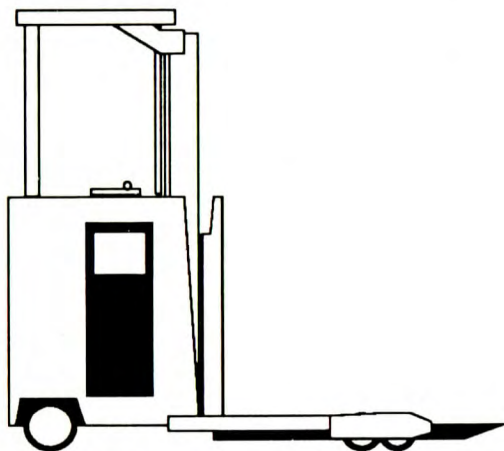

Operator's Manual

Do not remove this manual
from the truck.



NP 300 30 - 40 D
NS 300 30 - 40 D

CLARK

Book No. 2772175
OM - 550



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, Loaded w / Rated Load _____

Special Equipment _____

IMPORTANT

Do not expose this manual to hot water or steam.

Operator's Manual

You must be trained and authorized to operate a lift truck

— YOU can prevent accidents! —

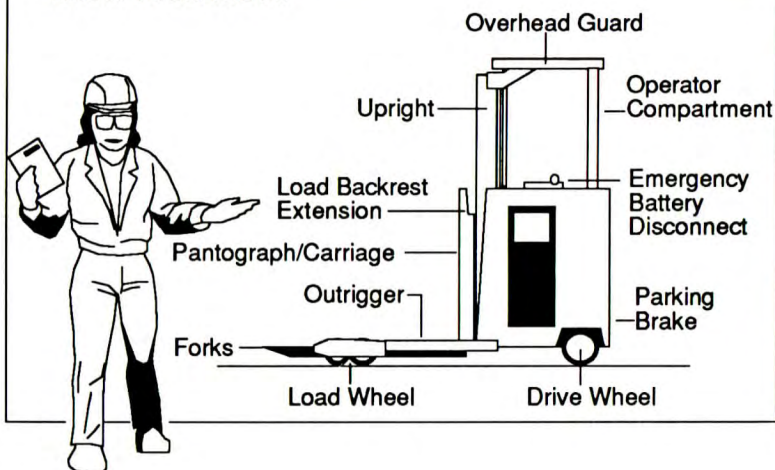
First: Learn safe operating rules and your company rules.

Next: Read and understand your Operator's Manual.

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.



Message To CLARK Customers

Experience with lift truck accidents has shown that when accidents happen and people are killed, or injured, the cause has its roots in three areas; the selection of operators, their training and their supervision.

When lift truck operators are selected you must consider people who can become responsible professional operators. Lift trucks are not cars and they're not ordinary trucks. They are specialized machines with specialized operating characteristics designed to perform specialized jobs. Under the Occupational Safety and Health Act you must train your lift truck operators. That is your responsibility. We are here to help, but only you know how a specific machine is used. Only you can properly train your operators for the jobs they must perform. Once they are trained and you are absolutely sure they know how to operate the equipment and follow basic safety rules, you must make sure they do. If you don't, the results can be accidents that end up in costly damage to your products, your facilities, your equipment, and worst of all, serious injury or death to the people who use these machines or work around them.

The operator's manual is not a training manual. It is a guide to help trained and authorized operators safely operate their lift truck 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 lift truck. Let's join together to set new standards in safety.

Message To CLARK Lift Truck Operators

Lift trucks 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 lift trucks is of primary importance to CLARK. Our experience with lift truck accidents has shown that when accidents happen and people are killed or injured, the causes are:

**OPERATOR NOT PROPERLY TRAINED
OPERATOR NOT EXPERIENCED WITH LIFT TRUCK OPERATION
BASIC SAFETY RULES NOT FOLLOWED
LIFT TRUCK NOT MAINTAINED IN SAFE OPERATING CONDITION**

This manual is designed to help you operate your lift truck safely. This manual shows and tells you about safety inspections and the important general safety rules and hazards of lift truck 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 lift truck mechanic.

The operator's manual is not a training manual. It is a guide to help trained and authorized operators safely operate their lift truck. But, it cannot cover every possible situation. 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. Know and follow your company safety rules. Be sure that your equipment is maintained in a safe condition. Do not operate a damaged truck.

Be sure that you understand all driving procedures. Federal Occupational Safety and Health Act (OSHA) and state laws require that operators be completely trained in the safe operation of lift trucks.

CLARK lift trucks 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 lift truck repair procedures and authorized by your employer.

CONTENTS

A MESSAGE TO CLARK LIFT TRUCK CUSTOMER:	ii
A MESSAGE TO CLARK LIFT TRUCK OPERATOR:	iii
ABOUT THIS MANUAL	v
TRUCK APPLICATION	vi
1 GENERAL SAFETY RULES AND PRACTICES	1.1
2 OPERATING HAZARDS	2.1
3 KNOW YOUR TRUCK	3.1
4 OPERATOR CARE AND MAINTENANCE	4.1
5 OPERATING PROCEDURES	5.1
6 EMERGENCY TOWING	6.1
7 MAINTENANCE	7.1

About This Manual

The purpose of this manual is to provide a digest of essential information about the safe operation of your lift truck and to acquaint you with its features and how they function and are maintained.

This manual has been printed on a special weather resistant material and is intended to remain on, and be a permanent part of this lift truck.

Be sure to put this operator's manual back in the holder (located in operator's compartment) when not in use.

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.

TRUCK APPLICATION

Each truck is designed for a specific application. Make sure you are using the correct truck for the job.

NARROW AISLE TRUCKS WITH A PANTOGRAPH

NP trucks are designed to work in warehouses which utilize maximum storage space and minimum aisle space. The NP series with a pantograph features forks which extend and retract, permitting the operator to reach into a rack to deposit or remove a load without having the truck or outriggers enter the rack system.

NARROW AISLE TRUCKS WITHOUT A PANTOGRAPH

NS trucks are designed to work in warehouses which utilize maximum storage space and minimum aisle space. Unlike the NP series, the NS series truck must have clearance below the racks (in a bridged rack system), and between the loads (in a floor load system), for the outrigger and load wheel when the truck is used to deposit or remove loads from the racks, since the outriggers enter into the rack system. Loads wider than the outriggers inside dimension can not be lowered to the floor.

1 General Safety Rules

Daily Inspection	1.2
Do's and Don'ts	1.2
No Riders	1.3
Pedestrians	1.3
Operator Protection	1.4
Fork Safety	1.4
Pinch Points	1.4
Travel	1.5
Tipover	1.5
Surface Capacity	1.6
Grades, Ramps, Slopes and Inclines	1.7
Loading Docks	1.7
Parking	1.7

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. Lift truck mechanics are trained professionals. They know how to make repairs safely.

Do's And Don'ts



DON'T MIX DRUGS AND ALCOHOL WITH YOUR JOB.



DON'T BLOCK SAFETY OR EMERGENCY EQUIPMENT



DO WATCH FOR PEDESTRIANS.



DON'T SMOKE IN "NO SMOKING" AREAS

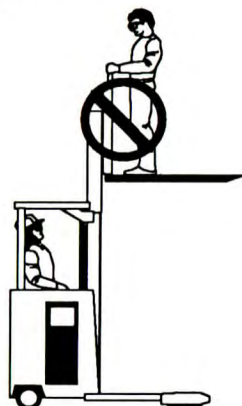


DO WEAR SAFETY EQUIPMENT WHEN REQUIRED

General Safety Rules No Riders

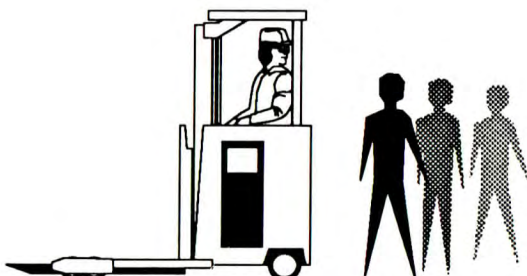


The operator is the only one who should be on a truck.



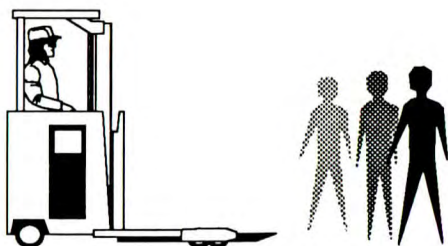
Never transport personnel on the forks of a lift truck.

Pedestrians



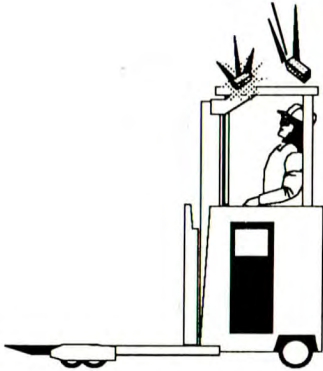
Watch where you are going, look in the direction of travel. Pedestrians may use the same roadway you do. Sound your horn at all intersections or blind spots.

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

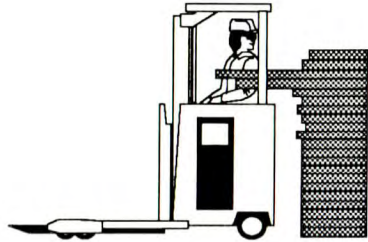


Make people stand back, even when you are parked.

General Safety Rules Operator Protection



Keep under the overhead guard. Always keep your body within the confines of the truck.



Watch out for intrusion into the operators compartment. Be especially careful when traveling in reverse and maneuvering in tight areas.

Fork Safety

Never allow anyone to walk under raised forks.



There is special equipment to raise people for overhead work. DO NOT USE LIFT TRUCKS.

Pinch Points

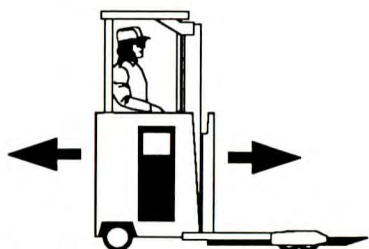
Keep hands, feet and legs out of the upright. Don't use the upright for a ladder.



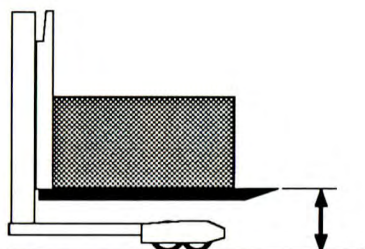
Never try to repair the upright, carriage, chain or attachment yourself. Always get a trained mechanic.



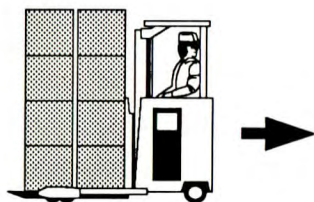
General Safety Rules Travel



Your truck is equipped with a plugging feature, which means that you need not brake to a complete stop to change directions. Use the directional speed control to change direction.



The load should be lowered to a position near the floor (if your truck is equipped with tilt, the carriage should be tilted back to cradle the load).



If load blocks your view, travel in reverse.

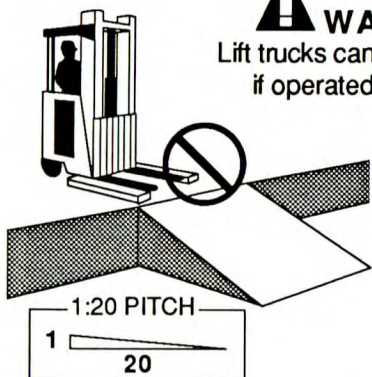


Do not travel with the pantograph extended.

Tipover



WARNING:
Lift trucks can be tipped over if operated improperly.

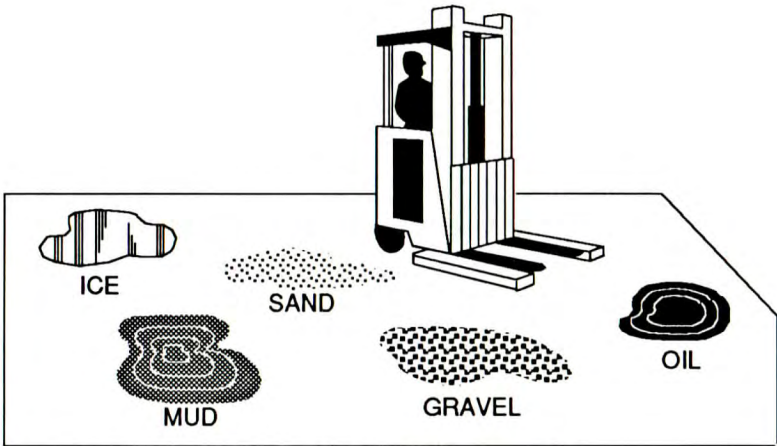


Do not travel on slopes or ramps greater than a 1:20 pitch. Never turn on a grade.



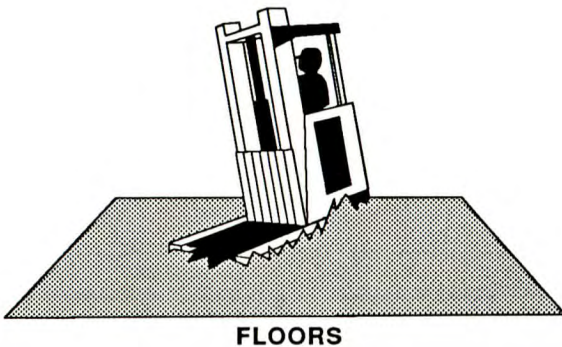
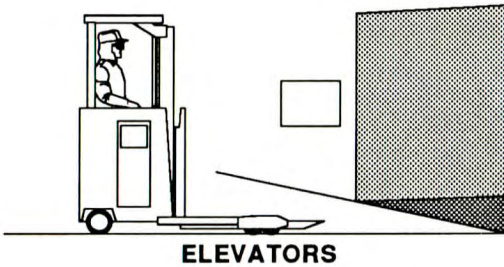
Be extremely cautious when operating near the edge of docks or ramps

General Safety Rules Surface and Capacity



Avoid or slow down on these conditions....
They can cause a truck to tip over.

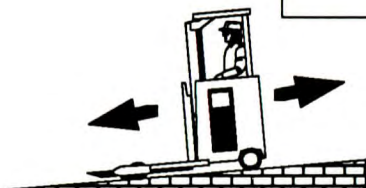
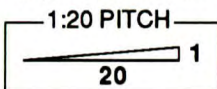
Know the weight of your truck and load. Check capacities:



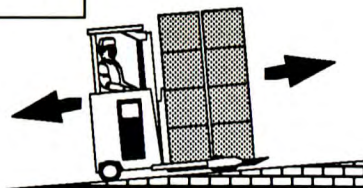
General Safety Rules

Grades, Ramps, Slopes and Inclines

Do not travel on grades, ramps, slopes or inclines greater than a 1:20 pitch.

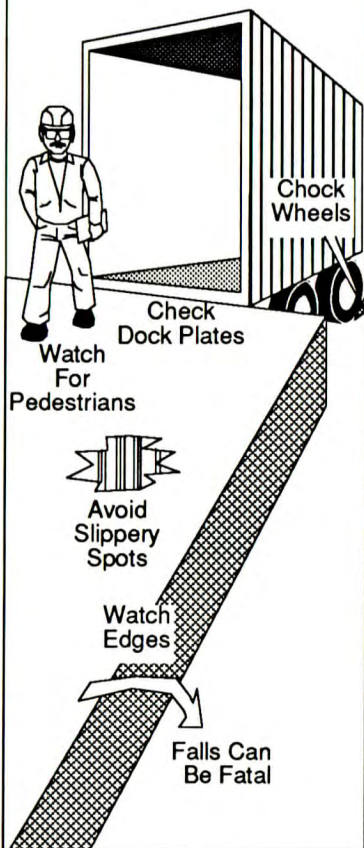


Unloaded - Forks Downgrade



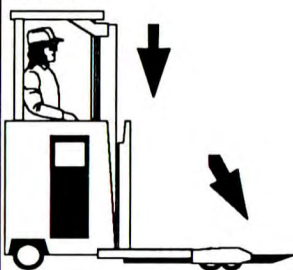
Loaded - Forks Upgrade

Loading Docks

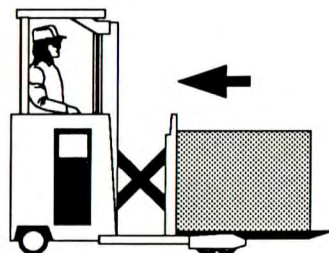


Parking

Never park on a grade.
 Always come to a complete stop before leaving truck.
 Be sure travel control is in neutral.

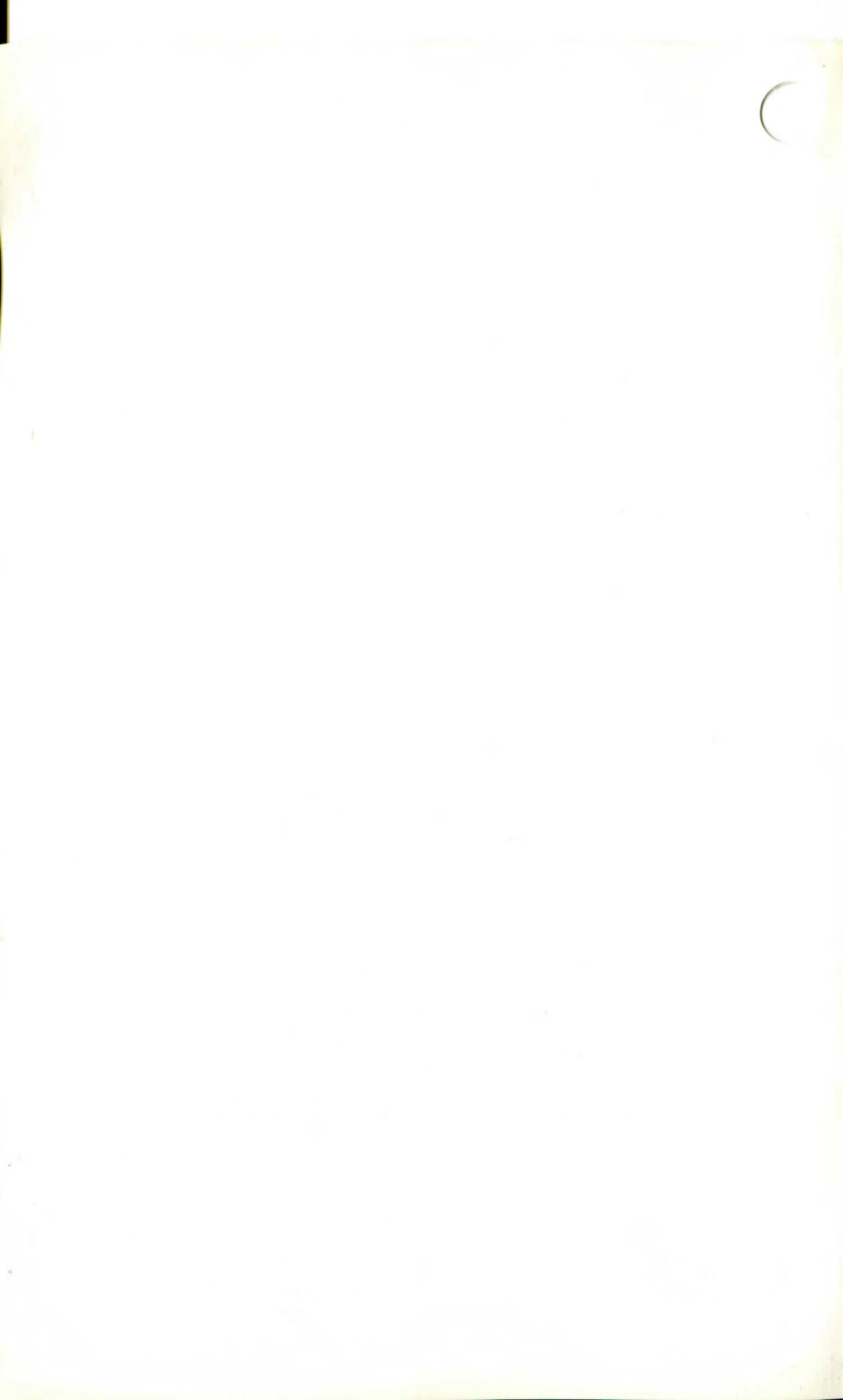


Lower forks fully to floor and tilt forward.



Retract pantograph

Turn key to "OFF" and remove.



2 Operating Hazards

Loose Loads 2.2

Long and Wide Loads 2.2

Low Overhead Clearance 2.3

Fast Turns and High Loads 2.3

Rear Swing 2.4

Right- Angle Stacking 2.4

Chain Slack 2.4

Pallets and Skids 2.5

U.L. Construction Type 2.5

Drop-offs 2.6

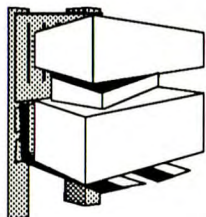


This section shows hazards that may cause you, or someone around you, to be killed or badly hurt. As the operator, you must look for other hazards. Get your boss to help you identify and avoid those hazards.

Operating Hazards

Be thoroughly trained in the operation of the steering, brake, and controls of this truck.

Certificate
Operator Training

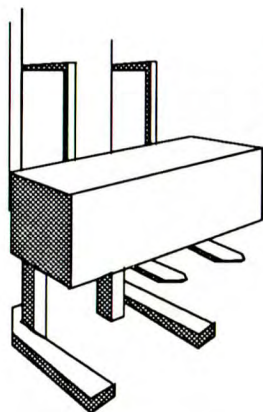


⚠ WARNING:
Loose Loads

Never carry loose or uneven material.



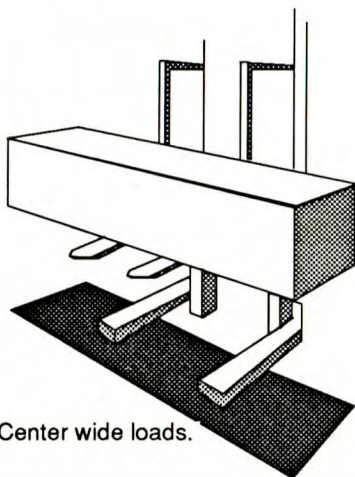
Stack and band loose material.



⚠ WARNING:
Long and Wide Loads

With long or wide loads you need more room so slow down and watch your clearance.

Keep wide loads low and watch load balance. Do not let the load rest on the outrigger.

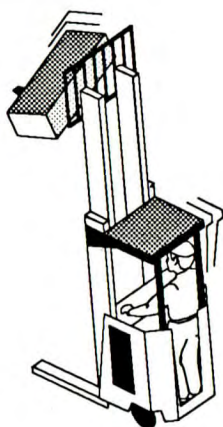
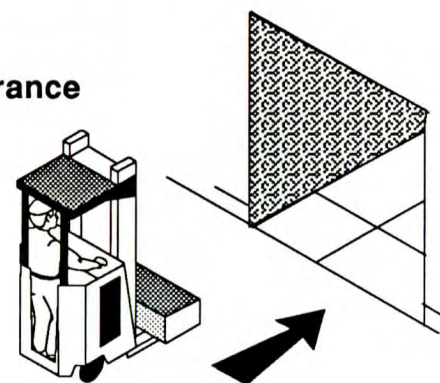


Center wide loads.

Operating Hazards

WARNING: **Low Overhead Clearance**

Know the height of your truck
check your clearance.



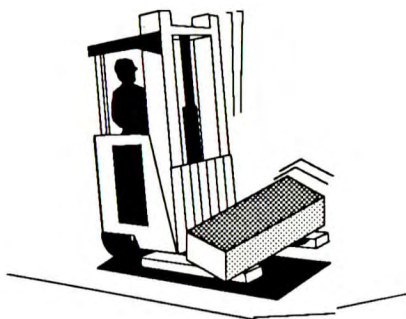
WARNING: **High Loads**

Turn too sharp with a raised load
and your truck can tip even at slow
speeds.

Travel with load raised only when
removing or depositing a load.

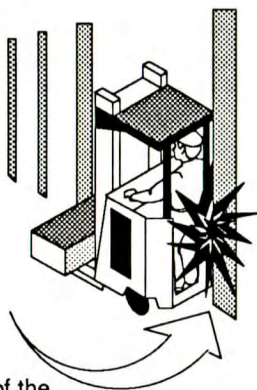
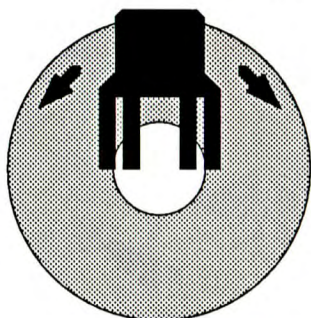
WARNING: **Fast Turns**

Slow down before turning. Truck
can tip over.



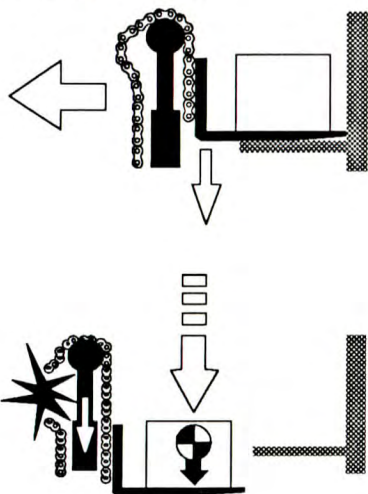
Operating Hazards

WARNING: Rear Swing



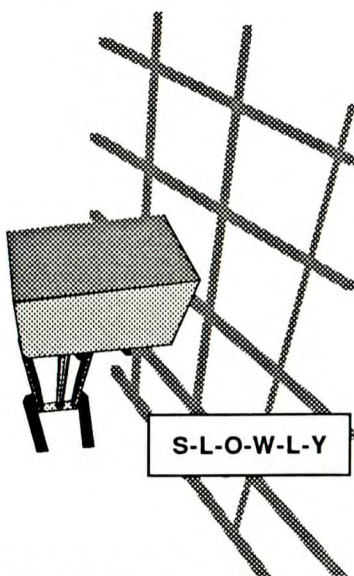
When turning, be sure the rear of the truck does not swing into racks, posts etc.

WARNING: Chain Slack



Slack chains mean rail or carriage hang-up. Raise the forks before you move.

WARNING: Right-angle stacking



When right-angle stacking, or moving with a raised load to clear low objects, avoid sharp turns and move slowly.

Operating Hazards

Pallets and Skids

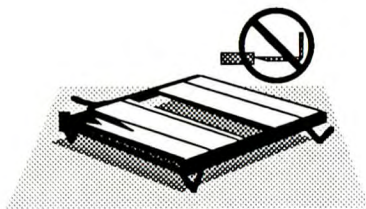


WARNING:

Poorly maintained and/or damaged pallets and skids.



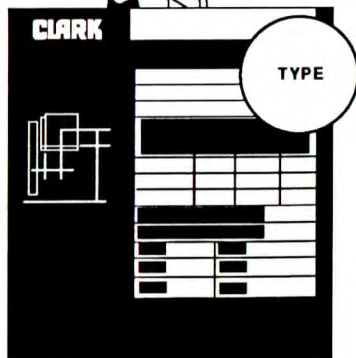
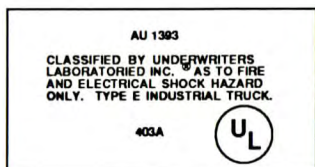
Do not move or store materials on damaged pallets or skids. Items can fall through them causing severe injury or death.



Be sure that pallet or skid you are using is in good condition and does not have defective or missing components and fasteners.

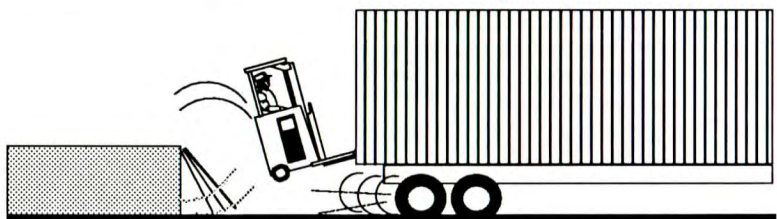
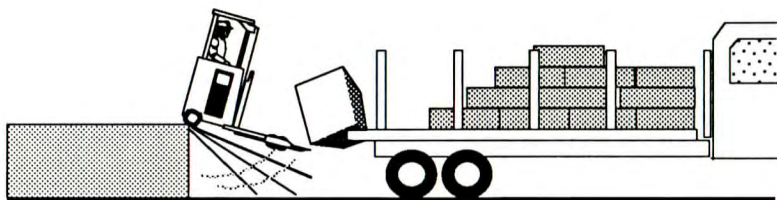
U.L. Construction Type

Know the U.L. construction type of your truck and make certain that trucks of this type may be operated in restricted areas before entering. Never take an unauthorized truck into restricted or hazardous areas.



Operating Hazards Drop-offs

 **Warning: Dock or trailer drop-offs**



TO AVOID THESE HAZARDS YOU MUST:

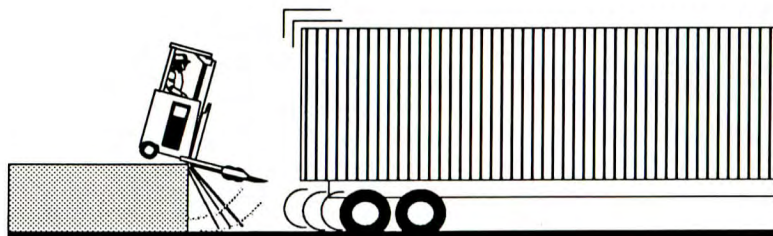
Talk to the truck driver yourself, make sure he does not move the trailer until you are done!

Apply trailer brakes.

Use wheel chocks.

Use trailer-to-dock locking systems, if available.

 **Warning: Trailer creep**



3 Know Your Truck

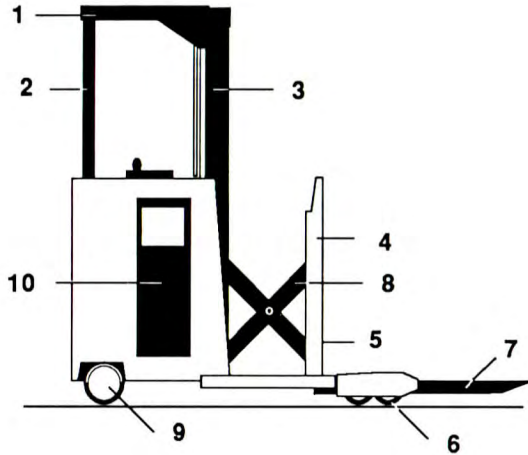
Truck Chart 3.2

Operator's Compartment 3.3

Trucck Data and safety plates 3.4 - 3.6

Safety and Waring Decals 3.7

Know Your Truck

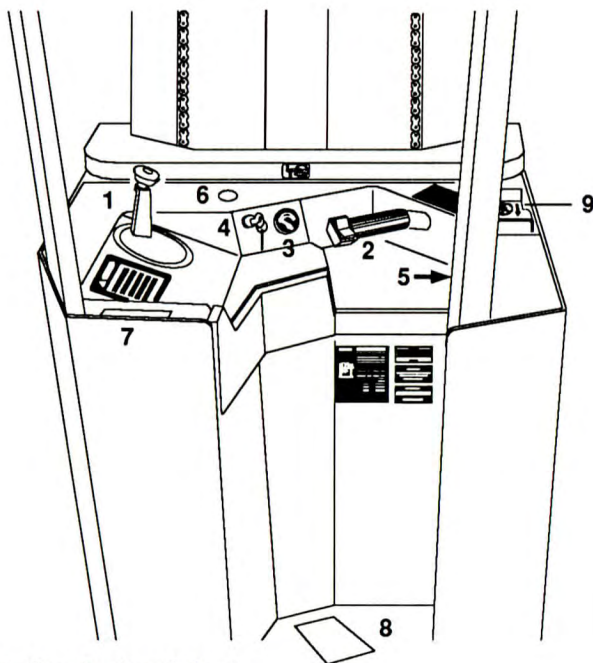


NP/NS 300 Narrow Aisle Trucks

(NP) = Pantograph
(NS) = Straddle (no pantograph)

1. Overhead guard
2. Overhead guard rear post
3. Upright assembly
4. Load backrest extension
5. Fork carriage
6. Load wheels (NP model shown)
7. Load forks
8. Pantograph mechanism (NP only)
9. Swivel caster
10. Battery compartment

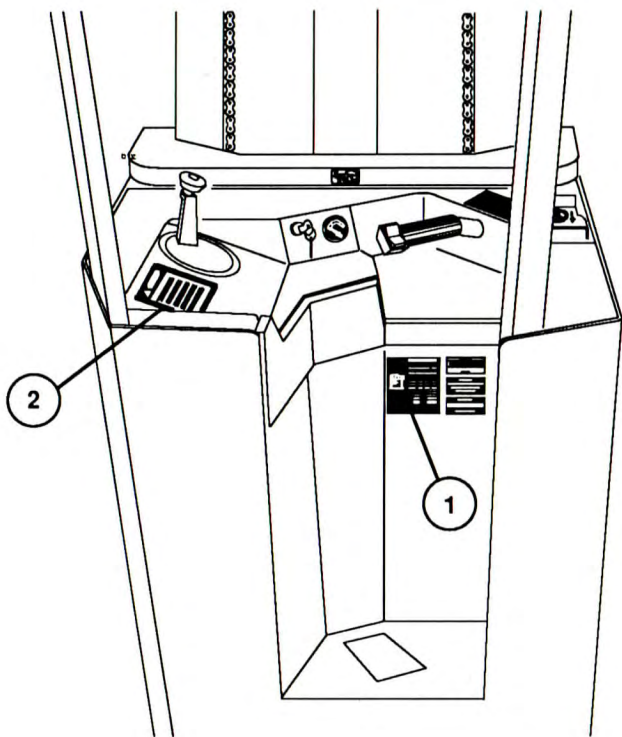
Know Your Truck Operator's Compartment



1. Steering handwheel.
(tiller with spinner knob)
2. Multiple function control lever.
This lever controls direction, speed, lift and lower, tilt and horn button on NP & NS trucks. This lever also controls reach on NP trucks only. Additional optional hydraulic control levers, if any, will be positioned to the left of this lever.
3. Battery charge indicator.
4. Key switch.
5. Hourmeter
6. Auxiliary function switch
7. Operator manual holder
8. Brake pedel
9. Emergency Battery Disconnect

**Familiarize yourself with the controls and follow
safe operating rules**

Know Your Truck Truck Data and Safety Plates



1. Truck Data and Capacity Plate
(Truck Nameplate)

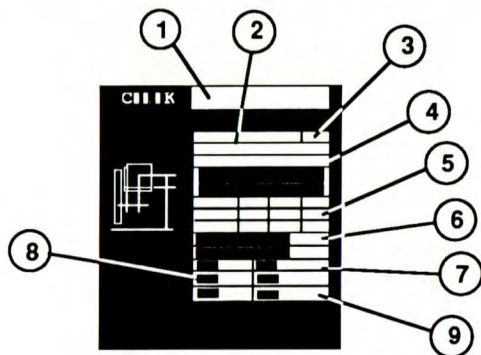
2. Operator Safety Warning Decal

NOTICE

NAMEPLATES & DECALS

DO NOT OPERATE A LIFT TRUCK WITH DAMAGED OR LOST DECALS AND NAMEPLATES. REPLACE THEM IMMEDIATELY. THEY CONTAIN IMPORTANT INFORMATION.

Know Your Truck Truck Data and Safety Plates



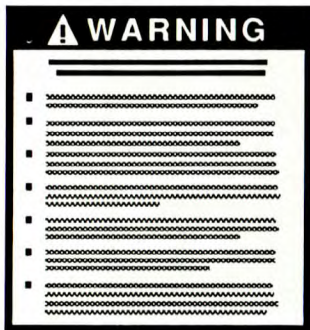
KNOW AND UNDERSTAND THE MEANING OF THE DATA ON YOUR TRUCK'S NAMEPLATE

1. Truck registered name.
2. Truck model number and serial number. These are identification numbers 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. Type Designation. The code letters signify the type of construction with safeguards against fire, explosion or electrical shock hazards for operation in nonclassified and classified areas. Check with proper authority before entering areas where flammable or explosive material may be present.
4. Attachment description (if any installed). The user must see that the truck is marked to identify the attachment(s), including the weight of the combination and truck capacity with the attachment.
5. Capacity rating, load center, and lifting height data. This shows the maximum load capacity of this truck with relation to load centers and fork heights (see diagram on plate). Personal injury and damage to the truck can occur if these capacities are exceeded. **DO NOT EXCEED MAXIMUM SPECIFIED.**
6. Truck weight, less load.
7. Battery weight.
8. Battery ampere-hour rating.
9. System voltage.

IMPORTANT - When attachments are added or if the truck is modified, the capacity of the truck may be affected. Contact your authorized Clark dealer for new nameplate showing the revised capacity.

Know Your Truck Truck Data and Safety Plates

Operator Safety Warning Decal



The operator's warning decal describes basic instructions for safe operation of a lift truck. Read and understand these instructions and the other safety messages in this manual and on the truck.

- Do not operate this order picker truck unless you are trained and authorized. Read and understand operator's manual before operating lift truck. Clark dealers have replacement manuals.
- Do not operate damaged or faulty truck. Do not attempt repairs unless you are trained and authorized.
- Look where you drive. Watch out for people, obstructions (especially overhead), and drop-offs. If load blocks your view, drive backwards, except up slopes.
- Lift trucks will tip over if not properly operated. Slow down before turning. Do not turn on slopes. Drive with forks of attachments fully lowered and tilted back.
- Forks or attachments can fall rapidly if not properly controlled or maintained. Do not use this lift truck to raise people.
- Keep your head, hands and feet inside the operator's compartment.
- Protect against falling objects. Overhead guard and load backrest extension must be in place.
- Do not load truck over capacity on nameplate. Move long, high or wide loads carefully. Do not move unstable loads.
- Before getting off truck, lower forks or attachments all the way and turn off key. Parking brake applies automatically.

Know Your Truck Safety and Warning Decals

Safety and warning decals are placed in conspicuous locations on the truck. These decals are provided to remind you of either essential procedures or to prevent you from making an error which could damage the truck or possibly cause personal injury. It is important that you know, understand and follow these instructions. These safety and warning decals should be replaced immediately if missing or defaced (damaged or illegible). Refer the Service Manual for location of all decals.



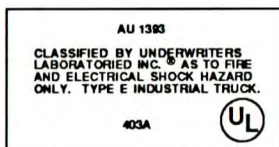
"Keep hands off" decals are located on the upright. Do not reach into or climb on the upright. Personal injury will result if any part of your body is put between the moving parts of the upright.



"Emergency Battery Disconnect" decal indicates the location of the emergency battery disconnect lever and the direction of lever movement.



"Keep away from the forks" decal is located on the lift cylinder in front of the operator's compartment. Do not ride on or stand under forks or attachments. Personal injury will result if personnel stand on or under raised forks.



Type Designation UL Classification Label

Type designation is a system for identifying types of powered industrial trucks for operation in nonclassified and classified areas. The code letters (E, ES, EE) signify the type of construction with safeguards against fire, explosion or electrical shock hazards in conformance with the requirements as prescribed by Underwriters Laboratories, Inc.

Know the U.L. construction type of your truck and be certain that trucks of this type may be operated in restricted areas before entering. Never take an unauthorized truck into restricted or hazardous areas.



4 Operator Care and Maintenance

Daily Safety Inspection 4.2-4.4

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 lift truck, 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 lift truck 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.

Lift trucks should be inspected every 8 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. Be sure that the overhead guard is in good condition. Look the upright and lift chains over. Check the forks for damage. Look for loose bolts and fittings. Check the tires, wheels and wheel mounting bolts. Check the hydraulic reservoir oil level. 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 lift truck 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.

Check that battery is installed and secured in position correctly. Check battery connector for safe condition. Look for any external leakage around drive axle.

Check for hydraulic oil leaks and loose fittings. **WARNING -- DO NOT USE BARE HANDS TO CHECK.** Oil may be hot or under pressure.

Be sure that the driver's overhead guard, rear posts, load back rest extension, and any other safety devices are in place, undamaged and attached securely.

Then, check all of the critical components that handle or carry the load.

Look the upright and lift chains over. Check for obvious wear and maintenance problems such as damaged or missing parts, leaks, slack or broken chains, bent parts, etc. Check all attachments, chains, cables, and limit switches.

Carefully inspect the load forks for cracks, breaks, bending, twists, and wear. Be sure that the forks are correctly installed and locked in their proper position.

Inspect the wheels and tires for safe mounting and wear condition.

Check fluid levels.

Functional Checks

Test Emergency Battery Disconnect.

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

Turn key on, be sure all controls and systems are functioning correctly. Check the hourmeter for operation. Operate the service brake, hydraulic controls, directional control, and steering system. Be sure all controls operate freely and return to neutral properly.

Operator car and Maintenance Daily Safety Inspection

WHEN FUNCTIONAL CHECKS ARE COMPLETED:

- Bring truck to a complete stop.
- Make sure directional control is in the neutral position.
- Turn the key switch to the OFF position.
- Lower the forks fully to the floor.

Standard Shut Down Procedure

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

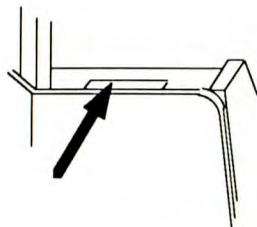
Make a record on the "Driver's Daily Checklist" of all the operating and truck problems that you find. Review the checklist to be sure it has been completed and turn it in to the person responsible for lift truck maintenance. Be sure any unusual noises or problems are investigated immediately.

Do not operate a lift truck 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. Read the manual again if you are not sure of all lift truck operating procedures.



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

5 Operating Procedures

Before Operation 5.2

How to Operate Your Truck 5.3- 5.7

Right Angle Stacking - NP 5.8

Right Angle Stacking - NS 5.9

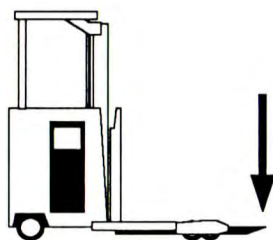
After Operation 5.10

Operating Procedures Before Operation

Warning - Inspect your lift truck 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.

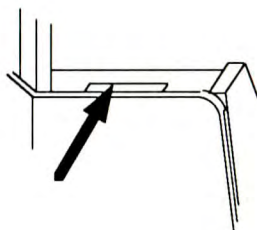
Before operating a lift truck check to see that:

1. Forks are fully lowered to the floor
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



Be sure that read and understand the information in the Operator's Manual before operating a lift truck.

The Operator's Manual is designed to be attached to the truck. 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 lift truck, the operator must check the truck and complete the "Driver's Daily Checklist".

NOTICE

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

DO NOT OPERATE THE TRUCK, ANY OF ITS FUNCTIONS OR ATTACHMENTS, FROM ANY PLACE OTHER THAN FROM DESIGNATED OPERATOR'S POSITION.

Operating Procedures

How to Operate Your Truck

Enter the operator's compartment.

Turn the key to the "ON" position.

Put your left foot on the brake pedal and press down. This will make power available to the drive motor.

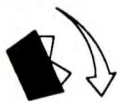
TRAVEL

Look in all directions to make sure that your path of travel is clear.

Grip the control with your right hand and slowly turn it in the direction you want to travel.



FORWARD



REVERSE

Travel speed can be increased by rotating the handle more.

For your safety the truck speed will reduce to half when forks reach cutout height.

Lift your foot from the brake pedal to activate truck brake and stop truck travel.

PLUGGING

Drive the truck forward at a slow speed and rotate the handle to reverse at creep position. The truck will slow to a smooth stop, and accelerate slowly in reverse. Drive the truck in reverse at a slow speed and rotate the handle to forward at creep position. The truck will slow to a smooth stop, and accelerate slowly forward.

TILT

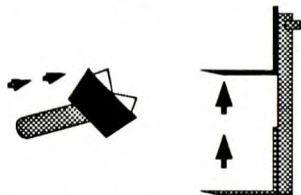


Back- with handle in center position, push blue side of toggle switch and move handle to the rear.

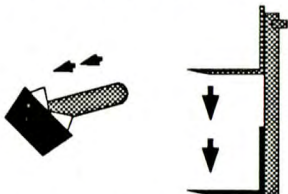


Forward- with handle in center position, push blue side of toggle switch and move handle forward.

LIFT and LOWER



Lift - (be sure you have adequate unobstructed overhead clearance) Move the handle to the rear.



Lower - Move handle forward. Forks will not lower with the key in the "OFF" position.

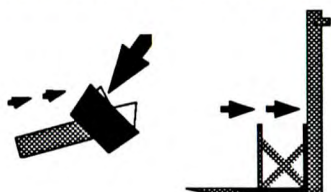
Operating Procedures

How to Operate Your Truck

PANTOGRAPH



Extend- with handle in center position, push yellow side of toggle switch and move handle forward.



Retract- with handle in center position, push yellow side of toggle switch and move handle to the rear.

SIDE SHIFT



Left- with handle in center position, push aux. button and move handle forward.



Right- with handle in center position, push aux. button and move handle to the rear.

Operating Procedures

How to Operate Your Truck

Traveling

Travel with load or carriage as low as possible and tilted back. Never travel with the load or carriage raised (elevated) in a high position. Do not elevate the load except during stacking.

Observe all traffic regulations and watch for other traffic, pedestrians, and safe clearances. Always look in the direction of travel. Keep a clear view of the path of travel, and when load blocks your visibility, travel in reverse with load trailing (except when climbing an incline).

Avoid sudden movements when carrying a load -- start, stop, travel, steer, and brake smoothly. Steer clear of bumps, holes, and loose materials or debris on the floor. Lift and tilt slowly and smoothly. Go slowly when turning.

Use special care when handling and traveling with long, high, or wide loads, to avoid losing the load, striking bystanders or obstructions, or tipping the truck.

Watch clearances around the truck and load as you travel. Raise the forks or attachment only to pick up or stack a load. Look out for obstructions, especially overhead.

Be aware that exaggerated tail swing when turning while traveling forward is a characteristic of lift trucks that are steered by the rear wheels. Accordingly, an operator needs to become accustomed to tail swing and always check the tail swing area of the counterweight to be sure it is clear before turning.

Always be concerned about the stability of your lift truck. When attachments are used, extra care should be taken in securing, manipulating, positioning, and transporting the load. Because they generally add extra weight and complexity to the truck, operate trucks equipped with attachments as partially-loaded trucks when not handling a load.

Picking up and moving loads

When picking up a load from the floor, approach the load slowly, and carefully align the truck square with the load. The forks should be adjusted to fit the load or pallet being handled and spread as wide as possible to provide good stability and balance. Before lifting, be sure load is centered and forks are fully under and supporting the load. Fork length should be at least 2/3 of load length.

With the lift and tilt controls, adjust the forks to the correct height and angle for freely engaging the load pallet.

Move (inch) forward until the forks are squarely and completely under the load.

NOTE -- Be sure that the forks do not extend beyond the load, causing damage or tipping of other adjacent loads or materials behind the load being moved.

Operating Procedures

How to Operate Your Truck

If the forks are longer than the load, move the tips partially under the load without extending beyond the load. Raise the load to clear the floor. Back out several inches, or distance as necessary, then set the load down and inch forward until load is positioned against the carriage.

Raise the load from the floor or stack by tilting the upright back just enough to lift the load from the surface. When stacking or tiering, use only enough backward tilt to stabilize the load.

Then, raise the load to traveling height and tilt fully back (except loads that must be transported as level as possible).

Unloading

To deposit a load on the floor after being moved into the correct position, tilt the upright forward to a vertical position and lower the load.

Adjust the fork height and tilt the upright forward slightly, as necessary, for smooth removal of the forks from the load (pallet).

Carefully back away to clear the forks from load.

Raise the forks to traveling height and tilt fully back.

Stacking

To put a load on a stack...

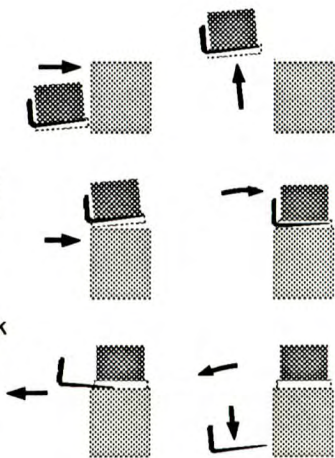
Approach slowly and align the lift truck and load squarely with the stack. Raise (elevate) the load as the lift truck is nearing the stack. Move forward, slowly, until the load is almost touching the stack. The leading edge and sides of the load pallet should be lined up exactly with the near edge and sides of the load or rack on which you are stacking.

Stop close to the stack, and further lift (raise) the load high enough to clear the top surface of the stack. Inch the load into position. Be careful not to damage or move adjacent loads.

When the load is aligned with the stack beneath it, tilt the upright to the vertical position, and carefully lower the load onto the top surface of the stack. Lower (drop) the forks slightly to clear (disengage) the load pallet. Tilt the forks forward slightly, if necessary.

Check your travel path, then carefully back away until the forks are clear of the stack.

Stop and lower the forks to the travel position (6 to 8 inches above the floor), then tilt back for travel.



Operating Procedures

How to Operate Your Truck

Moving a load from a stack...

Approach the stack carefully, with truck lined up squarely with the load. With upright mast vertical, raise the forks to the correct height for freely engaging the load pallet. Adjust fork angle, as necessary, to fit squarely under the load. Move (inch) forward until the forks are under the load.

NOTE -- Be sure that the forks do not extend beyond the load, causing damage or tipping of other adjacent loads or materials behind the load being moved. If the forks are longer than the load, move the tips partially under the load without extending beyond the load. Raise the load to clear the undersurface. Back out several inches, then set the load down and inch forward until the front face of the forks contacts the load.

Raise the load from the stack by tilting the upright back just enough to lift the load from the surface. Or, alternately, with the mast still vertical, raise the forks until they begin to lift the load. At this point, apply the minimum back tilt which will stabilize the load.

Check your travel path, slowly back off until clear of the stack, stop, and then lower the load to the travel position (6 to 8 inches off the floor). Tilt full back to travel (*see note). Be sure load is back flush against the carriage or front face of the forks.

NOTE -- Certain loads may have to be transported as level as possible.

Parking

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.

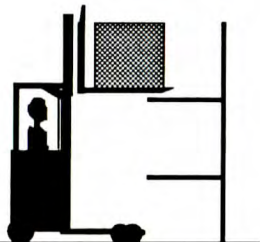
Bring truck to a complete stop. Be sure the directional control lever is in the neutral position. Lower the lifting mechanism fully to the floor. Tilt the forks forward until they are level and flat to the floor. Turn the key to off and remove it. Block the wheels, if the truck must be left on an incline or you have any doubt about the truck moving from a safe position.

Operation Procedures Right Angle Stacking - NP

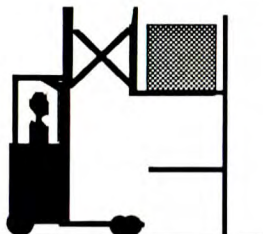
Drive the truck parallel to the rack system at the desired location. Raise the load slightly above the desired height and tilt to level position.



Turn toward the rack (right angle stack) and continue to travel slowly until the load is in the desired location and the truck is at right angle to the rack system. Position the truck so the ends of outriggers are close (about two inches) from the rack system.



Use "Reach" to extend the load into position. Make sure the load is supported by both beams with a minimum of two inch overhang. Lower forks until load is fully supported by the rack system.



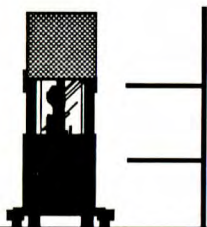
Retract pantograph fully. Return the truck to a position parallel to the rack system. Lower the forks to travel position.



Use minimum forward and reverse tilt when stacking and unstacking loads. Never tilt a load forward unless it is over a rack or at a low lift height.

Operation Procedures Right Angle Stacking - NS

Drive the truck parallel to the rack system at the desired location. Raise the load slightly above the desired height and tilt to level position.



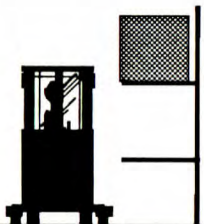
Turn toward the rack (right angle stack) and continue to travel slowly until the load is in the desired location and the truck is at right angle to the rack system. Position the truck so the ends of outriggers are close (about two inches) from the rack system.



Drive truck forward into the rack system. Make sure the load is supported by both beams with a minimum of two inch overhang. Lower forks until load is fully supported by the rack system.



Drive truck backwards out of rack system. Return the truck to a position parallel to the rack system. Lower the forks to travel position.



Use minimum forward and reverse tilt when stacking and unstacking loads. Never tilt a load forward unless it is over a rack or at a low lift height.

Operating Procedures After Operation

When you have finished using your truck

Always leave your lift truck in a safe condition...

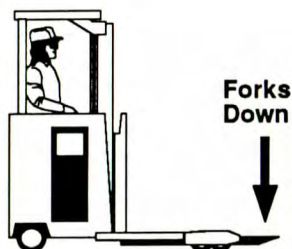
When you leave your truck, or park it, follow these safety rules:

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.

Directional Control in Neutral



Before leaving the opera- tor's position...

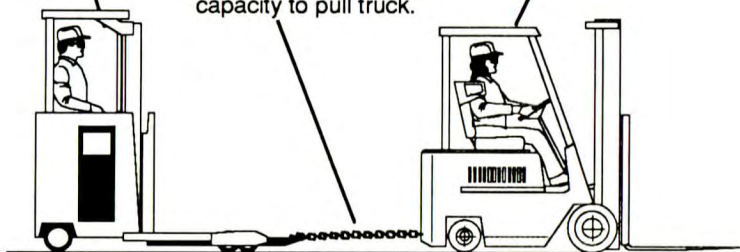
1. Stop truck.
2. Lower the forks.
3. Make sure directional controls are in neutral.
4. Turn key switch to "off" position and remove key.
5. Block the wheels, if the truck must be left on an incline or you have any doubt about the truck moving from a safe position.

6 Emergency Towing

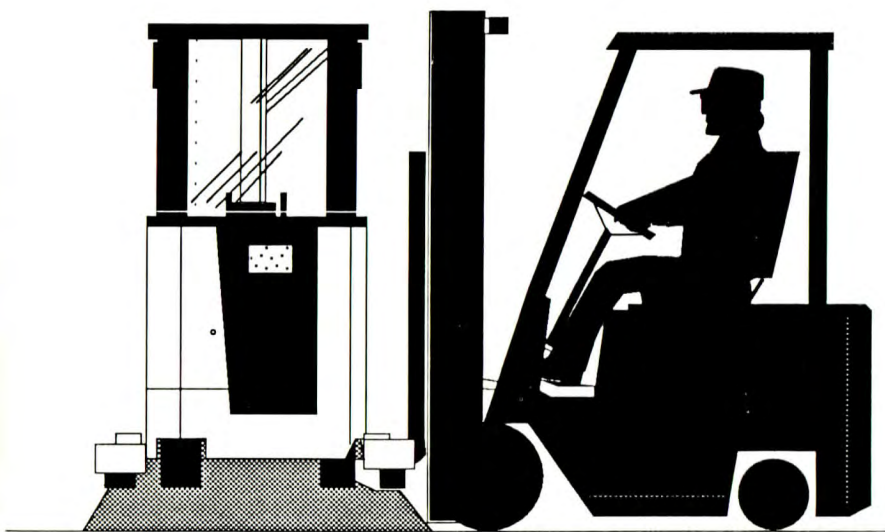
Driver must be in truck with brake pedal fully depressed.

Truck of sufficient capacity to pull order selector.

Hook chain of sufficient capacity to pull truck.



Truck of sufficient capacity to lift NP or NS Truck.





7 Maintenance

Periodic Maintenance Schedule 7.2

Lubrication Chart 7.3 - 7.4

Battery Maintenance 7.5 - 7.9

Maintenance

Periodic Maintenance

Daily

Charge, service and clean battery

Inspect visually for damage or leakage

Inspect visually for loose or missing parts

Check electrical brake switch and service brake operation

Check for smooth and proper functioning of all controls

Weekly

Check level of hydraulic fluid, (MS - 68 with upright lowered, see lubrication chart).

Check transmission lubricant level (80W-90/API GL-5 transmission grease to pipe plug below intermediate gear bearing cover).

Check battery water level

Equalize battery charge (See manufacturer's instructions).

Monthly

Service all grease fittings (see Service Manual).

Semi-Annually

Thoroughly scrub battery

Thoroughly clean machine

Carefully inspect for loose or missing parts

Inspect for wiring damage

Change oil filter (see lubrication chart).

Check contactor tips

Check brake adjustment

Service drive motor and pump motors (see manufacturer's instructions).

Remove, clean and repack battery rollers (see lubrication chart).

Lubricate steering knob (see lubrication chart).

Inspect all tires and wheels

Annually

Drain, flush and refill gear case (see Lubrication chart).

Drain, flush and refill hydraulic reservoir (see lubrication chart).

Clean hydraulic reservoir outlet screens (see lubrication chart).

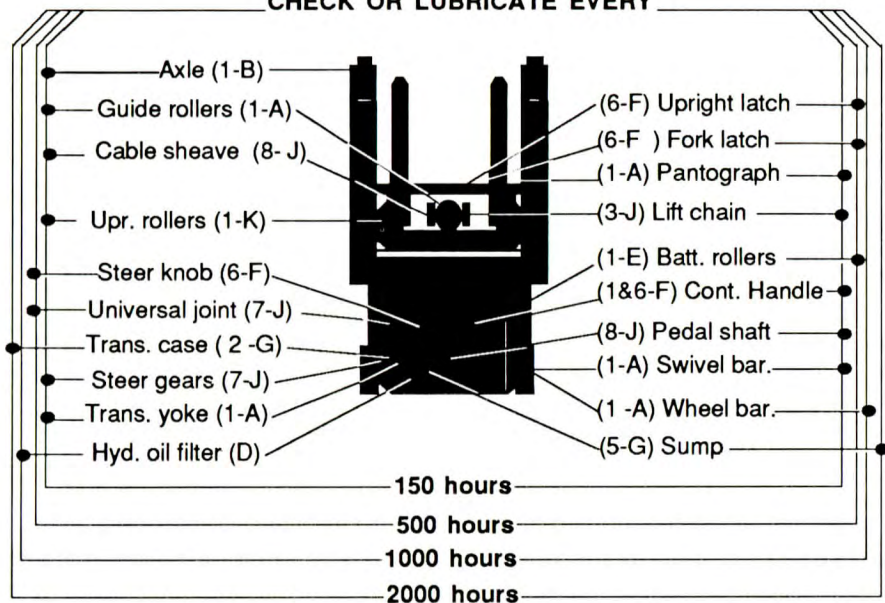
Break-in Period - 100 Hours

After approximately 100 hours of use, perform the following service.

1. Change the transmission oil
2. Change the hydraulic oil filter
3. Lubricate all grease fittings
4. Check all adjustments
5. Tighten any loose bolts, nuts, ect.
6. Adjust lift chains

Lubrication Standard

CHECK OR LUBRICATE EVERY



Lubricants

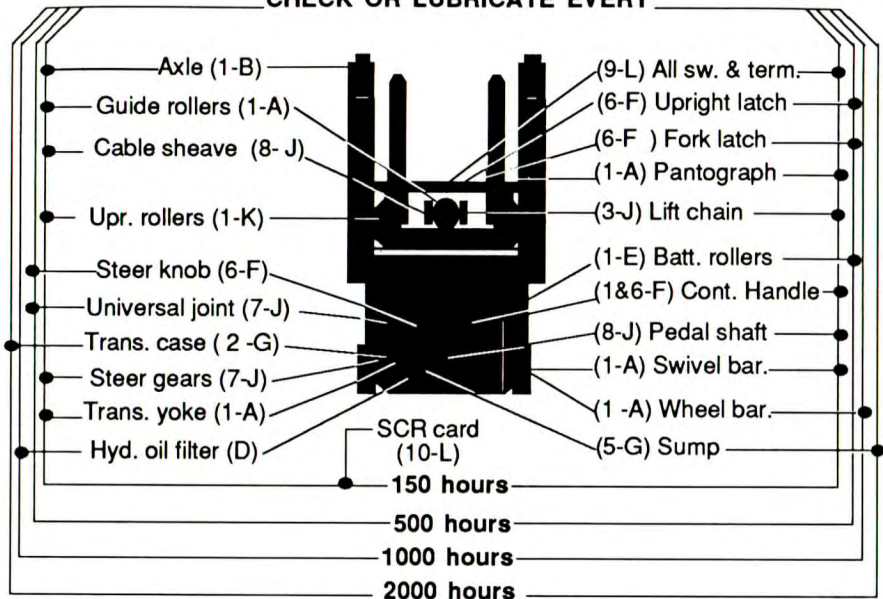
- | | |
|---|------------------------------|
| (1) - MP1- multipurpose grease NLG1 # 1 | (6) - SAE 20 Engine oil |
| (2) - GL5 - transmission lubricant AP1GL5 | (7) - 886785 Spray lubricant |
| (3) - CL - chain lubricant Clark 886399 | (8) - Dry graphite |
| (5) - MS68 Hydraulic oil | |

Method

- | | |
|--|--------------------------------|
| (A) - Use standard lube gun | (F) - Apply light film |
| (B) - Use lube gun and adaptor for flush type fittings | (G) - Drain, flush and refill |
| (C) - Clean in solvent and re-oil | (H) - Repack bearing |
| (D) - Change filter | (J) - Clean and lubricate |
| (E) - Remove, clean and repack | (K) - Apply to channel of rail |

Lubrication Cold Storage

CHECK OR LUBRICATE EVERY



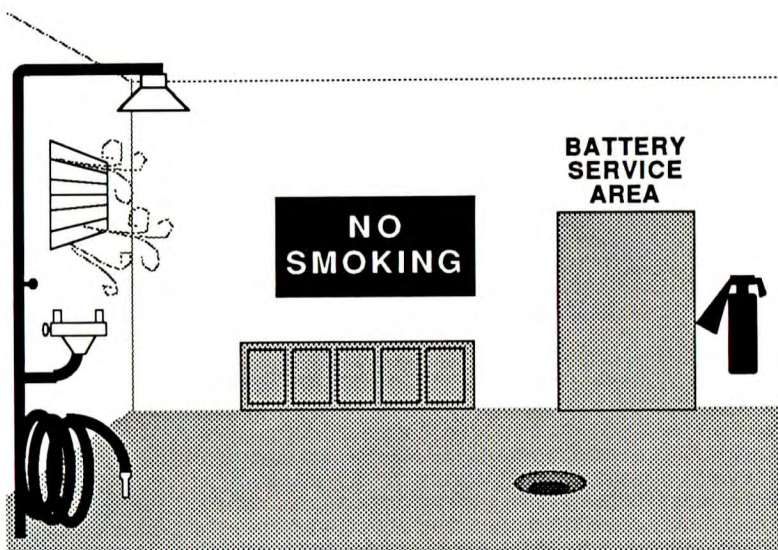
Lubricants

- | | |
|--|--|
| (1) - MII-G-23827A
Low temp. grease | (6) - SAE 20
Engine oil |
| (2) - Transmission fluid
Dexron II | (7) - 886785
Spray lubricant |
| (3) - CL - chain lubricant
Clark 886399 | (8) - Dry graphite |
| (5) - MS226
Aircraft fluid | (9) - Clark 886784
Protective Spray |
| | (10) - Clark 1801145
Protective Spray |

Method

- | | |
|---|--------------------------------|
| (A) - Use standard lube gun | (F) - Apply light film |
| (B) - Use lube gun and adaptor
for flush type fittings | (G) - Drain, flush and refill |
| (C) - Clean in solvent and re-oil | (H) - Repack bearing |
| (D) - Change filter | (J) - Clean and lubricate |
| (E) - Remove, clean and repack | (K) - Apply to channel of rail |
| | (L) - Spray |

Maintenance Battery Maintenance



Battery charging installations must be located in areas designated for that purpose. These areas must be kept free of all non-essential combustible materials.

Facilities must be provided for:

- flushing spilled electrolyte
- fire protection
- protecting charging apparatus from damage by trucks
- adequate ventilation for dispersal of fumes from gassing batteries.

When handling acid concentrates greater than 50 percent acid (above 1.400 specific gravity) an eye wash fountain must be provided.

A conveyor, overhead hoist, or equivalent material handling equipment must be provided for handling batteries.

Changing and Charging Electric Truck Storage Batteries

IMPORTANT

Electric truck batteries are heavy and awkward to handle. They are filled with a very hazardous chemical solution. On charge, they give off hydrogen and oxygen which, in certain concentrations, are explosive. And they are costly. Before you remove, service, or install a truck battery, carefully read the following recommendations and instructions.

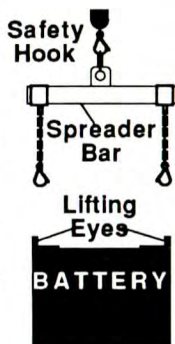
Maintenance

Battery Maintenance

Battery Handling

- 1 Change (remove) or service storage batteries only in an area designated for this purpose.
- 2 Be sure this area has provisions to flush and neutralize spillage, to ventilate fumes from gassing batteries, and for fire protection.
- 3 This area should be equipped with material-handling tools designed for removing and replacing batteries, including a conveyor or overhead hoist. Use lift hooks that have safety latches.

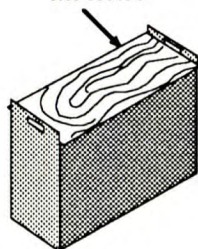
4 Always use a special lifting device such as an insulated spreader bar to attach the hoist to the battery. The width of the spreader bar hooks must be the same as the lifting eyes of the battery, to prevent damage to the battery. If the spreader bar hooks are movable, carefully adjust the position (width) of the hooks so that the pull is directly upward (vertical) and no side load or force (pressure) is exerted on the battery case. Be sure the lift hooks are the correct size to fit the lifting eyes of the battery.



5 If the battery does not have a cover of its own or has exposed terminals and connectors, cover the top with a non-conductive (insulating) material, e.g., a sheet of plywood or heavy cardboard, prior to attaching the lifting device.

Non-conductive material

6 Chain hoists or power battery hoists must be equipped with load-chain containers to accumulate the excess lifting chain.

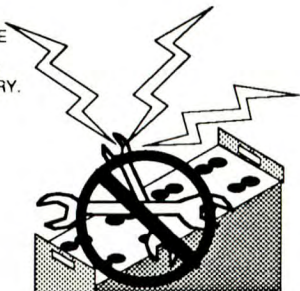
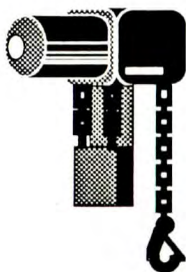


7 Keep all tools and other metallic objects away from the terminals.

WARNING

BATTERY SERVICE

BATTERY SERVICE MUST BE DONE BY TRAINED AND AUTHORIZED PERSONNEL. BATTERY ACID CAN CAUSE SEVERE BURNS AND INJURY.



Maintenance

Battery Maintenance

Battery Charging

- 1 Persons maintaining storage batteries must wear protective clothing such as face shield, long sleeves, and gloves.



- 2 Hydrogen emissions from charging batteries are flammable. No smoking shall be allowed in the charging area. Do not check the electrolyte level with an open flame. Do not allow open flame, sparks or electric arcs in battery charging area.

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.

WARNING

EXPLOSIVE GASES

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

- 3 When charging batteries, the vent caps must be kept in place to avoid electrolyte spray. Care must be taken to assure that vent caps are open (clean) and functioning. The battery (or compartment) cover(s) must be open to dissipate heat and gas.

IMPORTANT

If batteries discharge rapidly during normal operation or do not charge to the correct specifications, contact a qualified battery service technician to check the battery for you. **DO NOT ADD ELECTROLYTE OR ATTEMPT TO SERVICE THE BATTERY.**

Maintenance

Battery Maintenance

Battery Removal From Truck

1 Check the designated service and charging area for fire protection, and be sure all sources of ignition are cleared from the area. **DO NOT SMOKE.** Be sure all previous noted equipment is in the area, in good repair, and working properly.

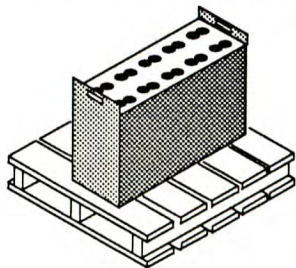
If the battery is to be serviced, be sure there are provisions to flush and neutralize spillage and to disperse (ventilate) fumes from gassing batteries on charge. And be sure there are provisions for handling electrolyte.

2 Before attempting to remove or charge a storage battery, the truck should be positioned in the designated battery service area and the parking brake applied so the truck cannot move.

3 If the battery to be handled is not equipped with its own cover, cover the battery when handling with a non-conductive (insulating) material, e.g., plywood or heavy cardboard, before attaching the lifting device. Also see "Battery Handling"

4 Use an approved lifting device with an insulated spreader bar, to remove and transport a truck battery. Hoist and lifting chains must be equipped with safety hooks.

5 Remove the battery and move it to a safe storage location. Store batteries either on an approved battery rack or on a wooden pallet.



Battery Cleaning

NEVER WASH THE BATTERY WHEN IT IS IN THE TRUCK.

The easiest and most satisfactory method of cleaning a battery is to wash it occasionally with a low-pressure coldwater spray. The top can also be washed off with a solution of baking soda and water (add a box of baking soda to a pail of water and stir until dissolved) and rinsed with clean water. It is good practice to have this solution available around a battery room at all times.

IMPORTANT

During cleaning, **THE BATTERY VENT CAPS MUST BE TIGHTLY IN PLACE.**

Battery Care and Maintenance

Refer to the **BATTERY MANUFACTURER** or **SUPPLIER** for their recommended procedures.

BATTERY SAVER and **CLEANER**, Clark Part No. 886398, may be used to clean and protect the truck battery.

New Truck Batteries:

Spray a light coat of **BATTERY SAVER** and **CLEANER** over the entire surface of the battery. Do not wipe off.

Old Truck Batteries:

Apply a light coat of **BATTERY SAVER** and **CLEANER** to entire surface of battery. Allow to set for approximately 30 seconds, then wipe thoroughly with a wiping cloth or rag. Chemical action will dissolve rust and corrosion. After cleaning, apply a second coating for protection. This will prevent the start and growth of corrosion on battery terminals and cable connections.

Maintenance

Battery Maintenance

Battery Service Records

A record of battery service and maintenance should be kept to obtain the best service life from your battery and truck.

Select a pilot cell, take readings of specific gravity and temperature before and after charging, and make a record of readings with the date. It is best to change the location of the pilot cell occasionally to distribute any electrolyte loss over the battery when taking readings. Every 2 to 3 months, take complete battery readings (specific gravity, temperature and voltage) and make a record of them.

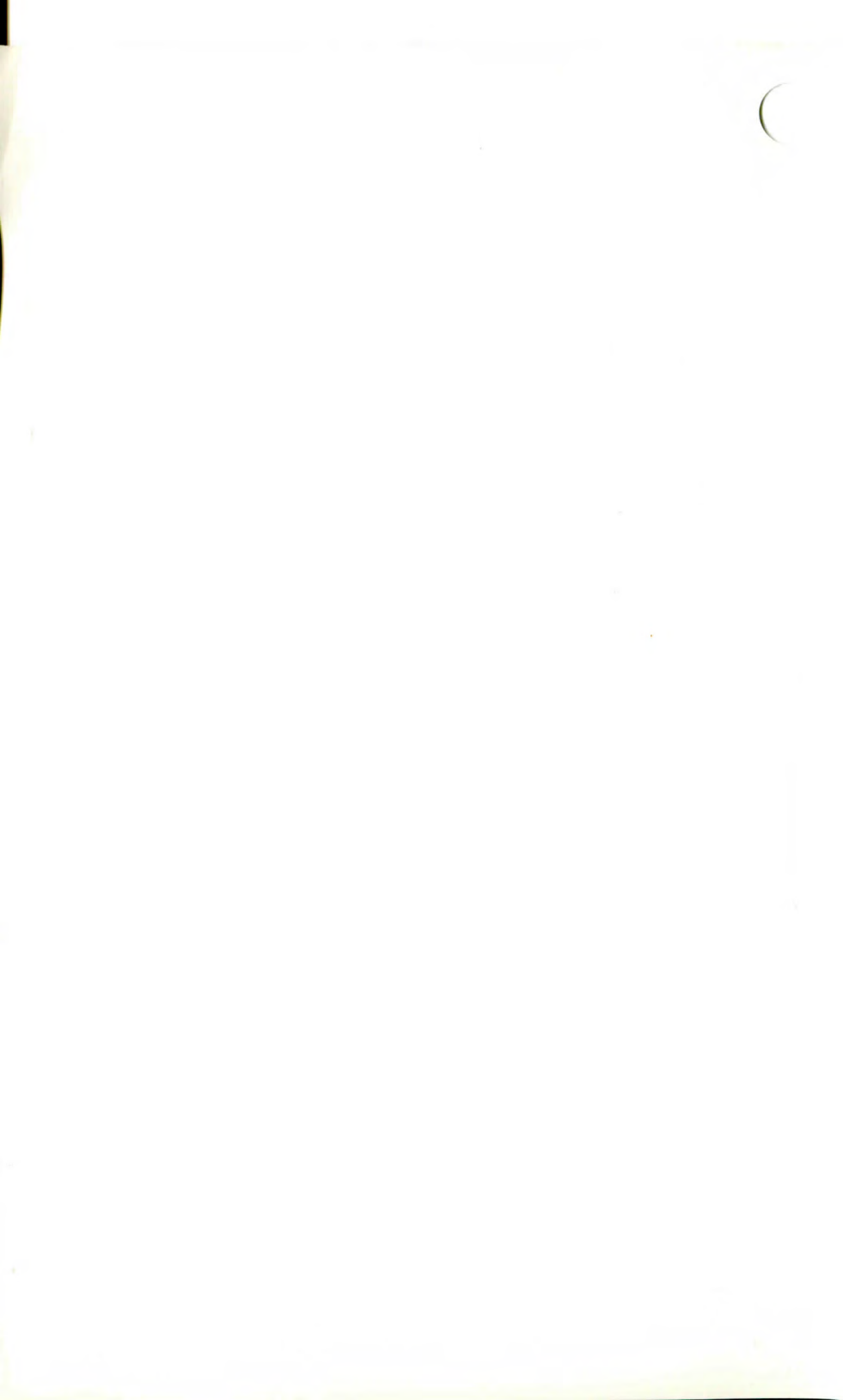
How To Get Maximum Life From Battery

1. Follow normal battery maintenance procedures, re-charging before 80% discharged and with periodic equalizing charges.
2. Don't add acid to a battery. Only a person trained and qualified to do battery maintenance should determine if this is necessary.
3. Lift battery only with a correctly constructed lifting device which will not put pressure on the battery case.
4. Keep open flames, tools, and metal objects away from the top of battery to prevent short circuits and explosions.
5. Check the battery electrolyte level before each charging. Add water if the top of the separator or plates are visible.
DO NOT OVERFILL!
6. Do not overcharge.
7. KEEP BATTERY CLEAN AND DRY. Wash down as needed.

Battery Installation

1. Use only a lead-acid battery with the voltage and ampere-hour rating specified for the truck.
2. When changing batteries on battery electric trucks, replacement batteries must be of the service weight that falls within the minimum/maximum range specified on truck nameplate.
3. Be sure truck is properly positioned and parking brake applied.
4. Handle battery only with approved lifting device.
5. Install the battery correctly in the truck and secure it in position.

NOTICE -- Some trucks are equipped with battery stops or blocks. Others do not require them. If the truck being serviced has battery stops or blocks, be sure none are missing or damaged. Replace them, as necessary. If they are an adjustable type, be sure they are correctly adjusted and tightened.



SERIAL NUMBERS:

TRUCK _____

CONTROL PANEL _____

DRIVE MOTOR _____

HYDRAULIC UNIT _____

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