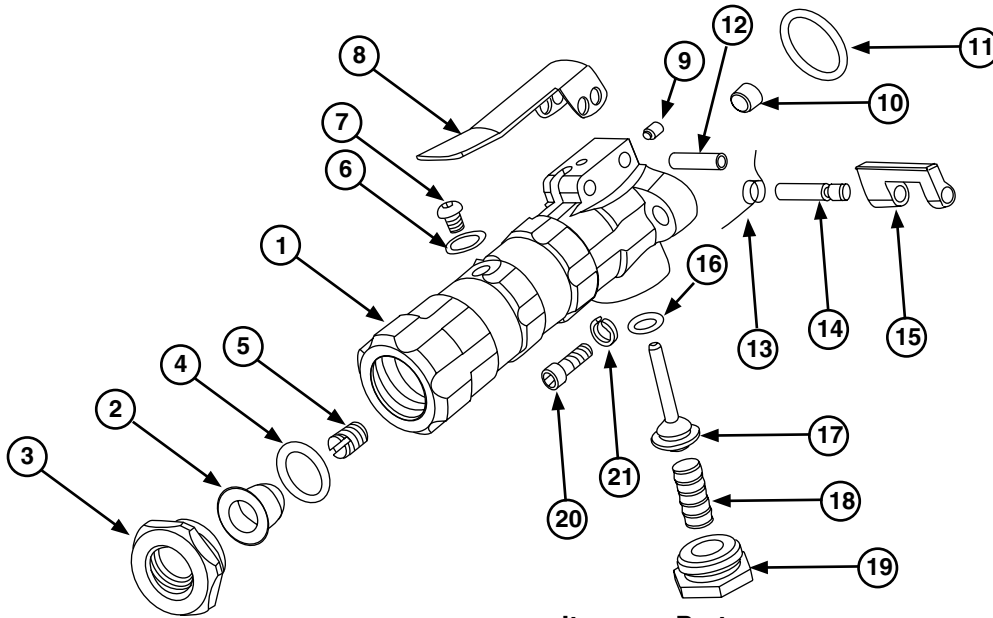
Item No.	Part No.	Description	Quantity
1	312-0012	1/2" Locator Pad Extension	1
2	312-0100	1" Locator Pad Extension	1
	312-0200	2" Locator Pad Extension	1
	312-0300	3" Locator Pad Extension	1
	312-0400	4" Locator Pad Extension	1
3	312-1234	1" Set Screw	1
4	312-1034	Adjustable Locator Pad	1
5	312-1134	1/2" x 1-3/4" Shoulder Bolt	1
6	500-1058	1/4"-20 x 5/8" Socket Head Cap Screw	2

**Air Hose/Throttle Handle**  
**Part No. 215-2035**



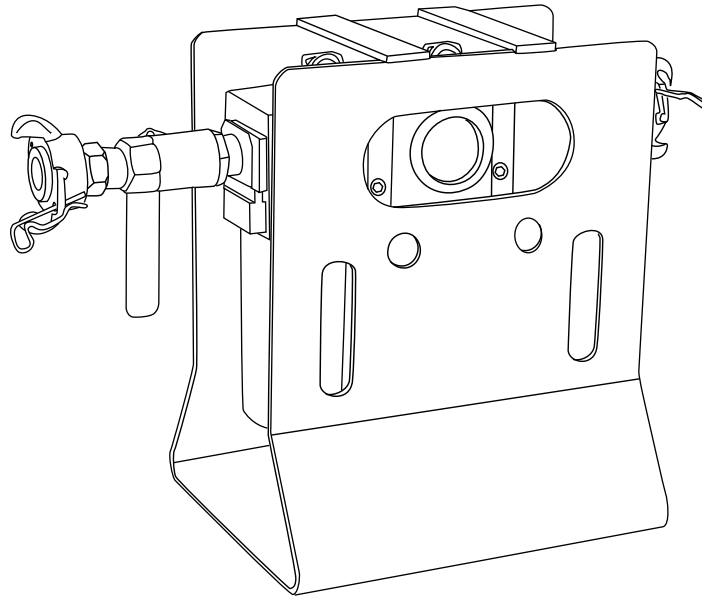
Item No.	Part No.	Description	Quantity
1	215-2030	Hose Section w/Fittings	2
2	215-1011	Claw Fitting, Female	2
3	215-2031	Adapter	1
4	215-2032	Throttle Assembly	1
5	215-2012	Safety Clip	2

**Air Hose Throttle Handle**  
**Part No. 215-2032**

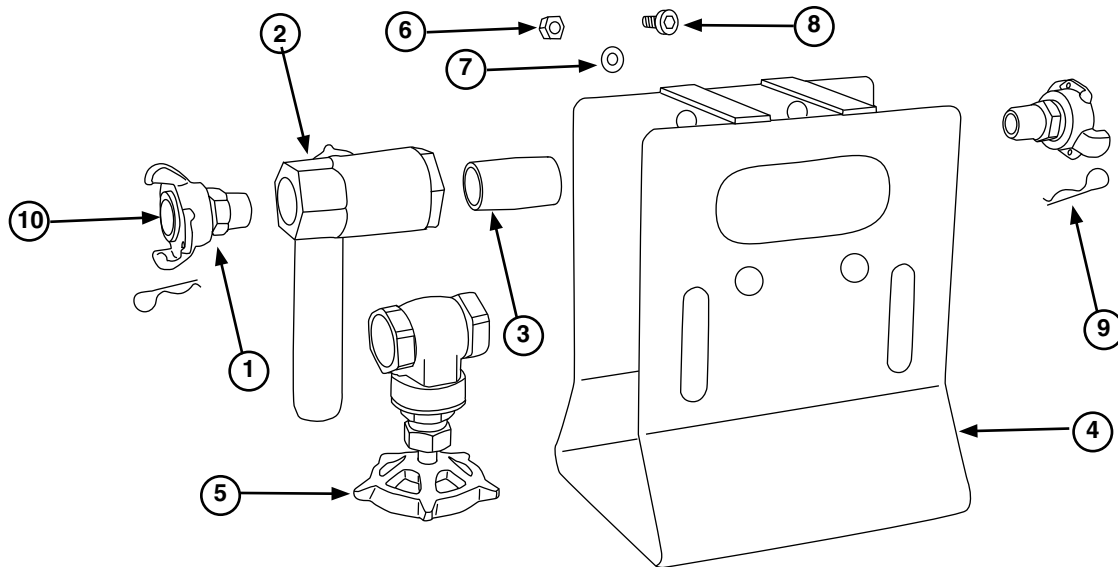


Item No.	Part No.	Description	Quantity
1	215-2040	Throttle Body	1
2	215-2041	Screen	1
3	215-2042	Adapter Cap	1
4	215-2043	O-Ring	1
5	215-2044	Oiler Valve	1
6	215-2045	Gasket	1
7	215-2046	Screw	1
8	215-2047	Lever	1
9	215-2048	Set Screw	1
10	215-2049	Pipe Plug	1
11	215-2050	O-Ring	1
12	215-2051	Pin	1
13	215-2052	Safety Lockout Spring	1
14	215-2053	Lockout Pin	1
15	215-2054	Lockout	1
16	215-2055	O-Ring	1
17	215-2056	Throttle Valve Assembly	1
18	215-2057	Spring	1
19	215-2058	Throttle Valve Plug	1
20	215-2019	5/16"-18 x 1" Socket Head Cap Screw	2
21	215-2060	5/16" Split Lock Washer	2

**Air Caddy Assembly, AC**  
**Part No. 215-2025**

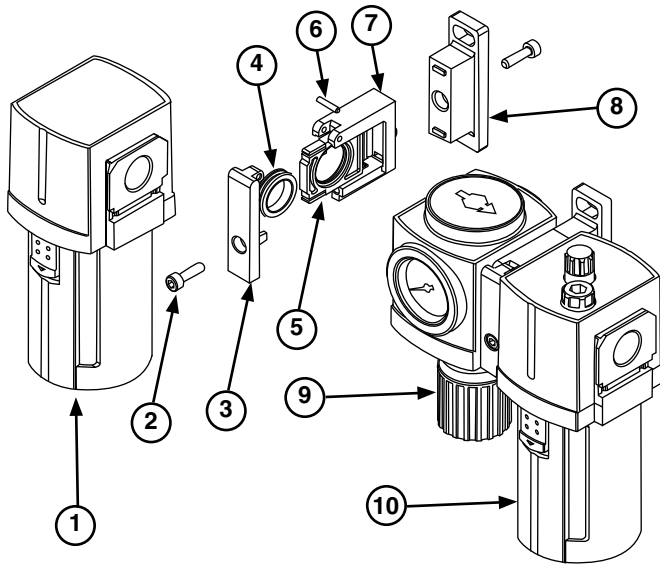


**Air Caddy Frame/Valves/Fittings**



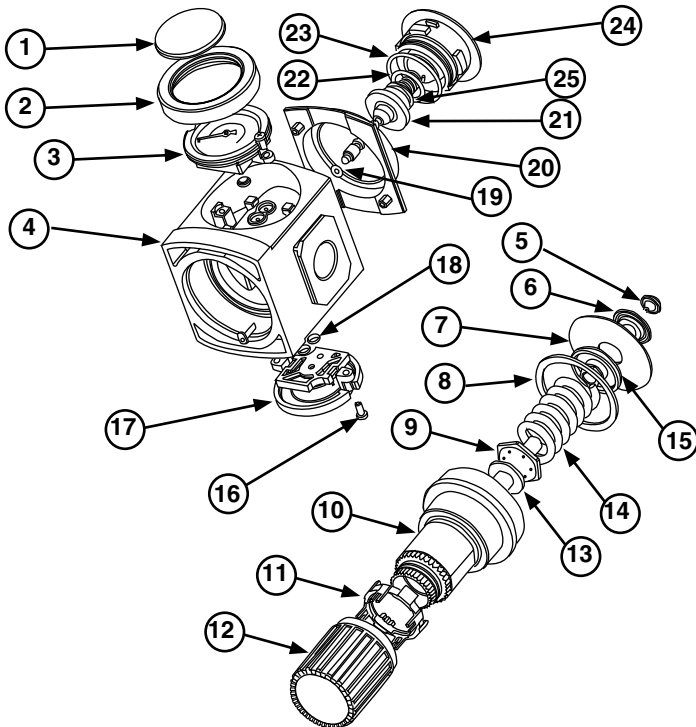
Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	215-1012	Claw Fitting, Male	2	6	215-2017	5/16"-18 Self-Locking Nut	4
2	215-2014	Ball Valve	1	7	215-2018	5/16" Washer	8
3	215-2013	Pipe Nipple	1	8	215-2019	5/16"-18 x 1" Socket	4
4	215-2016	Frame	1	9	215-2012	Head Cap Screw	2
5	215-2015	Gate Valve, Optional	1	10	215-2020	Safety Clip	2
						Claw Fitting Rubber Seal	

**Air Caddy Instrument Assembly**  
**Part No. 215-2080**



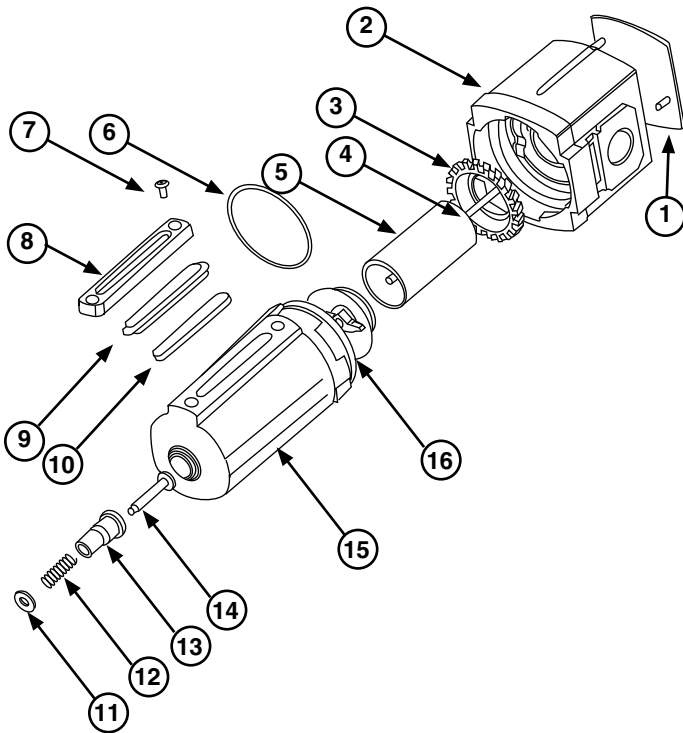
Item No.	Part No.	Description	Quantity
1	215-2130	Filter	1
*	215-2081	Air Caddy Mounting Bracket includes items 2 thru 8	2
2	215-2071	Socket Head Cap Screw	4
3	215-2072	Spacer Cover	2
4	215-2073	Spacer O-Ring	2
5	215-2074	Spacer	2
6	215-2075	Pin	2
7	215-2076	Spacer Housing	2
8	215-2077	T-Bracket	2
9	215-2100	Regulator	1
10	215-2150	Lubricator	1

**Air Caddy Regulator Assembly**  
**Part No. 215-2100**



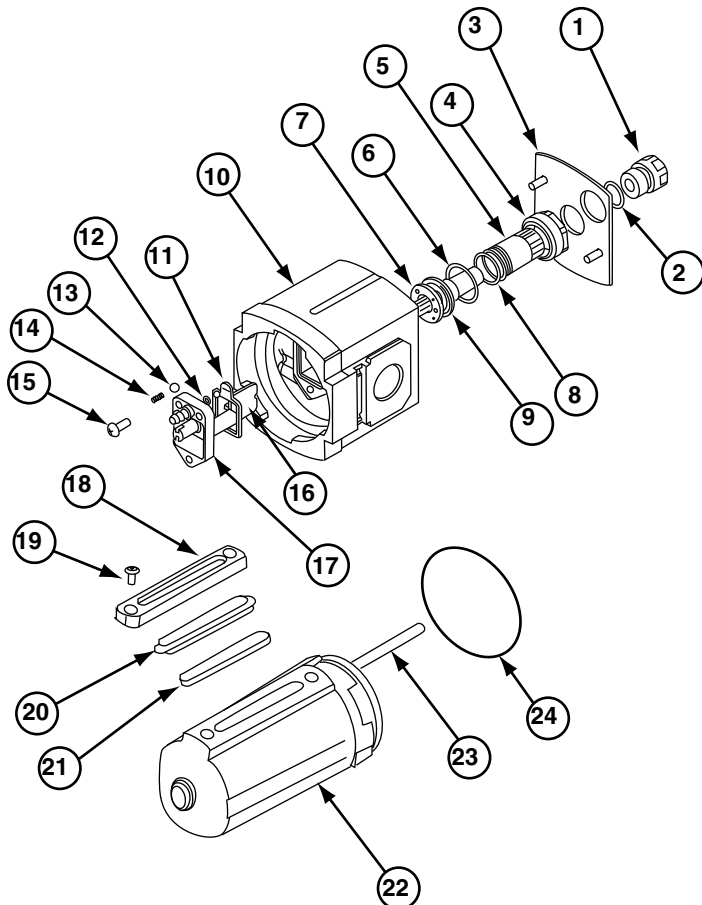
Item No.	Part No.	Description	Quantity
1	215-2101	Gauge Cover	1
2	215-2102	Cover Ring	1
3	215-2103	Gauge	1
4	215-2104	Regulator Body	1
5	215-2105	Relief Valve Sheet	1
6	215-2106	Relief Valve	1
7	215-2107	Diaphragm	1
8	215-2108	Diaphragm Ring	1
9	215-2109	Adjusting Nut	1
10	215-2110	Bonnet	1
11	215-2111	Tamper Kit	1
12	215-2112	Handle	1
13	215-2115	Adjusting Bolt	1
14	215-2116	Adjusting Spring	1
15	215-2117	Diaphragm Shell	1
16	215-2118	Bolt	2
17	215-2119	Built in check Valve/Block Cover	1
18	215-2120	Gauge O-Ring	1
19	215-2121	Stem O-Ring	1
20	215-2122	Upper Cover	1
21	215-2123	Valve	1
22	215-2124	Valve O-Ring	1
23	215-2125	Valve Guide O-Ring	1
24	215-2126	Valve Guide	1
25	215-2127	Valve Spring	1

**Air Caddy Filter Assembly  
Part No. 215-2130**



Item No.	Part No.	Description	Quantity
1	215-2131	Upper Cover	1
2	215-2132	Filter Body	1
3	215-2133	Deflector	1
4	215-2134	Baffle Shaft	1
5	215-2135	Filter Element	1
6	215-2136	Bowl O-Ring	1
7	215-2137	Bolt	2
8	215-2138	Sight Cover	1
9	215-2139	Sight Plate	1
10	215-2140	Sight Plate Gasket	1
11-14	215-2141	Manual Drain Assembly	1
15	215-2142	Filter Bowl	1
16	215-2143	Baffle	1

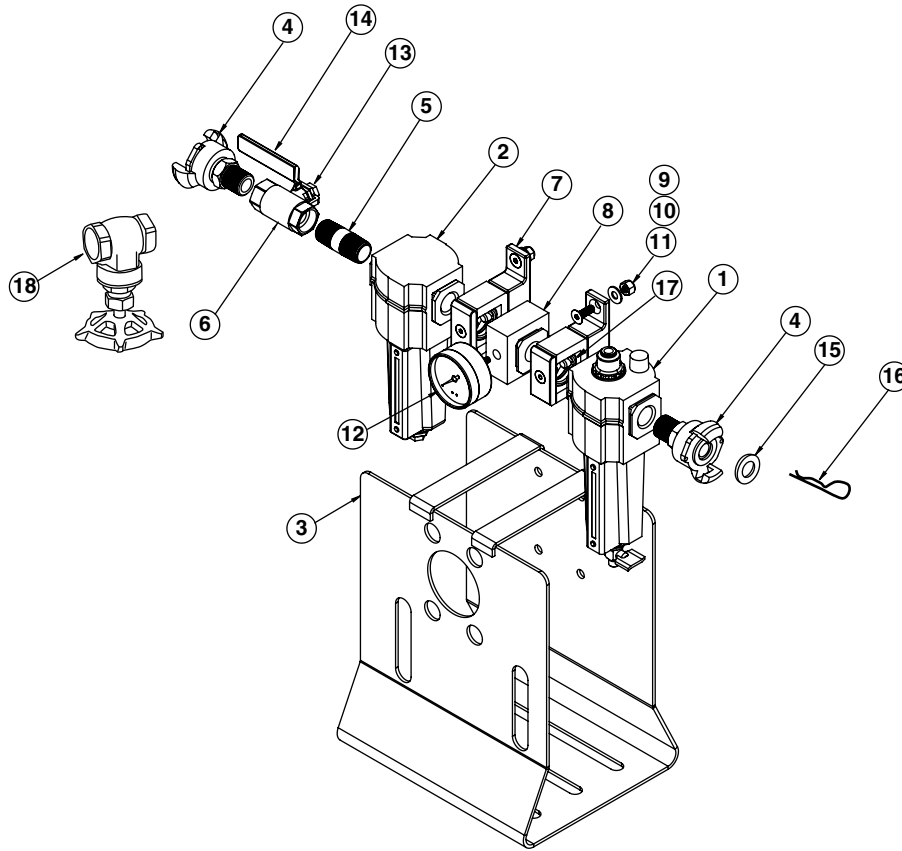
**Air Caddy Lubricator Assembly  
Part No. 215-2150**



Item No.	Part No.	Description	Quantity
1	215-2151	Fill Cap	1
2	215-2152	Fill Cap O-Ring	1
3	215-2153	Upper Cover	1
4	215-2154	Sight Dome Housing	1
5	215-2155	Outer Sight Dome	1
6	215-2156	Inner Sight Dome O-Ring	1
7	215-2157	Nozzle Sheet	1
8	215-2158	Outer Sight Dome O-Ring	1
9	215-2159	Inner Sight Dome	1
10	215-2160	Lubricator Body	1
11	215-2161	Damper Guide Gasket	1
12	215-2162	Check Ball O-Ring	1
13	215-2163	Steel Ball, Large	1
14	215-2164	Spring	1
15	215-2165	Bolt	3
16	215-2166	Damper	1
17	215-2167	Damper Guide	1
18	215-2168	Sight Cover	1
19	215-2169	Bolt	2
20	215-2170	Sight Plate	1
21	215-2171	Sight Plate Gasket	1
22	215-2172	Lubricator Bowl	1
23	215-2173	Siphon Tube	1
24	215-2174	Bowl O-Ring	1

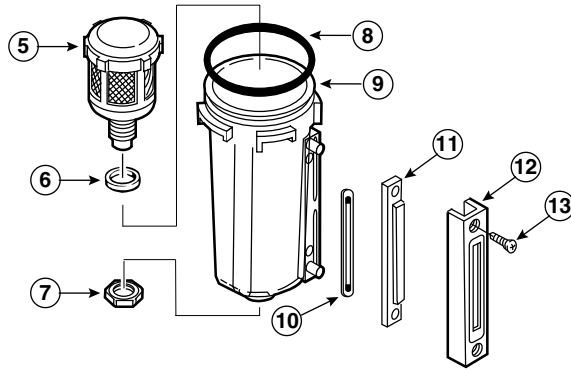
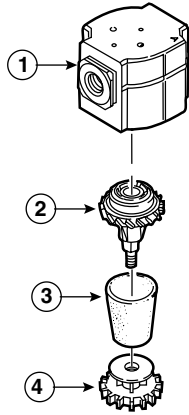


**Air Caddy, NAC  
Assembly No. 255-2025**



Reference No.	Part No.	Description	Reference No.	Part No.	Description
1	255-2026	Lubricator Assembly	10	500-1032	(4) 1/4" Flat Washer
2	255-2027	Filter Assembly	11	255-2032	(4) 1/4" - 20 Hex Locknut
3	255-2028	Frame	12	255-2033	2" Pressure Gauge
4	215-1012	(2) 1/2" Claw Fitting, Male	13	255-2035	Valve Handle Nut
5	215-2013	1/2" NPT x 2" Nipple	14	255-2034	Valve Handle
6	215-2014	1/2" Ball Valve	15	215-2020	(2) Claw Fitting Rubber Seal
7	255-2029	(2) Mounting Bracket	16	215-2012	(2) Safety Clip
8	255-2030	Port Block	17	255-2036	(4) O-Ring
9	901-0001	(4) 1/4" - 20 x 3/4" Flat Socket Head Cap Screw	18	215-2015	Gate Valve, Optional

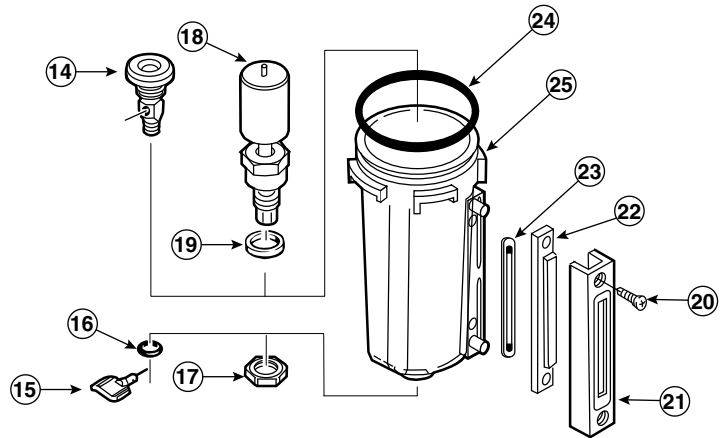
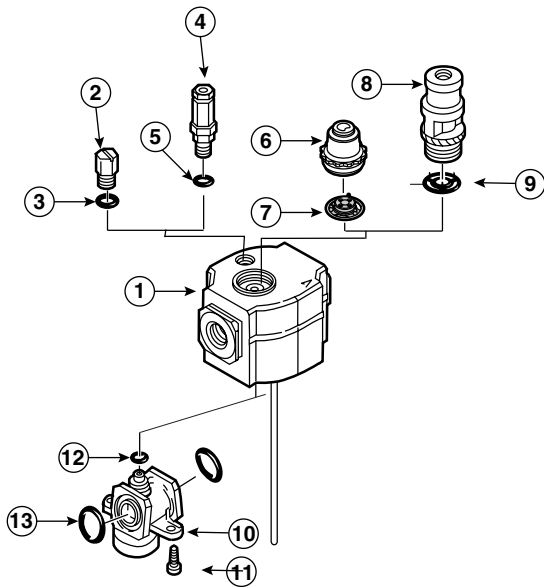
**Filter Assembly**  
**Part No. 255-2027**



Reference No.	Part No.	Description
1	255-2100	Body
2	255-2101	Louver - Center Post
3	255-2102	Filter Element
4	255-2103	Baffle
5	255-2104	Automatic Drain Assembly
6	255-2105	Gasket
7	255-2106	Nut

Reference No.	Part No.	Description
8	255-2107	O-Ring
9	255-2108	Bowl
10	255-2109	Sight Glass Lens Seal
11	255-2110	Sight Glass Lens
12	255-2111	Sight Glass Clamp
13	255-2112	(2) Screw

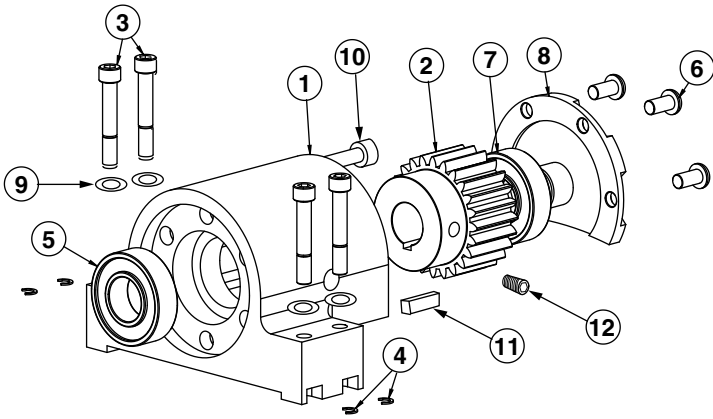
**Lubricator Assembly**  
**Part No. 255-2026**



Reference No.	Part No.	Description
1	255-2201	Body
2	255-2202	Fill Plug
3	255-2203	O-Ring
4	255-2204	Quick Fill Cap
5	255-2205	O-Ring
6	255-2206	Sight Feed Dome
7	255-2207	Seal
8	255-2208	Sight Feed
9	255-2209	Seal
10	255-2210	Cartridge
11	255-2211	(2) Screw
12	255-2212	O-Ring
13	255-2213	(2) O-Ring

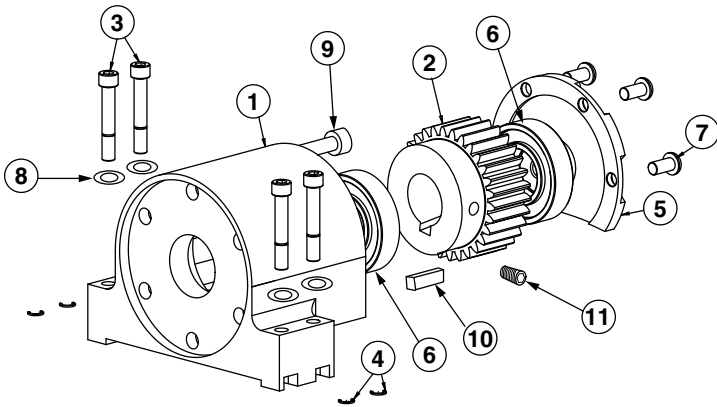
Reference No.	Part No.	Description
14	255-2214	Manual Drain
15	255-2215	Drain Valve
16	255-2216	O-Ring
17	255-2217	Nut
18	255-2218	Remote Fill
19	255-2219	Gasket
20	255-2220	(2) Screw
21	255-2221	Sight Glass Clamp
22	255-2222	Sight Glass Lens
23	255-2223	Sight Glass Lens Seal
24	255-2224	O-Ring
25	255-2225	Bowl

**3800 Air Motor Gear Drive  
Part No. 211-1380**



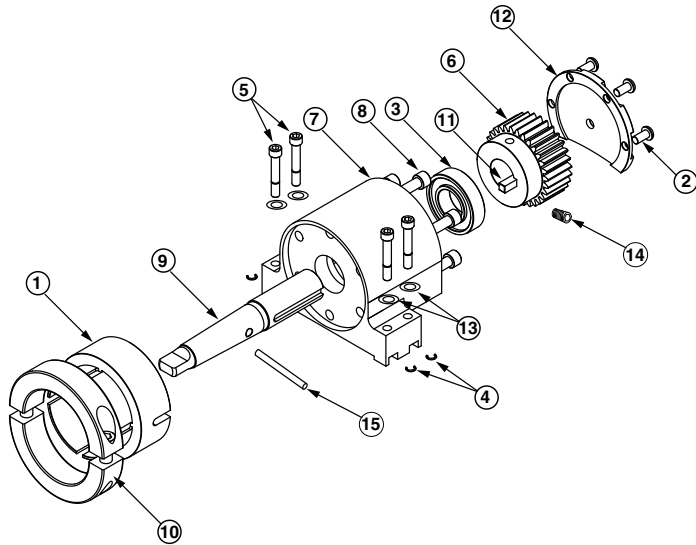
Item No.	Part No.	Description	Quantity
1	211-0381	Motor Mount Housing	1
2	211-0383	Drive Gear	1
3	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw	4
4	500-1031	1/4" Low-Clearance Retaining Ring	4
5	211-0384	Roller Bearing	1
6	500-1069	1/4"-20 X 3/8" Button Head Cap Screw	4
7	211-0385	Roller Bearing	1
8	211-0382	Drive Gear Cover	1
9	500-1032	Washers	4
10	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	6
11	211-0486	Square Key	1
12	500-1072	5/16"-18 x 3/8" Socket Head Set Screw	1

**4800 Air Motor Gear Drive  
Part No. 211-1480**



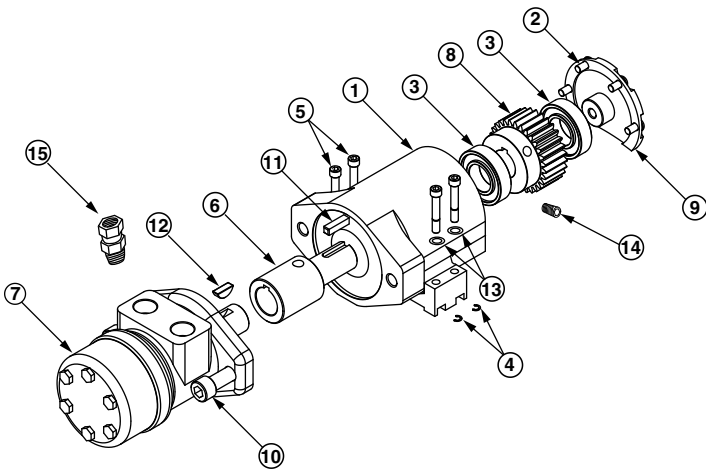
Item No.	Part No.	Description	Quantity
1	211-0481	Motor Mount Housing	1
2	211-0483	Drive Gear	1
3	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw	4
4	500-1031	1/4" Low-Clearance Retaining Ring	4
5	211-0482	Drive Gear Cover	1
6	211-0484	Roller Bearing	2
7	500-1069	1/4"-20 X 3/8" Button Head Cap Screw	4
8	500-1032	Washers	4
9	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	6
10	211-0486	Square Key	1
11	500-1072	5/16"-18 x 3/8" Socket Head Set Screw	1

**Electric Motor Gear Drive  
Part No. 211-1110**



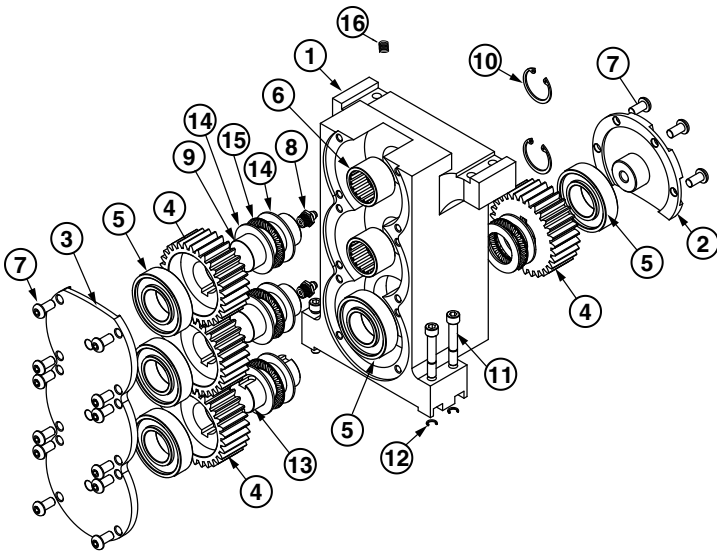
Item No.	Part No.	Description	Quantity
1	211-0111	Motor Adapter	1
2	500-1069	1/4"-20 X 3/8" Button Head Cap Screw	4
3	211-0484	Roller Bearing	1
4	500-1031	1/4" Low-Clearance Retaining Ring	4
5	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw	6
6	211-0113	Drive Gear	1
7	211-0481	Motor Mount Housing	1
8	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	6
9	211-0115	Drive Shaft	1
10	211-0117	Shaft Collar	1
11	211-0486	Square Key	1
12	211-0112	Drive Gear Cover	1
13	500-1032	Washers	4
14	500-1072	5/16"-18 x 3/8" Socket Head Set Screw	1
15	500-1104	3/16" x 1-1/4" Roll Pin	1

**Hydraulic Motor Gear Drive Parts Identification  
Danfoss Part No. 211-1580  
Charlynn Part No. 211-1680**



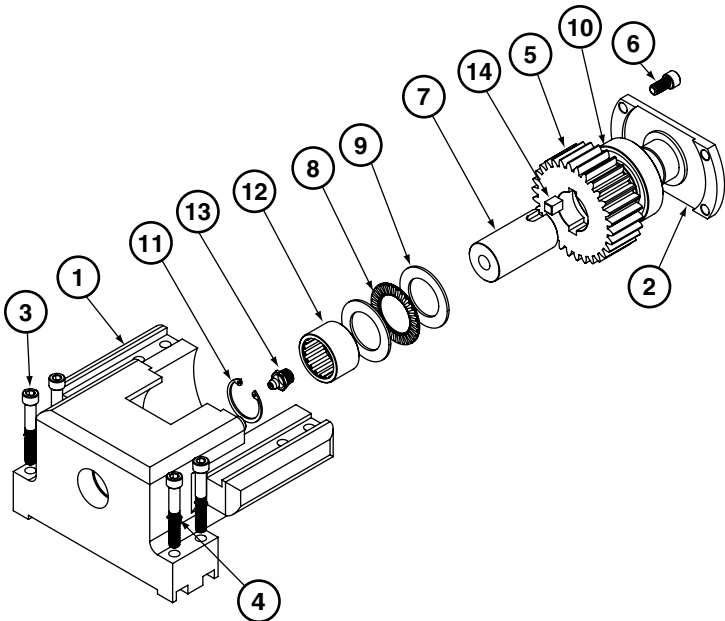
Item No.	Part No.	Description	Quantity
1	211-0581	Motor Mount Housing	1
2	500-1069	1/4"-20 X 3/8" Button Head Cap Screw	4
3	211-0484	Roller Bearing	2
4	500-1031	1/4" Low-Clearance Retaining Ring	4
5	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw	4
6	211-0584	Adapter Shaft	1
7	211-0580	Hydraulic Motor, Danfoss	1
	211-0680	Hydraulic Motor, Charlynn	1
8	211-0483	Drive Gear	1
9	211-0482	Drive Gear Cover	1
10	500-1079	1/2"-13 x 1-1/4" Socket head Cap Screw	2
11	211-0486	Square Key	1
12	211-0587	Woodruff Key	1
13	500-1032	Washers	4
14	500-1072	5/16"-18 x 3/8" Socket Head Set Screw	1
15	211-0033	Universal Connector	2

**Front Drive Motor Adapter  
Part No. 213-1010**



Item No.	Part No.	Description	Quantity
1	213-1011	Adapter Housing	1
2	211-0482	Drive Gear Cover	1
3	213-1012	Housing Cover	1
4	213-1014	Drive Gear	4
5	211-0484	Ball Bearing	5
6	213-1018	Needle Bearing	2
7	500-1034	1/4"-20 x 1/2" Button Head Cap Screw	16
8	500-1033	Grease Fitting	2
9	213-1016	Intermediate Shaft	2
10	213-1021	Internal Snap Ring	2
11	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw, Special	4
12	500-1031	1/4" Low-Clearance Snap Ring	4
13	213-1015	Keyed Drive Shaft	1
14	213-1020	Thrust Washer	8
15	213-1019	Thrust Bearing	4
16	500-1080	1/4"-20 Helical Thread Insert	4

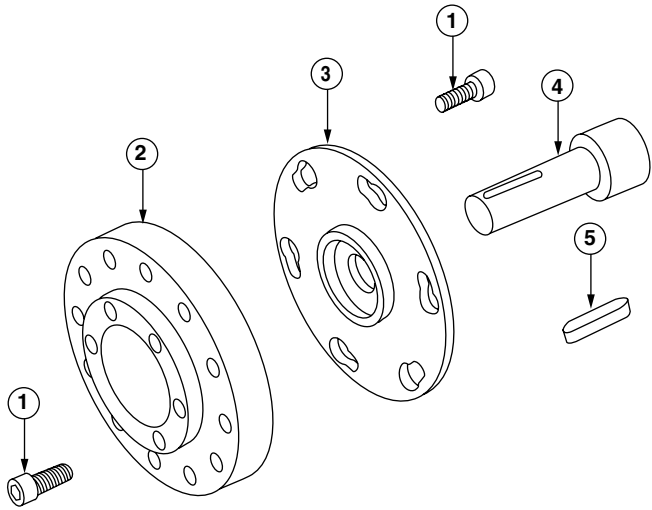
**Reverse Front Drive Adapter  
Part No. 213-2035**



Item No.	Part No.	Description	Quantity
1	213-2034	Adapter Housing	1
2	213-2033	Drive Cap	1
3	500-1030	1/4"-20 x 1-3/4" Socket Head Cap Screw	4
4	500-1031	Low Clearance Retainer Ring	4
5	213-1014	Drive Gear	1
6	500-1420	1/4"-20 x 1/2" Socket Head Cap Screw	4
7	213-2028	Drive Shaft	1
8	213-1019	Thrust Bearing	1
9	213-1020	Thrust Washer	2
10	211-0484	Roller Bearing	1
11	213-1021	Retainer Ring	1
12	213-1018	Needle Bearing	1
13	500-1033	Grease Fitting	1
14	213-2021	1/4" Square Key	1



**AFC Right Angle Motor Adapter**  
**55 Series Part No. 211-1338**  
**75 Series Part No. 211-1348**



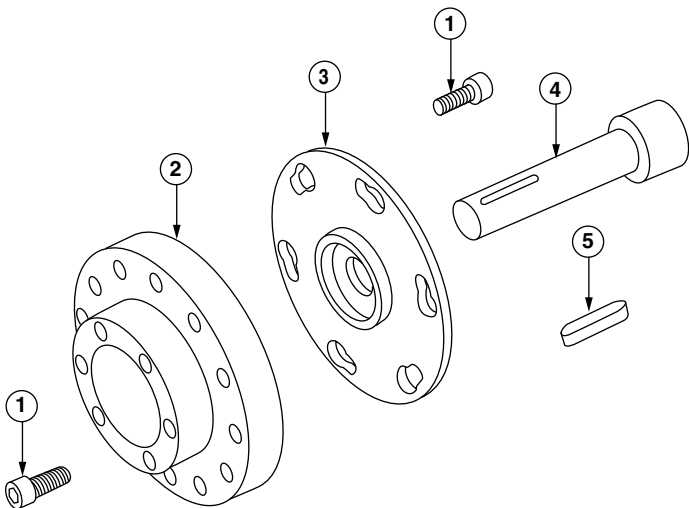
**55 Series Right Angle Motor Adapter**

Item No.	Part No.	Description	Quantity
1	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	12
2	211-1330	Adapter Plate	1
3	211-1331	Motor Flange	1
4	211-1332	Drive Shaft	1
5	211-1333	Drive Key	1

**75 Series Right Angle Motor Adapter**

Item No.	Part No.	Description	Quantity
1	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	12
2	211-1340	Adapter Plate	1
3	211-1341	Motor Flange	1
4	211-1342	Drive Shaft	1
5	211-1343	Drive Key	1

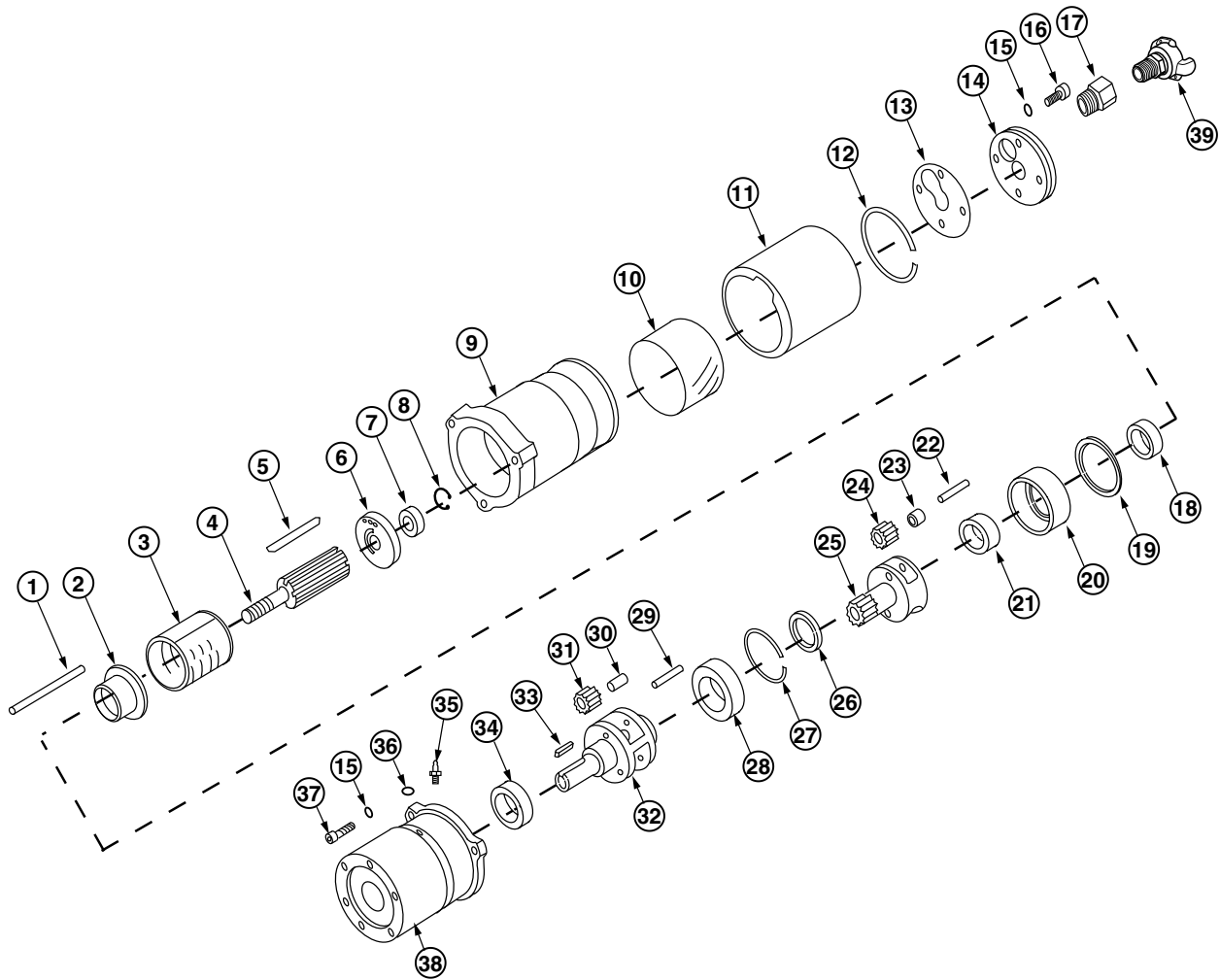
**BFC Right Angle Motor Adapter**  
**75 Series Part No. 211-1358**



**75 Series Right Angle Motor Adapter**

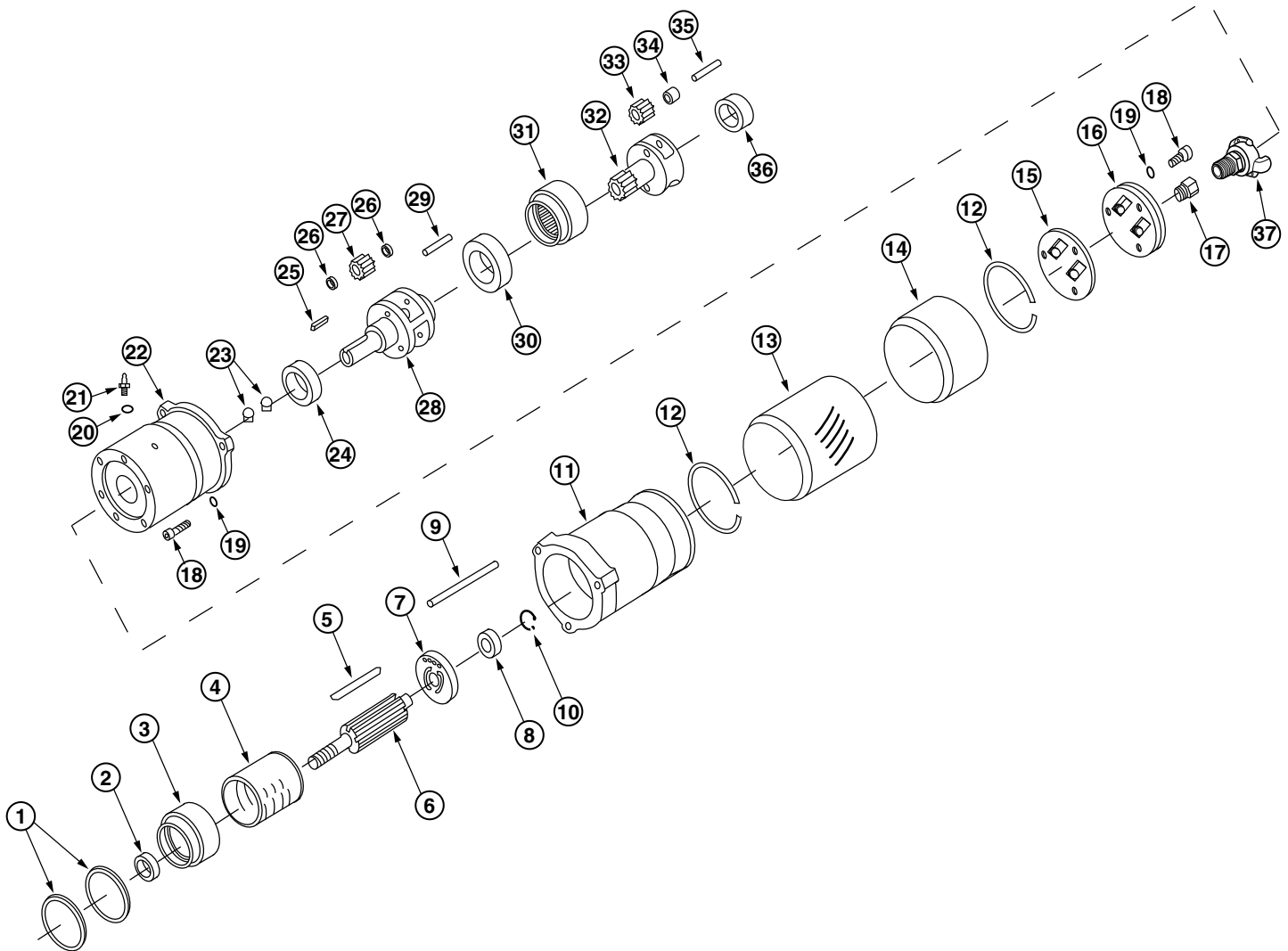
Item No.	Part No.	Description	Quantity
1	500-1070	5/16"-18 x 3/4" Socket Head Cap Screw	12
2	211-1350	Adapter Plate	1
3	211-1341	Motor Flange	1
4	211-1352	Drive Shaft	1
5	211-1343	Drive Key	1

**3800 Air Motor**  
**Part No. 211- 0380**



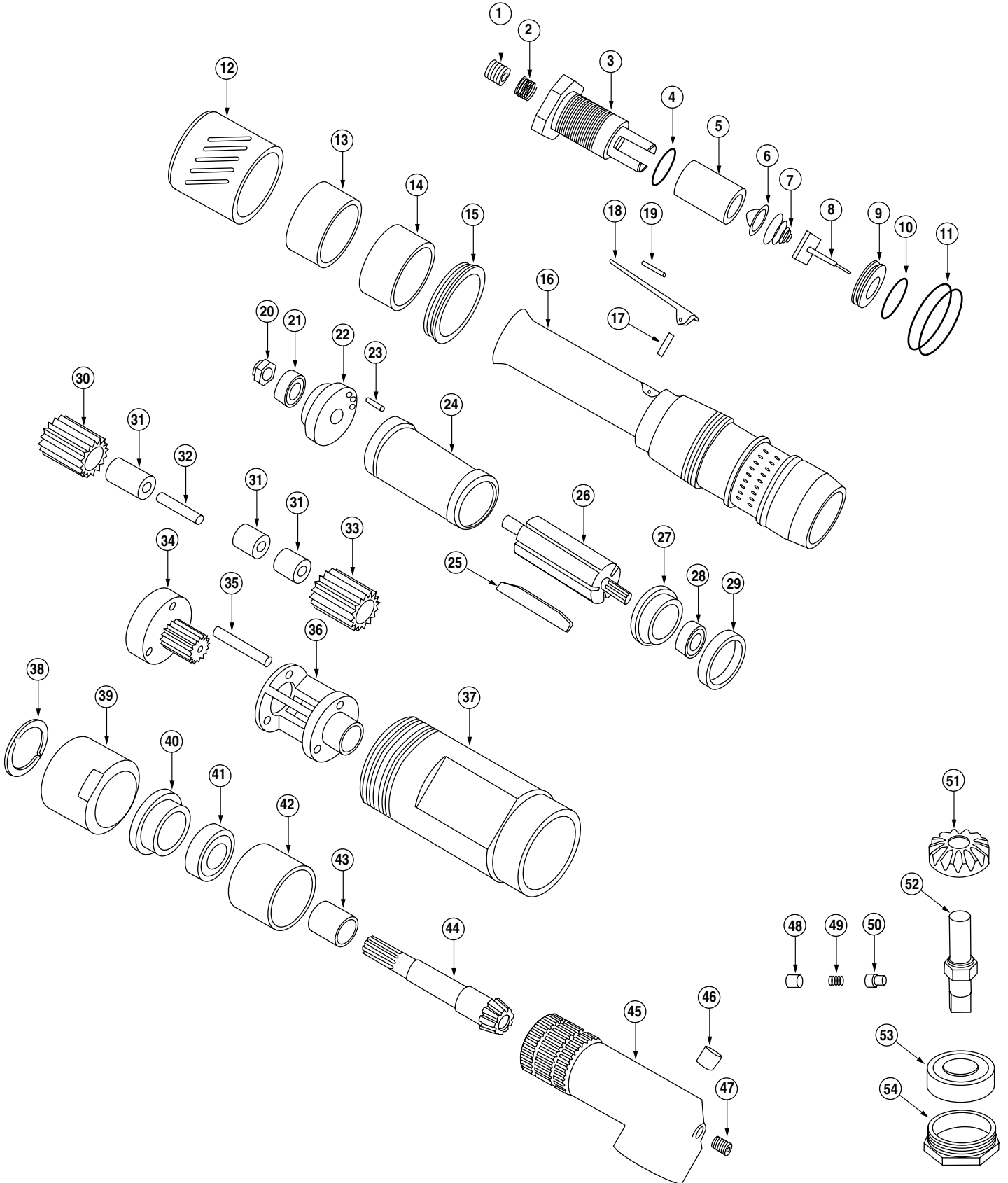
Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	R38KT-198	Cylinder Dowel	1		R3800U2-A216	Gear Head Assembly	1
2	R3800-11	Front End Plate	1	21	4E-510	Gear Head Bearing	1
3	R3800-3	Cylinder	1	22	8U-191	Gear Head Planet Gear Shaft	2
4	R3800M-53	Rotor	1	23	8U-654	Gear Head Planet Gear Bearing	2
5	R38-42-5	Vane (set of 5)	1	24	4E-10AX	Gear Head Planet Gear	2
6	R3800-12	Rear End Plate	1	25	R3800U2-216	Gear Head	1
7	R1-24	Rear Rotor Bearing	1	26	R38P-80	Gear Head Spacer	1
8	404-118	Rotor Bearing Retainer	1		R3800-A108	Spindle Assembly	1
9	R3800-40	Motor Housing	1	27	FMC2-280	Spindle Bearing Retainer	1
10	R3800-23	Exhaust Deflector	1	28	R38P-97	Spindle Rear Bearing	1
11	R38-23	Muffler	1	29	R38P-190	Spindle Planet Gear Shaft	3
12	R4-323	Exhaust Deflector Retainer Ring	1	30	R38P-500	Spindle Planet Gear Bushing	3
13	R3800-283	Backhead Gasket	1	31	R3800U2-9	Spindle Planet Gear	3
14	R3800-102	Backhead	1	32	R3800-U108	Spindle	1
15	8U-58	1/4" Lock Washer	7	33	P25-150	Spindle Key	1
16	510-638	Backhead Cap Screw	4	34	4UA9-593	Spindle Front Bearing	1
17	R38-565A	Air Strainer	1	35	R1-188	Grease Fitting	1
18	R1-24A	Front Rotor Bearing	1	36	R3-92A	Grease Fitting Washer	1
19	34U-216	Motor Retaining Ring	1	37	ROH-354	Gear Case Cap Screw	3
20	R3800-118	Motor Retainer	1	38	ET3802P-A37	Gear Case	1
				39	215-1012	Claw Fitting, Male	1

**4800 Air Motor**  
**Part No. 211- 0480**



Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	R4800-81	Motor Retaining Washer	2	20	R3-92A	Grease Fitting Washer	1
2	R3H-24	Front Rotor Bearing	1	21	R1-188	Grease Fitting	2
3	R4800-11	Front End Plate	1	22	R4801U-37	Gear Case	1
4	R4800-3	Cylinder	1	23	R4800-407	Internal Gear Key	2
5	R4800-42-5	Vane (set of 5)	1		R4801U-A108	Spindle Assembly	1
6	R4800U-53	Rotor	1	24	MR-988	Spindle Front Bearing	1
7	R4800-12	Rear End Plate	1	25	107-54	Spindle Key	1
8	R2-24A	Rear Rotor Bearing	1	26	R4801U-510	Spindle Planet Gear Bearing	6
9	R4800-98	Cylinder Dowel	1	27	R4801U-A9	Spindle Planet Gear	3
10	R4800-119	Rear Rotor Bearing Retainer	1	28	R4801U-108	Spindle	1
11	R4800-40	Motor Housing	1	29	R4801U-191	Spindle Planet Gear Shaft	3
12	R4800-323	Exhaust Deflector Retainer Ring	2	30	R4800-97	Spindle Rear Bearing	1
13	R4800-23	Exhaust Deflector	1	31	R4800-406	Internal Gear	1
14	R4800-23	Muffler	1		R4801U-A216	Gear Head Assembly	1
15	R4800-283	Backhed Gasket	1	32	R4801U-216	Gear Head	1
16	R4800-102	Backhead	1	33	R4801U-10	Gear Head Planet Gear	2
17	R4800-565	Air Strainer	1	34	R4800-654	Gear Head Planet Gear Bearing	2
18	5080-638	Cap Screw	3	35	R4800-191	Gear Head Planet Gear Shaft	2
19	8U-58	Lock Washer	3	36	W44-97	Gear Head Bearing	1
				37	215-1012	Claw Fitting, Male	1

**Series 55 Pneumatic Motor**  
**Part No. 211-1550**

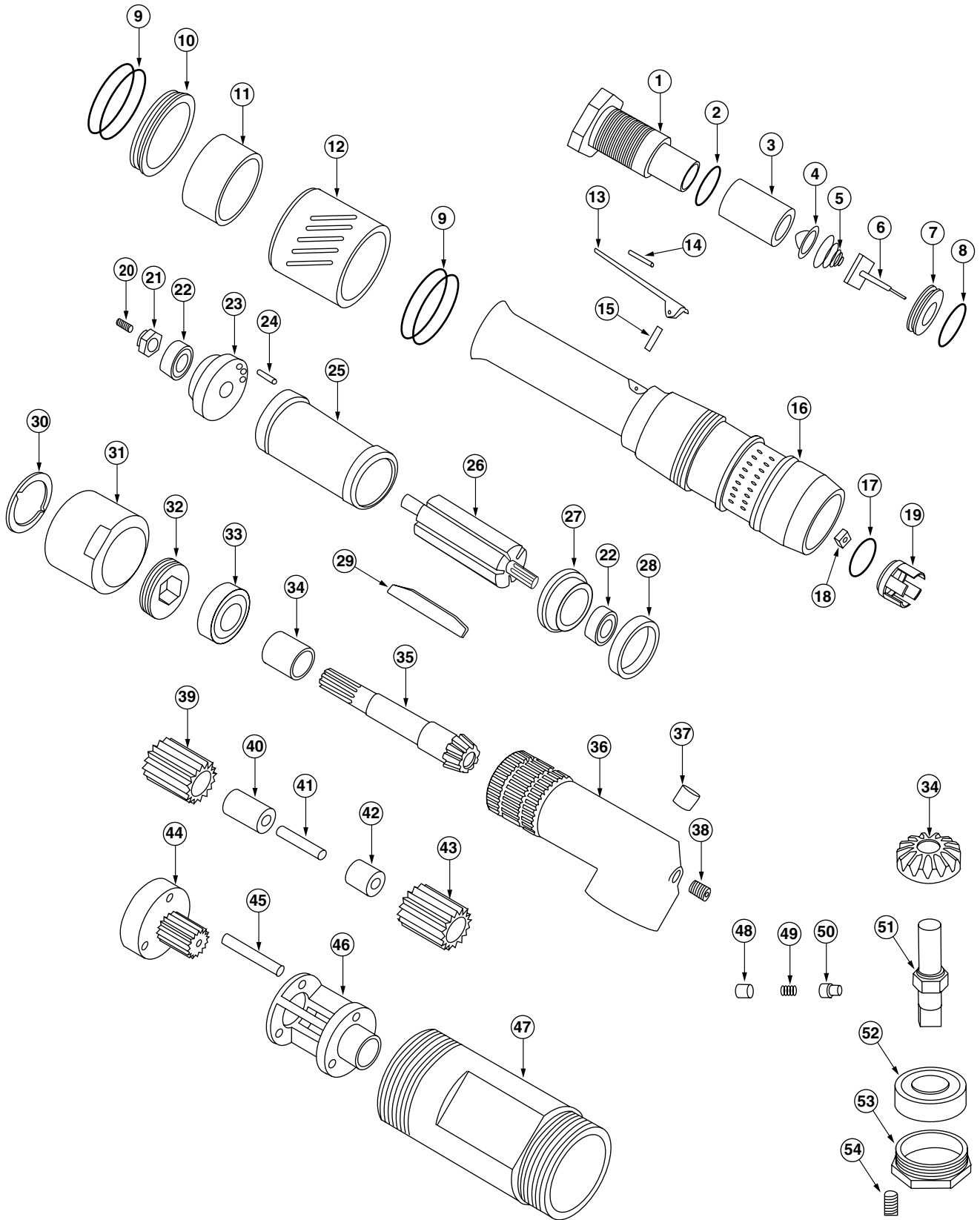


**Series 55 Pneumatic Motor**

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Quantity</b>	<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Quantity</b>
	201302	Motor Housing Assy			201311	Gear Train Assy.	
1	203203	Metering Nut	1	30	867526(21T)	Idler Gear	3
2	832079	Spring	1	31	844774	Idler Gear Bearing	9
3	203202	Inlet Bushing	1	32	832125	Idler Gear Pin	3
4	622881	O-Ring	1	33	203107(15T)	Idler Gear	3
5	202508	Inlet Spacer	1	34	861485	Gear Cage	1
6	843656	Inlet Screen	1	35	204809	Idler Gear Pin	3
7	864973	Throttle Valve Spring	1	36	203105	Gear Cage	1
8	202055	Throttle Valve	1	37	867544	Gear Case	1
9	869931	Throttle Valve Seat	1		861496	1/2" Angle Drive Assy	
10	622062	O-Ring	1	38	867522	Clamp Ring	1
11	617754	O-Ring	2	39	867521	Lock Nut	1
12	202626	Exhaust Deflector	1	40	867520	Make-Up Plate	1
13	203109	Muffler	1	41	842517	Bearing	1
14	202632	Muffler	1	42	382633	Spline Protector	1
15	202011	Seal Ring	1	43	867548	Pinion Bearing	1
16	203110	Motor Housing	1	44	861478	Pinion Gear Set	1
17	202481	Throttle Valve Pin	1	45	867507	Angle Housing	1
18	865063	Lever	1	46	882661	Needle Bearing	1
19	864195	Lever Pin	1	47	867546	Pipe Plug	1
20	865352	Lock Nut	1	48	844013	Spring Retainer	1
21	843444	Bearing	1	49	844014	Spring	1
22	869572	Rear Bearing Plate	1	50	844011	Lock Pin	1
23	863887	Cylinder Pin	1	51	861478	Pinion Gear Set	1
24	203101	Cylinder	1	52	867510	Spindle (1/2" Sq. Dr.)	1
25	869569	Rotor Blade	5	53	867547	Bearing	1
26	203102	Rotor, Round	1	54	867509	Bearing Cap	1
	869573	Rotor, Star	1				
27	867536	Front Bearing Plate	1				
28	619377	Bearing	1				
29	867528	Motor Spacer	1				



**Series 75 Air Motor**  
**Part No. 211-1750**

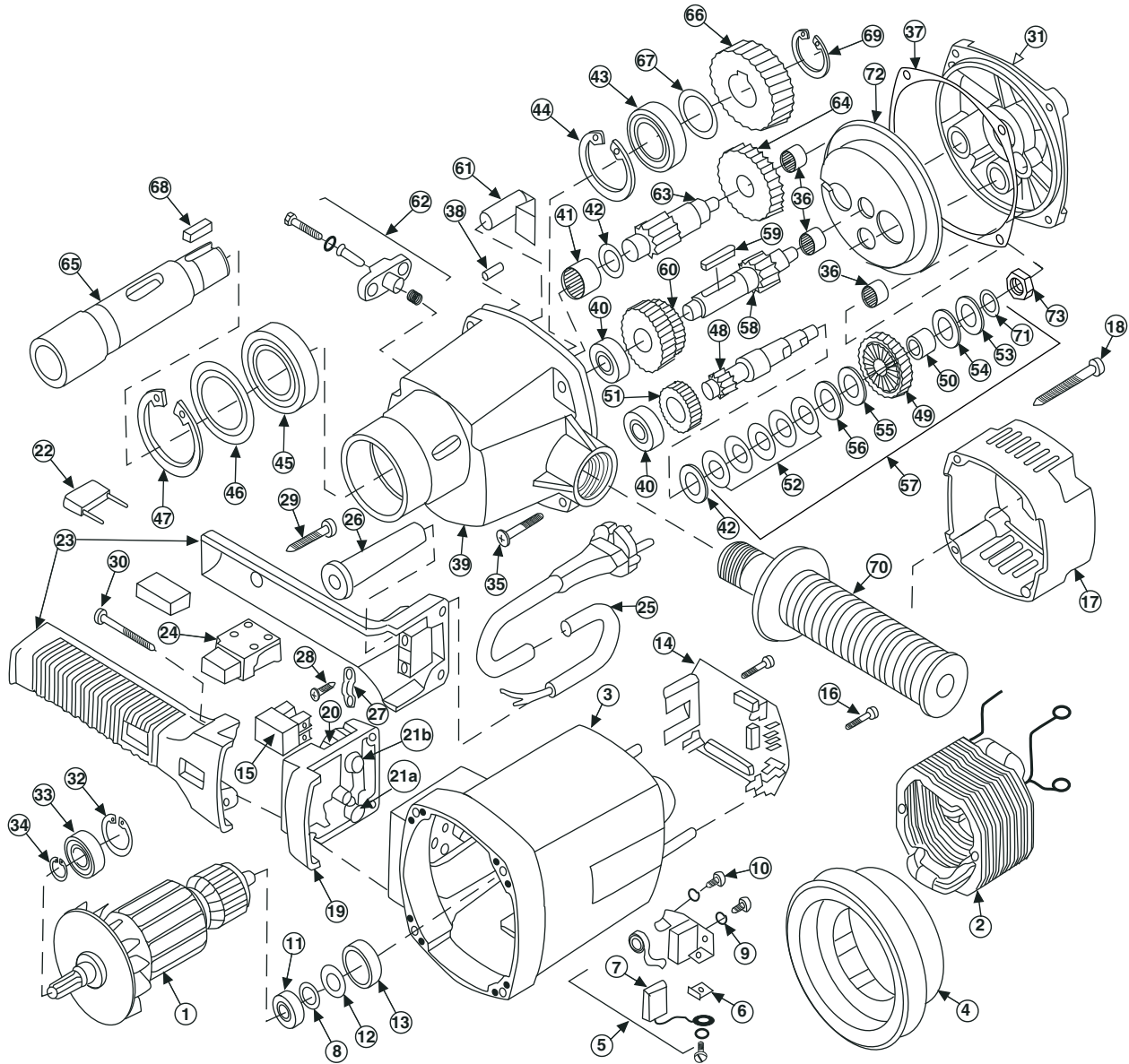


**Series 75 Air Motor**

<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Quantity</b>	<b>Item No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Quantity</b>
	201328	Motor Housing Assy.			861906	Right Angle Head Assy.	
1	869933	Inlet Bushing	1	31	869878	Clamp Nut	1
2	622881	O-Ring	1	32	869877	Bearing Retainer	1
3	202508	Inlet Spacer	1	33	847659	Pinion Ball Bearing	1
4	843656	Inlet Screen	1	34	869880	Pinion Needle Bearing	1
5	864973	Throttle Valve Spring	1	35	861905	Gear Set	1
6	202055	Throttle Valve	1	36	869875	Right Angle Head	1
7	869931	Throttle Valve Seat	1	37	883720	Spindle Needle Bearing	1
8	622062	O-Ring	1	38	867546	Grease Plug	1
9	615018	O-Ring	4		861915	Gear Train Assy.	
10	202050	Deflector Spacer	1	39	869900	Idler Gear	3
11	869943	Muffler	1	40	844774	Needle Roller	39
12	202051	Exhaust Deflector	1	41	832125	Idler Gear Pin	3
13	865063	Throttle Lever	1	42	869907	Idler Gear Bearing	3
14	864195	Throttle Lever Pin	1	43	869902	Idler Gear	3
15	202481	Throttle Valve Pin	1	44	869897	Spider (Includes Pin)	1
16	203150	Handle	1	45	869908	Idler Gear Pin	6
17	863880	O-Ring	1	46	869904	Spider	1
18	869937	Shut-Off Valve	1	47	869906	Gear Case	1
19	869936	Valve Block	1	48	864710	Lock Pin Retainer	1
20	847960	Set Screw	1	49	864712	Lock Pin Spring	1
21	865352	Rotor Lock Nut	1	50	864711	Socket Lock Pin	1
22	847528	Rotor Bearing	2	51	869888	3/4" Square Spindle	1
23	869925	Rear Bearing Plate	1	52	812222	Spindle Ball Bearing	1
24	812918	Cylinder Pin	1	53	869887	Bearing Cap	
25	203149	Cylinder	1			(includes 867997)	1
26	203147	Rotor	1	54	867997	Bearing Cap Lock	
27	869923	Front Bearing Plate	1			Screw	1
28	869929	Motor Spacer	1				
29	869927	Rotor Blade	5				
30	869879	Clamp Ring	1				

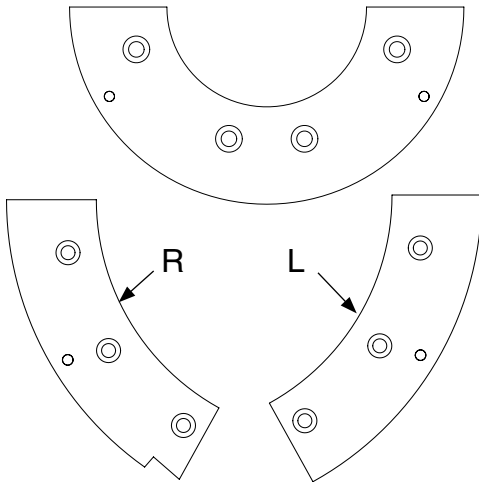
## Electric Motor

Part Nos. 211-0110 (120V), 211-0220 (230V)



Reference No.	Part No.	Description	Reference No.	Part No.	Description	Reference No.	Part No.	Description
1	74321100	Rotor Assembly, 120V	23	71527260	Handle Halves	49	7154E550	Coupling Wheel
	7154E100	Rotor Assembly, 230V	24	80600114	Switch	50	80420240	Gear Sleeve
2	71528150	Stator Assembly, 120V	25	80600060	Connecting Cable	51	71521470	Intermediate Wheel 1
	74326150	Stator Assembly, 230V	26	71323255	Cable	52	80200716	Spring Washer
3	7742A200	Motor Housing	27	71540330	Wire Locking Flange	53	73116496	Washer
4	71540140	Air Guiding Ring	28	80201271	(2) Screw, 4.2 x 16	54	73116497	Washer
5	80201199	Brush Holder	29	80201291	Screw	55	73430498	Clutch Washer
6	73320210	Washer	30	80201294	(4) Self-Tapping Screw	56	73430499	C-Clip
7	80700040	Brush	31	7152B610	End Shield	57	71526493	Coupling, Complete
8	73320999	Disk	32	80201333	Safety Ring, 28/1.2	58	71526500	Intermediate Shaft 2
9	80201385	(2) Lock Washer	33	80410031	Bearing	59	80200602	Fitting Spring, Hardened
10	80201180	(2) Screw	34	80201320	Safety Ring	60	71521440	Cluster Gears
11	80410021	Bearing	35	80201292	(4) Screw, 4.2 x 16	61	71521520	Coupling Bolt
12	80701002	Magnet Ring	36	80420110	(3) Needle Sleeve	62	71540545	Gear Switch
13	73320315	Bearing Seal	37	74429620	Paper Seal	63	71521510	Intermediate Shaft 3r
14	74329280	Circuit Board, 120V	38	80200580	Notched Pin, 5 x 16	64	71526480	Intermediate Gear 2
	74326280	Circuit Board, 230V	39	71521400	Gearbox Housing	65	71540420	Work Spindle
15	80600110	Reverser	40	80410020	(2) Bearing	66	71540430	Spindle Wheel
16	80201260	(2) Screw	41	80420001	Needle Bearing	67	80200512	Fitting Disk
17	7742A240	Motor Cap	42	71540517	Disk of Needle Bearing	68	80200606	Fitting Spring
18	80201267	(4) Screw	43	80410061	Ball Bearing	69	80201326	Locking Ring
19	7152B293	Spacer	44	80201336	Locking Ring	70	71526590	Tube Handle, Complete
20	71521230	Selector Wheel	45	80410070	Grooved Ball Bearing	71	80200710	Disk Spring
21a	80500020	Speed Dial, 220V	46	71540426	Disk F Grooved Ball Bearing	72	7152B625	Grease Chamber
21b	80500007	Torque Dial	47	80201338	Locking Ring	73	80201007	Hex Nut, 8mm 10 x 1
22	80500010	Condenser	48	71526490	Intermediate Shaft 1			

## Strike Plate

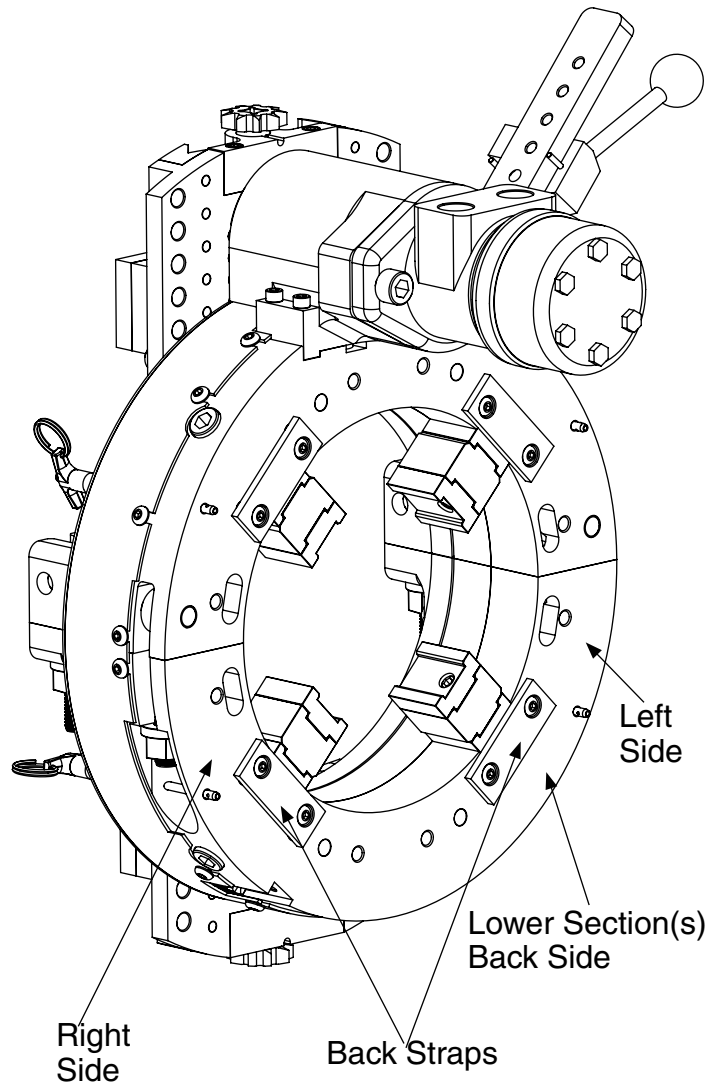


AFC Strike Plate

Model No.	Left Part No.	Right Part No.	Cap Screw Quantity
AFC-4	N/A	216-1450	4
AFC--6	216-1451	216-1452	6
AFC-8	216-1453	216-1454	6
AFC-10	216-1455	216-1456	6
AFC-12	216-1457	216-1458	6
AFC-14	216-1459	216-1460	6
AFC-16	216-1461	216-1462	6
AFC-18	216-1463	216-1464	6
AFC-20	216-1465	216-1466	6
AFC-24	216-1467	216-1468	6
AFC-26	216-1469	216-1470	6
AFC-28	216-1471	216-1472	4
AFC-30	216-1473	216-1474	4
AFC-32	216-1475	216-1476	4
AFC-36	216-1477	216-1478	4
AFC-39	216-1479	216-1480	4
AFC-42	216-1481	216-1482	4

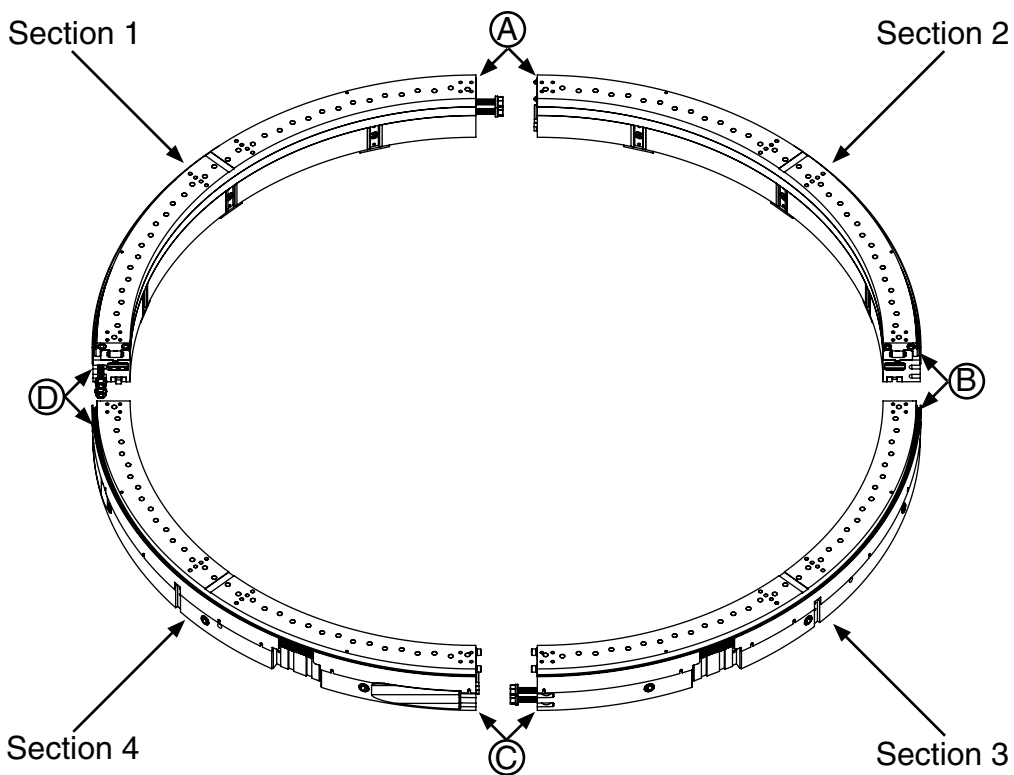
BFC Strike Plate

Model No.	Left Part No.	Right Part No.	Cap Screw Quantity
BFC-36	217-1477	217-1478	4
BFC-42	217-1481	217-1482	4
BFC-48	217-1483	217-1484	6
BFC-56	217-1485	217-1486	6
BFC-66	217-1487	217-1488	8
BFC-72	217-1489	217-1490	8
BFC-86	217-1491	217-1492	8



The strike plate(s) are attached to the lower section of the back side of the clamshell. Some models require that the back straps be removed before installation. The model AFC-4 strike plate is a single-piece. All others require a right and left side component. Right and left orientation is determined by looking at the front (tool slide) side of the machine.

## 4-Section Split Frame Pre-Assembly Procedure



The serial number of the machine is stamped on each of the four sections. Compare these numbers to confirm that they all match prior to assembling these pieces. Each section also has a section number and there are letter designations A, B, C or D located at multiple positions on the ends. To correctly assemble these, follow the steps to the right.

Once the two halves are securely bolted together, refer to the set up instructions on page 5 for proper procedures in mounting the machine on the work.

### Assembly Steps

1. Locate section 1 and section 2.
2. Align the ends, joining ends marked with A.
3. Swing the locking bolts into position and tighten each securely.
4. Join sections 3 and 4 by aligning ends marked with C.
5. Swing the locking bolts into position and tighten them securely.



## Setup Instructions for Flange Facing with Cross Bar Mount and Counter-bore Attachment



**Wear all protective equipment. This machine design requires that exposed components rotate under extreme power. Never insert body parts near rotating machine. Loose clothing is a hazard and should be taped (or otherwise gathered) to avoid catching.**

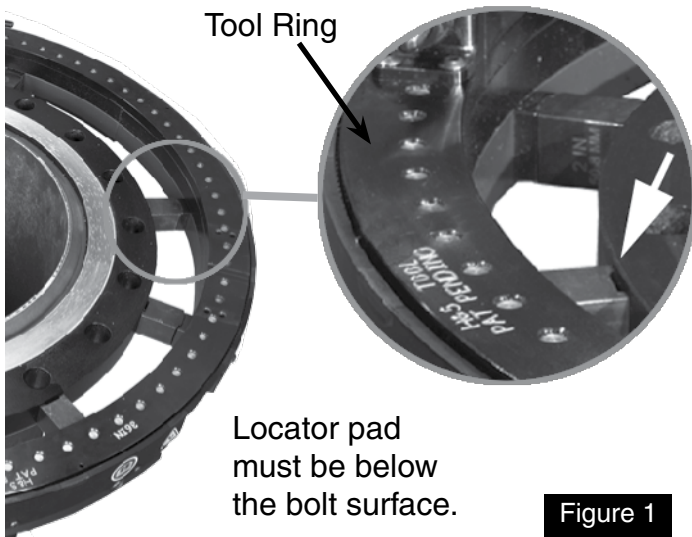


Figure 1

**1. Proper Location** - Use approved lifting equipment to suspend the tool. Center the tool on the flange by measuring from the inside of the tool ring to the outside of the flange bolt ring. Measure in four directions at 90° points and slowly tighten the locator pads to secure the tool. Snug the locator pads evenly with just enough pressure to hold the tool in position. The locator pads must be approximately 1/4" (.065 mm) below the bolt pattern surface (Figure 1). **DO NOT REMOVE THE SUSPENSION EQUIPMENT UNTIL THE LOCATOR PADS ARE FULLY TIGHTENED.**

Rough squaring is accomplished by measuring from the top of the flange bolt surface to the top of the locator pad. Once roughly squared, there are two means of fine adjustment.

For those applications using either no locator pad extensions or the 1/2" (12.7 mm) locator pad extension, it is recommended to use the squaring adjustment plate (Figure 2). The plate is bolted to the tool ring utilizing the tool slide mounting holes.

Alignment brackets are used for applications with 1" (25.4 mm) and larger locator pad extensions (Figure 3). Either 4 or 6 brackets (depending upon the size of the flange) are fastened to locator pads at even locations.

Once the plate, or the brackets, are mounted, make sure that the adjustment screw is not touching the work surface. Place the dial indicator on the plate (Figure 4), or on the tool ring when using the brackets (see Figure 1). Rotate the ring to find the lowest point. Turn the adjustment screw clockwise until it contacts the work surface. Continue to turn it until the dial indicator shows the desired reading. Continue this process until the tool is properly squared all of the way around the surface.

With the tool squared, fully tighten all locator pads. Rotate the ring/dial indicator to confirm accuracy. Remove the dial indicator and the adjustment plates/brackets. The suspension equipment may be removed.

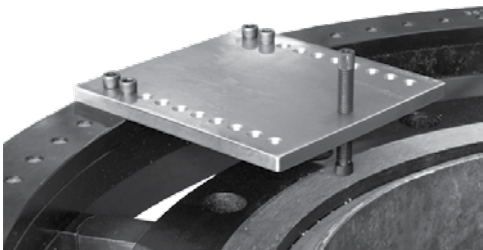


Figure 2

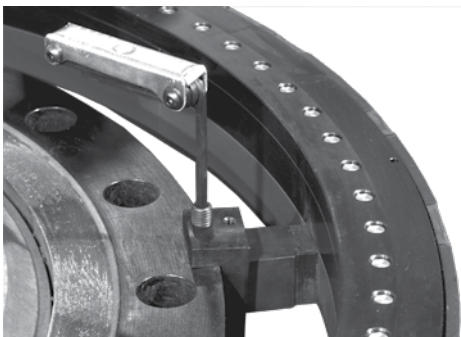


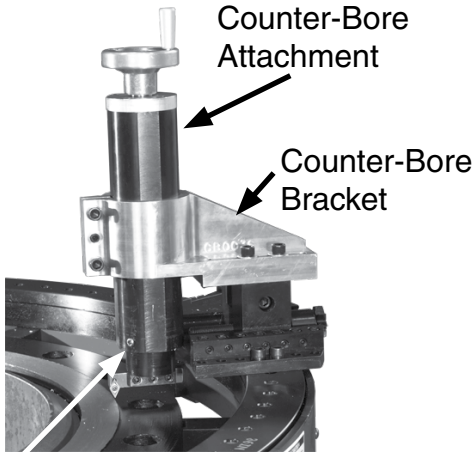
Figure 3



Figure 4



**2. Mounting the counter-bore attachment** - The counter-bore attachment can be mounted in two configurations - directly to the tool slide or with the cross slide.



Lock Screw

Figure 5

**Direct Mount** - The direct mount tool slide bolts to the tool ring. Select the proper size tool slide to cover the full travel required. Adjust the counter-bore attachment within the bracket to allow for sufficient travel for depth of cut required (Figure 5).

**Cross Slide Mount** - Cross slides are available in a variety of lengths to match your application requirements. The cross slide attachment uses a tool slide on one end and a blank slide on the other end. The tool slide and blank are mounted on the ring at 180° positions. Bolt both slides to the ring at a point where the leading edge is equal to the O.D. of the flange bolt ring (Figure 6).

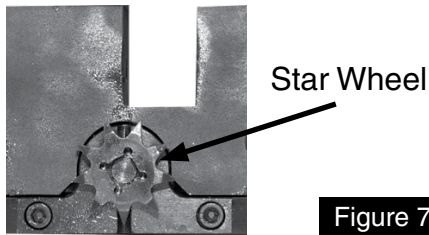


Figure 7

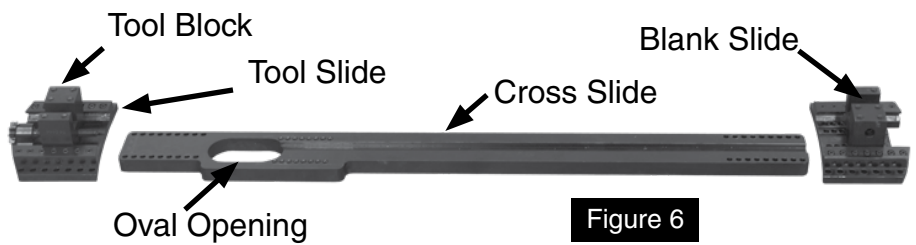


Figure 6

Turn the star wheel on the tool slide until the tool block is fully retracted (Figure 7). Locate the cross slide on the tool block at a point where the oval opening (Figure 6) is centered over the surface to be machined and bolt it securely to the tool slide and the blank slide. Mount the counter-bore assembly so the barrel is centered in the oval opening and bolt it securely.

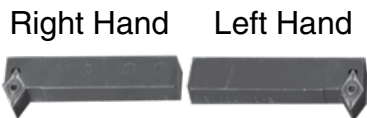
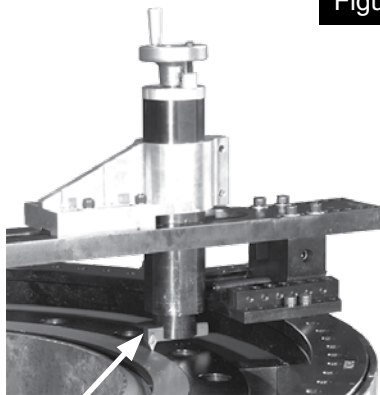


Figure 8

Tool holders are available in two styles - left and right (Figure 8). These give the operator flexibility of locating the left or right side of the counter-bore barrel at the beginning of the surface to be machined to avoid clearance problems. Select the appropriate tool holder and install the insert so the formed cutting edge faces the direction of the rotation. Install the tool holder/insert and lock it in position near the beginning of the surface to be machined (Figure 9). Using the speed wrench, turn the star wheel until the cutting insert is at the leading edge of the surface to be machined. Turn the handle wheel slowly until the tip of the insert touches the surface. Note the location of the wheel indicator line with the markings on the top of the barrel (Figure 10). Turn the wheel knob 1/2 turn to raise the insert above the surface. Turn the star wheel to pull the insert 1/4" to 1/2" (6.4 to 12.7 mm) away from the beginning of the work surface. Return the insert to surface depth by returning the 1/2 turn of the hand wheel. Finished depth of cut is set by continuing to turn the handle wheel the appropriate number of lines past the surface level. Each line on the top of the barrel is approximately .006" (.2 mm). Tighten the lock screw on the counter-bore barrel (Figure 4).



Tool Holder/  
Insert

Figure 9

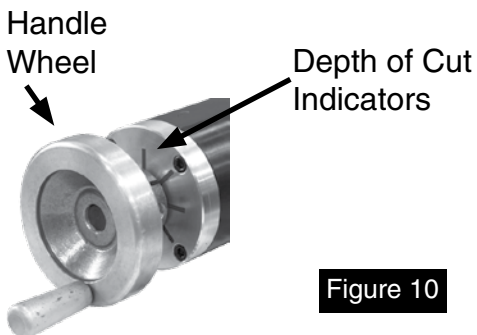


Figure 10

**FAILURE TO PERFORM THIS STEP WILL RESULT IN DAMAGE TO THE TOOL!**

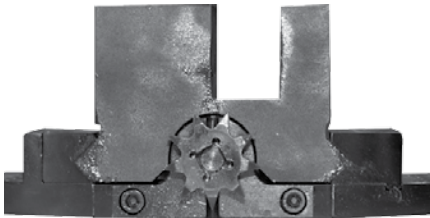


Figure 11

Star wheel tip aligned with notch in base.

The insert is now set at the desired cut depth and is between 1/4" (6.4 mm) and 1/2" (12.7 mm) from the edge of the surface to be machined. Adjust the "lash" by turning the star wheel by hand, moving the cutting insert toward the leading edge of the work surface. Once you feel resistance, continue turning until the closest tip of the star wheel is aligned with the vertical line on the base of the tool slide (Figure 11).



Figure 12

3. Install Trippers - The number of trippers used determines the surface finish (see chart below). Determine the number of trippers required and bolt them securely in locations as evenly around the ring as possible (Figure 12). After they have been installed, make sure that they are in the disengaged position.

Tripper Quantity	Approx. Finish (RMS)
1	63
2	125
3	250
4	500



**Thoroughly inspect the immediate work area and remove any interferences. The counter-bore attachment and cross-slide (if used) will be rotating during operation. Keep body parts and clothing clear.**



Figure 13

4. Install Motor - Install the motor and secure it tightly (Figure 13). **MAKE SURE THAT THE THROTTLE IS DISENGAGED.** Attach the power source. Slowly rotate the tool and inspect that all centering and squaring procedures have been accomplished. With the tool rotating engage all trippers. Allow the cutter to travel the full surface. Inspect the surface for any imperfections. If necessary, return to step 2 and set the depth of cut to clean the surface fully.



**This process produces sharp, hot chips. Extreme care must be taken to avoid personal injury.**

**Quality Inspection Tag**  
Part No. 111-6666  
Quantity 1



**Logo Sticker**  
Part No. 111-8888  
Quantity 2



**Shipping Crate**  
Part No. 111-9999



**Product Origin Sticker**  
Part No. 111-7777  
Quantity 1



**Caution Sticker**  
Part No. 111-5555  
Quantity 2



**Manual Sticker**  
Part No. 111-4444  
Quantity 1



**Ear Protection Sticker**  
Part No. 111-1122  
Quantity 1



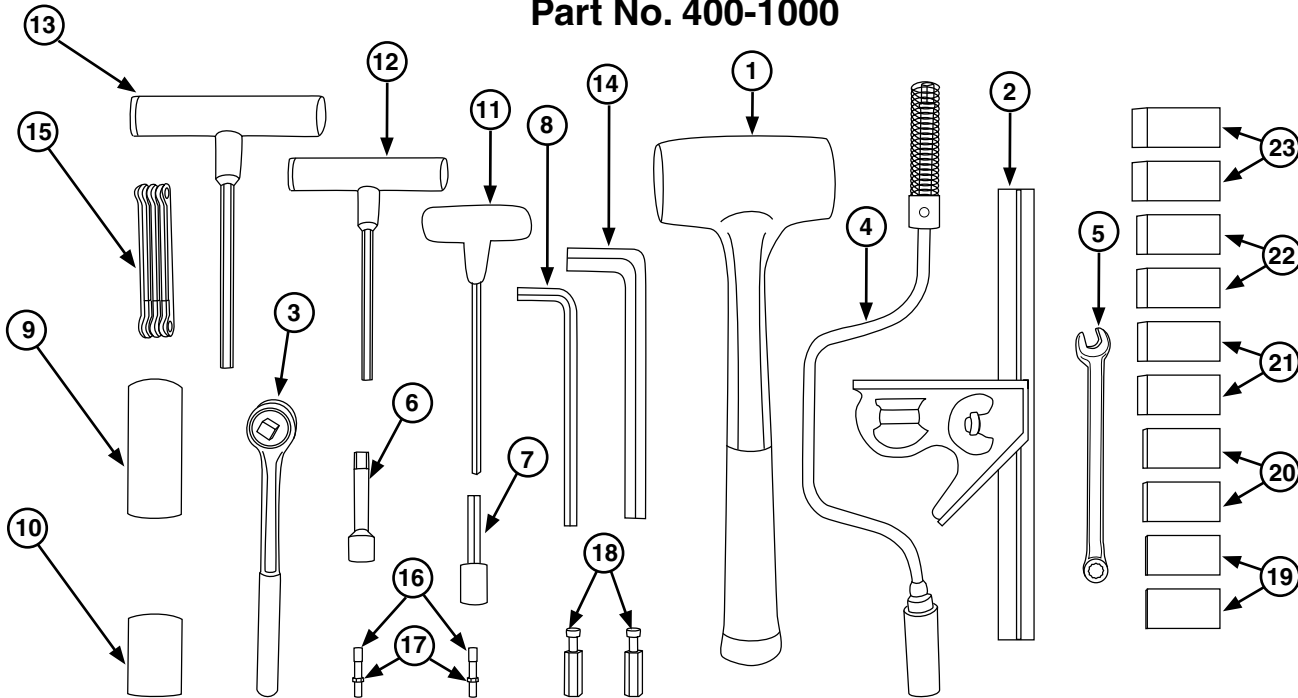
**Locking Pin Tag**  
Part No. 111-2222  
Quantity 2



**Pinch Point Sticker**  
Part No. 111-3333  
Quantity 3



**Standard Tool Kit**  
Part No. 400-1000



Item No.	Part No.	Description	Quantity	Item No.	Part No.	Description	Quantity
1	400-1010	Hammer, 3 lb.	1	11	400-1019	T-Handle Hex Key, 5/32"	1
2	400-1011	Square, 12"	1	12	400-1020	T-Handle Hex Key, 3/16"	1
3	400-1012	Ratchet, 3/8"	1	13	400-1021	T-Handle Hex Key, 5/16"	1
4	400-1013	Speed Handle Assy., 3/8"	1	14	400-1022	Hex Key Long Arm, 3/8"	1
	400-1003	Speed Handle, Only	1	15	400-1023	Hex Key Fold Up Set	1
	400-1113	Spring	1	16	500-1001	Tripper Pin	2
	400-1123	Collar	1	17	500-1002	1/4"-20 Hex Nut	2
	400-1133	Retainer Pin	1	18	500-1000	Tripper Hex Extension Assembly	2
5	400-1014	Combination Wrench, 7/16"	1	19	400-1024	Blade Shim, 1/8"	2
6	400-1015	Ratchet Extension, 3/8"	1	20	400-1025	Blade Shim, 3/16"	2
7	400-1016	Hex Bit, 3/8"	1	21	400-1026	Blade Shim, 1/4"	2
8	400-1029	Hex Key Long Arm, 5/16"	1	22	400-1027	Blade Shim, 1/2"	2
9	400-1017	Deep Socket, 7/8"	1	23	400-1028	Blade Shim, 1"	2
10	400-1018	Standard Socket, 7/8"	1				





