

C16x/C24x/C30x

Operator's Manual



Issue 1.1
Original Instruction

053-2869

Overview

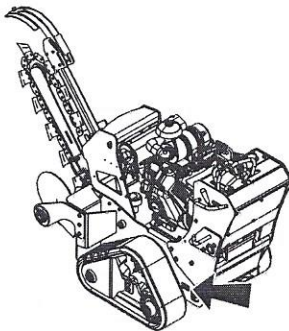


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Serial Number Location

Record serial numbers and date of purchase in spaces provided. Trencher serial number is located as shown.



147um001n.ppt

Item	
date of manufacture	
date of purchase	
trencher serial number	
trailer serial number	
engine serial number	

Intended Use

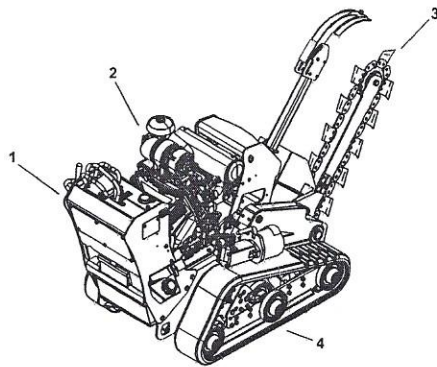
The C16x, C24x and C30x pedestrian trenchers are designed to install buried cable and pipe. The maximum trenching depth is 36" (915 mm) for C16x and C24x and 48" (1220 mm) for C30x. The maximum trenching width is 6" (200 mm). These units are intended for operation in ambient temperatures from 20° to 115°F (-7° to 46°C). Use in any other way is considered contrary to the intended use.

C16x, C24x and C30x units should be used with genuine Ditch Witch® chain, teeth, and sprockets. They should be operated, serviced, and repaired only by persons familiar with their particular characteristics and acquainted with the relevant safety procedures.

Equipment Modification

This equipment was designed and built in accordance with applicable standards and regulations. Modification of equipment could mean that it will no longer meet regulations and may not function properly or in accordance with the operating instructions. Modification of equipment should only be made by competent personnel possessing knowledge of applicable standards, regulations, equipment design functionality/requirements and any required specialized testing.

Unit Components

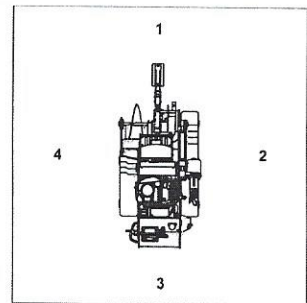


1470m002h-ups

- | | |
|--------------------|---------------------------|
| 1. Control console | 3. Digging boom and chain |
| 2. Engine | 4. Track drive |

Operator Orientation

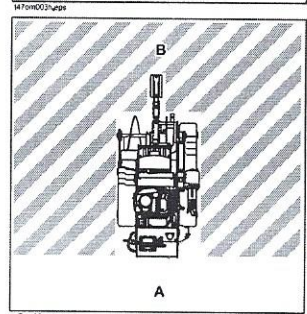
1. Front of unit
2. Right side of unit
3. Rear of unit
4. Left side of unit



Operating Area

The operating area (A) is at the rear of the machine, behind the control console.

Any other area less than 6 ft (2 m) from the machine is a danger area (B). Stay away.



1470m004h-ups



⚠ DANGER Moving digging teeth can kill. Trench cave-in can cause you to fall. Stay away.

To help avoid injury:

- Keep everyone from danger area (B) during operation.
- If someone enters danger area (B) during operation, use emergency shutdown.

About This Manual

This manual contains information for the proper use of this machine. See the beige **Operation Overview** pages for basic operating procedures. Cross references such as "See page 50" will direct you to detailed procedures.

Bulleted Lists

Bulleted lists provide helpful or important information or contain procedures that do not have to be performed in a specific order.

Numbered Lists

Numbered lists contain illustration callouts or list steps that must be performed in order.

Foreword

This manual is an important part of your equipment. It provides safety information and operation instructions to help you use and maintain your Ditch Witch® equipment.

Read this manual before using your equipment. Keep it with the equipment at all times for future reference. If you sell your equipment, be sure to give this manual to the new owner.

If you need a replacement copy, contact your Ditch Witch dealer. If you need assistance in locating a dealer, visit our website at www.ditchwitch.com or write to the following address:

The Charles Machine Works, Inc.
Attn: Marketing Department
PO Box 66
Perry, OK 73077-0066
USA

The descriptions and specifications in this manual are subject to change without notice. The Charles Machine Works, Inc. reserves the right to improve equipment. Some product improvements may have taken place after this manual was published. For the latest information on Ditch Witch equipment, see your Ditch Witch dealer.

Thank you for buying and using Ditch Witch equipment.

C16x/C24x/C30x Operator's Manual

Issue number 1.1/OM-02/16
Part number 053-2869

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Ditch Witch, CMW and Roto Witch are registered trademarks of The Charles Machine Works, Inc.

This product and its use may be covered by one or more patents at <http://patents.charlesmachine.works>.

Guidelines

Follow these guidelines before operating any jobsite equipment:

- Complete proper training and read operator's manual before using equipment.
- Contact your local One-Call (811 in USA) or the One-Call referral number (888-258-0808 in USA and Canada) to have underground utilities located before digging. Also contact any utilities that do not participate in the One-Call service. Mark proposed path with white paint prior to contacting One-Call or utilities.
- Classify jobsite based on its hazards and use correct tools and machinery, safety equipment, and work methods for jobsite.
- Mark jobsite clearly and keep spectators away.
- Wear personal protective equipment.
- Review jobsite hazards, safety and emergency procedures, and individual responsibilities with all personnel before work begins. Safety videos are available from your Ditch Witch® dealer or at www.ditchwitch.com/safe.
- Fully inspect equipment before operating. Repair or replace any worn or damaged parts. Replace missing or damaged safety shields and safety signs. Contact your Ditch Witch dealer for assistance.
- Use equipment carefully. Stop operation and investigate anything that does not look or feel right.
- Do not operate unit where flammable gas may be present.
- Only operate equipment in well-ventilated areas.
- Contact your Ditch Witch dealer if you have any question about operation, maintenance, or equipment use.
- Complete the equipment checklist located at www.ditchwitch.com/safe.

California Proposition 65 Warning

This product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

- battery posts, terminals and related accessories
- engine exhaust
- ethylene glycol

Emergency Procedures



WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.



Before operating any equipment, review emergency procedures and check that all safety precautions have been taken.

EMERGENCY SHUTDOWN: Release controls and turn ignition switch to OFF position.

Electric Strike Description



DANGER Electric shock. Contacting electric lines will cause death or serious injury. Know location of lines and stay away.

When working near electric cables, remember the following:

- Electricity follows all paths to ground, not just path of least resistance.
- Pipes, hoses, and cables will conduct electricity back to all equipment.
- Low voltage current can injure or kill. Many work-related electrocutions result from contact with less than 440 volts.

Most electric strikes are not noticeable, but indications of a strike include:

- power outage
- smoke
- explosion
- popping noises
- arcing electricity

If any of these occur, assume an electric strike has occurred.

If an Electric Line is Damaged

If you suspect an electric line has been damaged and you are near pedestrian unit, DO NOT MOVE and do not touch unit. Take the following actions. The order and degree of action will depend upon the situation.

- Warn people nearby that an electric strike has occurred. Instruct them to leave the area and contact utility.
- Do not allow anyone into area until given permission by utility company.
- Do not allow anyone to touch equipment.

If a Gas Line is Damaged



WARNING Fire or explosion possible. Fumes could ignite and cause burns. No smoking, no flame, no spark.



WARNING Explosion possible. Serious injury or equipment damage could occur. Follow directions carefully.

If you suspect a gas line has been damaged, take the following actions. The orders and degree of action will depend on the situation.

- Immediately shut off engine(s), if this can be done safely and quickly.
- Remove any ignition source(s), if this can be done safely and quickly.
- Warn others that a gas line has been cut and that they should leave the area.
- Leave jobsite as quickly as possible.
- Immediately call your local emergency phone number and utility company.
- If jobsite is along street, stop traffic from driving near jobsite.
- Do not return to jobsite until given permission by emergency personnel and utility company.

If a Fiber Optic Cable is Damaged

Do not look into cut ends of fiber optic or unidentified cable. Vision damage can occur. Contact utility company.

If Machine Catches on Fire

Perform emergency shutdown procedure and then take the following actions. The order and degree of action will depend on the situation.

- Immediately move battery disconnect switch (if equipped and accessible) to disconnect position.
- If fire is small and fire extinguisher is available, attempt to extinguish fire.
- If fire cannot be extinguished, leave area as quickly as possible and contact emergency personnel.

Safety Alert Classifications

These classifications and the icons defined on the following pages work together to alert you to situations which could be harmful to you, jobsite bystanders or your equipment. When you see these words and icons in the book or on the machine, carefully read and follow all instructions. YOUR SAFETY IS AT STAKE.



Watch for the three safety alert levels: **DANGER**, **WARNING** and **CAUTION**. Learn what each level means.

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

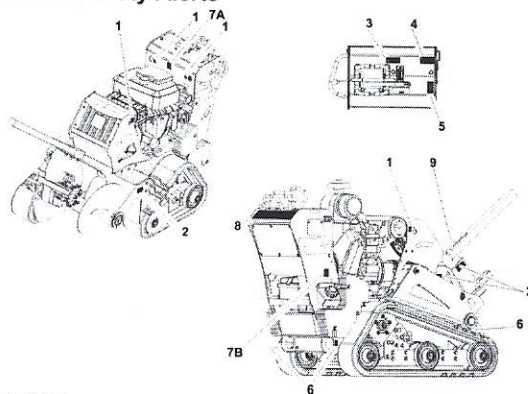
CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Watch for two other words: **NOTICE** and **IMPORTANT**.

NOTICE indicates information considered important, but not hazard-related (e.g., messages relating to property damage).









IMPORTANT can help you do a better job or make your job easier in some way.

Machine Safety Alerts



Device_C30x_C24x_C16x.png

1		Lift point. See Transport chapter for more information. 274-442
2	 	DANGER Moving digging teeth can kill. Trench cave-in can cause you to fall. Stay away. 270-6900
3	 	WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment. 200-133
4	 	WARNING Read operator's manual. Follow safety rules and know how to use all controls. Your safety is at stake. 273-475

- 5   **CAUTION** Exposure to high noise levels may cause hearing loss. Wear hearing protection. 700-009 (2P)
- 6  Tiedown location. See Transport chapter for more information. 274-318
- 7A*   **WARNING** Fire or explosion possible. Fumes could ignite and cause burns. No smoking, no flame, no spark. 275-419 (2P)
- 7B**   **WARNING** Fire or explosion possible. Fumes could ignite and cause burns. No smoking, no flame, no spark. 275-419 (2P)
- 8 **CAUTION** Tip over possible. When loading/unloading run at low idle and keep boom low. 270-6704
- 9  **DANGER** Moving digging teeth can kill. Trench cave-in can cause you to fall. Stay away.

* C16x
** C24x, C30x

Plan

1. Gather information about jobsite. See page 33.
2. Inspect jobsite. See page 35.
3. Classify jobsite. See page 36.
4. Select best chain type and tooth pattern for your application. See page 72.
5. Consider optional equipment, if necessary. See page 74.
6. Check supplies and prepare equipment. See page 38.
7. Load unit onto trailer. See page 47.

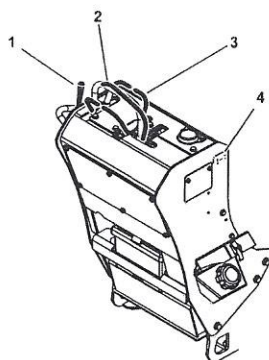
Trench

1. Unload unit from trailer. See page 50.
2. Leave optional backfill blade, if equipped, in stowed position with digging boom low to ground. See page 75.
3. Start unit. See page 40.
4. Drive to starting point of trench. See page 41.
5. Dig the trench. See page 54.
6. Shut down unit. See page 43.

Leave Jobsite

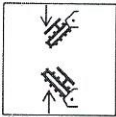
1. Restore the jobsite. See page 80.
2. Rinse unit and stow tools. See page 80.
3. Load unit onto trailer. See page 47.

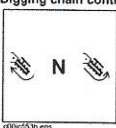
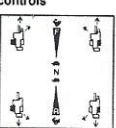
Control Console



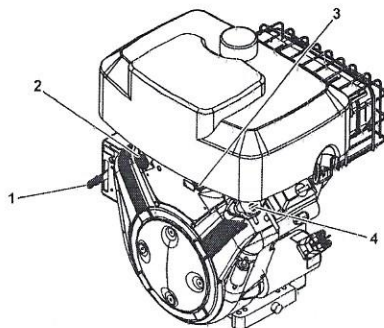
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1. Boom lift control
2. Digging chain/Roto Witch® control
3. Speed/Direction controls
4. Hourmeter/Tachometer (C16x and C30x only)

Item	Description	Notes
1. Boom lift control 	To lower boom, push. To raise boom, pull.	

Item	Description	Notes
2. Digging chain control 	To start digging chain, pull toward operator, then push down to dig position. To stop digging chain, release control. To dislodge a rock or other obstruction, pull up on control to reverse chain. IMPORTANT: This control changes function when equipped with optional Roto Witch®. In drill mode: To drill clockwise, push down. To stop drill rotation, release control. To drill counterclockwise, pull up.	Trenching movement is always backward (toward you). NOTICE: Do not attempt to travel with digging chain control pulled up (chain in reverse position).
3. Speed/direction controls 	To drive straight forward, push BOTH controls slowly forward. To drive straight in reverse, pull BOTH controls slowly rearward. To turn left, move RIGHT speed/direction control for forward or reverse. To turn right, move LEFT speed/direction control for forward or reverse. To go faster in any direction, move controls farther from neutral position. To stop, release controls.	Trenching movement is always backward (toward you).




C16x Engine Controls



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1. Throttle control
2. Choke control
3. Ignition switch
4. Fuel shut-off valve

Item	Description	Notes
1. Throttle control	To increase engine speed, pull up. To decrease engine speed, push down.	

Item	Description	Notes
2. Choke control	To close choke valve, pull choke control. 	Close valve to enrich air/fuel mixture and help start cold engine. Open choke valve after engine runs for a few seconds.
3. Ignition switch	To start engine, turn key all the way clockwise. Release key as engine starts. To stop engine, turn key counterclockwise. 	
4. Fuel shut-off valve	To stop fuel flow from fuel tank to engine, turn valve clockwise. To allow fuel flow, turn valve counterclockwise. 	Close valve when transporting unit to or from jobsite, or whenever machine is parked.

Gather Information

A successful job begins before you dig. The first step in planning is reviewing information already available about the job and jobsite.

Review Job Plan

Review blueprints or other plans. Check for information about existing or planned structures, elevations, or proposed work that may be taking place at the same time.

Notify One-Call Services

Contact your local One-Call (811 in USA) or the One-Call referral number (888-258-0808 in USA and Canada) to have underground utilities located before digging. Also contact any utilities that do not participate in the One-Call service.

Arrange for Traffic Control

If working near a road or other traffic area, contact local authorities about safety procedures and regulations.

Plan for Emergency Services

Have the telephone numbers for local emergency and medical facilities on hand. Check that you will have access to a telephone.

Inspect Site

Inspect jobsite before transporting equipment. Check for the following:

- changes in elevation such as hills or other open trenches
- obstacles such as buildings, railroad crossings, or streams
- signs of utilities. See "Inspect Jobsite" on page 36.
- traffic
- access
- soil type and condition

Identify Hazards

Identify safety hazards and classify jobsite. See "Classify Jobsite" on page 36.



WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

To help avoid injury:

- Wear personal protective equipment including hard hat, safety glasses and hearing protection.
- Do not wear jewelry or loose clothing.
- Notify One-Call and companies which do not subscribe to One-Call.
- Comply with all utility notification regulations before digging or drilling.
- Verify location of previously marked underground hazards.
- Mark jobsite clearly and keep spectators away.

Remember, jobsite is classified by hazards in place – not by time being installed.

Classify Jobsite

Inspect Jobsite

- Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.
- Contact your local One-Call (811 in USA) or the One-Call referral number (888-258-0808 in USA and Canada) to have underground utilities located before digging. Also contact any utilities that do not participate in the One-Call service.
- Inspect jobsite and perimeter for evidence of underground hazards, such as:
 - "buried utility" notices
 - utility facilities without overhead lines
 - gas or water meters
 - junction boxes
 - drop boxes
 - light poles
 - manhole covers
 - sunken ground
- Have an experienced locating equipment operator sweep area within 20' (6 m) to each side of trench path. Verify previously marked line and cable locations.
- Mark location of all buried utilities and obstructions.
- Classify jobsite.

Select a Classification

Jobsites are classified according to underground hazards present.

If working...	then classify jobsite as...
within 10' (3 m) of a buried electric line	electric
within 10' (3 m) of a natural gas line	natural gas
in sand or granite which is capable of producing crystalline silica (quartz) dust	crystalline silica (quartz) dust
within 10' (3 m) of any other hazard	other

IMPORTANT: If you have any doubt about jobsite classification, or if jobsite might contain unmarked hazards, take steps outlined previously to identify hazards and classify jobsite before working.

Apply Precautions

Once classified, precautions appropriate for jobsite must be taken.

Electric Jobsite Precautions

Use one or both of these methods.

- Expose line by careful hand digging or soft excavation.
- Have service shut down while work is in progress. Have electric company test lines before returning them to service.

Natural Gas Jobsite Precautions

In addition to positioning equipment upwind from gas lines, use one or both of these methods.

- Expose lines by careful hand digging or soft excavation.
- Have gas shut off while work is in progress. Have gas company test lines before returning them to service.

Crystalline Silica (Quartz) Dust Precautions

Crystalline silica dust is a naturally occurring substance found in soil, sand, concrete, granite, and quartz. Breathing silica dust particles while cutting, drilling, or working materials may cause lung disease or cancer. To reduce exposure:

- Use water spray or other means to control dust.
- Refer to U.S. Department of Labor Occupational Safety and Health Administration guidelines to learn more about appropriate breathing protection and permissible exposure limits.

Other Jobsite Precautions

You may need to use different methods to safely avoid other underground hazards. Talk with those knowledgeable about hazards present at each site to determine which precautions should be taken or if job should be attempted.



Check Supplies and Prepare Equipment

Supplies

- fuel
- keys
- personal protective equipment, such as hard hat and safety glasses

Fluid Levels

- fuel
- hydraulic fluid
- battery charge
- engine oil

Condition and Function

- digging chain and teeth
- filters (air, oil, hydraulic, and fuel if equipped)
- tires and tracks
- pumps and motors
- hoses and valves
- signs, guards, and shields

Accessories

Fire Extinguisher

If required, mount a fire extinguisher near the power unit but away from possible points of ignition. The fire extinguisher should always be classified for both oil and electric fires. It should meet legal and regulatory requirements.

Start

- Ensure all controls are in neutral.
- If necessary, use choke control to start cold engine.



WARNING Fire or explosion possible.

To help avoid injury: Do not use starter fluid.

- Move throttle to 1/4 open.
- Turn ignition switch to START position to crank engine.
- Release key when engine starts.

IMPORTANT: If engine does not start, turn ignition switch to OFF position and check for fuel blockage or electrical system problems.

- Run engine at half throttle or less for five minutes before operating trencher.
- During warm-up, do a check of all controls. Ensure they operate correctly.



WARNING Incorrect control function can cause death or serious injury.

To help avoid injury:

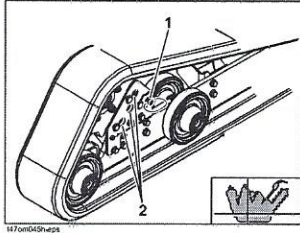
If controls do not operate as given in instructions:

- Shut down machine immediately.
- Have machine repaired.

EMERGENCY SHUTDOWN: Release controls and turn ignition switch to OFF position.

Drive

1. Remove parking pin from parking position (2) and insert it in drive position (1).
2. Pull boom control to raise digging boom.
3. Move throttle to 3/4 open.
4. Move speed/direction control in direction of preferred travel. Ground speed increases with control movement.



Drive on a Slope



WARNING Machine can tip over and crush you.

To help avoid injury:

- Operate from uphill side of machine.
- Keep digging boom low.
- Drive cautiously at all times.
- Never jerk control levers. Use a steady even motion.



WARNING If the machine tips over, there is a risk of fuel leakage. Fire or explosion can cause death or serious injuries.

To help avoid injury: If the machine tips over, turn ignition switch to OFF position or close the fuel shutoff valve.

Driving safely on a slope depends upon many factors including:

- Distribution of machine weight (weight of machine may change due to configuration)
- Even or rough ground conditions
- Potential for ground giving way causing unplanned tilt forward, reverse or sideways
- Nearness of ditches, ruts, stumps or other obstructions and sudden changes in slope
- Speed
- Turning
- Operator skill

These varying factors make it impractical to specify a maximum safe operating angle in this manual. It is therefore important for the operator to be aware of these conditions and adjust operation accordingly. Maximum engine angle and braking performance are two absolute limits which must never be exceeded. These maximums are stated below since they are design limits. These design limits usually exceed the operating limits and must never be used alone to establish safe operating angle for variable conditions.

Maximum engine lubrication angle – 20°

Maximum service brake retarding force – equal to traction of both tracks

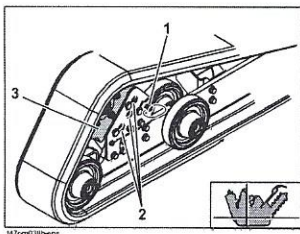
Maximum secondary brake retarding force – equal to traction of one track

Shut Down

1. Release speed/direction controls.
2. Push boom control to lower digging boom, if space allows.
3. Insert parking pin in the correct parking hole (2).

IMPORTANT: The stopping position of the gear (3) determines the correct parking hole.

4. Run engine at low throttle for three minutes to cool.
5. Turn ignition switch to OFF position.
6. If present, close fuel shut-off valve.
7. Remove key.
8. If you park machine on a slope: block tracks with wooden blocks and engage parking pin.



Lift



WARNING Crushing weight could cause death or serious injury. Stay away.

To help avoid injury:

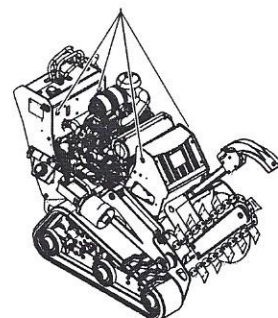
- Use applicable lifting device and lifting equipment.
- Only use approved lifting points.
- Stay away from lifted load.

Lifting points

Lifting points are identified by lifting decals.

Lift

Use a hoist and lifting accessories adapted to the size and weight of the machine. See "Specifications" on page 105 or measure and weigh machine before lifting.



1. Use approved methods to attach lifting accessories.
2. Use lifting device to carefully tension lifting slings.
3. Slowly lift machine.

Haul

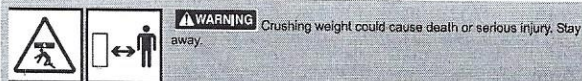
Load

IMPORTANT: Use Ditch Witch S2B trailer for transport. If you use a different trailer, obey additional instructions from the manufacturer. Load trencher as far to the front of the trailer as possible.

Prepare trailer

1. Attach trailer to vehicle.
2. Park vehicle with trailer on level and firm ground.

Load machine



To help avoid injury:

- Keep boom as low as possible during loading procedure.
- Ensure ten to fifteen percent of total weight (machine plus trailer) is on tongue of trailer.

1. If equipped, put backfill blade in stowed position. See "Backfill Blade" on page 75.
2. Remove parking pin from parking position.
3. Start engine.
4. Pull boom control to slightly raise digging boom.
5. Move machine to rear of trailer. Have boom face ramps. Align tracks with ramps and machine with center of trailer bed.
6. Set engine to low throttle.
7. Move speed/direction control slowly and push to appropriate speed.
8. Drive unit onto trailer, digging boom first, until tiedown position is reached.
9. If space allows, push boom control to lower digging boom onto trailer.
10. Engage parking pin in parking position and shut down unit. If present, turn fuel shut-off to off position.



Tie Down



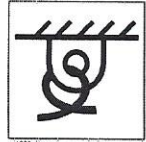
WARNING Crushing weight could cause death or serious injury. Stay away.

To help avoid injury:

- Only use approved tiedown points.
- Use applicable tiedown equipment.

Tiedown points

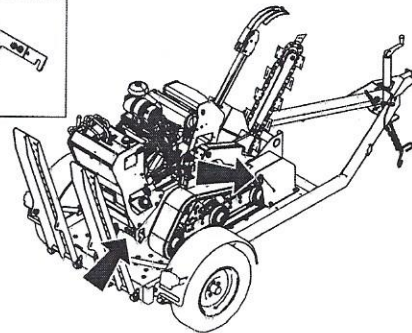
Tiedown points are identified by tiedown decals.



c1320weps

Procedure

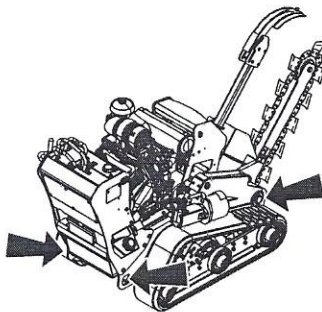
With Tie-Down Kit on S2B Trailer



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1. Use pins to secure front and rear of machine to trailer.
2. Secure rear latch in lower holes as shown in inset when latch is not in use.

Without Tie-Down Kit



1470m02101g003

1. Loop tiedowns around unit at tie-down points.
2. Ensure tiedowns are tight before transport.



Unload

IMPORTANT: Use Ditch Witch S2B trailer for transport. If you use a different trailer, obey additional instructions from the manufacturer.

Prepare trailer

1. Park vehicle with trailer on level and firm ground.
2. Ensure trailer is correctly attached to vehicle.

Unload machine



WARNING Crushing weight could cause death or serious injury. Stay away.

To help avoid injury:

- Keep all persons away from machine and trailer.
 - Keep boom as low as possible during unloading procedure.
1. Lower trailer or ramps.
 2. Remove tiedowns.
 3. If present, open fuel shut-off valve.
 4. Start engine and set to low throttle.
 5. Remove parking pin from parking position.
 6. Pull boom control to raise digging boom, but keep it as low as possible.
 7. Slowly back unit down trailer or ramps.

Retrieve

NOTICE: Machine is not approved for towing. Towing can damage components.

- Do not tow machine.

1. If machine becomes defective, repair on location or use lifting procedure to retrieve machine.
2. If machine cannot be repaired or lifted, contact customer support.

Precautions



⚠ DANGER Electric shock will cause death or serious injury.

To help avoid injury:

- Know location of electrical lines and stay away.
- Carefully expose lines by hand before digging.



⚠ WARNING Read operator's manual. Know how to use all controls. Your safety is at stake.



⚠ WARNING Jobsite hazards could cause death or serious injury.

To help avoid injury:

- Comply with all utility notification regulations before digging or drilling.
- Notify companies that do not subscribe to One-Call.
- Set up warning barriers and keep people away from machine and jobsite.



⚠ CAUTION Cutting, drilling, or working materials such as concrete, sand, or rock containing quartz can result in exposure to silica dust. Breathing silica dust can cause lung disease.

To help avoid injury:

- Use water spray or other appropriate means to control dust.
- Use appropriate breathing protection when exposed to silica dust.



⚠ CAUTION Flying objects thrown by machine may strike people.

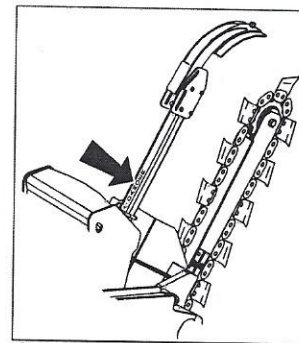
To help avoid injury: Wear hard hat and safety glasses.

Set Up

1. Ensure all preparatory tasks have been done correctly. See "Prepare" on page 33.
2. Ensure engine is shut down.
3. Ensure restraint bar is installed correctly:
 - Danger word must be facing up, as shown.
 - Restraint bar must be in correct position. See "Check Restraint Bar Position" on page 93.

IMPORTANT: Trench cleaner shown installed on restraint bar is optional.

4. If equipped, remove backfill blade. See "Backfill Blade" on page 75.
5. Install correct counterweight configuration. See "Counterweights" on page 76.



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Operate

Dig Trench



⚠ DANGER Moving digging teeth can kill. Trench cave-in can cause you to fall. Stay away.

To help avoid injury:

- Keep everyone at least 6' (2 m) from machine, digging boom, and their range of movement.
- Allow 3' (1 m) between end of chain and obstacle. Machine may move when chain starts to dig.
- Stand back from console and hold controls loosely. Digging chain on top side of boom can catch on root or rock, forcing handlebar down suddenly.

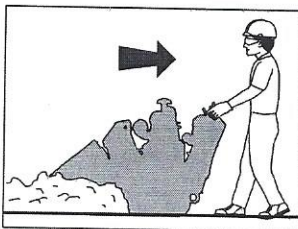
1. Start engine. See "Start" on page 40.
2. Drive machine to starting point. Move in line with planned trench.
3. Move throttle to half open.
4. Push boom control to lower digging boom to just above ground.
5. Push digging chain control to dig position.
 - DIGGING CHAIN WILL MOVE.
 - Trenching movement is toward you.

EMERGENCY STOP: Release controls and turn ignition switch to OFF position.

6. Increase engine speed to full throttle.
7. Slowly push boom control to lower digging boom to desired trench depth.
8. Slowly move speed/direction control to desired speed.

NOTICE: Incorrect use will damage machine.

- Do not make sharp turns.
- Lower boom to full depth when turning.



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Remove Objects from Digging Chain

If object becomes lodged in chain:

1. Move attachment speed/direction control to neutral.
2. Slightly raise boom.
3. Reverse chain direction.

If object stays lodged in chain:

1. Shut down machine. See "Shut Down" on page 43.
2. Engage parking pin in parking position.



⚠ DANGER Moving digging teeth can kill. Trench cave-in can cause you to fall. Stay away.

To help avoid injury:

- Wait until digging chain is completely stopped.
- Wear safety gloves.

3. Carefully remove object by hand.

Finish Job

1. When trench is complete, release speed/direction controls.
2. Move throttle to half open.
3. Pull boom control to raise digging boom to top of trench.
4. Release digging chain control.
5. Install backfill blade in work position for backfilling.
6. When backfilling is completed, position blade in upright "stowed" position for transporting, keeping digging boom low to ground. See "Backfill Blade" on page 75.
7. Drive away from trench.
8. Shut down machine. See "Shut Down" page 41.

Backfill Blade

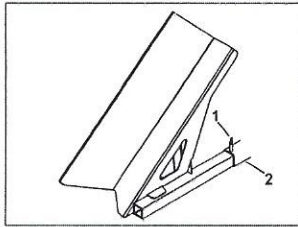
The optional backfill blade must be in position related to the job at hand.

Stowed position

Install the backfill blade in stowed position for transport and drilling.

1. Shut down engine.
2. Insert backfill blade in upright position onto mounting stub (2).
3. Secure with pin (1).

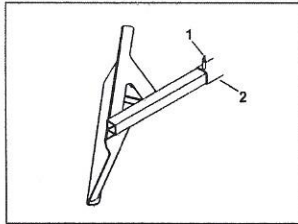
IMPORTANT: Completely remove backfill blade for trenching.



Work position

Install the backfill blade in work position for backfilling only.

1. Shut down engine.
2. Insert backfill blade in work position onto mounting stub (2).
3. Secure with pin (1).



Drilling Attachment

The optional Roto Witch® drilling attachment can be used to drill under obstructions such as sidewalks and driveways. For operational information, see "Drill" on page 57.

Restore Jobsite

After product is installed, return spoils to the trench with optional backfill blade, shovels, or small earth-moving equipment. See "Backfill Blade" on page 75.

Rinse Equipment

Spray water onto equipment to remove dirt and mud.

NOTICE: Water can damage electrical components.

- Do not spray water onto operator's console.
- Wipe with dry cloth.

Stow Tools

Ensure all bits, pullback devices, and other tools are loaded and properly secured on trailer.