

Instruction Manual
823136EN
08/20/2012

Cleco®

1700 and 1900 Series
Horizontal Grinders



For additional product information visit our website at <http://www.apextoolgroup.com>

For this Instruction Manual

This Instruction Manual is the Original Instruction Manual intended for all persons who will operate and maintain these tools.

This Instruction Manual

- provides important notes for the safe and efficient use of these tools.
- describes the function and operation of the 1700 and 1900 series tools.
- serves as a reference guide for technical data, service intervals and spare parts ordering.
- provides information on optional equipment.

Identification text:

1700 represents all models of the 1700 series horizontal grinders as described in this manual

1900 represents all models of the 1900 series horizontal grinders as described in this manual

→ indicates a required action

• indicates a list

<.> indicates a reference number from the exploded parts drawings

Arial indicates an important feature or instruction written in **Arial Bold**

Identification graphic:

→ indicates a directional movement

⇓ indicates a function or force

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Tool Series

- 17** = 1700 Series
- 19** = 1900 Series

Free Speed (RPM)

- 45** = 4500
- 60** = 6000
- 80** = 8000

Tool Configuration

- H** = Horizontal

Throttle Type

- = Quick Release
- L** = Lever (Lock Off)
- S** = Self Closing Thumb
- X** = Spade

Wheel Type

- P** = Plug
- 16** = 6" Type 1
- 18** = 8" Type 1

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1 Safety

1.1 Warnings and notes

Warning notes are identified by a signal word and a pictogram.

- The signal word indicates the severity and probability of the impending danger.
- The pictogram indicates the type of danger.

WARNING!



WARNING identifies a potentially **hazardous** situation which, if not avoided, may result in serious injury.

CAUTION!



CAUTION identifies a potentially **hazardous** situation which, if not avoided, may result in minor or moderate injury or property and environmental damage.

NOTE



NOTE identifies general information which may include application tips or useful information but no hazardous situations.



Important information that must be read and understood by all personnel installing, operating or maintaining this equipment.

1.2 Basic requirements for safe working practices



All personnel involved with the installation, operation or maintenance of these tools must read and understand all safety instructions contained in this manual. Failure to comply with these instructions could result in serious injury or property damage.

These safety instructions are not intended to be all inclusive. Study and comply with all applicable National, State and Local regulations.

Abrasives:

WARNING!



Any abuse or misuse of the abrasive wheel or other material removal cutting devices used with this tool is extremely dangerous.

The grinding wheels, rotary files and other material removal cutting devices used with this product are not manufactured or supplied by Apex Tool Group, LLC. Consult and comply with the safety practices provided by the manufacturer of those items.

Carefully determine if there is a maximum speed marked for the cutter. If there is, this speed **MUST BE GREATER** than the rated speed of the tool.

Grinding Wheel Inspection: All grinding wheels should be closely inspected before installation and use. Consult the safety procedures of the grinding wheel manufacturer.

Proper Mounting: Consult and comply with the safety instructions of the cutting wheel manufacturer. Insure the proper spindle, flanges and guards are present on the tool.

Guards: Always use prescribed guards properly mounted for the cutting device being used. If the guard has been damaged, it must be discarded and replaced. Do not modify any guard unless approved, in writing, by Apex Tool Group, LLC.

Check: After mounting the cutting wheel and guard, the tool should be started under a steel bench or similarly protective area. Make sure safety glasses are worn. Turn at full speed for at least one minute to insure proper operation.

Operation: Consult the safety operating procedures of the cutting wheel manufacturer. Avoid excessive force or sudden impact of the cutting wheel on the workpiece.

CAUTION!



Work Area:

- Ensure there is enough space in the work area.
- Keep the work area clean.
- Keep the work area well ventilated.

Personnel Safety:

- Inspect the air supply hoses and fittings. Do not use damaged, frayed or deteriorated hoses.
- Make sure the air supply hose is securely attached to the tool.
- Ensure a secure standing position and maintain balance.
- Make sure the throttle is positioned relative to the head so the throttle will not become wedged against an adjacent object in the ON position due to normal operation.
- Keep the tool clean and dry to provide the best possible grip.
- Check the tool speed regularly with a tachometer to assure it does not exceed the rated speed.

Safety working with and around fastening tools:

- Use only cutting wheels with higher rated speed than the tool
 - Do not exceed the recommended wheel diameter for the tool
 - Inspect the grinding wheel for visible damage and cracks. Replace damaged items immediately.
 - Disconnect the air supply before installing or replacing the abrasive and guard
 - Make sure the grinding wheel is properly mounted and secured in position.
-

1.3 Operator training

All personnel must be properly trained before operating the 1700/1900 tools. These tools are to be repaired by fully trained personnel only.

1.4 Personal protective equipment

When working



- Wear eye protection to protect against flying metal splinters.
- Wear hearing protection

Danger of injury by being caught by moving equipment.



- Wear a hair net
- Wear close fitting clothing
- Do not wear jewelry

1.5 Designated use

The 1700/1900 horizontal grinders are designed exclusively for material removal by using appropriate abrasive devices.

- Do not modify the 1700/1900 horizontal grinders, any guard or accessory.
- Use only with accessory parts which are approved by the manufacturer.
- Do not use as a hammer, pry-bar or any other improper usage.

1.6 Codes and standards

It is mandatory that all national, state and local codes and standards be followed.

1.7 Noise and vibration

Noise level at free speed (without load) according to ISO 12100: 2011
Vibration values according to ISO 12100: 2011

Horizontal Grinder	Noise Level	Vibration
1745H	≤ 82 dB(A)	3 m/s ²
1760H	≤ 83 dB(A)	3 m/s ²
1945H	≤ 88 dB(A)	3 m/s ²
1960H	≤ 90 dB(A)	3 m/s ²
1980H	≤ 90 dB(A)	3 m/s ²

Scope of Supply, Transport and Storage**2 Scope of supply, transport and storage****2.1 Items supplied**

Check shipment for transit damage and ensure that all items have been supplied:

- 1 1700/1900 series horizontal grinder
- 1 Wheel guard
- 1 Flange wrench
- 1 823136EN instruction manual
- 1 Declaration of Conformity
- 1 Lubrication sheet
- 1 Warranty statement

2.2 Transport

Transport and store the 1700/1900 in the original packaging. The packaging is recyclable.

2.3 Storage

For short term storage (less than 2 hours) and protection against damage:

- Place the 1700/1900 in a location on the workbench to avoid accidental depression of the lever.
or
- Suspend the 1700 or 1900 from a suitable balancer or tool positioner.

For storage longer than 2 hours:

- Disconnect the air supply from the 1700/1900

Object	Time Period	Storage Temperature
1700 series without air supply	No guideline	-13°F to 104°F (-25°C to 40°C)
1900 series without air supply	No guideline	-13°F to 104°F (-25°C to 40°C)

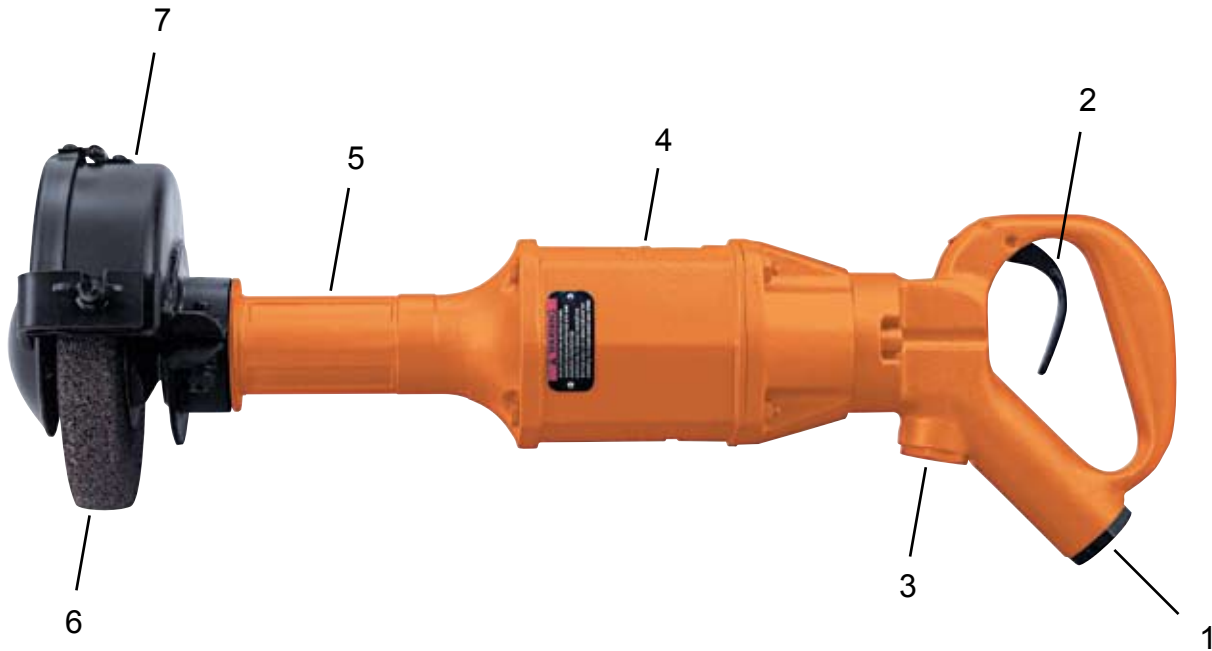
3 Product description

3.1 General description

- Horizontal pneumatic powered grinder
- 1700HSL or 1900HSL: Lock off lever
- 1700HS or 1900 HS: Self closing thumb lever
- 1700H or 1900H: Quick release thumb lever
- 1700HG or 1900HG: Spade handle with lock off lever

3.2 Operation and functional elements

This section describes the operational and functional elements of the 1700/1900.



Ref.	Description
1	Air Inlet
2	Throttle Lever
3	Throttle Assembly
4	Motor Assembly
5	Output Spindle
6	Abrasive
7	Wheel Guard

4 Accessories

5 Before initial operation

5.1 Ambient conditions

Ambient temperature: 41°F (5°C) to a maximum of 104°F (40°C)

Acceptable relative humidity: 25% to 90%, non-condensing

5.2 Air supply

Parameter	Description
Air Hose	Minimum inside diameter: 1/2" (12,7 mm) Maximum length: 16.4' (5 m)
Working pressure range	Performance rated at: 90 psi (620 kPa)
Compressed air	Air quality according to ISO 8573-1, quality class 2.4.3 The compressed air must be clean and dry.

NOTE



To attain consistent results, maintain a constant working pressure using a suitable air line unit consisting of a filter, regulator and lubricator.

- The inside diameter of the air hose must be free of residue, clean if necessary.
- Spray a few drops of light air tool oil into the air inlet adapter.
- Adjust the lubricator to a minimum setting to reduce the amount of excess oil in the exhaust air.

Oil identification

Part No.	Packaged	Designation	Vendor
540397	1 Quart (0.94 liter)	Airlube 10W/NR-420LB DR	Fuchs Lubricants Co.
533485	1 US Gallon (3.78 liter)	Airlube 10W/NR-420LB DR	Fuchs Lubricants Co.

5.3 Connecting the air supply to the tool

WARNING!



The air hose can disconnect from the tool by itself and whip around uncontrollably.

- Turn off the compressed air before connecting to the tool.
- Securely connect the air hose to the tool.
- Turn on the compressed air.

5.4 Tool set up

Grinding wheels and guards must be properly installed on the 1700/1900 before operating.

6000 RPM
6" Radial Wheel Grinding
Wheel Size: 6 x 1 x 5/8

Tighten guard mounting bolts to 15-20 ft. lbs. torque

843846 Spindle Nut
847047 2" Relieved Outer Flange
867799 - 2" relieved driving flange
202022 6" Wheel Guard

4500 / 6000 RPM
8" Radial Wheel Grinding
Wheel Size: 8 x 1 x 5/8

Tighten guard mounting bolts to 30-35 ft. lbs. torque

843846 Spindle Nut
842724 3" Relieved Outer Flange
867818 - 3" relieved driving flange
202025 8" Wheel Guard

8000 RPM
8" Radial Wheel Grinding
Wheel Size: 8 x 1 x 1

Tighten guard mounting bolts to 30-35 ft. lbs. torque

843846 Spindle Nut
842724 3" Relieved Outer Flange
202005 - 3" relieved driving flange
202025 8" Wheel Guard

Cone Wheel Grinding

Install unrelieved driving flange with unthreaded end toward the driving flange and flush with the rear driving flange.

Cone and Plug wheels are intended for internal grinding where the workpiece provides operator protection. Wheel guards are not required.

869699 - Threaded wheel driving flange
(Do not use washers in place of proper spacer.)

Grinding Wheel Mounting

<p>Radial Wheels</p> <p>Wheel Guard Relieved Flanges Blotters Flange Diameters Identical</p>	<p>Cone or Plug Wheels</p> <p>Driving Flange Wheel Driving Flange (Flat not relieved) Blotter</p>	<p>Wrenches</p> <p>889381 - 2" Wrench 867836 - 2.5" Wrench 867796 - 5/32" Hex Wrench</p>
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IMPORTANT: Flange diameters must equal or exceed 1/3 the diameter of the wheel.

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6 First operation

6.1 Putting into use

Connect the tool to an airline with a maximum pressure of 90 psig (6.2 bar). Adjust the airline lubrication to a minimum to reduce possible contamination of the environment by the exhaust air. The work area must be well ventilated.

- Make sure the air supply is securely attached and the compressed is turned on.
- Make sure the wheel and wheel guard is securely assembled.
- Avoid excessive force or sudden impact of the cutting wheel on the workpiece.
- Do not lay the tool down while the grinding wheel is rotating.

7 Troubleshooting

Malfunction	Possible causes	Remedy
Tool does not start	No or low air pressure	→ Make sure there is adequate air pressure at the tool air inlet
	Throttle valve malfunction	→ Disassemble throttle valve; clean all parts and replace defective parts.
Tool does not shut off	Throttle valve malfunction	→ Disassemble throttle valve; clean all parts and replace defective parts.
Tool loses power	Reduced air pressure	→ Check air supply line for any obstructions
	Lack of lubrication	→ Check the air line lubricator to make sure it is full of lubricant and is working properly
	Motor exhaust air is obstructed	→ Clean or replace muffler (if equipped)
	Swollen rotor blades from excessive moisture	→ Check the air line filter, empty reservoir if necessary
	Worn rotor blades	→ Tool disassembly required (parts replacement)
	Worn bearings	→ Tool disassembly required (parts replacement)
Air leak at inlet adapter	Loose inlet adapter	→ Tighten inlet adapter
	Worn o-ring on inlet adapter	→ Replace o-ring

8 Maintenance

CAUTION!



Danger of injury from accidental start up.
Turn off the compressed air before performing any maintenance.

8.1 Service schedule

Only qualified and trained personnel are permitted to perform maintenance on these tools.

Regular maintenance reduces operating faults, repair costs and downtime. In addition to the following service schedule, implement a safety related maintenance program that takes the local regulations for repair and maintenance for all operating phases of the tool into account.

Maintenance Interval	Designation
Daily	<ul style="list-style-type: none">→ Visual inspection of air supply hose and connections→ Inspect airline filter, regulator and lubricator for proper operation→ Check the tool excessive vibration or unusual noises→ Visual inspection of all external components of the tool→ Make certain all guards are in place and secure
Every 500 operating hours or 6 months	<ul style="list-style-type: none">→ Inspect the air hose for damage or wear→ Check individual parts and replace if necessary→ Replace O-rings and seals→ Inspect the air inlet adapter for a secure fit→ Check the maximum free speed

8.2 Lubricants

For proper function and long service life, use of the correct lubricant is essential.

Lubricants recommended for this tool.

Part No.	Packaged	Designation	Vendor
540397	1 Quart (0.94 liter)	Airlube 10W/NR-420LB DR	Fuchs Lubricants Co.
533485	1 US Gallon (3.78 liter)	Airlube 10W/NR-420LB DR	Fuchs Lubricants Co.

9 Repair instructions

9.1 Excessive vibration



The primary source of vibration when using a portable grinder is an abrasive wheel that is out of balance, out of round, untrue, or possibly a combination of all three. The use of quality abrasive wheels that are well balanced, round and true is highly recommended to significantly reduce tool vibration.

Some abrasive wheels lose their balance, roundness, and trueness as they wear from use. Because of the abusive nature of the vibration caused by out of balance, out of round, and untrue condition of some abrasive wheels, it is felt that these wheels are more susceptible to failure.

Excessive vibration may signal eminent wheel failure. Flat spotting on the abrasive wheel, caused by grinding the wheel to a stop after the power has been shut off, can result in changes to the balance and shape of the wheel. Be sure the grinding wheel has stopped before setting the tool down. Set the tool in a tool holder when not in use.

9.2 General disassembly

Disconnect the air supply from the tool and remove the wheel guard and grinding wheel.

9.3 Removing the motor unit from the motor housing

Insert a 5/16" hex wrench (clamped in a vise) into the spindle shaft and remove the driving flange. Removing the housing bolts will allow the governor housing to be removed from the motor housing. Remove the motor unit from the rear of the motor housing.

9.4 Motor unit disassembly

Remove the governor assembly (left hand threads) from the rear of the motor unit. Clamping on the cylinder, hold the motor unit in a vise with the rear bearing plate facing up. Using a soft 1/4" rod and a suitable hammer, drive the rotor shaft out of the overspeed shut-off disc and rear rotor bearing. This will allow the various motor unit components to be removed from the rotor.



IMPORTANT NOTE: The overspeed shut-off disc is an assembly and must not be disassembled. Do not remove the disc seal plate unless the rear bearing plated needs to be replaced.

9.5 Governor disassembly

Remove the governor pin retainer. Using a 3/32" punch, drive out the governor weight pins. After removing the weights and two washers, the governor cone pin can be driven out using the 3/32" punch. **Note: Always use a new governor cone pin when the governor is reassembled.** Removing the governor adjusting nut will allow removal of the governor spring.

9.6 Throttle handle disassembly

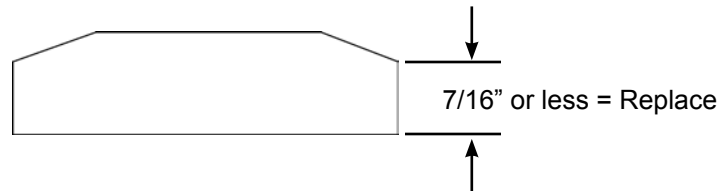
To replace the throttle valve seal, remove the throttle valve cap to remove the throttle valve components.

This tool is equipped with two air screens for protection of the motor components from foreign material. The air screen located in the inlet bushing may be removed for cleaning and inspection by removing the inlet bushing. If the screen is torn or damaged, the inlet bushing should be replaced. The air screen located between the throttle handle and motor housing may be removed for cleaning and inspection by unscrewing the two socket head cap screws. Replace this screen if there is apparent damage.

9.7 General assembly

Reassemble the tool in the reverse order of disassembly. Clean all parts thoroughly and inspect for excessive wear or damage. Make sure bearings are not damaged or pitted and roll freely.

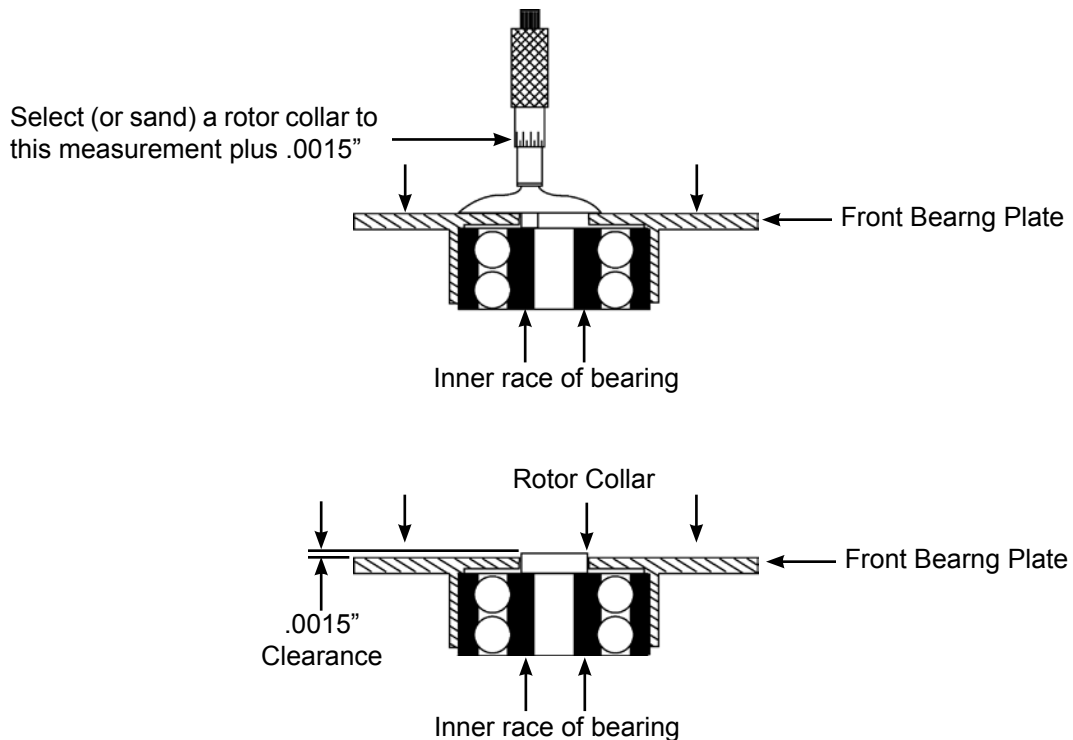
Rotor blades that are worn or chipped can cause the motor to lock up and result in grinding wheel spin-off. Check the rotor blades periodically and replace them, as a set, if there are apparent chips or they measure less than 7/16" at either end.



All replacement parts should be recommended or manufactured by Apex Tool Group, LLC.

9.8 Motor unit assembly

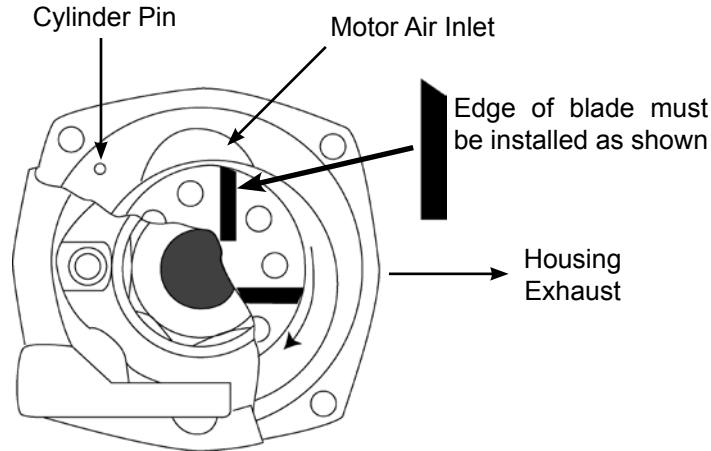
During reassembly, the rotor must be positioned by the front rotor collar so when assembled the rotor will have .0015" - .0025" clearance between it and the front bearing plate. Install the front rotor bearing into the front bearing plate and measure the depth of the bearings inner race from the face of the bearing plate. Select, or fit by sanding, a rotor collar .0015" - .0025" larger than this dimension.



Slip the assembled front bearing plate onto the rear of the spindle shaft until it is retained by the step diameter. Now install the rotor collar and using a suitable drift (.670" ID minimum) resting against the rotor collar, drive the front bearing plate assembly until it stops against the spindle shoulder.

9.8 Motor unit assembly (continued)

Install the rotor key into the keyway in the shaft. This will allow the rotor, rotor blades (4) and cylinder to be installed on the shaft. Refer to the following illustration for the correct installation of the rotor and rotor blades.



Rear view of motor in housing

Install the rear rotor collar, rear bearing plate, and rear rotor bearing (drive on the bearing's inner race) onto the rotor assembly.

If the front spindle bearing is replaced, the new bearing must be pressed (press on stamped end of the bearing) into the motor housing to a depth of 9/16" plus or minus 1/64".

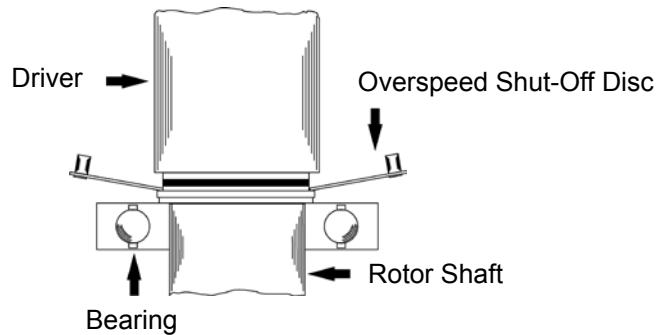
The spring washer should be assembled into the housing with its large diameter against the motor housing (cone side up). Install the motor unit into the motor housing as shown in the above illustration. This will allow the exhaust slots in the cylinder to be properly located in relation to the housing exhaust for minimum noise levels. Assemble the driving flange to the spindle and tighten to 50-60 ft. lbs. torque.

Assemble the O-ring onto the disc seal plate and press the seal plate (undercut side up) onto the rear bearing plate.

Before reassembly, the overspeed shut-off disc should be closely inspected for wear or damage.



IMPORTANT: The complete overspeed shut-off disc assembly must be assembled to the spindle shaft using a suitable flat driver (7/8" O.D. minimum) resting against the assembly and driven down until it stops against the rear bearing inner race. Refer to the following illustration.



Note: Check the rpm rating etched on the disc against the rpm rating stamped on the tool; they must be the same.

9.9 Governor assembly

Clean and inspect all governor parts. Replace all parts that show excessive wear or damage with parts recommended or manufactured by Apex Tool Group, LLC.



IMPORTANT: it is imperative that all governor parts be clean and free of foreign material before assembly.

Place the governor cone over the spider and secure with a new governor cone pin. **Do not reuse the governor cone pin, replace it with a new pin.** Lightly peen both ends of the governor cone pin to assure secure assembly. Check the governor cone to make sure it moves freely on the spider after installation of the pin.

Install the spring on the spider making sure the tang on the spring engages the hole in the spider. Thread the adjusting nut onto the governor screw approximately six (6) turns. Final speed adjustment will be made after the tool is completely assembled.



IMPORTANT: After the governor is completely assembled, install it (left hand thread) onto the rear of the rotor shaft and tighten to 40-45 ft. lbs. torque. If a torque wrench is not available, the governor should be hand tightened to a snug position, then tightened by going beyond the hand tight position 180°.

The O-ring and governor housing can now be installed to complete the motor unit assembly.

9.10 Final speed adjustment

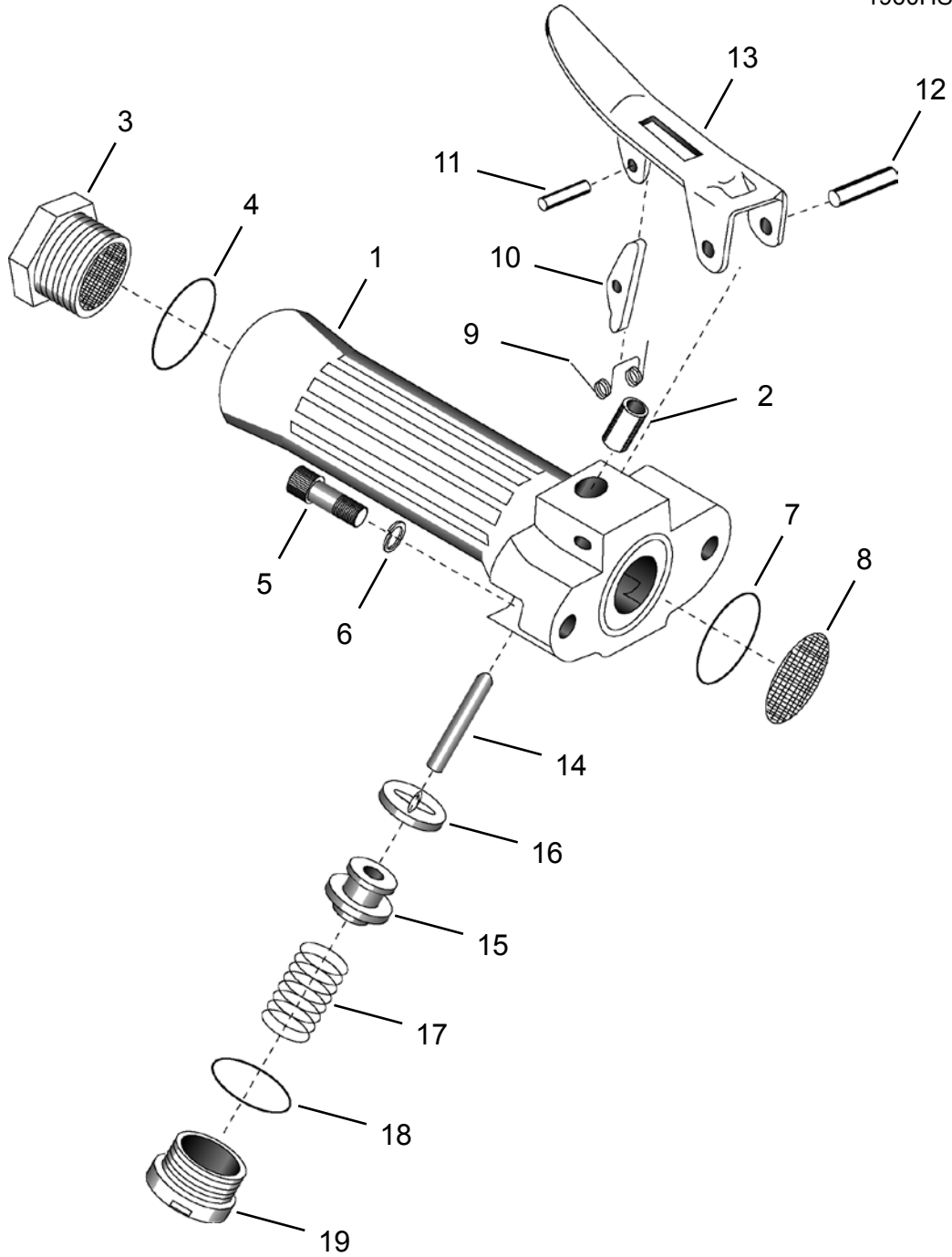
Check the free speed of the tool with a dependable tachometer with the grinding wheel removed.

To make an adjustment, turn off the air supply and using a 1/8" hex wrench remove the spindle plug. Insert the governor adjustment wrench (867739) to engage the governor adjustment nut. A clockwise adjustment will increase the rpm and a counterclockwise adjustment will decrease the rpm.

Replace the spindle plug before turning the air supply on. Check the rated rpm of the tool stamped on the governor housing and set the free speed accordingly.

10.1 Handle - Lock Off Lever

Models
1745HSL
1760HSL
1945HSL
1960HSL



10.1 Handle - Lock Off Lever

Ref	Number	#	X	EN
				Description
--	861896	1		Lever Throttle Handle Assembly (includes Ref. 1-19)
1	869839	1		Throttle Handle (includes Ref. 2)
2	867756	1		Throttle Pin Bushing
3	867758	1		Inlet Adapter
4	867732	1	3	O-Ring (1-1/8 x 1-5/16)
5	813041	2	4	Socket Head Cap Screw (5/16-18 x 1)
6	844912	2	4	Lock Washer
7	844323	1	3	O-Ring (1-1/4 x 1-1/2)
8	867729	1	3	Air Screen
9	864620	1	3	Pawl Spring
10	867731	1		Pawl
11	845322	1		Pawl Pin
12	845228	1		Throttle Lever Pin
13	867769	1		Throttle Lever
14	869429	1		Throttle Pin
15	861009	1		Throttle Valve (includes Ref. 16)
16	869539	1	3	Throttle Valve Seal
17	413056	1	3	Throttle Valve Spring
18	833961	1	3	O-Ring (13/16 x 1)
19	867753	1		Throttle Valve Cap

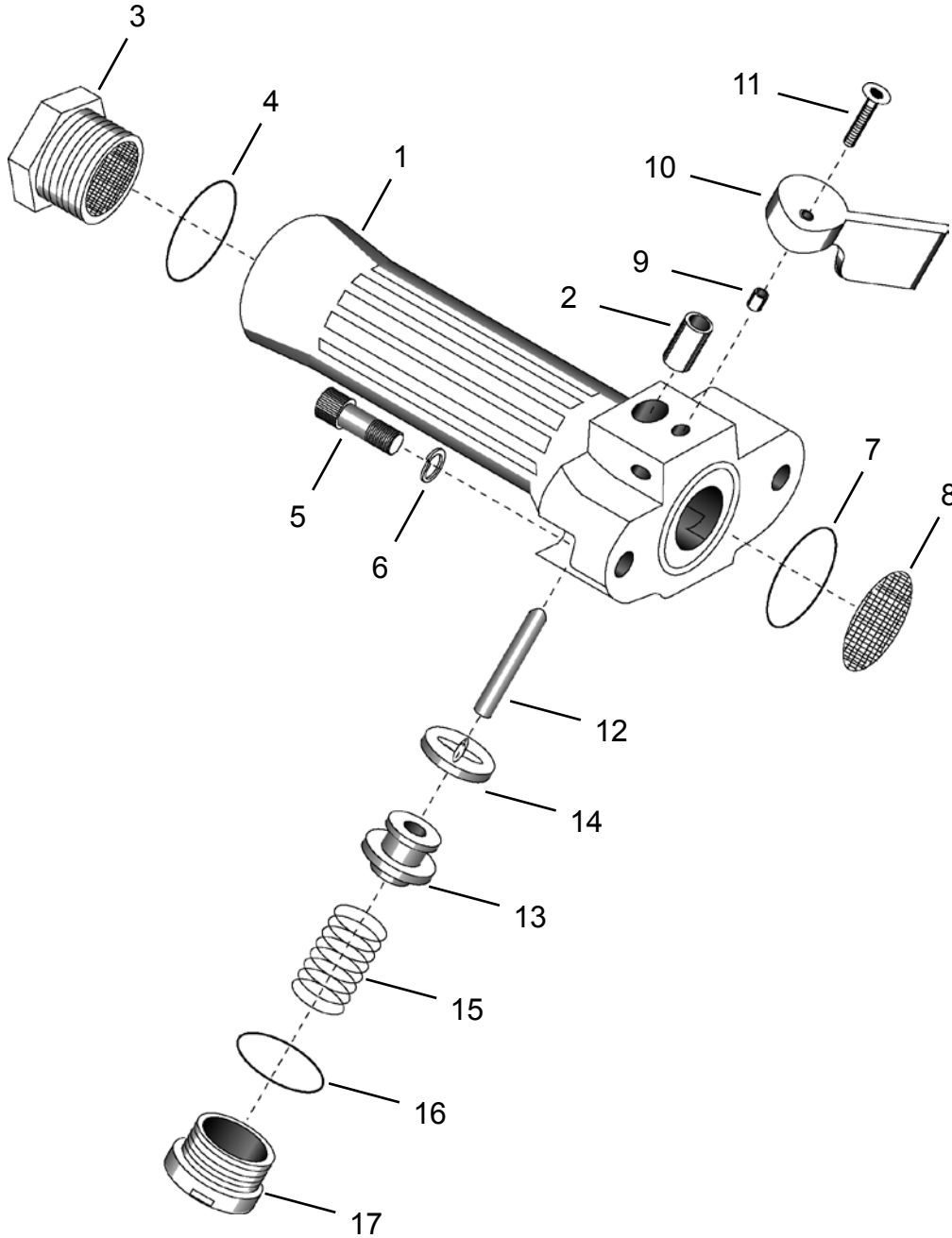
(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

10.2 Handle - Thumb Lever

Models

1745H	1745HS
1760H	1760HS
1945H	1945HS
1960H	1960HS



10.2 Handle - Thumb

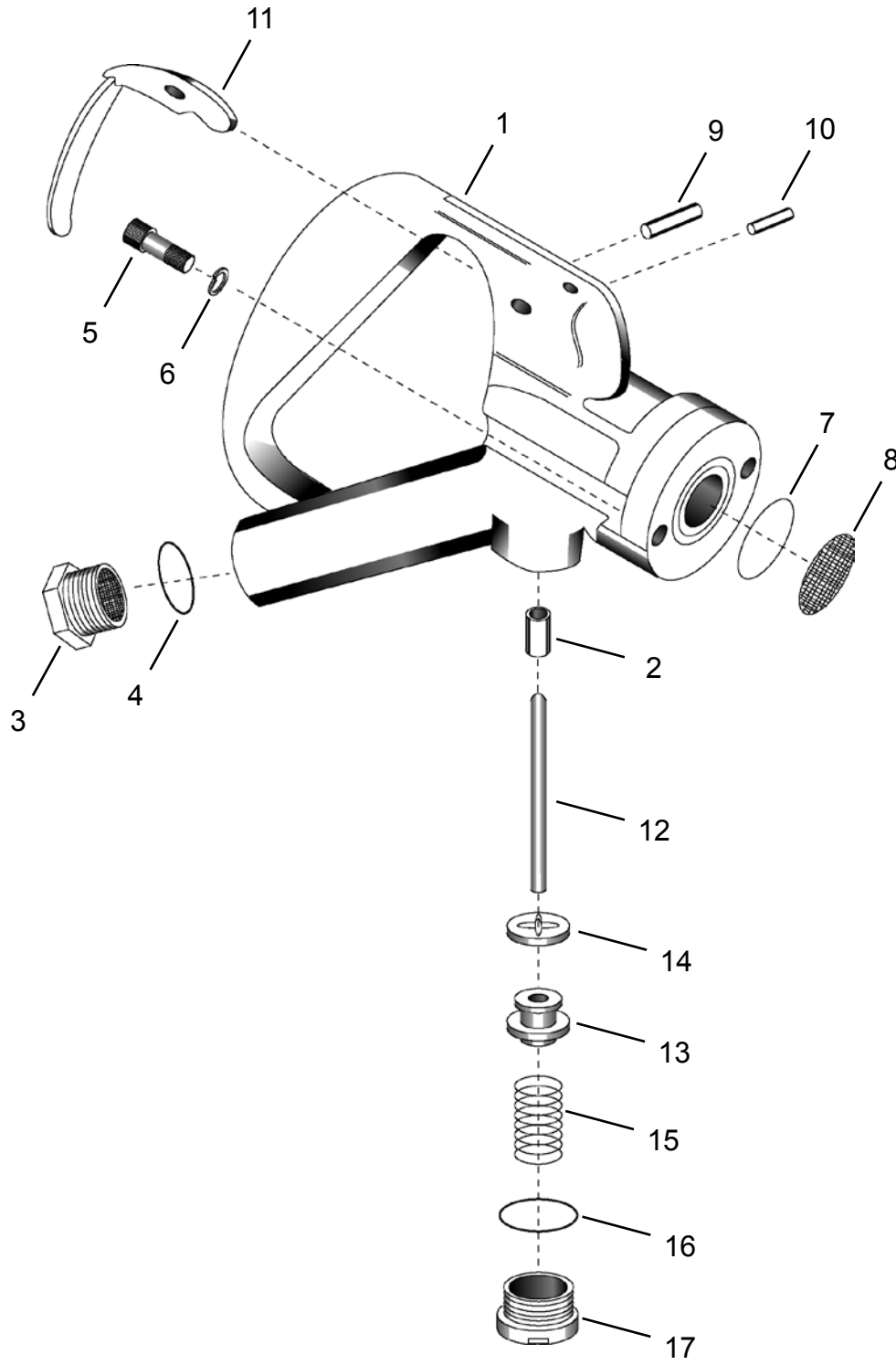
Ref	Number	#	X	EN
				Description
--	861898	1		Thumb Throttle Handle Assembly - Self Closing (includes Ref. 1-17)
	861897	1		Thumb Throttle Handle Assembly - Quick Release (includes Ref. 1-17)
1	869838	1		Throttle Handle (includes Ref. 2)
2	867756	1		Throttle Pin Bushing
3	867758	1		Inlet Adapter
4	867732	1	3	O-Ring (1-1/8 x 1-5/16)
5	813041	2	4	Socket Head Cap Screw (5/16-18 x 1)
6	844912	2	4	Lock Washer
7	844323	1	3	O-Ring (1-1/4 x 1-1/2)
8	867729	1	3	Air Screen
9	413255	1	3	Lever Bushing
10	415330	1		Thumb Throttle - Self Closing
	867768	1		Thumb Throttle - Quick Release
11	883729	1	3	Throttle Lever Screw
12	867755	1		Throttle Pin
13	861009	1		Throttle Valve (includes Ref. 14)
14	869539	1	3	Throttle Valve Seal
15	413056	1	3	Throttle Valve Spring
16	833961	1	3	O-Ring (13/16 x 1)
17	867753	1		Throttle Valve Cap

(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

10.3 Handle - Spade

Models
1745HG
1760HG
1945HG
1960HG
1980HG



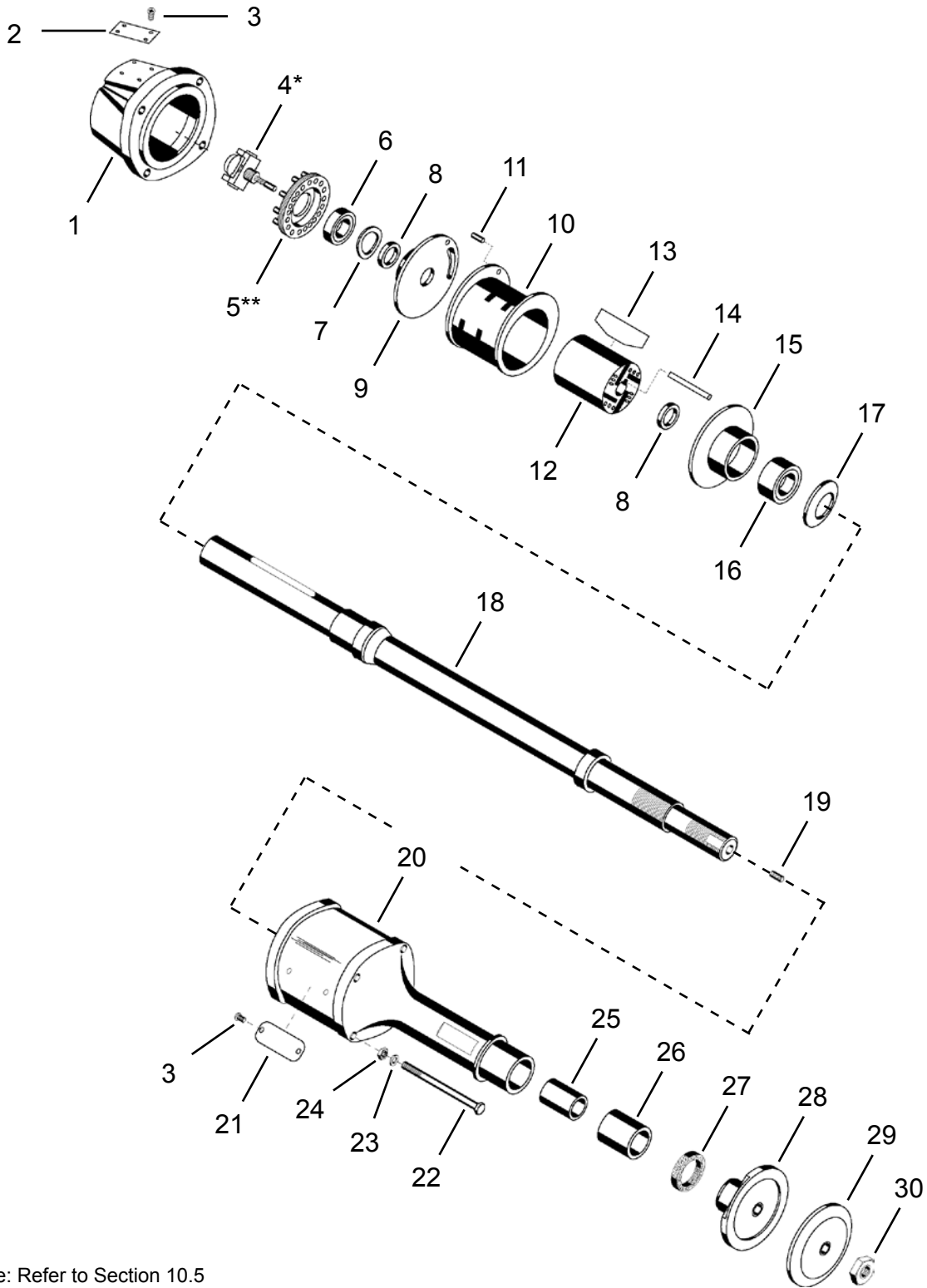
10.3 Handle - Spade

Ref	Number	#	X	EN
				Description
--	861566	1		Spade Handle Assembly (includes Ref. 1-17)
1	867803	1		Throttle Handle (includes Ref. 2)
2	867756	1		Throttle Pin Bushing
3	867758	1		Inlet Adapter
4	867732	1	3	O-Ring (1-1/8 x 1-5/16)
5	813041	2	4	Socket Head Cap Screw (5/16-18 x 1)
6	844912	2	4	Lock Washer
7	844323	1	3	O-Ring (1-1/4 x 1-1/2)
8	867729	1	3	Air Screen
9	864195	1		Throttle Lever Pin
10	812977	1		Lever Stop Pin
11	864582	1		Spade Throttle Lever
12	867793	1		Throttle Pin
13	861009	1		Throttle Valve (includes Ref. 14)
14	869539	1	3	Throttle Valve Seal
15	413056	1	3	Throttle Valve Spring
16	833961	1	3	O-Ring (13/16 x 1)
17	867753	1		Throttle Valve Cap

(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

10.4 Motor and Housing Assembly



* Note: Refer to Section 10.5

** Note: Refer to Section 10.6

10.4 Motor and Housing Assembly

Ref	Number	#	X	EN
				Description
1	869529	1		Governor Housing (includes Ref. 2-3)
2	203208	1	2	Instruction Plate
3	202020	6	12	Drive Screw
4	Illustration 10.5	1		Governor Assembly
5	Illustration 10.6	1		Overspeed Shut-Off Disc
6	869820	1	2	Rear Rotor Bearing
7	863925	1		Wave Washer
8	867749	2		Rotor Collar (.1515"-.1510")
	869601	2		Rotor Collar (.1500"-.1495")
	869600	2		Rotor Collar (.1485"-.1480")
9	869819	1		Rear Bearing Plate
10	Table 10.4	1		Cylinder (includes Ref. 11)
11	847548	1	2	Cylinder Pin
12	Table 10.4	1		Rotor
13	Table 10.4	4	12	Rotor Blade
14	412967	1	1	Rotor Key
15	869814	1		Front Bearing Plate
16	869818	1	2	Front Rotor Bearing
17	869817	1	2	Spring Washer
18	Table 10.4	1		Output Spindle
19	612211	1		Spindle Plug
20	Table 10.4	1		Motor Housing
21	203011	1	2	Warning Tag
22	Table 10.4	4		Housing Bolt
23	844287	4		Lock Washer
24	842341	4		Hex Nut
25	867788	1		Bearing Race
26	867789	1	2	Needle Bearing
27	867790	1	2	Dust Shield
28	867799	1		2" O.D. Driving Flange (6" x 1" x 5/8" Wheel Size)
	867818	1		3" O.D. Driving Flange (8" x 1" x 5/8" Wheel Size)
	202005	1		3" O.D. Driving Flange (8" x 1" x 1" Wheel Size)
29	847047	1		2" O.D. Outer Flange (6" Wheel Size)
	842724	1		3" O.D. Outer Flange (8" Wheel Size)
30	843846	1	2	Spindle Nut (5/8-11 NC)

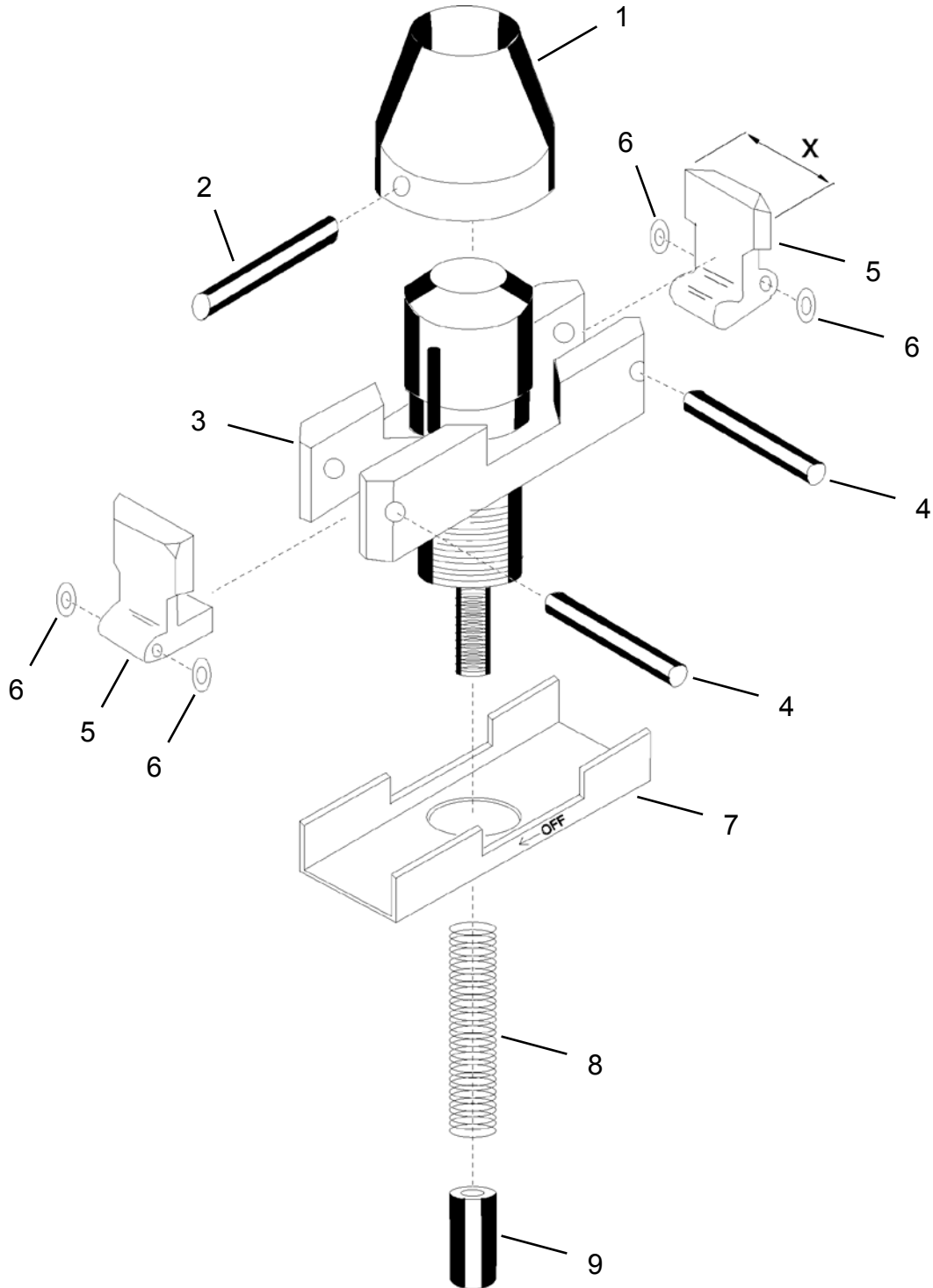
(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

Table 10.4

Ref.	Description	#	1700 Series	#	1900 Series
10	Cylinder	1	867776	1	867825
12	Rotor	1	867742	1	867826
13	Rotor Blade	4	867744	4	867821
18	Output Spindle	1	869824	1	869828
20	Motor Housing	1	869825	1	869826
22	Housing Bolt	4	867794	4	867828

10.5 Governor Assembly



10.5 Governor Assembly

Ref	Number	#	X	EN
				Description
--	Table 10.5	1		Governor Assembly (Includes Ref. 1-xx)
1	413048	1		Governor Cone
2	413047	1		Governor Cone Pin
3	869099	1		Governor Spider
4	413050	2		Governor Weight Pin
5	Table 10.5	2		Governor Weight
6	204187	4	8	Washer
7	867770	1		Governor Pin Retainer
8	Table 10.5	1	3	Governor Spring
9	867767	1		Governor Adjusting Nut

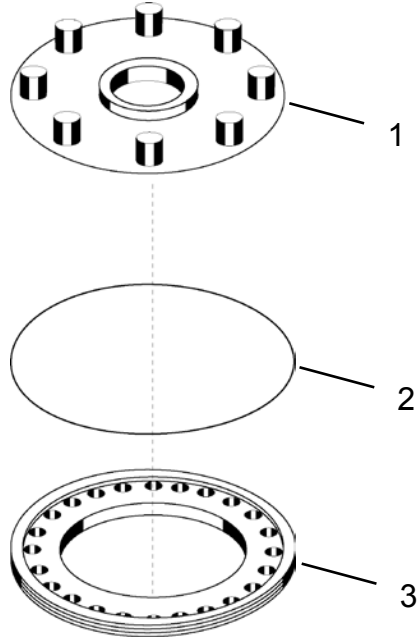
(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

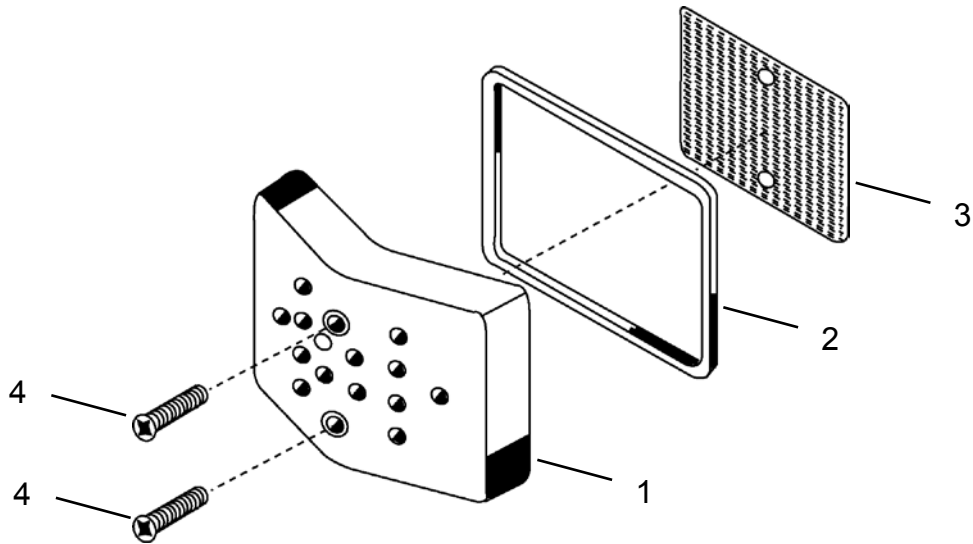
Table 10.5

Ref.	Description	#	4500 RPM	#	6000 RPM	#	8000 RPM
--	Governor Assembly	1	861545	1	861546	1	861547
5	Governor Weight	2	413270	2	413270	2	413210
	Dimension X		3/4"		3/4"		1/2"
8	Governor Spring	1	413041	1	413042	1	413041
	Spring Color		Green		None		Green

10.6 Overspeed Shut Off Disc



10.7 Muffler (Optional Equipment)



10.6 Overspeed Shut Off Disc

Ref	Number	#	X	EN
				Description
1	869834	1		Overspeed Shut Off Disc (4500 RPM)
	869835	1		Overspeed Shut Off Disc (6000 RPM)
	869837	1		Overspeed Shut Off Disc (8000 RPM)
2	865520	1	3	O-Ring (2-1/4 x 2-3/8)
3	867765	1		Disc Seal Plate

(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

10.7 Muffler (Optional Equipment)

Ref	Number	#	X	EN
				Description
1700 Series Grinders				
--	861996	1		Muffler Assembly (includes Ref. 1-4)
1	202113	1		Muffler (includes Ref. 2)
2	867947	1	2	Muffler Gasket
3	867945	1		Baffle Plate
4	202112	2	4	Self Tapping Screw
1900 Series Grinders				
--	861997	1		Muffler Assembly (includes Ref. 1-4)
1	202114	1		Muffler (includes Ref. 2)
2	867948	1	2	Muffler Gasket
3	867943	1		Baffle Plate
4	202112	2	4	Self Tapping Screw

(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

11 Technical data

11.1 1700 and 1900 Series Specifications

Model Number	Rated HP	Throttle Type	Housing	Free Speed (rpm)	Abrasives Capacity	Length		Weight		Arbor/Spindle Size	Air Inlet Size
						in	mm	lbs	kg		
1745HSL	2.7	Lock Off Lever	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	19.6	498	15.4	7.0	5/8"	1/2"
1745HS	2.7	Self Closing Thumb	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	19.6	498	15.4	7.0	5/8"	1/2"
1745H	2.7	Quick Release Thumb	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	19.6	498	15.4	7.0	5/8"	1/2"
1745HG	2.7	Spade	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	20.1	511	16.4	7.4	5/8"	1/2"
1760HSL	3.1	Lock Off Lever	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	19.6	498	14.5	6.6	5/8"	1/2"
1760HS	3.1	Self Closing Thumb	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	19.6	498	14.5	6.6	5/8"	1/2"
1760H	3.1	Quick Release Thumb	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	19.6	498	14.5	6.6	5/8"	1/2"
1760HG	3.1	Spade	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	20.1	511	15.5	7.0	5/8"	1/2"
1945HSL	3.7	Lock Off Lever	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	20.9	530	16.6	7.5	5/8"	1/2"
1945HS	3.7	Self Closing Thumb	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	20.9	530	16.6	7.5	5/8"	1/2"
1945H	3.7	Quick Release Thumb	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	20.9	530	16.6	7.5	5/8"	1/2"
1945HG	3.7	Spade	Steel	4500	8" x 1" x 5/8" (8" wheel guard)	21.4	543	17.6	8.0	5/8"	1/2"
1960HSL	4.1	Lock Off Lever	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	20.9	530	15.7	7.1	5/8"	1/2"
1960HS	4.1	Self Closing Thumb	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	20.9	530	15.7	7.1	5/8"	1/2"
1960H	4.1	Quick Release Thumb	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	20.9	530	15.7	7.1	5/8"	1/2"
1960HG	4.1	Spade	Steel	6000	6" x 1" x 5/8" (6" wheel guard)	21.4	543	16.7	7.6	5/8"	1/2"
1980HG	4.1	Spade	Steel	8000	6" x 1" x 5/8" (6" wheel guard)	21.4	543	16.7	7.6	5/8"	1/2"

12 Service

12.1 Replacement parts

NOTE



Use only original Cleco replacement parts. Failure to comply can result in reduced power and increased service requirements. The tool warranty may be voided if replacement parts are not manufactured or approved by Apex Tool Group.

12.2 Tool repairs

Only qualified and trained personnel are to repair this equipment.

12.3 Warranty repairs

All warranty repairs are to be performed by an authorized Apex Tool Group service center. Contact your local representative for assistance with warranty repair claims.

13 Disposal

CAUTION!

Injuries and environmental damage from improper disposal.



Components and auxiliary materials of the tool pose risks to health and the environment.

- Capture auxiliary materials (oils, greases) when drained and dispose of them properly.
- Separate the packaging components and dispose of them properly.
- Comply with all applicable local regulations.



Observe local disposal guidelines for all components of this tool and its packaging.

Sales & Service Centers

Note: All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

Detroit, MI
**Apex Tool Group
Sales & Service Center**
2630 Superior Court
Auburn Hills, MI 48326
Tel: 248-391-3700
Fax: 248-391-7824

Houston, TX
**Apex Tool Group
Sales & Service Center**
6550 West Sam Houston
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Houston, TX 77041
Tel: 713-849-2364
Fax: 713-849-2047

Lexington, SC
Apex Tool Group
670 Industrial Drive
Lexington, SC 29072
Tel: 800-845-5629
Tel: 803-951-7544
Fax: 803-358-7681

Los Angeles, CA
**Apex Tool Group
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15503 Blackburn Avenue
Norwalk, CA 90650
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Fax: 562-802-1718

Seattle, WA
**Apex Tool Group
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2865 152nd Avenue N.E.
Redmond, WA 98052
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Fax: 425-497-0496

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**Apex Tool Group
Sales & Service Center**
3990 East Market Street
York, PA 17402
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