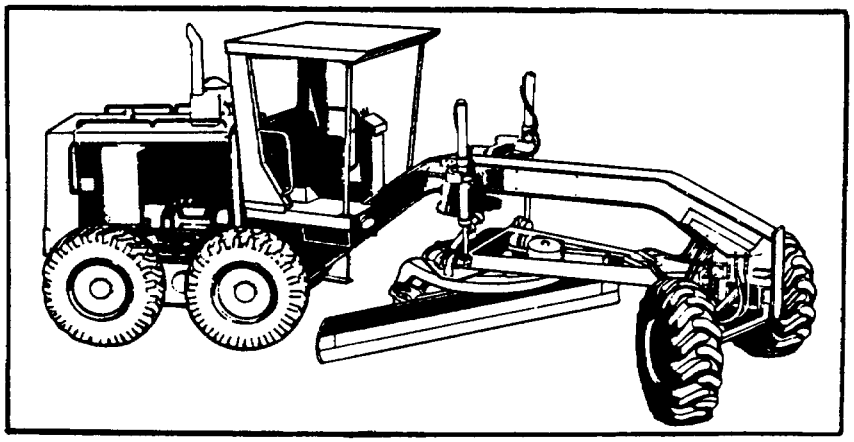
OPERATOR'S MANUAL

FOR
GRADER, HEAVY, ROAD, MOTORIZED,
DIESEL ENGINE DRIVEN
TYPE I (NONSECTIONALIZED) NSN 3805-01-252-0128
TYPE II (SECTIONALIZED) NSN 3805-01-251-8252



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HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1989

TECHNICAL MANUAL
TM 5-3805-263-14&P-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 14 April 1989

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REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of this manual direct t*o:* Commander, US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished direct to you.

TABLE OF CONTENTS
General Description and Specifications

Safety 2
Model Views 10
Operators Compartment 11
Machine Controls 23
Implement Controls 27
Before Starting the Engine 30
Starting the Engine 38
After Starting the Engine 43
Moving and Stopping the Machine 45
Towing 47
Parking the Machine 50
Operating Adjustments 52
Operating Techniques 53
Transportation Hints 84
Tire Inflation Information 87
Sectionalization (Type II Vehicles Only) 93
Preventive Maintenance Checks and Services 113

This technical manual is an authentication of the manufacturers commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INTRODUCTION

This publication is a reference for the new operator and a refresher for the experienced one. Read - study - and keep it handy.

Illustrations guide the operator through the correct procedures of checking, starting, operating and stopping the machine and attachments.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the machine and its capabilities.

Your safety and the safety of others depends upon care and judgment in the operation of this machine. A careful operator is good insurance against an accident.

Some photographs in this publication show details that may be different from your machine. Also, for some photo- graphs, guards or covers may have been removed for illustrative purposes.

WARRANTY STATEMENT

Reference Warranty TB 53805-263-14

TABLE OF CONTENTS I

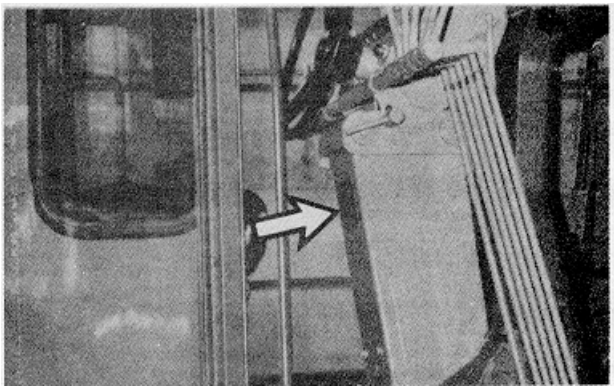
Safety 2
Model Views 10
Operator's Compartment 11
Machine Controls 23
Implement Controls 27
Before Starting the Engine 30
Starting the Engine 38
After Starting the Engine 43
Moving and Stopping the Machine 45
Towing 47
Parking the Machine 50
Operating Adjustments 52
Operating Techniques 53
Transportation Hints 84
Tire Inflation Information 87

Safety

Warning Plates and Decals

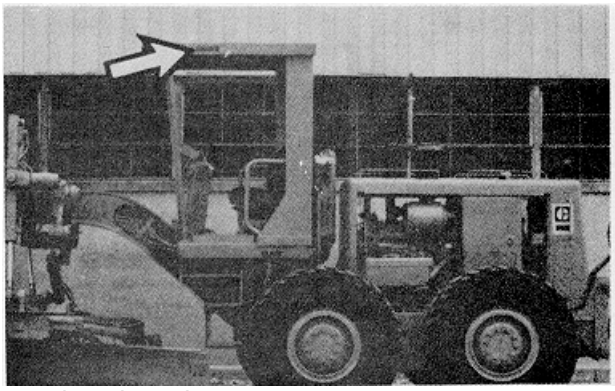
There are several specific warning signs on your machine. Their exact location and description of the hazard are reviewed in this section. Please take the time to familiarize yourself with these signs.

WARNING: Do not operate this machine unless you have read and understand the instructions. Improper machine operation is dangerous and could result in injury or death.



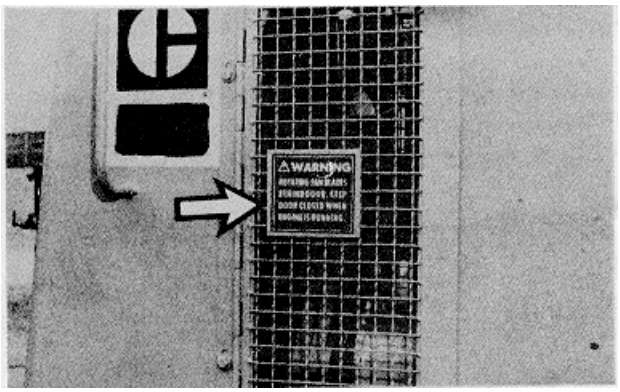
Located in the cab.

WARNING: To avoid possible weakening of this ROPS, do not alter this ROPS in any way. The protection offered by this ROPS will be impaired if it has been subjected to structural damage or has been involved in an overturn incident.



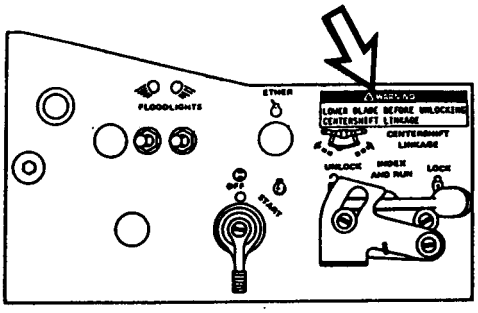
Located on the cab.

WARNING: Rotating Fan Blades Behind Door. Keep the door closed when the engine is running.



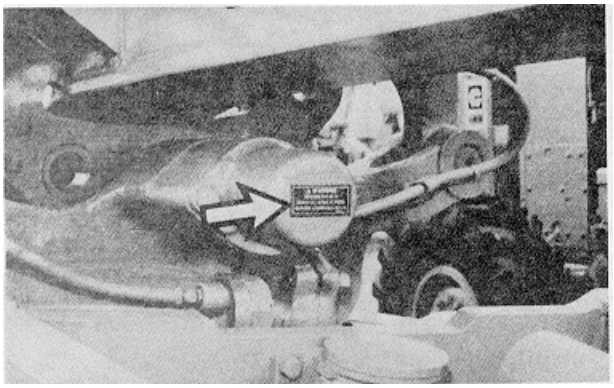
Located on right and left fan guards.

WARNING: Ground the blade before retracting centershift pin.



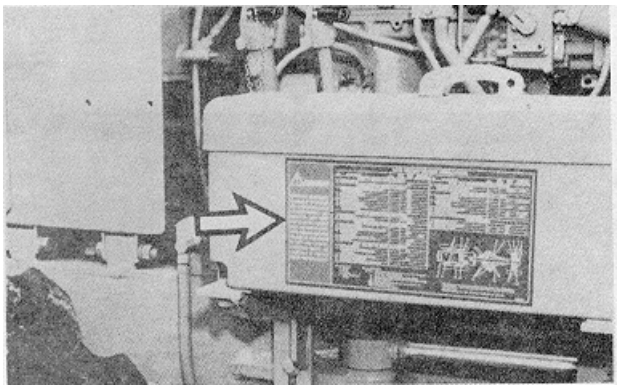
Located on the transmission shift console

WARNING: Engage pin with control lever at index before loosening bolts.



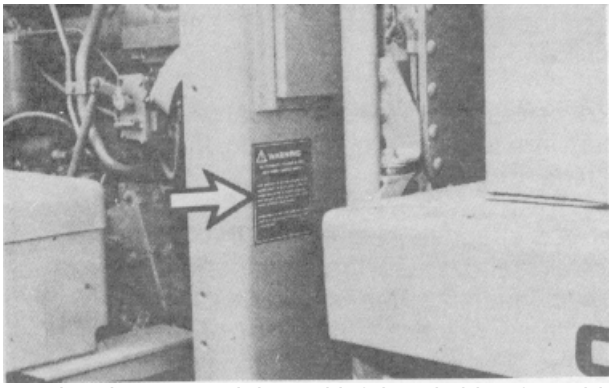
Located on the centershift pin housing.

WARNING: Lubrication, maintenance or repair of this machine can be dangerous unless performed properly. Each person must satisfy himself that he has the necessary skill and information, proper tools and equipment, and that his work method is safe and correct.



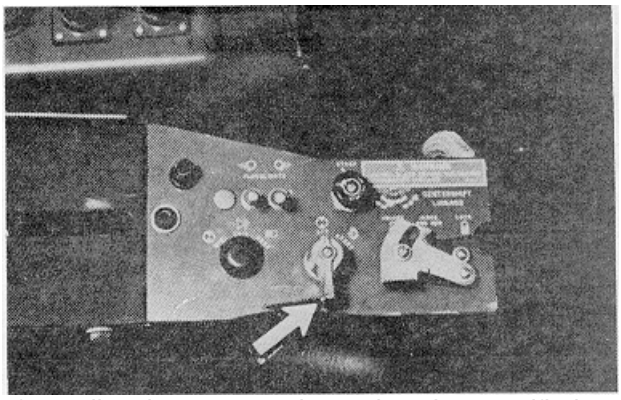
Located on the battery box, on the right side of the engine.

WARNING: No clearance for man in this area when turning machine.



Located at the center right and left hand side of machine.

General



Perform all maintenance unless otherwise specified as follows:

The parking/emergency brake engaged.
The transmission lever lock in park.
The engine stopped.
The disconnect switch off and the key removed.

Wear a hard hat, protective glasses and other protective equipment as required by job conditions.

Safety

Do not wear loose clothing or jewelry that can catch on controls or other parts of the machine.

Make certain all protective guards and covers are secured in place on the machine.

Keep the machine, especially the deck, walkways and steps, free of foreign material, such as debris, oil, tools and other items which are not part of the machine.

Secure all loose items such as lunch boxes, tools and other items which are not part of the machine.

Know the hand signals and who gives them. Accept signals from one person only.

Never put maintenance fluids into glass containers.

Report all needed repairs.

Do not allow unauthorized personnel on the machine.

Pressure air can cause personal injury.
When using pressure air for cleaning, wear a protective face shield and protective clothing.

Crushing or Cutting Prevention

Never attempt adjustments while the machine is moving or the engine is running.

Support equipment and implements properly when working beneath them. Do not depend on hydraulic cylinders to hold it up. Any implement can fall if a control is moved, or a hydraulic line breaks.

Where there are implement linkages, the clearance in the linkage area will increase or decrease with movement of the implement.

Stay clear of all rotating and moving parts.

Keep objects away from moving fan blades. They will throw or cut any object or tool that falls or is pushed into them.

Do not use a kinked or frayed wire rope cable. Wear gloves when handling the wire rope cable.

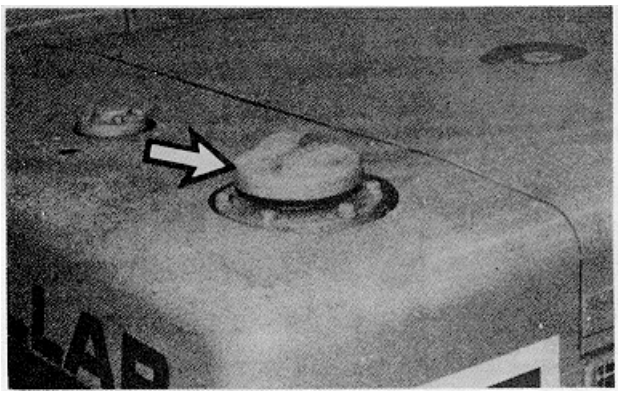
Retainer pins, when struck with force, can fly out and injure nearby persons.

Wear protective glasses when striking a retainer pin to avoid injury to your eyes.

Chips or other debris can fly off objects when struck. Make sure no one can be injured by flying debris before striking any object.

Burn Prevention

At operating temperature, the engine coolant is hot and under pressure. The radiator and all lines to heaters or the engine contain hot water or steam. Any contact can cause severe burns.



Check the coolant level only after the engine has been stopped and the filler cap is cool enough to remove with your bare hand.

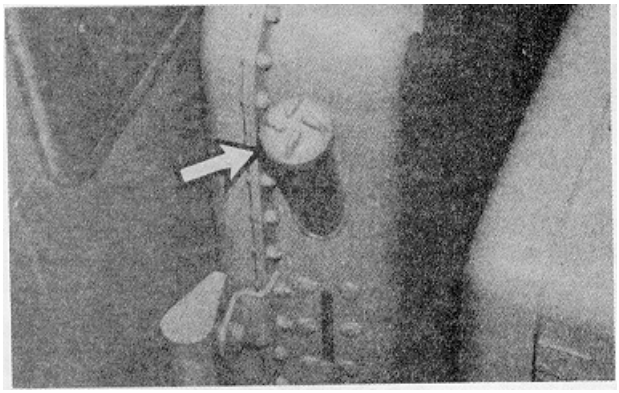
Remove the cooling system filler cap slowly to relieve pressure.

Cooling system conditioner contains alkali.
Avoid contact with the skin and eyes and do not drink, to prevent personal injury.

Allow cooling system components to cool before draining.

Hot oil and components can cause personal injury. Do not allow hot oil or components to contact the skin.

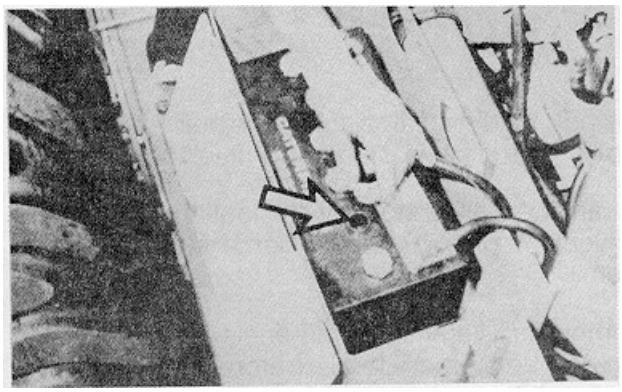
At operating temperature, the hydraulic tank is hot and can be under pressure.



Remove the hydraulic tank filler cap only after the engine has been stopped and the filler cap is cool enough to remove with your bare hand.

Remove the hydraulic tank filler cap slowly to relieve pressure.

Relieve all pressure in air, oil, fuel or cooling systems before any lines, fittings or related items are disconnected or removed.



Battery electrolyte contains acid and can cause injury. Avoid contact with the skin and eyes.

Fire or Explosion Prevention

All fuels, most lubricants and some coolant mixtures are flammable.

Do not smoke while refueling or in a refueling area.

Do not smoke in areas where batteries are charged, or where flammable materials are stored.

When starting from an external source, always connect the positive (+) boost cable to the positive (+) terminal of the battery of the engine to be started.

Attach the negative (-) boost ground cable last, away from the battery. See "Starting With External Source" for specific instructions.

Clean and tighten all electrical connections. Check daily for loose or frayed electrical wires. Have all loose or frayed electrical wires tightened, repaired or replaced before operating the machine.

Keep all fuels and lubricants stored in properly marked containers and away from all unauthorized persons.

Store all oily rags or other flammable material in a protective container, in a safe place.

Safety

Do not weld or flame cut on pipes or tubes that contain flammable fluids.

Clean them thoroughly with nonflammable solvent before welding or flame cutting on them.

Remove all flammable materials such as fuel, oil and other debris before they accumulate on the machine.

Do not expose the machine to flames, burning brush, etc., if at all possible.

Do not bend or strike high pressure lines. Do not install bent or damaged lines, tubes or hoses.

Repair any loose or damaged fuel and oil lines, tubes and hoses. Leaks can cause fires.

Inspect all lines, tubes and hoses carefully. Do not use your bare hand to check for leaks. Tighten all connections to the recommended torque.

Make sure that all clamps, guards and heat shields are installed correctly to prevent vibration, rubbing against other parts and excessive heat during operation.

Shields, which protect hot exhaust components from oil or fuel spray in the event of a line, tube or seal failure, must be installed correctly.

Ether is flammable. Do not smoke while changing ether cylinders.

Do not store replacement ether cylinders in living areas or in the operator's compartment.

Use ether only in well ventilated areas.

Keep ether cylinders out of the reach of unauthorized persons.

Do not store ether cylinders in direct sunlight. Discard cylinders in a safe place. Do not puncture or burn cylinders.

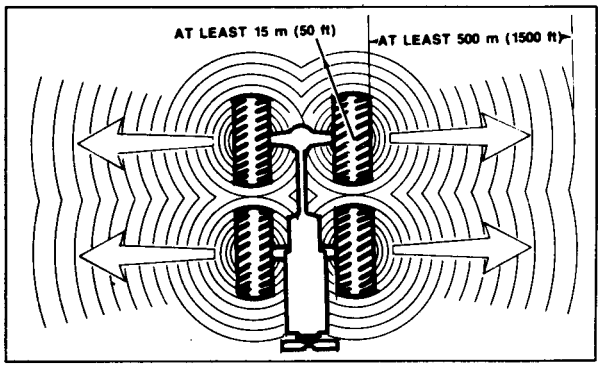
Fire Extinguisher

Always have a fire extinguisher on the machine end know how to use it. Inspect and have it serviced as recommended on its instruction plate.

Tire Information

Explosions of air-inflated earthmoving tires have resulted from heat-induced gas combustion inside the tires. The heat generated by welding or heating rim components, external fire or excessive use of brakes, can cause gaseous combustion.

A tire explosion is much more violent than a blowout. The explosion can propel the tire, rim and final drive components as far as 500 m (1500 feet) or more from the machine. Both the force of the explosion and the flying debris can cause personal injury or death, and property damage.



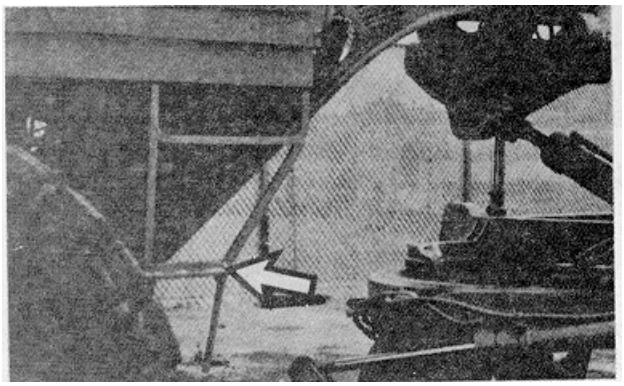
Do not approach a tire closer than the outside of the area represented by the shaded area in the illustration.

Proper nitrogen inflation equipment and training in its use are necessary to avoid overinflation. A tire blowout or rim failure can result from improper or misused equipment.

Stand behind the tread and attach a self- attaching air chuck when inflating a tire.

Servicing and changing tires and rims can be dangerous and should be done only by trained personnel using proper tools and procedures. If correct procedures are not followed while servicing tires and rims, the assemblies could burst with explosive force and cause serious personal injury or death.

Mounting and Dismouting



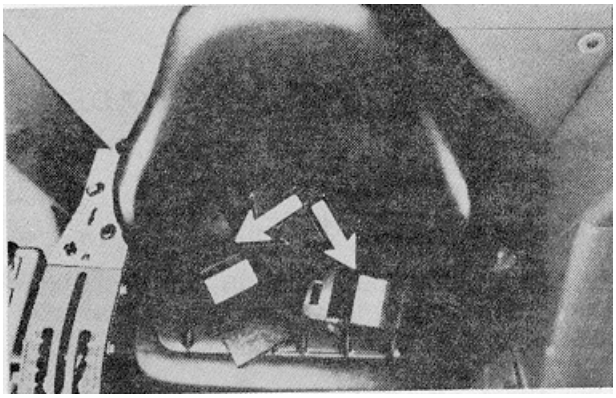
Mount and dismount the machine only where steps and/or handholds are provided.

Use both hands and face the machine when mounting and dismounting.

Never get on or off a moving machine. Never jump off the machine.

Do not try to climb on or off the machine when carrying tools or supplies. Use a hand line to pull equipment up onto the platform.

Preparing to Start the Engine



Inspect the condition of the seat belt and mounting hardware. Replace any damaged or worn parts. Replace the seat belt regardless of appearance after three years.

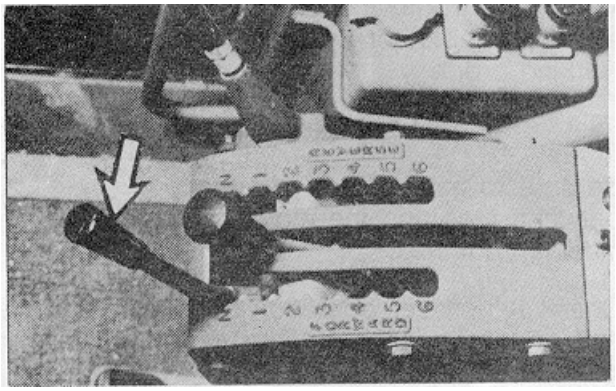
Adjust the seat so that full brake pedal travel can be obtained with the operator's back against the seat back.

Make sure the machine is equipped with a lighting system as required by conditions.

Make sure all lights are working properly.

Make sure no one is working on, underneath or close to the machine before starting the engine or beginning to move the machine. Make sure the area is free of personnel.

Starting the Engine



Safety

Move all implement controls to the HOLD position before starting the engine.

Engage the parking brake. Shift the transmission control lever to NEUTRAL.

Start and operate the engine in a well ventilated area only. In an enclosed area, vent the exhaust to the outside.

Preparing to Operate the Machine

The antipivot pin must be in the stored position.

The wheel lean pin must be removed. Store the pin in the tool box.

Clear all personnel from the machine and the area.

Clear all obstacles from the path of the machine. Beware of hazards such as wires, ditches, etc.

Be sure all windows are clean. Secure the doors and windows in either the open or shut position.

Adjust the rear view mirrors for best vision close to the machine.

Make sure the machine horn, the backup alarm and all other warning devices are working properly.

Fasten the seat belt securely.

Be sure to have proper clearance between tires and the moldboard before moving controls.

Check for proper operation of all controls and protective devices while moving slowly in an open area.

Operating the Machine

The operator must satisfy himself that no one will be endangered before moving the machine.

Operate the machine only while seated.

Operate the controls only with the engine running.

Do not allow riders on the machine.

Report any needed repairs noted during operation.

Carry blade close to the ground, approximately 40 cm (15 in) above ground level.

Stay a safe distance from the edge of cliffs, overhangs and slide areas.

Be careful to avoid the condition which could lead to tipping when working on hills, banks or-slopes, and when crossing ditches, ridges or other obstructions.

Keep the transmission engaged when going downhill. Do not coast.

Do not depress the transmission modulator pedal when going downhill.

Keep the machine under control and do not work it over its capacity.

Be sure hitch points and the towing device are adequate for towing trailing equipment.

Connect trailing equipment to a drawbar or hitch only.

Never straddle a wire rope cable or similar device, nor allow others to do so.

Personnel should not be between the machine and trailing equipment when maneuvering to connect them. Block the tongue or hitch)f trailing equipment to align it with the drawbar or hitch.