COOPER Tools

Operation & Service Manual
823018 **2/01**

Cleco®

88 Series Screwdrivers

88	XX	A	XX	-	X	X	X

Series:
88

Tool Type:
- S — Non-Rev. Screwdriver
- RS — Rev. Screwdriver (Button or Slide)

Torque Control Mechanism:
- A — Clecomatic

Handle:
- — — Inline (Push To Start)
- P — Pistol (Push To Start)
- PT — Pistol (Push & Trigger Start)
- TP — Pistol (Trigger Start)
- L — Lever (Push To Start)

Gear Train Designation:
2
5
7

Generation:
- C — Second

Output Drive:
- — — Finder Type
- -3 — 3/8" Sq. Drive
- Q — Quick Change

NORTH AMERICA

CooperTools
P.O. Box 1410
Lexington, SC 29071

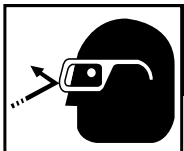
EUROPE

Cooper Power Tools GmbH & Co.
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 screwdriver.

Always wear protective equipment:



⚠ WARNING

Impact resistant eye protection must be worn while operating or working near this tool.

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, N.Y. 10036.

⚠ CAUTION

Personal hearing protection is recommended when operating or working near this tool.

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.

Cleco screwdrivers 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, sockets, and fasteners 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 connecting a tool to the air hose, removing a tool from service or changing bits, make sure the air line is shut off and drained of air. This will prevent the tool from operating if the throttle is accidently engaged.

⚠ CAUTION

Tools with clutches can stall if adjusted over maximum power output of tool, or if there is a drop in air pressure. Operator must then resist stall torque until throttle is released.

Higher torque screwdrivers can be equipped with grip sleeves and dead handles. Tool balance arms are available to absorb the torque reaction of the tool while balancing the weight of the tool for improved ergonomic applications.

Poor quality fasteners and bits can cause vibration during run down. Use quality fasteners and bits.
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 may 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.

⚠ WARNING

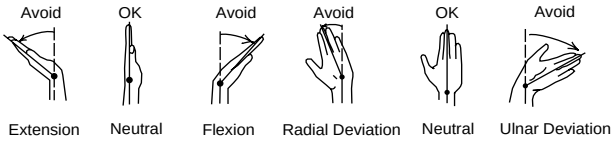
Repetitive work motions and/or vibration may cause injury to hands and arms.
Use minimum hand grip force consistent with proper control and safe operation.
Keep body and hands warm and dry.
Avoid anything that inhibits blood circulation.
Avoid continuous vibration exposure.
Keep wrists straight.
Avoid repeated bending of wrists and hands.

Safety Recommendations

Any tool operator should be aware of the following warning signs and symptoms so that a problem can be addressed before it 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.**

For more information on the safe use of portable air tools, 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, N.Y. 10036.

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.

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 ligibility. Replace warning labels when missing or when the information can no longer be read. Replacement labels can be ordered as any spare part.

203185

203288

OPERATING & SERVICE INSTRUCTIONS

The No. 88C Series CLECOMATIC screwdrivers are push-to start, automatic shutoff tools. Accurate torque is achieved by setting the CLECOMATIC clutch to the desired torque. The tool will automatically shut off at this preset torque. Removing the tool from the work piece will reset the tool for the next cycle.

NOTE: The 88C SAPT and 88C RSAPT models are equipped with a trigger which must be depressed before the push-to-start, automatic shutoff cycle will begin. The 88C RSAL models are equipped with a lever which must be depressed before the push-to-start, automatic shutoff cycle will begin.

CLUTCH ADJUSTMENT
Unscrew (left hand threads) the clutch housing, from the gear case. Tighten the adjustment nut (clockwise) to increase torque and loosen (counterclockwise) to decrease the torque output of the tool.

⚠ CAUTION

If the clutch is adjusted over the maximum power output of the tool, the clutch will not function and the tool will operate like a stall-type tool. Also, if the tool is being operated at its upper torque limits, a drop in air pressure could cause the clutch not to function due to a loss of motor power and the tool will function like a stall-type tool. While resisting torque operator must remove tool from fastener to shut off tool.

OPERATIONAL CHECK: Grip tool securely and be prepared to counteract stall torque if clutch is improperly adjusted.

AIR SUPPLY
The tool is designed to operate at 90 psig air pressure. The air pressure should be checked at the tool's air inlet while the tool is running.

For maximum performance, use a 1/4" I.D. air hose up to 8' in length. If additional length is required, a 3/8" I.D. or larger hose should be connected to the 1/4" I.D. hose. The air hose should be cleared of accumulated dirt and moisture.

LUBRICATION
An automatic in-line filter-lubricator is recommended as it increases tool life and keeps the tool in sustained operation. The in-line lubricator should be regularly checked and filled with a good grade of 10W machine oil. For proper adjustment of the in-line lubricator, place a sheet of paper next to the exhaust ports and hold the throttle open approximately 30 seconds to one minute. The tool is receiving adequate oil when a light stain appears on the paper. If the oil mist is visible to the naked eye it is generally an excessive amount of oil. Excessive amounts of oil should be avoided.

In the event that it becomes necessary to store the tool for an extended period of time (overnight, weekend, etc.), it should receive a generous amount of lubrication at that time and again when returned to service. The tool should be stored in a clean and dry environment.

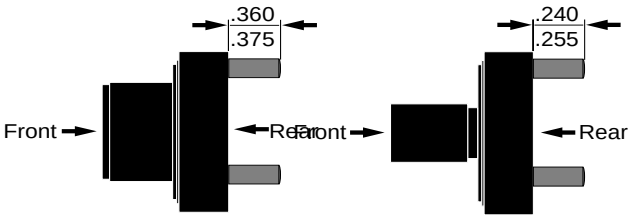
Application of the tool should govern how frequently it is greased. It is recommended that the idler gears receive a generous amount of NLGI 2-EP grease after every 40 hours of operation. The clutch housing (left hand threads) and clutch must be removed and the grease applied through the hex in the spider.

DISASSEMBLY — GENERAL (All Models)
Clamp the backhead in a soft-jawed vise and unscrew (left hand threads) the clutch housing and remove the clutch assembly. Unscrew and remove the gear case assembly. The trip rod and motor unit may now be removed from the front of the backhead. See the following paragraphs for complete disassembly instructions on the various sub-assemblies.

CLUTCH DISASSEMBLY
Unscrew the adjustment nut, No. 202755. This will allow the adjustment plate, No. 202754, thrust bearing, No. 847596, thrust race, No. 202753, torque spring, release spring, No. 202752, release sleeve, No. 203271, two (2) steel balls, No. 8842161, ball retainer No. 203272 and five (5) steel balls to be removed from the clutch spindle assembly. Wash the spindle assembly in a solvent and rotate the cam, No. 203270, to remove as much grease as possible. Remove the retainer ring, No. 202749, ball plug, No. 202748, and twelve (12) steel balls, No. 842161, from the cam. This will allow the trip plunger, No. 202745, reset spring, No. 202746, and pin, No. 843231, to be removed from the rear of the clutch spindle.

GEAR CASE DISASSEMBLY
The spider should be pressed out the rear of the gear case, No. 867907. Remove the retainer ring, No. 844364, and press the bearing, No. 847147, 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 drawings below for replacement pin height. The pin height on the gear case spiders are the same as the 1st reduction spider below.



2nd Reduction Spider (Only)

1st Reduction Spide (all Models)

MOTOR DISASSEMBLY
Slip the front bearing plate and bearing off the front of the rotor and remove the cylinder and four (4) rotor blades, 203223. Set the rear bearing plate on the vise jaws with the rotor hanging down. Use a 7/32" punch to drive the rotor out of the rear rotor bearing.

BACKHEAD DISASSEMBLY

Straight

For inspection or replacement of the shut-off valve, No. 867890, or valve seal, No. 869201, unscrew the air inlet bushing, No. 867882. On reversible tools, the reversing valve, No. 869253, may be removed by unscrewing the valve retainer screw, No. 867878.

The air inlet screen, No. 833300, should be washed in a solvent and blown out in the reverse of normal air flow. Replace the screen if clogged or torn.

Reversible Lever

Unscrew and remove the inlet bushing, No. 869753. This will allow the throttle valve, No. 867005, and related components to be removed from the backhead. Unscrewing the reversing valve retainer screw, No. 867878, will allow removal of the reversing valve, No. 869253. The inlet screen, No. 867008, should be washed in a solvent and blown out in the reverse of normal air flow. Replace the screen if clogged or torn.

Pistol Grip

On non-reversible tools, removing the motor block, No. 869236, from the front of the backhead will allow the removal of the shut-off valve and related components.

On reversible tools, removing the reversing knob screw, No. 613749, will allow the reversing valve and related components to be removed from the front of the backhead.

The air inlet bushing, No. 867929, should be removed for cleaning and inspection of the air inlet screen, No. 412775. The screen should be washed in a solvent and blown out in the reverse of normal air flow. Replace the screen if torn or clogged.

Pistol Grip With Trigger

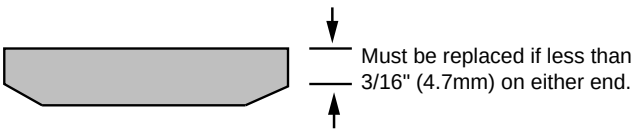
On non-reversible tools, removing the motor block, No. 869236, from the front of the backhead will allow the removal of the shut-off valve and related components.

On reversible tools, removing the reversing knob screw, No. 613749, will allow the reversing valve and related components to be removed from the front of the backhead.

Remove the air inlet bushing, No. 867929, for inspection of the throttle valve, No. 867055, and air inlet screen, No. 412775. The 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 every repair cycle or if they measure less than 3/16" (4.7mm) on either end.



Inspect and replace any "O"-rings or seals that show signs of wear or deterioration. All gears, gear pins, and open bearings should receive a generous amount of No. 2 Moly grease during reassembly. Reassembly of all of the various sub-assembies is in the reverse order of disassembly however, the following paragraphs list some of the more important reassembly procedures.

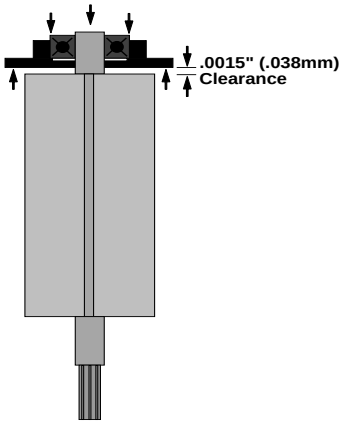
IMPORTANT NOTE: During final assembly of 88C RSATP models, the three "O"-rings No. 844315, No. 844313, and No. 863009, must be in place on the spindle bushing, No. 202756 as needed.

CLUTCH REASSEMBLY

During reassembly of the clutch all parts should receive a thin coating of a mixture of 10W machine oil and No. 2 Moly grease.

MOTOR REASSEMBLY

Install the rear rotor bearing, No. 847609, into the rear bearing plate. Press the bearing plate assembly (press on the bearing's inner race) onto the rear rotor shaft until there is approximately .0015" clearance between the rear bearing plate and rotor. Install the cylinder with the slotted end toward the front bearing plate.



PISTOL GRIP BACKHEAD WITH TRIGGER ASSEMBLY

When installing the throttle link pin, No. 867939, the notched end should be installed into the backhead in a vertical position to engage the throttle valve stem.

TRIP ROD SIZING — NON-TP MODELS

Assemble the tool completely, less the clutch housing, and connect the tool to the air supply. Screw (left hand threads) the clutch housing onto the gear case until air exhausts from the backhead. Measure the gap between the clutch housing and gear case. Grind this amount plus 1/16" off the trip rod.

TRIP ROD SIZING — TP MODELS

Assemble the tool completely, less the clutch housing, and connect the tool to the air supply. Screw (left hand threads) the clutch housing onto the gear case until air begins to exhaust from the backhead. Screw the clutch housing down one and three-quarters turn more. Measure the gap between the clutch housing and gear case. Grind this amount off the trip rod.

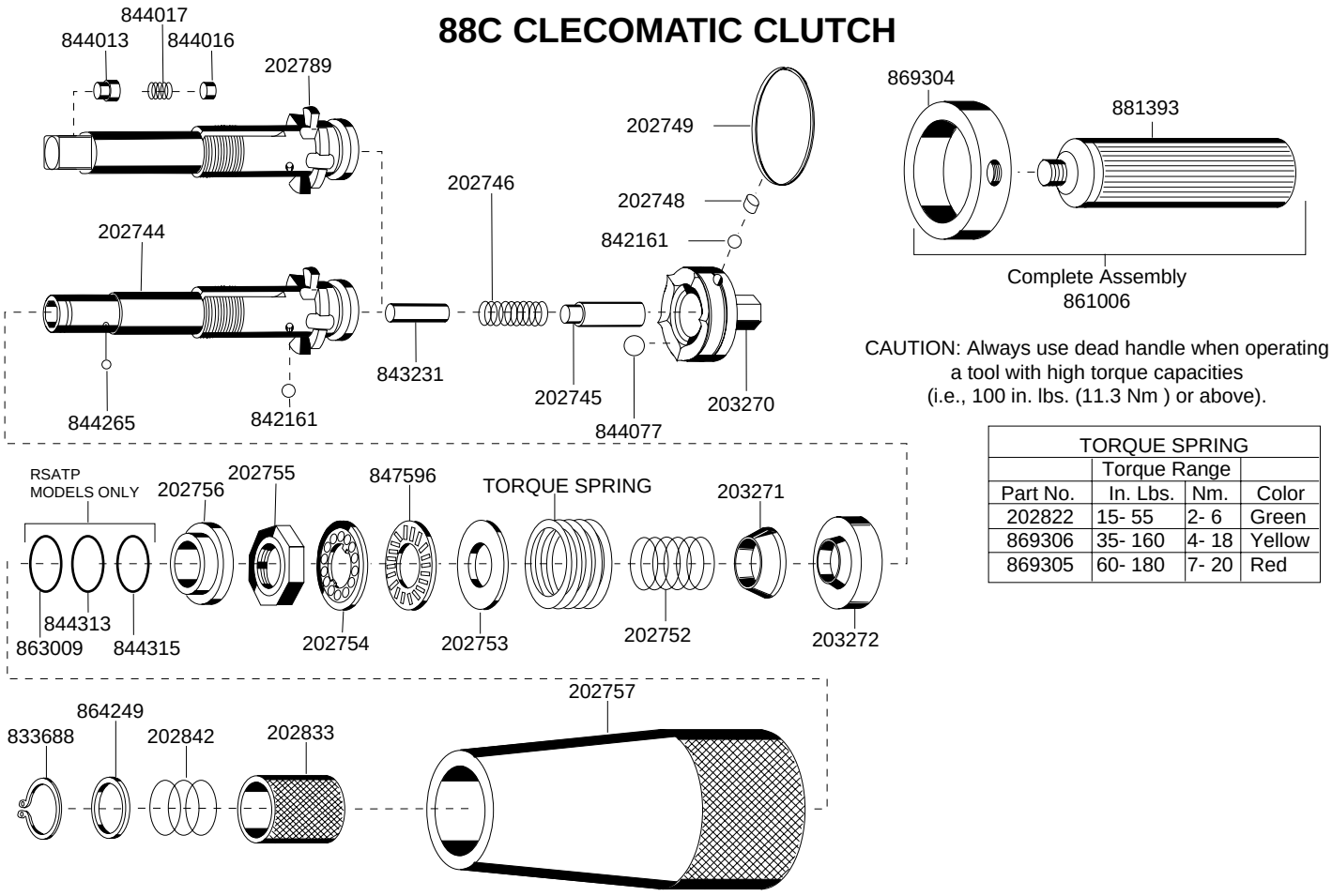
OLD TRIP ROD SIZING

The tool should be reassembled complete less the trip rod, clutch, and clutch housing. With the air on, install the trip rod and clutch into the tool and measure the distance between the rear face of the ball retainer, No. 203272, and the front face of the gear case. Turn the air off and depress the clutch assembly and measure clutch travel. Clutch travel must be at least 3/32" If not, the trip rod should be replaced and sized.

SAFETY CHECK

After repair or replacement of parts, tools equipped with an automatic shut- off device should be tested to verify that the device is functioning properly.

88C CLECOMATIC CLUTCH



CAUTION: Always use dead handle when operating a tool with high torque capacities (i.e., 100 in. lbs. (11.3 Nm) or above).

TORQUE SPRING			
	Torque Range		
Part No.	In. Lbs.	Nm.	Color
202822	15- 55	2- 6	Green
869306	35- 160	4- 18	Yellow
869305	60- 180	7- 20	Red

PARTS LIST — 88C CLECOMATIC CLUTCH

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202744	"Q" Model Clutch Spindle	1	833688	Retainer Ring	1
202745	Trip Plunger	1	842161	3/16" Steel Ball	15
202746	Reset Spring	1	843231	Pin	1
202748	Ball Plug	1	844013	Spring Retainer	1
202749	Retainer Ring	1	844016	Socket Lock Pin	1
202752	Release Spring	1	844017	Spring	1
202753	Thrust Race	1	844077	5/16" Steel Ball	5
202754	Adjustment Plate	1	844265	1/8" Steel Ball	1
202755	Adjustment Nut	1	844313	"O"-Ring 3/4 x 7/8 x 3/32	1
202756	Spindle Bushing	1	844315*	"O"-Ring 3/4 x 1"	1
202757*	Clutch Housing	1	847596	Thrust Bearing	1
202789	3/8" Sq. Dr. Clutch Spindle (incl. 844013, 844016, 844017)	1	861006	Dead Handle Sub-Assembly (incl. 869304, 881393)	1
202822*	Optional Torque Spring (Green)	1	863009*	"O"-Ring 3/4" x 7/8"	1
202833	Release Collar	1	864249	Release Collar Washer	1
202842	Release Collar Spring	1	869304*	Dead Handle Ring	1
203270	Clutch Cam	1	869305*	Optional Torque Spring (Red)	1
203271	Release Sleeve	1	869306	Standard Torque Spring (Yellow)	1
203272	Ball Retainer	1	881393*	Dead Handle	1

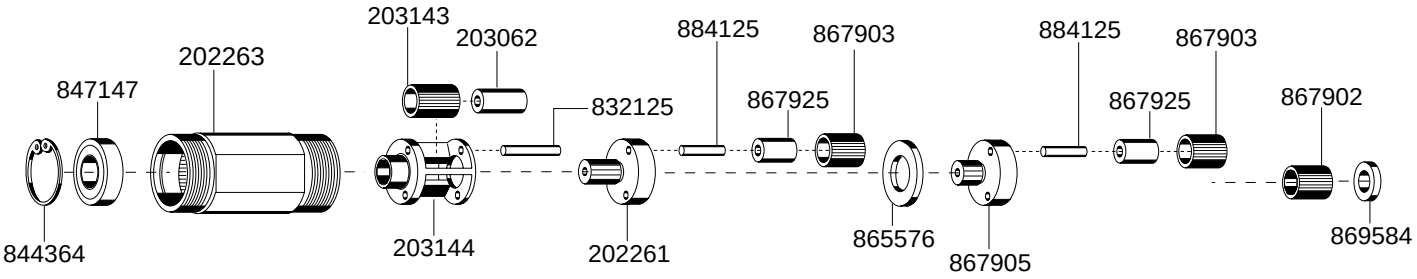
* Denotes parts not included in subassemblies listed below.

The complete clutch can be purchased as a subassembly using the part numbers listed below:

"Q" Model - 5, - 7, - 10 — 201384
- 20 — 201389

3/8 Sq. Dr. - 2, - 5, - 7, - 10 — 201386

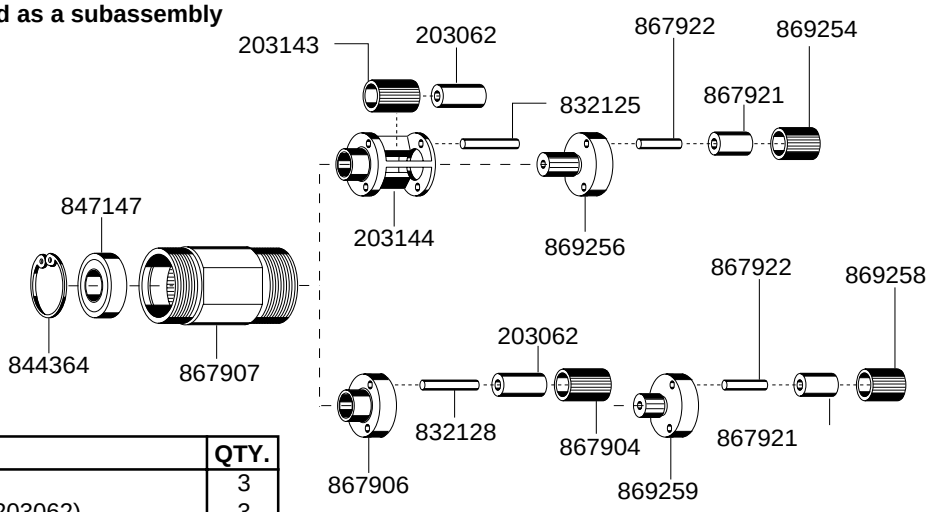
-2 GEAR TRAIN



PART NO.	NAME OF PART	QTY.
202261	2nd Red. Spider- (Incl. 884125)	1
202263	Gear Case (45T)	1
203062	3rd Red. Idler Gear Bushing	3
203143	3rd Red. Idler Gear (15T)	3
203144	3rd Red. Spider	1
832125	3rd Red. Idler Gear Pin	3
844364	Retainer Ring	1
847147	Ball Bearing	1
865576	Thrust Race	1
867902	Pinion (15T)	1
867903	1st & 2nd Red. Idler Gear (15T) (Incl. 867925)	6
867905	1st Red. Spider (Incl. 884125)	1
867925	1st & 2nd Red. Gear Bushing	6
869584	Pinion Spacer	1
884125	1st & 2nd Red. Idler Gear Pin	6

The complete gear train can be purchased as a subassembly using Code No. 201393.

- 5 GEAR TRAIN

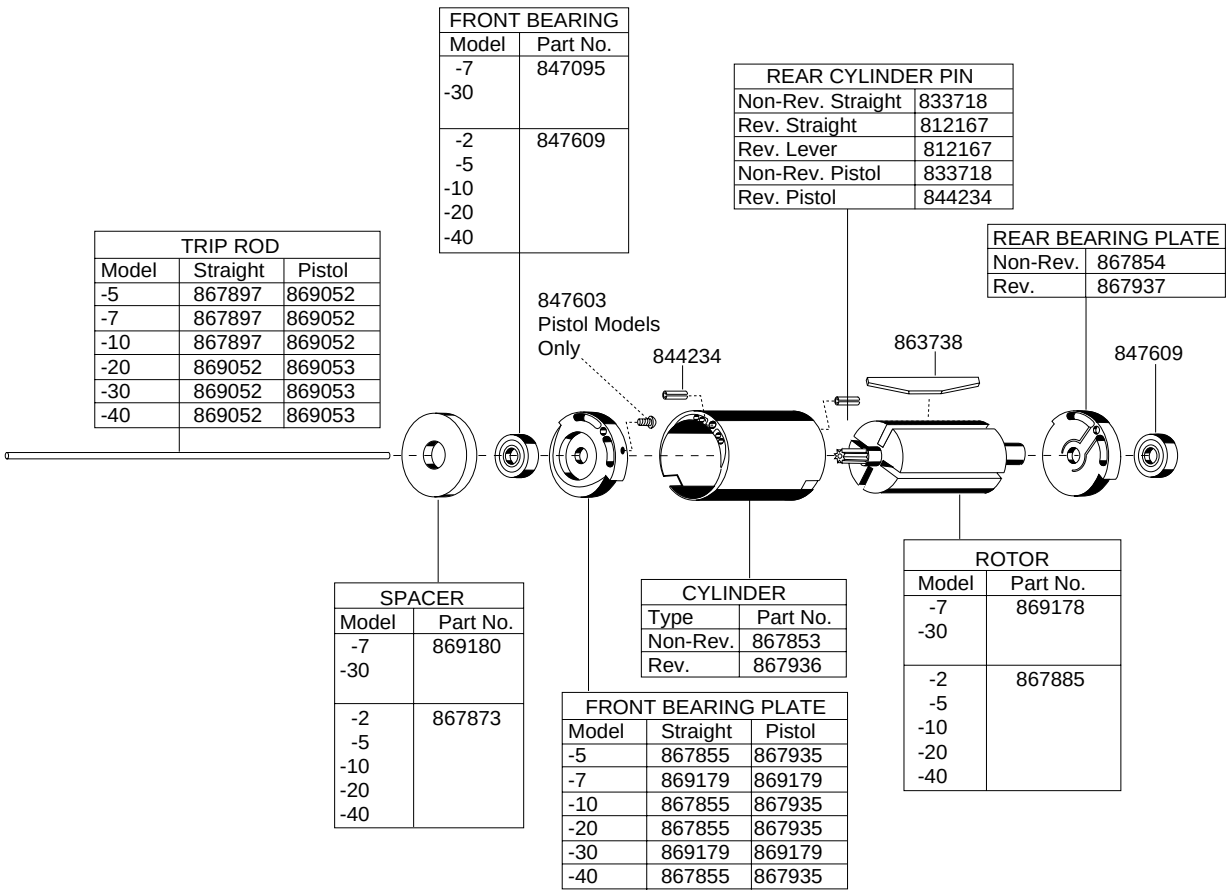


- 7 GEAR TRAIN

PART NO.	NAME OF PART	QTY.
203062	2nd Red. Gear Bushing	3
203143	- 5 2nd Red. Gear (15T) (incl. 203062)	3
203144	- 5 2nd Red. Spider	1
832125	- 5 2nd Red. Gear Pin	3
832128	- 7 2nd Red. Gear Pin	3
844364	Retainer Ring	1
847147	Ball Bearing	1
867904	- 7 2nd Red. Gear (15T)	3
867906	- 7 2nd Red. Spider (incl. 832128)	1
867907	Gear Case	1
867921	- 5 & - 7 1st Red. Gear Bearing	3
867922	- 5 & - 7 1st Red. Gear Pin	3
869254	- 5 1st Red. Gear (19T) (incl. 867921)	3
869256	- 5 1st Red. Spider (incl. 867922)	1
869258	- 7 1st Red. Gear (17T) (incl. 867921)	3
869259	- 7 1st Red. Spider (incl. 867922)	1

The complete gear train can be purchased as a subassembly using Part No. - 5 - 201325, - 7 - 861719.

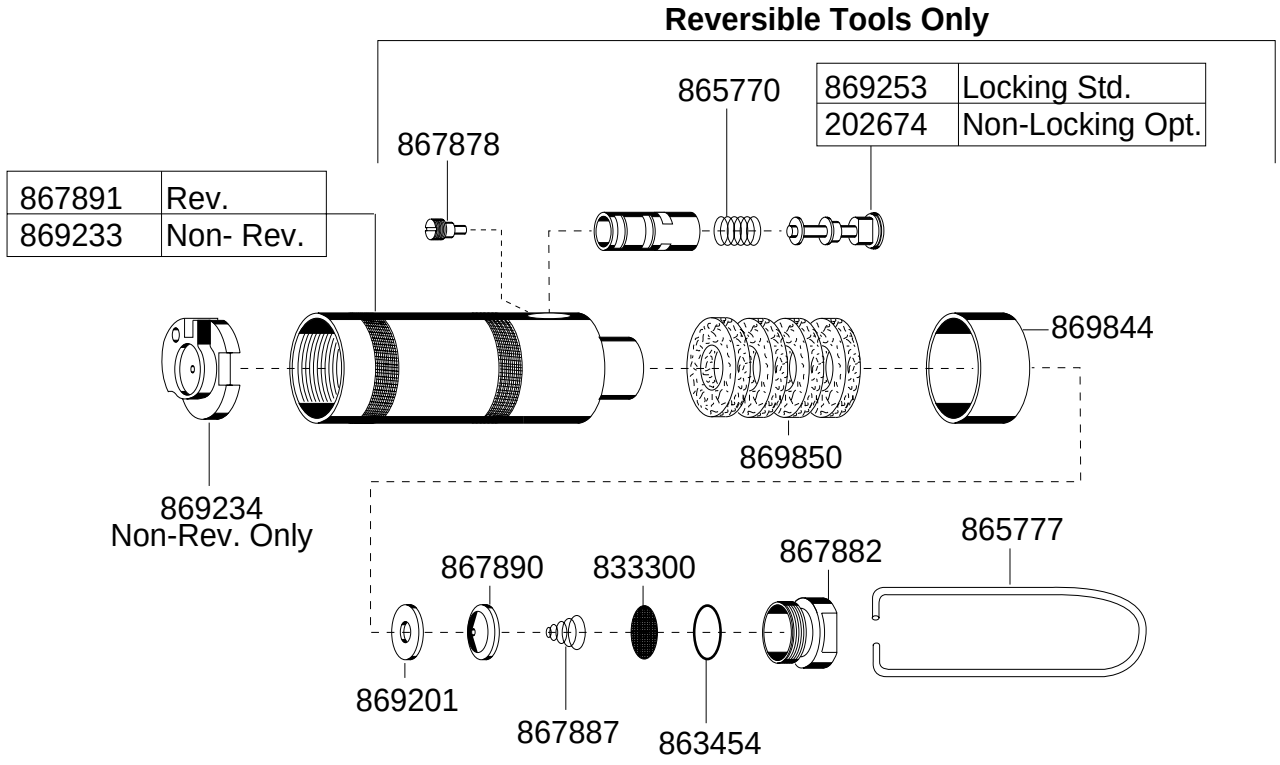
MOTORS



PARTS LIST — MOTORS

PART NO.	NAME OF PART	QUANTITY											
		BACKHEAD	STRAIGHT					PISTOL					
			Non-Reversible		Reversible			Non-Reversible			Reversible		
		MODEL	- 5	- 7	- 2	- 5	- 7	- 2	- 5	- 7	- 2	- 5	- 7
202765	Trip Rod 4/16"		-	-	-	-	-	-	1	-	-	1	1
202768	Trip Rod 5/16"		1	1	-	1	1	-	-	-	-	-	-
202769	Trip Rod 5/4"		-	-	-	-	-	1	-	-	1	-	-
202770	Trip Rod 6/16"		-	-	1	-	-	-	-	-	-	-	-
812167	Cylinder Pin		-	-	1	1	1	-	-	-	-	-	-
833718	Cylinder Pin		1	1	-	-	-	1	1	1	-	-	-
844234	Cylinder Pin		1	1	1	1	1	1	1	1	2	2	2
847095	Rotor Bearing		-	1	-	-	1	-	-	1	-	-	1
847603	Alignrnent Pin		-	-	-	-	-	1	1	1	-	1	1
847609	Rotor Bearing		2	1	2	2	1	2	2	1	2	2	1
863738	Rotor Blade		4	4	4	4	4	4	4	4	4	4	4
867853	Cylinder		1	1	-	-	-	1	1	1	-	-	-
867854	Bearing Plate		1	1	-	-	-	1	1	1	-	-	-
867855	Bearing Plate		1	-	1	1	-	-	-	-	1	-	-
867873	Spacer		1	-	1	1	-	1	1	-	1	1	-
867885	Rotor (6T)		1	-	1	1	-	1	1	-	1	1	-
867935	Bearing Plate		-	-	-	-	-	1	1	-	1	1	-
867936	Cylinder		-	-	1	1	1	-	-	-	1	1	1
867937	Bearing Plate		-	-	1	1	1	-	-	-	1	1	1
869178	Rotor (9T)		-	1	-	-	1	-	-	1	-	-	1
869179	Bearing Plate		-	1	-	-	1	-	-	1	-	-	1
869180	Spacer		-	1	-	-	1	-	-	1	-	-	1
	MOTOR SUBASSEMBLIES												
861580	Motor (does not include trip rod)		-	-	1	1	-	-		-	-	-	-
861594	Motor (does not include trip rod)		-	-	-	-	-	-	-	-	1	1	-
861682	Motor (does not include trip rod)		-	-	-	-	1	-	-	-	-	-	-
861683	Motor (does not include trip rod)		-	-	-	-	-	-	-	-	-	-	1
861701	Motor (does not include trip rod)		1	-	-	-	-	-	-	-	-	-	-
861702	Motor (does not include trip rod)		-	-	-	-	-	1	1	-	-	-	-
861703	Motor (does not include trip rod)		-	1	-	-	-	-	-	-	-	-	-
861704	Motor (does not include trip rod)		-	-	-	-	-	-	-	1	-	-	-

REVERSIBLE PUSH TO START HANDLE FOR RSA

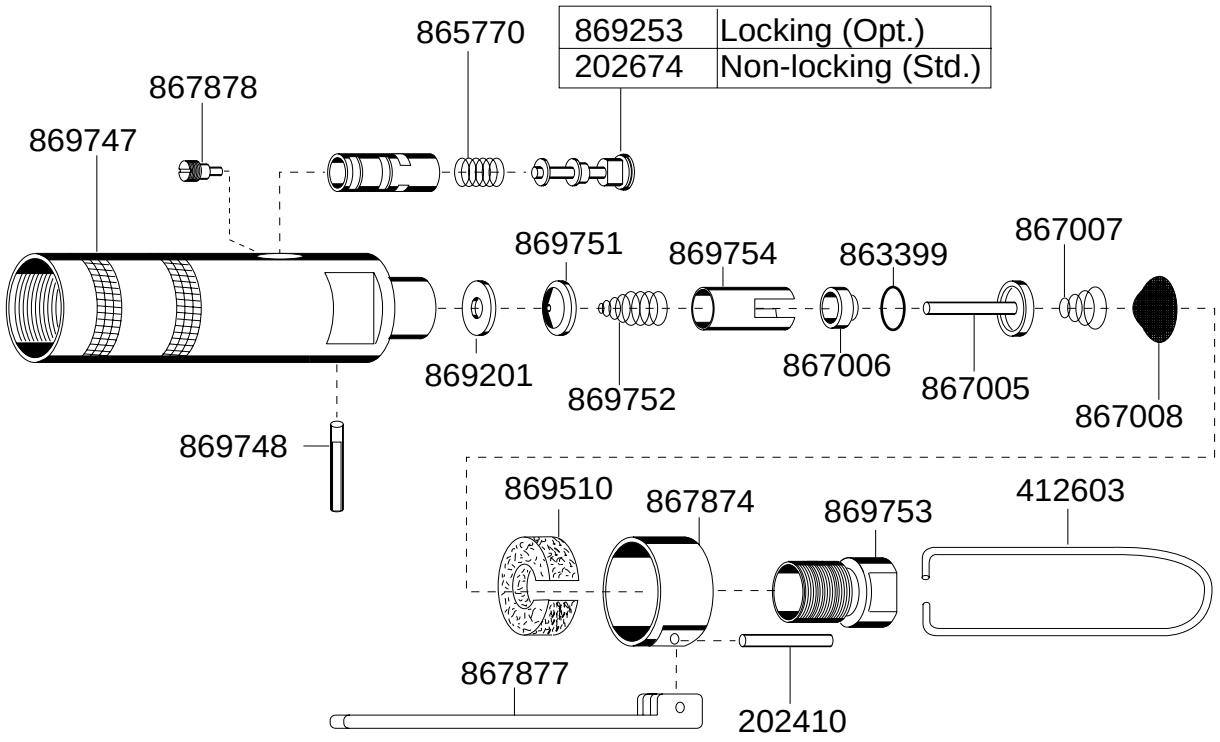


PARTS LIST — REVERSIBLE PUSH TO START HANDLE

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
833300	Inlet Screen	1	867890	Shut Off Valve	1
863454	"O"-Ring 9/16" x 11/16"	1	867891	Backhead (includes reversing valve bushing)	1
865770	Reversing Valve Spring	1	869201	Shut Off Valve Seal	1
865777	Bail	1	869233	Backhead	1
867878	Valve Retainer Screw	1	869234	Motor Block	1
867882	Inlet Bushing (incl. 833300)	1	869253	Reversing Valve	1
867887	Shut Off Valve Spring	1	869844	Exhaust Deflector	1
			869850	Muffler (Reversible Requires 4)	3

The complete handle can be purchased as a subassembly using Part No. 861705 — Non-Reversible Straight, 861579 — Reversible.

LEVER PUSH TO START HANDLE
FOR RSAL

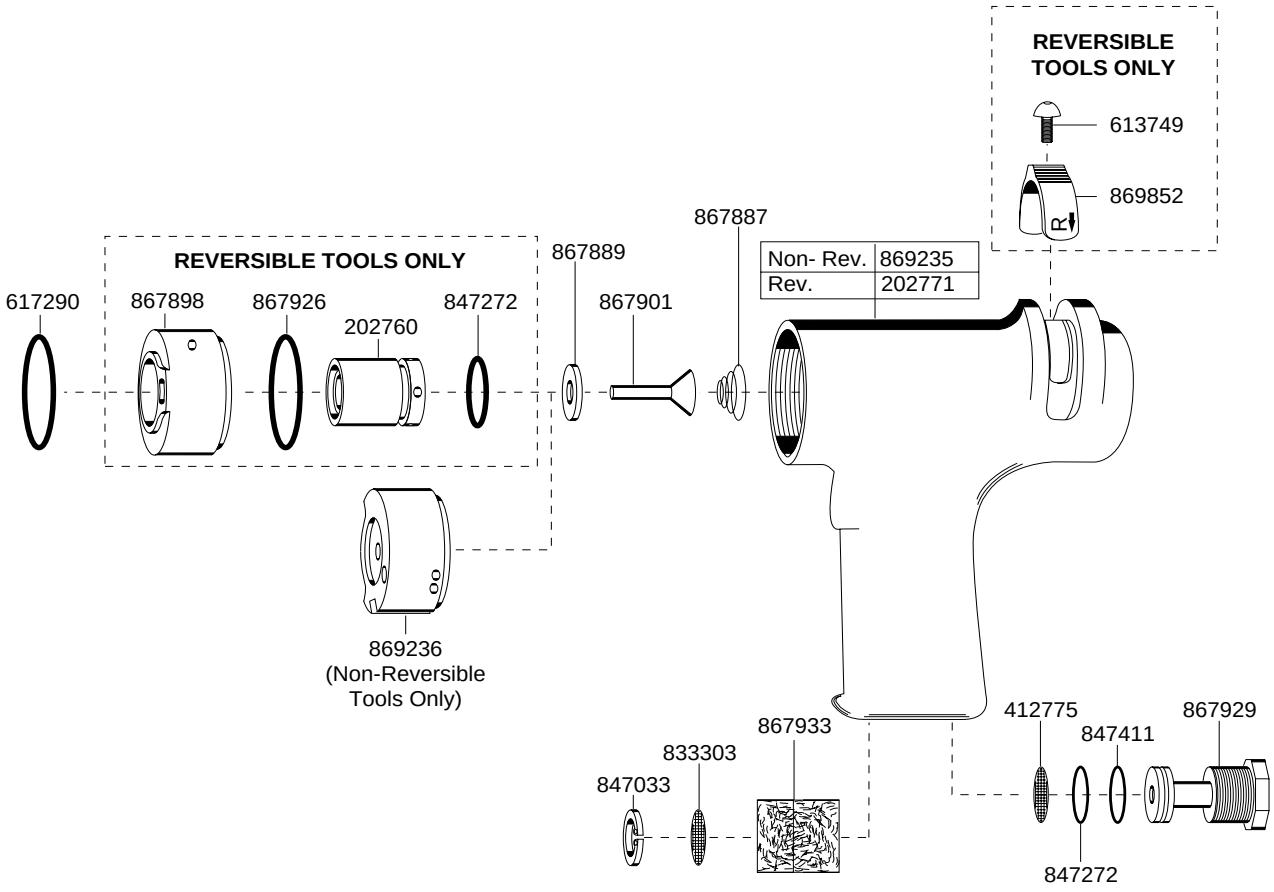


PARTS LIST — LEVER PUSH TO START HANDLE

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202410	Lever Pin	1	867874	Exhaust Deflector	1
202674	Reversing Valve (Non-locking Opt.)	1	867877	Lever	1
412603	Bail	1	869201	Shut Off Valve Seal	1
863399	"O"-Ring 7/16" x 9/16"	1	869253	Reversing Valve	1
865770	Reversing Valve Spring	1	869510	Muffler	1
867005	Throttle Valve	1	869747	Backhead (includes reversing valve bushing)	1
867006	Valve Seat	1	869748	Lever Pin	1
867007	Throttle Valve Spring	1	869751	Shut Off Valve	1
867008	Inlet Screen	1	869752	Shut Off Valve Spring	1
867878	Valve Retainer Screw	1	869753	Inlet Bushing	1
			869754	Shut Off Valve Bushing	1

The complete handle can be purchased as a subassembly using Part No. 201212

REVERSIBLE AND NON-REVERSIBLE PUSH TO START PISTOL HANDLE WITHOUT TRIGGER FOR RSAP AND SAP

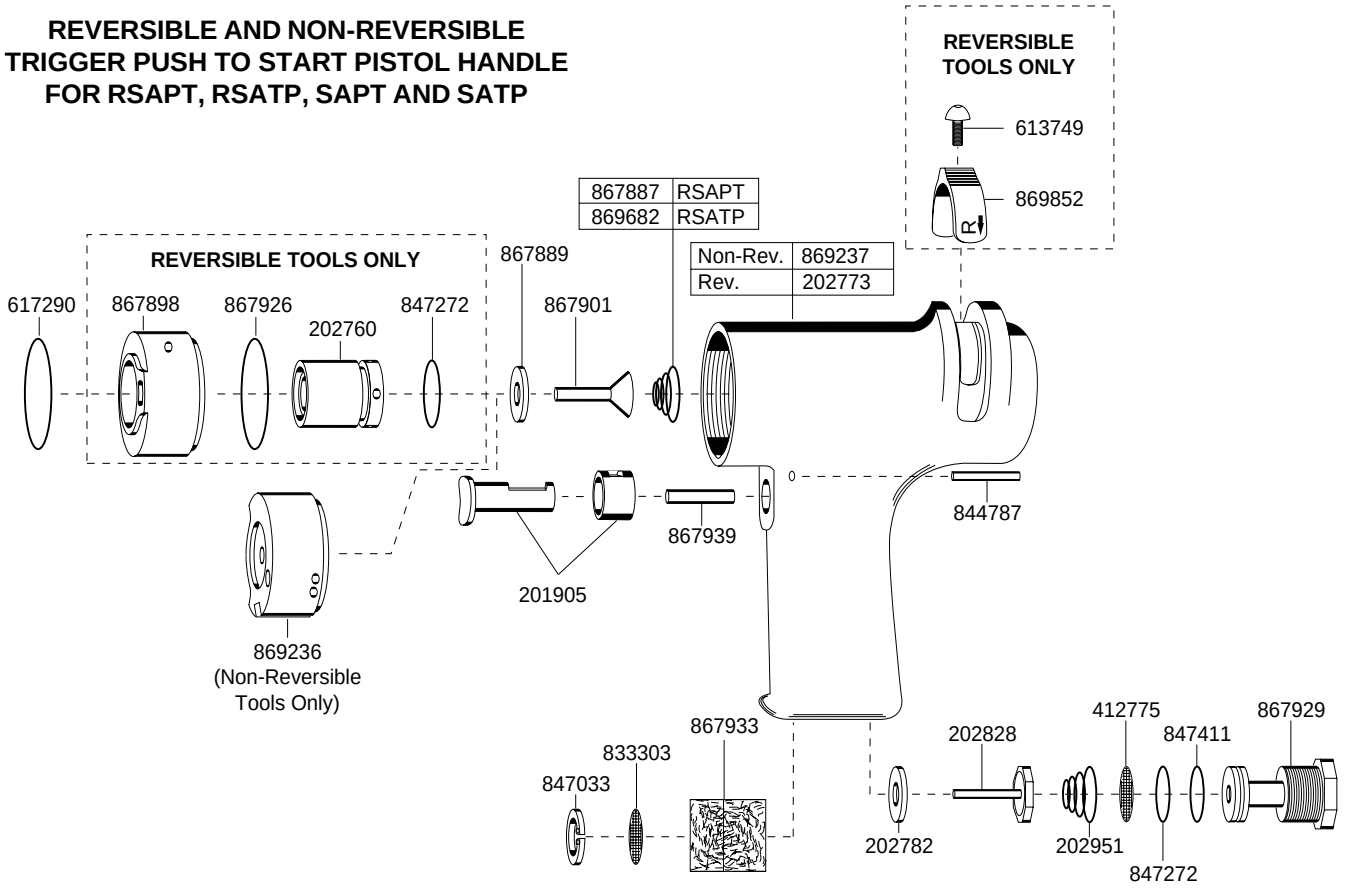


PARTS LIST — PISTOL HANDLE WITHOUT TRIGGER

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
202773	Backhead Reversible	1	867898	Reversing Valve	1
412775	Air Inlet Screen	1	867899	Shut Off Valve Housing	1
613749	Reversing Knob Screw	1	867901	Shut Off Valve	1
617290	"O"-Ring 1- 1/2" x 1- 5/16" **	1	867926	"O"-Ring 1- 3/16" x 1- 5/16"	1
833303	Muftler Screen	1	867929	Air Inlet Bushing	1
847033	Retainer Ring	2*	867933	Muffler	1
847272	"O"-Ring 5/8" x 3/4"	1	869236	Motor Block	1
847411	"O"-Ring 11/16" x 13/16"	1	869237	Backhead Non-Reversible	1
867887	Shut Off Valve Spring (Standard Model)	1	869682	Shut Off Valve Spring (TP Model Only)	1
867889	Shut Off Valve Seal	1	869852	Reversing Knob	1

* Non-Reversible tools require one only
The complete handle can be purchased as a subassembly using Part No listed below.
861707 — Non-Reversible, 861706 — Reversible, 201190.
** Not included in subassembly.

REVERSIBLE AND NON-REVERSIBLE TRIGGER PUSH TO START PISTOL HANDLE FOR RSAPT, RSATP, SAPT AND SATP



PARTS LIST — PISTOL HANDLE WITH TRIGGER

PART NO.	NAME OF PART	QTY.	PART NO.	NAME OF PART	QTY.
201905	Trigger Assembly	1	867887	Shut Off Valve Spring (Standard Model)	1
202773	Backhead Reversible	1	867889	Shut Off Valve Seal	1
202782	Valve Seal	1	867898	Reversing Valve	1
202828	Throttle Valve	1	867899	Shut Off Valve Housing	1
202951	Throttle Valve Spring	1	867901	Shut Off Valve	1
412775	Air Inlet Screen	1	867926	"O"-Ring 1- 3/16" x 1- 5/16"	1
613749	Reversing Knob Screw	1	867929	Air Inlet Bushing	1
617290	"O"-Ring 1- 1/2" x 1- 5/16" **	1	867933	Muffler	1
833303	Muftler Screen	1	867939	Throttle Link Pin	1
844787	Trigger Pin	1	869236	Motor Block	1
847033	Retainer Ring	1	869237	Backhead Non-Reversible	1
847272	"O"-Ring 5/8" x 3/4"	2*	869682	Shut Off Valve Spring (TP Model Only)	1
847411	"O"-Ring 11/16" x 13/16"	1	869852	Reversing Knob	1

* Non-Reversible tools require one only
** Not included in subassembly
The complete handle can be purchased as a subassembly using Part No.
861707 — Non-Reversible
201189 — Reversible
201458 — Reversible TP
201195 — Non-Reversible TP

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