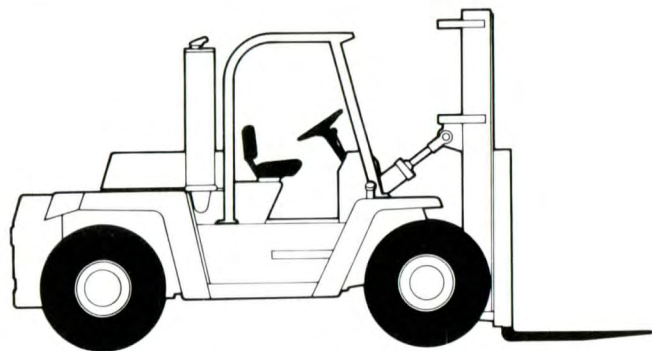

Operator's Instruction Manual



C500(Y) 160 thru 300

CLARK

Book No. 2385903
OI-338, 2nd REV.

WARNING

- FOR YOUR SAFETY AND THE SAFETY OF OTHERS.
- BEFORE YOU OPERATE THIS TRUCK!
- READ ALL WARNINGS AND INSTRUCTIONS IN THE OPERATOR'S MANUAL AND ON THE TRUCK.
- CHECK THE TRUCK FOR CORRECT OPERATION.
- DO NOT OPERATE THIS TRUCK UNLESS YOU ARE TRAINED AND AUTHORIZED TO DO SO.

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.

FOREWORD

Federal and state laws require that operators be completely trained in the safe operation of lift trucks.

Before you start operating this lift truck, make sure that you understand all driving procedures. It is important to operate your lift truck safely and efficiently.

This manual will help you learn how to operate your lift truck. This manual describes the controls, special features and the functions of each control.

This manual is not a training manual, it is a guide to help authorized operators safely operate a lift truck. Illustrations in this manual show the operator correct procedures for checking, starting, operating and stopping the lift truck.

Clark lift trucks are built to take hard work, but not abuse. They are built to be dependable but as with any lift truck, they are only as 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.

MANUALES DE INSTRUCCION PARA OPERADORES IMPRIMIDOS EN ESPAÑOL SON OBTENIDOS DE SU DISTRIBUIDOR CLARK.

BETRIEBSANWEISUNGEN IN DEUTSCHER SPRACHE KOENNEN SIE BEI IHREM CLARK-HAENDLER ERHÄLTEN.

MANUELS DE L'OPERATEUR EN LANGUE FRANCAISE PEUVENT ETRE COMMANDES CHEZ VOTRE DISTRIBUTEUR CLARK.

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DRIVE SAFELY

BEFORE YOU OPERATE THIS INDUSTRIAL TRUCK, READ AND UNDERSTAND THE INSTRUCTIONS, SIGNS AND MESSAGES IN THIS MANUAL AND ON THE TRUCK.

INJURY OR DEATH TO YOU OR OTHER PERSONNEL WILL OCCUR IF YOU DO NOT FOLLOW THESE INSTRUCTIONS AND MESSAGES.

STAY ALERT!

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, Controller, and Lift and Tilt Systems including forks and attachments, chains, cable and limit switches, brakes, steering mechanism, fuel system, and guards.

3. Operate truck only from designated operating position. Never place any part of your body into the mast structure, between the mast and the truck, or outside the truck. Do not carry passengers.

4. Do not operate truck without overhead guard, unless conditions prevent use of a guard. Use special care if operation without overhead guard is required.

5. Do not handle loads which are higher than the load backrest or load backrest extension unless load is secured so that no part of it could fall backward.

6. 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.

7. Do not overload truck. Check capacity plate for load weight and load center information.

8. Lift trucks will tip over if not properly operated. 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. Use special care when traveling without load as the risk of overturn is greater.

9. Elevate forks or other lifting mechanism only to pick up or stack a load. Lift and lower with mast vertical or tilted slightly back — NEVER FORWARD. Watch out for obstructions, especially overhead.

10. Operate tilting mechanism slowly and smoothly. Do not tilt forward when elevated except to pick up or deposit a load. When stacking, use only enough backward tilt to stabilize load.

11. Travel with load or lifting mechanism as low as possible and tilted back. Always look in direction of travel. Keep a clear view and when load interferes with visibility, travel with load or lifting mechanism trailing (ex-

cept when climbing ramps).

12. Use special care when operating on ramps; travel slowly, and do not angle or turn. When truck is loaded, travel with load uphill. When truck is empty, travel with lifting mechanism downhill.

13. Observe applicable traffic regulations. Yield right-of-way to pedestrians. Slow down and sound horn at cross aisles and wherever vision is obstructed.

14. When using forks, space forks as far apart as load will permit. Before lifting, be sure load is centered and forks are completely under load.

15. Do not allow anyone to stand or pass under load or lifting mechanism.

16. Do not lift personnel on the forks or on a work platform. Use a manlift specifically designed for this purpose. When operating rider order selector trucks, attach the safety chain to the overhead guard and put the safety belt on.

17. Do not operate any truck with wet or greasy hands.

18. If a truck must be parked on an incline, put blocks at the wheels.

SUMMARY OF SAFE OPERATING PROCEDURES (Continued)

19. Make sure your truck is the correct fire safety type for the area in which you are working. The correct type designation for the truck is on the nameplate. In hazardous areas, use only trucks approved for use in those areas. Hazardous areas have classification markings.

20. When attachments are used, extra care must be taken in securing, positioning, and transporting the load. Operate trucks equipped with attachments as partially loaded trucks. Handle only loads within the capacity of the truck and attachment. Check the capacity plate for weight information.

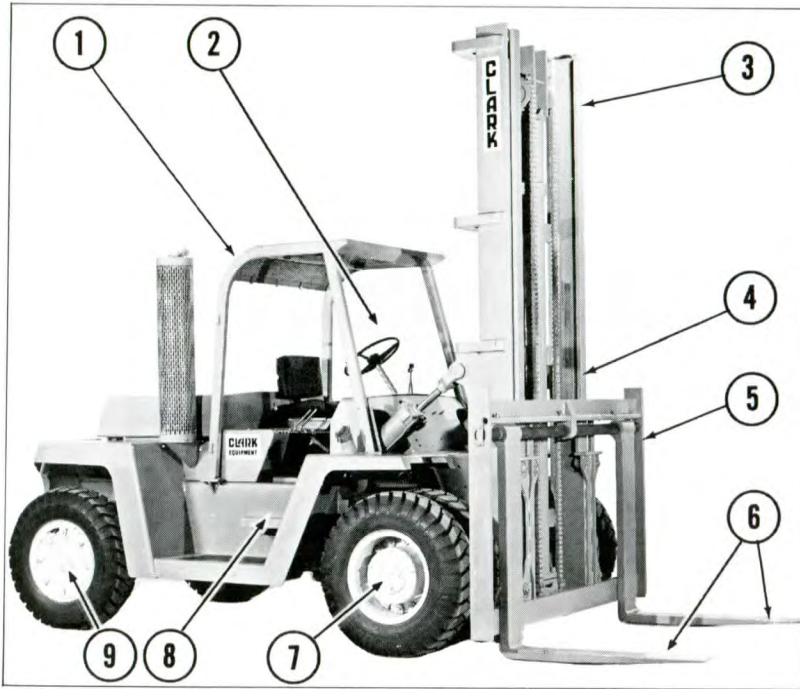
21. If the upright malfunctions or becomes stuck in a raised position, operate the lift control to eliminate any slack lift chains. Do not go under the forks or carriage to make repairs.

22. Only specifically authorized and qualified persons should make repairs and adjustments to the truck.

23. Report all accidents involving personnel, building structures, and equipment to the correct authority.

24. Before getting off truck, neutralize travel control, fully lower lifting mechanism and set parking brake. When leaving truck unattended, also shut off power.

Know Your Truck



1. Overhead Guard
2. Operator's Compartment and Controls (see page 14 or page 15)
3. Upright Assembly
4. Upright Deck Number
5. Fork Carriage
6. Load Forks
7. Drive Axle and Wheels
8. Machine Serial Number
9. Steer Axle and Wheels

13632

CLARK C500

Capacities from 16,000 lbs. through 30,000 lbs., Pneumatic Tires with Hydrator[®] (power shift) or Manual Shift Oil Clutch Hydracool Transmissions and a choice of Gas, LP Gas or Diesel Engines.

Safety



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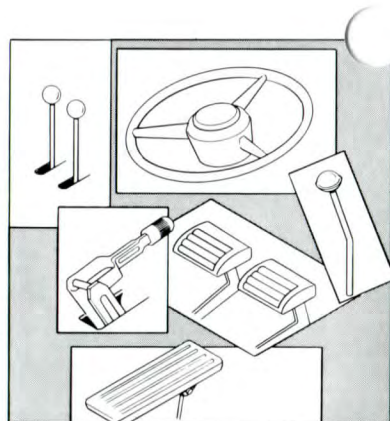


5. Never operate a lift truck with wet or greasy hands or shoes.

7. Always look all around the truck before moving it in any direction. Then remember to start and stop slowly and smoothly.

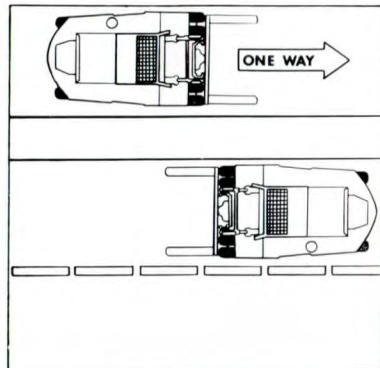
6. Before operating any lift truck test the horn, brakes, parking brake, steering, lift-tilt controls, directional controls, range controls and special devices for proper operation. Report any improper operation to the proper authority.

8. Operate the truck only in designated truck routes and keep operating aisles clear. One-way traffic is recommended. If this is not practical in your operation heed highway regulations and drive to right of aisle centerline.



13318

13315



Safety



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9. Be alert for pedestrians, other trucks or obstacles in your path of travel.

10. Sound horn at all corners, exits, entrances and when approaching pedestrians or bystanders.



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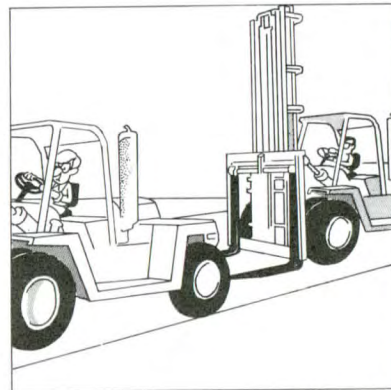


11. Obey all posted traffic rules and warning signs.

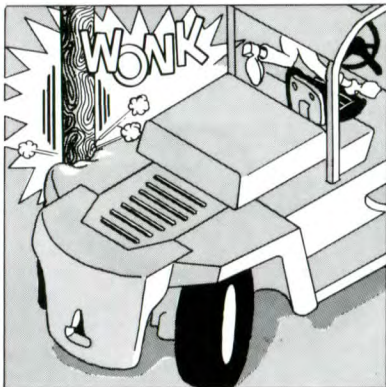
12. Maintain a safe distance from the truck ahead of you at all times.

Assure ample distance to stop smoothly and safely should the need arise.

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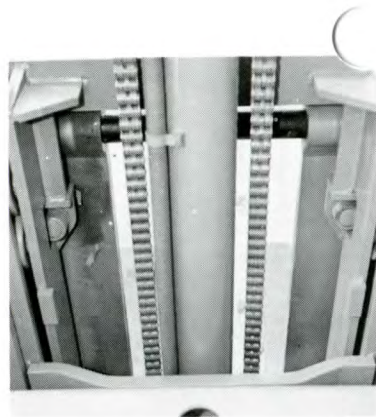
Safety



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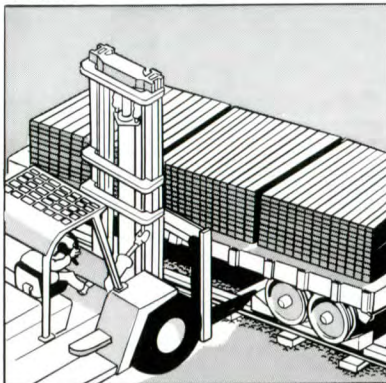
13. Be aware of rear end swing and be alert to prevent rear end swing damage to material in your operating area.

14. Be aware of the position of your fork tips when the truck is in motion. Be alert to prevent striking anything with fork tips.



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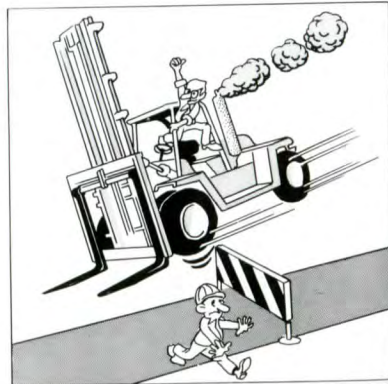
14621



15. Make certain that vehicle being loaded or unloaded has been securely "chocked" to prevent accidental roll.

Fixed jacks will be necessary to support the front end of semi-trailers when not attached to the tractor.

16. Never allow stunt riding or indulge in horseplay while operating a fork lift truck.



14623

Safety

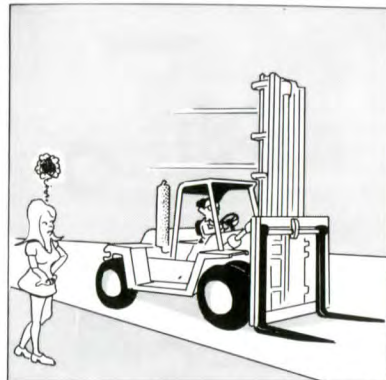


14630

17. Never use your truck to push or tow another. Never allow your truck to be pushed or towed by another.

Should a truck become disabled and require moving, notify the proper authority immediately.

18. Never carry unauthorized passengers. The quick response of a lift truck may cause riders to fall off. Besides, they distract you and this could be dangerous.



13316

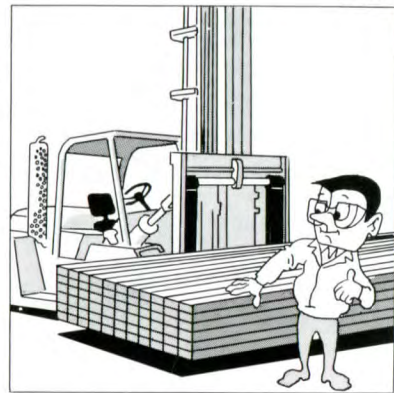
13095

CLARK EQUIPMENT		1	
INDUSTRIAL TRUCK DIVISION		BATTLE CREEK, MO.	
MODEL NO.		TYPE	3
SERIAL NO.	2		
ATTACHMENTS		4	
LOAD C.G. C		CAPACITY WITH AT TACH. LISTED ABOVE OR WITH FORKS - UPRIGHTS VERTICAL	
A	B	LBS.	A B C
FLOOR		5	
APPROX. WT. ALL TRUCKS		LESS BATT. - ELECTRICS	6
APPROX. WT. ELECTRICS ONLY		WITH MAX. BATT. WT.	
BATTERY WT.		MAX.	7
CAPACITY		MIN.	
		NO.	
		LBS.	8
		VOLTS	

FOR OTHER CAPACITIES CONSULT MANUFACTURER
AS RELEASED FROM FACTORY THIS TRUCK MEETS THE
DESIGN SPECIFICATIONS ESTABLISHED IN AMERICAN
NATIONAL STANDARD FOR POWERED INDUSTRIAL TRUCKS,
PART II, ANSI B 56.1-1969

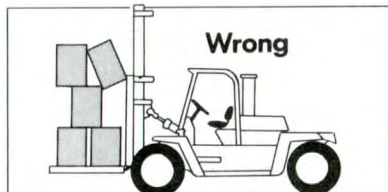
19. Know the rated capacity of your truck and its attachment (if any) and never exceed it. Study your truck data capacity plate and learn the facts stamped in areas 1 through 8. Note "type" stamped in area 3 and refer to item 42 on page 13.

20. Thoroughly inspect all loads to be moved for overload and/or poor balance. If the stability of a load is questionable, don't move it.



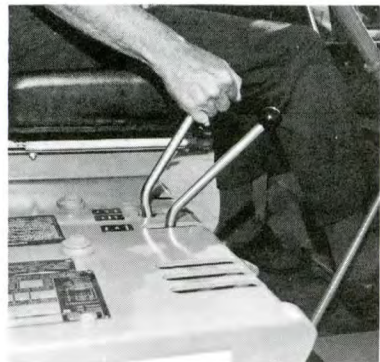
14629

Safety



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21. Unstable loads are a hazard to you and to your fellow workers. Always make certain that your load is well stacked and evenly positioned across both forks. Never attempt to lift a load with only one fork.

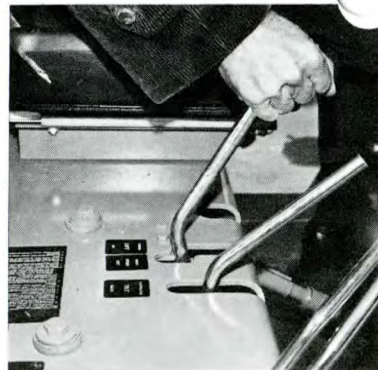
23. All these models are equipped with high speed lift to be used only when truck does not have load.

Never use high speed lift when truck is being operated with load.

22. Before lifting check to insure adequate unobstructed overhead clearance.

Gradually and smoothly pull back on lift control lever.

Return control lever to neutral position to stop lift at desired level.

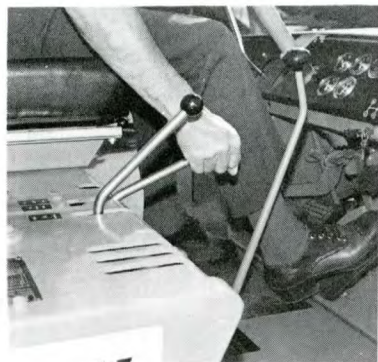


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24. Push control lever forward to lower load.

Descent of load may be stopped at desired level by returning control lever to neutral position.



Safety

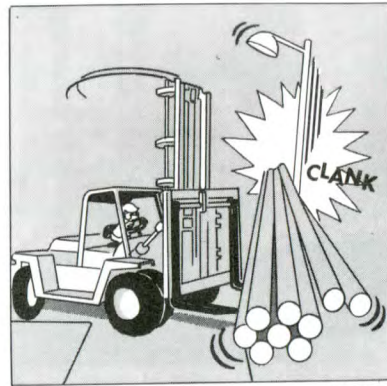


14626

25. Travel with load near operating surface and with upright tilted back to cradle load whenever possible.

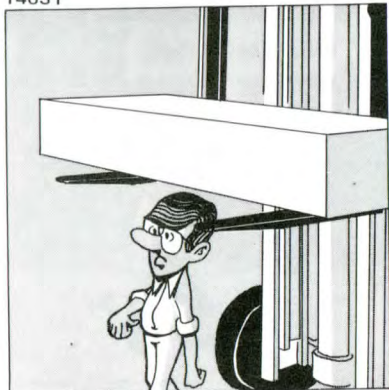
Never lift or lower load when truck is in motion.

26. When extra length of material being handled makes it necessary to travel with load elevated, do so with extreme care and be alert to load end swing when turning.



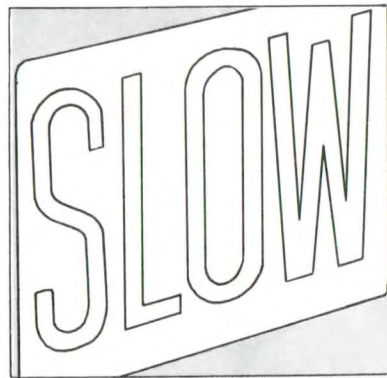
14619

14631



27. Never permit anyone to stand or walk under elevated forks or other load engaging attachments if machine is so equipped.

28. Slow down for turns, ramps, bumps, intersections, wet or slippery operating surfaces and at all times when your visibility is restricted.



13103

Safety



29. Remain seated at all times and keep head, hands, arms, feet and legs within the confines of the operator's compartment.

Never reach into the up-right for any reason.

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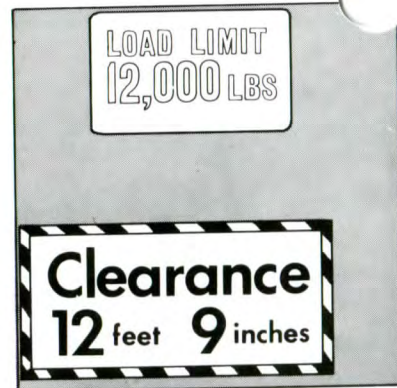
14616



31. Lift trucks must be refueled in designated areas only. Engines must be stopped and no smoking regulations strictly enforced.

Spilled fuel must be washed away or completely evaporated and the fuel tank cap replaced before restarting the engine.

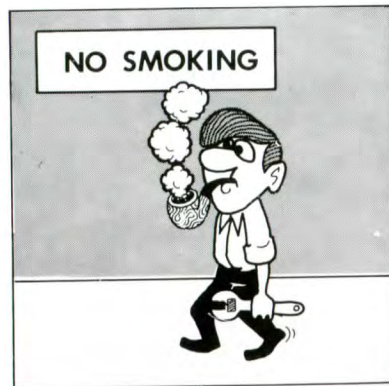
30. Know and observe overhead clearances and bridge or floor load limits in your operating area.



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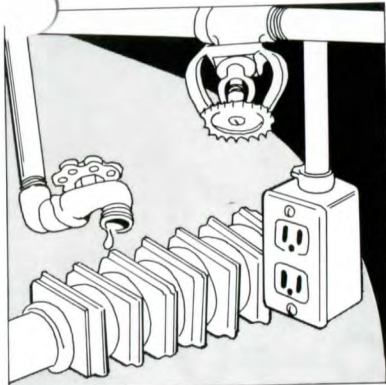
13107

32. Never smoke or allow anyone to smoke in areas where batteries are being charged or in areas where fuels or other flammable fluids or materials are used or stored.



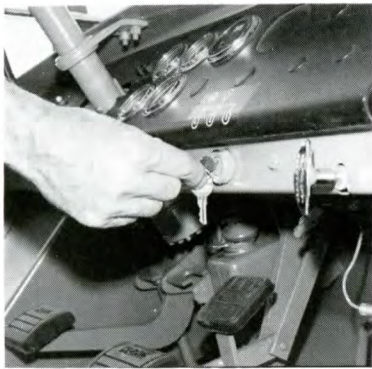
Code: OI-338 December 74

Safety



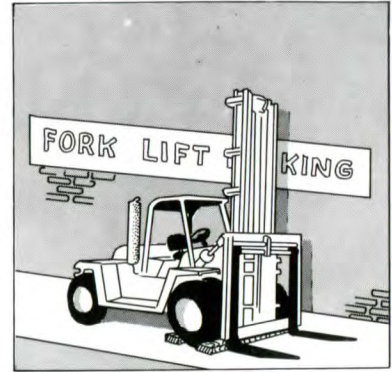
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33. Use caution when placing loads or traveling near water pipes, overhead sprinklers, electrical wiring, steam pipes, heaters or other fragile or dangerous equipment or material.

34. Park lift trucks in designated areas only. Lower forks to floor, tilt upright forward, apply parking brake, place all controls in neutral. Remove switch key and securely block the drive wheels.

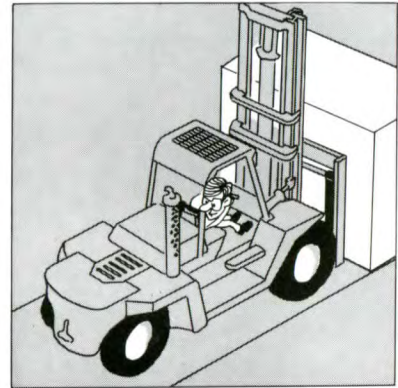


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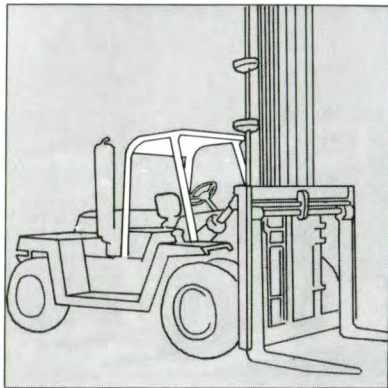
13319

35. If truck is to be left unattended make certain that operating aisles are unobstructed and leave truck as described in item 34.

36. When handling bulky loads which, because of their size and shape, restrict your vision — operate your truck in reverse to improve visibility.



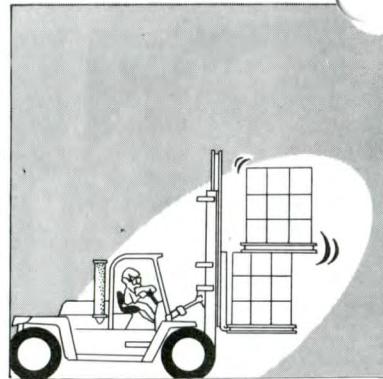
Safety



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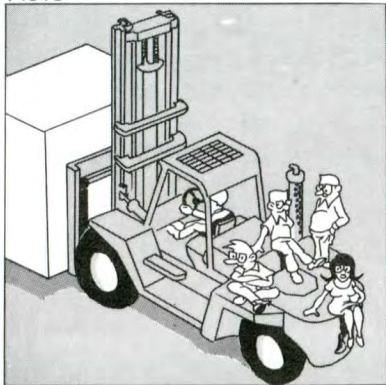
37. Overhead guards are for your protection. Make certain that they are securely mounted and undamaged before operating your truck.

38. Don't handle double tiered loads. They're unstable and difficult to control. Even an overhead guard can't fully protect you from heavy objects dropped from these heights.



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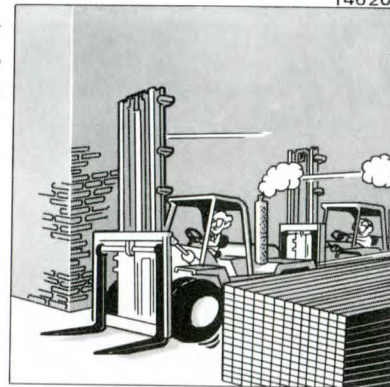


39. Overloading is extremely dangerous. You don't have complete control of your truck and you are causing unnecessary wear.

Never add to your counterweight, always break down the load.

40. Don't pass other trucks traveling in the same direction at intersections, blind spots or other dangerous locations.

14620



Safety



14627

15411



Code: OI-338, REV. Apr. 84

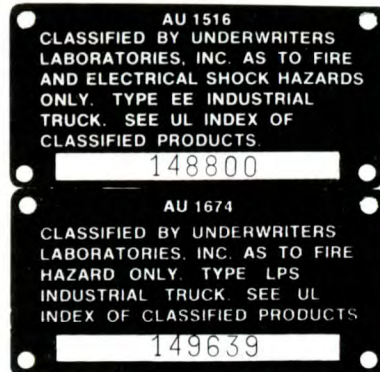
41. Do not move or raise personnel on the forks of your lift truck. Use a manlift specifically designed for this purpose.

43. Follow a scheduled planned maintenance and lubrication program.

All adjustments and repairs must be performed by thoroughly trained and authorized personnel only.

42. Know the 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.

44. Remember — your safety and the safety of others depends on you. Keep your mind on operating your lift truck.

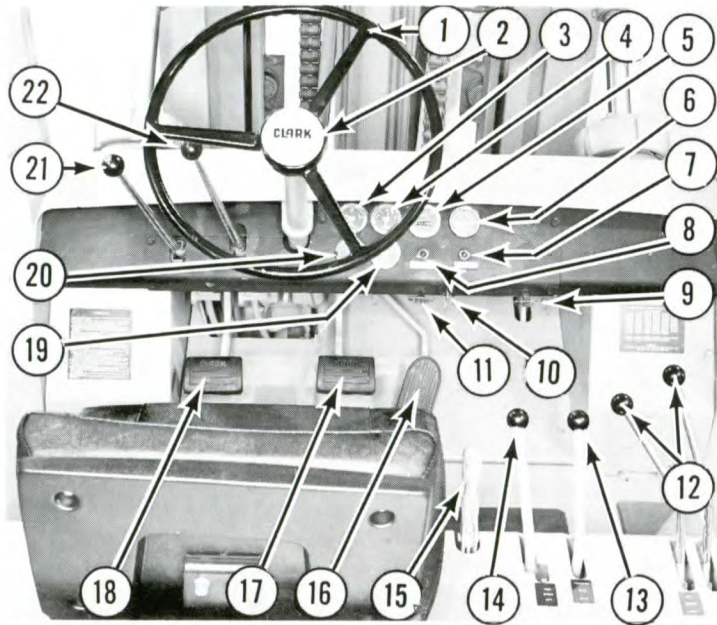


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Operator's Compartment & Controls



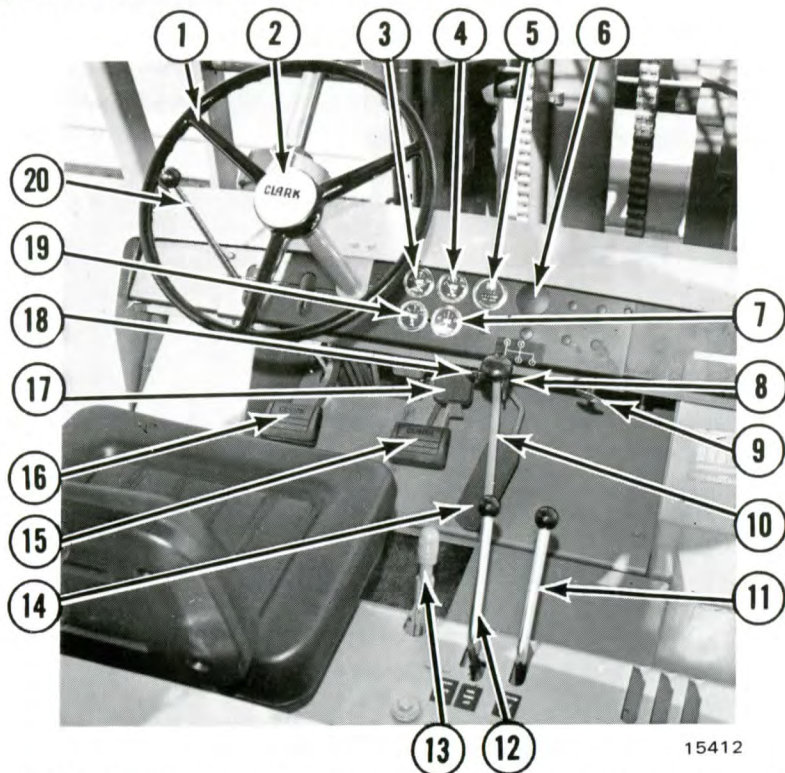
13631

C500Y160 through 300 models with Three Speed Power-Shift Transmission and Gas, LP Gas or Diesel, Power Option.

1. Steering Handwheel
2. Horn Button
3. Water Temperature Gauge
4. Engine Oil Pressure Gauge
5. Hour Meter
6. Brake Air Pressure Gauge (LWB only)
7. Converter Oil Pressure Indicator
8. Converter Oil Temperature Indicator
9. Diesel Emergency Stop (Detroit Diesel)
10. Ignition Switch
11. Diesel Engine Stop Control or Choke
12. Optional Control Levers for Auxiliary Hydraulic Functions
13. Tilt Control Lever
14. Lift-Lower Control Lever
15. Parking Brake Lever
16. Accelerator Pedal
17. Brake Pedal (right foot)
18. Inching-Brake Control Pedal (left foot)
19. Ammeter
20. Fuel Gauge (Gas and Diesel only)
21. Transmission Directional Control Lever
22. Transmission Speed (Range) Control Lever
23. Cold Start Switch (Perkins only) located at left of item 21.

Operator's Compartment & Controls

1. Steering Handwheel
2. Horn Button
3. Water Temperature Gauge
4. Engine Oil Pressure Gauge
5. Hour Meter
6. Brake Air Pressure Gauge Location (C500HY200L through 300 models only)
7. Ammeter
8. Ignition Switch
9. Diesel Emergency Stop Control (Detroit Diesel only)
10. Transmission Speed (Range) Control Lever
11. Tilt Control Lever
12. Lift-Lower Control Lever
13. Parking Brake Lever
14. Accelerator Pedal
15. Brake Pedal
16. Clutch Pedal
17. Auxiliary Accelerator Pedal
18. Engine Stop Control (Diesel only)
19. Fuel Gauge
20. Transmission Forward-Reverse Control Lever
21. Cold Start Switch (Perkins only) located at left of item 20.



15412

C500HY160 through 300 models with Five Speed Manual Shift Transmission, and Gas, LP Gas or Diesel Power Option.

Before Operation

(On The Ground Checks)



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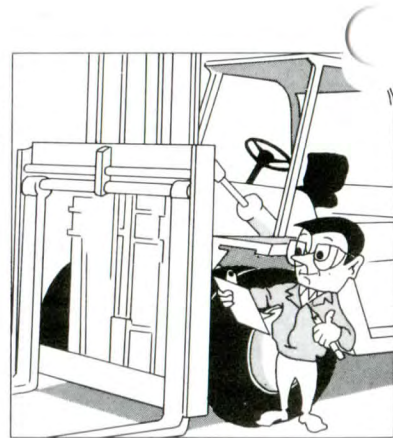


3. Check condition of all drive and steer tires and wheels.

Remove foreign material such as stones, cinders, nails, etc., which have become lodged in tire treads.

Note apparent tire or wheel damage on check list.

2. Walk around truck and visually check for damage and leaks. Note all damage and leaks on check list.



14632

13634



4. Visually check drive and steer wheel mounting nuts.

Report any apparent loose lugs or nuts to designated authority.

Torque specs for wheel lugs and nuts are listed in the appropriate PMA manual for your truck model.

Before Operation

(On The Ground Checks)

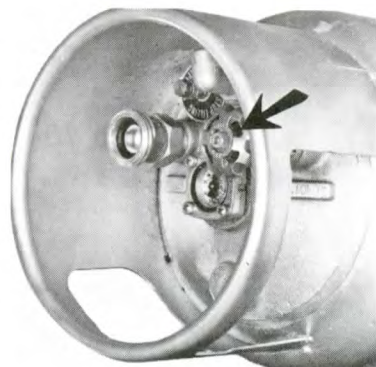


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15413

5. If your truck is L.P. gas powered, check your fuel level now. The gauges are located at the end of the tanks and indicate percentage of fuel remaining.

Tanks should contain enough fuel to complete your scheduled work shift. Check page 44 of this manual for tank changing procedures.



13245

15414

6. Refer to page 43 then open the L.P. gas fuel shut off valve slowly. If opened too quickly an automatic check valve will close. When this occurs, it will be necessary to close the shut valve — wait several minutes and then slowly reopen the valve.



7. Check condition of overhead guard.

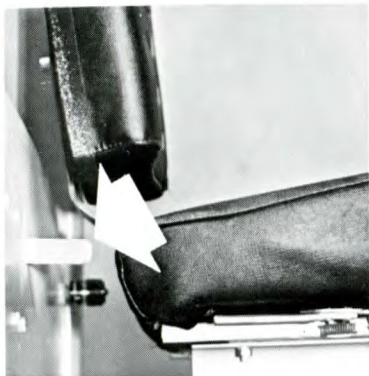
Make certain that it is securely mounted and undamaged prior to operating the truck.

8. Remove blocks from drive wheels and carefully climb steps into the operator's compartment.



Before Operation

(Under The Hood Checks)



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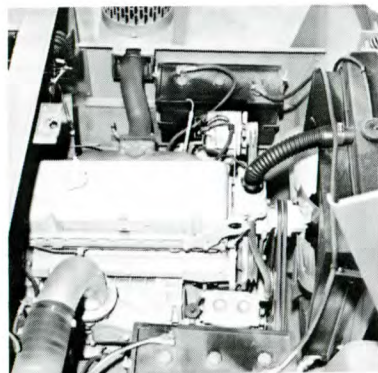
9. The short lever at the right hand side of the operator's seat backrest is the hood latch release lever.

Pull "up" on this lever to release the hood latch.



15415

10. The hood is spring assisted and should open easily. Make certain that the hood is pushed back to the "full open" position so that it will not accidentally close.

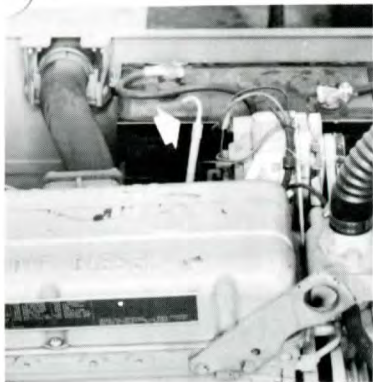


13637

11. Visually check general condition of the engine compartment. Notice the condition of battery (batteries on Diesel units), battery terminals, cables, wiring, fan belts, hoses, etc., and note anything unusual on your check list.

Before Operation

(Under The Hood Checks)

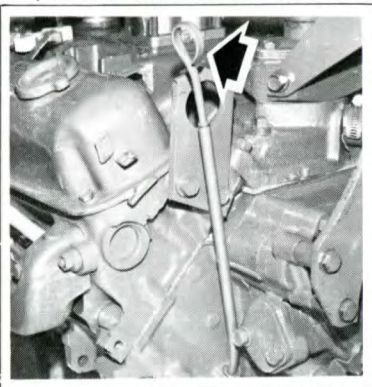


13636

12. If your truck is Detroit diesel powered the engine oil dipstick is located as shown above.

Pull the dipstick and wipe it with a clean, lint free cloth. Insert dipstick into support tube all the way – then pull the dipstick out again and check oil level as described in item 14. Replace the dipstick.

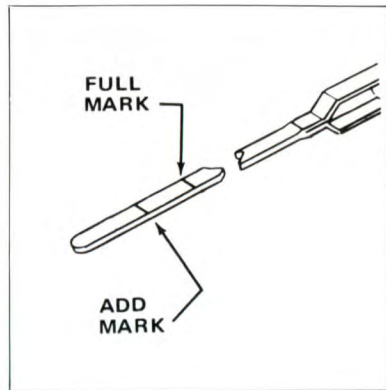
Code: OI-338 December 74



15921

13. If your truck is gas or L.P. gas powered the engine oil dipstick is located as shown above.

Pull the dipstick and wipe it with a clean, lint free cloth. Insert dipstick into support tube all the way – then pull the dipstick out again and check oil level as described in item 14. Replace the dipstick.



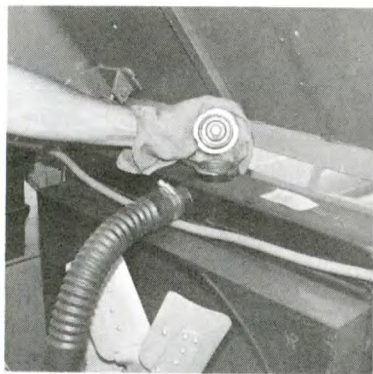
13239

14. Engine oil level must be maintained between the "add" and "full" marks on the dipstick. The best time to check oil level is before starting the engine or, as the last item on the check list. This allows oil to drain back into the crankcase.

Remember – one quart of oil will raise the level from "add" to "full" – DO NOT OVERFILL.

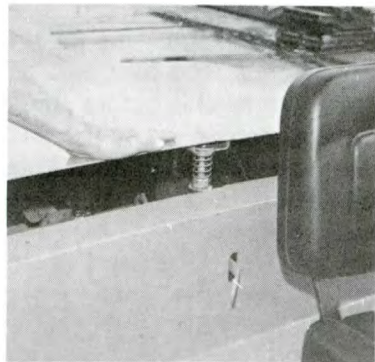
Before Operation

(Under The Hood Checks)



15416

15417



15. Always check radiator coolant level with the engine turned off and, when possible, with engine cold. Proper coolant level is one inch below the bottom of the filler neck.

CAUTION: Use extreme care when removing radiator pressure cap. The sudden release of pressure can cause a steam flash resulting in serious injury. Place a rag over cap and loosen slowly to allow gradual escape of steam.

Never add cold water or anti-freeze to the radiator of an overheated engine. Always allow the engine to cool to avoid the danger of cracking the cylinder block or head(s). Keep engine running when adding water or anti-freeze. A solution of 50% ethylene glycol and 50% water is recommended. **NEVER USE ONLY WATER.**

16. Carefully close the engine compartment hood and make certain that it is securely latched in the closed position. Then seat yourself in the operator's seat.

17. If your truck has been optionally equipped with an operator's cab — check condition of all glass. Clean all dirty glass and mark your check list to indicate any cracked or broken glass.



15919

Before Operation

(Starting the Engine)

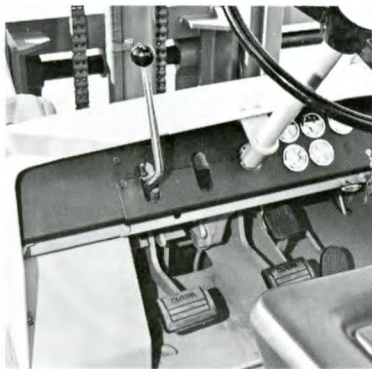


14969

18. Seat adjustment is accomplished by releasing short lever at right side or right front of seat. Adjust operator's seat to position which is comfortable for you and provides easy access to all hand and foot controls.

Make sure seat locks in selected position.

15418

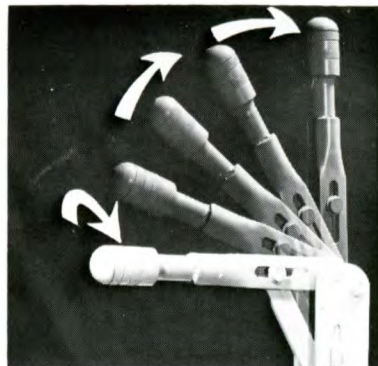


20. Make sure that transmission directional control lever is in neutral.

These trucks are all equipped with neutral start switches and cannot be started while in forward or reverse unless switch is faulty or improperly adjusted.

Report condition on your check list.

19. Make sure that the parking brake lever is in the "on" (full-up) position. Brake holding power can be adjusted by rotating the knob on top of the lever clockwise to increase hold power or counterclockwise to reduce it. See page 43 of this manual for holding specifications.



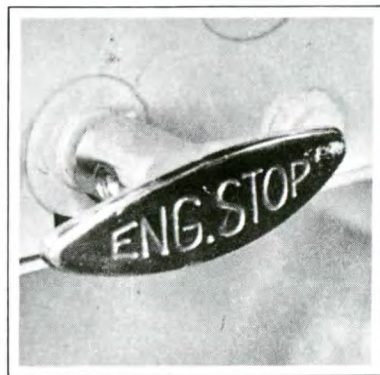
13228

21. Diesel powered trucks are equipped with an engine stop control. Make sure that this stop control is pushed all the way "in" (toward the dash) before attempting to start the engine.

11411

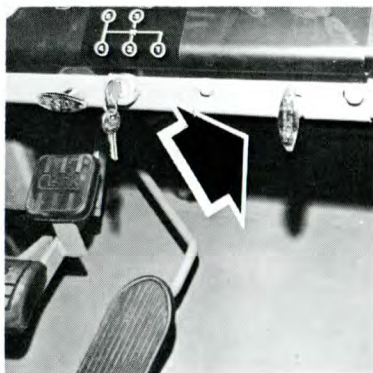
NOTE

Beginning in lot 4950 for short wheelbase trucks, and lot 4955 for long wheelbase trucks, a solenoid operated fuel shut-off is used instead of this manual shut-off.



Before Operation

(Starting The Engine)



15419

13226



Page 22

22. Detroit diesel powered trucks also are equipped with an emergency stop control for the engine.

Check to make certain that control was not pulled and left in the "out" position by the previous operator.

If you find that this control has been pulled and left out . . .

24. Insert key into ignition switch and turn key clockwise to "run" position.

This is very important on diesel models because you must . . .

23. . . Push it in to the dash. It will then be necessary to reset the air shut down valve located under the hood on the engine near the air inlet housing and blower.

Push down on the reset lever.

It is not necessary to manually reset the valve control on trucks built in lot 4605 and later.

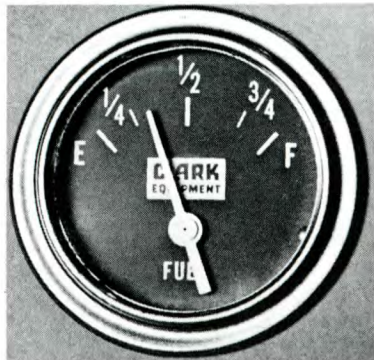
25. . . Check the fuel gauge to determine the amount of fuel in the tank.

Never attempt to start a diesel engine on an empty or near empty tank. To do so may result in serious damage to the injection pump due to lack of adequate lubrication.



12092

13220



Code: OI-338 REV. JUN 81

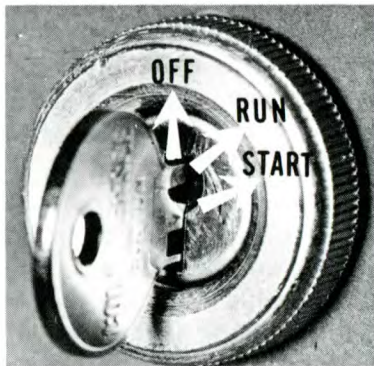
Before Operation

(Starting the Engine)



15420

13226



Code: OI-338 REV. JUN 81

26. Place your right foot on the accelerator pedal and press down 1/2-3/4 inch.

27. Gas and L.P. gas trucks have manual choke controls. Pull out when starting a cold engine.

On L.P. gas models the choke should be pushed in as soon as the engine starts.

28. Turn ignition switch key clockwise to the "start" position.

Release key to "run" position when engine starts.

If engine does not start on the first attempt — do not re-engage the starter until engine comes to a complete stop (approximately 5 seconds.)

27 Cont'd.

On gas models, push choke in gradually as the engine warms up. After the choke is pushed in, press and release the accelerator pedal to release the fast idle cam. This will decrease the engine speed to the low idle setting.



13227

15421

29. If gas or L.P. gas engine becomes overchoked or "flooded" in starting, push choke control in — press accelerator pedal to floorboard and engage the starter as described in item 28.



Page 23

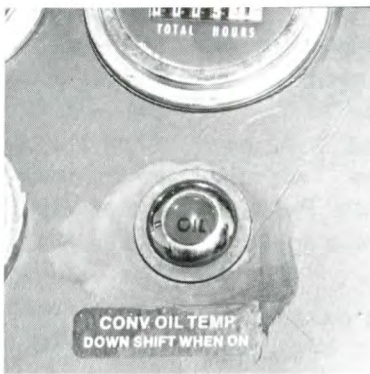
Before Operation (Instrument Check)



13222

30. Check the engine oil pressure gauge to insure that it is undamaged and that it is functioning properly.

If engine oil pressure drops below 5 P.S.I. or becomes erratic during truck operation you should immediately shut the engine down until the cause is located and corrected.



15923

31. Trucks with Hydrotork® transmissions have a dash mounted converter oil temperature light which will light up when temperature is too high.

Downshift to the next lower gear immediately if this light comes on during truck operation and, if the light does not go out within a short period of time, shut down the engine until the cause has been located and corrected.



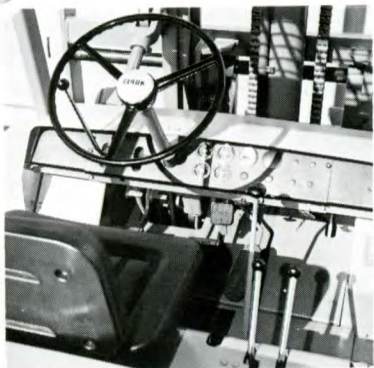
15922

32. Trucks with Hydrotork® transmissions also have a dash mounted converter oil pressure indicator light which should go out shortly after the engine starts.

If this light does not go out, or if it comes on during truck operation you should immediately shut down the engine until the cause can be located and corrected.

Before Operation

(Instrument Check)



15403

33. You must learn the location and function of all your trucks, gauges and instruments.

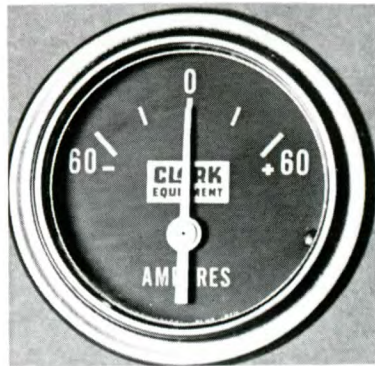
They should be checked, from time to time, during operation of your truck.



13225

34. Check engine hour meter to insure that it is undamaged and that it is functioning properly.

Record the hour meter reading on your check list.

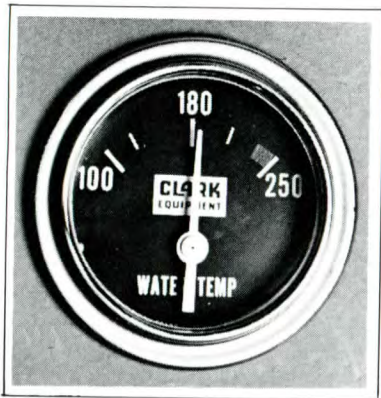


13224

35. The ammeter should indicate a high rate of charge for a brief period of time after the engine is started.

If the ammeter shows a continuous high rate of charge, discharge, reads erratically, or is otherwise damaged, you should record these facts on your check list.

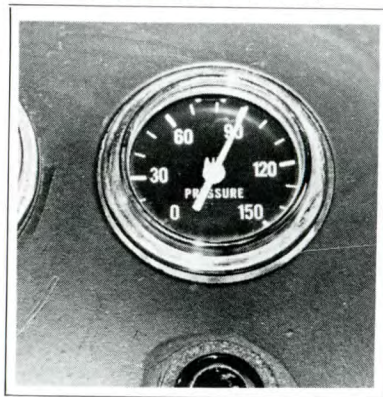
Before Operation (Instrument Check)



13223

36. Check the water temperature gauge to insure that it is undamaged and functioning properly.

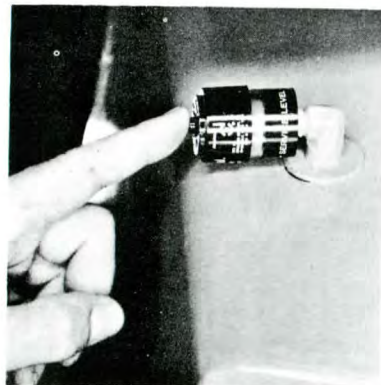
Water temperature should reach about 180°F. after 10 minutes of operation. If the indicator needle goes into red area, you should immediately shut the engine down until the cause is located and corrected.



15924

37. All long wheelbase trucks with capacities of 20,000 lb. or more have a brake system air pressure gauge on the dash and a low pressure warning "buzzer".

Do not operate your truck before the warning "buzzer" stops and the gauge indicates 65 P.S.I. If "buzzer" sounds at any time during truck operation stop the truck immediately.



13247

38. All truck models are equipped with an air cleaner condition indicator. If the indicator registers red, the air cleaner must be serviced and you should report it to the designated authority and note it to your check list.

The indicator may be reset by pushing the button as shown.

Before Operation

(Hydraulic Controls Check)



15422

39. Gently pull back on the tilt control lever and hold until the upright reaches full back tilt.

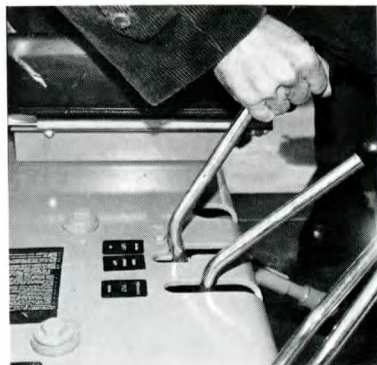
Do not hold lever back after upright has reached full back tilt — to do so will unduly heat the hydraulic fluid and could harm the hydraulic system.



15423

40. Push tilt control lever forward and hold in position until upright tilts forward to near vertical position.

Releasing tilt control lever will halt forward tilt at desired point.



15920

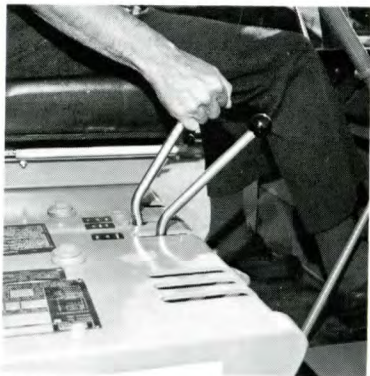
41. Carefully check for adequate unobstructed overhead clearance, then gently pull back on lift control lever and hold until upright reaches maximum lift height.

Release lever to halt upright lift at desired point.

Note any erratic upright operation on your check list.

Before Operation

(Hydraulic Controls Check)



15407

42. These truck models are also equipped with a "high speed", or "fast lift" feature. This "high speed" lift feature is operated as described in item 41 except that the lift control lever is pulled back — pushed to the right — then pulled further back as shown above.

CAUTION: This feature is not to be used when operating with load.

Page 28

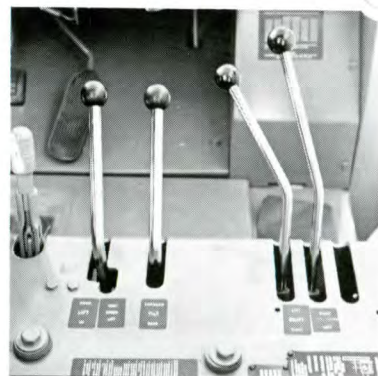


15408

43. Push lift control forward. Hold while closely observing descent of upright.

Release lever to stop upright descent near (about 8 inches) ground level.

Record any erratic or unusual operation on your check list.



15925

44. Trucks equipped with hydraulic attachments or accessories will have one or more additional control levers mounted to the right of the lift and tilt control levers.

The function of these lever(s) should be checked with your supervisor prior to attempting operation thereof.

Before Operation

(Horn & Steering Check)



13141

45. Press horn button to determine if horn is operational.

If horn does not function properly record it on your check list and report it to the designated authority when you have completed your "before operation" checks.



15409

46. With the engine running you should rotate the steering handwheel back and forth.

Check for excessive effort to turn the handwheel and make certain that steer wheels respond to movement of the handwheel.



15404

47. Check all around truck to make sure that your desired path of travel is unobstructed.

IMPORTANT:

Before you operate your truck, push the choke knob in, press and release the accelerator pedal to reduce the engine speed to the low idle setting. The truck will move rapidly when the transmission is actuated if the high idle cam is not released.

Before Operation

(Transmission Controls Check)



48. Place your right foot on the brake pedal and press down to firmly apply the service brakes.

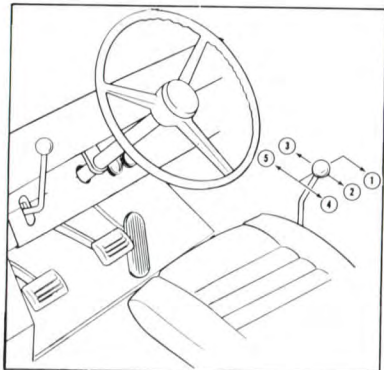
49. Release the parking brake by pushing forward on the brake control lever at your right hand side.

Make certain that forward-reverse selector lever is still in neutral (see item 20 page 21).



15424

13865

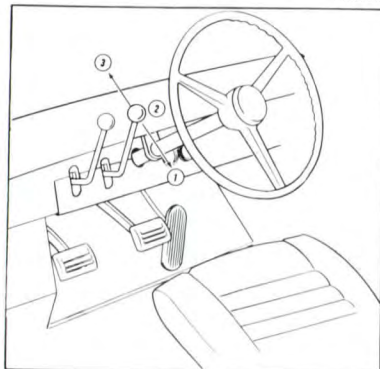


50. If your truck is equipped with a manual shift Hydracool® transmission, place transmission speed range selector lever in second gear for normal operation.

First gear is recommended only for operations or conditions requiring high initial starting power.

51. If your truck is equipped with Hydratork® transmission, place the speed range selector lever in first gear.

If your operation does not require this first gear you should upshift to second or third gear by letting up on accelerator, shifting and pushing down on accelerator.



15425

13866

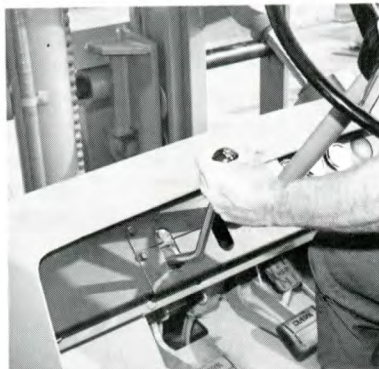
Before Operation

(Transmission Controls Check)



15912

52. On Hydracool® transmission models it is necessary to depress the clutch pedal with your left foot before selecting your direction of travel as described in item 53.



15913

53. Shift directional selector lever (remember that clutch on Hydracool® models must be disengaged) into position for desired direction of travel.

Pull the lever back for reverse travel (or push the lever forward for forward travel).



15914

54. On Hydracool® transmission models you must slowly and smoothly engage (release pedal) the clutch with your left foot while accomplishing acceleration as described in item 55.

Before Operation

(Transmission Controls Check)



15420

15915

55. Remove your right foot from the brake pedal. Smoothly press accelerator pedal with your right foot (while releasing clutch pedal as described in item 54 on Hydracool® models) until truck begins to move in selected direction.

56. Release foot pressure on accelerator pedal, (depress clutch pedal with left foot on Hydracool® models) and apply service brakes with right foot to stop truck.



15424

15916



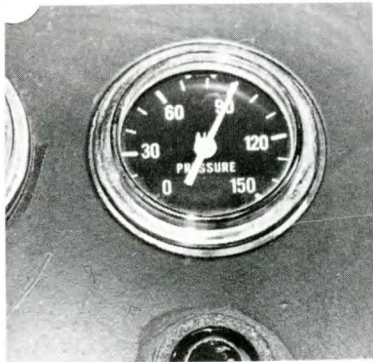
57. Push directional selector lever into position for forward travel (or pull into reverse if you selected forward at item 53) and repeat items 54, 55 and 56.

58. Place transmission directional (forward-reverse) selector lever in neutral position, apply parking brake, lower upright to place forks on (or near) the ground and push tilt control lever forward until fork tips rest on the ground.



Before Operation

(Service Brake Operation Check)



15924

59. All long wheelbase trucks having capacities of 20,000-30,000 pounds are equipped with hydraulic over air brake systems.

These trucks are never to be driven while the air pressure warning "buzzer" is on, or if the dash mounted brake system air pressure gauge indicates less than 65 P.S.I.

Normal brake system operating pressure will be 90-105 P.S.I. If, during operation, the air pressure gauge indicates a pressure drop to below 65 P.S.I., or if the warning "buzzer" sounds you should immediately stop the truck.

15424



60. All short wheelbase trucks with capacities of 16,000-25,000 pounds are equipped with vacuum assisted hydraulic brake systems which are to be checked as follows:

- A. Depress brake pedal as far as possible and hold foot pressure on brake pedal.
- B. Now remove foot from brake pedal and stop the engine (see item 62 on page 34 for proper engine stopping procedure).
- C. Now depress brake pedal (to approximately the same position) five times. If foot pressure required to depress brake pedal increases the brake system is functioning properly. If not – **DO NOT OPERATE THE TRUCK – REPORT IT.**

Before Operation

(Inching Control Checks and Engine Shutdown)

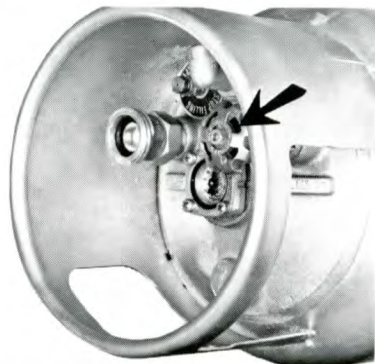


61. All Hydratork® model trucks are equipped with a left foot operated inching/brake pedal which is designed so that the initial portion of pedal travel (approximately 1-1/2 inches) regulates oil pressure within the transmission. This pressure control allows you to maintain controlled travel speed independent of truck engine speed. The remaining portion of left foot pedal travel is devoted to operation of the truck service brakes and operational checks are to be performed as outlined in items 58 and 59 on page 33.

DO NOT "RIDE" this pedal during normal truck operation – to do so will shorten transmission component service life.

15926

13245



62. Gasoline engines must be stopped by turning the ignition switch key to the "off" position. Remember, if truck is to be left unattended it should be left as described in item 35 on page 11.

L.P. gas engines are to be stopped exactly the same way gasoline engines are stopped except when truck is to be unattended for an extended period of time (1 hour or more). If this is the case, you must first close the manual fuel shut-off valve at the end of the tank, wait for the engine to stop, then proceed as outlined in item 35 on page 11.

Diesel engines must be allowed to idle for a few moments, then pull the engine stop control and hold until the engine stops (if engine does not stop within a few moments – pull emergency stop control and hold until the engine stops) – push in the stop control and reset as described in item 23 on page 22. Remove key and leave truck as described in item 35 on page 11.

Before Operation

(Check List Completion)



15410

63. Make certain that all transmission controls are in neutral, the upright is lowered, tilted forward with fork tips on the ground, the parking brake lever is in the "on" position and that you have removed the key from the ignition switch.



15917

64. Carefully dismount from the truck.

Leaving a truck on an incline is never recommended. If it becomes necessary to leave your truck in this position make certain that the drive wheels are securely blocked to prevent roll.



15197

65. Carefully review your operator's daily check list to be certain that you have completed all required checks. Date the check list, sign it and make certain that it is turned in to the proper authority per your supervisor.

Operating Hints



14633

1. (A) All models must be brought to a complete stop before shifting the directional control lever from forward to reverse or from reverse to forward.

(B) Use of low gear when starting, negotiating grades or ramps, and when operating over rough or unimproved surfaces is recommended when using either the Hydratork® or Hydracool® transmissions.

(C) Transmission speed ranges may be changed, on either transmission model while traveling. When "upshifting" the Hydracool® transmission it is necessary to fully depress clutch pedal, shift transmission to next higher speed range and then release clutch with a smooth, steady motion while properly regulating engine speed to obtain maximum smoothness. When the Hydracool® transmission is "downshifted" into any lower gear (except low), it is not necessary to "double clutch" the unit. Depress the clutch, move the gear shift lever through neutral to

next lower gear, accelerate engine and release clutch while regulating engine speed to obtain maximum smoothness.

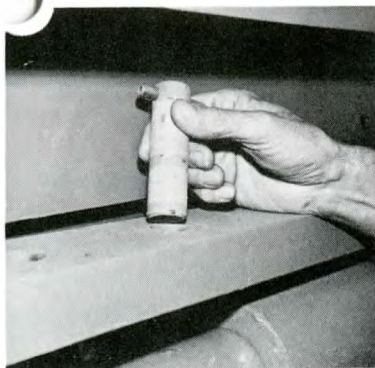
CAUTION: Always come to complete stop before shifting to low gear.

(D) Selecting the correct drive gear ratio is an important operator's function. Choosing the proper gear will result in better truck performance with longer engine and transmission life.

(E) If the operating surface is rough, or soft, or if grades or ramps must be negotiated, use the lowest transmission gear ratios available to you because — here power is needed — speed is not.

(F) As a general rule of thumb — **DO NOT** lug the engine. Overworking the engine through use of a "too high" gear ratio will create excessive heat and shorten component service life. When in doubt — use next lower gear.

Operating Hints

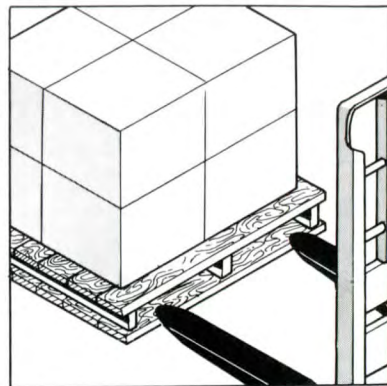


15927

2. Lift forks should be adjusted on the hanger shafts to obtain maximum support and balance of the load.

Don't forget to replace and secure fork locking pins after adjusting forks.

3. Remember to approach load slowly and squarely to avoid damaging the material being handled and to minimize truck maneuvering.



13203

15409



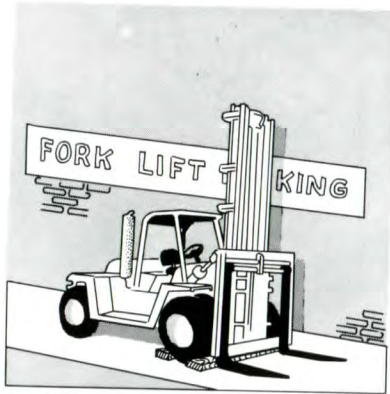
4. Be constantly alert for abrupt changes in the operating characteristics of your truck. Unusual noises or sudden changes should be reported to your supervisor immediately.

5. Required adjustments and/or repairs should be performed by thoroughly trained and qualified personnel only.



15411

Parking



14628

15405



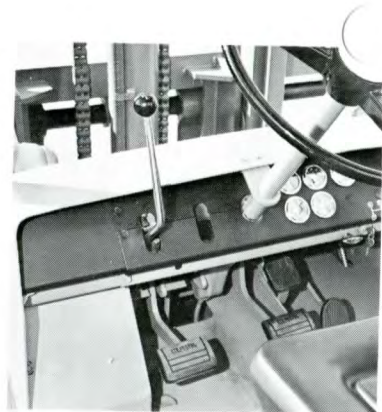
1. Park lift trucks in designated parking areas only.

Do not block aisles, exits, entrances or other emergency lanes.

3. Lower upright to point where lift forks are on, or near, the operating surface and tilt upright forward so that fork tips touch the operating surface.

2. Make certain that transmission controls are in neutral and that parking brake has been properly applied.

4. Stop engine, as described on page 34 of this manual, remove key, dismount carefully and securely block drive wheels.



15418

15917



Helpful Hints

TIRE PRESSURES

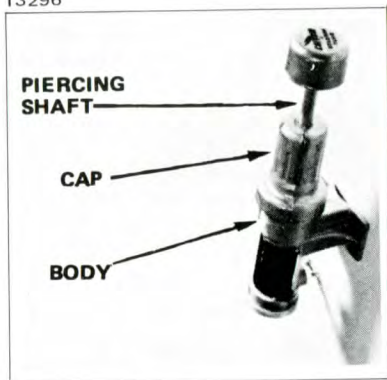
Tire Size	Ply	P.S.I.
9:00 x 20	12	85
10:00 x 20	12	60
10:00 x 20	14	90
11:00 x 20	12	60
11:00 x 20	14	90
15:00 x 22.5	14	60
15:50 x 25	14	65
17:50 x 25	14	60
17:50 x 25	16	65
17:50 x 25	20	80
23:00 x 21	22	80

When adjusting fork spread, tilt upright forward. This reduces friction and makes sliding easier. Always make sure fork locking pins are secure.



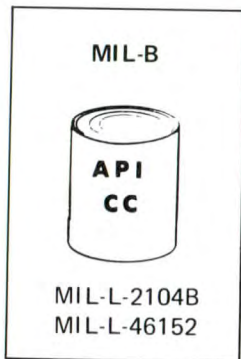
13301

13296



- An optional cold weather starting device is available for the Detroit diesel engine. Follow this procedure:
 - Unscrew cap from body and drop in starting aid capsule.
 - With piercing shaft pulled out, screw cap onto body snugly.
 - Push piercing shaft all the way in.
 - Fully depress accelerator pedal. Engage the starter.
 - Remove the capsule and assemble with piercing shaft down.

Helpful Hints



GAS — L.P. GAS

SPECIFICATION To meet API Service Classification "CC" and "SC" per SAE Report J183 and/or MIL-L-2104B. Sulfated ash content 1.00% weight maximum. Zinc content 0.06 to 0.10% weight maximum.

This specification includes oils meeting Specification MIL-L-46152 when applicable. Also, API Service "SC"/"SD" (Formerly "MS") oils may be preferred under stop-and-go or light service conditions.

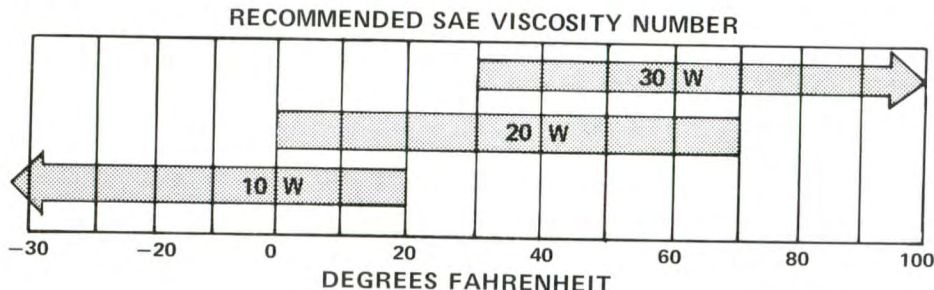
TYPICAL PRODUCT RECOMMENDED BY MAJOR BRAND OIL SUPPLIERS

Chevron RPM DELO Multi-Service Oil
Shell X-100 or Rotella, Rotella T
Sunfleet H.P. or Citgo C300 Motor Oil
ARCO Fleet X.H.D. Motor Oil or ARCO Fleet H.D.
Gulflube Motor Oil X.H.D.
AMOCO 200 Motor Oil
Texaco Havoline or URSA Extra Duty Motor Oil
Mobil Delvac 1100B or 1200 Series Motor Oil
... or the equivalent to the above.

OILS FORMULATED FOR L.P.G. ENGINES

Citgo L.P. Gas Engine Oil
Chevron Gas Engine Oil HDAX

• ENGINE CRANKCASE OIL



Helpful Hints

For . . . diesel engines using high sulfur content fuel (over 0.5% sulfur).

SERIES 3



MIL-L-45199B
MIL-L-2104C

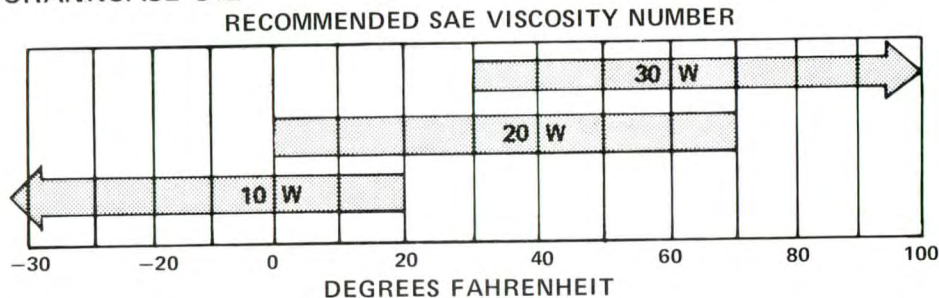
SPECIFICATION To meet API Service Classification "CD" per SAE Report J183 and equivalent Series 3 and/or MIL-L-45199B specifications. Also MIL-L-2104C when applicable. Sulfated ash content 1.65% maximum.

TYPICAL PRODUCT RECOMMENDED BY MAJOR BRAND OIL SUPPLIERS

Chevron DELO Super 3 Oil
Shell Rimula Motor Oil
Sunfleet S-3 Motor Oil
ARCO Fleet MS-3 Motor Oil
Gulf Super Duty Motor Oil
AMOCO 300 Motor Oil
Citgo C500 Motor Oil
Texaco URSA LA-3 Motor Oil
Mobil Delvac 1300 Series Motor Oil
. . . or the equivalent to the above.

SAE #30 oil of MIL-L-2104B performance level is recommended for year around use in Detroit diesel engines . . . (Limitations — zinc. 0.10% maximum, sulfated ash 1.0% maximum.). The use of Multi-grade oils in Detroit diesel engines is not recommended.

• ENGINE CRANKCASE OIL



Helpful Hints

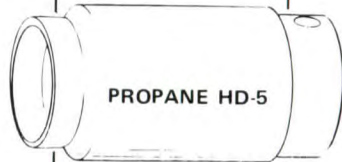


GASOLINE

GASOLINE

SPECIFICATIONS Fuel to be Automotive Quality Regular Grade Gasoline containing a corrosion inhibitor.

Minimum Motor Octane
Number – 85



L.P. GAS

L.P. GAS

SPECIFICATIONS Use LPG meeting PROPANE HD-5 (NGPA Specification 2140-62) or ASTM D2154 (Special Duty Propane) requirements.

Minimum Motor Octane
Number – 95



DIESEL

DIESEL

SPECIFICATIONS Fuel to be Automotive Quality Diesel Fuel Oil as defined by ASTM D975, Grades No. 1-D and 2-D, and having a sulfur content of less than 0.5% weight.

Recommended Cetane
Number – 45 Minimum

TYPICAL PRODUCT RECOMMENDED MAJOR BRAND OIL SUPPLIERS

Shell or Citgo Regular Gasoline
Sunoco 200 or Good Gulf Gasoline
American Regular Gasoline
Texaco Firechief Gasoline
ARCO or Mobil Regular Gasoline
... or the equivalent to the above.

Citgo L.P. Gas (HD-5)
Texaco 436 Propane
... or the equivalent to the above.

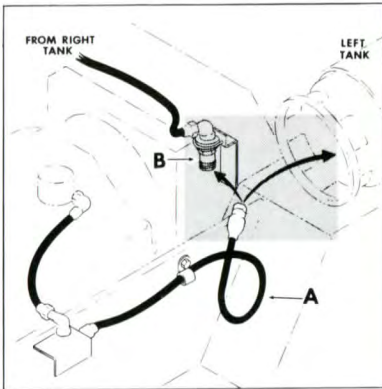
Shell Premium Dieseline OR45
Sun Diesel Fuel 245-T
ARCO Premium Diesel, Diesel #1 or #2
Gulf or Citgo Diesel Fuel #1 or #2
AMOCO Diesel Fuel #1D and American
Premier Diesel Fuel #2D
Texaco Diesel Chief #1
Mobil Fuel Diesel & Diesel Fuel Special
... or the equivalent to the above.

Helpful Hints



15918

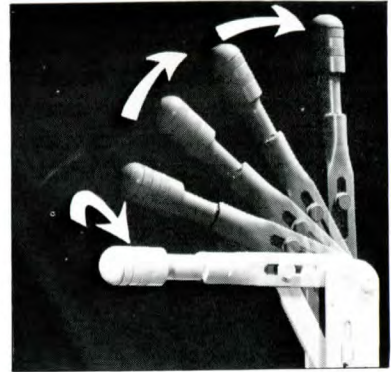
14643



Code: OI-338 December 74

Some model trucks are equipped with an auxiliary accelerator pedal which enables you to maintain engine speed with the toe of the right foot while applying truck service brakes.

Refer to item 19 on page 21. The parking brake should be adjusted to hold the truck with capacity load, on a 15% grade (1.5 feet of rise in 10 feet) or the maximum grade negotiated in the operation – whichever is less.

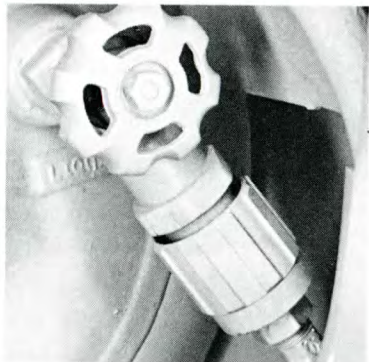


13228

IMPORTANT – It is imperative that you determine which of the two L.P. gas tanks is coupled into the truck fuel system during your “before operation” (on the ground) check. This is determined by looking at the left hand tank. If the left hand tank has a fuel hose connected it is the tank “in service”. If the left hand tank does not have a fuel hose connected the right hand tank is the tank “in service”. Open only the “in service” tank as described in item 6 on page 17.

L.P. Gas Tank Switch-over is to be accomplished by stopping engine (refer to item 62 page 34) open hood, disconnect fuel hose (A) from “in service” tank (if left hand) or from cross-over hose (B) (if right hand), connect fuel hose (R) to opposite (left hand tank or cross-over hose) and open tank newly placed “in service” per item 6 on page 17.

Helpful Hints



13250

When necessary to exchange L.P. gas tanks

(A) With engine running . . . close manual fuel shut-off valves, at end of tanks, by turning clockwise until they seat.

(B) Engine will stop when all fuel vapors between the tanks and carburetor are burned off. Turn ignition switch counterclockwise to "off" when engine stops.

(C) Disconnect fuel line at quick disconnect coupling. Tools will not be required.

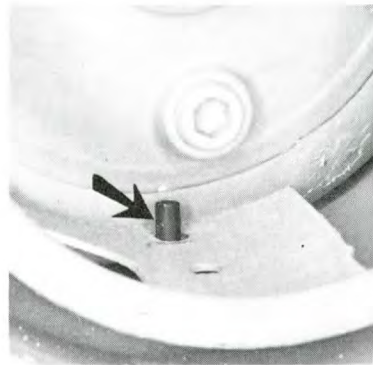
(D) Loosen container fasteners, swing and lift up container mounting cover and carefully remove container.

(E) Replace the recharged container. Make certain that the tank locating pin is properly positioned through the positioning hole in the tank cover.

(F) Carefully close container cover and fasten securely.

(G) Reconnect fuel line and slowly open manual fuel shut-off valve as described in item 6 on page 17.

13251



Truck Tip-Over



24980

Make sure your seat belt is buckled at all times.

**STAY
IN
YOUR
SEAT**



TIP WITH THE TRUCK

**GRIP
THE
WHEEL**

**BRACE
YOUR
FEET**

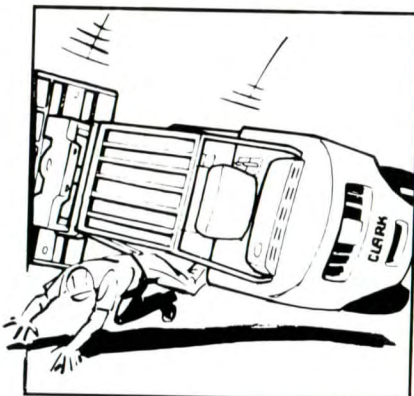
24979

Take this position in the event of a tip-over.

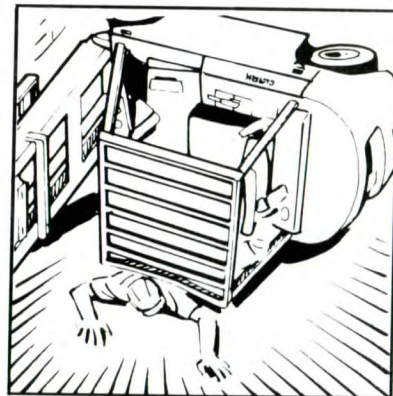
Truck Tip-Over



24976



24977



24978

This three-picture sequence shows what happens if an operator tries to jump from a truck during a tip-over.

If your truck starts to tip over, do not jump.

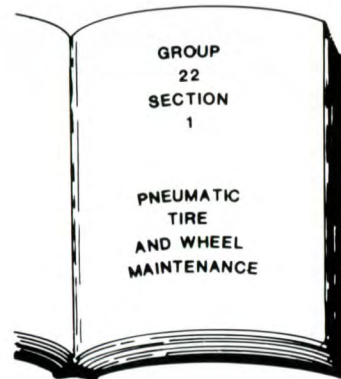
**Your chances for survival in a tip-over are better if you stay with the truck.
The following page shows the position to take in the event of a tip-over.**

Wheel and Tire Maintenance

 **DANGER**

RIM SEPARATION

REMOVE THE AIR FROM TIRES BEFORE DOING ANY WORK ON TIRES OR RIMS. MULTI-PIECE RIMS CAN SEPARATE WITH ENOUGH FORCE TO CAUSE INJURY OR DEATH.



24309

Federal and State laws require persons to be fully trained and qualified before doing maintenance on wheels and tires. Injury or death can result from the explosive separation of rim components if service procedures are not done correctly.

1. Refer to the planned maintenance manual for complete wheel and tire servicing procedures.

Wheel and Tire Maintenance



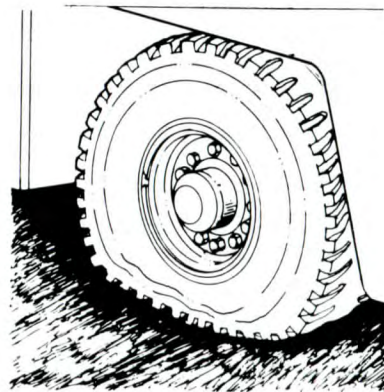
18924

2. Inspect wheels, tires and mounting parts for condition and security daily.



24307

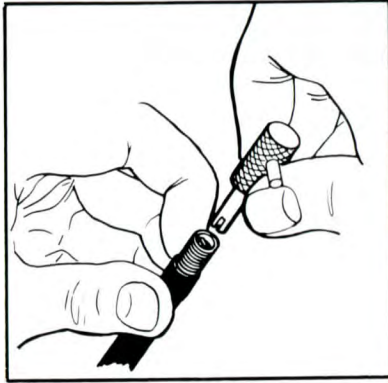
3. Do not stand in front of or in the trajectory path of wheels when checking or adding air pressure. Stand to the side and use a gauge with a long handle and a self attaching air chuck on the hose.



24308

4. Do not put air into a tire which has gone flat or has less than 80 percent of recommended pressure. Check for cause of air loss and confirm that the wheel and tire are safe to use.

Wheel and Tire Maintenance



18631

5. Remove air from the tire before moving wheel clamping nuts (two piece wheels) or rim locking rings on multi-piece rims.



24306

6. Always use a safety cage to inflate tires after servicing.
See Page 39 for tire pressures.




24964

7. Check tire pressure from a position facing the tread of the tire, not the side. Use a long handled gauge to keep your body away from the side.

If tires are low, do not add air. Check with a mechanic. The tire may need to be removed and repaired.


Jump Starting

1. This truck has a 12-volt battery and a negative ground electrical system. Make 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.

 **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.

 **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 RESULT AND CAUSE INJURY OR DEATH.

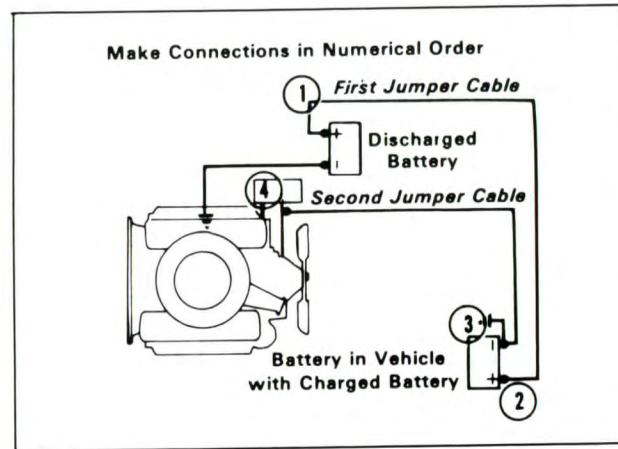
Jump Starting

- Put the truck with the good (charged) battery so that the jumper cables will reach. **DO NOT PERMIT THE TRUCKS TO TOUCH AND CHECK TO SEE THAT THE TRUCKS DO NOT TOUCH.**
- Turn all accessories on both trucks to the "Off" position. Turn the ignition key to the "Off" position, apply the parking brake, and put the transmission of both trucks in the neutral position.
 - If the discharged battery has filler caps, check the fluid level. (**DO NOT USE AN OPEN FLAME TO CHECK. DO NOT SMOKE.**) Add distilled water to the correct level if low and install the caps before jump starting. If the battery is a sealed type, do not try to jump start the truck, or charge it or test it if the center of the test indicator in the battery is bright or light colored. Instead, install a new battery.

5. Jumper cable connection instructions (Fig. 24871):

- 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 "+".

24871



Jump Starting

5. (Continued)
 - b. Connect one end of the second cable to the grounded negative “-” (Black) terminal of the good (charged) battery.
 - c. Connect the other end of the second jumper cable to a solid, stationary, metallic point on the engine of the truck with the discharged battery but at a point away from the battery. At least [450 mm] 18 inches from the battery if possible. Do not connect it to pulleys, fans, or other parts that move. Take care not to touch hot manifolds which can cause severe burns.
6. Start the engine on the truck with the good (charged) battery and run the engine at a moderate speed.
7. Start the engine of the truck that has the discharged battery.
8. Remove the jumper cables by reversing the above sequence exactly. Start by removing the last cable first; that is, remove the jumper cable from the truck with the discharged battery as the first step.

For Handy Reference

RECORD THE FOLLOWING INFORMATION PERTAINING TO YOUR TRUCK

Model No. _____

Serial No. _____


Attachments _____

Truck Weight W/Battery _____

Truck Rated Capacity _____

Gross Truck Weight (W/Battery and Rated Load) _____

Customer Truck Identification No. _____



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