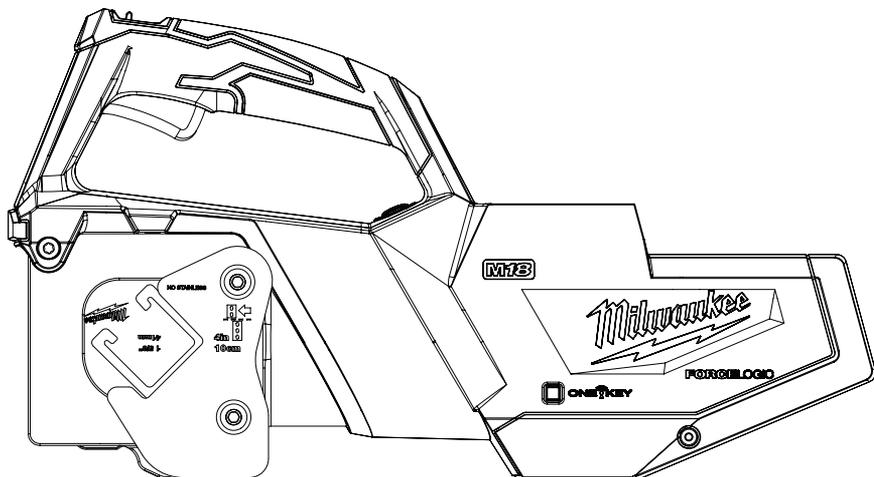




# OPERATOR'S MANUAL



Cat. No.  
**M18 STSO**

**M18™ FORCE LOGIC™ STRUT SHEAR WITH ONE-KEY™**

 **WARNING**

 To reduce the risk of injury, user must read and understand operator's manual.

## GENERAL POWER TOOL SAFETY WARNINGS

**WARNING** Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. **Save all warnings and instructions for future reference.** The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

### 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 or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

### ELECTRICAL SAFETY

- **Power tool plugs must match the 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 risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or 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 cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords 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 residual current device (RCD) protected supply.** Use of a RCD reduces the risk of electric shock.

### 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 power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.

- **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a 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 jewellery. Keep your hair and clothing away from moving parts.** Loose clothes, jewellery 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.
- **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

### POWER TOOL USE AND CARE

- **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do 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 remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety 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 and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect 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.
- **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
- **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

### BATTERY TOOL USE AND CARE

- **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.

- When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.
- Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.
- Do not use a battery pack or tool that is damaged or modified. Damaged or modified batteries may exhibit unpredictable behaviour resulting in fire, explosion or risk of injury.
- Do not expose a battery pack or tool to fire or excessive temperature. Exposure to fire or temperature above 130°C (265°F) may cause explosion.
- Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions. Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.

### 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.
- Never service damaged battery packs. Service of battery packs should only be performed by the manufacturer or authorised service providers.

### SPECIFIC SAFETY RULES FOR STRUT SHEARS

- Do not use tool without dies installed. Fingers could be crushed.
- Keep hands away from clevis and dies while tool is in use. Fingers could be crushed, fractured, or amputated.
- Always wear proper eye protection with side shields, marked to comply with AS/NZS 1337.1 when operating the strut shear.
- Wear gloves when handling steel work pieces to prevent possible injury from sharp edges.
- Wear ear protectors. Exposure to noise can cause hearing loss.
- Inspect and discard workpieces with cracks or wear before use.
- Use tool only with MILWAUKEE® dies for which they are rated. Improper combinations can result in a faulty shear.
- Large forces are generated during product use that can break or throw parts and cause injury. Stand clear during use and wear appropriate protective equipment, including eye protection.

**WARNING** Only use the strut shear head to cut material for which the head/dies are designed. Do not shear stainless steel. Cutting improper material may damage the shear head or result in serious personal injury.

- Chemical Burn Hazard. Keep coin cell battery away from children.

- Always use common sense and be cautious when using tools. It is not possible to anticipate every situation that could result in a dangerous outcome. Do not use this tool if you do not understand these operating instructions or you feel the work is beyond your capability; contact MILWAUKEE® Tool or a trained professional for additional information or training.
- Maintain labels and nameplates. These carry important information. If unreadable or missing, contact a MILWAUKEE® service facility for a replacement.

**WARNING** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paint
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

### READ AND SAVE ALL INSTRUCTIONS FOR FUTURE USE

### ADDITIONAL BATTERY SAFETY RULES

**WARNING** To reduce the risk of fire, personal injury, and product damage due to a short circuit, never immerse your tool, battery pack or charger in fluid or allow a fluid to flow inside them. Corrosive or conductive fluids, such as seawater, certain industrial chemicals, and bleach or bleach-containing products, etc., can cause a short circuit.

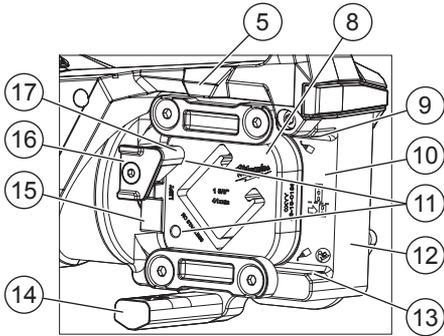
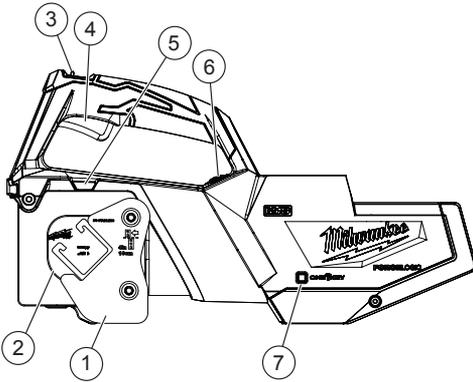
**WARNING** Do not charge non-rechargeable batteries.

### SPECIFICATIONS

Cat. No. ....	M18 STSO
Volts .....	18 V DC
Battery Type .....	M18™
Charger Type .....	M18™
Force .....	18 Tons
Cutting Cycle .....	4.25 seconds
Max Capacity*:	
Mild steel .....	2.6 mm (12Guage)
Chemically Treated Steel.....	2.6 mm (12Guage)

Recommended Ambient Operating Temperature..... -17°C to 51° C  
 \*Do not shear stainless steel. (0°F to 125°F)

## FUNCTIONAL DESCRIPTION



- |                            |                                   |
|----------------------------|-----------------------------------|
| 1. Strut support plate     | 10. Strut shearing plane          |
| 2. Stationary die pocket   | 11. Die retaining pin hole(s)     |
| 3. Trigger lock-off switch | 12. Clevis                        |
| 4. Trigger                 | 13. Bottom die channel            |
| 5. LED worklight           | 14. Tri-stand chain mount         |
| 6. Backup release valve    | 15. Ram head                      |
| 7. ONE-KEY™ indicator      | 16. Return arm                    |
| 8. Die                     | 17. Die retaining pin (not shown) |
| 9. Top die channel         |                                   |

## SYMBOLOLOGY

Volts

Direct Current



**⚠ WARNING** Keep hands away from moving die and ram head while tool is in use. Fingers could be crushed, fractured, or amputated.



Lock



Unlock



Shear plane



Lubrication



Tri-stand chain



Read Operator's Manual



Wear safety glasses.



Regulatory Compliance Mark (RCM). This product meets applicable regulatory requirements.



Do not dispose of electric tools together with household waste material. Electric tools and electronic equipment that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

## ASSEMBLY

**⚠ WARNING** Recharge only with the charger specified for the battery. For specific charging instructions, read the operator's manual supplied with your charger and battery.

### Inserting/Removing the Battery

To insert the battery, slide the pack into the body of the tool. Make sure it latches securely into place.

**⚠ WARNING** Only use accessories specifically recommended for this tool. Others may be hazardous.

To remove the battery, push in the release buttons and pull the battery pack away from the tool.

**⚠ WARNING** Always remove the battery pack any time the tool is not in use.

### ONE-KEY™

To learn more about the ONE-KEY™ functionality for this tool, go to <https://www.milwaukee.com.au/innovation/one-key>. To download the ONE-KEY™ app, visit the App Store or Google Play from your smart device.

### ONE-KEY™ Indicator

Solid Blue	Wireless mode is active and ready to be configured via the ONE-KEY™ app.
Blinking Blue	Tool is actively communicating with the ONE-KEY™ app.
Blinking Red	Tool is in security lockout and can be unlocked by the owner via the ONE-KEY™ app.

## OPERATION

**⚠WARNING** Do not use damaged dies. Using damaged dies could result in serious personal injury.

Keep hands away from moving die and ram head while tool is in use. Fingers could be crushed, fractured, or amputated. Always wear proper eye protection marked to comply with AS/NZS 1337.1. When working in dusty situations, wear appropriate respiratory protection or use a suitable dust extraction solution.

**NOTICE** To avoid damage to the tool, do not operate the tool without the die retaining pin fully inserted and locked into die. Damage to the cylinder or clevis may occur.

### Lubrication

The top and bottom die channel faces (see "Functional Description") of the strut shear clevis must remain well lubricated throughout life to prevent die binding. Regularly lubricate the top and bottom die channel faces with a generous amount of Type "E" Grease. Always lubricate the top and bottom die channel faces before die installation. If the strut shear die does not fully retract, closely inspect the clevis for cracked or broken parts. If no issues are found, the dies and clevis should be cleaned, re-greased, and the tool cycled to ensure functionality.

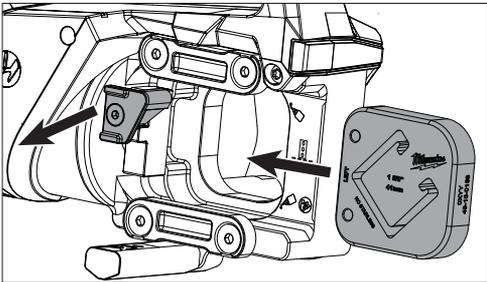
**NOTE:** If the die gets stuck in the extended position, remove battery pack to avoid starting the tool. Gently tap the die back to the fully seated position, disengage the return arm, clean out the dies, and ensure the die channel within the clevis is clean of debris. Relubricate.

### Inserting/Removing Dies

Inspect dies and strut before use. Do not use damaged dies. Using damaged dies could result in serious personal injury. Only use properly matched dies. Refer to "Accessories" for die compatibility. To maximize die life, swap the cutting edge of the dies periodically.

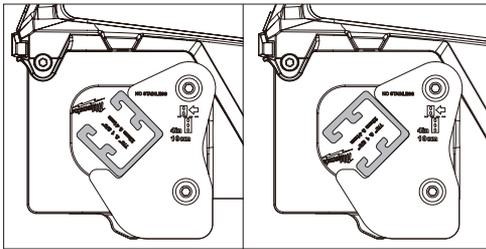
To insert:

1. **⚠WARNING** Remove battery to avoid starting the tool.
2. Pull and hold the return arm outward to slide the first die into the stationary pocket.



3. With the return arm still pulled out, insert the second die beside the first.

**NOTE:** Some die sizes have two die retaining pin holes. Those dies can be inserted facing up or down.



4. Release the return arm back into place ensuring die retaining pin is properly seated into the die.

To remove:

1. **⚠WARNING** Remove battery to avoid starting the tool.
2. Pull and hold the return arm outward and slide both dies out.

### Shearing

Before shearing:

**⚠WARNING** Inspect the dies for cracks or other damage. Do not use damaged dies. Using damaged dies could result in serious personal injury.

Do not shear stainless steel. Cutting improper material may damage the shear head or result in serious personal injury.

- Ensure die retaining pin is properly seated and dies are properly installed.
- Dies must be used in an APPROVED COMBINATION of die and strut. Improper combinations can result in a faulty shear.
- Inspect and discard workpieces with unacceptable defects.

1. Insert the battery pack.
2. Insert the strut in to the installed dies.  
**NOTE:** When shearing strut channel, the work piece must always be supported by the strut support plate. The strut support plate is designed to support the strut during the shearing operation and is needed to produce the cleanest possible shear. The strut support plate is positioned 100 mm (4") off the shearing plane. The tool sits at a height that specifically allows the free end of a strut to be supported by a piece of 41 mm (1-5/8") strut when used on a flat surface. It is not recommended to cut anything shorter than a 125 mm (5") piece of strut. The squareness of the cut piece will be compromised.
3. Ensure the tool is secured either to a table, stand, or other flat and stable surface. Slide the trigger lock-off switch to the unlock  position. Pull the trigger halfway to activate the LED worklight. Pull the trigger all the way to start the strut shear.
4. Once the strut is sheared, release the trigger to maximise tool life allowing the tool ram head "dead head" (continue to push to the full extent it can) and return on it's own will unnecessarily stress the ram and potentially reduce the life of the tool.  
**NOTE:** If the die gets stuck in the extended position, refer to "Lubrication".

5. If service is needed, the LED work lights will blink repeatedly. After 2000 cuts are made with the work light blinking, the tool will permanently shut off until service is performed by a MILWAUKEE® service facility.

## Backup Release Valve

If the ram head must be returned without the battery pack installed, press and hold the backup release valve. Hold tool securely until the ram head retracts fully.

## Optional Mounting

The strut shear can be attached to the MILWAUKEE® 152MM (6") LEVELING TRIPOD CHAIN VICE (MPS), other suitable stands, or be screwed down to a secured work surface via a suitable fixing installed through the 5 mm hole located in the tri-stand chain mount.

## MAINTENANCE

**⚠WARNING** To reduce the risk of injury, always unplug the charger and remove the battery pack from the charger or tool before performing any maintenance. Never disassemble the tool, battery pack or charger. Contact a MILWAUKEE® service facility for ALL repairs.

### Dies and Clevis

**⚠WARNING** Inspect the dies for cracks or other damage. Do not use damaged dies. Using damaged dies could result in serious personal injury. Ensure the die channel within the clevis is clean of debris before each use. Hot-dipped galvanised strut may have beads or other imperfections from the plating process that will cause additional resistance when inserting the strut into the dies. These would need to be removed prior to attempting to insert the strut into the dies.

### Maintaining Tool

Keep your tool, battery pack and charger in good repair by adopting a regular maintenance program. Inspect your tool for issues such as undue noise, misalignment or binding of moving parts, breakage of parts, or any other condition that may affect the tool operation. Return the tool, battery pack, and charger to a MILWAUKEE® service facility for repair. After six months to one year, depending on use, return the tool, battery pack and charger to a MILWAUKEE® service facility for inspection. If the tool does not start or operate at full power with a fully charged battery pack, clean the contacts on the battery pack. If the tool still does not work properly, return the tool, charger and battery pack, to a MILWAUKEE® service facility for repairs.

**NOTE:** If service is needed, the LED work lights will blink repeatedly. After 2000 cuts are made with the work light blinking, the tool will permanently shut off until service is performed by a MILWAUKEE® service facility.

## ONE-KEY™

**⚠WARNING** Chemical Burn Hazard. This device contains a lithium button/coin cell battery. A new or used battery can cause severe internal burns and lead to death in as little as 2 hours if swallowed or enters the body. Always secure the battery cover. If it does not close securely, stop using the device, remove the batteries, and keep it away from children. If you think batteries may have been swallowed or entered the body, seek immediate medical attention.



## Internal Coin Cell Battery

An internal coin cell battery is used to facilitate full ONE-KEY™ functionality.

To replace the coin cell battery:

1. **⚠WARNING** Remove tool's battery to avoid starting the tool.
2. Loosen the screw(s) and open the coin cell battery door.
3. Remove the old coin cell battery, keep it away from children, and dispose of it properly.
4. Insert the new coin cell battery (3V CR2032), with the positive side facing up.
5. Close the battery door and tighten the screw(s) securely.

## Cleaning

Clean dust and debris from vents. Keep handles clean, dry and free of oil or grease. Use only mild soap and a damp cloth to clean, since certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include petrol, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia and household detergents containing ammonia. Never use flammable or combustible solvents around tools.

## Repairs

For repairs, return the tool, battery pack and charger to the nearest authorised service centre.

## ACCESSORIES

**⚠WARNING** Use only recommended accessories. Others may be hazardous.

For a complete listing of accessories, go online to [milwaukeetool.com.au](http://milwaukeetool.com.au) / [milwaukeetool.co.nz](http://milwaukeetool.co.nz) or contact a distributor.

Cat. No.	Die Description
49-16-0158	41 mm x 41 mm (1-5/8") single strut <sup>†</sup>
49-16-0078	22 mm x 41 mm (7/8") single strut
49-16-1316	21 mm x 41 mm (13/16") single strut
49-16-1578	21 mm (7/8") and 41 mm (1-5/8") combination strut <sup>†</sup>
49-16-1513	22 mm (13/16") and 41 mm (1-5/8") combination strut <sup>†</sup>

<sup>†</sup>Dies have two die retaining pin holes to allow alternate orientation. See Inserting/Removing Dies section.



## **WARRANTY - AUSTRALIA and NEW ZEALAND**

Please refer to Australian and New Zealand warranty supplied with tool. This warranty applies only to product sold by authorised dealers in Australia and New Zealand.

## **SERVICE - AUSTRALIA and NEW ZEALAND**

**MILWAUKEE®** prides itself in producing a premium quality product that is Nothing But Heavy Duty™. Your satisfaction with our products is very important to us! If you encounter any problems with the operation of this tool, please contact your authorised **MILWAUKEE®** dealer.

For a list of **MILWAUKEE®** dealers, guarantee or service agents please contact **MILWAUKEE®** Customer Service or visit our website.

(Australia Toll Free Telephone Number 1300 645 928)

(New Zealand Toll Free Telephone Number 0800 645 928)

or visit [milwaukeetool.com.au/milwaukeetool.co.nz](http://milwaukeetool.com.au/milwaukeetool.co.nz).

### **Milwaukee Electric Tool Corporation**

13135 West Lisbon Road, Brookfield, Wisconsin U.S.A. 53005

#### **Milwaukee Tool (Australia)**

26 - 40 Nina Link, Dandenong South,  
Victoria, 3175, Australia

#### **Milwaukee Tool (New Zealand)**

274 Church Street, Penrose,  
Auckland, 1061, New Zealand

DESIGNED BY MILWAUKEE ELECTRIC TOOL CORP.

PROFESSIONALLY MADE IN CHINA

PRINTED IN CHINA