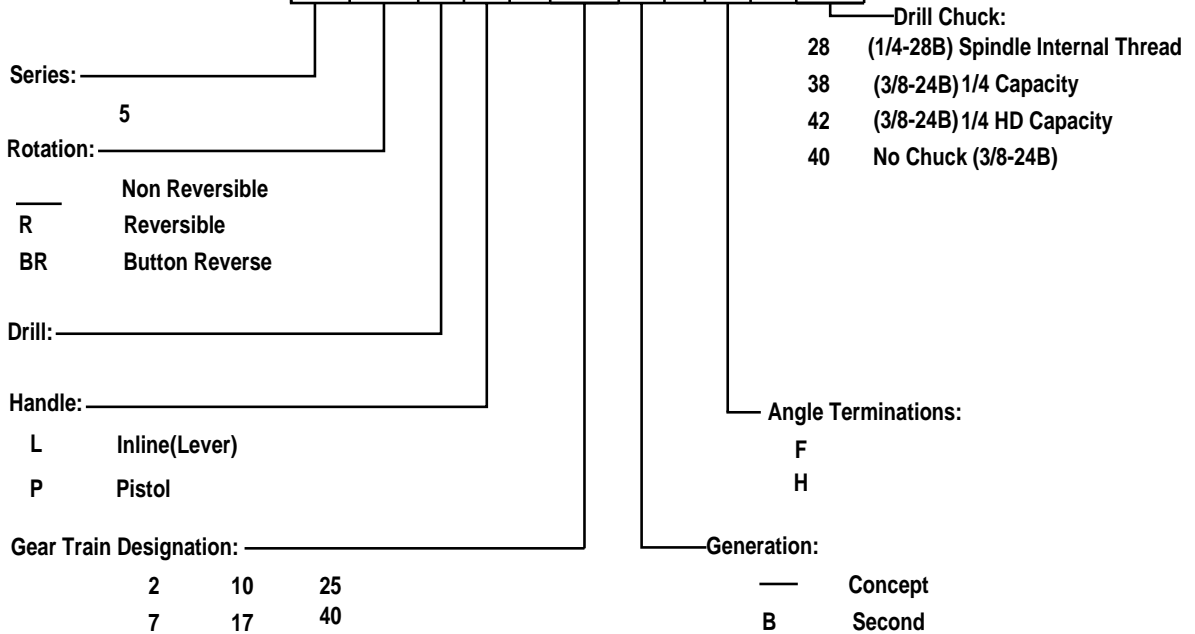


Cleco®

5 Series Drills



5 XX D X - XX X - X - XX



NORTH AMERICA

EUROPE

P.O. Box 1410
Lexington, SC 29071

Postfach 30
D-73461 Westhausen

Safety Recommendations

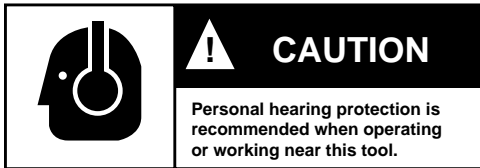
For your safety and the safety of others, read and understand the safety recommendations and operating instructions before operating a drill.

Always wear protective equipment:



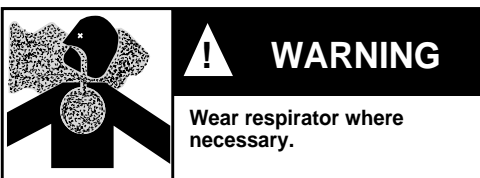
For additional information on eye protection and face protection, refer to Federal OSHA Regulations, 29 Code of Federal

Regulations, Section 1910.133., Eye and Face Protection, and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036.



Hearing protection is recommended in high noise areas 85 dBA or greater. The operation of other tools and

equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to, and increase the noise level in the area. Excessive air pressure above 90 PSIG or worn motor components can also increase sound level emitted by tool. Proper hearing conservation measures, including annual audiograms and training in the use and fit of hearing protection devices may be necessary. For additional information on hearing protection, refer to Federal Regulations, Section 1910.95, Occupational Noise Exposure, and American National Standards Institute, ANSI S12.6, Hearing Protectors.



Drilling operations may produce hazardous fumes and/or dust. To avoid adverse health effects utilize ad-

equate ventilation and/or wear a respirator. Respirators should be selected, fitted, used and maintained in accordance with Occupational Safety and Health Administration and other applicable regulations. Read the material safety data sheet of any cutting fluids or materials involved in the drilling process.

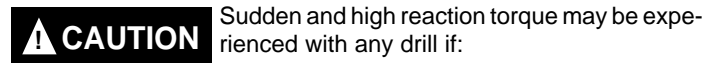


Follow good machine shop practices. Rotating shafts and moving components can entangle and entrap, and can result in serious injuries. Never wear long hair, loose-fitting clothes, gloves, ties, or jewelry when working with or near a drill of any type.

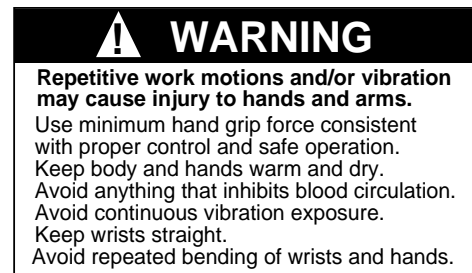
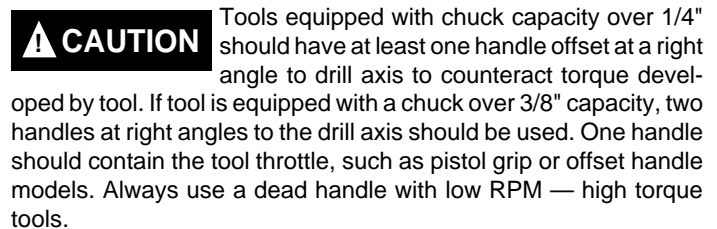
Cleco drills are designed to operate on 90 psig (6.2 bar) maximum air pressure. If the tool is properly sized and applied, higher air pressure is unnecessary. Excessive

air pressure increases the loads and stresses on the tool parts and may result in breakage. Installation of a filter-regulator-lubricator in the air supply line ahead of the tool is recommended.

Before the tool is connected to the air supply, check the throttle for proper operation (i. e., throttle moves freely and returns to closed position). Being careful not to endanger adjacent personnel, clear the air hose of accumulated dust and moisture. Before removing a tool from service or changing a drill bit, tap, reamer, or any accessory make sure the air line is shut off and drained of air. This will prevent the tool from operating if the throttle is accidentally engaged.



- drill motor stalls by excessive load being applied to drill bit or drill bit snags on material being drilled.
- on break-through when the drill bit passes through the material being drilled. User must be prepared to resist torque.
- Drill bits are sharp. Handle them carefully to avoid injury.
- Cutting tool maximum speed rating must equal or exceed rated speed of tool.
- Drill bits or accessories not centered properly in the chuck can cause excessive wobble or vibration.
- Use appropriately sized chuck key to securely tighten drill bit, tap, or reamer in drill chuck. Always remove chuck key before starting tool.
- Use care when drilling because of the possibility of the cutting tool bending or breaking.



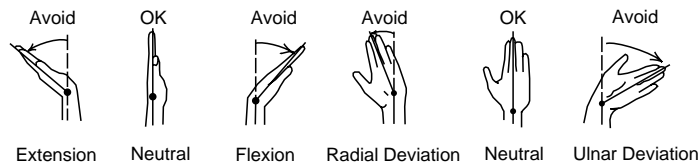
Some individuals may be susceptible to disorders of the hands and arms when performing tasks consisting of highly repetitive motions and/or exposure to extended vibration. Cumulative trauma disorders such as carpal tunnel syndrome and tendonitis can be caused or aggravated by repetitious, forceful exertions of the hands and arms. Vibration may contribute to a condition called Raynaud's Syndrome. These disorders develop gradually over periods of weeks, months, and years. It is presently unknown to what extent exposure to vibrations or repetitive motions may contribute to the disorders. Hereditary factors, vasculatory or circulatory problems, exposure to cold and dampness, diet, smoking and work practices are thought to contribute to the conditions. Any tool operator should be aware of the following warning signs and symptoms so that a problem can be addressed before it

Safety Recommendations

becomes a debilitating injury. Any user suffering prolonged symptoms of tingling, numbness, blanching of fingers, clumsiness or weakened grip, nocturnal pain in the hand, or any other disorder of the shoulders, arms, wrists, or fingers is advised to consult a physician. If it is determined that the symptoms are job related or aggravated by movements and postures dictated by the job design, it may be necessary for the employer to take steps to prevent further occurrences. These steps might include, but are not limited to, repositioning the workpiece or redesigning the workstation, reassigning workers to other jobs, rotating jobs, changing work pace, and/or changing the type of tool used so as to minimize stress on the operator. Some tasks may require more than one type of tool to obtain the optimum operator/tool/task relationship.

The following suggestions will help reduce or moderate the effects of repetitive work motions and/or extended vibration exposure:

- Use a minimum hand grip force consistent with proper control and safe operation
- Keep body and hands warm and dry (cold weather is reported to be a major factor contributing to Raynaud's Syndrome)
- Avoid anything that inhibits blood circulation
 - Smoking Tobacco (another contributing factor)
 - Cold Temperatures
 - Certain Drugs



- Tasks should be performed in such a manner that the wrists are maintained in a neutral position, which is not flexed, hyperextended, or turned side to side.
- Stressful postures should be avoided — select a tool appropriate for the job and work location
- Avoid highly repetitive movements of hands and wrists, and continuous vibration exposure (after each period of operation, exercise to increase blood circulation)
- Keep tool well maintained and replace worn parts

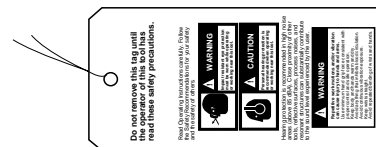
Work gloves with vibration reducing liners and wrist supports are available from some manufacturers of industrial work gloves. Tool wraps and grips are also available from a number of different manufacturers. These gloves, wraps, and wrist supports are designed to reduce and moderate the effects of extended vibration exposure and repetitive wrist trauma. Since they vary widely in design, material, thickness, vibration reduction, and wrist support qualities, it is recommended that the glove, tool wrap, or wrist support manufacturer be consulted for items designed for your specific application. **WARNING! Proper fit of gloves is important. Improperly fitted gloves may restrict blood flow to the fingers and can substantially reduce grip strength.**

Warning Labels

The warning labels found on these tools are an essential part of this product. Labels should not be removed. Labels should be checked periodically for legibility. Replace warning labels when missing or when the information can no longer be read. Replacement labels can be ordered as any spare part.



203185



203287

This information is a compilation of general safety practices obtained from various sources available at the date of production. However, our company does not represent that every acceptable safety practice is offered herein, or that abnormal or unusual circumstances may not warrant or require additional procedures. Your work may require additional specific safety procedures. Follow these procedures as required by your company. For more information, see the latest edition of ANSI B186.1, Safety Code for Portable Air Tools, available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036.

OPERATING INSTRUCTIONS

READ SAFETY RECOMMENDATIONS BEFORE CONNECTING TOOL.

OPERATION

The No. 5 drills are designed to start when the trigger or lever is depressed, and stop when released.

"F" right angle head cutter removal

Disconnect air from tool. Turn cutter with wrench until hole in housing 204575 and pinion 204577 are aligned. Insert pinion lock pin 204576 into hole in housing to hold pinion when removing cutter.

AIR SUPPLY

The tool is designed to operate at 90 psig (6.2 bar) air pressure. The air pressure should be checked at the tool's air inlet while the tool is running.

The use of an automatic in-line filter-regulator-lubricator is highly recommended. This will supply the tool with clean, lubricated air, keep it in sustained operation, and increase tool life.

For maximum performance, use a 1/4" (6.5mm) I.D. air hose up to 8 feet in length. If additional length is required, a 3/8" (9.5mm) I.D. or larger hose should be connected to the 1/4" (6.5mm) I.D. hose.

The air hose should be cleared of accumulated dirt and moisture, then one-quarter (1/4) (6.5mm) teaspoon of 10W machine oil should be poured into the tool's air inlet before connecting the hose to the tool.

LUBRICATION

The in-line lubricator should be checked regularly and filled with a good grade of 10W machine oil. In the event a line lubricator is not used, tools should be disconnected from the air supply several times daily and several drops of oil poured into the tool's inlet bushing.

Application of the tool should govern how frequently it is greased. It is recommended that the idler gears receive a generous amount of NLGI 2-EP grease after every 40 hours of operation.

SERVICE INSTRUCTIONS

DISASSEMBLY - GENERAL (Pistol & Straight Models)

Clamp the handle of pistol grip or flats on straight models in a soft-jawed vise. Use gear case wrench 203803, to remove the gear case from the handle. The motor unit may now be removed from the front of the handle. See the following paragraphs for complete disassembly instructions on the various subassemblies.

(Right Angle Models)

Clamp the angle head in a soft-jawed vise and using a wrench unscrew the angle head adaptor and rest of tool from angle head. Clamp the flats of the backhead in the vise and remove the angle head adaptor (left hand threads) from the gear case. Unscrew gear case from the backhead using gear case wrench 203803. The motor unit may now be removed from the backhead.

"F" ANGLE HEAD DISASSEMBLY

Unscrew (left hand threads) the gear bushing 202985, and remove the square drive spindle 202982. IMPORTANT: Care should be exercised to prevent the loss of the twenty-four (24) steel balls 863035, at this time. Remove the pinion gear 202983, and related components from the rear of the angle head. The needle bearing 867921, is removed by pressing it and bearing plug 202988, out of the angle head.

"H" RIGHT ANGLE HEAD DISASSEMBLY

Remove the spindle bearing retainer ring 869033, and clamp the spindle in a vise. Use a soft-faced hammer to drive the right angle head off the spindle assembly. The driven gear and spindle ball bearing 847595, may be removed from the spindle shaft by pressing the small diameter of the spindle through the gear and bearing. Remove the pinion gear and related components from the rear of the angle head.

GEAR TRAIN DISASSEMBLY

-7 & -10 Gear Trains

1st reduction spiders should be removed from the rear of the gear case. Remove the bearing retainer and press the spider and bearings out the front of the gear case.

If replacement of the idler gear pins is necessary, they should be pressed out the rear of the spider and new ones installed as shown in (Figure 1, Page 6) .

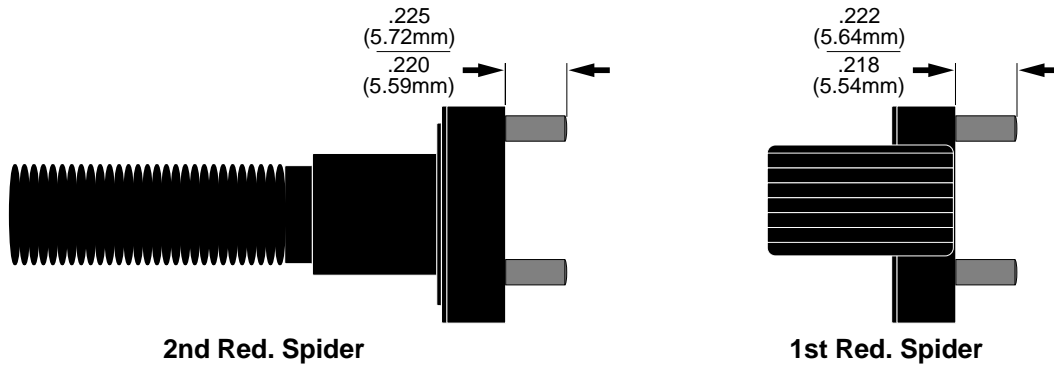


Fig. 1: -7 & -10 Gear Spider

-17 Gear Train

When pressing the spider assembly out of the rear of the gear case 869162, be sure the idler gears 869163, are in line with the pockets machined in the gear case. Press the idler gear pins 833862 out the rear of the spider 204616 for inspection of the idler gear pins and idler gears 869163.

-25 & -40 Gear Train

Remove the bearing retainer and press the spider and bearings out the front of the gear case. If replacement of the idler gear pins is necessary, they should be pressed out the rear of the spider. See Figure 2 for replacement pin height.

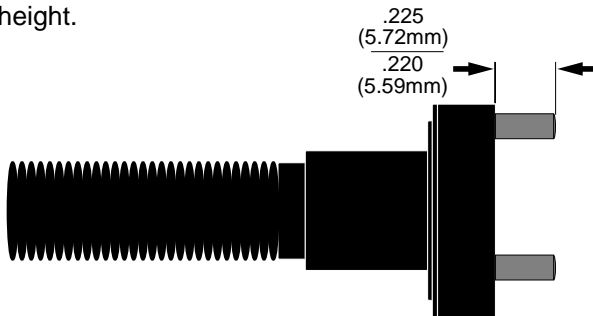


Fig. 2: -25 & -40 Gear Spider

MOTOR DISASSEMBLY — (All Models)

Slip the front bearing and front bearing plate off the front of the rotor and remove the cylinder and four (4) rotor blades. Set the rear bearing plate on the vise jaws with the rotor hanging down. Use a 3/16" (4mm) punch to drive the rotor out of the rear rotor bearing.

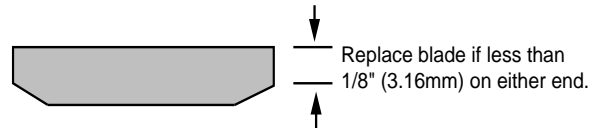
BACKHEAD DISASSEMBLY — (All Models)

For inspection or replacement of the throttle valve or related parts, unscrew the inlet bushing. The air inlet screen should be washed in a solvent and blown out in the reverse of normal air flow. Replace the screen if clogged or torn.

REASSEMBLY — GENERAL

All parts should be washed in a solvent and inspected for damage or wear. Particular attention should be given to all bearings, gears, gear pins, and rotor blades as failure of these parts could cause damage to more expensive

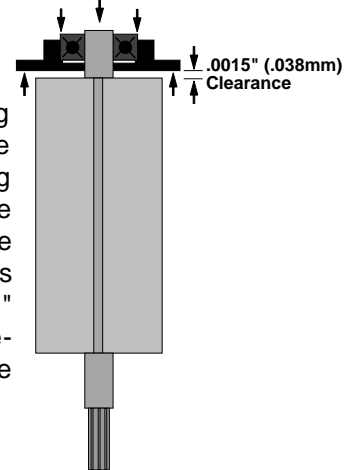
parts. Rotor blades should be replaced if they measure less than 1/8" (3.175mm) on either end.



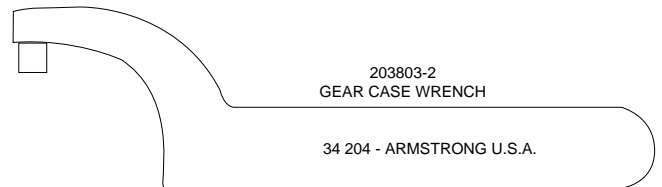
Inspect and replace any "O"-rings or seals that show signs or wear of deterioration. All gears, gear pins, and open bearings should receive a generous amount of NLGI 2-EP grease during reassembly. Reassembly of all of the various subassemblies is in reverse order of disassembly; however, the following paragraphs list some of the more important reassembly procedures.

MOTOR REASSEMBLY

Install the rear rotor bearing into the rear bearing bearing. Press the bearing plate assembly (press on the bearing's inner race) onto the rear rotor shaft until there is approximately .0015" (.038mm) clearance between the rear bearing plate and motor.



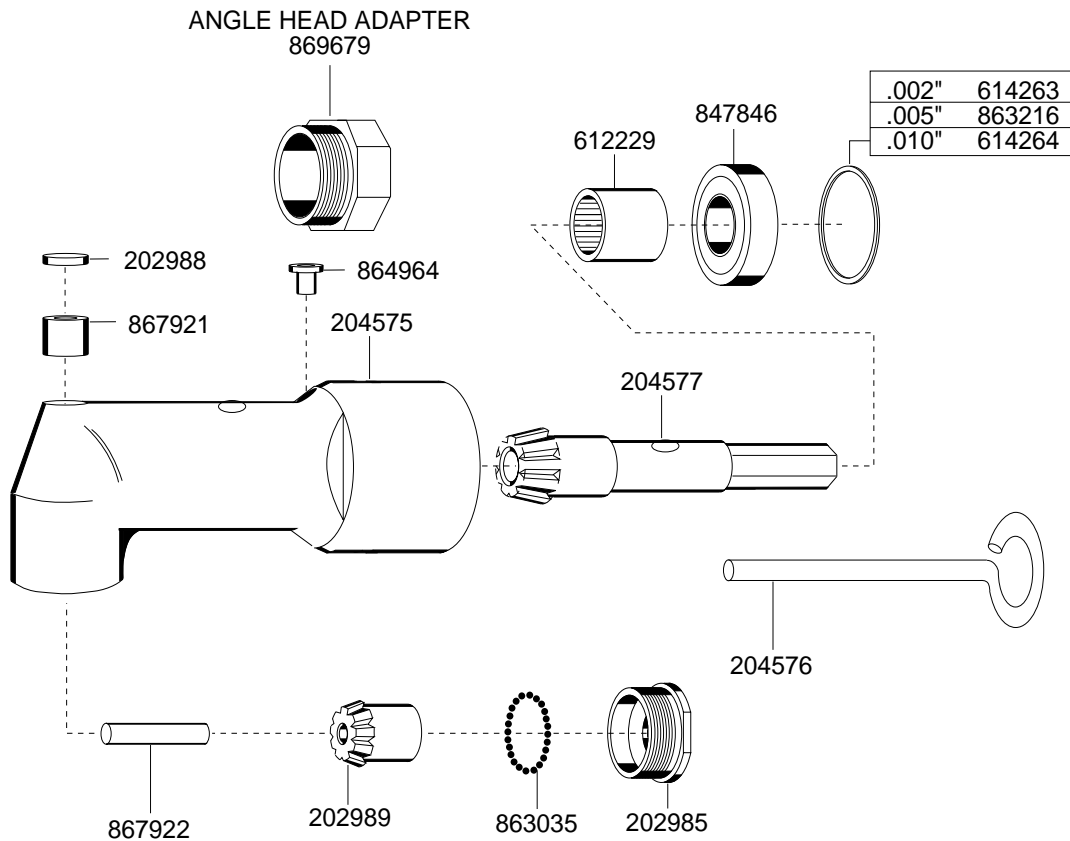
IMPORTANT: During reassembly of the complete tool, the gear case should be tightened to a minimum of 10 ft. lbs. (13.5 Nm). The wrench shown below can be ordered to tighten the gear case.



SAFETY CHECK

After repair or replacement of parts, tools should be tested to verify that they are functioning properly.

"F" RIGHT ANGLE DRILL HEAD



PARTS LIST — "F" RIGHT ANGLE HEAD

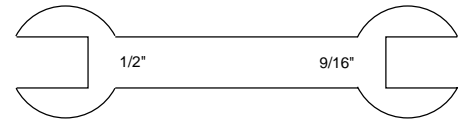
Part No.	Name of Part	Qty.
204575	Angle Head (incl. 864964)	1
204576	Pinion Lock Pin	1
204577	Pinion	1
202985	Gear Bushing	1
202988	Bearing Cap	1
202989	1/4-28 Drill Spindle (incl. 867922)	1
612229	Needle Bearing	1
614263	Angle Head Positioning Shim .002" **	*
614264	Angle Head Positioning Shim .010" **	*
847846	Bearing, Ball	1
863035	Ball	24
863216	Angle Head Positioning Shim .005" **	*
864964	Oil Hole Cover	1
867921	Idler Bearing	1
867922	Gear Pin	1
869679	Angle Head Adaptor **	1

The complete right angle head can be purchased using part number. 1/4" - 28 drill - 201758

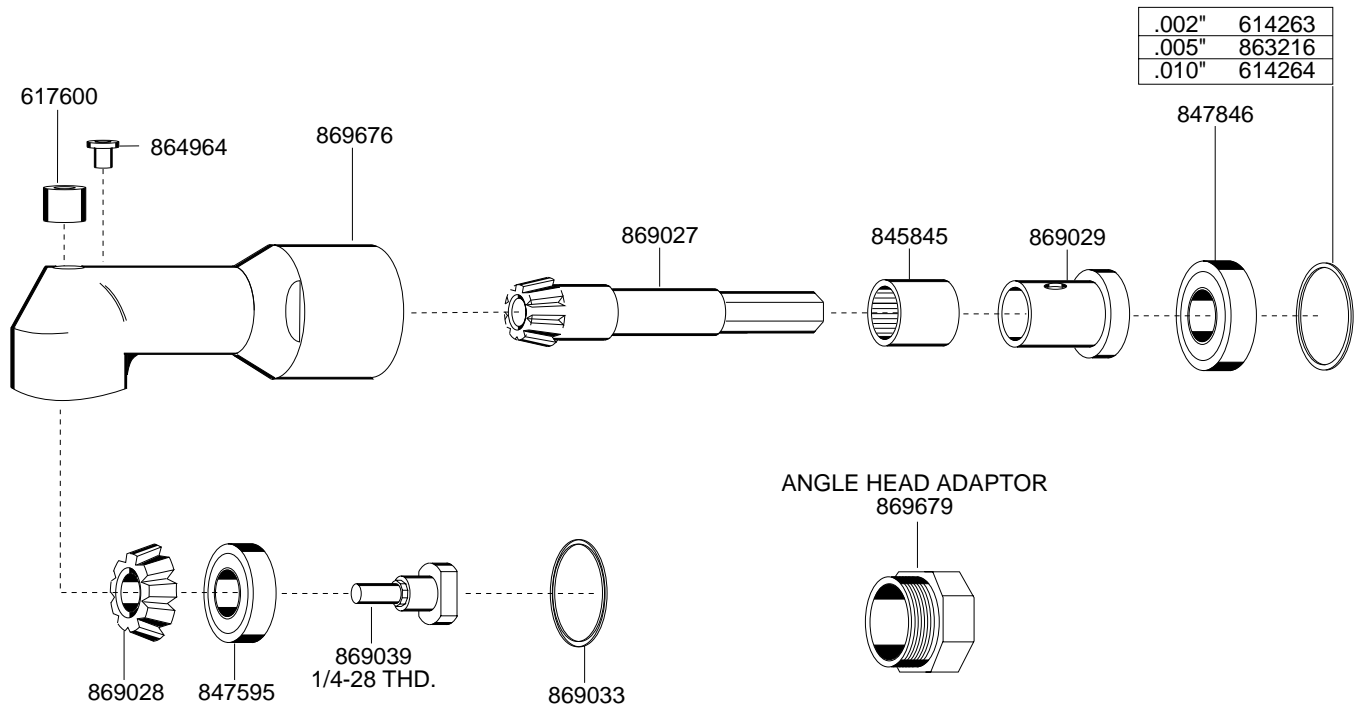
* Number of shims required is variable.

** Parts not included in subassembly.

"H" RIGHT ANGLE DRILL HEAD



Wrench — 889427



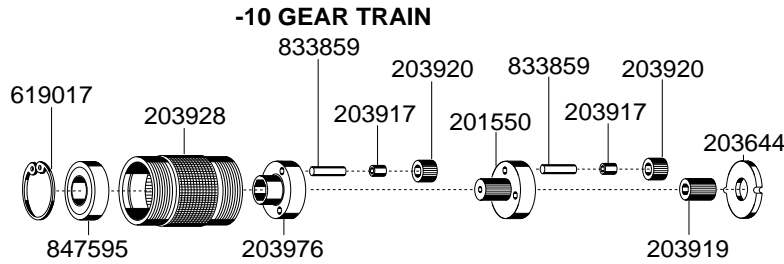
PARTS LIST — "H" RIGHT ANGLE HEAD

Part No.	Name of Part	Qty.
614263	Head Positioning Shim .002"	*
614264	Head Positioning Shim .010"	*
617600	Spindle Needle Bearing	1
833688	Retainer Ring	1
844265	Ball	1
845845	Pinion Needle Bearing	1
847595	Spindle Ball Bearing	1
847846	Pinion Ball Bearing	1
863216	Head Positioning Shim .005"	*
864964	Grease Fitting	1
869027	Pinion Gear	1
869028	Driven Gear	1
869029	Bearing Spacer	1
869033	Spindle Bearing Retainer Ring	1
869039	1/4-28 Threaded Spindle	1
869676	Angle Head (incls. 864964)	1
869679	Angle Head Adaptor	1

The complete right angle head can be purchased using part number: 201643

* Number of shims required is variable.

5 RIGHT ANGLE DRILL -10, -17 & -25 GEAR TRAINS



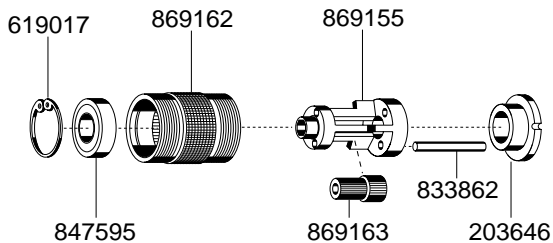
PART LIST — -10 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
201550	-10 Reduction Spider (incls. 869132, 203916)	1
203644	-10 Motor Spacer	1
203916	-10 Idler Gear Pin	6
203917	-10 Idler Gear Bushing	6
203919	Rotor Pinion (13T)	1
203920	-10 Idler Gear (14T)	6
203928	-10 Gear Case (41T)	1
203976	-10 2nd Red. Spider (incls. 203916)	1
619017	Bearing Retainer Ring	1
847595	Spider Bearing	1
869132	-10 Spider Pinion (13T)	1

The complete gear train can be purchased as a subassembly using the following part number: -10 — 201587

PARTS LIST — -17 GEAR TRAIN

-17 GEAR TRAIN

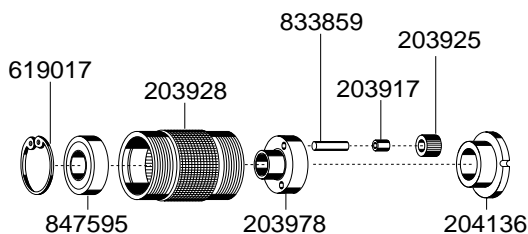


PART NO.	NAME OF PART	QTY.
203646	Motor Spacer	1
619017	Bearing Retainer Ring	1
833862	Idler Gear Pin	3
847595	Front Spider Bearing	1
869155	Spider	1
869162	Gear Case (27T)	1
869163	Stepped Idler Gear (9T & 18T)	3

The complete gear train can be purchased as a subassembly using part number: 201474.

PARTS LIST — -25 GEAR TRAIN

-25 GEAR TRAIN

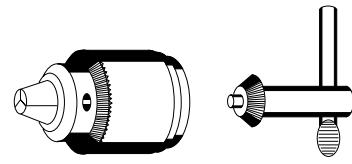


PART NO.	NAME OF PART	QTY.
203916	Idler Gear Pin	3
203917	Idler Gear Bushing	3
203925	Idler Gear (16T) (incls. 203917)	3
203928	Gear Case (41T)	1
203978	Spider (incls. 203916)	1
204136	Motor Spacer	1
619017	Bearing Retainer Ring	1
847595	Spider Bearing	1

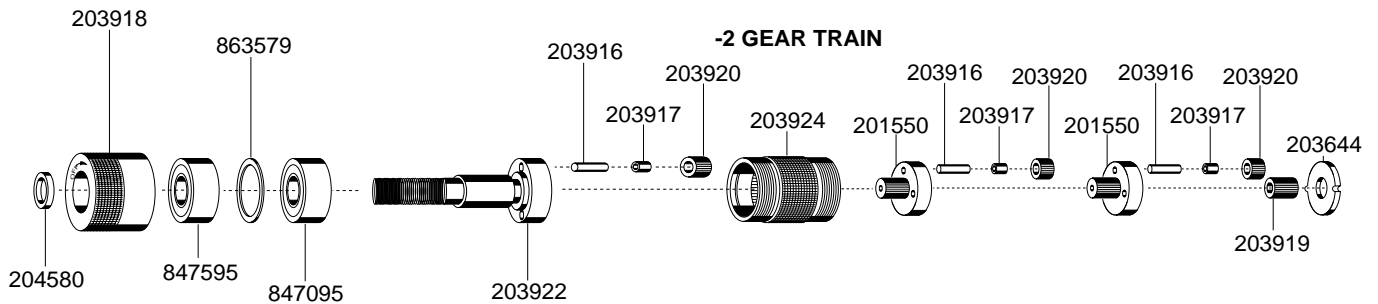
The complete gear train can be purchased as a subassembly using part no. 201588.

5 PISTOL AND INLINE DRILL -2 GEAR TRAIN

5 DRILL CHUCKS & KEYS



CHUCK	CHUCK KEY	SIZE
849102	849116	1/4"
849106	849118	1/4" Heavy Duty

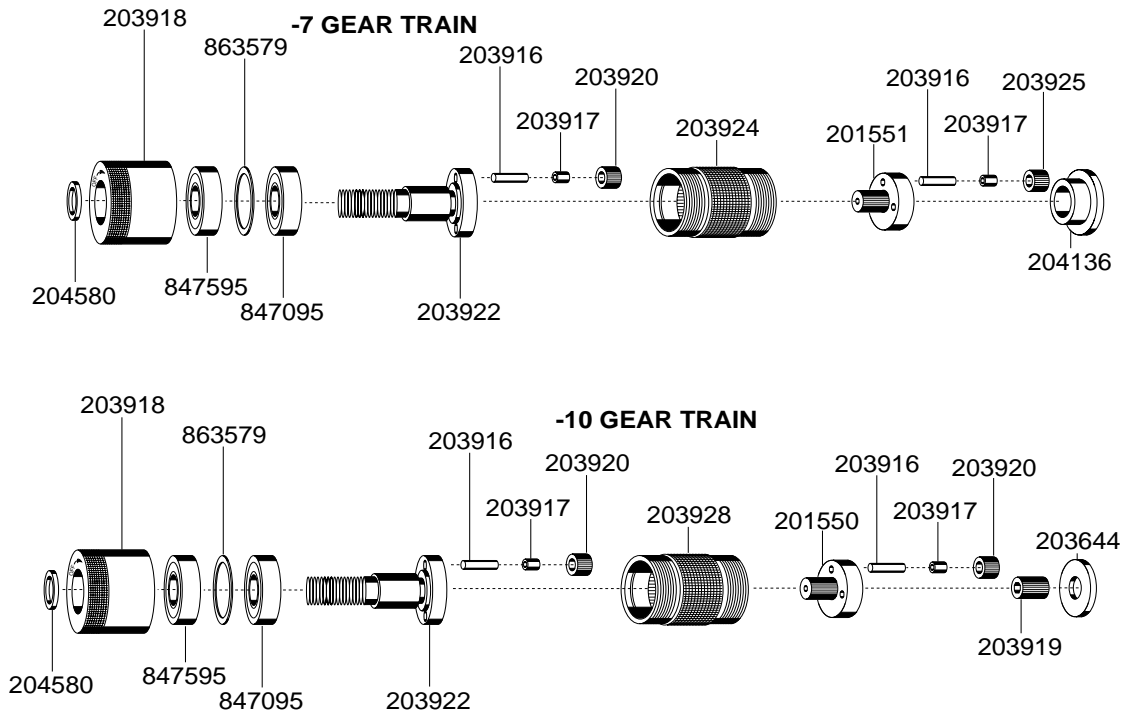


PART LIST — -2 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
201550	1st & 2nd Reduction Spider (13T) (incls. 203916)	2
203644	Motor Spacer	1
203916	Idler Gear Pin	9
203917	Idler Gear Bushing	9
203918	Bearing Retainer	1
203919	Rotor Pinion (13T)	1
203920	Idler Gear (14T) (incls. 203917)	9
203922	3rd Red. Spider (incls. 203916)	1
203924	Gear Case (41T)	1
204580	Spacer	1
847095	Spider Bearing	1
847595	Spider Bearing	1
863579	Bearing Shim	1

The complete gear train can be purchased as a subassembly using the following part number: -2 — 201589

5 PISTOL AND INLINE DRILL -7 & -10 GEAR TRAINS

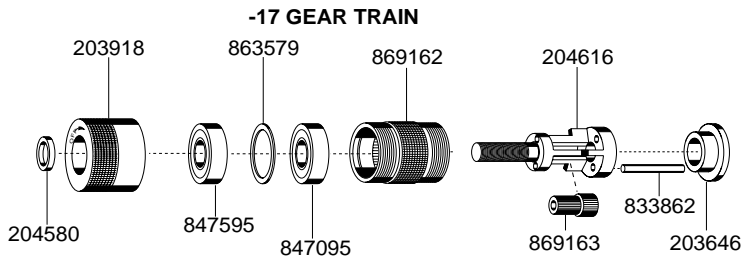


PART LIST- 5 DRILL -7 & -10 GEAR TRAINS

PART NO.	NAME OF PART	QTY.
201550	-10 Reduction Spider— (incls. 869132, 203916)	1
201551	-7 1st Reduction Spider (incls. 869132, 203916)	1
203644	-10 Motor Spacer	1
203916	-7 & -10 Idler Gear Pin	6
203917	-7 & -10 Idler Gear Bushing	6
203918	Bearing Retainer	1
203919	-10 Rotor Pinion (13T)	1
203920	-7 & -10 Idler Gear (14T) (-7 req. 3)	6
203922	-7 & -10 2nd Reduction Spider (incls. 203916)	1
203924	-7 Gear Case (41T)	1
203925	-7 1st Red. Idler Gear (16T)	3
203928	-10 Gear Case (41T)	1
204136	-7 Motor Spacer	1
204580	Spacer	1
847095	Spider Bearing	1
847595	Spider Bearing	1
863579	Bearing Shim	2

The complete gear train can be purchased as a subassembly using the following part numbers: -7 — 201553, -10 — 201554

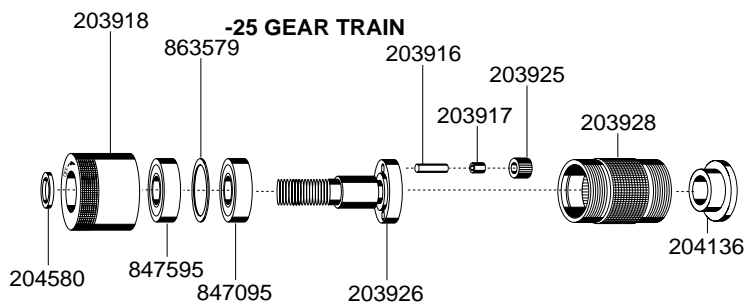
5 DRILL -17, -25 & -40 GEAR TRAINS



PARTS LIST — -17 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
203646	Motor Spacer	1
203918	Bearing Retainer	1
204580	Spacer	1
204616	Spider	1
204580	Spacer	1
833862	Idler Gear Pin	3
847095	Spider Bearing	1
847595	Spider Bearing	1
869162	Gear Case (27T)	1
869163	Stepped Idler Gear (9T & 18T)	3
863579	Shim	1

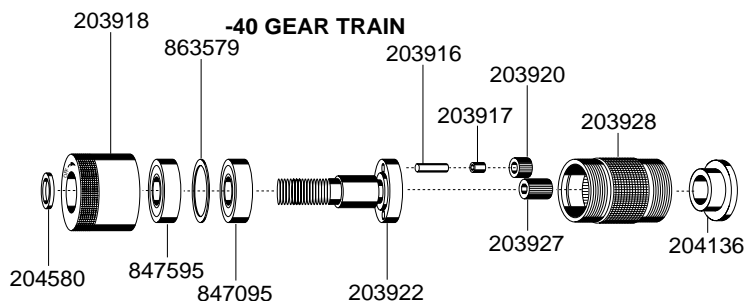
The complete gear train can be purchased as a subassembly using part no. 201763.



PARTS LIST — -25 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
203916	Idler Gear Pin	3
203917	Idler Gear Bushing	3
203918	Bearing Retainer	1
203925	Idler Gear (16T) (incls. 203917)	3
203926	Spider (incls. 203916)	1
203928	Gear Case (41T)	1
204136	Motor Spacer	1
204580	Spacer	1
847095	Spider Bearing	1
847595	Spider Bearing	1
863579	Shim	1

The complete gear train can be purchased as a subassembly using part no. 201555.

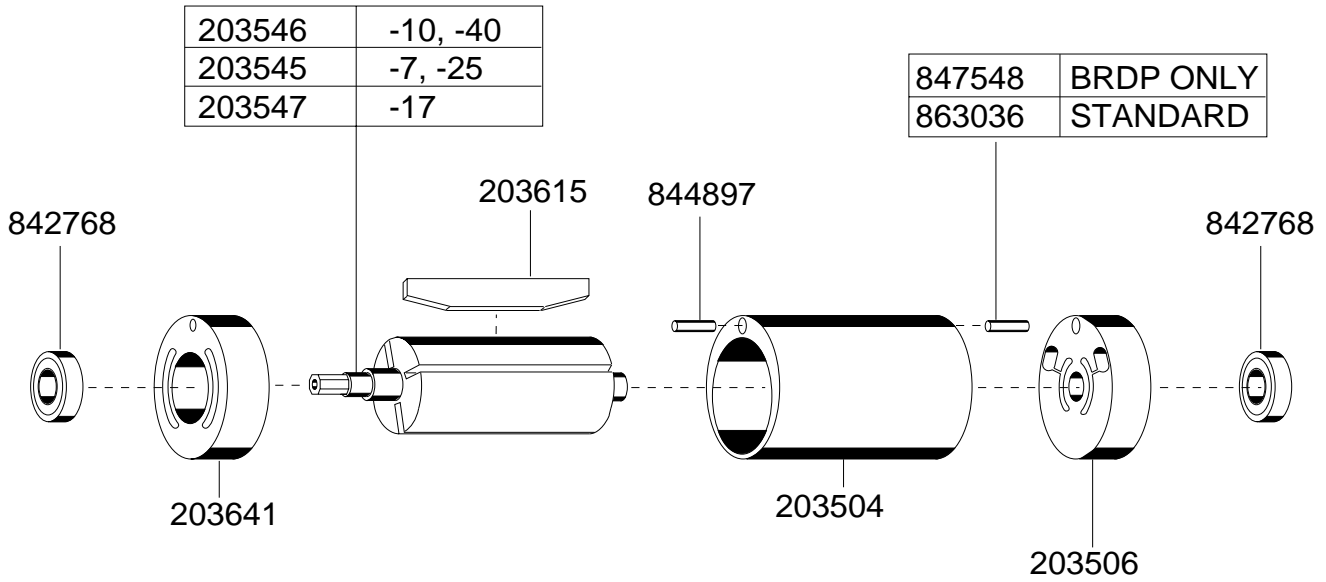


PARTS LIST — -40 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
203916	Idler Gear Pin	3
203917	Idler Gear Bushing	3
203918	Bearing Retainer	1
203920	Idler Gear (14T) (incls. 203917)	3
203922	Spider (incls. 203916)	1
203927	Pinion (13T)	1
203928	Gear Case (41T)	1
204136	Motor Spacer	1
204580	Spacer	1
847095	Spider Bearing	1
847595	Spider Bearing	1
863579	Shim	1

The complete gear train can be purchased as a subassembly using part no. 201556.

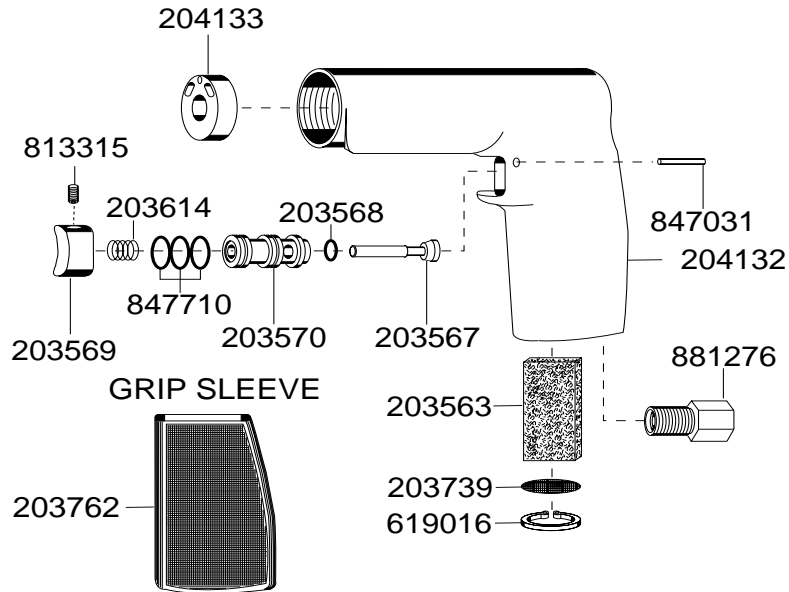
5 DRILL MOTORS



PARTS LIST - 5 DRILL MOTORS

Part No.	Name of Part	Qty.
203504	Cylinder	1
203506	Rear Bearing Plate	1
203545	Rotor -7, -25 (7T)	1
203546	Rotor -10, -40 (1/8" Hex)	1
203547	Rotor -17 (6T)	1
203615	Rotor Blade	4
203641	Front Bearing Plate	1
842768	Bearing	2
844897	Front Cylinder Pin	1
847548	Rear Cylinder Pin (BRDP Only)	1
863036	Rear Cylinder Pin	1

5 NON- REVERSIBLE PISTOL DRILL HANDLE FOR DP



PART LIST- 5 DRILL HANDLE

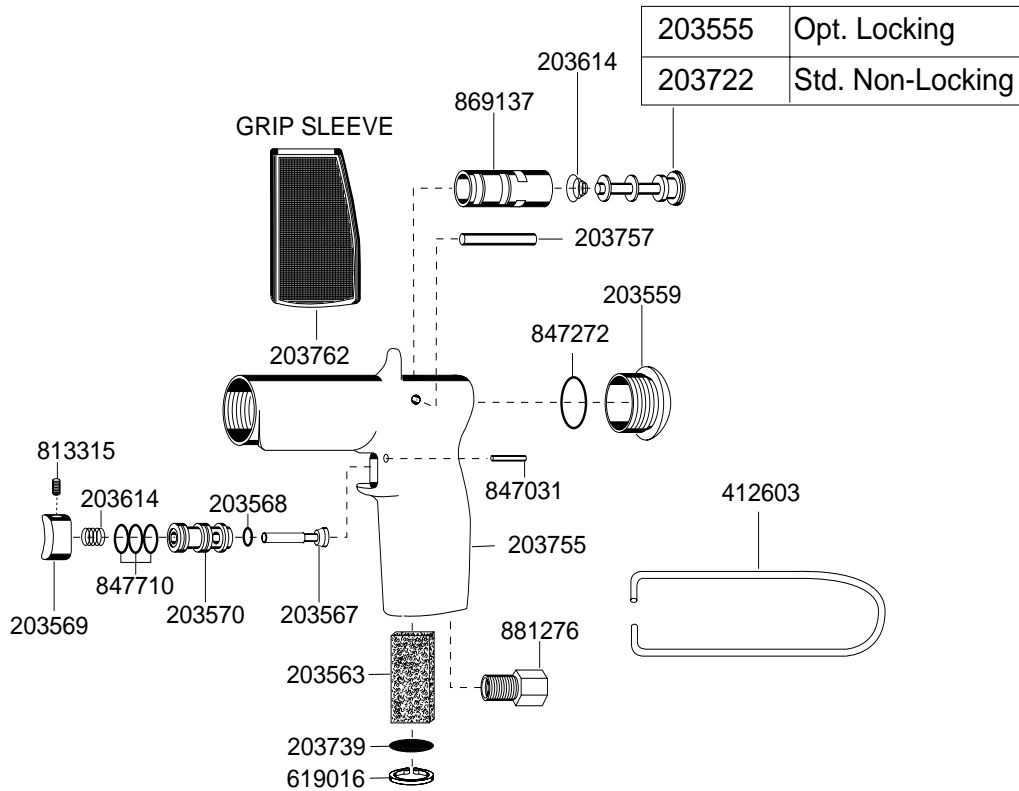
PART NO.	NAME OF PART	QTY.
203563	Muffler	1
203567	Throttle Valve*	1
203568	"O"-ring (11/64" x 3/8")*	1
203569	Trigger (incl. 813315)*	1
203570	Throttle Valve Bushing*	1
203614	Trigger Spring*	1
203739	Screen	1
203762	Grip Sleeve	1
204132	Handle (includes 203762)	1
204133	Motor Block (Not included in backhead subassembly)	1
619016	Retainer Ring	1
813315	Set Screw*	1
847031	Roll Pin	1
847710	"O"-ring (1/2" x 5/8")*	3
881276	Inlet Bushing	1

The complete handle can be purchased as a subassembly using the following part number: 201598

The complete trigger subassembly can be ordered using part number: 201435

*Part included in trigger subassembly.

5 BUTTON REVERSE TRIGGER PISTOL HANDLE FOR BRDP



PART LIST BUTTON REVERSE TRIGGER PISTOL HANDLE

PART NO.	NAME OF PART	QTY.
203559	Valve Cap	1
203563	Muffler	1
203567	Throttle Valve*	1
203568	"O"-ring (11/64" x 3/8")*	1
203569	Trigger (incl. 813315)*	1
203570	Throttle Valve Bushing*	1
203614	Trigger Spring (*1 included in trigger assembly)	2
203722	Reversing Valve	1
203739	Screen	1
203755	Handle (includes 869137) (includes 203762)	1
203757	Dowel Pin	1
203762	Grip Sleeve	1
412603	Bail	1
619016	Retainer Ring	1
813315	Set Screw*	1
847031	Roll Pin	1
847272	"O"-ring (5/8" x 3/4")	1
847710	"O"-ring (1/2" x 5/8")*	3
869137	Reversing Valve Bushing (included in 203755)	1
881276	Inlet Bushing	1

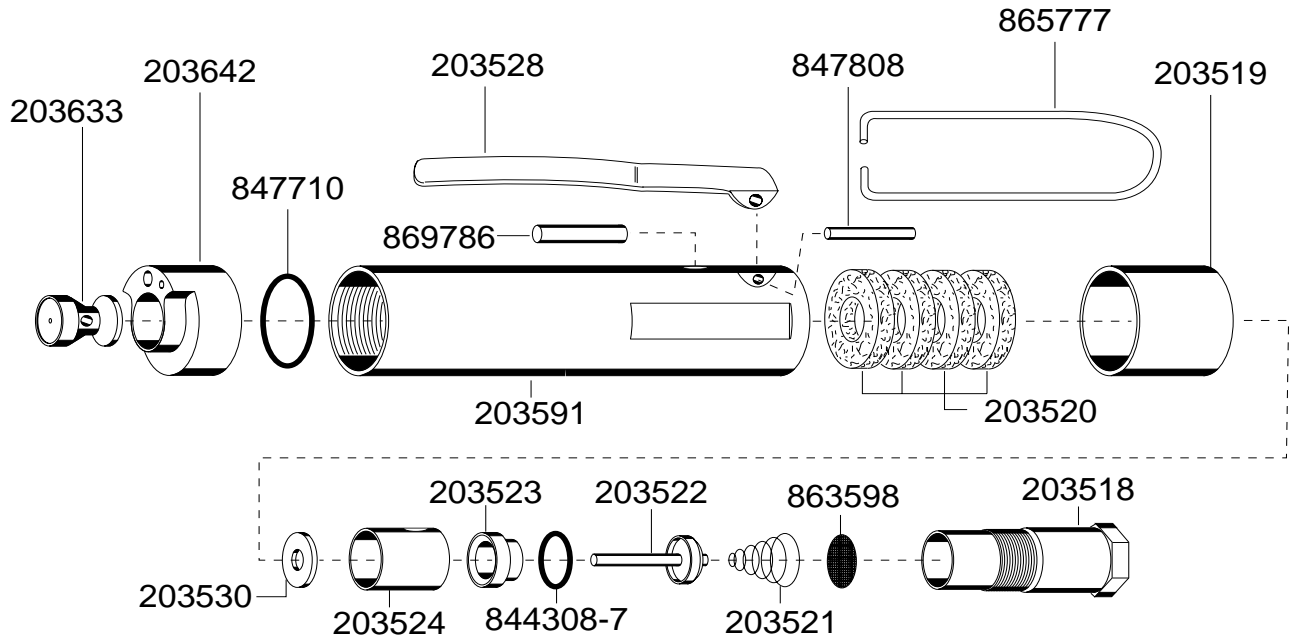
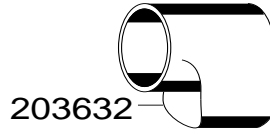
The complete handle can be purchased as a subassembly using the following part number: 201506

The complete trigger subassembly can be ordered using part number: 201435

*Part included in Trigger subassembly.

**5 DRILL LEVER
HANDLE FOR DL AND
RIGHT ANGLE DL**

**Optional
Piped Away
Exhaust Deflector**



PARTS LIST- 5 DRILL LEVER HANDLE

Part No.	Name of Part	Qty.	Part No.	Name of Part	Qty.
203518	Inlet Bushing	1	203591	Backhead	1
203519	Exhaust Deflector	1	203632*	Piped Away Exhaust Deflector (Opt.)	1
203520	Muffler	4	203633	Motor Spacer	1
203521	Throttle Valve Spring	1	203642	Motor Block	1
203522	Throttle Valve	1	844308	"O"-ring (9/16" x 23/64")	1
203523	Throttle Valve Seat	1	847710	"O"-ring (5/8" x 31/64")	1
203524	Throttle Valve Bushing	1	847808	Lever Pin	1
203528	Lever	1	865777*	Bail (Opt.)	1
203530	Shut-off Valve Seat	1	869786	Throttle Valve Pin	1

The complete handle can be purchased as a subassembly using part number: 201443

*Not included in subassembly.

670 Industrial Drive
Lexington, SC 29072
Phone: (803) 359-1200
Fax: (803) 359-2013