



8-B

crawler tractor

operation and maintenance instruction manual

Form 70690758 English

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WARNING

STUDY THE OPERATION AND MAINTENANCE
INSTRUCTION MANUAL THROUGH BEFORE
STARTING, OPERATING, MAINTAINING,
FUELING OR SERVICING THIS MACHINE.



This symbol is your safety alert sign. It means ATTENTION!
BECOME ALERT! YOUR SAFETY IS INVOLVED.



Read and heed all safety instruction carrying the signal words
WARNING and DANGER.



Machine mounted safety signs have been color coded yellow with
black borders and lettering for warning and red with white borders
and lettering for danger points.

SAFETY RULES

GENERAL

Study the Operation and Maintenance Instruction Manual before starting, operating, maintaining, fueling, or servicing machine

Read and heed all machine-mounted safety signs before starting, operating, maintaining, fueling or servicing machine

Machine-mounted safety signs have been color coded yellow with black borders and lettering for warning and red with white borders and lettering for danger points

No unauthorized personnel should be allowed to operate, service or maintain this machine

Do not wear rings, wrist watches, jewelry, loose or hanging apparel, such as ties, torn clothing, scarves, unbuttoned, or unzipped jackets that can catch on moving parts. Wear proper safety equipment as authorized for the job. Examples: hard hats, safety shoes, heavy gloves, ear protectors, safety glasses or goggles, reflector vests, or respirators. Consult your employer for specific safety equipment requirements

Keep operator's compartment, stepping points, grab rails and handles clean and free from foreign objects, oil, grease, mud or snow accumulation to minimize the danger of slipping or stumbling

Do not jump on or off machine. Keep two hands and one foot, or two feet and one hand, in contact with steps and grab rails and handles at all times.

Do not use controls or hoses as handholds when climbing on or off machine. Hoses and controls are movable and do not provide a solid support. Controls also may be moved inadvertently causing accidental machine or equipment movement

Never attempt to operate the machine or its tools from any other position than seated in the operator's seat. Keep head, body, limbs, hands and feet inside operator's compartment at all times to reduce exposure to hazards outside the operator's compartment.

Be careful of slippery conditions on stepping points, hand rails, and on the ground

Get off machine only when it is fully stopped

START UP

DO NOT START OR OPERATE AN UNSAFE MACHINE. Before working the machine, be sure that any unsafe condition has been satisfactorily remedied. Check brakes and steering and attachment controls before moving. Advise the proper maintenance authority of any malfunction part or system

Before starting machine, check, adjust and lock the operator's seat for maximum comfort and control of the machine. Be sure all people in the area are clear of the unit before releasing the parking brake or moving the machine or its attachments. **WALK COMPLETELY AROUND** machine before mounting. Sound horn

Obey flagman, safety signals and signs.

Due to the presence of flammable fluid, never check or fill fuel tanks, storage batteries, or use starter fluid near lighted smoking materials or open flame or sparks.

STARTING FLUID IS FLAMMABLE. Follow the recommendations as outlined in the Operation and Maintenance Instruction Manual and as marked on the containers. Store containers in cool, well-ventilated place secure from unauthorized personnel. **DO NOT PUNCTURE OR BURN CONTAINERS.** Follow the recommendations of the manufacturer for storage and disposal.

Never use starter fluid near lighted smoking materials or open flame or sparks due to the presence of flammable fluid

OPERATING

Do not operate machine in closed area without proper ventilation to remove deadly exhaust gases.

Roll Over Protective Structures are required on wheel loaders, dozer tractors, track type loaders, graders and scrapers by OSHA regulations. **DO NOT** operate this machine without a Roll Over Protective Structure.

Keep operator's compartment clear of loose objects. Do not use machine to carry loose objects by means other than attachments designed for such objects.

DO NOT CARRY RIDERS unless the machine is equipped for carrying people to reduce personal exposure to being thrown off.

Observe and know the mechanics of alternate exit routes.

Seat belts are required to be provided with roll over protective structures or roll protection cabs by OSHA. Keep the safety belt fastened around you during operation.

For your personal protection, do not attempt to climb on or off machine while machine is in motion.

Be sure exposed personnel in the area of operation are clear of the unit before moving the machine or its attachments. Sound horn. Obey flagman, safety signals and signs.

NEVER COAST the machine down grades and slopes with the transmission in neutral on power shift machines, or clutch disengaged on manually shifted machines.

To reduce the danger of an uncontrolled machine choose a gear speed before proceeding down grade that will hold machine to proper speeds for conditions.

Operate at speeds slow enough to insure complete control at all times. Travel slowly over rough ground, on slopes or near dropoffs, in congested areas or on ice or slippery surfaces

When backing, always look to where the machine is to be moved. Be alert to the position of exposed personnel. **DO NOT OPERATE** if exposed personnel enter the immediate work area

Operating (Continued)

Maintain a safe distance from other machines. Provide sufficient clearance for ground and visibility conditions. Yield right-of-way to loaded machines.

Maintain clear vision of all areas of travel or work. Keep cab windows clean and repaired. Carry blade low for maximum visibility while traveling. Obtain and use fan blast deflectors where tractors are used as pusher tractors in tandem.

When pulling or towing through a cable or chain, do not start suddenly at full throttle. Take up slack carefully. Guard against kinking chains or cables. Inspect carefully for flaws before using. Do not pull through a kinked chain or cable due to the high stresses and possibility of failure of the kinked area. Always wear heavy gloves when handling chain or cable.

Be sure cables are anchored and the anchor point is strong enough to handle the expected load. Keep exposed personnel clear of anchor point and cable or chain. **DO NOT PULL OR TOW UNLESS OPERATORS COMPARTMENTS OF MACHINES INVOLVED ARE GUARDED AGAINST POTENTIAL CABLE OR CHAIN BACKLASH.**

Always check work area for dangerous features.

Be alert to soft ground conditions close to newly constructed walls. The fill material and weight of machine may cause the wall to collapse under the machine.

In darkness, check area of operation carefully before moving in with machine. Use all lights provided. Do not move into areas of restricted visibility.

If engine has a tendency to stall for any reason under load or idle, report this for adjustment to a proper maintenance authority immediately. Do not continue to operate machine until condition has been corrected.

On machines equipped with suction radiator fans, be sure to periodically check all engine exhaust parts for leaks as exhaust gases are dangerous to the operator. Keep a vent open to outside air at times when operating within a closed cab.

An operator must know the machine's capabilities. When working on slopes or near dropoffs be alert and avoid loose or soft conditions that could cause sudden tipping or loss of control.

Where noise exposure exceeds 90 dBA for 8 hours, wear authorized ear protective equipment per OSHA requirements.

Do not operate machinery in a condition of extreme fatigue or illness. Be especially careful towards the end of the shift.

Do not operate a machine with brakes out of adjustment. See the Operation and Maintenance Instruction Manual.

When counterweights have been provided, do not work machine if they have been removed unless the equivalent weight has been replaced. See the Operation and Maintenance Instruction Manual.

During operation always carry ripper in full raised position when not in use and lower to ground when parked.

Safety Rules

When operating machine know what clearances will be encountered, overhead doors, wires, pipes, aisles, roadways; also weight limitations of ground, floors, and ramps.

When roading find out what conditions are likely to be met — clearances, congestion, type of surface, etc. Be aware of fog, smoke or dust elements that obscure visibility.

Cross gullies or ditches at an angle with reduced speed after insuring ground conditions will permit a safe traverse.

Always check work area for dangerous features. The following are examples of dangerous work areas: slopes, overhangs, timber, demolitions, fire, high walls, dropoff, backfills, rough terrain, ditches, ridges, excavations, heavy traffic, crowded parking, crowded maintenance and closed areas. Use extreme care when in areas such as these.

Avoid going over obstacles such as rough terrain, rocks, logs, curbs, ditches, ridges, and railroad tracks whenever possible. When obstructions must be crossed, do so with extreme care at an angle if possible. Reduce speed — downshift. Ease up to the breakover point — pass the balance point slowly on the obstruction and ease down on the other side.

In steep downhill operation, do not allow engine to overspeed. Select proper gear before starting downgrade.

Avoid sidehill travel whenever possible. Drive up and down the slope. Should the machine start slipping sideways on a grade, turn it immediately downhill.

The grade of slope you should attempt will be limited by such factors as condition of the ground, load being handled, the type of machine, speed of machine and visibility.

There is no substitute for good judgment when working on slopes.

Know the principles of cross steering of crawler tractors. Read section in Operation and Maintenance Instruction Manual on cross steering.

Avoid operating equipment too close to an overhang or highwall either above or below the machine. Be on the lookout for caving edges, falling objects and slides. Beware of concealment by brush and undergrowth of these dangers.

When pushing over trees, the machine must be equipped with proper overhead guarding. Never allow a machine to climb up on the root structure particularly while the tree is being felled. Use extreme care when pushing over any tree with dead branches.

Avoid brushpiles, logs or rocks. **DO NOT DRIVE THE MACHINE ONTO BRUSHPILES, LOGS, LARGE ROCKS** or other surface irregularities that break traction with the ground especially when on slopes or near dropoffs.

Be alert to avoid changes in traction conditions that could cause loss of control. **DO NOT** drive on ice or frozen ground conditions when working the machine on steep slopes or near dropoffs.

Operating in virgin rough terrain that includes previously mentioned hazards is called pioneering. Be sure you know

Safety Rules

Operating (Continued)

how this is done. Danger from falling branches and upturning roots is acute in these areas.

SHUTDOWN

When stopping operation of the machine for any reason, always return the transmission control to neutral and engage the control lock to secure the machine for a safe start-up.

Never leave the machine unattended with the engine running.

Always before leaving the operator's seat and after making certain all people are clear of the machine, slowly lower attachments or tools flat to the ground in a positive ground support position. Move any multipurpose tool to positive closed position. Return the controls to hold. Place transmission control in neutral and move engine controls to off position. Engage all control locks, set parking brake, and disconnect and lock master switch.

Park in a non-operating and non-traffic area or as instructed. Park on firm level ground if possible. Where not possible, position machine at a right angle to the slope, making sure there is no danger of uncontrolled sliding movement. Set the parking brake.

If parking in traffic lanes cannot be avoided, provide appropriate flags, barriers, flares and warning signals as required. Also provide advance warning signals in the traffic lane for approaching traffic.

Keep head, body, limbs, feet, hands and fingers away from blade, bucket, or ripper when in raised position.

Always turn the master switch to the off position before cleaning, repairing, or servicing and when parking machine to forestall unintended unauthorized starting.

Never lower attachments or tools from any position other than seated in operator's seat. Sound the horn. Make sure the area near the attachment is clear. Lower the attachment slowly. DO NOT USE float position to lower hydraulic equipment.

Never leave the machine unattended with the engine running.

Always lock up machine when leaving it unattended. Return keys to authorized security. Heed all shutdown procedures of the Operation and Maintenance Instruction Manual. Always set the parking brake when leaving the machine for any reason.

MAINTENANCE

GENERAL

Study the Operation and Maintenance Instruction Manual before starting, operating, maintaining, fueling or servicing machine.

Read and heed all machine mounted safety signs before starting, operating, maintaining, fueling or servicing machine.

No unauthorized person should be allowed to service or maintain this machine. Do not perform any work on equipment that is not authorized. Follow the Maintenance and Service procedures.

Do not wear rings, wrist watches, jewelry, or loose or hanging apparel, such as ties, torn clothing, scarves, unbuttoned or unzipped jackets that can catch on moving parts. Do wear proper safety equipment as authorized for the job. Examples: hard hats, safety shoes, safety glasses or goggles, heavy gloves, reflector vests, ear protectors or respirators. Consult your employer for specific safety equipment requirements.

Do not use controls or hoses as handholds when climbing on or off machine. Hoses and controls are movable and do not provide a solid support. Controls may also inadvertently move causing accidental machine or equipment movement.

Do not jump on or off machine. Keep two hands and one foot, or two feet and one hand, in contact with steps and grab-rails and handles at all times.

Machine should not be serviced with anyone in the operator's seat unless they are qualified to operate the machine and are assisting in the servicing.

Keep operator's compartment, stepping points, grab-rails and handles clean of foreign objects, oil, grease, mud or snow accumulation to minimize the danger of slipping or stumbling.

Never attempt to operate the machine or its tools from any position other than seated in the operator's seat.

Keep operator's compartment clear of loose objects.

If movement of an attachment by means of the machine's hydraulic system is required for service or maintenance, do not raise or lower attachments from any position other than when seated in the operator's seat. Before starting machine or moving attachment or tool, make sure to set brakes, sound horn and call for an all clear. Raise attachment slowly.

Always block with external support any linkage or part on machine that requires work under the raised linkage, parts, or machine per OSHA requirements. Never allow anyone to walk under or be near unblocked raised equipment.

Avoid working or walking under raised blocked equipment unless you are assured of your safety.

Never place head, body, limbs, fingers, feet or hands into the exposed portion between uncontrolled or unguarded scissor points of machine without first providing secure blocking.

Never service or adjust a machine with the engine running, except as called for in the Operation and Maintenance Instruction Manuals.

When servicing or maintenance requires access to areas that cannot be reached from the ground, use a ladder or step platform that meets OSHA requirements to reach the service point. If such ladders or platforms are not available, use

Safety Rules

Maintenance (Continued)

the machine handholds and steps as provided. Perform all service or maintenance carefully.

Shop or field service platforms and ladders used to maintain or service machinery should be constructed and maintained according to OSHA requirements.

Disconnect batteries and TAG all controls according to OSHA requirements to warn that work is in progress. Block the machine and all attachments that must be raised per OSHA requirements.

Never check or fill fuel tanks, storage batteries or use starter fluid near lighted smoking materials or open flame due to the presence of flammable fluid.

Brakes are inoperative when manually released for servicing. Provision must be made to maintain control of the machine by blocking or other means.

Always place the fuel nozzle against the side of the filler opening before starting and during fuel flow. To reduce the chance of a static electricity spark, keep contact until after fuel flow is shut off.

Use only designated towing or pulling attachment points. Use care in making attachment. Be sure pins and locks as provided are secure before pulling. Stay clear of drawbars, cables or chains under load.

To move a disabled machine, use a trailer or low boy truck if available. If towing is necessary, provide warning signals as required by local rules and regulations and follow Operation and Maintenance Instruction Manual recommendations. Load and unload on a level area that gives full support to the trailer wheels. Use ramps of adequate strength, low angle and proper height. Keep trailer bed clean of clay, oil and all materials that become slippery. Tie machine down securely to truck or trailer bed and block tracks or wheels as required by the carrier.

Never align holes with finger or hands — USE the proper aligning tool.

Remove sharp edges and burrs from reworked parts.

Use only grounded auxiliary power source for heaters, chargers, pumps and similar equipment to reduce the hazards of electrical shock.

Lift and handle all heavy parts with a lifting device of proper capacity. Be sure parts are supported by proper slings and hooks. Use lifting eyes if provided. Watch out for people in the vicinity.

Never place gasoline or diesel fuel in an open pan.

Never use gasoline or diesel fuel or other flammable fluid for cleaning parts. Use authorized commercial, non-flammable, non-toxic solvents.

When using compressed air for cleaning parts use safety glasses with side shields or goggles. Limit the pressure to 30 psi according to OSHA requirements.

Do not operate machine in closed areas without proper ventilation to remove deadly gases.

Do not smoke or permit any open flame or spark near when refueling, or handling highly flammable materials.

Do not use an open flame as a light source to look for leaks or for inspection anywhere on the machine.

Be sure all mechanics tools are in good condition. DO NOT use tools with mushroomed heads. Always wear safety glasses with side shields.

Move carefully when under, in or near machine or implements. Wear required protective equipment, such as hard hat, safety glasses, safety shoes, ear protectors.

When making equipment checks that require running of the engine, have an operator in the operator seat at all times with the mechanic in sight. Place the transmission in neutral and set the brakes and lock. Keep head, body, limbs, feet, hands and fingers away from blade or ripper when in raised position.

Shut off engine and disengage the Power Take-Off lever before attempting adjustments or service.

Do not perform any work on equipment that is not authorized. Follow the Maintenance or Service Manual Procedures.

For field service, move machine to level ground if possible and block machine. If work is absolutely necessary on an incline, block machine and its attachments securely. Move the machine to level ground as soon as possible.

Guard against kinking chains or cables. Do not lift or pull through a kinked chain or cable. Always wear heavy gloves when handling chain or cable.

Be sure cables are anchored and the anchor point is strong enough to handle the expected load. Keep exposed personnel clear of anchor point and cable or chain. DO NOT PULL OR TOW UNLESS OPERATOR'S COMPARTMENTS OF MACHINES INVOLVED ARE PROPERLY GUARDED against accidental cable or chain backlash.

Keep maintenance area CLEAN and DRY. Remove water or oil slicks immediately.

DO NOT pile oily greasy rags — they are a fire hazard. Store in a closed metal container.

Before starting machine or moving attachment check and adjust and lock operator's seat. Be sure all personnel in the area are clear before starting or moving machine and any of its attachments. Sound horn.

Rust inhibitors are volatile and flammable. Prepare parts in well ventilated place. Keep open flame away — DO NOT SMOKE. Store container in a cool well-ventilated place secured against unauthorized personnel.

Do not carry loose objects in pockets that might fall unnoticed into open compartments.

Keep clutches and brakes of machine and attachments such as Power Control Units, winches and master clutches adjusted according to Operation and Maintenance Instruction Manuals of the manufacturer at all times. DO NOT adjust with engine running.

Safety Rules

Maintenance (Continued)

Wear proper protective equipment such as safety goggles or safety glasses with side shields, hard hat, safety shoes, heavy gloves when metal or other particles are apt to fly or fall

Wear welders protective equipment such as dark safety glasses, helmets, protective clothing, gloves and safety shoes when welding. Wear dark safety glasses near welding — DO NOT LOOK AT ARC WITHOUT PROPER EYE PROTECTION

Know your jacking equipment and its capacity. Be sure the jacking point used on the machine is appropriate for the load to be applied. Be sure the support for the jack at the machine and under the jack is appropriate and stable. Any equipment up on a jack is dangerous. Transfer load to authorized blocking as a safety measure before proceeding with service or maintenance per OSHA requirements

Wire rope develops steel slivers. Use authorized protective equipment such as heavy gloves, safety glasses when handling

Never use makeshift jacks when adjusting track tension. Follow the Undercarriage Service Manual

Handle all parts with extreme care. Keep hands and fingers from between parts. Wear authorized protective equipment such as safety glasses, heavy gloves, safety shoes.

START UP

Do not run the engine of this machine in closed areas without proper ventilation to remove deadly exhaust gases.

Do not place head, body, limbs, feet, fingers, or hands near rotating fan or belts. Be especially alert around a pusher fan

STARTING FLUID IS FLAMMABLE. Follow the recommendations as outlined in the Operation and Maintenance Instruction Manual and as marked on the containers. Store containers in cool, well-ventilated place secure from unauthorized personnel. **DO NOT PUNCTURE OR BURN CONTAINERS.** Follow the recommendation of the manufacturer for storage and disposal

ENGINE

Turn radiator cap slowly to relieve pressure before removing. Add coolant only with engine stopped or idling if hot. See Operation and Maintenance Instruction Manual

Keep engine exhaust system and exhaust manifolds clear of combustible material. Equip machine with screens and guards when working under conditions of flying combustible material

Do not run engine when refueling and use care if engine is hot due to the increased possibility of a fire if fuel is spilled

Never attempt to check or adjust fan belts when engine is running

Do not adjust engine fuel pump when the machine is in motion

Never lubricate a machine with the engine running.

Avoid running engine with open unprotected air inlets. If such running is unavoidable for service reasons, place protective screens over all inlet openings before servicing engine

ELECTRICAL

Be sure to connect the booster cables to the proper terminals (+ to +) and (- to -) at both ends. Avoid shorting clamps. Follow the Operation and Maintenance Instruction Manual procedure.

Always turn the master switch to the off position when maintaining or servicing machine.

BATTERY GAS IS HIGHLY FLAMMABLE. Leave battery box open to improve ventilation when charging batteries. Never check battery charge by placing metal objects across the posts. Keep sparks or open flame away from batteries. Do not smoke near battery to guard against the possibility of an accidental explosion.

Check for fuel or battery electrolyte leaks before starting service or maintenance work. Eliminate leaks before proceeding

Do not charge batteries in a closed area. Provide proper ventilation to guard against an accidental explosion from an accumulation of explosive gases given off in the charging process.

Disconnect batteries before working on electrical system.

HYDRAULIC

Fluid escaping under pressure from a very small hole can almost be invisible and can have sufficient force to penetrate the skin. Use a piece of cardboard or wood to search for suspected leaks. **DO NOT USE HANDS.** If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately

Shut off engine and be sure internal pressure is relieved before removing panels, housing covers, and caps. See Operation and Maintenance Manual for guidance.

When making pressure checks use the correct gage for expected pressure. See Operation and Maintenance Instruction Manual or Service Manual for guidance.

ATTACHMENTS

Keep head, body, limbs, feet, hands and fingers away from blade, bucket or ripper when in raised position. Use authorized blocking as a safety measure before proceeding with service or maintenance per OSHA requirements.

If movement of an attachment by means of the machine's hydraulic system is required for service or maintenance do not raise or lower attachments from any position other than when seated in the operator's seat. Before starting machine or moving attachments or tools, make sure to set brakes, sound horn and call for an all clear. Raise at-

Safety Rules

Attachments (Continued)

achment slowly

Do not use machine to carry loose objects by means other than attachments for carrying such objects

Never use any gas other than dry nitrogen to charge accumulators. See Operation and Maintenance Instruction Manual

Keep clutches and brakes of machine and attachments such as power control units, winches adjusted according to Operating and Maintenance Instruction Manuals of the manufacturers at all times

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