

SK650

Operator's Manual



CMW®

Issue 1.0



053-1028

Overview



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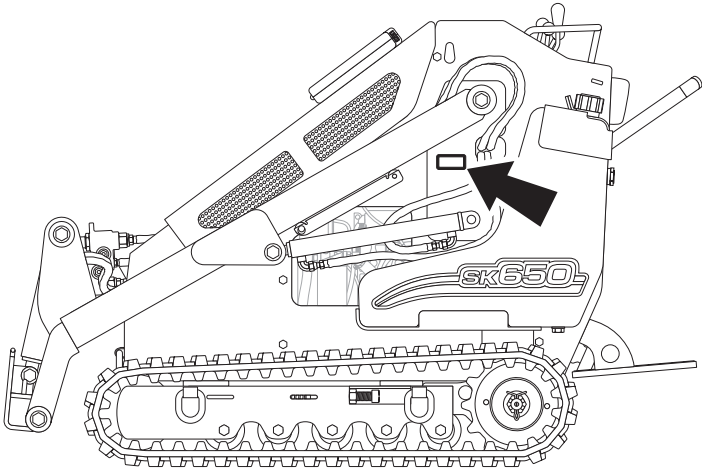
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Serial Number Location

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



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Item	
date of manufacture	
date of purchase	
unit serial number	
engine serial number	

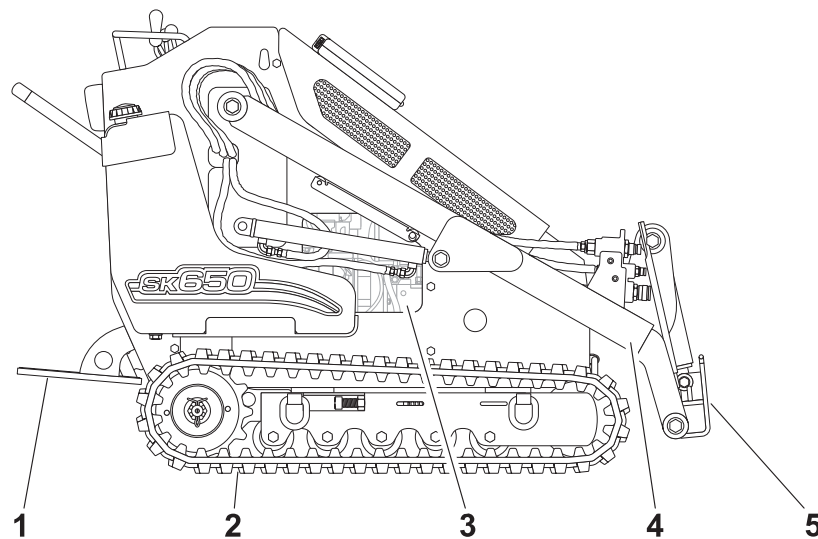
Intended Use



The SK650 is a platform, rubber track mini skid steer unit designed for light-to medium-duty construction work. The SK650 has a quick attach mount plate which makes it easy for an operator to connect different attachments. The unit is designed for operation in temperatures typically experienced in earth moving and construction work environments. Provisions may be required to operate in extreme temperatures. Contact your Ditch Witch dealer. Use in any other way is considered contrary to the intended use.

The SK650 should be operated, serviced, and repaired only by persons familiar with its particular characteristics and acquainted with the relevant safety procedures.

Unit Components

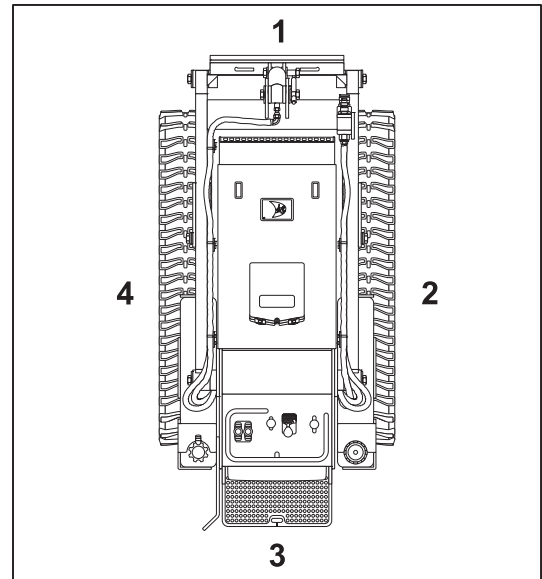


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1. Operator station
2. Tracks
3. Engine compartment
4. Lift arms
5. Mount plate

Operator Orientation

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



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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.

**SK650
Operator's Manual**

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Part number 053-1028

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Safety

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Guidelines

Follow these guidelines before operating any jobsite equipment:

- Complete proper training and read operator's manual before using equipment.
- Contact One-Call (888-258-0808) and any utility companies which do not subscribe to One-Call. Have all underground pipes and cables located and marked before operating equipment. If you damage a utility, contact utility company.
- 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.
- Replace missing or damaged safety shields and safety signs.
- Use equipment carefully. Stop operation and investigate anything that does not look or feel right.
- Do not operate unit where flammable gas is present.
- Contact your Ditch Witch dealer if you have any question about operation, maintenance, or equipment use.

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.



indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



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



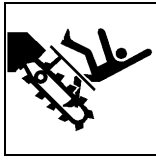
indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

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

NOTICE can keep you from doing something that might damage the machine or someone's property. It can also alert you against unsafe practices.

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

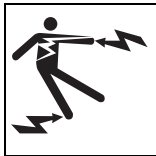
Safety Alerts

**⚠ DANGER**

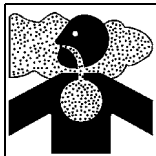
Moving digging teeth will kill you or cut off arm or leg. Stay away.

**⚠ DANGER**

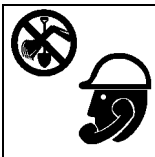
Turning shaft will kill you or crush arm or leg. Stay away.

**⚠ DANGER**

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

**⚠ DANGER**

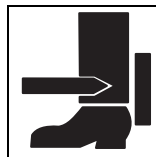
Deadly gases. Lack of oxygen or presence of gas will cause sickness or death. Provide ventilation.

**⚠ WARNING**

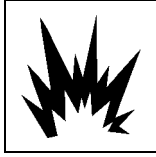
Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

**⚠ WARNING**

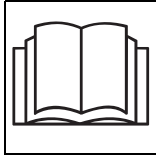
Crushing weight could cause death or serious injury. Use proper procedures and equipment or stay away.

**⚠ WARNING**

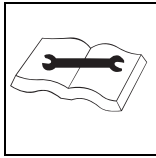
Moving parts could cut off hand or foot. Stay away.



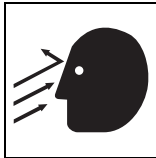
⚠ WARNING Explosion possible. Serious injury or equipment damage could occur. Follow directions carefully.



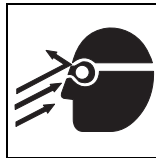
⚠ WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.



⚠ WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.



⚠ WARNING Looking into fiber optic cable could result in permanent vision damage. Do not look into ends of fiber optic or unidentified cable.



⚠ WARNING Pressurized fluid or air could pierce skin and cause injury or death. Stay away.



⚠ WARNING Runaway possible. Machine could run over you or others. Learn how to use all controls. Start and operate only from operator's position.

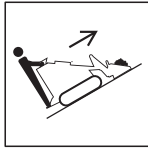


⚠ WARNING Fire or explosion possible. Fumes could ignite and cause burns. No smoking, no flame, no spark.



⚠ WARNING Moving traffic - hazardous situation. Death or serious injury could result. Avoid moving vehicles, wear high visibility clothing, post appropriate warning signs.

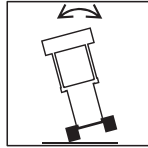
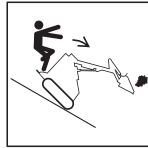




⚠ WARNING

Tipover possible. Machine can tip over and crush you.

- Always operate with load end uphill.
- Always carry load low. High load can cause tipping, loss of load or loss of visibility.
- Never jerk control levers. Use a steady even motion.
- See page 70 for tip capacity.



⚠ CAUTION

Flying objects may cause injury. Wear hard hat and safety glasses.



⚠ CAUTION

Hot parts may cause burns. Do not touch until cool.



⚠ CAUTION

Exposure to high noise levels may cause hearing loss. Wear hearing protection.



⚠ CAUTION

Fall possible. Slips or trips may result in injury. Keep area clean.



⚠ CAUTION

Battery acid may cause burns. Avoid contact.



⚠ CAUTION

Improper handling or use of chemicals may result in illness, injury, or equipment damage. Follow instructions on labels and in material safety data sheets (MSDS).

Emergency Procedures

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

EMERGENCY SHUTDOWN - Turn ignition switch to STOP.



Electric Strike Description

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. Almost one-third of 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 **on platform**, DO NOT MOVE. Remain on platform and 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.
- Raise attachments and drive from immediate area.
- Contact utility company to shut off power.
- Do not return to jobsite or allow anyone into area until given permission by utility company.

If you suspect an electric line has been damaged and you are **off platform**, DO NOT TOUCH UNIT. Take the following actions. The order and degree of action will depend upon the situation.

- LEAVE AREA. The ground surface may be electrified, so take small steps with feet close together to reduce the hazard of being shocked from one foot to the other. For more information, contact your Ditch Witch dealer.
- Contact utility company to shut off power.
- Do not return to jobsite or allow anyone into area until given permission by utility company.

If a Gas Line is Damaged

If you suspect a gas line has been damaged, take the following actions. The order 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.

If Machine Catches on Fire

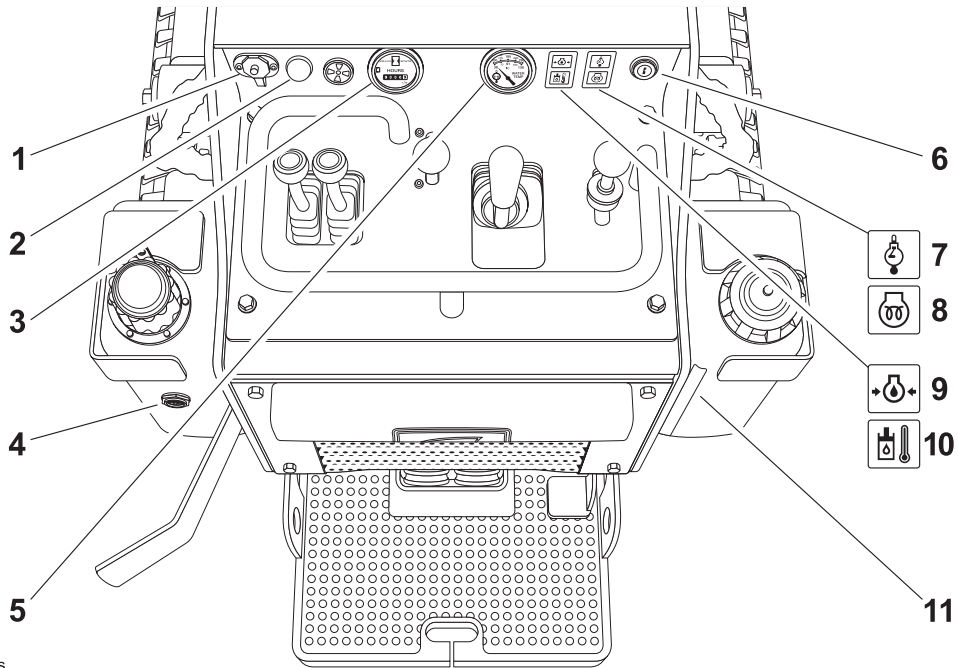


Perform emergency shutdown procedure and then take the following actions. The order and degree of action will depend on the situation.

- Immediately move battery disconnect switch (if equipped) 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.

Controls

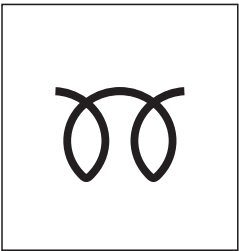
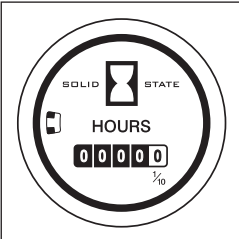
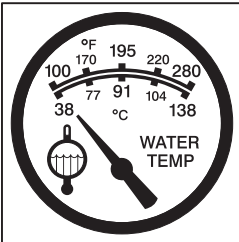
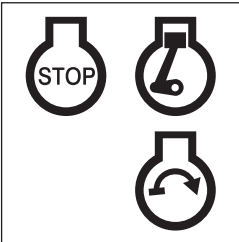
Gauges and Indicators

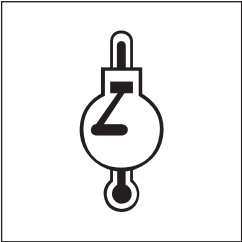
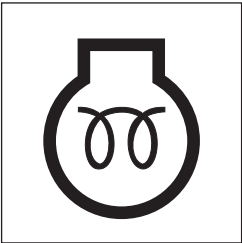
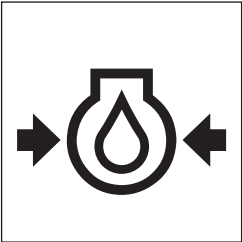
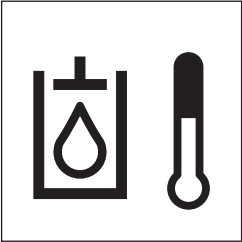


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- | | |
|--------------------------------|---|
| 1. Auxiliary power outlet | 7. Engine coolant temperature indicator |
| 2. Glow plug button | 8. Glow plug indicator |
| 3. Hourmeter | 9. Engine oil pressure indicator |
| 4. Hydraulic fluid sight glass | 10. Hydraulic fluid temperature indicator |
| 5. Coolant temperature gauge | 11. Fuel tank sight window |
| 6. Ignition switch | |

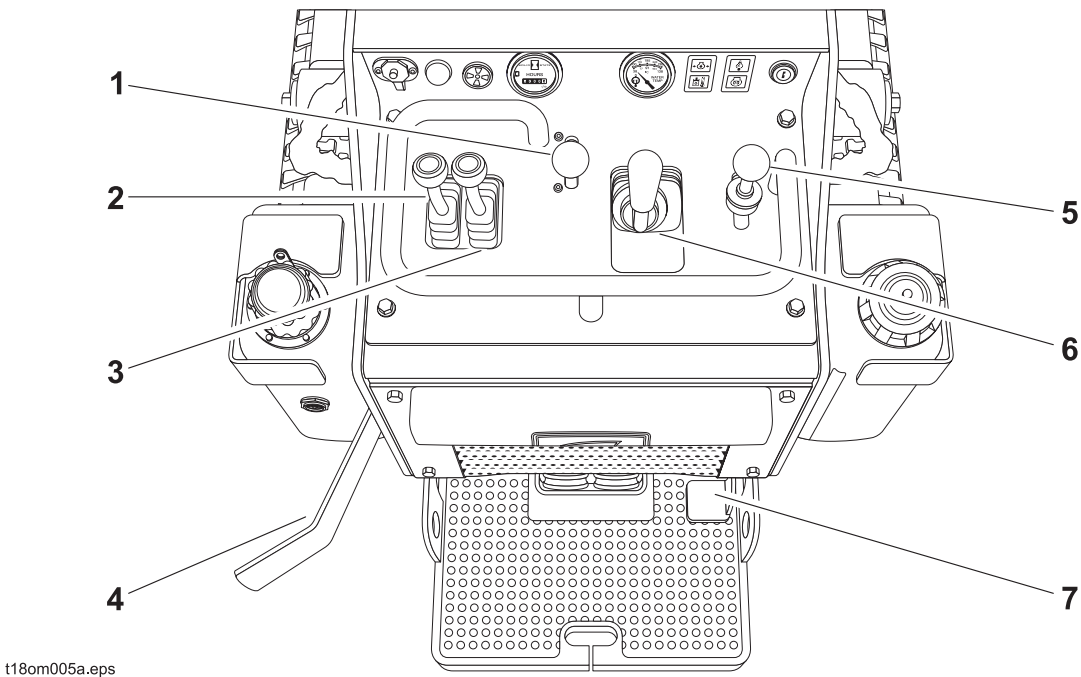
Item	Description	Notes
1. Auxiliary power outlet	To operate work lights or other 12V devices, plug into outlet.	

Item	Description	Notes
2. Glow plug button  c00ic108h.eps	To help start cold engine, turn ignition switch to first position. Press glow plug button as directed in notes. Release button, then turn ignition switch all the way clockwise to start.	IMPORTANT: Press glow plug button according to temperatures below. - If ambient temperature is below 40° F (4° C), press and hold button for 5 seconds. - If ambient temperature is below 20° F (-7° C), press and hold button for 10 seconds. - Do not press button for more than 20 seconds continuously.
3. Hourmeter  c00ic019h.eps	Displays engine operating time.	Use these times to schedule service.
4. Hydraulic fluid sight glass	Shows level of hydraulic fluid in tank. Maintain fluid at halfway point on glass.	
5. Coolant temperature gauge  c00ic086a.eps	Displays coolant temperature.	IMPORTANT: If temperature goes above 230°F (110°C): 1. Stop engine and allow to cool. 2. Check coolant level. 3. Ensure radiator is clean.
6. Ignition switch  c00ic065h.eps	To start engine, insert key and turn clockwise. To stop engine, turn key counterclockwise.	IMPORTANT: - If engine does not start or stalls, turn key to STOP and then restart. - Do not allow starter motor to run continuously for more than 20 seconds.

Item	Description	Notes
7. Engine coolant temperature indicator  c00ic274h.eps	Lights and alarm sounds when engine coolant temperature is too high.	1. Turn off engine and allow to cool. 2. Check coolant level.
8. Glow plug indicator  c00ic180h.eps	Lights when ignition switch is on and glow plug button is pressed.	
9. Engine oil pressure indicator  c00ic119h.eps	Lights when engine oil pressure is low. Also lights briefly when engine is started.	Engine will stop. 1. Check oil level. 2. Check for leaks before starting engine.
10. Hydraulic fluid temperature indicator  c00ic023h.eps	Lights and alarm sounds when hydraulic fluid is overheating.	Check hydraulic fluid level. Reduce load. Ensure oil cooler is clean.
11. Fuel tank sight window	Shows level of fuel in tank.	



Controls



1. Throttle

2. Left track drive control

3. Right track drive control

4. Parking brake lever
5. Attachment drive control

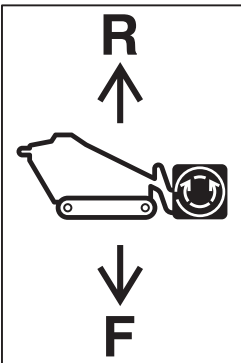
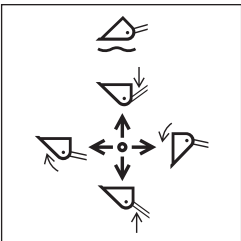
6. Lift arm control

7. Attachment drive foot control

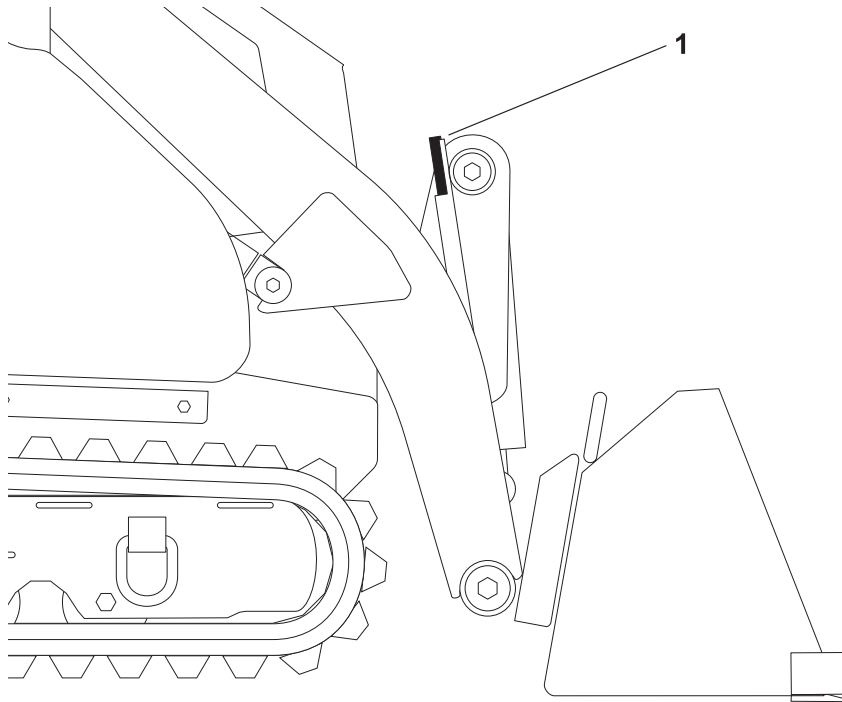
Item	Description	Notes
1. Throttle  c00ic007c.eps	To increase engine speed, push. To decrease engine speed, pull.	Increasing engine speed also increases attachment speed.

Item	Description	Notes
2. Left track drive control c00ic087a.eps	To move forward, push. To move backward, pull. To go faster in either direction, move control farther from neutral position. To stop, move to neutral position.	To turn right, move left control farther forward than right control. To turn left, move right control farther forward than left control. To counter-rotate in either direction, move controls in opposite directions as indicated above.
3. Right track drive control c00ic088a.eps	To move forward, push. To move backward, pull. To go faster in either direction, move control farther from neutral. To stop, move to neutral.	To turn right, move left control farther forward than right control. To turn left, move right control farther forward than left control. To counter-rotate in either direction, move controls in opposite directions as indicated above.
4. Parking brake lever c00ic089a.eps	To engage, release and push down. To disengage, pull up and latch.	



Item	Description	Notes
5. Attachment drive control  c00ic090a.eps	To engage attachment drive in reverse, lift lever release and push forward. To engage attachment drive in forward, lift lever release and pull back.	
6. Lift arm control  c00ic284h.eps	To move lift arms down, push. To float, push forward to end. To move lift arms up, pull. To curl attachment up, move to left. To curl attachment down, move to right.	IMPORTANT: Exercise caution when lifting loads. See page 70 for operating capacities.
7. Attachment drive foot control	To hold attachment drive in forward position, lift lever release and press pedal. To return attachment drive control to neutral, release pedal.	IMPORTANT: Use this control to hold attachment control in the on position when hands are busy operating lift arm controls or track drive.

Tool Carrier Attachment



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1. Level indicator

Item	Description	Notes
1. Level indicator	To level bucket, adjust bucket position until indicator is at top of sleeve.	To level other attachments, adjust attachment position until it is level. Mark indicator position on sleeve. Use mark to indicate level with that attachment.

Prepare

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Connect Attachment 33



Gather Information

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

All Jobs

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.

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.

Ground-Penetrating Jobs

Notify One-Call Services

Call area One-Call or similar services and have existing lines located and marked. Call any utilities in your area that do not subscribe to One-Call.

Above-Ground Jobs

Locate Overhead Lines

Note location and height of all overhead lines in jobsite and ensure that fully lifted attachment and/or load will not touch lines.

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 30.)
- traffic
- access
- soil type and condition

Identify Hazards

Identify safety hazards and classify jobsite if attachment will penetrate ground. See "Classify Jobsite" on page 30.



⚠ WARNING

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

NOTICE:

- Wear personal protective equipment including hard hat, safety eye wear, 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 line being installed.

Classify Jobsite

Inspect Jobsite

- 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
- Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.
- Contact One-Call (888-258-0808) and any utility companies which do not subscribe to One-Call.
- Have an experienced locating equipment operator sweep area within 20' (6 m) to each side of work 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

NOTICE: 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

Follow OSHA or other guidelines for exposure to crystalline silica when trenching, sawing or drilling through material that might produce dust containing crystalline silica (quartz).

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

Fluid Levels

- fuel
- hydraulic fluid
- battery charge
- engine oil

Condition and Function

- parking brake pins (see "Check Brake Operation" on page 55)
- filters (air, oil, hydraulic)
- 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.

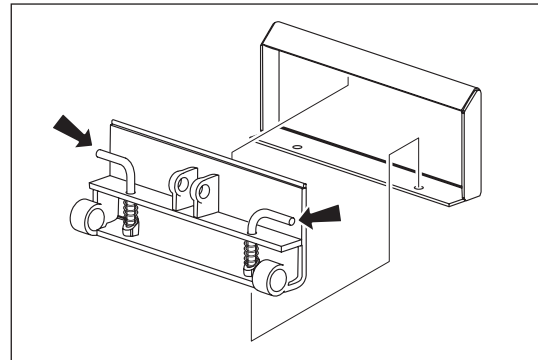
Connect Attachment

IMPORTANT: Use only Ditch Witch-approved attachments. Attachments can change the stability and operating characteristics of the unit.

Attachment

IMPORTANT: Before connecting attachment to unit, ensure that mount and receiver plates are free of dirt and debris.

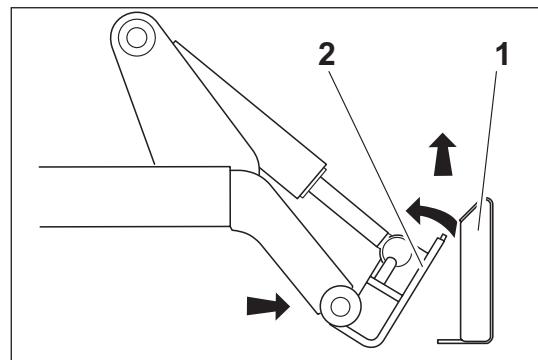
1. Position attachment on level surface with enough space behind it to accommodate unit.
2. Ensure that lock pin handles (shown) on mount plate are turned away from center of attachment.
3. Start engine.



t05om022c.eps

4. Tilt mount plate (2) forward.
5. Position mount plate in the upper lip of the receiver plate (1) on attachment.
6. Raise lift arms while tilting back mount plate.

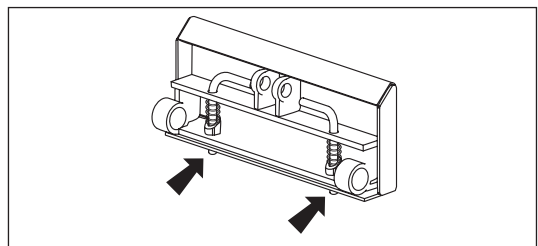
IMPORTANT: Attachment should be raised enough to clear the ground. Mount plate should be tilted back fully.



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7. Turn ignition switch off and remove key.
8. Rotate lock pin handles toward center of mount plate to secure attachment to lift plate.

NOTICE: To ensure proper connection, verify that bottoms of lock pins are visible under attachment receiver plate (shown).

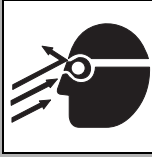


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Hydraulic Hoses

If attachment requires hydraulic power for operation, connect hydraulic hoses.



WARNING Pressurized fluid or air could pierce skin and cause injury or death. Stay away.

NOTICE:

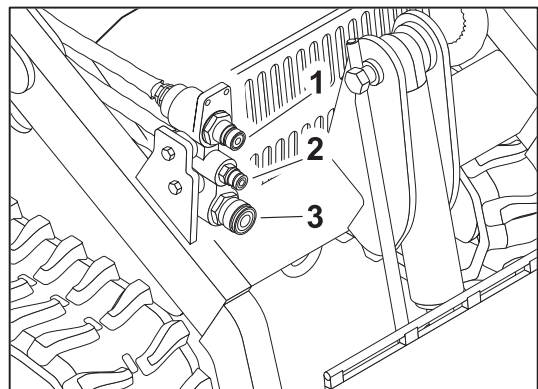
- Escaping pressurized fluid can cause injury or pierce skin and poison.
- Before disconnecting a hydraulic line, turn engine off and operate all controls to relieve pressure. Lower, block, or support any raised component with a hoist. Cover connection with heavy cloth and loosen connector nut slightly to relieve residual pressure. Catch all fluid in a container.
- Before using system, check that all connections are tight and all lines are undamaged.
- Fluid leaks can be hard to detect. Use a piece of cardboard or wood, rather than hands, to search for leaks.
- Wear protective clothing, including gloves and eye protection.
- If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.



CAUTION Hot parts may cause burns. Do not touch until cool.

NOTICE: Hydraulic couplers, hoses and fluid may be hot. Wear gloves when connecting and disconnecting hydraulic hoses and wait until unit has cooled before touching hydraulic components.

1. Cycle attachment drive control to relieve residual pressure at hydraulic couplers.
2. Remove dirt and debris from hydraulic couplers.
3. Connect male coupler on attachment to female coupler (3) on unit.
4. Connect female coupler on attachment to male coupler (1) on unit.
5. If needed, connect attachment case drain hose to case drain connector (2).
6. Ensure that connections are secure by pulling on hoses.



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Drive

Chapter Contents

Start Unit 36

Drive 36

Shut Down 37



Start Unit

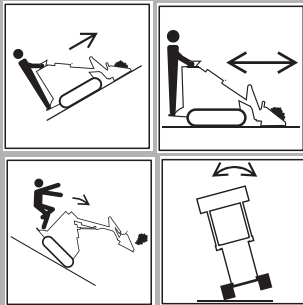
1. Ensure all controls are in neutral.
2. If necessary, warm cold engine with glow plugs.
3. Move throttle to half open.
4. Turn ignition switch to start position and release when engine starts.

NOTICE: If jump starting is required, see page 66.

EMERGENCY SHUTDOWN: Turn ignition switch to STOP.

Drive

General Operation



WARNING

Tipover possible. Machine can tip over and crush you.

- Always operate with load end uphill.
- Always carry load low. High load can cause tipping, loss of load or loss of visibility.
- Never jerk control levers. Use a steady even motion.
- See page 70 for tip capacity.

1. Disengage parking brake.
2. Pull lift arm control to raise mount plate (and attachment) off ground.
3. Move both track drive controls to forward or reverse. See page 23.

IMPORTANT: If needed for attachment operation, push attachment drive foot control to hold attachment control in the forward position while operating track drive and lift arm controls.

4. Adjust throttle as needed.

Slope Operation Guidelines

NOTICE: Keep attachment/load low when operating on a slope. Drive slowly and cautiously at all times.

- Operate up and down slopes with heavy end of unit uphill. Weight distribution changes based on lift arm position, attachments and load. For example, an empty bucket makes the rear of the unit the heavy end while a full bucket makes the front of the unit the heavy end. Most Ditch Witch-approved attachments make the front of the unit the heavy end.
- Avoid starting, stopping, or turning on slopes. If you must turn, keep the heavy end of the unit uphill.
- Do not park unit on slope without lowering attachment to the ground, returning all controls to neutral position, turning ignition switch to STOP, and applying parking brake.
- Some attachments, such as jackhammers and trenchers, can be carried closer to the ground by tilting the attachment and lowering the lift arms.

Shut Down



1. Lower lift arms to ground.
2. Move all controls to neutral position.
3. Apply parking brake.
4. Run engine at low idle for five minutes to cool.

NOTICE: Failure to allow engine to cool before shutdown may cause turbocharger damage.

5. Turn ignition switch to STOP.
6. Remove key.

NOTICE:

- Unit should not be parked on a slope unless parking brake is engaged.
- Move all controls to neutral position when stopped.

Transport

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- Points 40
- Procedure 40

Haul 41

- Inspect Trailer 41
- Hitch Trailer 41
- Load 42
- Tie Down 43
- Unload 44
- Unhitch Trailer 44

Tow 45



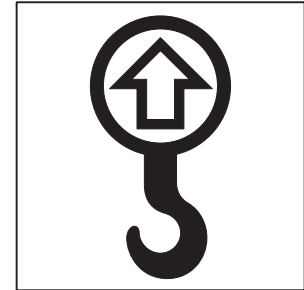
Lift

**WARNING**

Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

Points

Lifting points are identified by lifting decals. Lifting at other points is unsafe and can damage machinery.



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Procedure

Use a hoist capable of supporting the equipment's size and weight. See "Specifications" on page 69 or measure and weigh equipment before lifting.

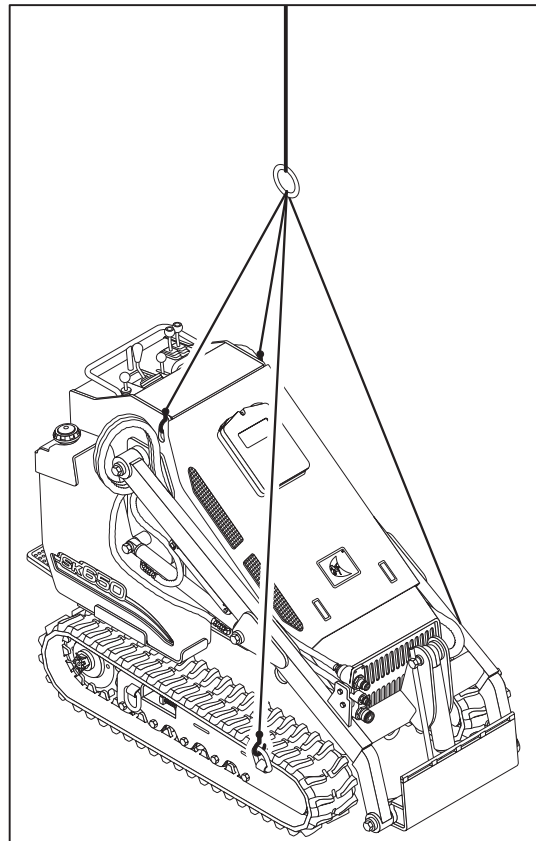
To lift unit with attachment, use four lift points as shown.

To lift unit without attachment, use one of the methods below:

- Use two points nearest operator station.

IMPORTANT: Front of unit will be lower than rear of unit when using only two lift points.

- Use four lift points as shown.



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Haul

IMPORTANT: For complete information, see the trailer manufacturer's manual.

Inspect Trailer

- Check hitch for wear and cracks. Lubricate if needed.
- Check battery for 12V charge, if installed.
- Inspect lights for cleanliness and correct operation. Inspect reflectors and replace if needed.
- Check tire pressure. Check lug nut torque with a torque wrench. Adjust if needed.
- If equipped, ensure trailer brakes are adjusted to come on in synchronization with tow vehicle brakes.
- Check ramps and trailer bed for cracks.

Hitch Trailer

1. Back tow vehicle to trailer.
2. Put manual transmission into first or reverse gear or automatic transmission into park. Turn off ignition. Set parking brake.
3. Connect trailer drawbar, lunette or coupler to tow vehicle hitch and lock in place with lock pin. If needed, adjust drawbar, lunette or coupler height to level load.
4. Connect safety chains to tow vehicle.

IMPORTANT: Do not connect safety chains to pintle hook or hitch ball.

5. If equipped, connect breakaway switch cable to tow vehicle.

IMPORTANT: Do not connect breakaway switch cable to pintle hook or hitch ball.

6. If equipped, plug trailer electrical connector into tow vehicle connector.
7. If equipped, use jack crank to raise jack base and stow.
8. Remove wheel blocks.



Load



WARNING Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

NOTICE:

- Load and unload trailer on level ground.
- Incorrect loading can cause trailer swaying.
- Attach trailer to vehicle before loading or unloading.
- Ten to fifteen percent of total vehicle weight (equipment plus trailer) must be on tongue to help prevent trailer sway.

1. Disengage parking brake.
2. Start engine.
3. Adjust throttle to low speed.
4. Pull lift arm control to raise mount plate (and attachment) clear of trailer, but keep it low.
5. Move unit to rear of trailer and align with ramps.
6. Move both track drive controls forward and slowly move unit onto trailer until tiedown position is reached.

NOTICE:

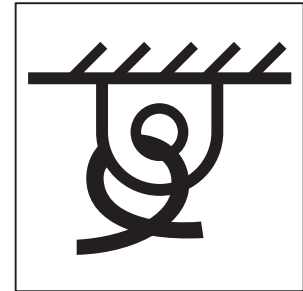
- If loading onto tilt-bed trailer, be prepared for trailer to tilt.
- Move all controls to neutral position when stopped.

7. Push lift arm control to lower mount plate (and attachment) to trailer bed.
8. Apply parking brake.
9. Ensure that all controls are in neutral position.
10. Turn ignition switch to STOP.
11. Tie down unit.

Tie Down

Points

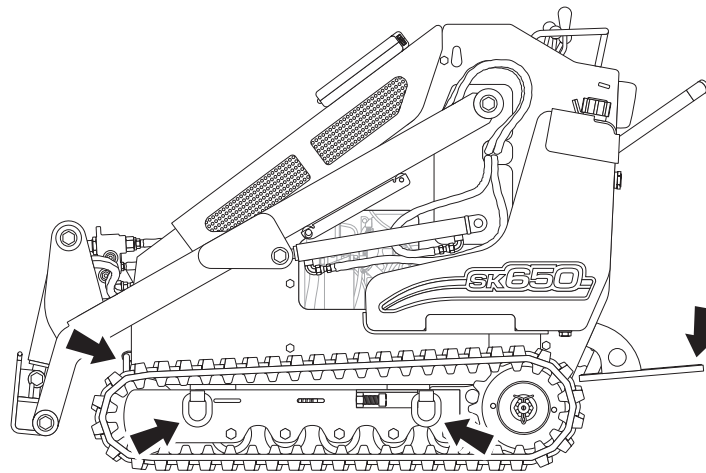
Tiedown points are identified by tiedown decals. Securing to truck or trailer at other points is unsafe and can damage machinery.



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Procedure

Loop tiedowns around unit at tiedown points. Make sure tiedowns are tight before transporting.



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Unload



WARNING Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

NOTICE:

- Load and unload trailer on level ground.
- Attach trailer to vehicle before loading or unloading.

1. Prepare trailer and ramps for unloading.
2. Remove tiedowns.
3. Disengage parking brake.
4. Start engine.
5. Pull lift arm control to raise mount plate (and attachment) off ground, but keep it low.
6. Adjust throttle to low speed and slowly back unit down trailer or ramps.

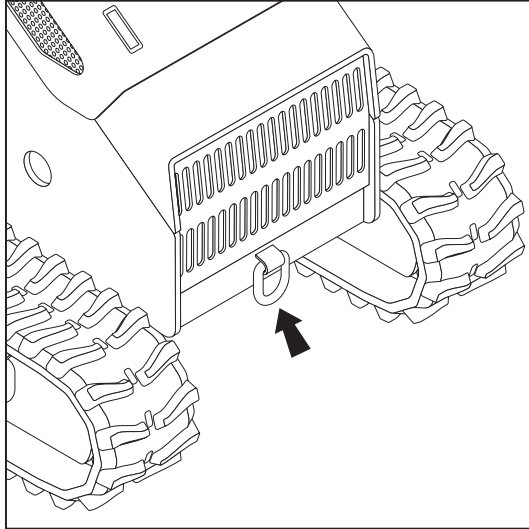
NOTICE: If unloading from tilt-bed trailer, be prepared for trailer to tilt.

Unhitch Trailer

1. Stop tow vehicle and trailer on level ground.
2. Put manual transmission into first or reverse gear or automatic transmission into park. Turn off ignition. Set parking brake.
3. Block trailer wheels.
4. Reverse "Hitch Trailer" steps on page 41 to unhitch trailer from tow vehicle.

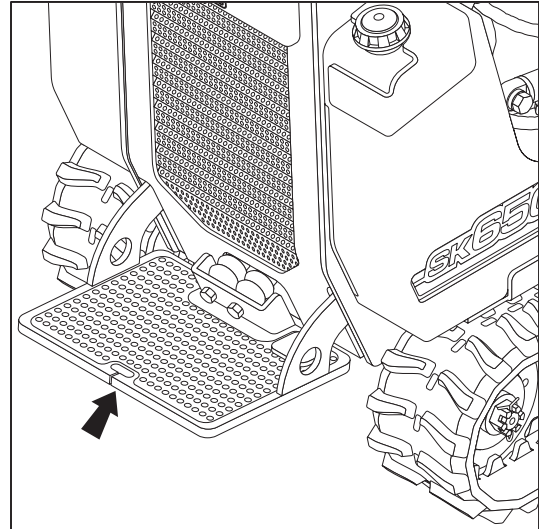
Tow

Under normal conditions, unit should not be towed. If unit breaks down and towing is necessary:



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front tow point



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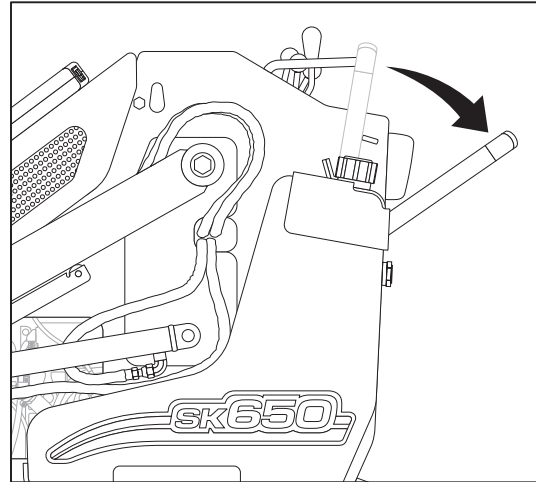
rear tow point

- attach chains to tow points facing towing vehicle
- tow for short distances at less than 1 mph (1.6 km/h)
- do not tow for more than 100' (30 m)
- use no more than 1,300 lb (5800 N) of towing force
- open bypass valve on each pump section
- disengage parking brake



Prepare Unit for Towing

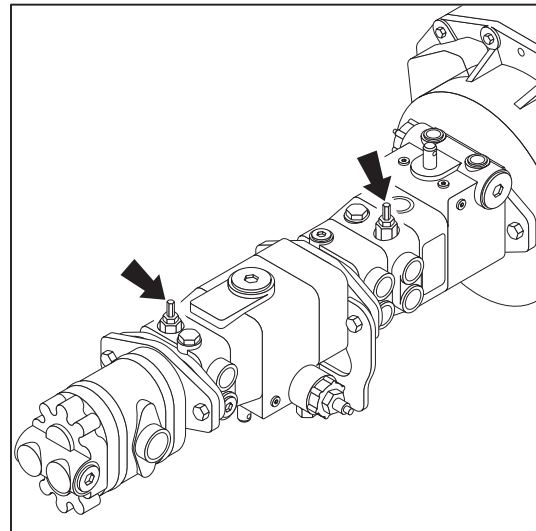
1. Block tracks.
2. Engage parking brake (shown).



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3. Loosen locknut and loosen bypass valves (shown) three turns.

IMPORTANT: Open bypass valves in both front and rear pumps.



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Return Unit to Normal Operation

1. Tighten bypass valves and torque locknut to 12.5 ft•lb (17 N•m).

IMPORTANT: Close bypass valve in both front and rear pumps.

2. Disengage parking brake.
3. Unblock tracks.

Complete the Job

Chapter Contents

Rinse Equipment 48

Disconnect Attachment 48

Stow Tools 48



Rinse Equipment

1. Spray water onto equipment to remove dirt and mud.

NOTICE: Do not spray water onto operator's console. Electrical components could be damaged. Wipe down instead.

2. Open hood and allow unit to cool. Remove debris from inside of unit.
3. Remove mud from track sprockets.
4. Wash undercarriage. Pay special attention to brake pins area.

Disconnect Attachment

1. Lower attachment to the ground.
2. Turn off engine.
3. Disengage lock pins by turning handles away from center of attachment.
4. Cycle attachment drive control and disconnect hydraulic hoses, if used.
5. Start engine.
6. Tilt mount plate forward and back unit away from attachment.

Stow Tools

Make sure all tools and accessories are loaded on trailer.

Service



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Precautions 50

Overview 52

Recommended Lubricants/Service Key 52

Engine Oil Temperature Chart 53

10 Hour 54

50 Hour 58

150 Hour 61

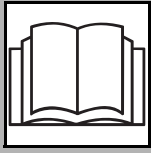
250 Hour 61

500 Hour 62

2000 Hour 64

As Needed 65

Precautions

**⚠ WARNING**

Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Unless otherwise instructed, all service should be performed with engine off.
- Refer to engine manufacturer's manual for engine maintenance instructions.
- Before servicing equipment, lower unstowed attachments to ground.

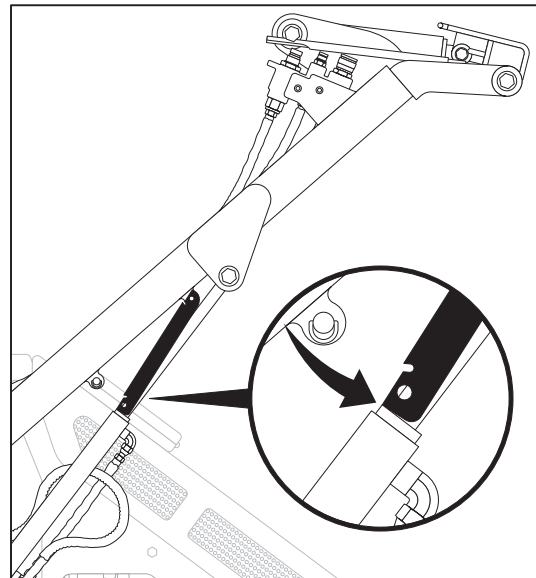
Working Under Raised Lift Arms

**⚠ WARNING**

Crushing weight could cause death or serious injury. Use proper procedures and equipment or stay away.

NOTICE: Support both lift arms before working under raised lift arms.

Use safety supports as indicated when working under raised lift arms.



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Jump Starting Precaution



WARNING

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

NOTICE:

- Sparks can cause battery to explode.
- Electronic components can be easily damaged.
- Jump starting is not recommended except in extreme circumstances. Follow procedures on page 66 if jump starting is necessary.

Welding Precaution



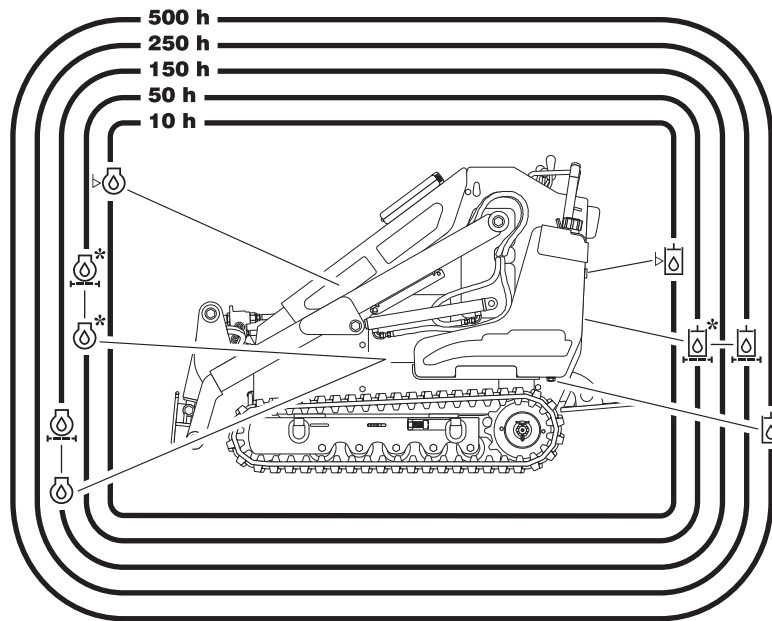
WARNING

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

NOTICE:

- Disconnect battery to prevent damage to battery. Do not turn off battery disconnect switch with engine running, or alternator and other electronic devices may be damaged.
- Connect welder ground clamp close to welding point and make sure no electronic components are in the ground path.
- Always disconnect the Engine Control Unit ground connection from the frame, harness connections to the ECU, and other electronic components prior to welding on machine or attachments.

Overview



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Recommended Lubricants/Service Key

Item	Description
 DEO	Diesel engine oil meeting API service classification CF-4 or E1-96 and SAE viscosity recommended by engine manufacturer
 THF	Tractor hydraulic fluid, similar to Phillips 66 HG, Mobilfluid 423, Chevron Tractor Hydraulic Fluid, Texaco TDH Oil, or equivalent
*	Initial service interval
	Check level of fluid or lubricant
	Check condition
	Filter
	Change, replace, adjust, service or test

Proper lubrication and maintenance protects Ditch Witch equipment from damage and failure. Service intervals listed are for minimum requirements. In extreme conditions, service machine more frequently.

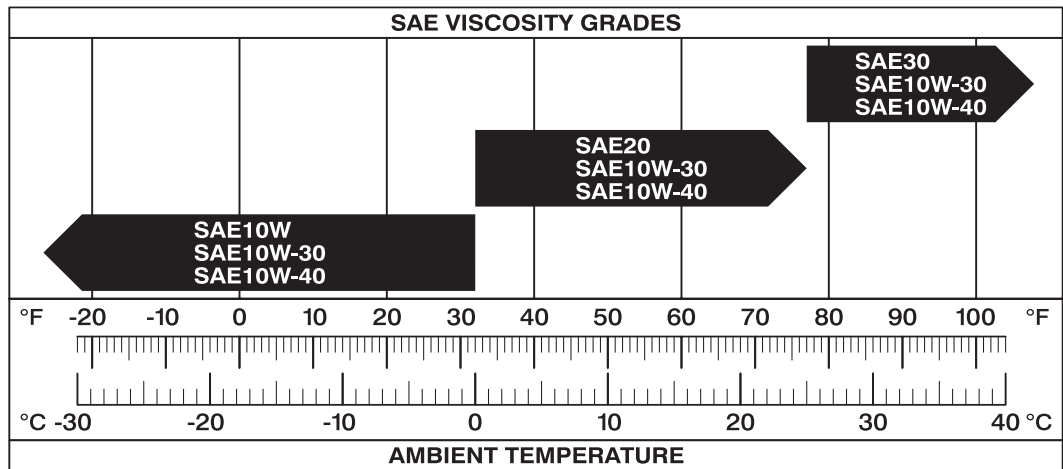
Use only recommended lubricants. Fill to capacities listed on page 71.

NOTICE:

- Use only genuine Ditch Witch parts, filters, and approved lubricants to maintain warranty.
- Use the "Service Record" on page 77 to record all required service to your machine.



Engine Oil Temperature Chart



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Temperature range anticipated before next oil change

For more information on engine lubrication and maintenance, see your engine manual.

Approved Coolants

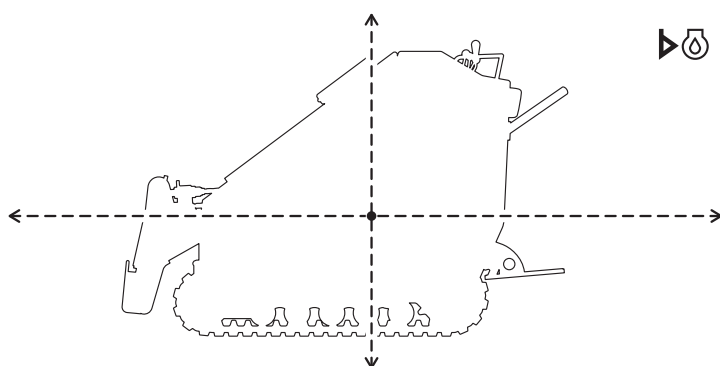
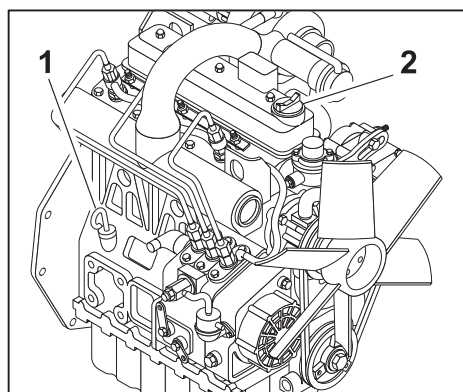
Any coolant is approved for use with this unit. However, it was filled with John Deere Cool-Gard coolant before shipment from factory. Add only Cool-Gard (p/n 255-006) or any fully-formulated, ethylene glycol based, low-silicate, heavy-duty diesel engine coolant meeting ASTM specification D5345 (prediluted) or D4985 (concentrate). Before using any other kind of coolant, completely flush radiator.

NOTICE: Do not mix heavy-duty diesel engine coolant and automotive-type coolant. This will lead coolant breakdown and engine damage.

10 Hour

Location	Task	Notes
Traction Unit	Check engine oil level	
	Check hydraulic fluid level	THF
	Check brake operation	
	Check hydraulic hoses	
	Check track tension	
	Check engine coolant level	DEAC

Check Engine Oil Level

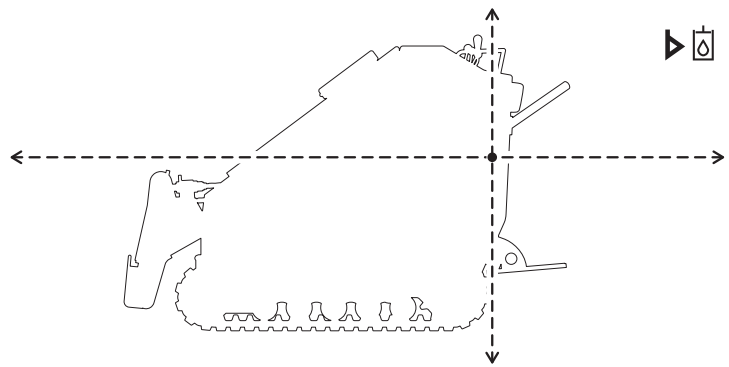
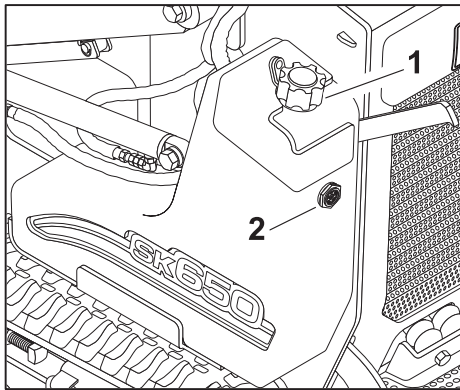


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Check engine oil level at dipstick opening (1) every 10 hours. Oil level should be at top of marking. If low, add DEO at fill (2). Check with unit on level surface and at least 15 minutes after stopping engine.

IMPORTANT: Use oil specified in “Engine Oil Temperature Chart” on page 53.

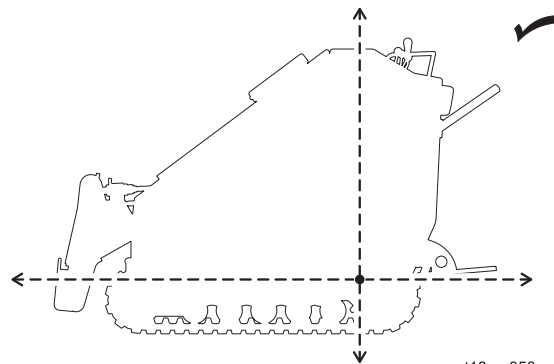
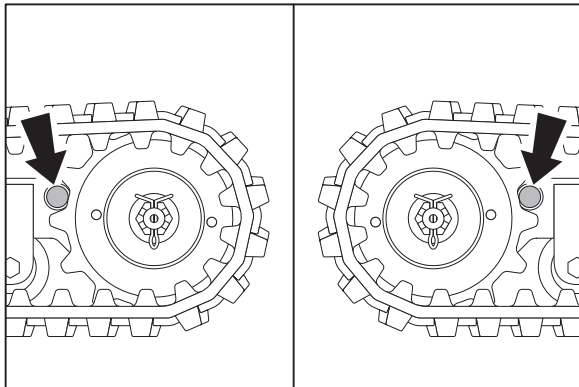
Check Hydraulic Fluid Level



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Check hydraulic fluid level every 10 hours. Maintain fluid level at halfway point on sight glass (2), when engine is off, cylinders are fully retracted, and fluid is cool. If low, add THF at fill (1).

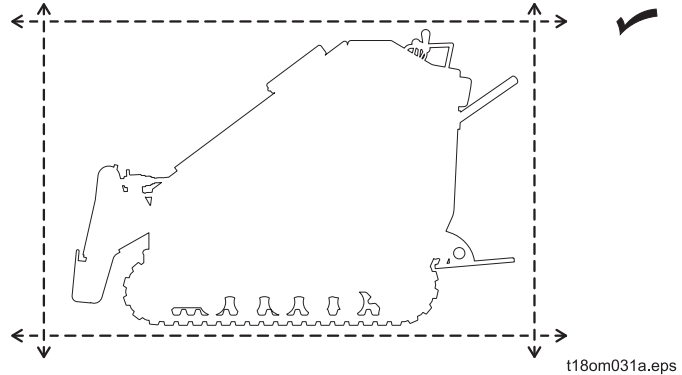
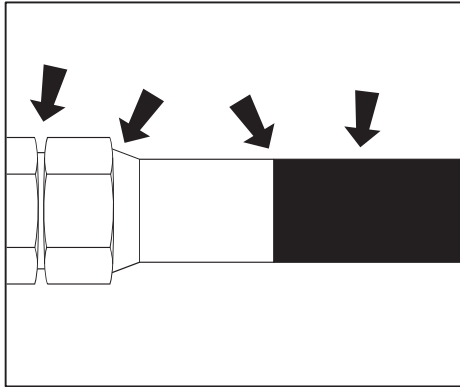
Check Brake Operation



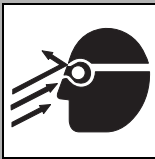
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Check brake operation every 10 hours or more often when conditions warrant.

- Ensure parking brake pins (shown) move freely allowing brake to be engaged and disengaged.
- Clean mud and debris from area around pins.

Check Hydraulic Hoses

Check hydraulic hoses for leaks every 10 hours.

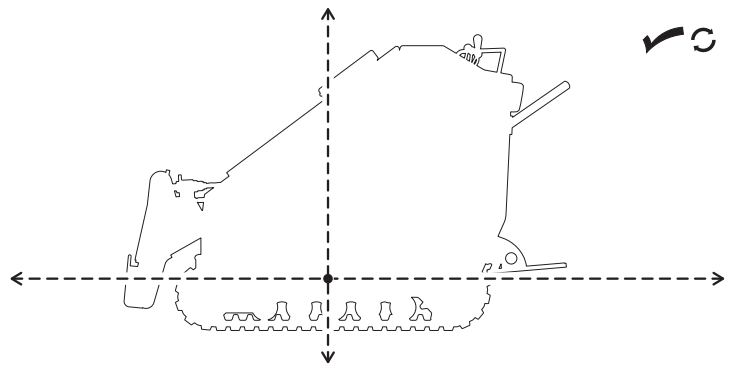
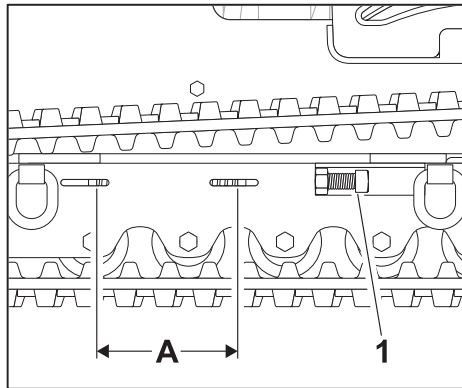
**WARNING**

Pressurized fluid or air could pierce skin and cause injury or death. Stay away.

NOTICE:

- Escaping pressurized fluid can cause injury or pierce skin and poison.
- Before disconnecting a hydraulic line, turn engine off and operate all controls to relieve pressure. Lower, block, or support any raised component with a hoist. Cover connection with heavy cloth and loosen connector nut slightly to relieve residual pressure. Catch all fluid in a container.
- Before using system, check that all connections are tight and all lines are undamaged.
- Fluid leaks can be hard to detect. Use a piece of cardboard or wood, rather than hands, to search for leaks.
- Wear protective clothing, including gloves and eye protection.
- If you are injured, seek immediate medical attention from a doctor familiar with this type of injury.

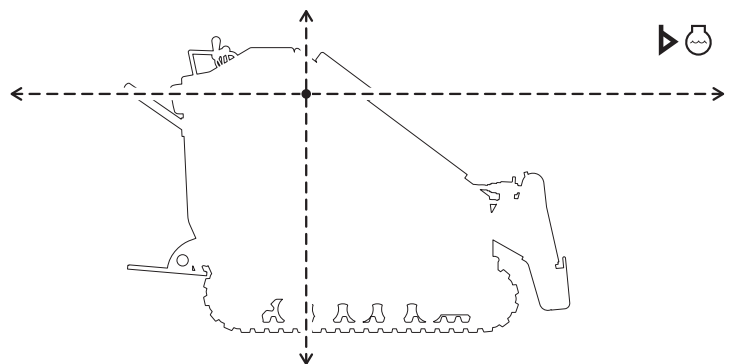
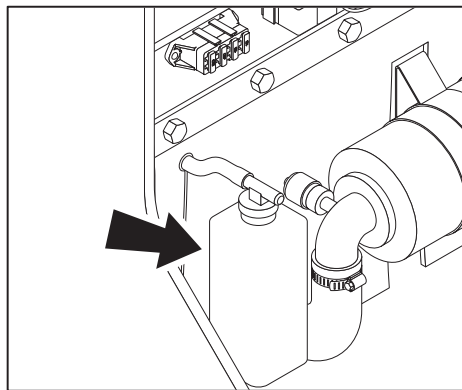
Check Track Tension



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Check track tension every 10 hours and adjust as needed. Turn bolt (1) clockwise to tighten and counterclockwise to loosen. Track tension is correct when compressed spring length (dimension A) is 9 5/8" (244 mm) $\pm$ 1/8" (3 mm).

Check Engine Coolant Level



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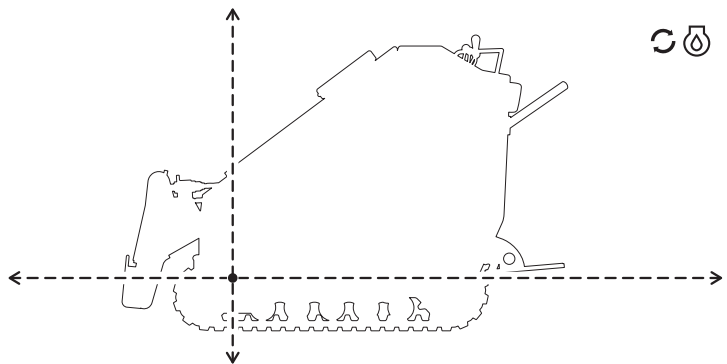
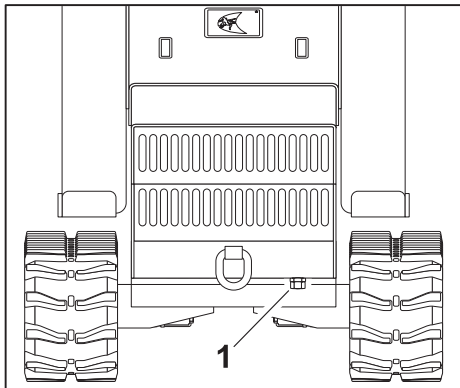
Check coolant level, with engine cool, at overflow bottle every 10 hours. Maintain coolant level at halfway point on bottle. If low, add approved coolant.

IMPORTANT: See page 53 for information on approved coolants.

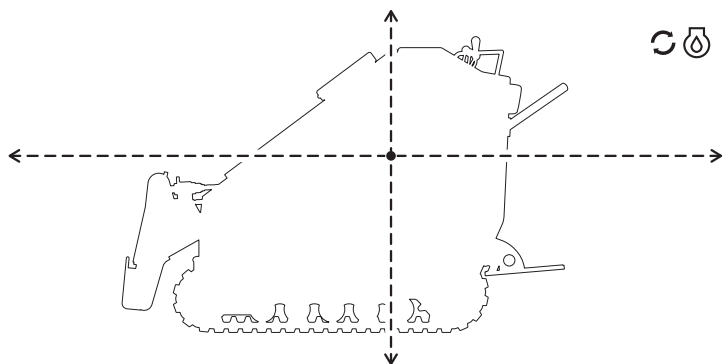
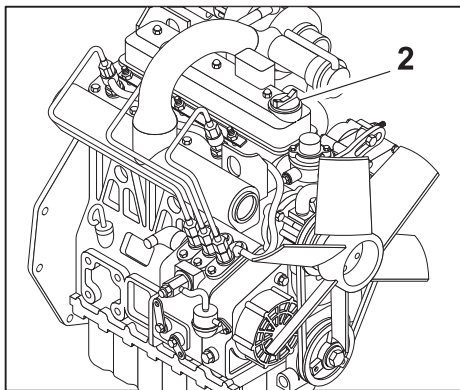
50 Hour

Location	Task	Notes
Traction Unit	Check engine oil and filter	initial service
	Check battery	
	Check radiator	
	Check fan belt tension	1/4-1/3" (7-9 mm)

Change Engine Oil and Filter (Initial)



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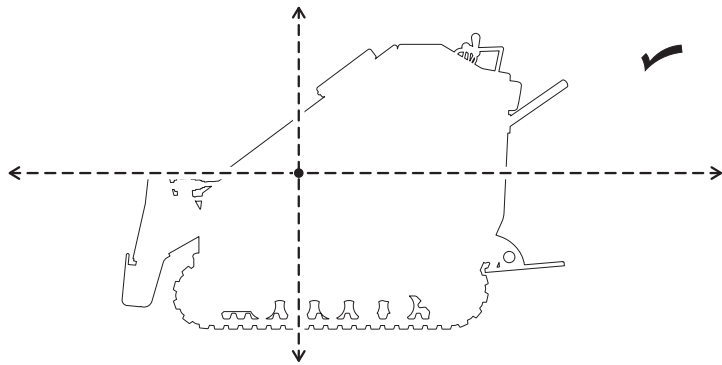
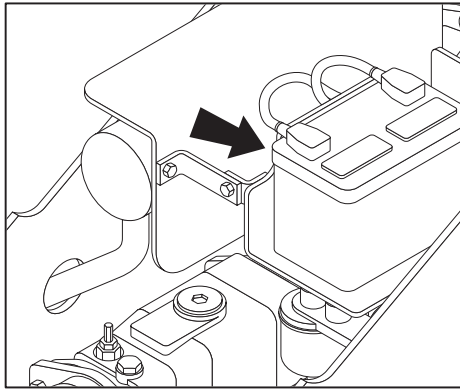


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Change engine oil after 50 hours. Drain oil (1) and add 4.2 qt (4 L) of DEO at fill (2).

IMPORTANT: Use oil specified in "Engine Oil Temperature Chart" on page 53.

Check Battery



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Check battery every 50 hours. Keep battery and terminals clean and free of corrosion.

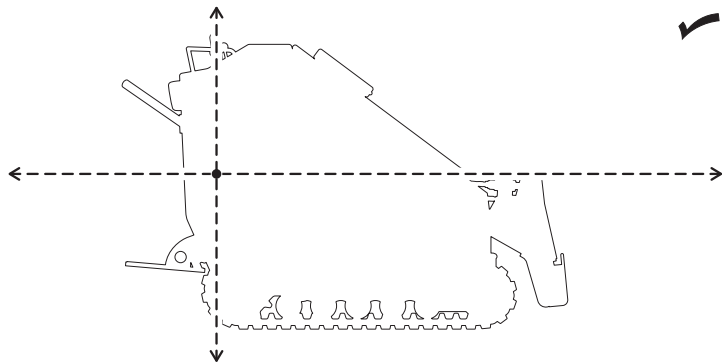
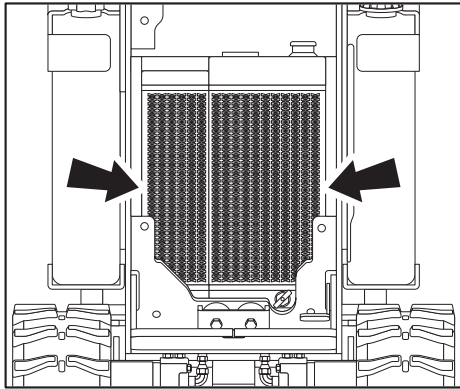


WARNING

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

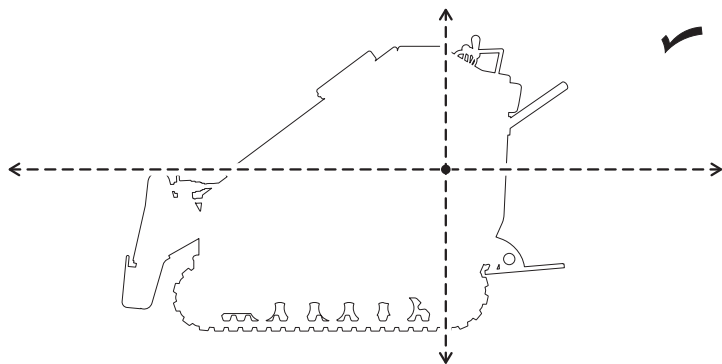
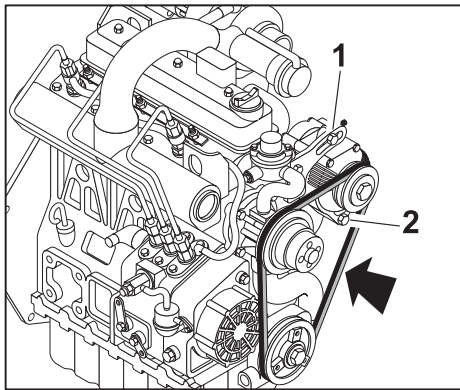
NOTICE:

- Battery gas can explode. Keep sparks and flames away from battery.
- Always remove negative (-) battery cable first and replace it last.
- Battery electrolyte is sulfuric acid and poisonous. Will burn skin and cause blindness if splashed into eyes. Wash hands after working around battery.
- Never disconnect battery terminals with engine running. Voltage spike may occur and ruin electronic control modules or other components.

Check Radiator

t18om047a.eps

Check radiator for dirt, grass, and other foreign matter every 50 hours. Clean out with compressed air or spray wash if required. Be careful not to damage fins with high-pressure air or water. Check more often if operating in dusty or grassy conditions.

Check Fan Belt Tension

t18om048a.eps

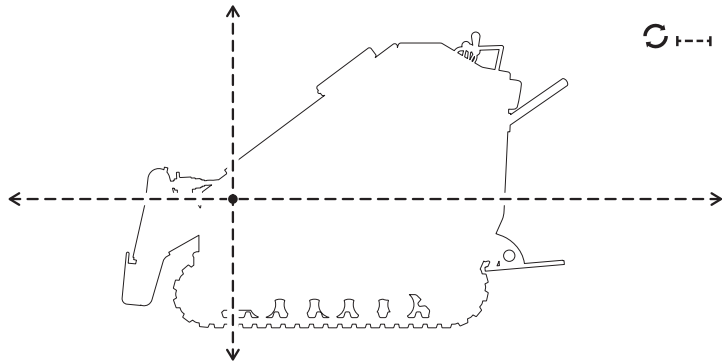
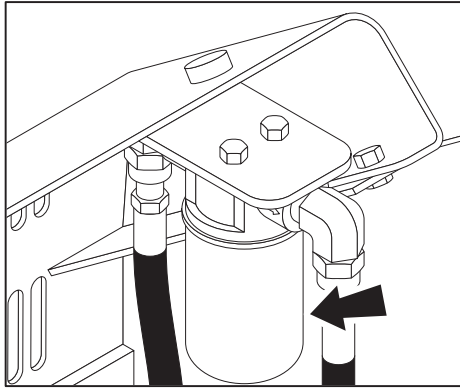
Check fan belt tension every 50 hours. Apply moderate thumb pressure in long span (shown). Belt is properly tensioned when deflection is 1/4-1/3" (7-9 mm). Adjust as needed. Replace belt if damaged.

To adjust

1. Loosen bolts (1, 2) and move alternator until proper tension is reached.
2. Tighten screws.
3. Verify tension is correct.

150 Hour

Change Engine Oil and Filter



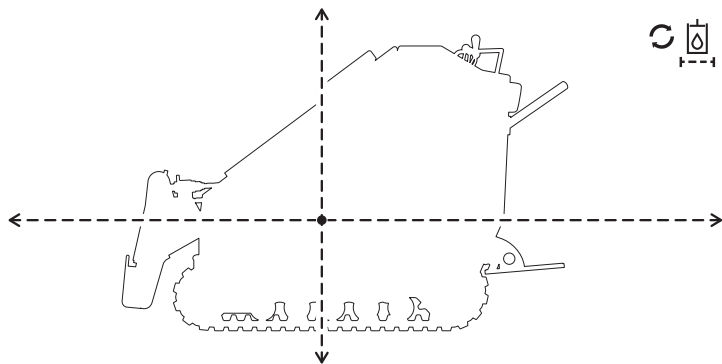
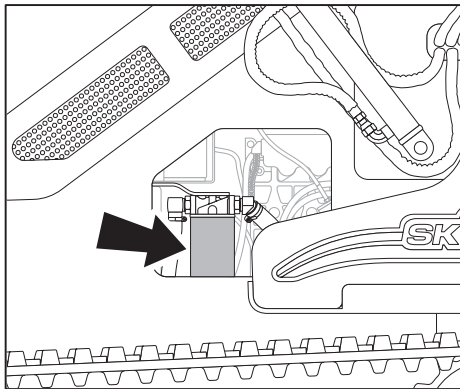
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Change engine oil and filter every 150 hours. Drain oil, change filter (shown) and add 4.2 qt (4 L) of DEO at fill. See page 58.

IMPORTANT: Use oil specified in "Engine Oil Temperature Chart" on page 53.

250 Hour

Change Hydraulic Fluid Filter



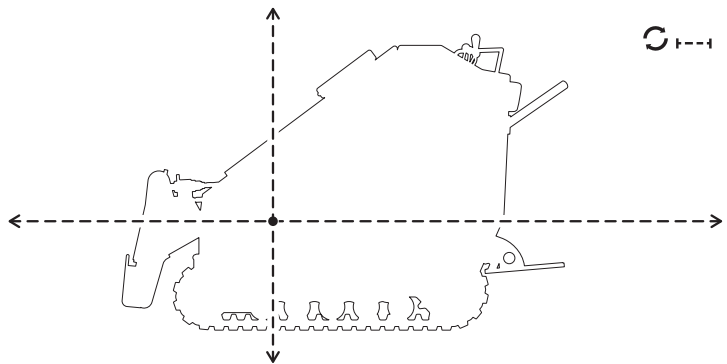
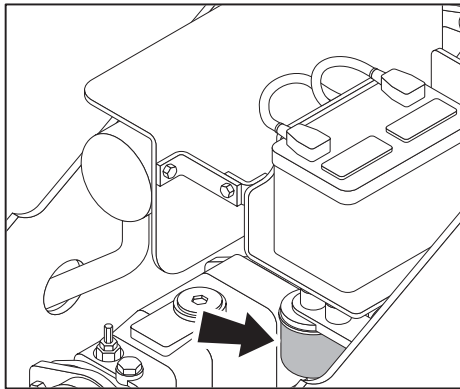
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Change hydraulic fluid filter every 250 hours.

500 Hour

Location	Task	Notes
Traction Unit	Change fuel filter	
	Change inline fuel filter	
	Change hydraulic fluid and filter	

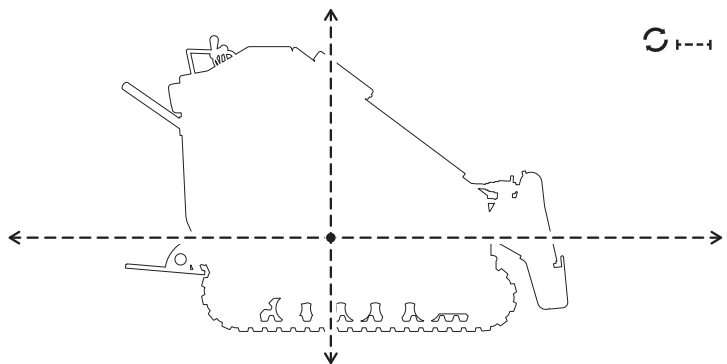
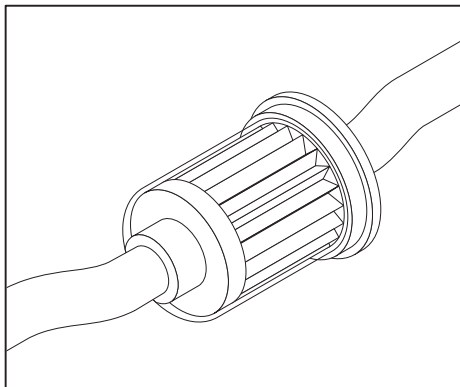
Change Fuel Filter



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Change fuel filter every 500 hours. If you refuel from cans, replace filter more often. See parts manual or contact your Ditch Witch dealer for correct replacement filter.

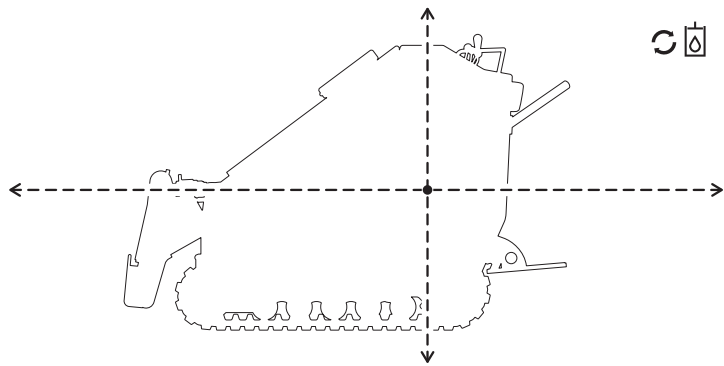
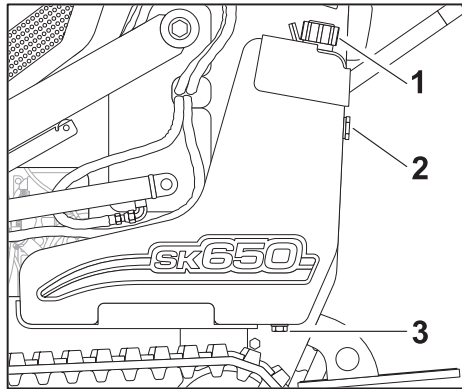
Change Inline Fuel Filter



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Change inline fuel filter every 500 hours.

Change Hydraulic Fluid and Filter



t18om043a.eps

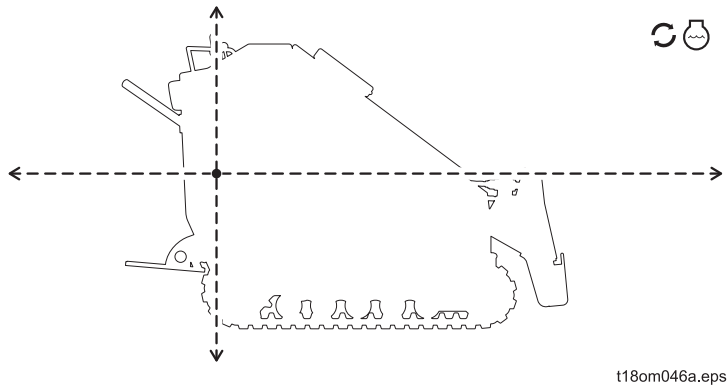
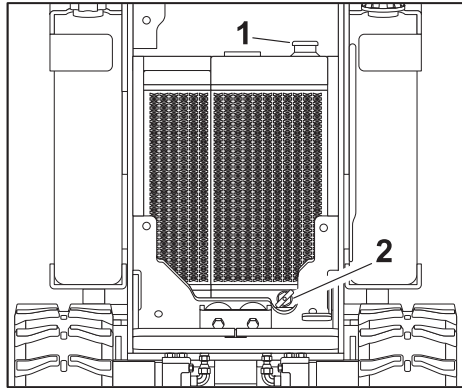
Change hydraulic fluid and filter every 500 hours. Change every 250 hours if jobsite temperature exceeds 100°F (38°C) more than 50% of the time.

1. Remove drain plug (3).
2. Drain fluid and replace plug.
3. Change filter.
4. Add THF at fill (1) until fluid level is at halfway point on sight glass (2). Capacity is 7 gal (26 L).



2000 Hour

Change Engine Coolant



Drain cooling system at drain (2). Add approved coolant at fill (1) every two years or 2000 hours.

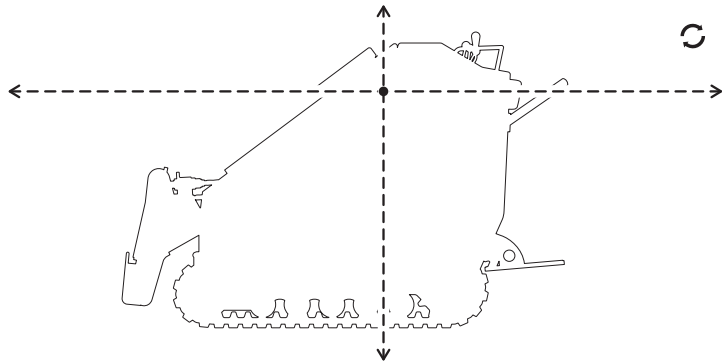
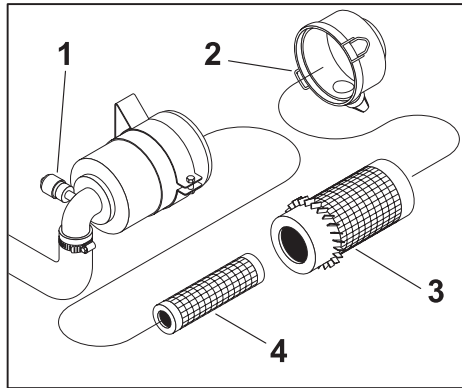
NOTICE:

- The use of non-approved coolant may lead to engine damage or premature engine failure and will void engine warranty.
- See page 53 for list of approved coolants.

As Needed



Change Air Filter

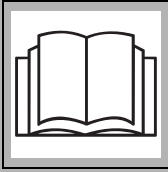


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Change air filter when red band on indicator is visible.

1. Open air filter housing at latches (1).
2. Remove primary (2) and secondary (3) elements.
3. Wipe inside of housing and wash end cup.
4. Insert new primary and secondary elements.
5. Close air filter case.
6. Reset air filter service indicator (1).

Jump Start Unit

**WARNING**

Incorrect procedures could result in death, injury, or property damage. Use equipment correctly.

NOTICE:

- Park on level area.
- Put all drive controls in neutral and lower all unstowed attachments.
- Turn off all electrical loads.
- Turn off engine and remove key from ignition.
- Block wheels or tracks.

**WARNING**

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

NOTICE:

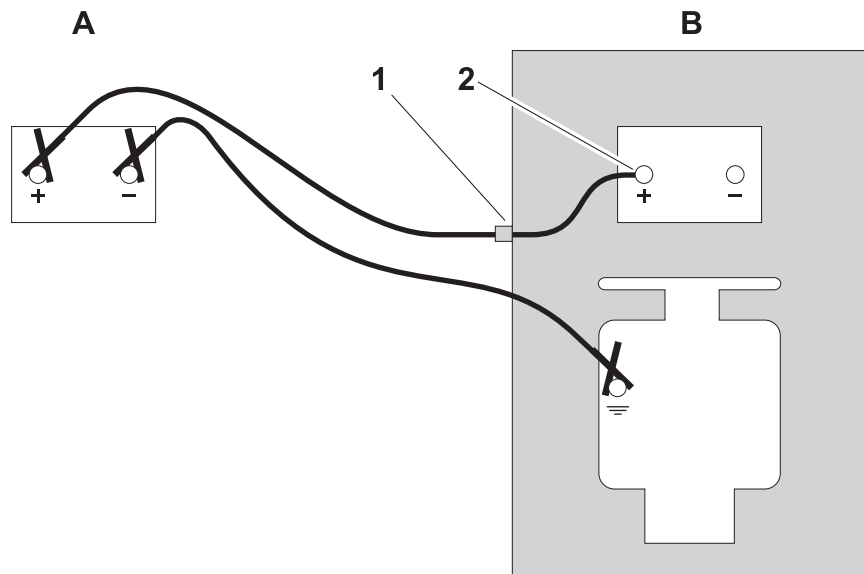
- Lead-acid batteries vent explosive hydrogen gas when charging.
- Do not smoke, create sparks, or use flames around batteries.
- NEVER lean over battery when making connections.
- Do not allow vehicles to touch when jump starting.
- Wear eye protection and remove metal jewelry and watches.
- Do not attempt to jump start a battery that is leaking, bulging, heavily corroded, frozen, or otherwise damaged.
- NEVER short-circuit battery terminals for any reason.
- NEVER hammer on battery posts or cable terminals.

Before You Start

Electronic components can be easily damaged by electrical surges. Jump starting can damage electronics and electrical systems, and is not recommended except in extreme circumstances. Use quality large diameter jumper cables capable of carrying high currents (400 amps or more). Cheap cables may not allow enough current flow to start a dead/discharged battery.

Read all steps thoroughly and review illustration before performing procedure.

Jump Start Procedure (Engine Off)



x00xx001h.eps

1. Park service vehicle close to disabled equipment but do not allow vehicles to touch.
2. Engage parking brake in both vehicles.
3. Turn the ignition switch to the OFF position in both vehicles, and turn off all electrical loads.
4. Inspect battery in disabled vehicle (B) for signs of cracking, bulging, leaking, or other damage. Connect red positive (+) jumper cable clamp to positive (+) post (2) of battery in disabled vehicle first.

IMPORTANT: Some equipment may have a positive jumper cable terminal (1) located externally. If so equipped, connect red positive (+) jumper cable clamp to terminal.

5. Connect the other red positive (+) jumper cable clamp to positive (+) post of battery (A) in the service vehicle.



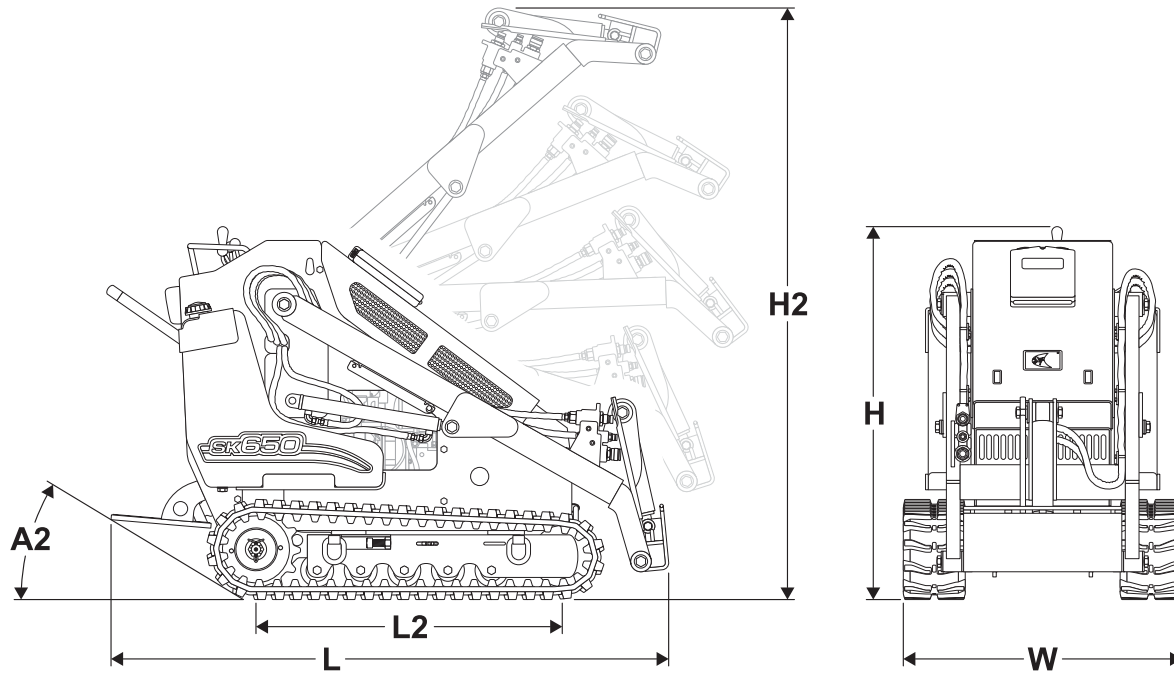
6. Connect black negative (-) cable clamp to negative (-) post of battery (A) in service vehicle.
7. Connect the other black negative (-) cable clamp to the engine or frame ground on the disabled vehicle, at least 12" (305 mm) from the failed battery, as shown.
8. Operate service vehicle engine at 1500-2000 rpm for a few minutes to build an electrical charge in the failed battery.
9. Stop engine in service vehicle.
10. Remove jumper cables from the service vehicle, black negative (-) clamp first. Do not allow clamps to touch.
11. Attempt to start disabled vehicle.
12. If engine starts, operate at 1500-2000 rpm for a few minutes to build an electrical charge in the battery.
13. Remove black negative (-) cable clamp from the disabled engine or frame ground first.
14. Remove red positive (+) cable clamp from the disabled vehicle positive (+) battery post last.

If the disabled vehicle did not start, check for loose or corroded battery cable connections. Poor connections will prevent current from charging the failed battery. Clean terminals and posts if necessary and repeat steps above. If a running jump is necessary, repeat steps above with engine running.

NOTICE: Jumping with engine running can damage the alternator and electronic components on both vehicles, and should be performed only if necessary.

Specifications

Basic Unit



t18om028a.eps

Dimensions		U.S.	Metric
H2	Operating height, max, with 44" bucket	102 in	2.6 m
	Hinge pin height, max	81 in	2.06 m
H	Overall height of machine	53 in	1.3 m
	Overall length of machine, with 44" bucket	101 in	2.6 m
L	Overall length of loader, no attachment	82 in	2.1 m
L2	Wheelbase/track length	43 in	1.1 m
	Dump height, max, with 44" bucket	64 in	1.6 m
	Reach, fully raised with 44" bucket	15 in	381 mm
	Ground clearance, min (center/side)	6.7 in / 4.9 in	170 mm / 124.5 mm
A2	Angle of departure	23°	23°
	Bucket rollback angle, ground level	24°	24°
	Bucket rollback angle, full height	90°	90°
	Dump angle, with 44" bucket	38°	38°

Dimensions		U.S.	Metric
	Bucket width, max	44 in	1.1 m
	Bucket width, min	36 in	914 mm
W	Track width, max	42 in	1.1 m
	Track width, min	36 in	914 mm
	Loader width, excluding tracks	35 in	889 mm
	Swing radius, max, with 44" bucket	60 in	1.5 m
	Swing radius, no attachment	47 in	1.2 m
	Rear overhang, max	25 in	635 mm

Performance		U.S.	Metric
Ground drive speed, forward		4 mph	6.4 km/h
Ground drive speed, reverse		4 mph	6.4 km/h
Ground pressure, 7" (180-mm) tracks *		5.8 psi	0.4 bar
Ground pressure, 9" (230-mm) tracks *		4.5 psi	0.31 bar
Tipping capacity		1860 lb	844 kg
Operating capacity (35% of tipping capacity)		650 lb	295 kg
Machine weight (no attachment, fluids full)		2630 lb	1195 kg

* Includes machine weight, 175-lb (80-kg) bucket, 165-lb (75-kg) operator and 650-lb (295-kg) load in bucket.

Hydraulic System		U.S.	Metric
Auxiliary: double gear pump			
Flow rate (pump 1)		8 gpm	30 L/min
Flow rate (pump 2)		5.5 gpm	21 L/min
Pressure		3000 psi	172 bar
Ground drive: dual hydrostat			
Flow rate		16.5 gpm	62 L/min
Pressure		2500 psi	172 bar

Power	U.S.	Metric
Engine: Kubota D1105-T, diesel		
Number of cylinders	3	
Displacement	68.5 in ³	1.12 L
Bore	3.07 in	78 mm
Stroke	3.09 in	78.4 mm
Manufacturer's gross power rating (per SAE J1955)	32.8 hp	24.5 kW
Estimated net power rating (per SAE 1348)	31.5 hp	23.5 kW
Rated engine speed	3000 rpm	3000 rpm
Maximum tilt angle, fore and aft	30°	30°
Maximum tilt angle, side to side	30°	30°

* Exceeding these operating angles will cause engine damage. This DOES NOT imply that the machine is stable to maximum angle of safe engine operation.

Fluid Capacities	U.S.	Metric
Fuel tank	8 gal	30 L
Engine oil, with filter	4.2 qt	4 L
Hydraulic reservoir	7 gal	26 L

Battery
SAE reserve capacity 180 min, SAE cold crank @ 0°F (-18°C) 675 amp, 12V electrical system

Noise Levels
Operator 87 dBA sound pressure per ISO 6394
Exterior 101 dBA sound power per ISO 6393

Vibration Level
Vibration at the operator's hand during normal operation is 4.31 m/sec ²
Vibration at the operator's foot during normal operation is 1.07 m/sec ²

Specifications are called out according to SAE recommended practices. Specifications are general and subject to change without notice. If exact measurements are required, equipment should be weighed and measured. Due to selected options, delivered equipment may not necessarily match that shown.



Support

Procedure

Notify your dealer immediately of any malfunction or failure of Ditch Witch equipment.

Always give model, serial number, and approximate date of your equipment purchase. This information should be recorded and placed on file by the owner at the time of purchase.

Return damaged parts to dealer for inspection and warranty consideration if in warranty time frame.

Order genuine Ditch Witch replacement or repair parts from your authorized Ditch Witch dealer. Use of another manufacturer's parts may void warranty consideration.



Resources

Publications

Contact your Ditch Witch dealer for publications and videos covering safety, operation, service, and repair of your equipment.

Ditch Witch Training

For information about on-site, individualized training, contact your Ditch Witch dealer.

Warranty

Ditch Witch Equipment and Replacement Parts Limited Warranty Policy

Subject to the limitation and exclusions herein, free replacement parts will be provided at any authorized Ditch Witch dealership for any Ditch Witch equipment or parts manufactured by The Charles Machine Works, Inc. (CMW) that fail due to a defect in material or workmanship within one (1) year of first commercial use (Exception: 2 years for all SK attachments). Free labor will be provided at any authorized Ditch Witch dealership for installation of parts under this warranty during the first year following "initial commercial" use of the serial-numbered Ditch Witch equipment on which it is installed. The customer is responsible for transporting their equipment to an authorized Ditch Witch dealership for all warranty work.

Exclusions from Product Warranty

- All incidental or consequential damages.
- All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect, or uses other than those for which products were intended.
- All defects, damages, or injuries caused by improper training, operation, or servicing of products in a manner inconsistent with manufacturer's recommendations.
- All engines and engine accessories (these are covered by original manufacturer's warranty).
- Tires, belts, and other parts which may be subject to another manufacturer's warranty (such warranty will be available to purchaser).
- ALL IMPLIED WARRANTIES NOT EXPRESSLY STATED HEREIN, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES, AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

Ditch Witch products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, products should be operated under anticipated working conditions prior to purchase.

Defects will be determined by an inspection within thirty (30) days of the date of failure of the product or part by CMW or its authorized dealer. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacements parts under this warranty as it deems appropriate.

Extended warranties are available upon request from your local Ditch Witch dealer or CMW.

Some states do not allow exclusion or limitation of incidental or consequential damages, so above limitation of exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so the above limitation may not apply. This limited warranty gives product owner specific legal rights and the product owner may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW's Product Support department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

First version: 1/91; Latest version: 7/05

**A Note To
Ditch Witch
Equipment Owners:**

If your equipment was purchased through a Ditch Witch dealer, there is no need to read further.

However, if you purchased from any other source, please fill out the form on the reverse side and return it to us.

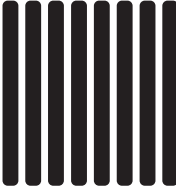
This will enable you to receive updates on this equipment as well as information on new products of interest.

Thanks for using Ditch Witch equipment.

(Please Fold Along This Line And Seal At Bottom With Tape)



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IN THE
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**The Charles Machine Works, Inc.
P.O. Box 66
Perry, Oklahoma 73077-9989**



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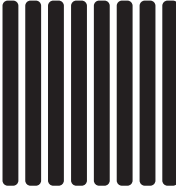
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**The Charles Machine Works, Inc.
P.O. Box 66
Perry, Oklahoma 73077-9989**



Ditch Witch® Registration Card

Please Type or Print All Information

Purchaser's Company Name		
Attention		
Street Address or P.O. Box		
City	County	
State	Zip	Nation
()		
Phone Number With Area Code		
Model	Serial Number	
Attachments/Accessories	Serial Numbers	
Attachments/Accessories	Serial Numbers	
Attachments/Accessories	Serial Numbers	
Name of Ditch Witch Dealership		
Your Signature		

Ditch Witch® Registration Card

Please Type or Print All Information

Purchaser's Company Name		
Attention		
Street Address or P.O. Box		
City	County	
State	Zip	Nation
()		
Phone Number With Area Code		
Model	Serial Number	
Attachments/Accessories	Serial Numbers	
Attachments/Accessories	Serial Numbers	
Attachments/Accessories	Serial Numbers	
Name of Ditch Witch Dealership		
Your Signature		

Service Record

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