

GENERAL POWER TOOL SAFETY WARNINGS



Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire, and/or serious injury.

Save all warnings and instructions for future use. The term “power tool” in these instructions refers to a mains-operated (corded) power tool or battery-operated (cordless) power tool.

Use the power tool, accessories, and tool bits in accordance with these instructions. Take into account working conditions and work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.

Work Area Safety



Keep work area clean and well lit. Cluttered or dark areas invite accidents.

Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, and/or dust. Power tools create sparks that may ignite the dust or fumes.

Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control of the tool.

Electrical Safety



Power tool plugs must match the corresponding outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce the risk of electric shock.

Avoid body contact with grounded surfaces like refrigerators, pipes, and radiators when using electric powered tools; this will reduce the likelihood of shock if your body is grounded.

Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

Do not abuse the cord. Never use the cord for carrying, pulling, or unplugging the power tool. Keep the cord away from heat, oil, sharp edges, and/or moving parts. Damaged or entangled cords can increase the risk of electric shock.

When operating a power tool outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.

If operating a power tool in a damp location is unavoidable, use a Residential Current Device (RCD) protected supply. Use of an RCD reduces the risk of electric shock.

Ensure your power supply agrees with the motor nameplate marking. Use alternating current (50-60 cycles) and 120 V. Voltage variation of more than 10% will cause loss of power and overheating.

Personal Safety

Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs,

alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

Use personal protective equipment. Always wear eye protection. Protective equipment such as a dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

Prevent unintentional starting. Ensure the switch is in the off-position before connecting to a power source and/or battery pack. Carrying tools with your finger on the switch or energizing power tools that have the switch on invites accidents.

Remove any adjusting key or wrench before turning the power tool on. A wrench or key left attached to a rotating part of the power tool may result in personal injury.

Do not overreach. Keep proper footing and balance at all times; this enables better control of the power tool in unexpected situations.

Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.

Power Tool Use and Care



Do not force the power tool. Use the correct power tool for your application. The correct power tool will complete the job better and safer at the rate for which it was designed.

Do not use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventive measures reduce the risk of starting the power tool accidentally.

Store idle power tools out of the reach of children, and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.

Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may impact the power tool's operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.

Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

Maintain labels and name plates. These carry important information. If unreadable or missing, contact a *KETT Tool Company* representative.

Service



Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

SYMBOLS



SGS Certification for Canada and the United States



Double Insulated Motor

n_0 XXXX min⁻¹

N_0 Load RPM



Alternating Current

Volts

Ampers

SPECIFICATIONS

Amps	RPM	Power Source	Shear Head Material
5	0-2500	120 V	46-20 Aluminum
Capabilities			
Cold-Rolled Steel		Spiral Pipe, Metal Studs, and Corrugated Metal	
18 Gauge		18 Gauge	

FUNCTIONAL DESCRIPTION



ASSEMBLY

WARNING To reduce the risk of injury, always unplug the power tool before attaching or removing accessories or adjusting. Use only specifically recommended accessories. Others may be hazardous.

Installing the Eccentric Bearing Assembly (41-24) onto the Motor Unit (253-59) Spindle

To install the Eccentric Bearing Assembly (41-24) onto the Motor Unit (253-59) Spindle, make sure the spindle's specific washer/spacer (449893) is inserted over the spindle first, followed by the Large Thin Washer (60-25). Screw the Eccentric Bearing

Assembly against the spacer on the spindle with the wrench flats of the Eccentric Bearing Assembly away from the Motor Unit and spacer. Tighten the Eccentric Bearing Assembly onto the spindle by holding the flats on the end of the spindle and tightening the flats of the Eccentric Bearing Assembly with the appropriate wrench.

Installing the Shear Blades into Shear Housing (42-23)

To install the shear blades into the Shear Housing (42-23) insert the Front Spacer Bushing (92-27-2B) with grease (264-2 or similar) into the Center Blade (46-21L). Position the Side Knife (46-22L), Center Blade, and Side Spacer (46-05) stack into the appropriate location in the slot of the Shear Housing and insert a Cap Screw (92-28) through the front hole of the housing through all parts of the blade stack. If needed, use a punch or pick to help align all of the holes. Begin threading the cap screw into the Knurled Insert (92-31); DO NOT COMPLETELY TIGHTEN.

Position the Rear Spacer Bushing (92-27-1) in the appropriate location between the Side Knife and Side Spacer and then insert a Cap Screw through the middle hole of the housing and all three parts. Begin threading the cap screw into the Knurled Insert (92-31); DO NOT COMPLETELY TIGHTEN. Apply grease (264-2 or similar) in the yoke of the Center Blade where the blade will ride on the Eccentric Bearing Assembly (41-24).

Installing the Shear Head (46-20L) Assembly onto the Motor Unit (253-59)

To install the Shear Head (46-20L) assembly onto the Motor Unit (253-59), make sure all Cap Screws (92-28) are loosened about three or four complete turns. Spread the Shear Housing (42-23) slightly using a spreader (or similar) near the rear hole of the Shear Housing to open the mounting diameter. Slide the spread Shear Housing over the previously installed Eccentric Bearing Assembly (41-24) and onto the Adapter Ring.

Rotate the Shear Head to the desired orientation on the Adapter Ring and release the spreader. Insert a Cap Screw through the rear hole of the Shear Housing. Begin threading the cap screw into the Knurled Insert (92-31); DO NOT COMPLETELY TIGHTEN.

Tighten all three Cap Screws to 45-50 in-lbs in the following order: front, middle, and then rear.

OPERATION

WARNING To reduce the risk of injury, always unplug the power tool before attaching or removing accessories or adjusting. Use only specifically recommended accessories. Others may be hazardous.

To reduce the risk of injury, wear safety goggles or glasses with side shields.

To operate, secure work piece. To start cut, place the Side Knife (46-22L) of the shear slightly on the edge of the top side of the work piece to steady the tool and ready it for the cut. Depress the switch and guide the shear into the work. Do not force the shear. Avoid double thicknesses of material, which exceeds the recommended capacity.

For cutting within the perimeter of work piece, drill a 1/2-in diameter starting hole and follow instructions above. If resistance to the tool develops or cutting becomes difficult, discontinue cutting and check the following: lubrication; thickness of material, and sharpness of cutting blades.

DISASSEMBLY

⚠ WARNING To reduce the risk of injury, always unplug the power tool before attaching or removing accessories or adjusting. Use only specifically recommended accessories. Others may be hazardous.

Removing the Shear Head (46-20L) from the Motor Unit (253-59)

To remove the Shear Head (46-20L) from the Motor Unit (253-59), loosen the three Cap Screws (92-28) and pull the head firmly forward. Slight tapping with a mallet or a spreader may be required if the Shear Head does not slide off easily.

Removing Shear Blades from Shear Head (46-20L)

To remove the shear blades from Shear Head (46-20L), remove the three Cap Screws (92-28) completely from the Shear Housing (42-23). Be careful not to lose the Rear Spacer Bushing (92-27-1) when removing the middle Cap Screw. Remove the Center Blade (46-21L) from the Shear Housing by tapping the blade gently rearward. Be careful not to lose the Spacer Bushing from the hole in the Center Blade. The Side Knife (46-22L) will now drop out of the Shear Housing.

Removing the Eccentric Bearing Assembly (41-24) from the Motor Unit (253-59) Spindle

To remove the Eccentric Bearing Assembly (41-24) from the Motor Unit (253-59) Spindle, use an appropriate wrench to loosen the eccentric nut by turning counterclockwise.

MAINTENANCE

⚠ WARNING To reduce the risk of injury, always unplug the power tool before performing any maintenance. Tool may be cleaned and lubricated by the user, but any other servicing (including the changing of carbon brushes) should be performed by the manufacturer or authorized representative.

Motor

NOTICE This power tool will stop when the brushes wear to a preset length. This prevents damage to the motor.

Motors are factory tested. If the shear does not operate, check the following: supply line for blown fuses and plug and receptacle for contact.

Cable/Cord

The cable/cord is the "life line" of your tool. Keep cable/cord clean by wiping it off occasionally. Keep cable/cord out of oils and greases. Coil cable/cord neatly when not in use and avoid dragging it across sharp surfaces or using it as a handle to lift the tool.

When using the tool at a considerable distance from power source, an extension cable of adequate size must be used to prevent loss of power and overheating.

Extension Cord Length (feet)		
Up to 75	100	Up to 200
18-Gauge Wire	16-Gauge Wire	14-Gauge Wire

Lubrication

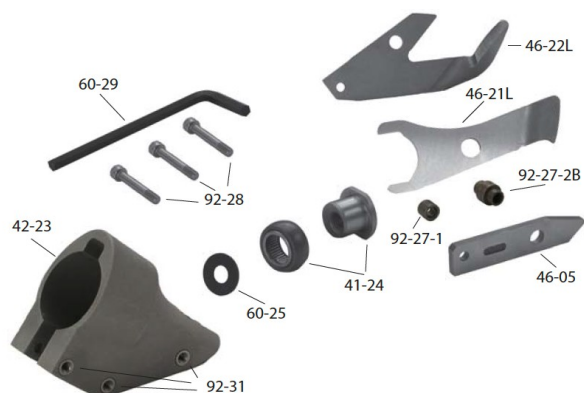
Once every three months, depending upon usage, remove the Shear Head (46-20L) from the Motor Unit (253-59) following the instructions given under the heading "Disassembly." Put a few drops of heavy oil on the Eccentric Bearing Assembly (41-24), so

that it saturates the needle bearing. The outside surface of the eccentric bearing ring should also be greased (264-2 or similar).

Tools that have seen continuous use should also have the gear train lubricated periodically, preferably at the same time the Eccentric Bearing Assembly is serviced. To lubricate the gears, remove the Screws (Item 45 and 58) that hold the Gear Case (Item 24) to the motor shell. Remove the Gear Case from the Gear Case Cover (Item 28) and wipe out the old grease with a cloth. Wash the Gears and Spindles (Item 27 and 55) with kerosene or cleaning fluid. Using standard gear grease, fill the Gear Case ONLY 1/3 full. Never fill the Gear Case more than 1/3 full.

The Ball Bearing (Item 26) in the Gear Case is a closed type bearing and has been permanently lubricated at the factory to last the life of the bearing. This bearing should NEVER be immersed in a solvent or cleaning fluid.

SHEAR HEAD (46-20L) PARTS LIST



Part No.	Qty.	Description
46-21L	1	Center Blade
42-23	1	Shear Housing
41-24	1	Eccentric Bearing Assembly
92-27-2B	1	Front Spacer Bushing
92-27-1	1	Rear Spacer Bushing
92-28	3	Cap Screw
92-31	3	Knurled Insert
46-22L	1	Side Knife
46-05	1	Side Spacer
60-25	1	Thin Washer, Large
60-29	1	Allen Wrench

MOTOR UNIT (253-59) PARTS LIST

Item No.	Part No.	Qty.	Description	Item No.	Part No.	Qty.	Description
1	382299-01	1	Armature & Fan (6 teeth)	24*	388657-00	1	Gear Case
2	176883-00	1	Field	26*	330003-09	1	Ball Bearing
3	176846-02	2	Brush	27	388668-00	1	Spindle & Gear
5	176801-02	1	Left Brush Holder (grey)	28*	176650-00	1	Gear Case Cover
6	176800-02	1	Right Brush Holder (black)	29*	23813-00	1	Fiber Washer
7*	176830-39 621884-04	1	Switch	43	136086-02	4	Terminal
8*	330072-98	1	Cord & Plug (18-2SJ)	45*	330019-14	1	Screw
9*	176950-00	1	Ball Bearing	46	176655-00	1	Gasket
10*	176950-00	1	Ball Bearing	50*	93128-00	2	Needle Bearing
13	396969-09	1	Field Case	54*	93129-00	1	Needle Bearing
14	176899-02	1	Handle Cover	55	176731-00	1	Pinion & Gear (15/37 teeth)
15*	176829-00	1	Cord Clamp	56	176732-00	3	Thrust Washer
16	330005-01	1	Cord Protector	57	143079-00	1	Thrust Washer
17*	330019-13	3	Screw	58*	330019-16	2	Screw
18*	176951-00	2	Screw	61	136086-08	2	Terminal
19*	389824-00	1	Cup	62	176860-00	1	Lead
20	176811-01	1	Baffle	65	449892-00	1	Washer
21	949638-02	2	Rubber Plug	66	449368-00	1	Bearing Cap

***NOTES:**

- (Item 7) Use Switch (176830-39) for tools made before 11-25-2009 and Switch (621884-04) on tools made after 11-25-2009.
- (Item 8 and 15) Cord Clamp should be positioned so that 1-3/16 in (30 mm) of the Cord Jacket extends above the clamp.
- (Item 9) Seal to face commutator. Press to the tubing on the armature shaft.
- (Item 10) To remove from the shaft, place the bearing in a vise and crush outer race. Remove all internal bearing components so that the inner race is all that remains. Use the Small Bearing Separator (SRT320) to clamp the inner race and press off. Bearing presses to shoulder.
- (Item 17, 45, and 58) Torque to 18-23 in-lbs.
- (Item 18) Torque to 13 in-lbs.
- (Item 19) Small diameter end to face commutator. Lightly lubricate before installing into Field Case.
- (Item 26) Press bearing until seated completely in pocket. Rubber seal to face Spindle & Gear assembly.
- (Item 28) Comprised of Item 10 and 50.
- (Item 29) Press into Item 10.
- (Item 54) Press flush with surface facing Spindle & Gear (Item 27) assembly.

