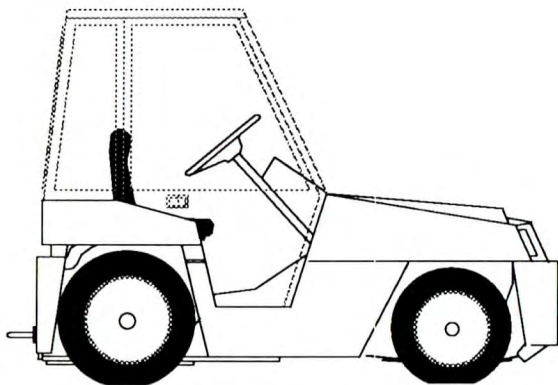

Operator's Manual

Do not remove this manual
from the truck.



GT/DT 25/30/32/50

CLARK

Book No. 2773106
OM - 553

Record the following information pertaining to your truck.

Model No. _____
Serial No. _____
Customer Truck Identification No. _____
Truck Weight, Empty _____
Truck Rated Capacity _____
Truck Gross Weight _____
Truck Gross Weight, Loaded w/ Rated Load _____
Special Equipment or Attachments _____

IMPORTANT

Do not expose this manual to hot water or steam.

The following warnings are provided pursuant to California Health & Safety Code Sections 25249.5 et. seq:



WARNING

California Proposition 65

This product contains and emits chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects or other reproductive harm.



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Operator's Manual

You must be trained and authorized to operate a tow tractor

YOU can prevent accidents

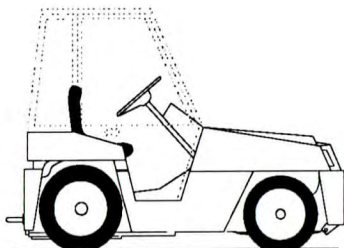
First: Learn safe operating rules and your company rules.

Next: Read your Operator's Manual, if you do not understand it ask your supervisor for help.

Learn about the unit you operate

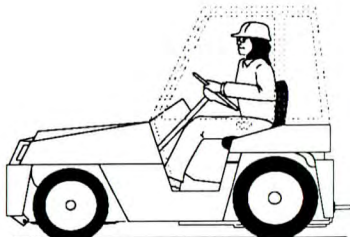


KNOW YOUR TRUCK



Then: Practice operating your truck safely

And: Keep your truck in safe operating condition with correct and timely maintenance



Breaking these rules will cause serious or fatal injury to yourself and others

A Message To CLARK Tow Tractor Operators

Tow tractors are specialized machines with unique operating characteristics designed to perform specific jobs. Their function and operation is not like a car or ordinary truck. They require specific instructions and rules for safe operation and maintenance.

Safe operation of tow tractors is of primary importance to CLARK. Our experience with tow tractor accidents has shown that when accidents happen and people are killed or injured, the causes are:

- OPERATOR NOT PROPERLY TRAINED
- OPERATOR NOT EXPERIENCED WITH TOW TRACTOR OPERATION
- BASIC SAFETY RULES NOT FOLLOWED
- TOW TRACTOR NOT MAINTAINED IN SAFE OPERATING CONDITION

For these reasons, CLARK wants you to know about the safe operation and correct maintenance of your tow tractor.

This manual is designed to help you operate your tow tractor safely. This manual shows and tells you about safety inspections and the important general safety rules and hazards of tow tractor operation. It describes the special components and features of the truck and their function. The correct operating procedures are shown and explained. Illustrations and important safety messages are included for clear understanding. And, a section on maintenance and lubrication is included for the tow tractor mechanic.

The operator's manual is not a training manual. It is a guide to help trained and authorized operators safely operate their tow tractor by emphasizing and illustrating the correct procedures. But, it cannot cover every possible situation which may result in an accident. You must watch for hazards in your work areas and avoid or correct them. It is important that you know and understand the information in this manual as well as to know and follow your company safety rules! Be sure that your equipment is maintained in a safe condition. Do not operate a damaged truck. And practice safe operation every time you use your tow tractor. Let's join together to set new standards in safety.

Remember, before you start operating this tow tractor, be sure that you understand all driving procedures. It is your responsibility, and it is important to you and your family, to operate your tow tractor safely and efficiently. And be aware that the Federal Occupational Safety and Health Act (OSHA) and state laws require that operators be completely trained in the safe operation of tow tractors, if you think you need training, ask your supervisor.

CLARK tow tractors are built to take hard work, but not abuse. They are built to be dependable, but they are only as safe and efficient as the operator and the persons responsible for maintaining them. Do not make any repairs to this truck unless you have been trained in safe tow tractor repair procedures and are authorized by your employer.

CONTENTS

This manual covers the following models:
GT 25/30/32/50 & DT 25/30/32/50

A MESSAGE TO CLARK TOW TRACTOR OPERATORS. . . .	ii
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2 KNOW YOUR TRUCK.	2.1
3 OPERATOR CARE AND MAINTENANCE.	3.1
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6 PLANNED MAINTENANCE AND LUBRICATION.	6.1
7 SPECIFICATIONS.	7.1
8 INDEX.	8.1

Introduction

Clark welcomes you to the growing group of professional people who own, operate and maintain Clark tow tractors. We take pride in the long tradition of quality products and superior value that the Clark name represents. This manual will familiarize you with safety, operating, and maintenance information about your new tow tractor. It has been especially prepared to help you use and maintain your Clark tow tractor in a safe and correct manner.

Your Clark tow tractor has been designed and built to be as safe and efficient as today's technology can make it. As manufactured, it meets all the applicable mandatory requirements of ANSI B56.9 1987 Safety Standard for Powered Industrial Trucks. In addition, all trucks that conform to Underwriters Laboratories requirements have the Type Designation shown on the truck capacity plate. Each truck is also furnished with equipment to help you operate safely e.g., parking brake, horn, lights, as standard equipment.

Safe, productive operation of a tow tractor requires both skill and knowledge on the part of the operator. The operator must know, understand and practice the safety rules and safe driving and load handling techniques described in this manual. To develop the skill required, the operator must become familiar with the construction and features of the tow tractor and how they function. The operator must understand its capabilities and limitations, and see that it is kept in a safe condition.

Routine Servicing and Maintenance

Regular maintenance and care of your tow tractor is not only important for economy and utilization reasons; it is essential for your safety. A faulty tow tractor is a potential source of danger to the operator, and to other personnel working near it. As with all quality equipment, keep your tow tractor in good operating condition by following the recommended schedule of maintenance.

User Daily Inspection — Safety and Operating Checks

A tow tractor should always be examined by the user before driving to be sure it is safe to operate. The importance of this procedure is emphasized in this manual with a brief illustrated review and later with more detailed instructions. Clark dealers can supply copies of a helpful "Drivers Daily Checklist"

Introduction

Planned Maintenance

In addition to the daily user inspection, Clark recommends that a planned maintenance and safety inspection program (PM) be performed by a trained and authorized mechanic on a regular basis. The PM will provide an opportunity to make a thorough inspection of the safety and operating condition of your tow tractor. Necessary adjustments and repairs can be done during the PM, which will increase the life of components and reduce unscheduled downtime. The PM can be scheduled to meet your particular application and tow tractor usage.

The procedures for a periodic planned maintenance program which covers inspections, operational checks, cleaning, lubrication and minor adjustments, are outlined in this manual. Your Clark dealer is prepared to help you with a Planned Maintenance Program with trained service personnel who know your tow tractor and can keep it operating safely and efficiently. For additional information, see Service Manual SM-553.

About This Manual

The purpose of this manual is to provide a digest of essential information about the safe operation of your tow tractor and to acquaint you with its features and how they function and are maintained. This manual is organized into 7 major parts for easy reference:

Part 1 General Safety Rules... reviews and illustrates accepted practices for safe operation of a tow tractor.

Part 2 Know Your Truck... describes the major operating components, systems, controls and other features of your truck and how they function.

Part 3 Operator Care and Maintenance... presents added details on how to perform the operator's daily safety inspection.

Part 4 Operating Procedures... discusses more specific instructions on starting and the safe, efficient operation of your tow tractor.

Part 5 Emergency Starting and Emergency Moving... gives instructions for the use of battery jumper cables and for moving your truck when necessary.

Part 6 Planned Maintenance and Lubrication... describes a PM program for your truck.

Part 7 Specifications... provides reference information and data on features, components, and maintenance items for your tow tractor.

Index... provides help for locating information about various topics.

Safety Signs and Messages

Throughout this manual, you will find safety signs and safety messages, as well as other notes and informational instructions. These messages are given to remind you of either essential procedures or to prevent you from making an error which could damage the truck and possibly cause personal injury. Please refer to page viii for further definition and explanation of these messages.

NOTICE — The descriptions and specifications included in this manual were in effect at the time of printing. Clark Equipment Company reserves the right to make improvements and changes in specifications or design, without notice and without incurring obligation. Please check with your authorized CLARK dealer for information on possible updates or revisions.

How To Use This Manual

The examples, illustrations and explanations in this manual will help you improve your skill and knowledge as a professional tow tractor operator while taking full advantage of the capabilities and safety features of your new tow tractor.

The first section of the manual is devoted to a review, with illustrations and brief messages, of general safety rules and the major operating hazards you can encounter while operating a tow tractor. Next, you will find descriptions of the components of your specific tow tractor model and how the instruments, gauges and controls operate. Then, you will find a discussion of typical starting and operating procedures with more specific instructions for safe and efficient operation of your tow tractor. There are instructions for using battery jumper cables and how to move a disabled tow tractor. The later sections of the manual are devoted to maintenance and truck specifications.

Take time to carefully read the "Know Your Truck" section. By acquiring a good basic understanding of the features of your truck and how they function, you will be better prepared to operate it both efficiently and safely.

In "Planned Maintenance and Lubrication", you will find essential information for correct servicing and periodic maintenance of your truck, including charts with recommended maintenance intervals and component capacities. Carefully follow these instructions and procedures.

Each part has its own Table of Contents, so that you can find the various topics within more easily. If you cannot find a topic in the Table of Contents, check the Index at the back of the manual.

We urge you to first carefully read the manual from cover to cover. Take time to read and understand the information on general safety rules and operating hazards. Acquaint yourself with the various procedures in this manual. Understand how all gauges, instruments and controls function. Please contact your authorized CLARK dealer for the answer to any questions you may have about your tow tractor's features, operation or the manual.

Operate your tow tractor safely; careful driving is your responsibility. Drive defensively and think about the safety of people who are working nearby. Know your truck's capabilities and limitations. Follow all instructions in this manual, including all **IMPORTANT**, **CAUTION**, and **WARNING** messages to avoid damage to your tow tractor or the possibility of any harm to yourself or others.

This manual is intended to be a permanently-attached part of your tow tractor. Keep it on the truck as a ready reference for anyone who may drive or service it. If the truck you operate is not equipped with this manual, ask your supervisor to obtain one and have it attached to the truck. And, remember, your CLARK dealer is pleased to answer any questions about the operation and maintenance of your tow tractor and will provide you with additional information should you require it. He is glad to help you.

Safety Signs and Safety Messages

Improper or careless techniques cause accidents. Don't take chances with incorrect or damaged equipment. READ and UNDERSTAND the procedures for safe driving and maintenance outlined in this manual. Don't hesitate to ask for help.

STAY ALERT ! Follow safety rules, regulations and procedures. Accidents can be avoided by recognizing dangerous procedures or situations before they occur.

DRIVE AND WORK SAFELY and follow the safety signs and their messages displayed on the truck and in this manual.

SAFETY SIGNS and MESSAGES are placed in this manual and also on the tow tractor to provide instructions and to identify specific areas where potential hazards exist and special precautions should be taken. Be sure you know and understand the meaning of these instructions, signs and messages. Damage to the truck or death or serious injury to you or other persons may result if these messages are not followed. If warning decals are damaged they must be replaced. Contact your Clark dealer for replacements.

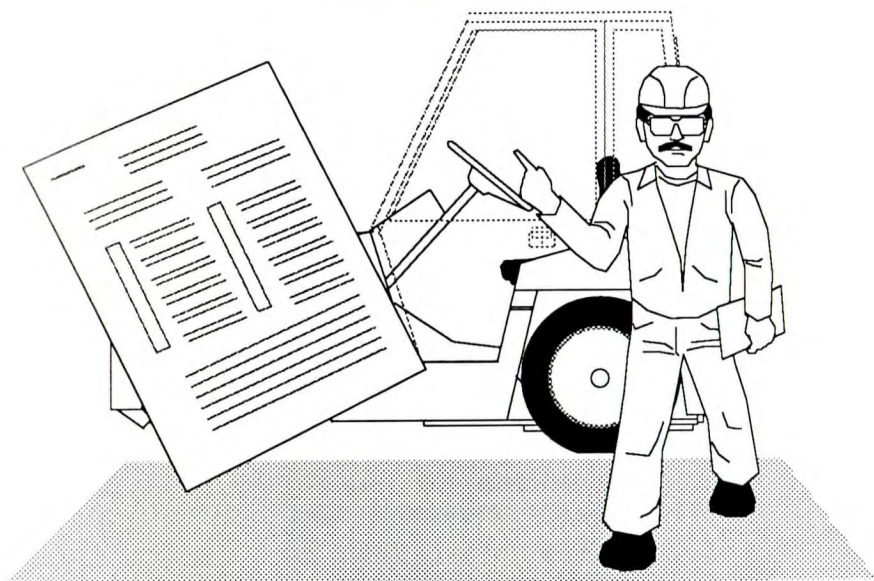
- NOTICE** - This message is used when special information, instructions or identification is required relating to procedures, equipment, tools, pressures, capacities and other special data.
- IMPORTANT** - This message is used when special precautions should be taken to ensure a correct action or to avoid damage to or malfunction of the truck or a compartment.
- CAUTION** - This message is used as a reminder of safety practices which can result in personal injury if proper precautions are not taken.
- WARNING** - This message is used when a hazard exists which can result in injury or death, if proper precautions are not taken.
- DANGER** - This message is used when an extreme hazard exists .

1 General Safety Rules Index

Daily Inspection	1.2
Do's and Don'ts	1.3
No Riders	1.4
Pedestrians	1.5
Operator Protection	1.6
Parking	1.7
Safety Procedures	1.8

General Safety Rules

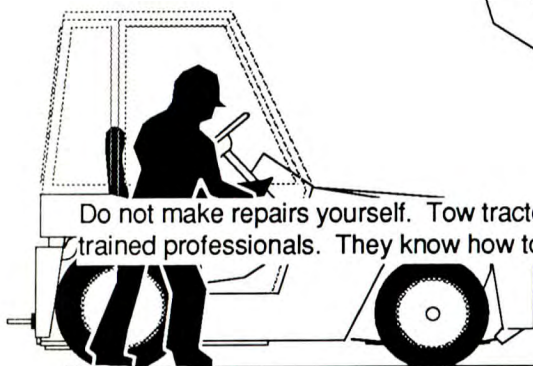
Daily Inspection



At the beginning of each shift inspect your truck and fill out a daily inspection sheet

Check for damage and maintenance problems.

Have repairs made before you operate the truck.

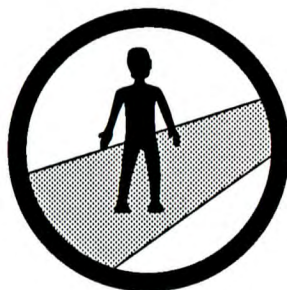


Do not make repairs yourself. Tow tractor mechanics are trained professionals. They know how to make repairs safely.

General Safety Rules Do's and Don'ts



DON'T MIX DRUGS OR
ALCOHOL WITH YOUR JOB.



DO WATCH FOR
PEDESTRIANS



DON'T BLOCK SAFETY OR
EMERGENCY EQUIPMENT

DO WEAR SAFETY
EQUIPMENT
WHEN REQUIRED



DON'T SMOKE IN
"NO SMOKING"
AREAS OR WHEN REFUELING

General Safety Rules

No Riders

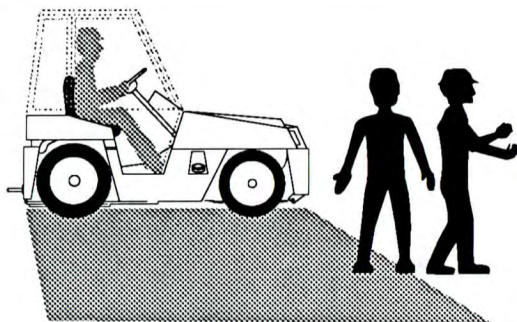


Don't allow a rider unless a passenger seat is provided.

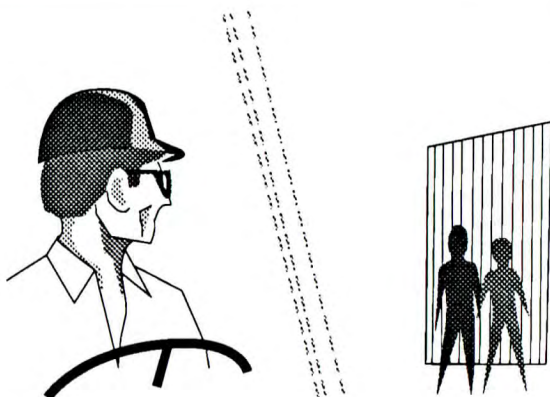
General Safety Rules

Pedestrians

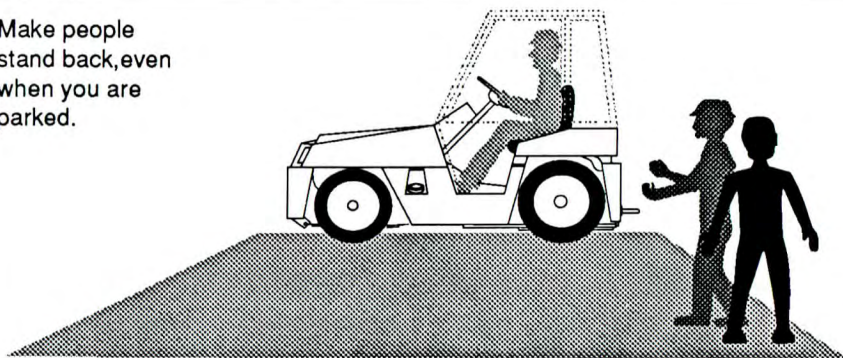
Watch where you are going, look in the direction of travel. Pedestrians may use the same roadway you do. Sound your horn at all intersections or blind spots.



Watch for people in your work area even if your truck has warning lights or alarms. They may not hear you or watch for you.



Make people stand back, even when you are parked.



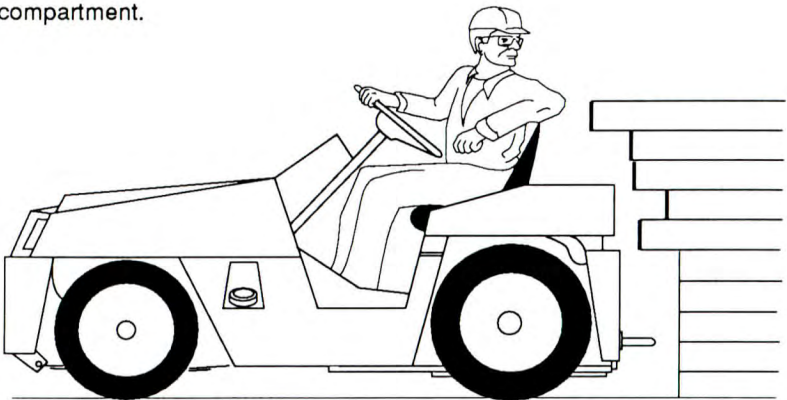
General Safety Rules

Operator Protection



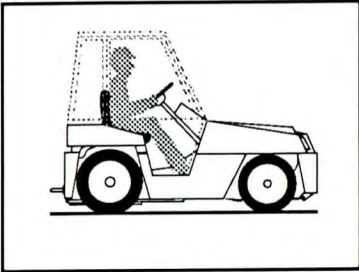
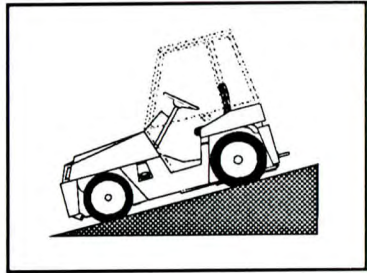
Be especially careful when traveling in reverse and maneuvering in tight areas.

Watch out for intrusions into the operators compartment.

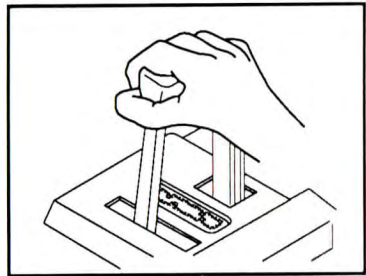


General Safety Rules Parking

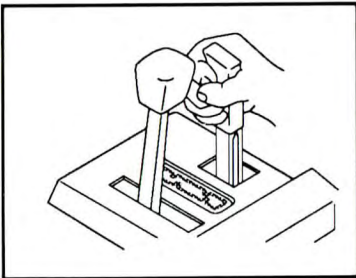
NEVER park on a grade.



Before leaving your truck:
Always come to a complete
stop...

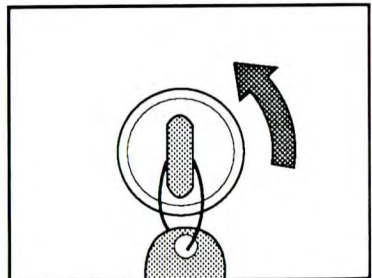


AND
Be sure shifter is in
neutral...



AND
Set parking brake...

AND
Turn key to "off" position.



SUMMARY OF SAFE OPERATING PROCEDURES

1. Do not operate this truck unless you have been trained and authorized to do so. Read all warnings and instructions in operator's manual and on this truck.
2. Do not operate this truck until you have checked its condition. Give special attention to tires, horn, lights, battery, brakes, steering mechanism, fuel system, and guards.
3. Operate truck only from designated operating position. Never place any part of your body outside of the confines of the truck. Do not carry a passenger unless a passenger seat has been provided.
4. Make sure the tow coupler is secure.
5. Do not handle unstable or loosely stacked loads. Use special care when handling long, high or wide loads to avoid losing the load, striking bystanders, or tipping the truck. Loads on trailers must be evenly distributed and secure.
6. Tow tractors generally tow loads in excess of the tractors weight. A loaded tractor-trailer requires increased stopping distance.
7. Start, stop, travel, steer and brake smoothly. Slow down for turns and on uneven or slippery surfaces that could cause truck to slide or overturn. Violent application of brakes is dangerous and may cause "jack-knifing" of trailers.
8. When making a turn, allow for "corner-cutting" of the trailer.
9. When moving in reverse direction with a trailer, get assistance if vision is obstructed. Moving in reverse direction with more than one trailer is not recommended.
10. Make sure correct tire pressures are maintained.
11. Before driving over a dockboard or bridge plate, make sure it is correctly secured. Drive carefully and slowly across the dockboard or bridge plate, and never exceed its rated capacity with tractor or trailers.
12. Do not run over objects on the traveled surface.
13. Use special care when operating on ramps—travel slowly, and do not angle or turn.

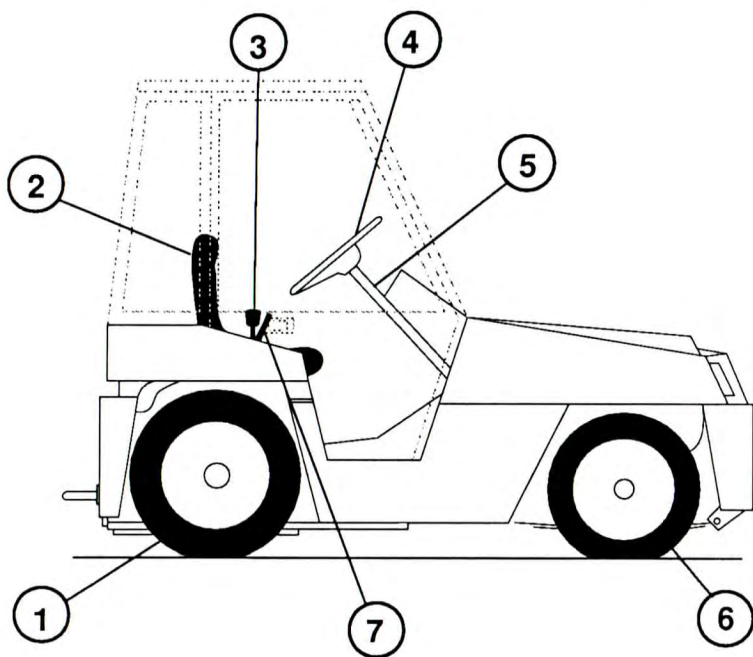
14. If a truck must be parked on an incline, put blocks at the wheels.
15. Fumes from operation of any powered trucks in poorly ventilated areas can be deadly. Turn engine off when not in use.
16. Observe applicable traffic regulations. Yield right-of-way to pedestrians, slow down and sound horn at cross aisles and whenever vision is obstructed.
17. Make a report of all accidents involving personnel, building structures, and equipment to the correct authority.
18. Before getting off truck, neutralize direction control and set parking brake. When leaving truck unattended, turn the key switch off.

2 Know Your Truck Index

Truck Model Descriptions	2.2
Truck Data and Safety Plates	2.3 - 2.5
Safety and Warning Decals	2.6
Operator's Compartment & Controls	2.7
How Your Tow Tractor Operates	2.8 - 2.15

Know Your Truck

Truck Model Descriptions



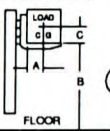
CLARK GT/DT Series

1. Drive Axle and Wheels
2. Seat
3. Directional Control Lever
4. Steering Control Handwheel
5. Steer Column
6. Steer Axle and Wheels
7. Parking Brake Lever

Know Your Truck

Truck Data and Safety Plates

Truck Data and Capacity Plate

CLARK			
MODEL NO.	<input type="checkbox"/>	GT - 30 (1)	TYPE
SERIAL NO.		GT - 42 - XXXXCB (2)	
ATTACHMENTS			
		CAPACITY WITH ATTACH LISTED ABOVE OR WITH FORKS UPRIGHTS VERTICAL	
		LBS	A B C
		3000	12" CPL HT
APPROX WT ALL TRUCKS		LESS BATT ELECTRICS	
APPROX WT ELECTRICS ONLY		WITH MAX BATT WT	
BATTERY WT		MAX	MIN
BATTERY		A.H. (4)	NO
CAPACITY		LBS	VOLTS
<small>FOR OTHER CAPACITIES CONSULT MANUFACTURER. AS RELEASED FROM FACTORY CLARK TRUCKS MEET THE FOLLOWING DESIGN SPECIFICATIONS FOR POWERED INDUSTRIAL TRUCKS UT AND IT MODELS PART 3 ANSI B56.8 1978. ALL OTHER MODELS PART 3 ANSI B56.1 1969 AND 1975 P/N 2315708</small>			

KNOW AND UNDERSTAND THE MEANING OF THE DATA ON YOUR TRUCK'S NAMEPLATE

1. Truck model number or registered name.
2. Truck serial number. This is an identification number assigned to this particular truck and should be used when requesting any information or when ordering service parts for this truck from your authorized CLARK dealer. The serial number is also stamped in the frame.
3. Capacity rating. This shows the maximum capacity of this truck with relation to drawbar pull. Personal injury and damage to the truck can occur if these capacities are exceeded. **DO NOT EXCEED MAXIMUM SPECIFIED.**
4. Truck weight. This is the approximate weight of the truck. This weight plus the weight of the trailers must be considered when operating on elevators, elevated floors, etc., to be sure they are safe.

Know Your Truck

Truck Data and Safety Plates



- Do not operate this tow tractor unless you are trained and authorized by your employer.
- Read the attached operator's manual before starting. If you do not understand it, ask your supervisor for help. Keep the manual with the truck.
- Look where you drive; follow your employer's speed and traffic rules. Make room for people, obstructions, and other hazards. Watch for the clearance of equipment you are towing.
- Before getting off, shift to neutral, turn off key, and set parking brake.
- Carry a passenger only when the extra seat is provided.
- Tow tractors will tip over if not properly operated. Slow down for corners, never turn on slopes, turn smoothly and avoid curbs or other obstructions. Check tire condition and pressure regularly.
- Do not operate if damaged or faulty. Do not attempt repair if you are not trained and authorized.

Know Your Truck

Safety and Warning Decals

Fan Warning Decal

This safety decal is displayed on the cooling fan shroud of the radiator to warn of the danger of injury from turning fan blades when the engine is running.



Be sure that you keep your hands, fingers, arms and clothing away from a spinning fan. Don't stand in line with a spinning fan. Fan blades can break at high speed and be thrown out of the engine compartment.

Seat Deck Warning Decal

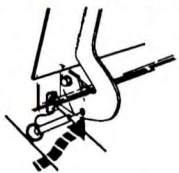
This safety decal is to warn of the danger of working under the raised seat deck, which is necessarily a sturdy unit of substantial weight. The safety pins are provided to insure that it cannot fall from the raised position while an operator or mechanic is working under it. You should make it a habit to insert the pins on both sides whenever you raise the seat deck.

Inspect the pins before every use for wear or damage. If their condition is doubtful in anyway; nicks, grooves, etc., they must be replaced before anyone works under the raised seat deck.

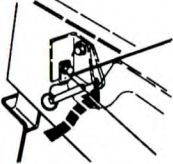
WARNING

BREAKING THESE RULES WILL CAUSE SERIOUS OR FATAL INJURY TO YOUR SELF AND OTHERS.

- Do not work in this area unless both safety pins are installed to keep the seat deck up.



- Pins should be inserted until rings stop against hinges.

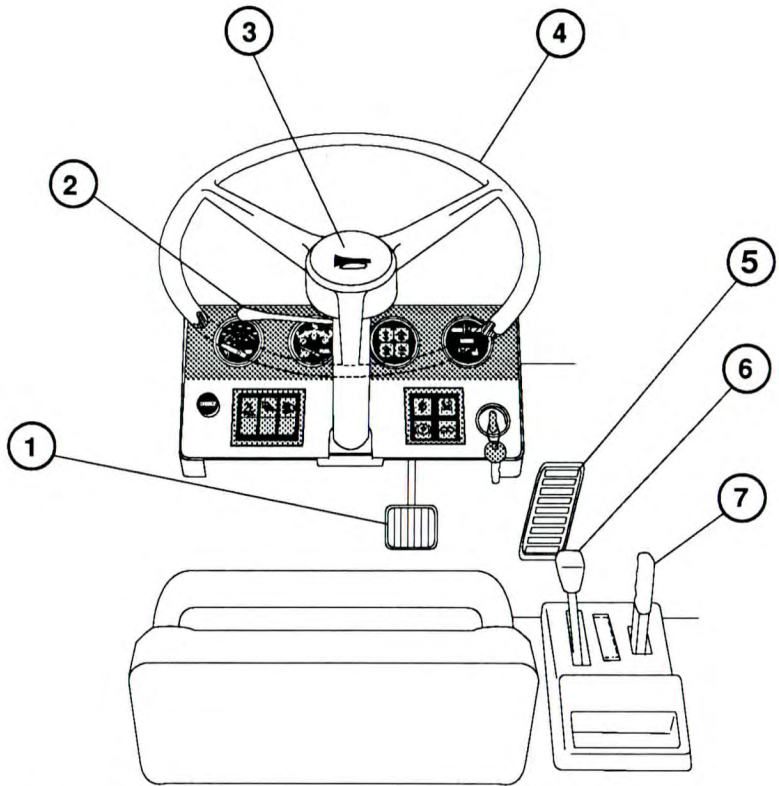


- After seat deck is lowered replace pins in storage position.

2776405

Know Your Truck

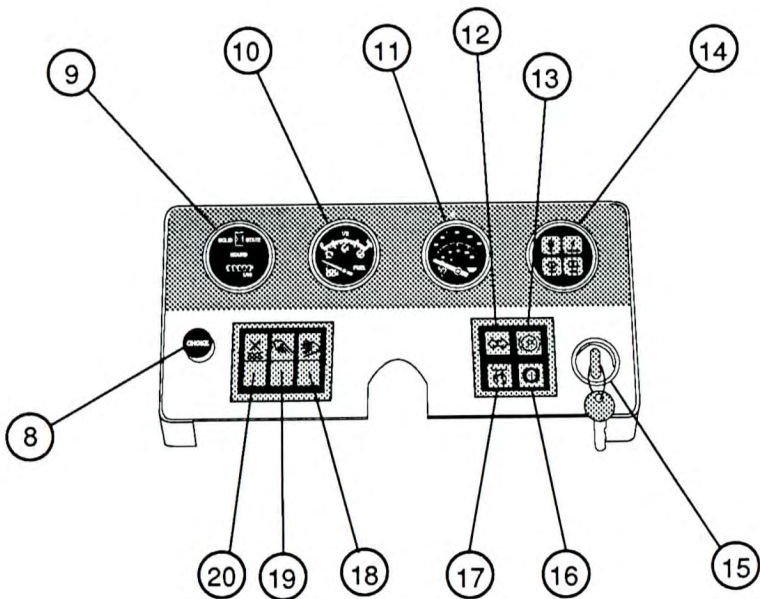
Operator's Compartment & Controls



1. Service Brake
2. Turn Signal (optional)
3. Horn Button
4. Steering Wheel
5. Accelerator Pedal
6. Directional Control Lever
7. Parking Brake

Know Your Truck

Operator's Compartment & Controls



- | | |
|----------------------------------|---------------------------------------|
| 8. Choke Control Knob | 14. Warning Indicator Lights |
| 9. Hour Meter | 15. Ignition Key Switch |
| 10. Fuel Gauge (Gas/Diesel only) | 16. Brake Warning Light |
| 11. Water Temperature Gauge | 17. Preheat (Glow plug "Diesel Only") |
| 12. Turn Signal Indicator | 18. Headlamp Switch |
| 13. Parking Brake Indicator | 19. Work Light Switch (Optional) |
| | 20. Warm Air Blower Switch (Optional) |

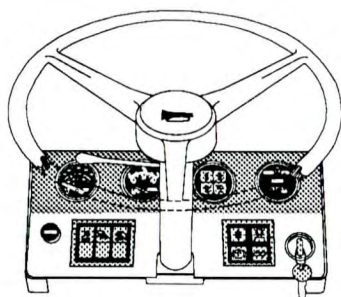
Know Your Truck

How Your Tow Tractor Operates

Instrument Panel

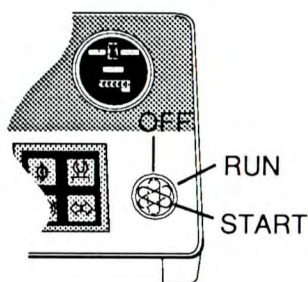
The Instruments Panel includes

- ignition key switch
- warning indicator lights
- fuel gauge (not used on LPG)
- hour meter
- provision for optional LPG low fuel warning light



The Ignition Key Switch

- turns the ignition circuit "on" and "off"
- connects and tests the warning indicator lights
- connects the starter motor circuit when engine is to be started



The key switch has three positions

- OFF
- RUN
- START

When the key is in the vertical "off" position all electrical circuits except the horn are disconnected (shut off) and the key can be removed. From the "off" position the key can be turned to the right (clockwise) to "start" position, when the key is released it will return automatically back to left (counterclockwise) for a part of its travel to the "run" position where the engine starter is disengaged and

the ignition circuit for gasoline/ LPG engine and the accessory circuit is "on". The key switch has a mechanical "antirestart" feature, which prevents the engine starter from being re-engaged and damaged if the key switch is accidentally turned from the "run" position to the "start" position when the engine is running. If the engine stops running, the key switch must be turned to the "off" position to restart the engine.

Know Your Truck

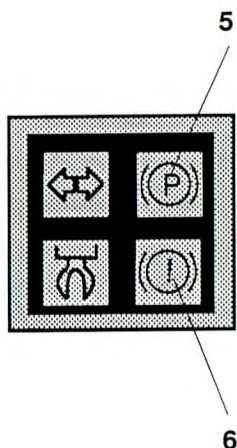
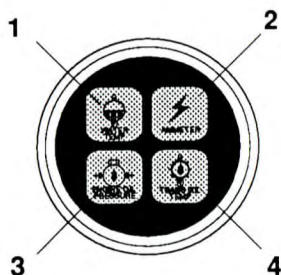
How Your Tow Tractor Operates

Warning indicator lights are provided for protection of six important systems of your tow tractor.

1. Water temperature (Engine coolant)
2. Battery charging indicator
3. Engine oil pressure
4. Transmission oil temperature
5. Parking brake
6. Brake System

The charge light indicates when the battery is not receiving charging current. The engine oil pressure light indicates that oil pressure has dropped below a safe level. The water temperature light indicates that the engine is overheating for some reason. The transmission oil temperature light warns that the transmission oil is too hot and damage can result if operation is not stopped until the reason for high temperature is corrected.

The warning lights can be tested with the key switch. Turn the key switch clockwise to the RUN position. The lights should illuminate, and the fuel gauge needle should indicate fuel level. The WATER TEMP and TRANS OIL TEMP lights are also for checking when the key switch is turned to the START position.



Note: If you don't want to start the engine when checking these warning lights, apply the service brake, move the directional control from NEUTRAL, while turning the key switch to the START position. After checking the indicator lights, turn key switch to OFF, and return the directional control to neutral.

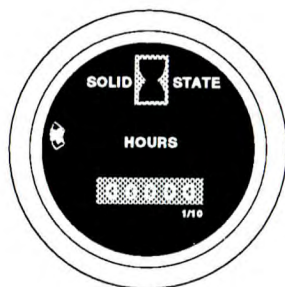
Know Your Truck

How Your Tow Tractor Operates

Hour Meter

This is a solid-state digital meter that indicates, in hours and tenths of an hour, operating time of the truck. Its function is to record total operating time on the truck, and which is used to determine maintenance intervals.

The hour meter is controlled by the ignition switch. It operates whenever the ignition switch is in the "RUN" position. Operation of the hour meter can be checked by watching for movement of the indicator as it rotates.

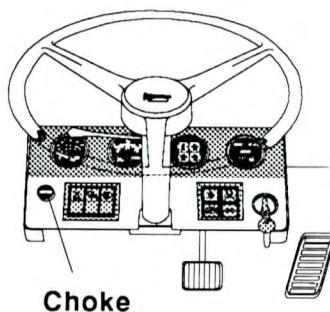


Fuel Gauge - Gasoline / Diesel

This gauge, connected electrically to a fuel level sending unit located in the fuel tank, registers the quantity of fuel in the tank. The gauge operates when the ignition switch is turned ON in the RUN position. When the gauge shows EMPTY, there is approximately one gallon in the tank, and the operator should get the tank refilled.

Choke Control (Gasoline)

The choke control knob is located on the left hand side of the instrument panel. It is required and furnished only with gasoline engines. The choke knob is connected by a wire control to the carburetor on the engine to enrich the fuel / air mixture to aid in starting when the engine is cold. Pull choke knob out to "close" the choke valve plate in the carburetor. Push in to "open" the choke. As the engine reaches normal operating temperature, the choke should be pushed in so that "flooding" of the engine does not occur.

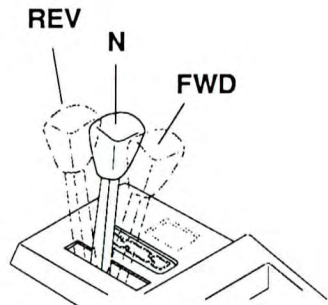


Know Your Truck

How Your Tow Tractor Operates

Directional Control

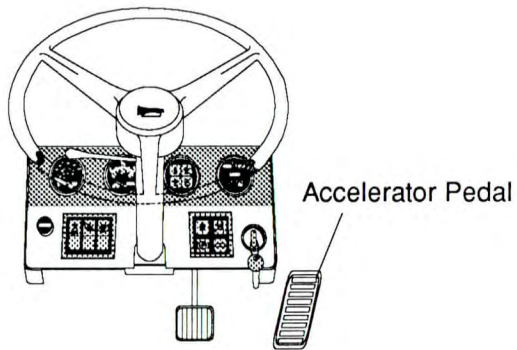
Direction-of-travel motion is selected with a control located on the controls cover at the operators right. Shift positions are as shown except that the GT/DT 25/30 does not actually have a third range and will upshift only once.



Notice - For safety, always bring the truck to a complete stop before shifting to the opposite direction

Accelerator Control Pedal

The speed of the engine and truck travel speed are controlled with a foot pedal suspended from the cowl and connected through mechanical linkage and a push-pull cable to the engine. The pedal is designed for operation by the right foot.

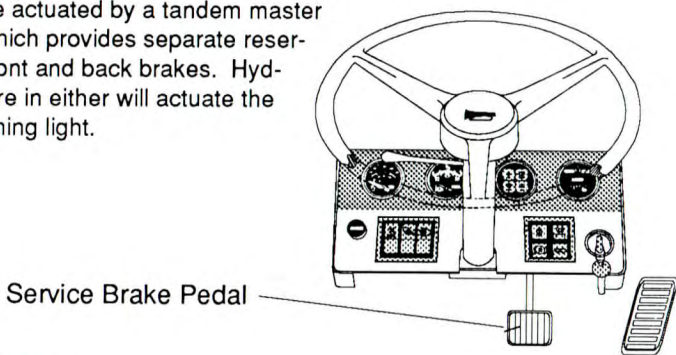


Know Your Truck

How Your Tow Tractor Operates

Service Brake System

Your truck has hydraulic disc brakes operating on all four wheels. The GT/DT 25/30 models have a manual (not powered) system. The GT/DT 32/50 models have a hydraulic power assist unit. Brakes are actuated by a tandem master cylinder which provides separate reservoirs for front and back brakes. Hydraulic failure in either will actuate the brake warning light.

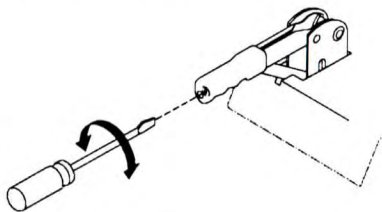


Parking Brake

The parking brake lever is located on the controls cover at the operators right side.

Pull the lever fully back to the vertical over-center upright position to apply the parking brake. The lever should snap-lock easily into the over-center applied position, when correctly adjusted. Push the lever forward to release the parking brake.

To adjust the parking brake cable tension, turn the adjustment screw in the end of the lever handle clockwise to tighten and counter-clockwise to loosen the cable.



To check parking brake holding capability and adjustment, park the tow tractor on a grade and apply the parking brake. The parking brake should hold a tow tractor on a 15% grade. When the lever is released, the brake shoes should not drag.

Caution -- Do not operate a tow tractor if the parking brake is not operating properly.

Know Your Truck

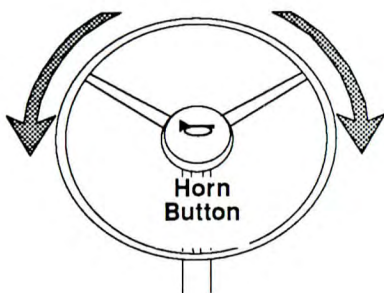
How Your Tow Tractor Operates

Optional Power Steering System

Some models may be equipped with an optional power steering system. It is a conventional automotive system. If the power assist fails or the engine should shut down, the steering system can still be operated but it will result in harder steering, particularly at low speeds.

Horn Button

The horn button is located in the center hub of the steering handwheel, and is electrically connected by contacts and wiring to the horn assembly installed in the dash of the truck.



Automatic Engine Shut-Down

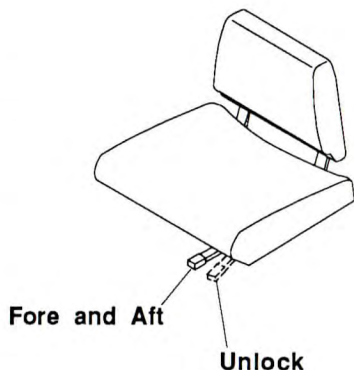
This truck is equipped with a Hi-Temp/Low Pressure Shutdown System. If high coolant temperature or low oil pressure occurs, the engine will automatically shut down. In an emergency the engine may be restarted by returning the key switch to the "off" position and then restarting. The engine will run for about 30 seconds and again shut down.

Know Your Truck

How Your Tow Tractor Operates

Seat Adjustment

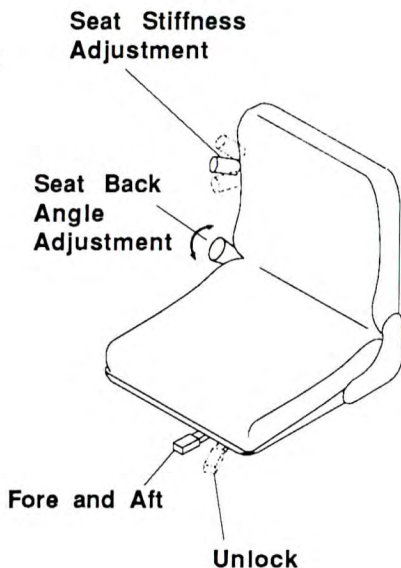
The forward and back adjustment lever is located on the left side under the seat. To un-lock, push the lever to the left and adjust the seat so that all controls may be comfortably reached. Then release the lever. Be sure that the seat locking mechanism is engaged. The seat mounting base allows a six-inch fore-and-aft adjustment of its slide mechanism.



Optional Suspension Seat

The seat back tilts variably up to 20 degrees back. It is controlled by a twist knob located in the right hand corner between the seat back and the cushion.

The seat back cushion may be adjusted to the three different degrees of firmness. The lever controlling this adjustment is located on the right side of the seat back.



Know Your Truck

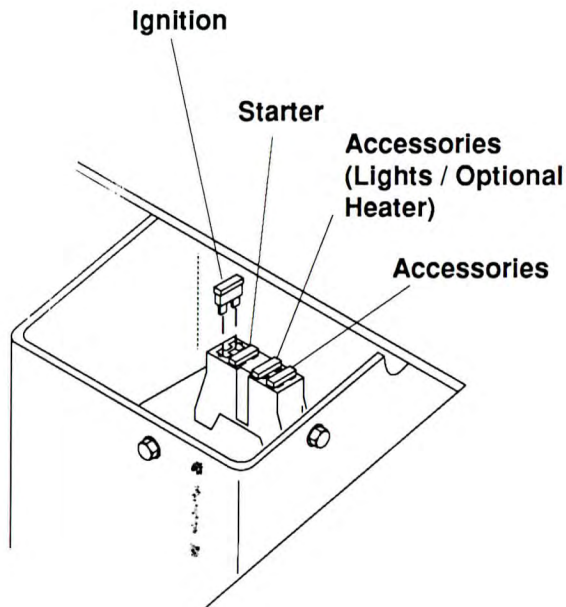
How Your Tow Tractor Operates

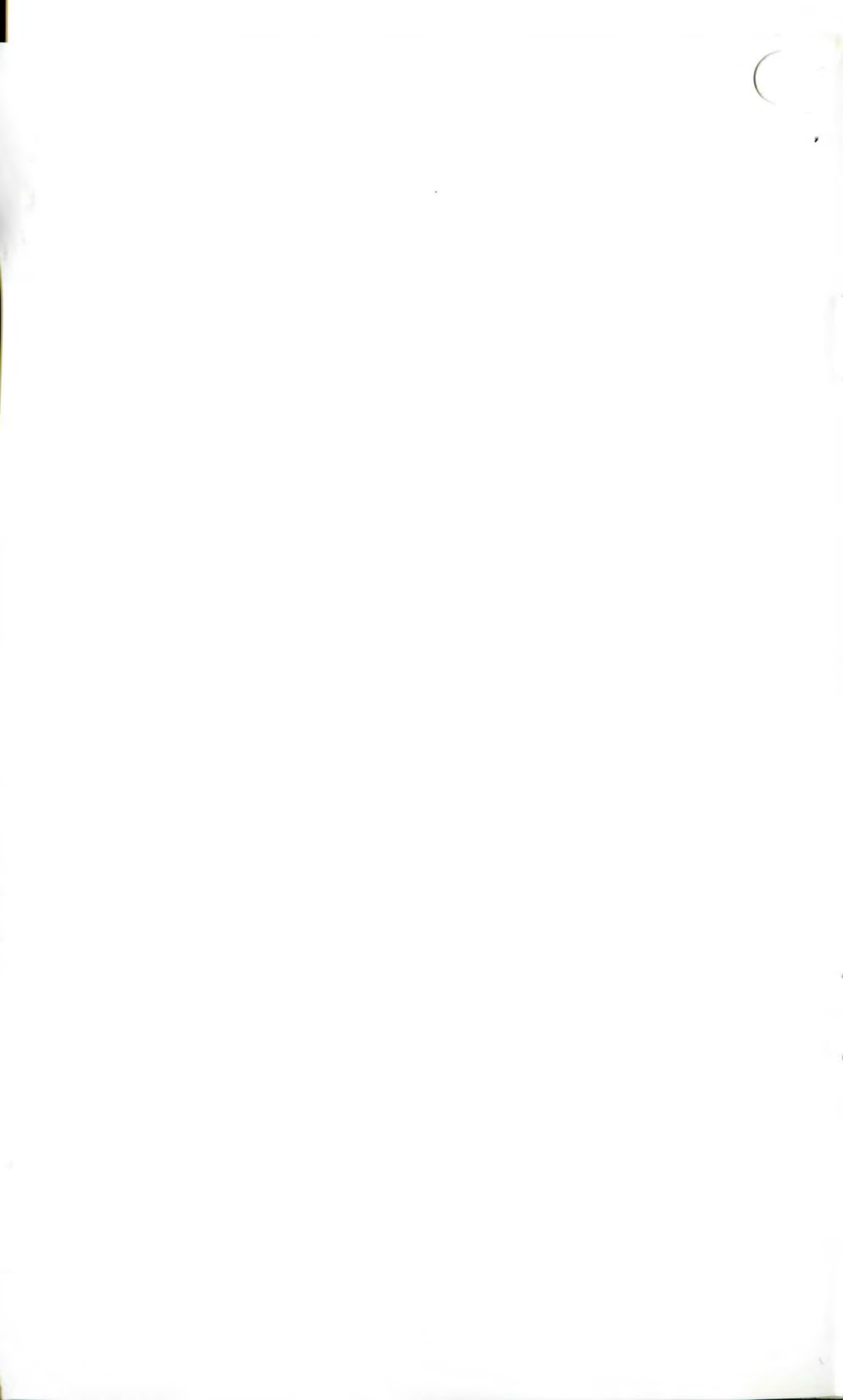
Fuse Block Location

The electrical system is protected by automotive blade type fuses. The accessory and ignition circuits, starter relay and the circuit supplying power to the cab each have a 15 amp fuse. The fuse block is located in the engine compartment, mounted on the master cylinder mounting bracket.

If you experience frequent or repeated blown fuses, have the electrical system checked out by a qualified mechanic. **DO NOT REPLACE WITH FUSES OF AMPERAGE HIGHER THAN 15 AMP.**

In addition, the Cummins diesel engine cold starting "glow plug" is protected by its own 50 amp fuse which is located in the engine compartment above the wheel well on the operators right hand side.





3 Operator Care and Maintenance Index

Daily Safety Inspection 3.2 - 3.4
Visual Checks 3.3
Functional Checks 3.3
Fuel Safety Practices 3.5
LPG Safety Practices 3.6, 3.7

NOTICE

The Occupational Safety and Health Act (OSHA) requires that the user examine his trucks before each shift to be sure they are in safe working order. Defects when found shall be immediately reported and corrected. The truck shall be taken out of service until it has been restored to safe operating condition.

Operator Care and Maintenance

Daily Safety Inspection

Before using a tow tractor, it is the operator's responsibility to check its condition and be sure it is safe to operate.

Check for damage and maintenance problems, and have repairs made before you operate the truck. Unusual noises or problems should be reported immediately to the user's supervisor or other designated authority.

DO NOT make repairs yourself unless you have been trained in tow tractor repair procedures and authorized by your employer. Have a qualified mechanic correct all discrepancies using genuine CLARK or CLARK-approved parts.

DO NOT operate a truck if it is in need of repair. If it is in an unsafe condition, remove the key and report the condition to the proper authority. If the truck becomes unsafe in any way while you are operating it, STOP operating the truck and report the problem immediately and have it corrected.

Tow tractors should be inspected every 8 operating hours, or at the start of each shift. This daily inspection should include a visual check for leaks and any obvious damage which may have been caused by operation during the last shift. Look for loose bolts and fittings. Check the tires, wheels and wheel mounting bolts. Check the engine oil, fuel and coolant levels. Check all of the controls. Operate the truck briefly to be sure that all systems are operating correctly, and that all instruments, warning lights and the horn are functioning.

As an aid in carrying out this inspection, CLARK has prepared a form called "Driver's Daily Checklist". We recommend that you use this form to make a daily record of your inspections and truck condition.

Copies of this form may be obtained from your CLARK dealer.

Operator Care and Maintenance Daily Safety Inspection

HOW TO PERFORM THE DAILY SAFETY AND OPERATING CHECKS

Visual Checks

First, perform a visual inspection of the truck and its major components. Walk around your tow tractor and take note of obvious damage which may have been caused by operation during the last shift.

Check that all capacity, safety, and warning plates or decals are attached and legible. If any plates or decals are damaged they must be replaced. Contact your Clark dealer for replacements.

Check, before and after starting engine, for any signs of external leakage: fuel, engine coolant, transmission fluid, etc.

Inspect the wheels and tires for safe mounting, wear condition, and air pressure.

Check fluid levels.

Functional Checks

Test warning devices, horn, lights, and other safety equipment and accessories.

Start the engine and be sure all controls and systems are functioning correctly. Check the hourmeter for operation. Operate the service and parking brakes, accelerator, directional control and steering system. Be sure all controls operate freely and return to neutral properly.

Operator Care and Maintenance

DAILY SAFETY INSPECTION

WHEN FUNCTIONAL CHECKS ARE COMPLETED:

- Bring truck to a complete stop.
- Put directional control lever in the "N" (neutral) position.
- Apply the parking brake.
- Turn the key switch to the OFF position.

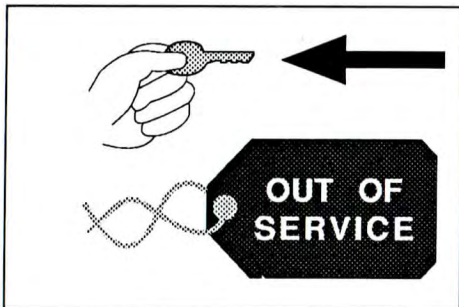
Standard Shut Down Procedure

When parking and leaving truck unattended, controls shall be placed in neutral, engine shut-off, brakes set and key removed. Block the wheels if truck is parked on an incline or has possibility of moving.

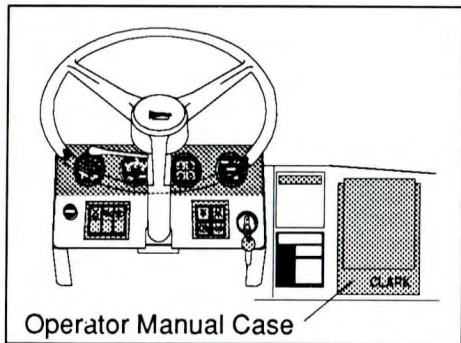
Make a record on the "Driver's Daily Checklist" of all the operating and truck problems that you find. Review the checklist to be sure it has been completed and turn it in to the person responsible for tow tractor maintenance. Be sure any unusual noises or problems are investigated immediately.

Do not operate a tow tractor that has a maintenance problem, or is not safe to operate.

Remove the key from the key switch and put an "Out of Service" tag on the truck.



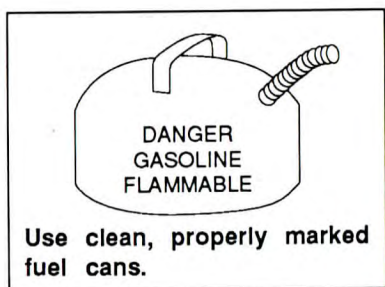
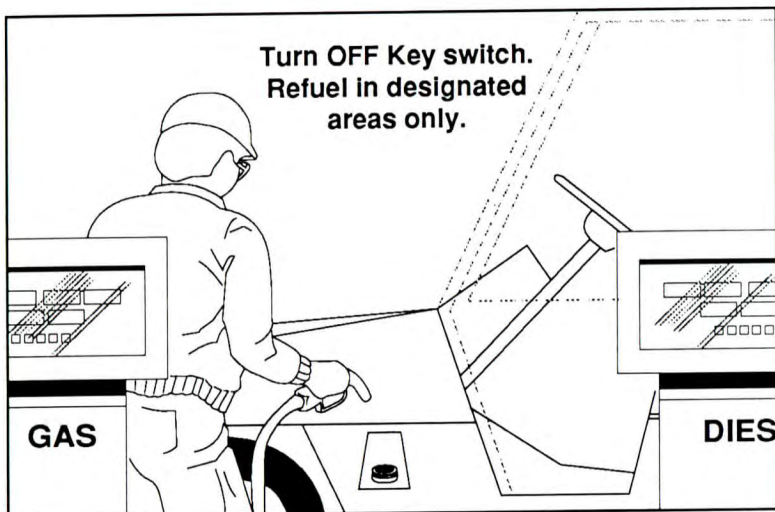
Be sure to put this Operator's Manual back in the holder located to the right of the instrument panel. Read the manual again if you are not sure of all tow tractor operating procedures, or ask for help.



If all of the "Before Operations" checks were normal or satisfactory, the truck can be operated.

Operator Care and Maintenance

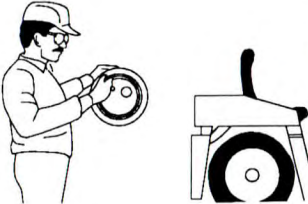
Fuel Safety Practices



Operator Care and Maintenance

LPG Safety Practices

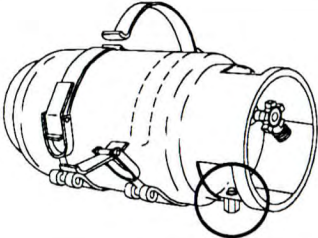
Refueling LPG



When changing LPG tanks:

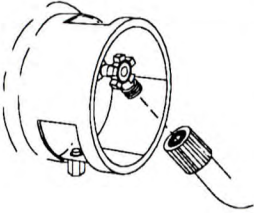
Follow these basic rules:

- Change only in well-ventilated areas.
- Turn the ignition and lights off.
- Check for leaks.
- Never allow open flames.
- Store tanks following local fire codes.



Make sure the index pin is engaged in the locating hole.

LPG...is heavier than air. It will settle on your clothes and the ground where you're working. Open flame can cause flash fires.

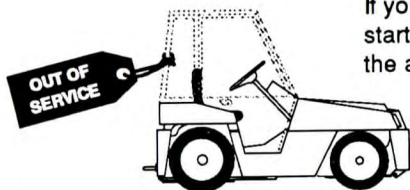


Check the tank and all connections for damage or missing parts. Tag faulty parts and report them to your supervisor.

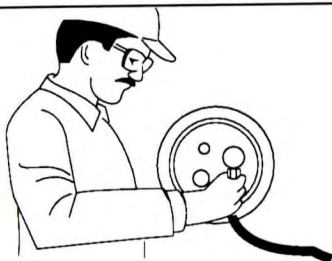
Operator Care and Maintenance

LPG Safety Practices

Refueling LPG (con't)



If you find a problem **DO NOT** try to start the truck until it is repaired and the area is cleared of LPG.



If the truck will not start after you change a tank, get a mechanic to check it.

If you refill portable or permanently mounted LPG tanks:

Make sure someone explains all procedures to you, and follow them.



Close the service valve when parked inside for storage or overnight.





4 Starting and Operating Procedures Index

How to Start Your Truck 4.2 - 4.11

How to Operate Your Truck 4.12 - 4.18

After Operation 4.19

When You Have Finished Using Your Truck 4.20

Starting and Operating Procedures

How To Start Your Truck

WARNING - Inspect your tow tractor before operating at the start of the day or shift. Before putting your truck to use, check the operation of the controls and all systems.

Starting Tips

Turn off lights and all optional equipment while you crank the engine. This will reduce the electrical load on your battery and supply extra power to the starter motor.

Avoid excessive starter cranking (in excess of 30 seconds) with an intermittently firing or flooded engine. To avoid starter overheat or damage, do not crank the starter continuously for more than 30 seconds at a time. If the engine fails to start within a period of 30 seconds, wait 2 - 3 minutes before again attempting to start your tow truck.

If your battery is "run-down" (discharged) or becomes discharged while trying to start your truck, please refer to the "Emergency Starting - How To Use Battery Jumper Cables" section of this manual.

NOTE - See Page 4.7 for additional starting and operating recommendations.

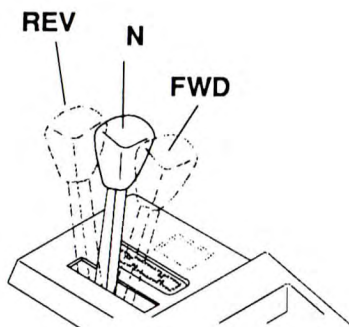
Before starting a tow tractor it is good practice to always start from a safe condition. Check to see that:

1. Parking brake is applied
2. You are familiar with how all the controls function
3. All controls are in neutral or other correct position
4. Truck has been checked and is ready to operate

Put the directional control lever in the "N" (neutral) position. The truck should start only in the "neutral" position.

Caution

When transmission fluid is cold, it is possible for the truck to creep forward while in neutral. Always have the parking brake applied when transmission is in neutral.



Starting and Operating Procedures

How To Start Your Truck

Gasoline Engine

To start a cold gasoline engine, pull the choke control out half of its total travel.

NOTICE

Climate conditions and other factors play a large part in how your engine starts. Read all the starting instructions carefully, so you will be aware of these factors when you start your truck. You may have to make adjustments in these procedures to find a combination more suitable for your situation and location.

In sub-zero temperatures, the engine may require extended cranking times and several attempts to start. If the engine does not start after four attempts, report the problem immediately.

Push the accelerator pedal down half of its total travel and hold.

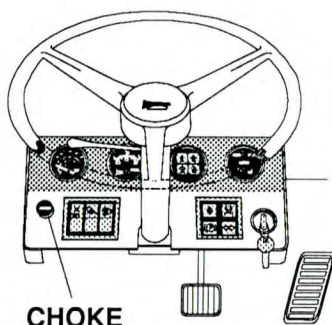
IMPORTANT

As soon as engine starts, release key switch from the "start" position to avoid starter drive damage.

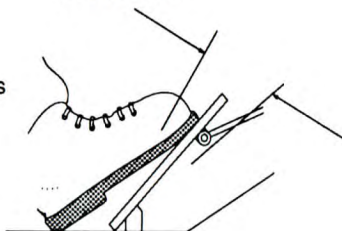
Turn the ignition key switch from the OFF position to the START position. Release the switch when the engine starts. When the engine runs smoothly, push in the choke control slowly.

NOTE - If the engine stops running, you must turn the ignition key switch back to the OFF position before turning back to the START position.

NEVER hold key in START position with engine running.



PEDAL
TRAVEL
DISTANCE



Starting and Operating Procedures

How To Start Your Truck

If the engine fails to start, pull the choke control out fully and repeat the previous starting procedure. Do not crank the starter continuously for more than 30 seconds at a time. Starter overheat and damage could result.

IMPORTANT

If the engine stalls or falters in starting, wait for 3 to 4 seconds before re-engaging the starter. This will prevent possible serious damage to the starter or engine.

When engine starts, vary the choke and throttle controls to obtain smooth operation in the 1000 to 1500 RPM range. Continue as engine warms up. By the time the engine runs smoothly under load, the choke control should be pushed all the way in (off).

To start a warm gasoline engine, push the accelerator pedal down half of its total travel and hold.

Turn the ignition key switch to the START position. Release the switch as soon as the engine starts.

If the engine fails to run, pull the choke control out one-quarter of its total travel. Turn the ignition key switch to OFF and repeat the starting procedure.

When engine runs smoothly under load, push choke control all the way in (off).

To start a flooded gasoline engine, push the choke control all the way in (off). Push the accelerator pedal down fully. Turn the ignition key switch to the OFF position, then to the START position. Release the key switch when the engine is running.

Automatic Engine Shut-Down

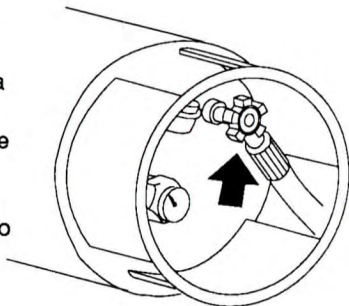
This truck is equipped with a Hi-Temp/Low Pressure Shutdown System. If high coolant temperature or low oil pressure occurs, the engine will automatically shut down. In an emergency the engine may be restarted by returning the key switch to the "OFF" position and then restarting. The engine will run for about 30 seconds and again shut down.

Starting and Operating Procedures

How To Start Your Truck

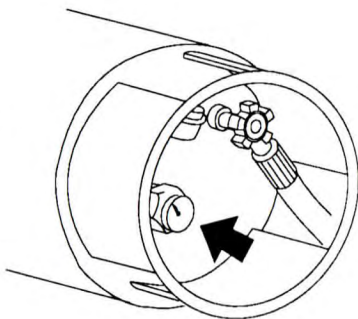
Engines Using LPG Fuel

If your truck uses LPG fuel, the fuel supply is stored in a special tank mounted to the right rear of the truck. For safety, there is a check valve and a shut-off valve at the tank. The shut-off valve is operated manually to control the flow of fuel from the tank. This valve must be closed when the engine is not running. Close this valve by hand only to a firm tightness. **DO NOT OVERTIGHTEN.**



Before starting an LPG engine, open the tank shut-off valve slowly.

NOTICE-If this valve is opened too quickly, the automatic safety check valve will close. If this happens, close the shut-off valve and wait 2 - 3 minutes. Then, open the shut-off valve slowly.



Check the amount of LPG in the tank by the gauge near the shut-off valve.



WARNING

**LPG FUEL IS HIGHLY FLAMMABLE.
NEVER SMOKE WHEN CHANGING TANKS.
NEVER CHANGE TANKS WHEN
THE ENGINE IS RUNNING.**

Starting and Operating Procedures

How To Start Your Truck

To start an LPG fuel engine, follow the starting procedure for a gasoline engine truck, with the exception that no choke control is required with LPG engines.

NOTICE -- In very cold temperatures, it may be necessary to prime LPG engines. Open the side door of the engine compartment and push the primer button on the LPG regulator for 1 to 2 seconds. Close the engine compartment and continue the starting procedure.

If the engine does not start after four attempts, report the problem immediately.

To stop an LPG fuel engine safely, follow this shut-down procedure:

1. Bring truck to a complete stop.
2. Apply the parking brake.
3. Let the engine run at low idle speed.
4. Close the shut-off valve at the LPG tank.
5. Wait until the engine uses (burns up) the supply of LPG remaining in the fuel system.
6. When the engine stops running, turn the ignition key switch to the OFF position.

Automatic Engine Shut-Down

This truck is equipped with a Hi-Temp/Low Pressure Shutdown System. If high coolant temperature or low oil pressure occurs, the engine will automatically shut down. In an emergency the engine may be restarted by returning the key switch to the "off" position and then restarting. The engine will run for about 30 seconds and again shut down.

Starting and Operating Procedures

How To Start Your Truck

Engine Starting and Operating Recommendations

Avoid damage to your truck or possible harm to yourself. Follow these recommendations:

NEVER pour gasoline into the carburetor or attempt to start the engine with the air cleaner removed. These practices could result in fire and personal injury.

Warm the engine up before driving or applying a load. Idle engine at 650-750 RPM for a few minutes to circulate and warm the oil. Then increase speed to approximately half throttle for a short period, or until the engine coolant reaches approximately 100° F. This procedure will help prolong engine life.

Let engine run until the normal operating temperature is reached. Then operate the controls and check all systems and warning indicators to be sure they are functioning properly. Stop the engine and make a visual inspection for oil, water or fuel leaks.

Do not idle the engine for long periods to warm it up. Low engine speeds may result in cold fouling of the spark plugs and inadequate lubrication in cold weather.

Do not operate engine at speeds above idle for more than brief periods without a load.

Do not run the engine at maximum power continuously until engine is fully warmed up.

Never pull out choke when stopping engine. This can cause flooding of the engine, allowing raw gasoline to enter the engine and wash lubricant from the cylinder walls.

Never operate engine at more than the regular no-load governed speed. Excessive speeds are harmful. NOTE -- The governor is set at the factory and should need no adjustment.

Avoid extended (in excess of 10 minutes) and unnecessary idling of the engine. If extended idling occurs or is anticipated beyond 10 minutes, turn off the engine.

CARBON MONOXIDE is colorless and odorless, but can be present with all other exhaust fumes.



WARNING

EXHAUST GASES
ARE HARMFUL AND CAN CAUSE
SERIOUS INJURY OR DEATH.
PROPER VENTILATION IS
ALWAYS NECESSARY FOR
SAFE INSIDE OPERATION
OR WARM-UP.

Starting and Operating Procedures

How To Start Your Truck

Diesel

Prestart Instructions

Preparations for the initial start up and each additional start up thereafter should include careful checks of the following:

1. Check all components for mechanical security. If an abnormal condition or defective part is detected, repair or service as required. The engine should be kept free of dust, dirt and spilled oil or fuel.
2. Check engine crankcase oil level; add if necessary.
3. Check engine coolant level; add if necessary.
4. Check fuel supply level; fill as necessary.
5. Inspect the engine air cleaner; replace if necessary.
6. Inspect exhaust system for possible leakage and cracks; repair if necessary.

FUEL SYSTEM PRIMING

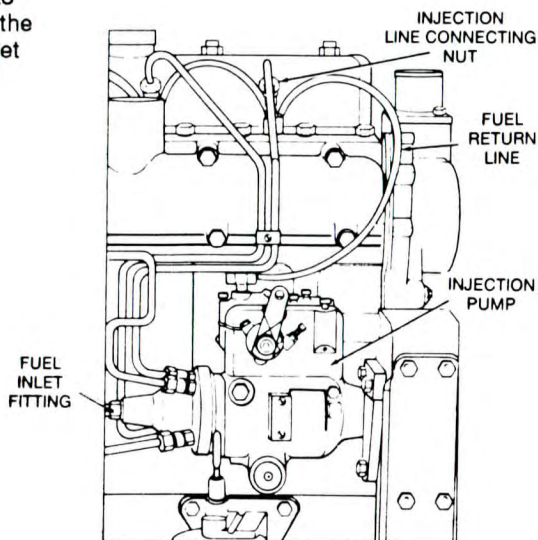
The fuel system must be primed prior to initial start up or after engine has run out of fuel.

IMPORTANT

Due to the precise tolerances of diesel injection systems, it is extremely important that the fuel be kept clean and free of dirt or water. Dirt or water in the system can cause severe damage to both the injection pump and the injection nozzles.

Priming Low Pressure Fuel System

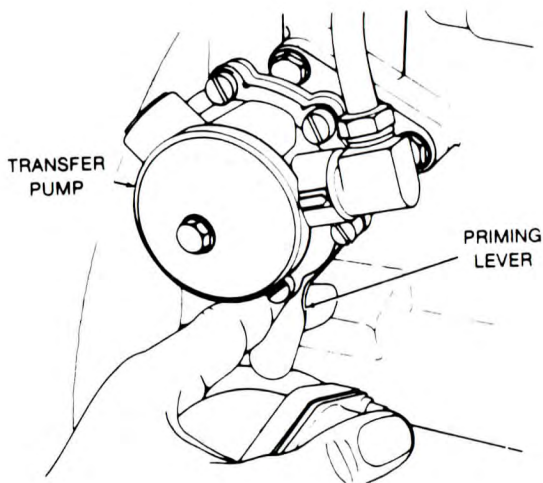
1. Check fuel level in fuel tank.
2. Loosen the fuel filter to injection pump line at the injection pump fuel inlet fitting.



INJECTION PUMP AND NOZZLE

Starting and Operating Procedures How To Start Your Truck Diesel

3. Actuate the priming lever on the side of the transfer pump until fuel flows from the fitting. If resistance is not felt when operating priming lever the camshaft transfer lobe is up. Turn engine one revolution to permit hand priming.



FUEL TRANSFER PUMP

4. Tighten fuel line at the injection pump inlet. Make certain all fuel system hose clamps and fittings are tight.

Starting and Operating Procedures

How To Start Your Truck

Diesel

Priming High Pressure Fuel System

This part of the system is usually self-priming since any trapped air in the injection pump is usually forced out through the injection nozzle. If, however, engine has run out of fuel, been shut down for an extended period, or has had fuel injection lines removed, it may be necessary to prime as follows:

1. Loosen fuel injection line connecting nut attaching each line to corresponding nozzle holder.
2. Place stop control in run position. (Ignition switch).
3. Energize starting motor. (Do not operate starting motor for more than 30 seconds at a time without pausing two minutes to permit starter to cool).



DANGER

Fuel penetration of the skin can cause severe personal injury. Do not let the nozzle high-pressure fuel spray against skin surfaces.

4. When fuel flows from the end of all high pressure fuel injection lines, stop starting motor and torque connection nuts.



DANGER

Use of ether as a starting aid cause an explosion resulting in severe personal injury. Heat of compression can cause a sudden ignition of the ether vapor. Do not use ether as a starting aid.

IMPORTANT

Use of ether as a starting aid can cause an explosion resulting in engine damage. Heat of compression or hot glow plugs can cause ignition of the ether vapor. Do not use ether as a starting aid.

IMPORTANT

Overvoltage will immediately destroy the glow plugs. Do not apply overvoltage to the starting circuit at any time. If it becomes necessary to use an additional source of power to start an engine, use a battery of equal voltage connected in parallel.

Starting and Operating Procedures

How To Start Your Truck

Diesel

GLOW PLUG OPERATION

The glow plugs provided with the engine operate in an automatic manner in that there is no manual switch by which they may be operated. The automatic cycle occurs in approximately seven seconds and is operated in the following manner:

1. Place the direction control in the neutral or park position.
2. Turn ignition switch to engine run position.
3. Wait until glow plug preheat light on the instrument panel goes out before cranking engine.
4. Turn key switch to start position to engage starter.

IMPORTANT

Do not engage starter for periods longer than 30 seconds without allowing starter to cool.

- A. If engine does not fire within 10 seconds, turn key to OFF position and wait 5 seconds before repeating steps 2 to 6.
 - B. If engine does not start and run within 30 seconds, turn key to OFF position and wait 15 seconds before repeating steps 2 to 6.
5. If engine does not start on the third attempt, check fuel supply system for leaks or restrictions. Absence of blue/white smoke during cranking indicates no fuel being delivered.
 6. Allow engine to warm up before applying load. Within seconds after starting engine, oil pressure light should go off.

ENGINE SHUTDOWN

IMPORTANT

Always allow engine to run at idle speed without load for a least 1 minute before stopping. This allows engine to cool gradually and uniformly.

- Shutdown engine by turning the key switch to the OFF position.

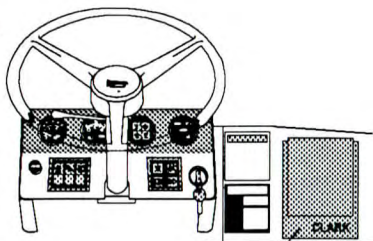
Automatic Engine Shut-Down

This truck is equipped with a Hi-Temp/Low Pressure Shutdown System. If high coolant temperature or low oil pressure occurs, the engine will automatically shut down. In an emergency the engine may be restarted by returning the key switch to the "off" position and then restarting. The engine will run for about 30 seconds and again shut down.

Starting and Operating Procedures

How To Operate Your Truck

The Operator's Manual is designed to be attached to the truck and stored in a holder to the right of the instrument panel. It is placed there for ready reference by the operator. Refer to it often; whenever you have questions about an operating procedure.



Before using a tow tractor, the operator must check the truck and complete the "Driver's Daily Checklist".

Operator Manual Case

Remember, before starting and operating a tow tractor it is good practice to always start from a safe condition. Check to see that:

- Parking brake is applied
- You are familiar with how all the controls function
- All controls are in neutral or other correct position
- Truck has been checked and is ready to operate

NOTICE

THIS EQUIPMENT CAN BE DANGEROUS IF NOT USED PROPERLY. SAFE OPERATION IS THE RESPONSIBILITY OF THE OPERATOR.

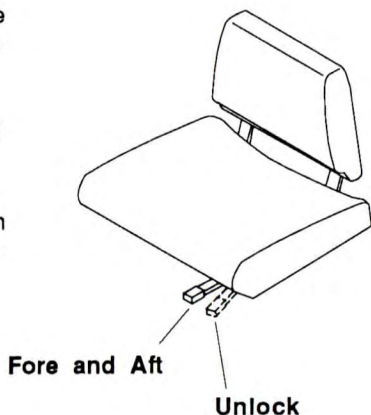
DO NOT START OR OPERATE THE TRUCK, FROM ANY PLACE OTHER THAN FROM THE DESIGNATED OPERATOR'S POSITION.

Starting and Operating Procedures

How to Operate Your Truck

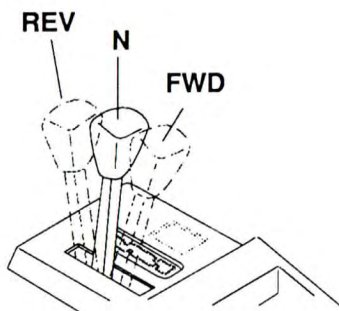
RECOMMENDED OPERATING AND DRIVING PROCEDURES Sequence of Operation

This is a good time to adjust the seat to a comfortable position for you. The forward and back adjustment lever is located on the left side under the seat. To un-lock, push the lever to the left and adjust the seat so that all controls may be comfortably reached. Then release the lever. Be sure that the seat locking mechanism is engaged. The seat mounting base allows a six-inch fore-and-aft adjustment of its slide mechanism.



CAUTION - Never adjust the driver's seat while the truck is moving to avoid the possibility of loss of control and of personal injury.

Be sure that the directional control lever is in the "N" (neutral) position.



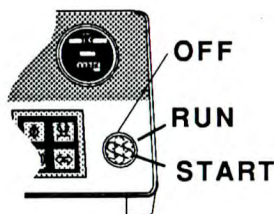
Starting and Operating Procedures

How To Operate Your Truck

Start the engine.

Turn the ignition key switch to the START position. When engine is running, release the key. The key will return to the RUN position.

If you are unfamiliar with this procedure, please refer to the section, "How To Start Your Truck".



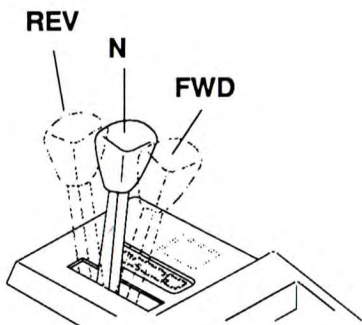
Immediately after engine starts, check the engine oil pressure warning indicator light and the ammeter warning light. If either of these lights are illuminated, stop engine and have the truck checked for the cause of the trouble.

Be sure that your truck won't move unexpectedly before you are ready to drive...

Put your foot on the brake pedal and push down to apply the service brakes.

Release the parking brake.

- Put the directional control lever in the correct position for the desired direction of travel.



Starting and Operating Procedures

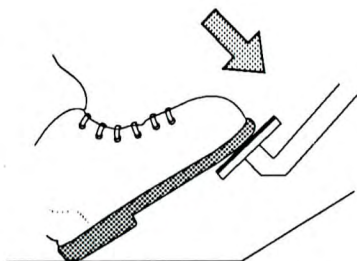
How To Operate Your Truck

Look in the direction your truck will be traveling, put your foot on the accelerator pedal and push down smoothly until the truck is moving at the desired speed.

Always bring your truck to a complete stop before shifting to the opposite direction.

To stop the truck, lift your foot from the accelerator pedal and put it on the brake pedal. Push down on the brake pedal in a smooth, firm motion until the truck is stopped.

IMPORTANT— Stop a tow tractor as gradually as practical. Hard braking and wheel sliding are dangerous and can increase wear and be harmful to the tow tractor, and will increase the danger of jack-knifing trailers.



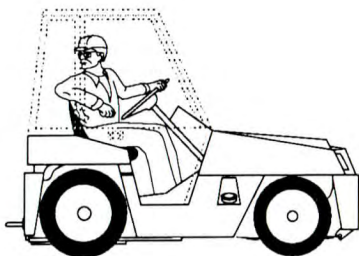
Starting and Operating Procedures

How To Operate Your Truck

**Watch where you are going...
Don't go if you can't see.**

Before driving, check all around to be sure that your intended path of travel is clear of obstructions and pedestrians.

While driving, be alert for pedestrians other vehicles or obstructions in your path of travel. Watch for people in your work area even if your truck has warning lights or alarms. They may not watch out for you. Sound horn at intersections and whenever vision is obstructed. Do not drive a truck up to anyone standing in front of an object.



Operate truck only from the designated operator's position. Stay within the confines of the tow tractor profile dimensions. Keep arms, legs, and hands inside the operator's compartment and away from the danger of passing obstructions.



No Riders...

The operator is the only one who should be on the truck unless a passenger seat has been provided.

Starting and Operating Procedures

How To Operate Your Truck

Always be in full control of your truck...

Never operate a tow tractor or its attachments to perform any of its functions if you are not in the designated operator's position.

Never operate a tow tractor when your hands are wet or greasy.

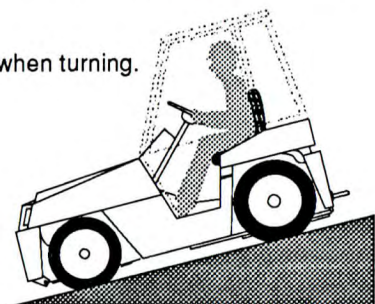
Always pick the smoothest travel route for your tow tractor. Avoid bumps, holes, slick spots, and loose objects or debris in your path that may cause the truck to swerve or tip. If these conditions are unavoidable, slow down and carefully drive past them. Slow down for wet or slippery floors.

Avoid any sudden movement. Start, stop, travel, steer, and brake smoothly.

Operate your tow truck under all conditions at a speed that will permit it to be brought safely to a stop.



WARNING — Travel slowly when turning.



Use special care when operating on ramps, inclines and uneven areas. Travel slowly. Normally travel straight up and down. Do not turn or drive at an angle across an incline or a ramp. Do not attempt to operate on grades in excess of those specified by the manufacturer.

CAUTION

Operate your tow tractor only in areas that have been approved for your tow tractor type designation. Certain areas contain flammable gases, liquids, dust, fibers or other hazardous materials. Tow tractor operation in these areas must have special approval. These areas must be designated to show the type of tow tractor approval required for operation in the area. Be aware that changes to special equipment or poor maintenance can cause the tow tractor to lose its special approval.

Starting and Operating Your Truck

How To Operate Your Truck

SAFE OPERATION IS THE RESPONSIBILITY OF THE OPERATOR.

Practice safe operation every time you use your truck...

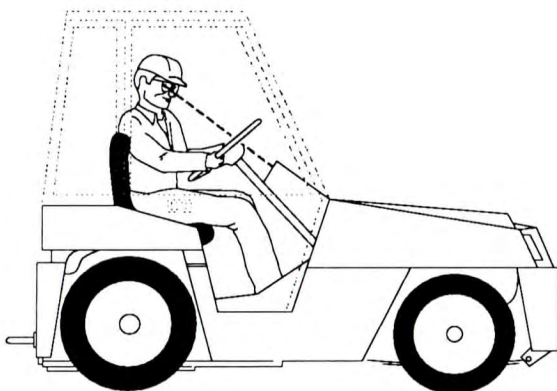
Careful driving and operation is your responsibility. Be completely familiar with all the safe driving techniques in this operator's manual. Use common sense. Drive carefully; do not indulge in stunt driving or horseplay. Observe traffic rules. Watch for people and hazards. Slow down. Be in full control of your tow tractor at all times.

Follow the instructions in this manual to avoid damage to your truck or the possibility of injury to yourself.

During your work, observe all functions of your tow tractor. This will allow you to immediately recognize a problem or irregularity that could affect the safe operation of your truck.

Periodically check the warning indicator lights in the instrument panel to be sure they indicate a normal condition. If an abnormal condition appears, shut off the engine immediately and report the problem.

Do not continue to operate a truck that has a malfunction. Stop and have it fixed.



Starting and Operating Procedures

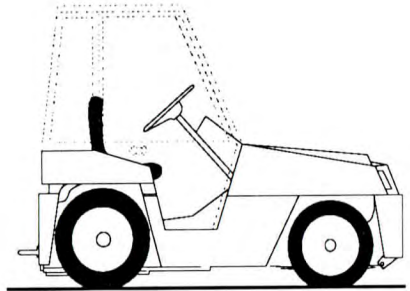
After Operation

When You Have Finished Using Your Truck

Always leave your tow tractor in safe condition...

When you leave your truck, or park it, follow these safety rules:

- Park in a safe area away from normal traffic.
- Never park on a grade.
- Never park in areas which block emergency routes or equipment or access to fire aisles, stairways, and fire equipment



Before leaving the operators position...

1. Bring truck to a complete stop.
2. Put the directional control lever in the "N" (neutral) position.
3. Apply the parking brake.

In addition, when leaving the operators position...

4. Turn off key switch.
5. Block the wheels, if the truck must be left on an incline or you have any doubt about the truck moving from a safe position.

Starting and Operating Procedures

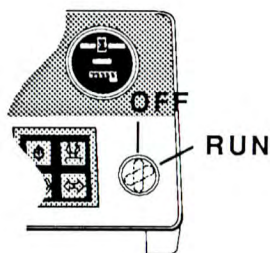
When You Have Finished Using Your Truck

ENGINE SHUT DOWN PROCEDURES

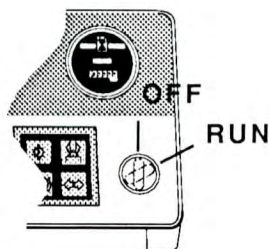
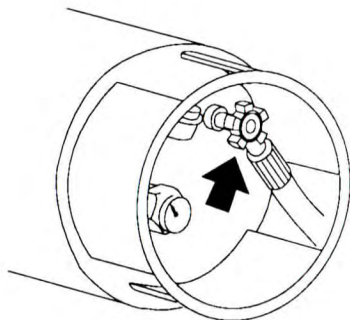
Gasoline / Diesel Engines

- Turn the key switch to the OFF position and remove the key.

NOTE - If the tow tractor has been working hard, let the engine idle a few minutes before shutting it off.



1. Close the shut-off valve at the LPG tank.
2. Wait until the engine stops.
3. Turn the ignition key switch to the OFF position and remove the key



5 Emergency Starting and Moving Index

How to Use Battery Jumper Cables 5.2 - 5.4

How to Move a Disabled Truck 5.5 - 5.6

Emergency Starting

How To Use Battery Jumper Cables

These instructions apply to the use of a similar-model tow tractor with a fully-charged good ("booster") battery to start the engine of a tow tractor with a discharged ("dead") battery.

To avoid damage to your tow tractor and your battery or the possibility of harm to yourself, follow these instructions and warnings. If you have any doubts, ask for help from an experienced mechanic.

1. This truck has a 12-volt battery and a negative ground electrical system. Be sure that the other truck also has a 12-volt battery and negative ground system. If not sure of the voltage, or if the ground is different, do not try to jump start, as personal injury or damage to the electrical system can result.

If your truck has a battery with terminals on the side, you will need a set of jumper cables with matching connector clamps, or cable adapters for side-mounted battery terminals.

2. If the discharged battery has filler caps, check the fluid level. Do not use an open flame to check and do not smoke. If low, add distilled water to the correct level. Be sure to install the caps before jump starting.

Do not jump start, charge or test a sealed-type battery if the test indicator looks illuminated or has a bright color. Install a new battery.

3. Put the truck with the booster battery as near to the other truck as necessary for the jumper cables to reach both batteries. Check and make sure that the trucks do not touch each other.

Use particular care when connecting a booster battery to prevent sparks.



WARNING SULFURIC ACID

THE BATTERY CONTAINS CORROSIVE ACID WHICH CAN CAUSE INJURY. IF ACID CONTACTS YOUR EYES OR SKIN, FLUSH IMMEDIATELY WITH WATER AND GET MEDICAL ASSISTANCE.

Batteries contain sulfuric acid. Avoid acid contact with skin, eyes or clothing. Also, shield your eyes when working near the battery to protect against possible splashing of the acid solution.



WARNING EXPLOSIVE GASES

DO NOT SMOKE OR HAVE OPEN FLAMES OR SPARKS IN BATTERY CHARGING AREAS OR NEAR BATTERIES. AN EXPLOSION CAN RESULT AND CAUSE INJURY OR DEATH.

Hydrogen and oxygen gases are produced during normal battery operation. This gas mixture can explode if flames, sparks or lighted tobacco are brought near the battery. When charging or using a battery in an enclosed space, always provide ventilation and shield your eyes. Wear safety glasses when working around batteries.

Emergency Starting

How To Use Battery Jumper Cables

4. On both trucks:
 - a. Apply the parking brake.
 - b. Put the directional control lever in the "N" (neutral) position.
 - c. Turn the key switch to the OFF position.
 - d. Turn all accessories to the OFF position and leave them off until after the engine has been started and the jumper cables removed
5. Connect the jumper cables in the following sequence:

- a. Connect the first jumper cable from the positive (+) (Red) terminal on one battery to the positive (+) (Red) terminal on the other battery. Never connect (+) (Red) to (-) (Black), or (-) to (+).

- b. Next, connect one end of the second cable to the grounded (-) (Black) terminal of the "Starting Vehicle" battery.

- c. Last, connect the other end of the second jumper cable to a stationary solid metallic point on the engine of the "Stalled Vehicle". (NOT TO NEGATIVE (-) TERMINAL OF THE BATTERY.)

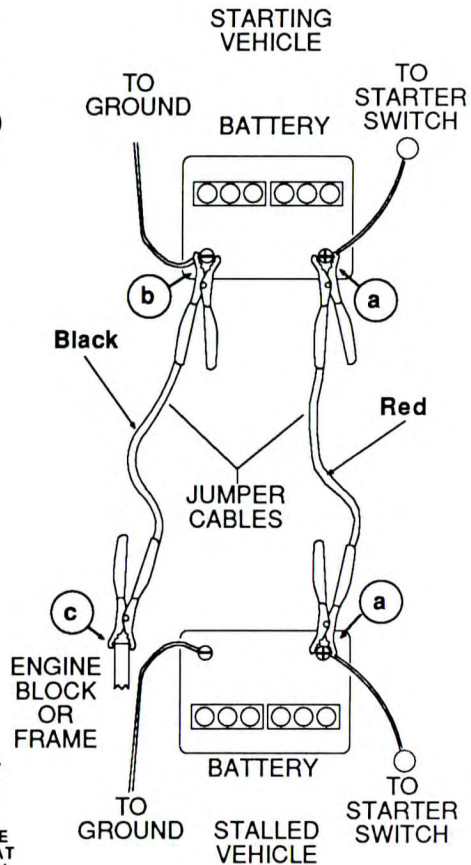
Make this connection at a point at least 18 inches [450mm] away from the battery, if possible. Do not connect it to pulleys, fans, or other parts that move. Be sure not to touch hot manifolds which can cause severe burns.



WARNING

SHORT CIRCUITS

REMOVE ALL JEWELRY. DO NOT PERMIT ANY METAL TOOLS TO MAKE CONTACT WITH THE POSITIVE BATTERY TERMINAL AND OTHER METAL ON THE TRUCK. MAKE SURE WHEN CONNECTING JUMPER CABLE CLAMPS TO THE POSITIVE TERMINALS OF THE BATTERIES THAT NEITHER CLAMP CONTACTS ANY OTHER METAL. INJURY CAN OCCUR FROM ELECTRICAL SHOCK OR EXPLOSION.



Emergency Starting

How To Use Battery Jumper Cables

6. Start the engine on the "Starting Vehicle", and run the engine at a moderate speed.
7. Start the engine of the "Stalled Vehicle". Follow the starting instructions in the "Starting and Operating Procedures" section of this manual. Be sure that the engine is at idle speed before disconnecting the jumper cables.
8. Remove the jumper cables by reversing the above sequence exactly. Start by removing the black jumper cable, from the truck with the discharged battery, first. Remove the cable end from the engine block first, then the other end of the negative (-) cable.
9. Remove both ends of the red positive (+) cable.

Emergency Moving

How To Move a Disabled Truck

If your tow tractor becomes disabled but can be moved freely on its own wheels without further damage, use the following procedures to push it safely to a repair area.

It is important for your safety and to the care of your tow tractor to follow these recommendations for safe pushing.



WARNING

DO NOT push a tow tractor if there is a problem with the brakes or tires, or the steering cannot be operated.

DO NOT push up or down ramps and steep inclines.

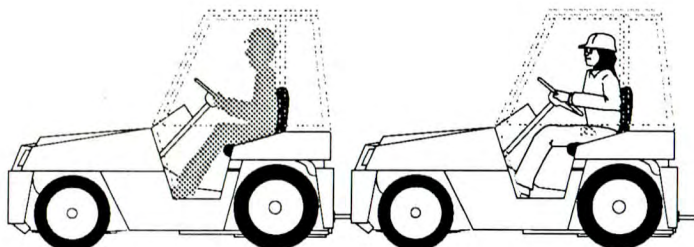
DO NOT attempt to push a truck if traction or weather conditions are poor.

Pushing Procedures

1. Push only on rear bumper.
2. Push with another truck of equal or larger size.
3. There must be an operator on both trucks.
4. Limit speed to a fast walk.

Emergency Moving

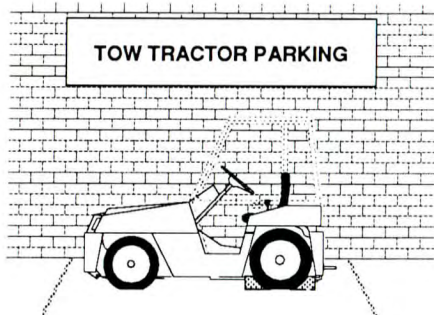
How To Move a Disabled Truck



CAUTION

The power steering, if truck is so equipped, will not operate on the disabled truck when the engine is not running. The steering handwheel will be difficult to turn.

5. Park the disabled truck in authorized areas only. Put directional control lever in "N" (neutral) position and turn the key switch to the OFF position. Engage the parking brake. Remove the switch key and, when necessary, block the wheels to prevent the truck from rolling.



CAUTION

Always engage the parking brake when parking a tow tractor. The truck can move and cause injury or death to personnel near it.

6 Planned Maintenance and Lubrication

Tow Tractor Maintenance 6.2

Planned Maintenance 6.3

Pictorial Index 6.4

Safety and Operational Checks 6.5

**Recommended Planned Maintenance and
Lubrication Schedule 6.6**

Maintenance Procedures 6.7

User Safe Maintenance Practices 6.8 - 6.9

PM - Planned Maintenance Program 6.10

PM - Program 6.11 - 6.21

Planned Maintenance and Lubrication

Tow Tractor Maintenance

Regular maintenance and care of your tow tractor is not only important for full and efficient truck life; it is essential for your safety. The importance of maintaining your tow tractor in a safe operating condition by servicing it regularly and, when necessary, repairing it promptly cannot be emphasized too strongly. Experience has shown that powered industrial trucks can cause injury if improperly used or maintained. In the interest of promoting safety, several current industry and government safety standards specify that any powered industrial truck not in safe operating condition be removed from service, and that all repairs be made by trained and authorized persons. To assist you in keeping your tow tractor in service in good operating condition, this section outlines maintenance procedures to be done at regular intervals and that are considered essential to the life and safe performance of your truck. It is your responsibility to be alert for any indication that your truck may need service and have it attended to promptly. You play an important part in maintenance. Only you can make sure that your tow tractor regularly receives the care it needs.

Powered Industrial Trucks May Become Hazardous If Maintenance Is Neglected

PLANNED MAINTENANCE

As outlined previously, a safety inspection of your tow tractor should always be made before operating it. The purpose of this daily examination is to check for any obvious damage and maintenance problems, and to have minor adjustments and repairs made to correct any unsafe condition.

In addition to the daily inspection, Clark recommends that you set up and follow a periodic planned maintenance and inspection program. Performed on a regular basis, the program will provide the opportunity to make thorough inspections and checks on the safe operating condition of your tow tractor. The need for major adjustments, repairs, or replacements is found and corrections made as required; not after failure has occurred. The specific schedule (frequency) for these PM inspections will depend on the conditions of your particular application and tow tractor usage. The recommended planned maintenance and lubrication schedule lists those items considered essential to the safety, life, and performance of your tow tractor with typical recommended service intervals. Brief procedures for inspections, operational checks, cleaning, lubrication, and minor adjustments are included for your reference. Your local Clark dealer is prepared to help you with your Planned Maintenance Program if you want assistance. He has specially trained service personnel who are authorized to check your tow tractor according to the respective safety regulations.

In the Specifications section, you will find a listing of useful specifications for selected components, fuel and lubricants, critical bolt torques, refill capacities, and settings for your truck.

If you have the need for more information on the care and repair of your truck, see your Clark dealer.

Planned Maintenance and Lubrication

Planned Maintenance Intervals

Typical Operating Conditions

Time intervals between maintenance are largely determined by operating conditions. For example, operation in sandy, dusty locations requires shorter maintenance intervals than operation in clean warehouses. The indicated intervals are intended for normal operation. To allow better understanding of this aspect, the following clarification should be made:

NORMAL OPERATION

Basically, eight-hour material handling, mostly in buildings or in clean, open air, on smooth level floors.

SEVERE OPERATION

Prolonged operating hours or constant usage, heavy towed loads or extended operation on ramps or grades and many starts and stops.

EXTREME OPERATION

1. In sandy or dusty locations, e.g., cement plant, lumber or flour mills, coal dust, or stone crushing sites.

2. High-temperature locations. e.g, steel mills, foundries, etc.

3. Sudden temperature changes (constant trips from building into open air), e.g., refrigeration plant.

If your tow tractor is used in severe or extreme operating conditions, you must shorten the maintenance intervals accordingly.

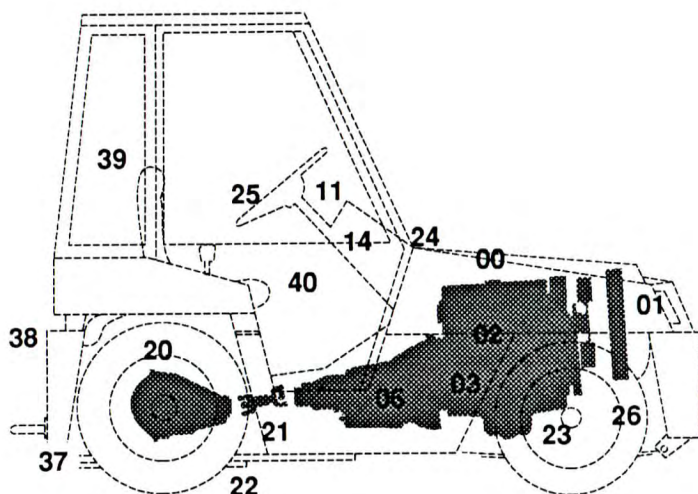
NOTE - Since the operating environment of tow tractors varies widely, the above descriptions are highly generalized and should be applied as actual conditions dictate.

Recommended PM Intervals

The maintenance time intervals referred to in this manual relate to truck operating hours as recorded on the hourmeter and based on experience which Clark has found to be convenient and suitable under typical (normal or average) operating conditions, as follows:

- A = 8 - 10 hours, or daily
- B = 50 - 250 hours, or every month (Typical PM interval)
- C = 450 - 500 hours, or every 3 months
- D = 900 - 1000 hours, or every 6 months
- E = 2000 hours, or every year

Planned Maintenance and Lubrication Pictorial Index



- 00 - Engine
- 01 - Cooling System
- 02 - Fuel System-Induction System-Accelerator
- 03 - Exhaust System
- 06 - Transmission & Controls
- 11 - Electrical Components
- 14 - Electrical Wiring
- 20 - Drive Axle-Differential
- 21 - Prop Shaft, U-Joint
- 22 - Wheels & Tires
- 23 - Brake System-Linkage & Parking Brake
- 24 - Brake System-Master Cyl, Lines & Brk Assist
- 25 - Steering Gear-Handwheel-Linkage
- 26 - Steer Axle-Power Steering System
- 37 - Counterweights
- 38 - Frame
- 39 - Sheet Metal-Foam-Trim-Cab-Seat
- 40 - Nameplates & Decals

Planned Maintenance and Lubrication Safety And Operational Checks

PM Interval:

A = 8 - 10 hours, or daily

B = 50 - 250 hours, or every month

C = 450 - 500 hours, or every 3 months

D = 900 - 1000 hours, or every 6 months

E = 2000 hours, or every year

DAILY MAINTENANCE CHECKS	A	B	C	D	E
Check truck for obvious damage and leaks.	X				
Check fuel system for leaks, etc.	X				
Check capacity, warning plates, decals	X				
Check condition of tires and wheels. Remove embedded objects. Check air pressure.	X				
Check wheel lug nuts.	X				
Check engine oil level.	X				
Check engine coolant level.	X				
Check fuel level.	X				
Check gauges and instruments.	X				
Check warning lights and hour meter.	X				
Check horn operation and other warning devices.	X				
Check steering operation.	X				
Check service brake operation.	X				
Check parking brake operation.	X				
Check directional and speed controls operation.	X				
Check accelerator and engine speed operation.	X				

**Planned Maintenance and Lubrication
Recommended Planned Maintenance
And Lubrication Schedule**

For: **GT/DT 25-50**

PM Interval:

- A = 8 - 10 hours, or daily
- B = 50 - 250 hours, or every month
- C = 450 - 500 hours, or every 3 months
- D = 900 - 1000 hours, or every 6 months
- E = 2000 hours, or every year

Notes:

- * Oil change intervals may be determined by laboratory analysis.
- ** Air filter change interval may be determined by using an air restriction indicator.

Nominal
Maintenance Interval

PERIODIC CHECKS AND PLANNED MAINTENANCE (PM)	A	B	C	D	E
Check truck visually and inspect components		X			
Test drive truck -- Check functional performance		X			
Air clean truck and radiator		X			
Check torque on critical fasteners		X			
Lubricate truck (See component)		X			
Drain and replace engine oil [*]		X			
Replace engine oil filter		X			
Clean/replace engine air filter [**]			X		
Inspect/adjust fan belts			X		
Drain/flush radiator coolant					X
Check engine ignition and timing			X		
Perform engine tune-up					X
Check battery			X		
Check transmission fluid level		X			
Drain and replace transmission fluid				X	
Replace transmission oil filter				X	
Clean drive axle air vent		X			
Check brake condition and wear					X
Check drive axle mounting and fasteners		X			
Lubricate steer axle linkage		X			
Check/lubricate steer axle wheel bearings					X

Planned Maintenance and Lubrication Maintenance Procedures

USER SAFE MAINTENANCE PRACTICES

The following instructions have been prepared from current industry and government safety standards applicable to industrial truck operations and maintenance. These recommended procedures specify conditions, methods, and accepted practices that aid in the safe maintenance of industrial trucks. They are listed here for the reference and safety of all workers during maintenance operations. Carefully read and understand these instructions and the specific maintenance procedures before attempting to do any repair work. When in doubt of any maintenance procedure, please contact your local CLARK dealer.

1. Powered industrial trucks can become hazardous if maintenance is neglected. Therefore, suitable maintenance facilities, trained personnel, and procedures shall be provided.
2. Maintenance and inspection of all powered industrial trucks shall be done in conformance with the manufacturer's recommendations.
3. A scheduled planned maintenance, lubrication, and inspection system shall be followed.
4. Only trained and authorized personnel shall be permitted to maintain, repair, adjust, and inspect industrial trucks, and in accordance with the manufacturer's specifications.
5. Properly ventilate work area, vent exhaust fumes, and keep shop clean and floor dry.
6. Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check for level, or leakage of fuel, electrolyte, or coolant. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.
7. Before Starting Work On Truck:
 - a) Raise drive wheels free of floor or disconnect power source and use blocks or other positive truck-positioning devices.
 - b) Disconnect battery before working on the electrical system.
8. Before working on engine fuel system of LP-gas powered trucks, close LP-gas cylinder valve and run engine until there is no more fuel in the system and engine stops running. If engine will not run, close LP-tank valve and vent fuel slowly in a safe area.
9. Operation of the truck to check performance must be conducted in an authorized, safe, clear area.
10. Before Starting To Drive Truck:
 - a) Be in operating position.
 - b) Disengage clutch on manual transmissions, or apply brake on trucks with powershift transmission and electric trucks.
 - c) Put directional control in neutral.
 - d) Start engine or turn on power.
 - e) Check functioning of directional and speed controls, steering, brakes, warning devices and any load handling attachments.
11. Before Leaving The Truck:
 - a) Stop truck.
 - b) Put directional control in neutral.
 - c) Apply the parking brake.
 - d) Stop the engine or turn off power.
 - e) Turn off the control or ignition circuit.
 - f) Put blocks at the wheels, if truck must be left on an incline.
12. Handle LP-gas cylinders with care. Damage such as dents, scrapes, or gouges may dangerously weaken the tank and make it unsafe for use.

Planned Maintenance and Lubrication User Safe Maintenance Practices

13. Brakes, steering mechanisms, control mechanisms, warning devices, lights, governors, guards and safety devices, articulating axle stops and frame members must be carefully and regularly inspected and maintained in a safe operating condition.

14. Special trucks or devices designed and approved for hazardous area operation must receive special attention to ensure that maintenance preserves the original, approved safe operating features.

15. Fuel systems must be checked for leaks and condition of parts. Extra special consideration must be given in the case of a leak in the fuel system. Action must be taken to prevent the use of the truck until the leak has been corrected.

16. All hydraulic systems must be regularly inspected and maintained in conformance with good practice.

17. The truck manufacturer's capacity, operation, and maintenance instruction plates, tags, or decals must be maintained in legible condition.

18. Batteries, motors, controllers, limit switches, protective devices, electrical conductors, and connections must be inspected and maintained in conformance with good practice. Special attention must be paid to the condition of electrical insulation.

19. To avoid injury to personnel or damage to the equipment, consult the manufacturer's procedures in replacing contacts on any battery connection.

20. Industrial trucks must be kept in a clean condition to minimize fire hazards and help in the detection of loose or defective parts.

21. Modifications and additions that affect capacity and safe truck operation must not be done without the manufacturer's prior written approval. Capacity, operation and maintenance instruction plates, tags, or decals must be changed accordingly.

22. Care must be taken to assure that all replacement parts, including tires, are interchangeable with the original parts and of a quality at least equal to that provided in the original equipment. Parts, including tires, are to be installed per the manufacturer's procedures. Always use genuine CLARK or CLARK-approved parts.

23. When removing tires, follow industry safety practices. Most important, deflate pneumatic tires completely prior to removal. Following assembly of tires on multi-piece rims, use a safety cage or restraining device while inflating.

24. Use special care when removing heavy components from the truck, such as counterweight, etc. Be sure that lifting and handling equipment is of the correct capacity and in good condition.

Planned Maintenance and Lubrication

User Safe Maintenance Practices (cont'd)

NOTICE - You should also be familiar with additional and maintenance safety instructions contained in the following publications:

ANSI/ASME B56.9 1987 Operator Control-Industrial Tow Tractors (Safety Code For Powered Industrial Trucks). Published by: Society of Mechanical Engineers, United Engineering Center, 345 E. 47th Street, New York, N.Y. 10017.

NFPA 505-1982: Fire Safety Standard for Powered Industrial Trucks: Type Designations, Areas of Use, Maintenance and Operation. Available from: National Fire Protection Assoc., Inc., Batterymarch Park, Quincy, MA 02269.

General Industry Standards, OSHA 2206: OSHA Safety and Health Standards (29 CFR 1910), Subpart N-Materials Handling and Storage, Section 1910.178 Powered Industrial Trucks. For sale by: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

IMPORTANT

Your new CLARK tow tractor has been built to meet all applicable mandatory requirements of ANSI B56.9 1987 Operator Control-Industrial Tow Tractors. (Safety Code For Powered Industrial Trucks). Each truck also includes certain safety devices, e.g. horn and lights as standard equipment.

No additions, omissions or modifications should be made that will affect compliance to the above requirements or in any way minimize the effectiveness of the safety devices.

Planned Maintenance and Lubrication

PM - Planned Maintenance Program

A planned maintenance program of regular, routine inspections and lubrication is important for long life and trouble-free operation of your tow tractor. Make and keep records of your inspections. Use these records to help establish the correct PM intervals for your application and to indicate maintenance required to prevent major problems from occurring during operation.

As an aid in performing and documenting your PM inspections, Clark has prepared a "GAS, LPG or DIESEL PLANNED MAINTENANCE REPORT" form. Copies of this form may be obtained from your authorized CLARK dealer. We recommend that you use this form as a checklist and to make a record of your inspection and truck condition.

The maintenance procedures outlined in this manual are intended to be used in conjunction with the PM report form. They are arranged in groupings of maintenance work that are done in a logical and efficient sequence.

PM Report Form

A check mark or entry is made on the PM Report Form when the PM is performed. Please note the special coding system for indicating the importance of needed repairs and/or adjustments.

When you have finished the PM inspections, be sure to give a copy of the report to the designated authority or the person responsible for tow tractor maintenance.

Do not make repairs or adjustments unless authorized to do so.

For safety, it is good practice to:

Remove all jewelry (watch, rings, bracelets, etc.) before working on the truck.

Disconnect the battery ground cable (-) from the engine or frame before working on electrical components.

Always wear safety glasses. Wear a safety (hard) hat in industrial plants and in special work areas where protection is necessary or required.

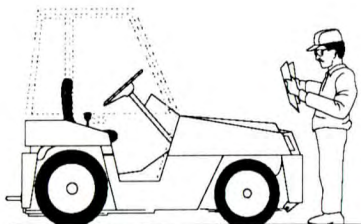
Planned Maintenance and Lubrication

PM Program

HOW TO PERFORM THE PM PERIODIC INSPECTIONS AND MAINTENANCE

First, perform a visual inspection of the tow tractor and its components. Walk around the truck and take note of any obvious damage and maintenance problems. Check for loose fasteners and fittings.

Check to be sure all capacity, safety, and warning plates or decals are attached and legible.



NOTICE

NAMEPLATE & DECALS

**DO NOT OPERATE A TOW TRACTOR
WITH DAMAGED OR LOST DECALS
AND NAMEPLATES. REPLACE THEM
IMMEDIATELY. THEY CONTAIN
IMPORTANT INFORMATION.**

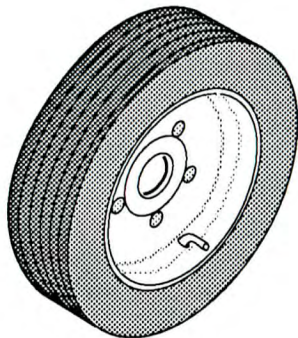
Inspect the truck, before and after starting engine, for any signs of external leakage: fuel, engine coolant, transmission fluid, etc.

Planned Maintenance and Lubrication

PM Program

Wheels and Tires

Check the condition of the drive and steer wheels and tires. Remove objects that are embedded in the tread. Inspect the tires for excessive wear.



Check all wheel lug nuts or bolts to be sure none are loose or missing.

Have missing bolts replaced and loose bolts tightened to the correct torque before operating the truck.

Check for the correct air pressure on trucks with pneumatic tires.

Planned Maintenance and Lubrication

PM Program

Functional Tests

Now, be sure that all controls and systems are functioning correctly...

Test horn, lights, and all other safety equipment and accessories. Be sure they are properly mounted and working correctly.

Press the horn button to check horn function. If the horn or any other part does not operate, report the failure and have it repaired before the truck is put into operation.

Test the neutral start switch. Apply the service brake. Turn the key briefly to the start position. The starter must not operate with the direction selector in forward or reverse positions.

Test the warning indicator lights.

From the OFF position, turn the key switch to the RUN position to check AMMETER and ENGINE OIL PRESS indicator lights. Turn the key switch to the START position to check the WATER TEMP and TRANSMISSION OIL TEMP indicator lights.

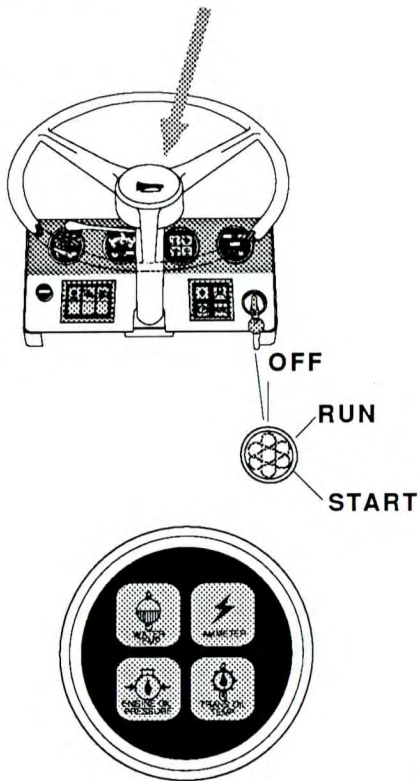
NOTE: To avoid starting the engine when checking these warning lights, apply the service brake move the directional control lever from "N" (neutral) briefly only, while turning the key switch to the START position.

Check the fuel level (gauge).

IMPORTANT

DAMAGE TO THE TRUCK CAN RESULT IF ANY OF THE WARNING INDICATORS ILLUMINATE WHEN THE ENGINE IS RUNNING. STOP THE ENGINE. DO NOT OPERATE THE TRUCK.

Report the failure.



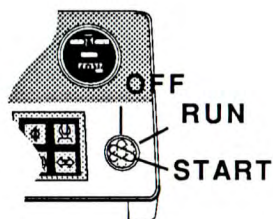
Planned Maintenance and Lubrication

PM Program

Check with the engine running...

Be sure that:

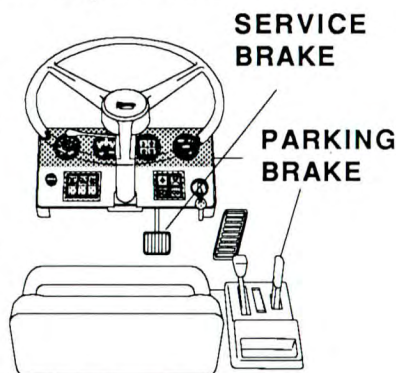
- Parking brake is applied.
 - Directional control is in "N" (neutral).
- Start the engine and let it warm up until it runs evenly and accelerates smoothly when you push on the accelerator pedal.
- Check the hour meter for operation, with the engine running. Report any malfunction or damage.



Write the hour meter reading on the PM report form.

• Operate service and parking brakes, accelerator, directional controls and steering system. Be sure all controls operate freely and return to neutral properly.

• Check the service brake system. Push the brake pedal fully down and hold. The brakes should be applied before the pedal reaches the floorplate. Check for a feeling of solid resistance when the pedal stops. The pedal must feel firm and not move down farther after it stops. If the pedal continues to creep downwards, report the failure immediately. **DO NOT OPERATE THE TRUCK UNTIL THE BRAKES ARE REPAIRED.**



• Check the function of the parking brake release, then apply the parking brake with the lever. When correctly adjusted, the lever should snap-lock easily into the over-center applied position.

• To check parking brake holding capability and adjustment, park the tow tractor on a grade and apply the parking brake. The parking brake should hold on a 15% grade. When the lever is released, the brake pads should not drag.

CAUTION-Do not operate a tow tractor if the service or parking brakes are not operating properly.

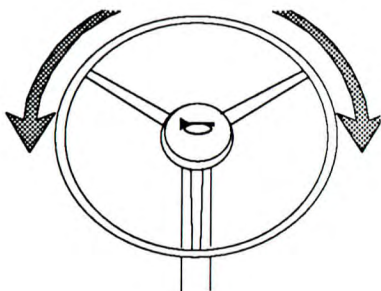
Planned Maintenance and Lubrication PM Program

Steering system...

NOTICE -- The steering system, steer axle and steering linkage on your truck should be inspected periodically for abnormal looseness and damage, leaking seals, etc. Also, be alert for any changes in steering action. Hard steering, excessive freeplay (looseness) or unusual sounds when turning or maneuvering indicates a need for inspection or servicing.

- Check the steering system by moving the steering handwheel in a full right turn, and then in a full left turn. Return the handwheel (steer wheels) to the straight-ahead position. The steering system components should operate smoothly when the steering wheel is turned.

Never operate a truck which has a steering system fault.



Shift control and brakes...

Check and make sure that the travel area is clear in front of the truck.

- Push firmly on brake pedal. Release the parking brake. Move the directional control lever from "N" (neutral) to DRIVE position.
- Remove your right foot from the brake pedal and put it on the accelerator pedal. Push down until the truck moves slowly forward. Remove your foot from the accelerator pedal and push down on the brake pedal to stop the truck. The brakes should apply smoothly and equally.

Be sure that the travel area is clear behind the truck.

- Put the directional control lever in the REVERSE position. Look in the direction of travel. Push down on the accelerator pedal until the truck moves slowly in the reverse direction. Remove your foot from the accelerator pedal and push down on the brake pedal to stop the truck. The brakes should apply smoothly and equally.

When you have completed the operational tests, park and leave truck according to standard shut down procedures.

Be sure to make a record of all maintenance and operating problems you find.

Planned Maintenance and Lubrication PM Program

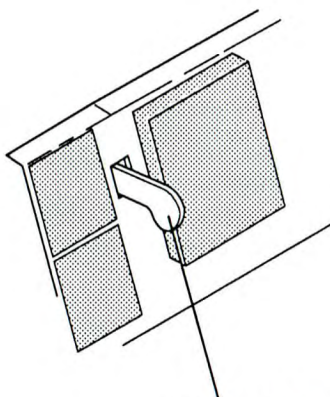
Fluids and Filters

Check fluid levels and other components within the engine compartment...

Release latch and raise hood.

CAUTION

To avoid the possibility of personal injury, never work in engine compartment with engine running except when absolutely necessary to check or adjust timing, carburetor, or governor. Take extreme care to keep hands, tools, and loose clothing, etc., away from fan and drive belts. Also remove watches, bracelets and rings.



Engine Air Cleaner

Hood Latch

Check the engine air cleaner for damage and contamination (excessive buildup and clogging). Check for correct mounting attachment of the air cleaner. Be sure that the air cleaner hose is securely connected (not loose or leaking).

Change the engine air filter every 50 to 250 operating hours, depending upon your application and your operating conditions.

Engine Accessories

Inspect the engine coolant hoses and fan belt(s). Look for leaking and obvious damage; worn (frayed) condition, breaks, etc., which could cause failure during operation.

Battery

Inspect the battery for any damage; cracks, leaking condition, etc. If the terminals are corroded, clean and protect them with CLARK Battery Saver, (available from your Clark dealer). If your battery has removable cell caps, check to be sure the cells are all filled. If possible, refill with distilled water.

Planned Maintenance and Lubrication PM Program

Engine Cooling System

ENGINE COOLANT CHECK

The engine coolant level should be at the "Cold Level" line on the recovery bottle when the engine is cold. Inspect the coolant level in this overflow bottle only. **DO NOT REMOVE THE RADIATOR CAP TO CHECK THE COOLANT LEVEL.** Add coolant only to the coolant recovery bottle. If you must add a quart or more of coolant, inspect cooling for leaks.

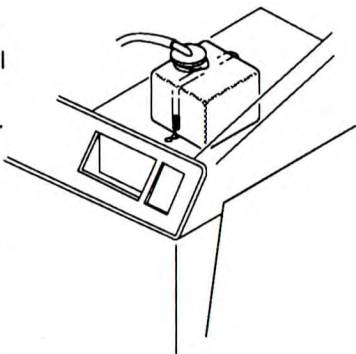
- Inspect the coolant for condition. Look for excessive contamination of rust or oil in the coolant solution. Check the PM time interval for need to change coolant.
- Check condition of radiator cap seals and radiator filler neck for damage. Be sure they are clean. Check siphon tube for clogging and damage.

Refer to SM-553 for additional information on cooling system maintenance.



WARNING STEAM

DO NOT REMOVE THE RADIATOR CAP WHEN THE RADIATOR IS HOT. STEAM FROM THE RADIATOR WILL CAUSE SEVERE BURNS.



WARNING

Never remove the radiator cap while the engine is running. Stop the engine and wait until it has cooled. Even then, use extreme care when removing the cap from the radiator. It is good safety practice to use a shop cloth to cover the radiator cap while it is being removed. Wrap the cloth around the cap and turn it slowly to the first stop. Step back while the pressure has been released, press down on the cap, with the cloth in place, turn and remove it. Stand clear of the radiator of the radiator opening; hot coolant may splash out. Failure to follow these instructions could result in serious personal injury from hot coolant or steam blowout and/or damage to the cooling system or engine.

NOTICE - Your tow tractor cooling system is filled with a factory-installed solution of 50% permanent-type anti-freeze containing rust and corrosion inhibitors. You should leave it in year around. Plain water may be used only in an emergency, but replace it with the specified coolant as soon as possible to avoid damage to the system. With only water in the system, do not use alcohol or methanol antifreeze.

Planned Maintenance and Lubrication PM Program

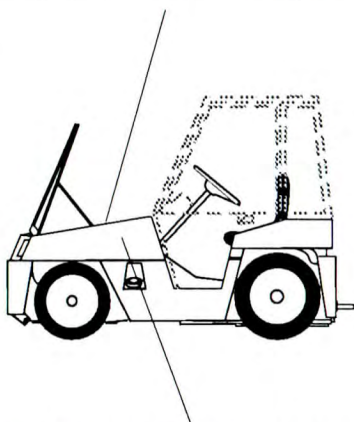
Engine Oil

Check the engine oil level.

Locate the engine oil dipstick. Pull the dipstick out, wipe it with a clean wiper and re-insert it fully into the dipstick tube. Remove the dipstick and check the oil level.

It is normal to add some oil between oil changes. Keep the oil level above the ADD mark on the dipstick by adding oil as required. **DO NOT OVERFILL.** Use the correct oil as specified under Lubricant Specifications.

Engine Oil Dipstick (Diesel) Right Hand Side of Engine



Engine Oil and Filter Change

Engine Oil Dipstick (Gas) Left Hand Side of Engine

It is recommended to:

Drain and replace the engine crankcase oil every 50 to 250 operating hours. See NOTICE below.

Replace the engine oil filter every oil change.

Remove the oil pan drain plug to drain old oil, after truck has been in operation and engine (oil) is hot (at operating temperature).

NOTICE - The time interval for changing oil will depend upon your application and operating conditions. To determine the correct schedule for your truck, it is suggested that you periodically submit engine oil samples to a commercial laboratory for analysis of the condition of the oil.

OIL PERFORMANCE DESIGNATION - To help achieve proper engine performance and durability, use only engine lubricating oils of the proper quality. These oils also help promote engine efficiency which results in improved fuel economy. A symbol has been developed by the API (American Petroleum Institute) to help you select the proper engine oil. It should be included on the oil container you purchase. For oil type and temperature/viscosity recommendations see page 7.3.

Planned Maintenance and Lubrication

PM Program

Brake Master Cylinder Reservoir

Check the brake fluid level by removing the covers (top) from the brake fluid reservoirs mounted in the upper left-hand corner of the firewall. The FULL level is at the top ring on reservoir. Clean dirt from reservoir and cap before removing. Add recommended fluid, as needed. See specifications chart for proper fluid type.

Access to The Drive Axle

The grease fittings on the universal joints may be accessed by raising the seat deck. They should be serviced at every PM.

The lubricant in the differential is checked by removing the pipe plug in the rear cover. Lubricant should be maintained level with the bottom of the plug opening. Carefully clean plug area before removing and clean plug before reinstalling.

Planned Maintenance and Lubrication PM Program

Checking Transmission Fluid

To properly check the automatic transmission fluid level, the following procedure must be used:

- (1) Vehicle must be on level ground.
- (2) Engine should be running at curb idle speed.
- (3) Apply parking brake fully.
- (4) Place gear selector momentarily in each gear position, ending with the lever in N (neutral).
- (5) Remove dipstick, wipe clean, and determine if fluid is hot or warm. Hot fluid is approximately 180°F (82°C) which is normal operating temperature after the vehicle has been operated for 15 to 20 minutes. The fluid cannot comfortably be held between the finger tips. Warm is when fluid is between 85-125°F (29-52°C).
- (6) Wipe dipstick clean, reinsert until cap seals, remove, and note reading.
 - (a) If the fluid is hot, the reading should be in the crosshatch area marked OK.
 - (b) If the fluid is warm, the fluid level should be between the two dimples.

If the fluid level checks low, add sufficient fluid to bring the level to within the marks indicated for the appropriate temperature. See specification chart for proper fluid.

To prevent dirt and water from entering the transmission after checking or replenishing fluid, make certain that the dipstick is resealed properly.

CAUTION: DO NOT OVERFILL.

CAUTION: THE TRANSMISSION DIPSTICK IS LOCATED NEAR THE EXHAUST PIPE ON GASOLINE AND LP POWERED UNITS. BE CAREFUL NOT TO TOUCH THE HOT PIPE.

Truck Chassis Inspection and Lubrication

Inspect the steering gear, linkage, seals, and fasteners for damage, leaks, and looseness. Refer to service manual SM553 for torque specifications.

Lubricate the steer axle linkage, rod ends and linkage pivot points. Be sure to clean the grease fittings before lubricating and remove the excess grease from all points after lubricating.

Lubricate miscellaneous linkage, as needed.

Planned Maintenance and Lubrication PM Program

Air Cleaning

Always maintain a tow tractor in a clean condition. Do not allow dirt, dust, lint, or other contaminants to accumulate on the truck. Keep the truck free from leaking oil and grease. Wipe up all oil spills. Keep the controls and floorboards clean, dry, and safe. A clean truck makes it easier to see leakage, loose, missing or damaged parts, and will help prevent fires. A clean truck will run cooler.

The environment in which a tow tractor operates will determine how often and to what extent cleaning is necessary. For example, trucks operating in manufacturing plants which have a high level of dirt or lint (e.g., cotton fibers, paper dust, etc.) in the air or on the floor, will require more frequent cleaning. The radiator, especially, may require daily air cleaning to ensure correct cooling. If air pressure does not remove heavy deposits of grease, oil, etc., it may be necessary to use steam or liquid spray cleaner.

TOW TRACTORS SHOULD BE AIR CLEANED, AS NECESSARY, AT EVERY PM INTERVAL, AND OTHERWISE AS OFTEN AS REQUIRED.

Air cleaning should be done using an air hose with special adapter or extension having a control valve and nozzle to direct the air properly. Use clean, dry, low-pressure compressed air. Restrict air pressure to [207 kPa] 30 psi, maximum. CAUTION -- Wear suitable eye protection and protective clothing.

Air clean the: Drive axle - Radiator, from both sides - Engine and accessories - Driveline and related components and steer axle and steer cylinder.

Critical Fastener Torque Checks

Fasteners in highly loaded (critical) components can quickly fail if they become loosened; also, loose fasteners can cause damage or failure of the component. For safety, it is important that the correct torque be maintained on all critical fasteners of components which directly support, handle or control the load, and protect the operator.

Check torque of critical items, including:

- Drive & steer axle mounting
- Drive & steer wheel mounting
- Counterweight mounting
- Towing coupler mounting

7 Specifications

Clark products and specifications are subject to improvements and changes without notice or obligation.

Model Designation

GT 25 Gasoline powered tow tractor
GT 30 Gasoline powered tow tractor
GT 50 Gasoline powered tow tractor
DT 25 Diesel powered tow tractor
DT 30 Diesel powered tow tractor
DT 50 Diesel powered tow tractor

Engine

Type	Model	Cyls.	Style	Displacement
Gasoline / LPG	Continental TM20	3	OHV	122 cu in [2.0 l]
Diesel	Cummins 4A2.3	4	OHV	140 cu in [2.3 l]

Engine speed settings: \pm 50 rpm	GT/DT 25/30	GT/DT 32/50
Idle Speed, rpm	700	700
Max. No-Load Governed Speed, rpm-Gas	2650	3050
Max. No-Load Governed Speed, rpm-Diesel . . .	2650	3050

Cooling System

- Automotive crossflow radiator
- Transmission oil cooler in side tank
- Cooling System Pressure (Radiator Cap): 7 psi nominal (6 - 8 psi)

Tire Size

	Size	Inflation Pressure
Drive Tire Size:	GT/DT 32/50: 8.75R16.5	50 psi [2.4 Bar]
	GT/DT 25/30: P205/75R14	35 psi [3.4 Bar]
Steer Tire Size:	GT/DT 25/30/32/50: B-78 13	50 psi [3.4 Bar]

Electrical System

Type--System Voltage and Ground 12 volt DC, Negative Ground

Battery: BCI Group 73

Battery Rating - Cold Cranking Current: . . . Gas: 12v DC-405 Amps @0°F

Diesel: 12v DC-625 Amps @0°F

Fuses: Light Blue 15 amp - Automotive blade type

Specifications

Filters

- Engine Air - Dry type
- Engine Oil - Spin on

Truck Weights - Approximate

Service Weight:	GT/DT 25	GT/DT 30	GT/DT 32	GT/DT 50
	3950	4900	4900	6400
Axle Loading: Steer	1800	1800	1800	1900
Drive	2100	3120	3100	4500

Fill capacities - fluid volumes:

Fuel Tank	16 gal [60.56 l]
Cooling System	7.5qt [7.0 l] (Gas) 11.5qt. [10.8] (Dsl)
Engine Oil, w/Filter (Gas and Diesel)	6.0qt [5.68 l]
Transmission	16.38 pints [7.75 l]

Fuel recommendations:

Gasoline	Regular Grade, 85 Octane Minimum (Motor Method)
LP Gas	HD-5 Propane
Diesel	D-2 with Cetane rating 45 or higher D-1 & Jet A-1 also acceptable

Engine coolant recommendation:

Use a mixture of 50% water and 50% ethylene glycol permanent-type antifreeze containing rust and corrosion inhibitors only. NOTE - This mixture gives antifreeze protection level of -34° F [-37° C] approx.

Transmission fluid recommendation:

Use @DEXRON II ATF automatic transmission fluid only.

Power steering fluid recommendation:

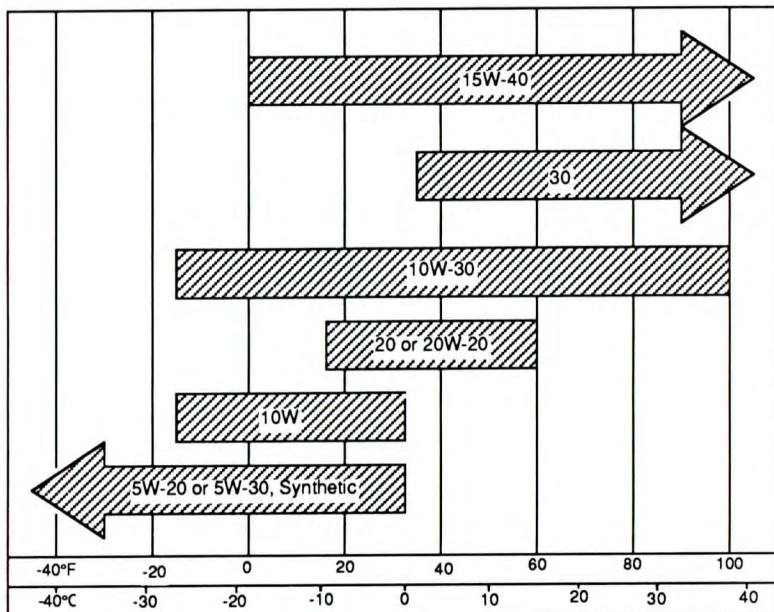
GM 1050017, Texico TL 3644 or equivalent.

Hydraulic brake fluid recommendation:

Heavy duty hydraulic brake fluid, SAE J1703b specification; or Type DOT, Grade DOT 3.

Specifications

USE THESE SAE VISCOSITY GRADES



Temperature Range You Expect Before Next Oil Change

Engine Oil Recommendations

American Petroleum Institute (API) classifications CD/SF, CD/SE, Mil-L-2104C.
5W-20 or 5W-30 to be synthetic per Mil-L-46167, Mil-L-2104C or Mil-L-46152B.

Important

Do not extend oil change intervals from those specified when using synthetic lubricants.

Fill crankcase with correct amount of oil, 6.0 quarts [5.68 L] with filter, on both Gasoline and Diesel engines. When adding oil between oil changes, it is preferable to use the same brand, as various oils may not be compatible. Refer to the Maintenance and Lubrication Section for recommended oil change intervals.

Important

Do not overfill crankcase. Excess oil causes foaming and can cause loss of lubrication and higher operating temperatures, resulting in engine damage.

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Lexington, KY 40511
Printed in USA