

Equalizer® Oscillating Auto Glass Removal Tools

OPERATIONS SPECIFICATIONS FOR:
ESM517 • Equalizer® Raven™
ESM519 • Equalizer® Falcon™

ENJ147 • ENK148 Equalizer® Ninja™
EGT149 • EGK150 Equalizer® Ninja™ GT
ETS6602 • Equalizer® Timesaver™



COVERS ALL MODELS



All Equalizer® tools are warranted for one year to be free of factory defects. Warranty does not apply to abuse, misuse, or normal wear and tear. We will repair or replace, at our option, any defective part. Tools are repaired and sent back the same day they are received.

If you feel your tool is covered under warranty, the entire tool, including all blades, must be returned to:

EQUALIZER INDUSTRIES, INC.
2611 OAKMONT DRIVE
ROUND ROCK, TEXAS 78665

If you want a tool repaired, but are not seeking to have it repaired under warranty, we require that you return the complete tool including the blades.

Equalizer Industries, Inc., reserves the right to refuse to repair, at our expense, any tool which has not been properly maintained as specified in the Users Guide. Particularly important are the following:

1. KEEP THE BLADES SHARP!!!! This is the one thing most technicians WILL NOT do and it WILL damage the tool.
2. Use a cutting lubricant. If you are using the short cut method (not recommended by anyone anymore) use only clean water as a cutting lubricant.
3. DO NOT HIT THE PINCHWELD. THIS WILL DESTROY THE DRIVE MECHANISM OF YOUR TOOL.

If you have any questions about your tool, call us toll free at 800.334.1334 or fax us at 512.388.4188

EQUALIZER® SERIAL NUMBER _____
KEEP THIS FOR YOUR RECORDS

Cut Along Dotted Line To Detach.



2611 OAKMONT DRIVE
ROUND ROCK, TEXAS 78665

WARRANTY REGISTRATION

Please PRINT clearly and fill in all of the blanks.
Place in envelope and mail to address on right.

TOOL SERIAL # _____

TOOL TYPE: ESM517 ESM519 ENJ147 ENK148 EGT149 EGK150 ETS6602

DATE YOU PURCHASED THIS TOOL _____

YOUR COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

TELEPHONE NUMBER () _____

YOUR NAME _____

YOUR POSITION _____

PURCHASED FROM _____

THEIR ADDRESS _____

CITY, STATE, ZIP _____

NOTES



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Air-Powered Oscillating Auto Glass Removal Tool Users Guide ESM517



Air-Powered Oscillating Auto Glass Removal Tool Users Guide ESM519



Equalizer® Raven™

A very popular tool in many auto glass shops, these knives cut along flush-mounted, or encapsulated urethane set auto glass. A powerful motor and supporting ball bearings make it a long-lasting tool. It features 20,000 oscillations per minute for fast cutting action.

Proper Tool Use

With the cutting area properly lubricated, start the tool just before you introduce the blade to the urethane. As you plunge into the urethane, work the tool from side to side in either direction. It is best to cut in small increments, allowing yourself to reposition, keeping you safe in your work space.





Equalizer® Falcon™

The Equalizer® Falcon™ features 20,000 oscillations per minute for fast cutting action. The blade's oscillating shaft is supported by dual bearings that are super heavy-duty. The motor is larger and more powerful than standard auto glass adhesive knives. The unique design of the end plate allows for more airflow, which produces a smoother-running, more powerful tool. The Equalizer® Falcon™ comes with a safety throttle to prevent accidental starting of the tool, and an 18" muffler makes it one of the quietest tools on the market today.

Proper Tool Use

With the cutting area properly lubricated, start the tool just before you introduce the blade to the urethane. As you plunge into the urethane, work the tool from side to side in either direction. It is best to cut in small increments, allowing yourself to reposition, keeping you safe in your work space.



Vibration information

The speed of the Equalizer® Raven™ and Falcon™ when they are under no load at all, is 22,000 strokes per minute at an air pressure of 7 bar (101.52 PSI). Depending on the density and thickness of the material being cut, the speed can vary from 1000 strokes per minute to up to 21,990 strokes per minute.

It is the recommendation of Equalizer Industries, Inc., that these tools not be used without wearing full-fingered anti-vibration gloves that have Sorbothane® padding in the palm and Gel-Foam in the thumb, thumb joint, and all fingers. Gloves of this style are available from many manufacturers, including Equalizer.

It is further recommended that these tools be used in such a way that they are in continual use for no more than 15 minutes. After each 15 minutes of tool use, the operator should refrain from using the tool for 20 minutes. It is not acceptable to use the tool for 30 minutes and then refrain from using it for 40 minutes. Usage must be in 15 minutes-on and 20-minutes-off cycles. The off cycle can, of course, exceed 20 minutes, but under no circumstances should the on cycle exceed 15 minutes.

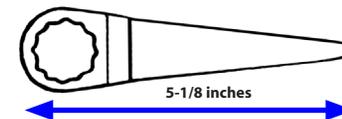
Changing the Blade

When changing the blade in your oscillating tool, always wear safety glasses and gloves. Securely hold the tool upside down with the blade facing away from you. Use the hex key provided to loosen/tighten the blade retaining screw and change out the blade.

Some manufacturers make extremely long blades that can be put on our oscillating tools. These long blades produce so much leverage against the bearing that they will destroy the bearing in our tools, sometimes within minutes! Never use these blades in our oscillating tools. The use of one of these longer blades for any period of time voids your warranty!



Never use a blade longer than 5-1/8 inches.



WARNING

Do Not exceed 90 PSI. Doing so will damage tool and void warranty.

Safety Precautions

- Always wear safety goggles.
- Do not change a blade or work on the blade until the tool has been disconnected from the air source.
- Be sure your footing is secure. Do not work in wet or slippery conditions.
- After use, always disconnect the air supply from the tool.
- After using any air tool, put a few drops of oil in the tool and run for a burst of 1 second.
- Never exceed 7 bar (101.51 PSI) of air pressure when using these tools.
- Use an air source that will regulate the pressure and remove moisture from the air.



Equalizer® Talon™ Depth Control Oscillating Blades

Each blade is formed in such a way that the vertical part of the bend will ride against the urethane and not go through it. These Equalizer® brand blades will fit on all oscillating tools (except Ninja™).

- 51860 • Cuts 1/2" Deep
- 51861 • Cuts 3/4" Deep
- 51862 • Cuts 1" Deep
- 51863 • Cuts 1-1/4" Deep
- 51864 • Cuts 1-1/2" Deep
- 51865 • Cuts 2" Deep



Equalizer® Talon™ Dual-Sharpended Oscillating Blades

Some manufacturers of oscillating tools recommend that their tools be used with a blade that is sharpened on both sides. They believe it is easier for the blade to cut through the center of the urethane if it does not rub against the glass. For these users, we offer these high-quality stainless steel blades.

- 51844 • 3-3/4" Long • Cutting Part 2" Long
- 51845 • 5" Long • Cutting Part 2-1/4" Long
- 51846 • 5-1/2" Long • Cutting Part 2-1/2" Long



Standard Sharpened Powered Cold Knife Blades

Our blades are made of hardened carbon steel and are bent the same way a regular cold knife blade is bent. They cut urethane by thrusting forward into the urethane and backwards away from the urethane as you pull the oscillating tool forward.



- 51847 • Powered cold knife blade, 3/4" long
- 51848 • Powered cold knife blade, 1" long
- 51849 • Powered cold knife blade, 1-1/2" long

Reverse Sharpened Powered Cold Knife Blades

These blades are sharpened in a reverse direction from regular cold knife blades. Some, very difficult to remove, back glasses can be cut out with a powered cold knife blade, but it must be sharpened in this reverse direction. Perfect for any time you want to cut close to the pinchweld.



- 51841 • Powered cold knife blade, 3/4" long
- 51842 • Powered cold knife blade, 1" long
- 51843 • Powered cold knife blade, 1-1/2" long

Equalizer® Talon™ Oscillating Blades

These high-quality blades are made of flexible stainless steel, so they will flex before they break. This ability acts as a warning. When you see the blade start to flex, you know it is time to back-off and decrease the amount of pressure. The blades are flat on one side so they will ride against the glass and cut the urethane at the point of least resistance. These features have made Equalizer® Talons™ the most used oscillating blades in the world.

 51852 Straight non-offset cutting blade, cutting part 1-1/8"	 51866 Curved cutting blade, cutting part 1-1/2"	 51850 Pinchweld scraper, 1/2" wide
 51851 Straight offset cutting blade, cutting part 2-1/8"	 51855 Hooked blade, cutting part 3/4"	 51857 Hooked blade, cutting part 1-1/2"
 51853 Curved offset cutting blade, cutting part 2-1/8"	 51858 Hooked blade, cutting part 2-1/2"	 51859 Hooked blade, cutting part 3-1/2"
 51854 Straight offset cutting blade, cutting part 2"	 <div style="border: 2px solid yellow; padding: 5px; display: inline-block;"> Blades on pages 8-9 fit all Equalizer® Oscillating Tools EXCEPT for the Ninja™ & Ninja™ GT </div>	



Air-Powered Cold Knife Users Guide ENJ147 • ENK148



Air-Powered Cold Knife Users Guide EGT149 • EGK150

Equalizer® Ninja™ & Ninja™ GT

The Equalizer® Ninja™ & Ninja™ GT have the look and feel of cold knives, but cut with the power of 22,000 cutting strokes per minute. As you pull the Equalizer® Ninja™ & Ninja™ GT along, they are retracting and then thrusting into the urethane at an astonishing rate of 367 times per second.

Proper Tool Use

When cutting, be sure to always wear safety glasses and gloves. Start by spraying clean water around the edges of the glass. This will work as a cutting lubricant and make the blade cut easier and faster. **Always perform cutting with the Ninja™ & Ninja™ GT from the outside of the vehicle.**

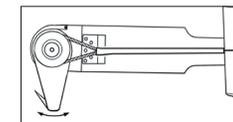


When using a regular cold knife technicians are taught to hold the tool back at about a 5° angle so it will scrape the bottom edge of the glass. This is something you cannot do with the Ninja™ & Ninja™ GT. **Always hold the tool at a 90° angle to the glass.** Failure to do this can cause the glass to break each time the blade comes forward. If the blade comes forward and impacts the glass you will not get a long life out of each blade. Let the tool do the work. It is not necessary to pull hard on the Ninja™ & Ninja™ GT. **The pull handle is intended to guide the tool, not pull the tool.**



Correct Incorrect Incorrect

In cases of extremely wide urethane you should use a short blade for the first cut and then use a longer blade to finish the cut. Should the tool stop cutting, make a quick back-and-forth motion of about 1/2". You may need to repeat this motion quickly a couple of times.



To go under objects such as the hood, trunk lid or an outside visor, the blade will swivel making the overall height of the tool much shorter.

Reverse Sharpened Ninja™ Blades

These blades are sharpened in a reverse direction. This design is perfect for cutting out those difficult to remove back glasses or any time you want to cut close to the pinchweld.

URS886 • 3/4" Blade

URO887 • 1" Blade

URL888 • 1-1/2" Blade



These blades will only fit the Ninja™ & Ninja™ GT

Ninja™ Blades

These blades are made especially for the Ninja™ tool and designed to withstand the power produced by the back and forth motion of the air tool. Made of hardened spring steel.

ENT840 • 3/4" Blade

ENO841 • 1" Blade

ENL842 • 1-1/2" Blade



These blades will only fit the Ninja™ & Ninja™ GT

Installing And Removing The Pull Handle & Blade

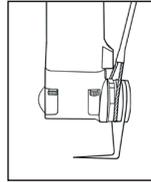
To install the handle just slide it over the blade mount with the blade not installed. The handle rides in a groove cut into the back part of the blade mount. The location of the pull handle simulates the mounting position of a pull handle on a regular cold knife. After you have installed the handle, you can put a blade in the tool. Be sure to install the blade as shown below.

Ninja™ Pull Handle

With extended use the pull handle can wear out. Replacement handles are available.



3307



Blades installed as shown.

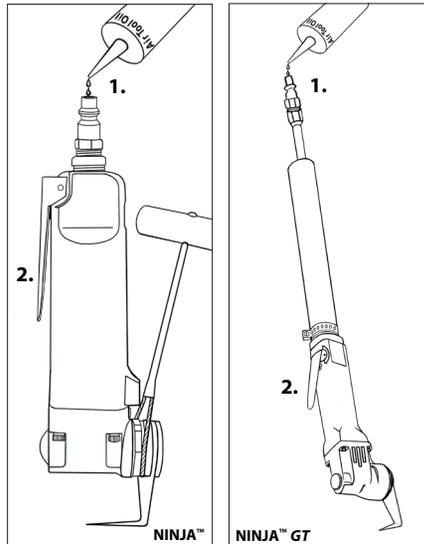
WARNING

Do Not exceed 90 PSI. Doing so will damage tool and void warranty.

Safety Precautions

- Always wear safety goggles.
- Do not change a blade or work on the blade until the tool has been disconnected from the air source.
- Be sure your footing is secure. Do not work in wet or slippery conditions.
- After use, always disconnect the air supply from the tool.
- After using any air tool, put a few drops of oil in the tool and run for a burst of 1 second.
- Never exceed 7 bar (101.51 PSI) of air pressure when using these tools.
- Use an air source that will regulate the pressure and remove moisture from the air.

OIL TOOL AFTER EVERY USE



1. Put a few drops of oil in the air intake valve
2. Depress Throttle



Equalizer®
Timesaver™

Air-Powered Oscillating Auto Glass Removal Tool Users Guide ETS6602

Equalizer® TimeSaver™

The Equalizer® TimeSaver™ heavy-duty oscillating auto glass cut-out knife was designed to power TimeSaver™ Blades. It has heavy-duty aircraft bearings in all critical points. The yoke has been thickened and widened so it will withstand the extreme stress put on it by the longer blades. Most manufacturers, including Equalizer Industries, Inc., do not recommend using a blade longer than 5" in their oscillating tools. None of the tools are designed to take the stress of these long blades, **except** the Equalizer® TimeSaver™.

Remember: **yellow tool, yellow blades.**

Proper Tool Use

With the cutting area properly lubricated, start the tool just before you introduce the blade to the urethane. As you plunge into the urethane (cutting only from inside the vehicle), work the tool from side to side in either direction. It is best to cut in small increments, allowing yourself to reposition, keeping you safe in your work space.



Vibration Information

The speed of the TimeSaver™, when under no load at all, is 22,000 strokes per minute at an air pressure of 7 bar (101.52 PSI). Depending on the density and thickness of the material being cut, the speed can vary from 1000 strokes per minute to up to 21,990 strokes per minute.

It is the recommendation of Equalizer Industries, Inc., that these tools not be used without wearing full-fingered anti-vibration gloves have Sorbothane® padding in the palm and Gel-Foam in the thumb, thumb joint, and all fingers. Gloves of this style are available from many manufacturers, including Equalizer.

It is further recommended that these tools be used in such a way that they are in continual use for no more than 15 minutes. After each 15 minutes of tool use, the operator should refrain from using the tool for 20 minutes. It is not acceptable to use the tool for 30 minutes and then refrain from using it for 40 minutes. Usage must be in 15 minutes-on and 20-minutes-off cycles. The off cycle can, of course, exceed 20 minutes, but under no circumstances should the on cycle exceed 15 minutes.

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Do Not exceed 90 PSI. Doing so will damage tool and void warranty.

Safety Precautions

- Always wear safety goggles.
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- Be sure your footing is secure. Do not work in wet or slippery conditions.
- After use, always disconnect the air supply from the tool.
- After using any air tool, put a few drops of oil in the tool and run for a burst of 1 second.
- Never exceed 7 bar (101.51 PSI) of air pressure when using this tool.
- Use an air source that will regulate the pressure and remove moisture from the air.

Changing the Blade

When changing the blade in your Equalizer® TimeSaver™ tool, always wear safety glasses and gloves. Securely hold the tool upside down with the blade facing away from you. Use the hex key provided to loosen/tighten the blade retaining screw and change out the blade.



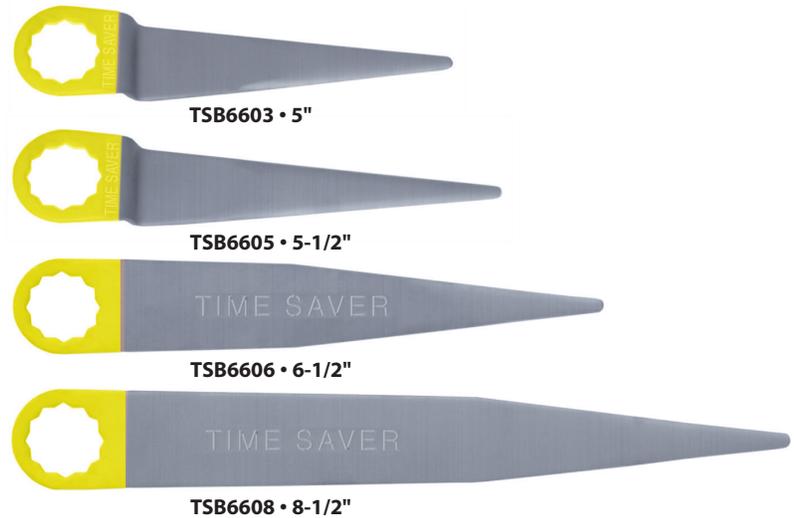
Never use a blade longer than 8-1/2 inches.

Some manufacturers make extremely long blades that can be put on our TimeSaver™ tool. These long blades produce so much leverage against the bearing that they will destroy the bearing in the tool, sometimes within minutes! Never use a blade longer than 8-1/2 inches. The use of one of these longer blades for any period of time voids your warranty!



Equalizer® TimeSaver™ Blades

Because of the leverage put on the bearings and the yoke bar, we do not recommend using these blades in a standard oscillating tool. These blades will cut urethane cleanly from inside the vehicle. They are thinner than most blades on the market, and are made of hardened, stainless steel and can be easily resharpened dozens of times. They are made in the USA.



Blades to be used in the Equalizer® TimeSaver® ONLY!

FOR MORE INFORMATION ABOUT THESE TOOLS
PLEASE CONTACT...



2611 Oakmont Drive
Round Rock, Texas 78665
Telephone: 512.388.7715
Toll Free USA & Canada: 800.334.1334
FAX: 512.388.4188
Email: sales@equalizer.com
Web: www.equalizer.com

ILLUSTRATED PARTS DIAGRAMS FOR ALL MODELS OF THE

**ESM517
Equalizer® Raven™**



**ESM519
Equalizer® Falcon™**



**ENJ147 • ENK148
Equalizer® Ninja™**

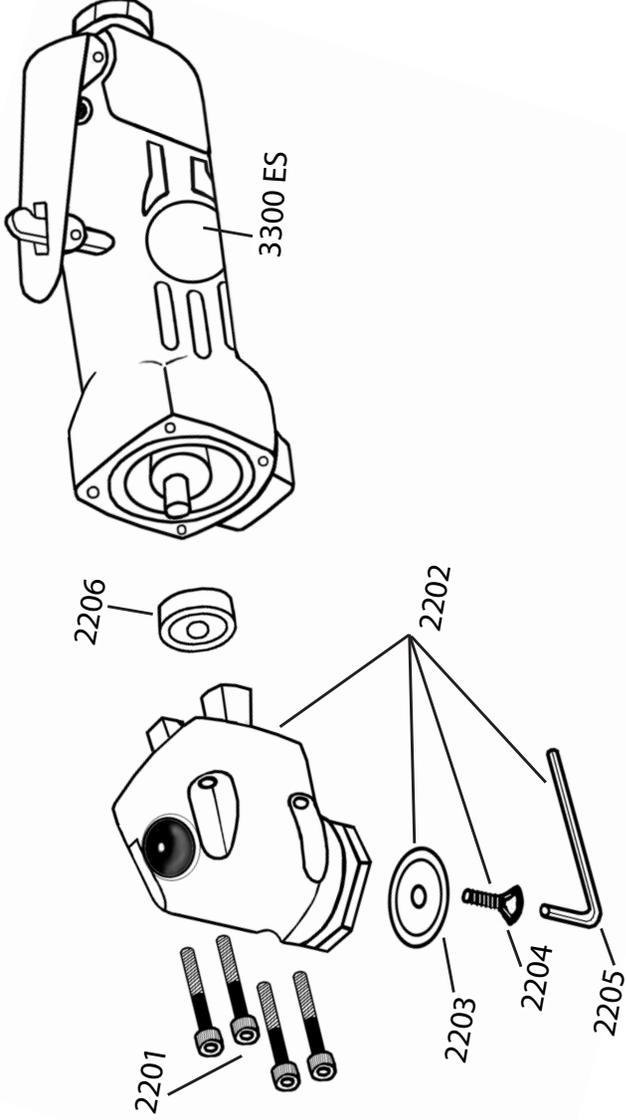


**EGT149 • EGK150
Equalizer® Ninja™ GT**



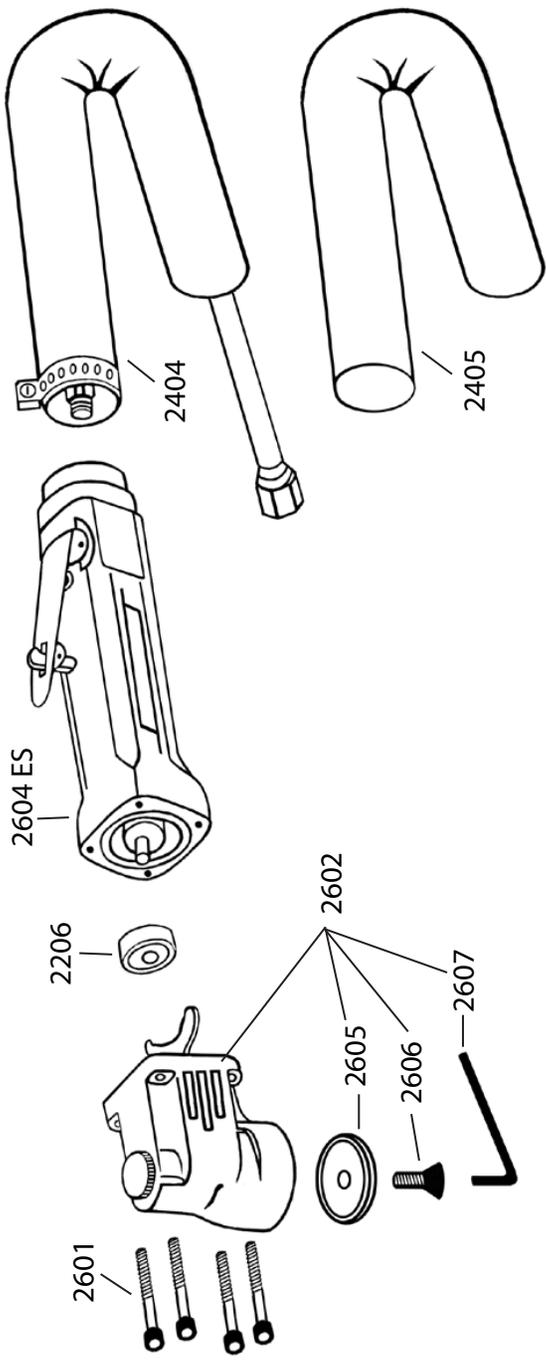
**ETS6602
Equalizer® TimeSaver™**





Part No.	Description	Quantity
2201	Head retaining screws	4
2202	Head assembly (includes numbers 2202, 2203, 2204, 2205)	1
2203	Blade retaining washer	1
2204	Blade retaining screw	1
2205	Hex key	1
2206	Drive bearing	1
3300 ES	Motor - Red	1

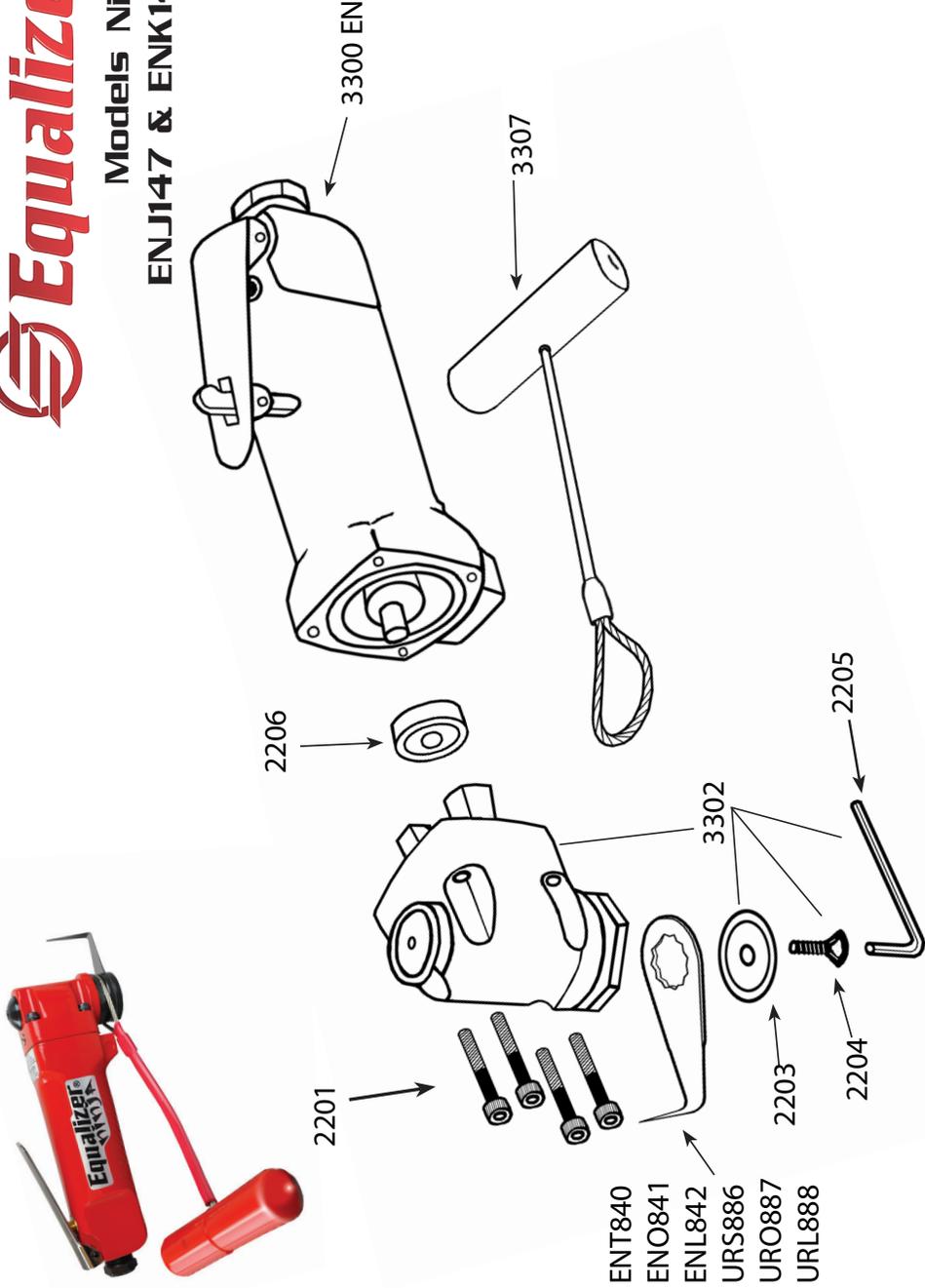
Equalizer[®]
Falcon[™]
Model
ESM519



Part No.	Description	Quantity
2206	Drive bearing	1
2404	Muffler with air hose	1
2405	Muffler without air hose	1
2601	Head retaining screws	4
2602	Head assembly (includes 2602, 2605, 2606, 2607)	1
2604 ES	Motor - Red	1
2605	Blade retaining washer	1
2606	Blade retaining screw	1
2607	Hex key	1

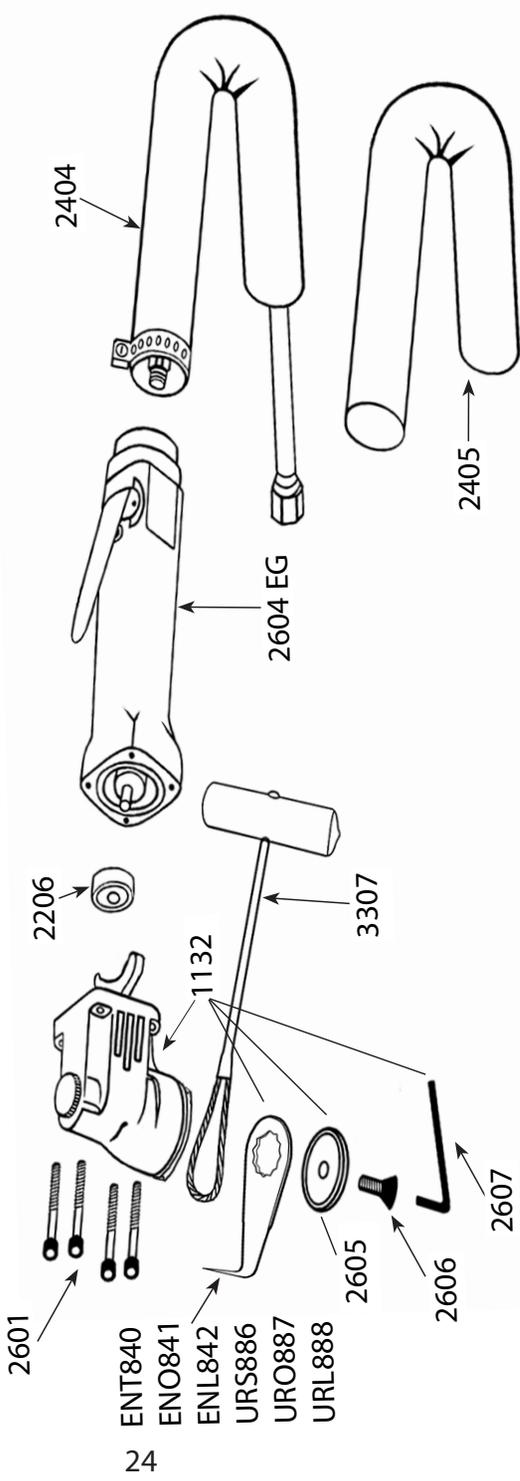


**Models Ninja™
ENJ147 & ENK148**



Part No.	Description	Quantity
2201	Head Retaining Screws	4
2203	Blade Retaining Washer	1
2204	Blade Retaining Screw	1
2205	Hex Key	1
2206	Drive Bearing	1
3300 EN	Motor-Red	1
3302	Head Assembly (includes 3302, 2203, 2204, 2205)	1
3307	Pull handle	1
ENT840	Ninja™ 3/4-inch Blade	1
ENO841	Ninja™ 1-inch Blade	1
ENL842	Ninja™ 1-1/2-inch Blade	1
URS886	Ninja™ 3/4-inch Reverse Sharpened Blade	1
URO887	Ninja™ 1-inch Reverse Sharpened Blade	1
URL888	Ninja™ 1-1/2-inch Reverse Sharpened Blade	1

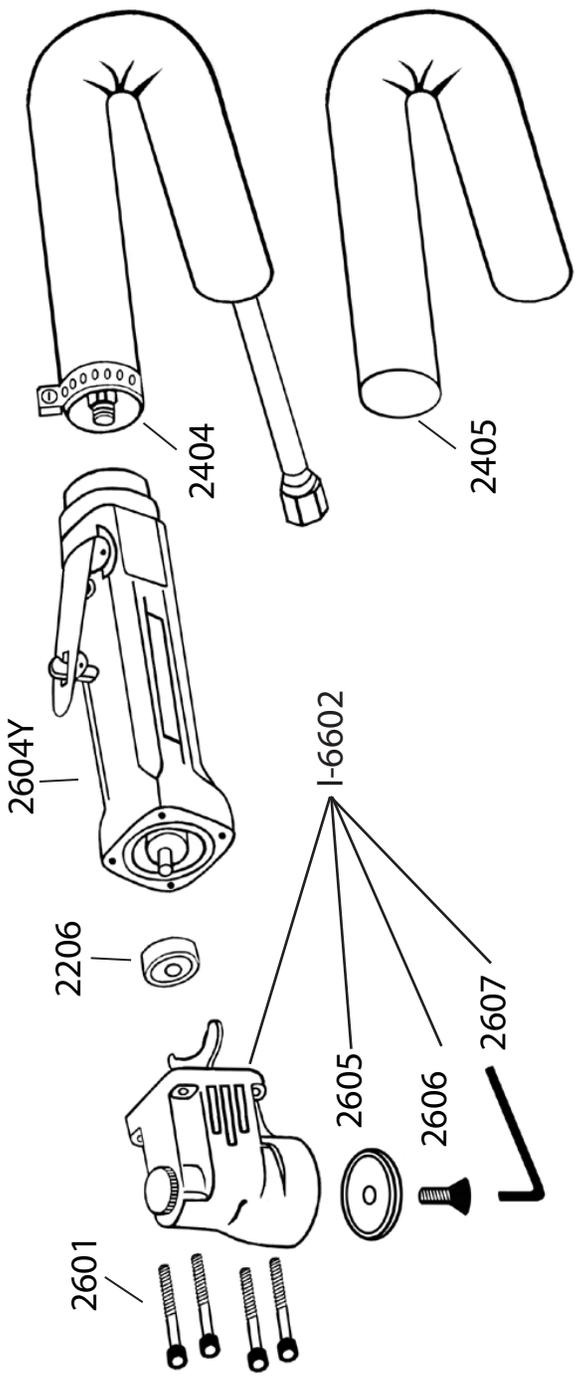
Models EGT149 & EGK150



24

Part No.	Description	Quantity
1132	Head Assembly (includes 1132, 2605, 2606, 2607)	1
2206	Drive Bearing	1
2404	Muffler with Air Hose	1
2405	Muffler without Air Hose	1
2601	Head Retaining Screws	4
2604 EG	Motor-Red	1
2605	Blade Retaining Washer	1
2606	Blade Retaining Screw	1
2607	Hex Key	1
3307	Pull Handle	1
ENT840	Ninja™ 3/4-inch Blade	1
ENO841	Ninja™ 1-inch Blade	1
ENL842	Ninja™ 1-1/2-inch Blade	1
URS886	Ninja™ 3/4-inch Reverse Sharpened Blade	1
URO887	Ninja™ 1-inch Reverse Sharpened Blade	1
URL888	Ninja™ 1-1/2-inch Reverse Sharpened Blade	1

**Model
ETS6602**



Part No.	Description	Quantity
2206	Drive bearing	1
2404	Muffer with air hose	1
2405	Muffer without air hose	1
2601	Head retaining screws	4
2604Y	Motor Assembly - Yellow	1
2605	Blade retaining washer	1
2606	Blade retaining screw	1
2607	Hex key	1
1-6602	Head assembly (includes 2605, 2606, 2607)	1

NOTES



***For Fast & Convenient Shopping -
Please contact your local distributor
about products in their Equalizer® Store***