

HYDRAULIC LIFT GATES

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1. GENERAL

1.01 Hydraulic lift gates are installed at the rear of a truck or trailer chassis and are used as an aid in handling heavy and bulky cargo.

1.02 The fast lifting and lowering action of a hydraulic lift gate speeds loading and unloading operations, thereby improving delivery schedules.

1.03 Hydraulic lift gates which are maintained in good operating condition and are used within their rated capacity can reduce personal injuries which are due to manual lifting, and will

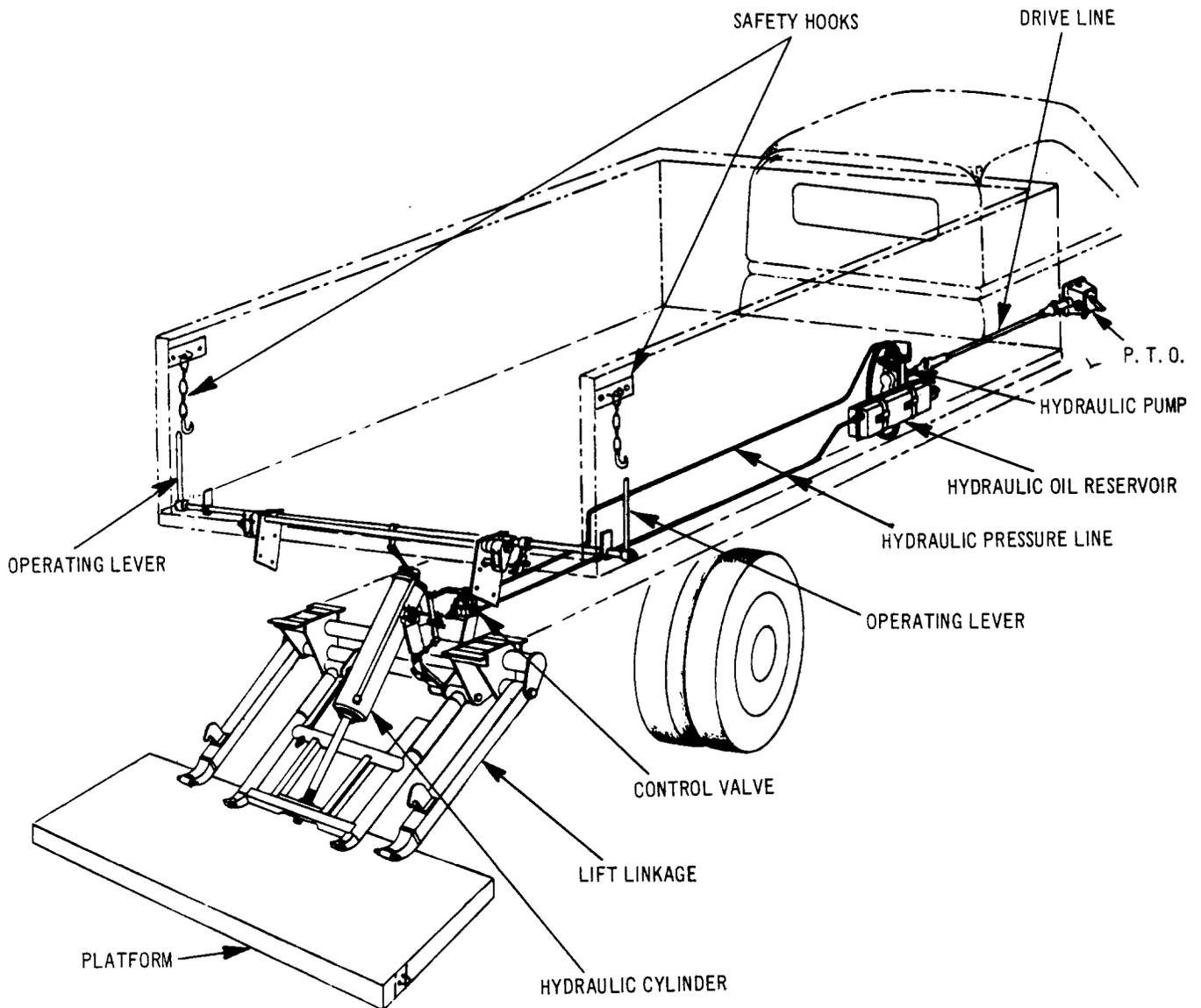


Fig. 1

protect cargo from being damaged in loading or unloading.

1.04 Commercially available hydraulic lift gates differ in some design details. However, their basic features are similar and are covered in Part 2 and illustrated in Fig. 1.

2. DESCRIPTION

2.01 The hydraulic lift gate consists essentially of a welded steel platform which is raised or lowered by hydraulic power.

2.02 The platform is connected by suitable linkage to a hydraulic cylinder (or cylinders). Hydraulic pressure for the cylinder is supplied by a hydraulic pump driven by the truck engine by means of a power take-off mounted on the truck transmission. For lift gates of smaller capacity, the hydraulic pump may be powered by electricity from the truck battery.

2.03 The hydraulic system includes a reservoir for the hydraulic oil, a control valve, and necessary pressure lines and fittings. The control valve is connected to operating levers located at the right rear and left rear of the vehicle. This positioning of the operating levers permits lift gate operation without standing in line of traffic or to the rear of the vehicle.

2.04 The lift gate linkage is equipped with safety latches which automatically lock the gate when it reaches the vehicle platform level and is in the traveling position.

2.05 Provide safety hooks or hasps for securing the closed gate to the sides of the truck or trailer body when the gate is not in use. See Fig. 1.

3. SAFETY AND OPERATING PRECAUTIONS

3.01 Only authorized personnel shall be allowed to operate the hydraulic lift gate. Take all necessary precautions to prevent operation of unattended lift gates by unauthorized personnel.

3.02 Always lock the truck brakes before operating the lift gate.

3.03 Never step on or off a lift gate while it is in motion. Do not jump off a lift gate while it is in the raised position.

3.04 *Never* ride on the lift gate while it is in motion. Exceptions are special cases when either the type of load or local conditions require a man on the platform. In such cases, take special precautions against accidents. Stand on either side of the platform, close to the controls. Do not stand near the *front* or *rear* of the platform.

3.05 All ground personnel must stand clear of the path of the lift gate while it is in operation.

3.06 If the lift gate is equipped with a lift gate extension, always have the lift gate at waist level, in order to avoid injury when placing the extension in the "extended" (or "stored") position.

3.07 Where required, a hinged bridge plate is provided to cover the space between the lift gate and the truck or trailer platform. Position the bridge plate over the above-mentioned space before entering the truck or trailer body.

3.08 Never operate the lift gate unless the load to be lifted is secured.

3.09 Extra caution should be observed during inclement weather; remove ice and snow before walking or standing on the lift gate platform. Ice and snow packed around the lift gate linkage must be removed carefully, so as to avert accidental release of the safety hooks or safety latches. Do not crouch under the vehicle to clean off ice and snow.

3.10 Do not operate the lift gate when safety hooks or hasps locking the gate to the truck or trailer body are still engaged.

3.11 Do not attempt to free safety hooks or hasps while standing toward the rear of the vehicle, in the path of lift gate travel.

3.12 Never use a tool or other implement to free stuck safety hooks or hasps, as such conditions might be an indication of malfunctions which should be corrected by qualified personnel.

3.13 Avoid backing the vehicle in such a manner that the lift gate strikes a loading dock, building, or other object. Do not bump against lift gates.

3.14 When using the lift gate as a ramp during dock loading operations, position the

vehicle so that, when the lift gate is lowered onto the loading dock, it does not extend past the edge of the loading dock more than a maximum of one foot. This will allow the gate platform to pivot on the lift arm assembly when the springs and tires deflect as the load is increased on the vehicle. Serious damage may result if the entire lift gate platform is resting on the loading dock while the vehicle is being loaded.

3.15 If the lift gate is not being used during a loading operation (as when a load is transferred directly from the loading dock to the truck or trailer), it must be positioned so that it is clear of the ground at all times during the loading operation.

3.16 If the lift gate is to be stowed underneath an undercut loading dock during a loading operation, position the lift gate so as to clear any obstructions under the loading dock. Prior to backing the vehicle to the loading dock, shift the power take-off, driving the hydraulic lift gate pump into the "neutral" position. This will prevent any damage if the lift gate control lever is inadvertently activated.

3.17 Never run the hydraulic pump at engine speeds in excess of the normal idling speeds recommended by the manufacturer for the lift gate being used.

3.18 The power take-off must be disengaged whenever the vehicle is in motion. Driving with the power take-off engaged will cause serious damage to the hydraulic pump.

3.19 During transit and in all except the most minor vehicle movement, the lift gate platform must be locked in the "vertical" (or "closed") position and secured to the body by hasps or safety hooks.

3.20 Do not attempt to tilt the lift gate platform to the "vertical" (or "closed") position until it has reached the limit of its upward travel (level with truck or trailer platform).

3.21 On trailer-mounted units, the self-sealing quick couplers on the hydraulic lines between the tractor and the trailer must be disconnected whenever the trailer is to be uncoupled from the tractor. The trailer half of the couplings must be covered with dust caps and the tractor half of the couplings must be connected

to the dummy connections provided on the tractor. Serious damage will result if the hydraulic pump power take-off is engaged while the self-sealing quick couplers are disconnected.

3.22 Report any malfunction of the hydraulic lift gate to the department responsible for the maintenance of this equipment, so that arrangements may be made for the correction of the malfunction. This work is of a special nature and should be performed only by an authorized dealer or repair shop or by qualified personnel trained by an authorized distributor. Never attempt to put the lift gate in motion by any means other than the control levers.

4. PREPARATIONS FOR USE

4.01 Lock the vehicle brakes.

4.02 Place wheel chocks at rear wheels, if required by local conditions.

4.03 To operate the hydraulic lift gate on a vehicle equipped with a *standard truck transmission*, the transmission is shifted to the "neutral" position and the power take-off is engaged by the operating lever in the truck cab. (Some vehicles have installed on the dash panel a red warning light which indicates when the power take-off is engaged.)

4.04 Run engine at the speed recommended by the manufacturer for the lift gate used. Speeds in excess of the recommended speed will cause damage to the hydraulic pump.

4.05 For operating the lift gate on vehicles equipped with an *automatic (Allison) transmission*, proceed as follows: With the vehicle stationary, the engine idling, and the service brakes applied, shift the transmission range selector to any range other than "neutral." (This stops rotation of the power take-off drive gear.) Now engage the power take-off. To operate the power take-off with the vehicle stationary, keep the range selector in "neutral."

Caution: *Do not attempt to engage or disengage the power take-off while the vehicle is moving.*

4.06 To stop the power take-off, idle the engine. With a very light load, it may be necessary

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to shift the range selector to a range other than "neutral." When power take-off rotation stops, disengage the power take-off.

5. OPENING THE LIFT GATE

5.01 Always make sure, by visual inspection, that the latches and latch hooks on the lifting arms are positively engaged.

5.02 Now disengage safety hooks or hasps (observe precautions 3.11) and move the lift gate control lever to the lowering position. Lift gate platform will tilt to the horizontal position automatically.

Note: In some types of lift gates, the tilting of the platform is controlled by a separate lever or is performed manually. See Figs. 7, 9, and 16.

6. LIFTING OR LOWERING A LOAD

6.01 Determine if the load to be lifted or lowered is within the rated capacity of the lift gate, in accordance with the capacity chart in the vehicle cab or with the marking on the lift gate platform.

6.02 Position the load on the center of the lift gate platform and as near the forward edge (that is, as close to the vehicle) as possible. Block the load in this position, to prevent shifting when the platform is in motion.

Caution: Lifting capacity decreases if the load is positioned towards the rear edge of the lift gate platform. This loss of lifting capacity is illustrated by the example shown in Fig. 2.

6.03 To lower a load, move the control lever to the "raise" position. This will raise the platform slightly and will free the mechanical safety latches. Then move the control lever to the lowering position; the platform will lower to the ground and will stop automatically.

6.04 To raise a load, move the control lever to the "raise" position; the platform will rise to the level of the vehicle platform and will stop automatically. Before entering the vehicle, position the hinged bridge plate (if so equipped) as described in 3.07.

6.05 The lift gate may be stopped at any point in its travel by moving the control lever to the "neutral" position.

7. CLOSING THE LIFT GATE

7.01 If the lift gate is equipped with the hinged bridge plate, flip the plate onto the vehicle platform and make sure that all items have been removed from the lift gate platform.

7.02 Raise lift gate platform to waist level; fold extension plate (if so equipped) and raise platform to vehicle platform level.

7.03 Before pivoting the lift gate platform to the "vertical" (or "closed") position, make a visual inspection to make sure that the safety latches or latch bolts on the lift linkage are positively engaged.

7.04 Secure both right and left safety hooks or hasps to the vehicle body.

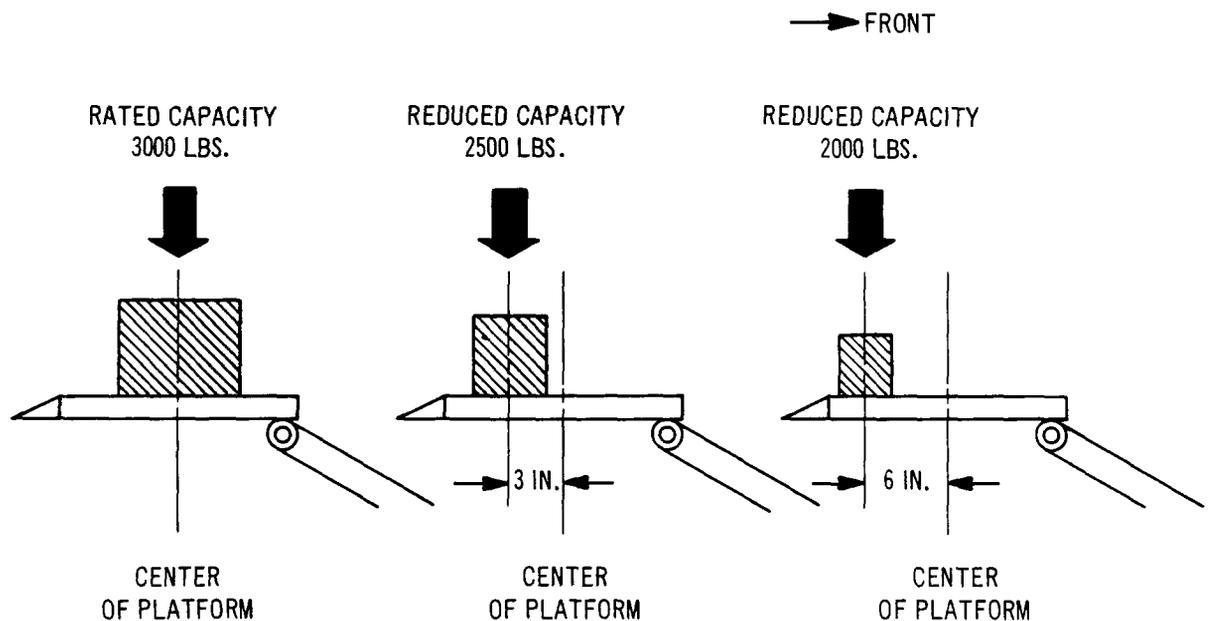


Fig. 2

8. LUBRICATION AND MAINTENANCE

8.01 The entire lift gate installation shall be inspected yearly by an authorized distributor or repair shop or by qualified personnel trained by an authorized distributor. Any adjustments and repairs required should be made at that time.

8.02 The underbody linkage shall be steam-cleaned at six-month intervals, to permit a closer inspection of these parts.

8.03 All points equipped with grease fittings shall be lubricated weekly with a good grade of chassis lubricant.

8.04 Check the oil level in the hydraulic oil reservoir at intervals recommended by the manufacturer and, if required, refill to the proper level with a good grade of hydraulic oil or high-grade motor oil (S.A.E. 10W - 30), whichever type is used. Follow manufacturer's instructions for filling oil reservoir. See Parts 10 through 17.

8.05 Always keep the hydraulic system clean; use particular care when adding hydraulic oil or motor oil to the reservoir. On tractor trailer units, the self-sealing quick couplers should be wiped clean before being connected. Dirt in the quick couplers may prevent them from engaging fully, thus restricting the flow of hydraulic oil and causing excessive heat buildup in the hydraulic system.

9. INDEX TO OPERATING INSTRUCTIONS—PARTS 10 THROUGH 17 COVERING LIFT GATES OF MAJOR MANUFACTURERS

Model	Model
ANTHONY	
A-145 } A-146 } A-245 }	Part 10

Model	Model
DAYBROOK	
T-2A } T-2AE } T-2AT } T-3A } T-3AE } T-3AT } T-3A2 } T-3A2E } T-3A2T } T-4A } T-4AE } T-4AT } T-4A2 } T-4A2E } T-4A2T } T-5 } T-5T } T-5-2 } T-5-2T }	T-1000 } T-1000A } T-1000E } T-1000AE } T-1 } T-1E } T-600E } T-600E-CF } T-600E-FS }
	Part 12
	Part 13
	Part 14
	Part 11

GAR WOOD	
PC-20 } PC-30 } PC-40 } PC-50 }	Part 11
MC-11 } MC-11A } MC-11E } MC-11AE }	Part 12
Frate Gate 2000 } 4000 } 5000 }	Part 15
	MC-14 } MC-14E }
	Part 13

GALION	
G-2000 } G-2000M } G-3000 } G-4000 } G-5000 }	Part 11

WATSON	
1050W } 1250W } 1500W }	Part 16
2000W	Part 17

10. OPERATING INSTRUCTIONS FOR ANTHONY MODELS A-145, A-146, AND A-245

10.01 To operate lift gate installed on vehicle equipped with standard truck transmission, engage power take-off as follows:

- (a) Declutch truck engine. With engine running, shift power take-off into gear. Engage clutch.
- (b) Throttle truck engine slightly faster than "idle" speed.

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10.02 To engage power take-off on vehicles equipped with an automatic (Allison) truck transmission, see 4.05.

10.03 Unhook safety hasps or hooks on both sides.

10.04 Turn safety interlock to the "unlock" position. See insert in Fig. 3.

10.05 To open and lower gate, move handle slowly for this operation. Do not jam handle into latch release. Move control handle into the "raise" position and gate will open; keep handle in "raise" and gate will lift above floor level. (This raises hooks off latches.) Push handle further forward into latch release. (This locks latches away from hooks.) Move handle

into "lower" position, to lower gate to ground. See insert in Fig. 3.

10.06 To raise and close gate, put control handle in "raise" and gate will lift to above floor level; shift handle to "lower" position and allow gate to settle on latches. After unloading, move handle to "lower" to close gate.

10.07 Turn safety interlock to "lock" position, to avoid accidental opening of gate when not in use.

10.08 To open the lift gate manually (that is, without power), unfasten hooks and then interlock, pushing handle forward into "raise." It may be necessary to manually start the gate moving.

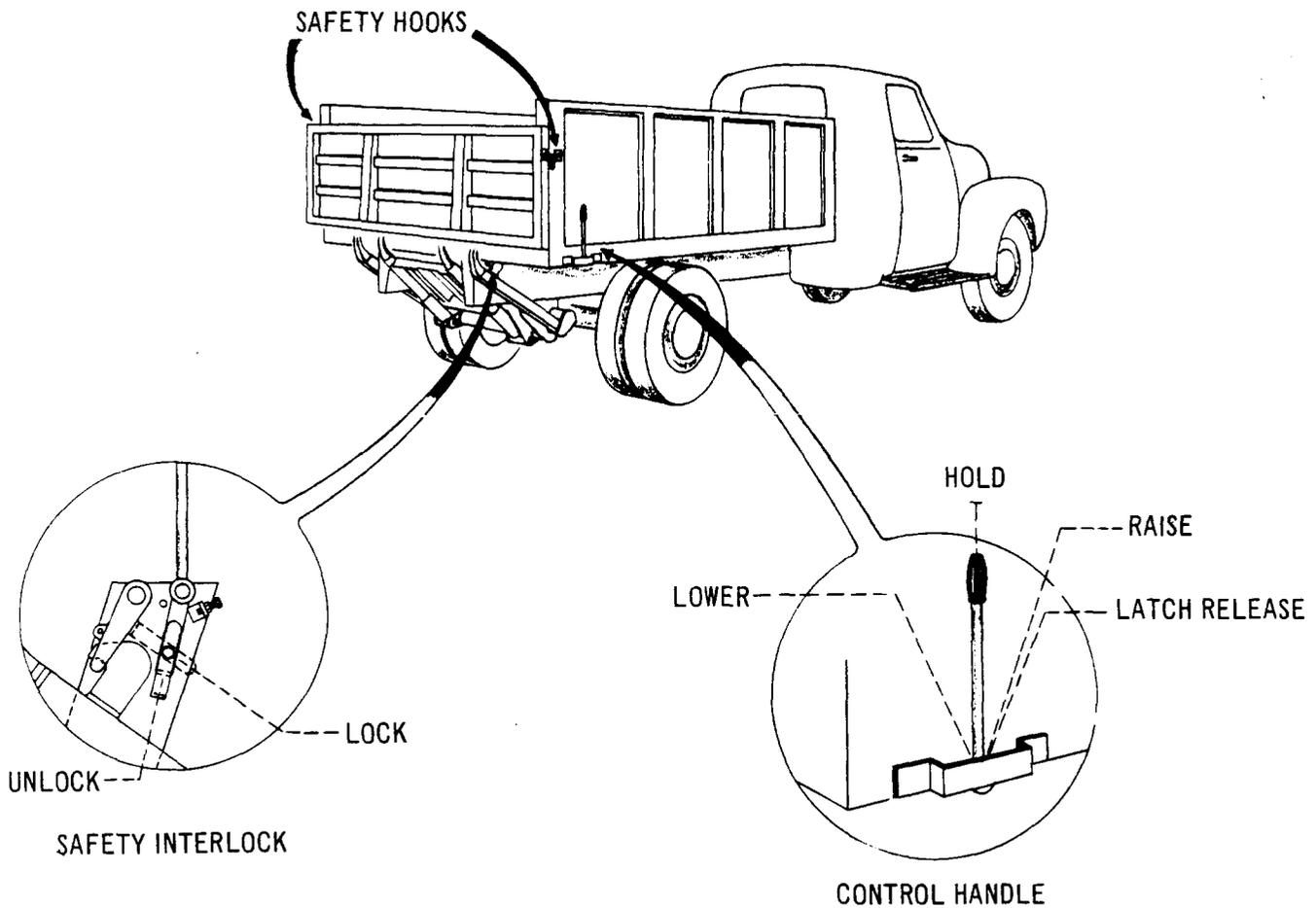
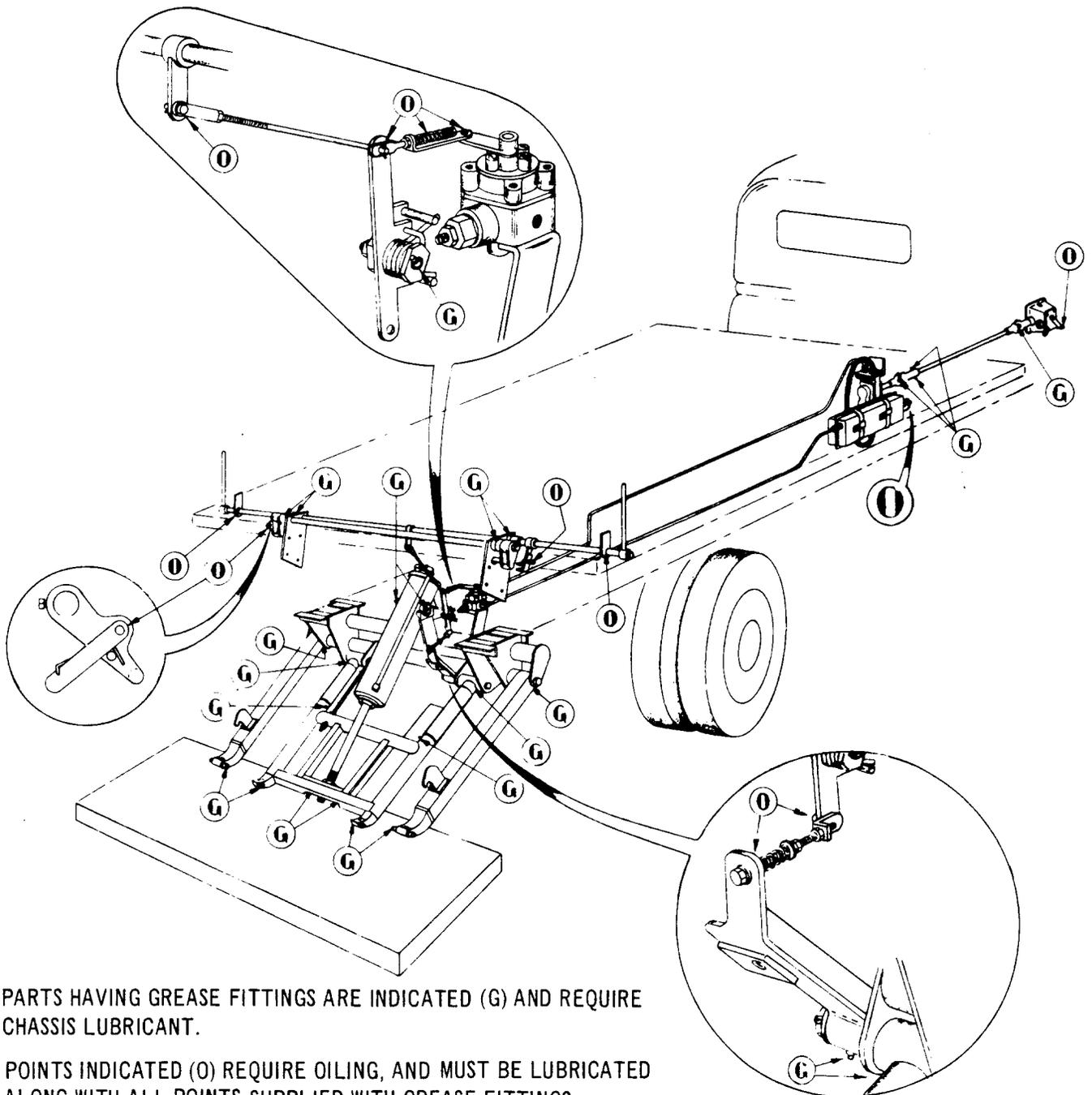


Fig. 3

10.09 Keep the lift gate well lubricated at all times. Lubricate all moving parts in ac-

cordance with lubrication chart, Fig. 4.



PARTS HAVING GREASE FITTINGS ARE INDICATED (G) AND REQUIRE CHASSIS LUBRICANT.

POINTS INDICATED (O) REQUIRE OILING, AND MUST BE LUBRICATED ALONG WITH ALL POINTS SUPPLIED WITH GREASE FITTINGS.

RESERVOIR (LARGE O) SHOULD HAVE ABOUT 4" OF A GOOD GRADE OF S.A.E. NO. 10W-30 MOTOR OIL. EXCESSIVE OIL IN RESERVOIR WILL BE LOST WHEN GATE IS LOWERED MANUALLY.

NEVER FILL OIL SYSTEM WITH USED OR DIRTY OIL.

Fig. 4

11. OPERATING INSTRUCTIONS FOR DAYBROOK, GAR WOOD, AND GALION LIFT GATES

Note: For list of models covered, see index, Part 9.

11.01 Each of these lift gates offers a choice of two methods of control: "Full Automatic" and "Operator Safety." Both methods of control are built into the lift gate. A simple mechanical adjustment changes the unit from one method to the other in a matter of minutes.

11.02 When adjusted for Full Automatic Control, the operator sets control levers so as to open and lower the platform from the "vertical" (or "closed") position. The platform will open, will lower automatically, and will stop at ground level without holding control levers in position. The reverse (raising and closing) is also done automatically, with one setting of the control levers. When the platform reaches the "vertical" (or "closed") position, the control levers automatically return to "neutral" position. By manually moving the control levers to "neutral" position, the platform can be stopped at any position in its cycle.

11.03 When adjusted for Operator Safety Control, the operator has complete manual control over action of the lift gate at all times. Place either control lever in operating position and the platform will start its cycle. When hand is released from control lever, the lever returns to "neutral" and the platform stops at that point.

(a) Changing from one method of control to the other is accomplished by either inserting or removing two detent springs in the "kick-out" units which are located above the control valve assembly. See Fig. 5.

11.04 To change to Full Automatic type of controls, remove cap and adjust adjusting screw. If control releases hard, loosen screw. See Fig. 5.

Caution: Lubricate before adjusting the adjusting screw.

11.05 To change to manual or to Operator Safety type controls and to have control handle always return to "neutral" position, remove adjusting screw and spring.

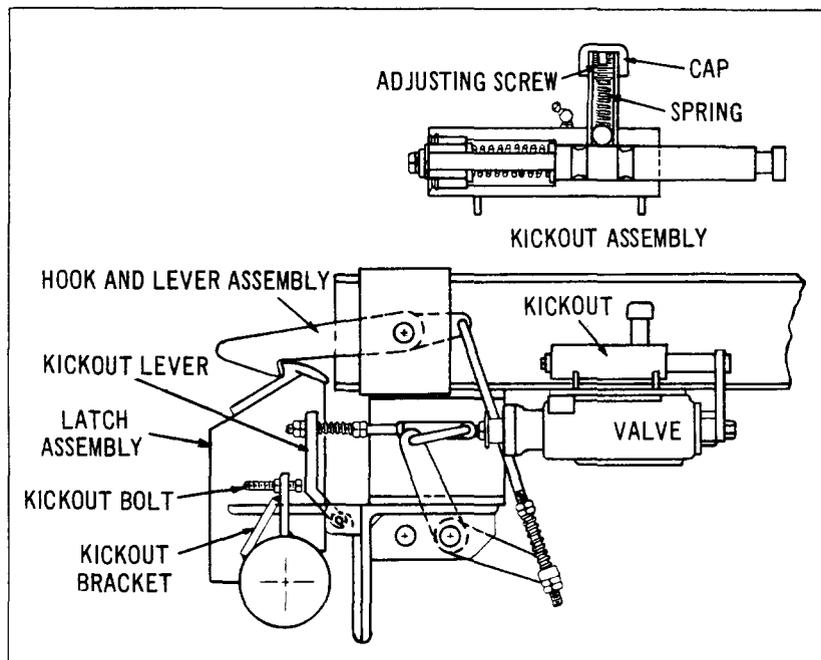


Fig. 5

11.06 To operate lift gate installed on vehicle equipped with standard truck transmission, engage power take-off as in 10.01.

11.07 To engage power take-off on vehicles equipped with an automatic (Allison)

truck transmission, see 4.05.

11.08 To open platform, see Figs. 6 and 7.

(a) Move opening and closing control lever (see Fig. 7, lever #1) toward rear of truck.

(b) When Full Automatic Control is used, platform will open to a position level with the truck body floor and will automatically return control lever to "neutral." Platform is held in place by a built-in safety lock.

(c) Using Operator Safety Control, hold opening control lever in rear position until platform reaches position which is level with truck body floor; then release control lever.

11.09 To close platform, see Fig. 6.

(a) Move opening and closing control lever

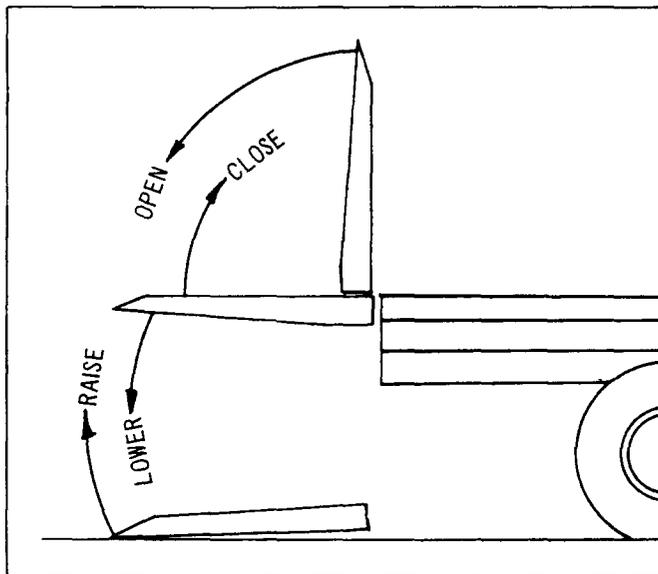


Fig. 6

11.10 To lower platform, see Fig. 6.

Note: Built-in interlock prevents lowering platform unless platform is in "open" position.

(a) Move control lever (see Fig. 7, lever #2) momentarily to "up" position (this releases safety lock), then to "down" position.

(b) When Full Automatic Control is used, platform will lower to ground level.

(c) When Operator Safety Control is used, control lever must be held in "down" position until platform reaches ground level. Release control lever and it will return to "neutral."

11.11 To raise platform, see Fig. 6.

(a) Move control lever (see Fig. 7, lever #2) to "up" position.

(see Fig. 7, lever #1) toward front of truck.

(b) Using Full Automatic Control, platform will close to full vertical position and will automatically return control lever to "neutral." Platform is automatically locked in "vertical" position when platform is closed.

(c) Using Operator Safety Control, hold control lever in closing position until platform reaches "full vertical" position. Release control lever and platform is locked in "transit" position.

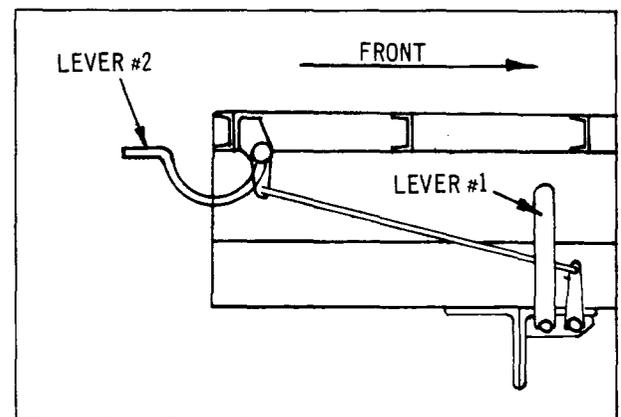


Fig. 7

(b) When Full Automatic Control is used, platform will lift to the truck body floor level and will automatically return the control lever to "neutral." The platform is held in this position by an automatic safety lock.

(c) When Operator Safety Control is used, control lever must be held in "up" position until platform reaches the truck body floor level and locks in place. Release control lever.

Note: With platform in "open" position (see Fig. 6), if it should start to close (to raise toward "vertical" position) when lowering lever (see Fig. 7, lever #2) is placed in position for lowering action—this indicates that control lever #1, Fig. 7, is not in "neutral" position. Simply move lever to "neutral" position and continue operation.

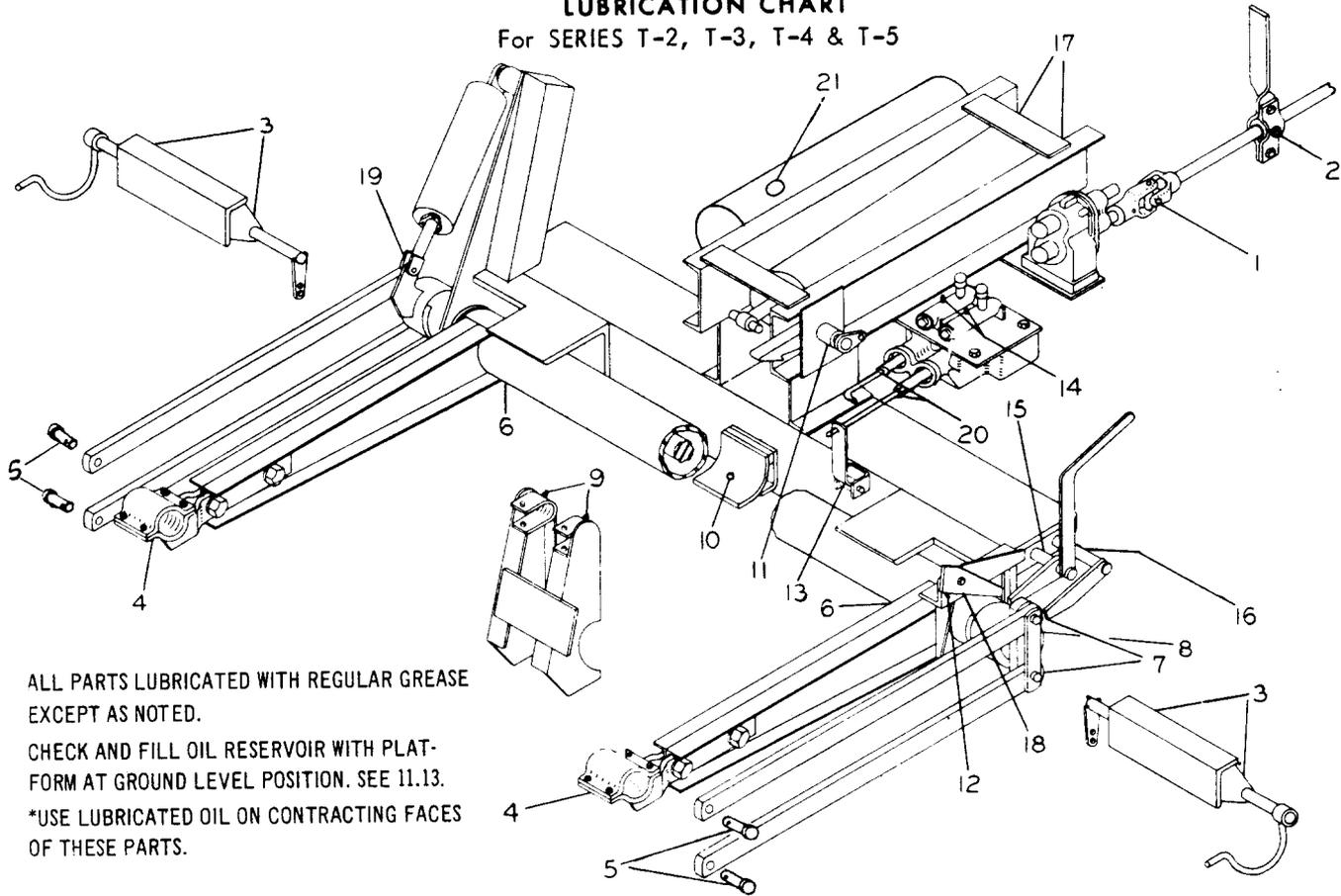
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11.12 Lubricate the lift gate as per lubrication chart, Fig. 8. Weekly lubrication of drive line universal joints and steady bearings will greatly prolong the life of these very important parts. Other points of lubrication should be taken care of when the truck has its periodic servicing.

11.13 To fill hydraulic system, proceed as follows:

- (a) Always place platform at ground level position when adding hydraulic oil.
- (b) Either hydraulic oil or a high-grade motor oil (S.A.E. 10W - 30) may be used in the lift gate hydraulic system.
- (c) Fill oil reservoir half full. Minimum supply must be 2 inches of oil, with 3 inches the maximum.

LUBRICATION CHART
For SERIES T-2, T-3, T-4 & T-5



ALL PARTS LUBRICATED WITH REGULAR GREASE EXCEPT AS NOTED.

CHECK AND FILL OIL RESERVOIR WITH PLATFORM AT GROUND LEVEL POSITION. SEE 11.13.

*USE LUBRICATED OIL ON CONTRACTING FACES OF THESE PARTS.

ITEM	QUANT.	DESCRIPTION	ITEM	QUANT.	DESCRIPTION
1.	1 EACH	UNIVERSAL JOINT	11.	1	HOOK SHAFT
2.	1 EACH	STEADY BEARING	12.	1	SAFETY CATCH
3.	2 EACH	ELEVATING HAND LEVER SHAFT	13.	1	ELEVATING KICKOUT LEVER
4.	1 EACH	BEARING CAP	14.	1 EACH	KICKOUT
5.	1 EACH	RADIUS ROD PIN	15.	3 EACH	CLOSING CONTROL CROSS SHAFT
6.	2	ELEVATING TUBE	16.	3 EACH	ELEVATING CONTROL CROSS SHAFT
7.	1 EACH	RADIUS RODS	17.	2	ELEVATING CYLINDER BEARING
8.	1 EACH	INNER CLUTCH	18.		LOWER LOCK LEVER **
9.	2	TRUNNION ARM BEARING	19.		CLOSING CYLINDER ROD END **
10.	1	CENTER BEARING	20.		VALVE CONTROL ROD YOKES **
			21.		OIL RESERVE TANK *

Fig. 8

(d) Without replacing filler plug, run platform up and down, opening and closing several times. If there is excessive oil in the system, it will overflow.

(e) Replace filler plug.

Caution: *An oversupply of hydraulic oil will cause excessive pressures during operating cycles and will probably blow out seals in the valve, pump, or cylinders. If your unit is not already equipped with a "breather cap" in the reserve tank, it is suggested that you contact your local distributor and have one installed.*

(f) When operating lift gate in extremely cold temperatures, it is permissible to add sufficient kerosene to hydraulic system to dilute oil. Use the same method to add kerosene that you use to add hydraulic oil. Diluting the oil is necessary only when action of lift gate is slow or sluggish.

12. OPERATING INSTRUCTIONS FOR DAYBROOK MODELS T-1000, T-1000A, T-1000E, AND T-1000AE AND FOR GAR WOOD MODELS MC-11, MC-11A, MC-11E, AND MC-11AE

12.01 To open platform, release hand latches (Fig. 9) by pulling both inward; then platform can be lowered manually to "horizontal" (or "open") position (Fig. 10).

12.02 To start power take-off models with control lever (Fig. 11) in "neutral," engage power take-off to start pump running. Throttle

engine to slightly more than "idle" speed. Lift gate is ready to operate.

(a) Electric model units will operate immediately upon operation of control lever (Fig. 11).

12.03 The control for raising or lowering platform is located on right side of lift gate. Refer to Fig. 11 for the following operations:

(a) Lower platform by pulling control lever (Fig. 11) back to release the safety lock, then push forward to open the control valve. Platform will lower to ground level.

(b) Raise or elevate platform by moving control lever back to rear position. Platform will raise and will automatically stop at truck body floor level height. The safety lock will latch automatically when platform reaches this position.

Note: On electric models, be sure that control valve "kicks out" at extreme height; otherwise electric motor will keep running until battery is run down.

(c) Hold (or stop) platform by moving control lever to "center" (or "neutral") position. Platform will stop and hold in place.

12.04 To close platform, keep platform at truck body floor level height and pivot manually to "vertical" position until hand latches snap into "positive" lock. Always put platform in this "vertical" position when traveling in truck.

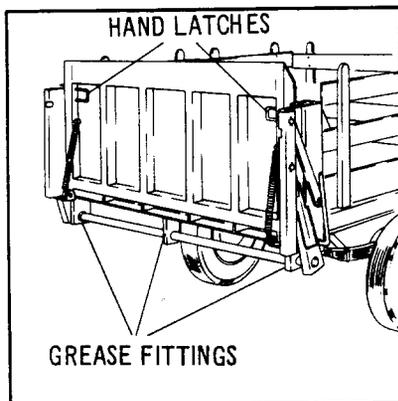


Fig. 9

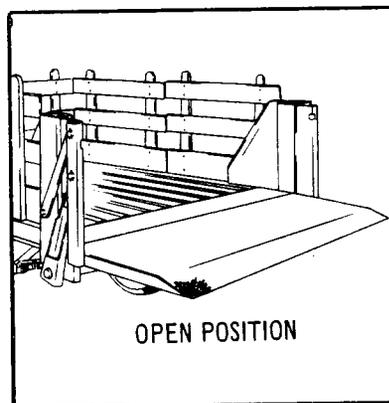


Fig. 10

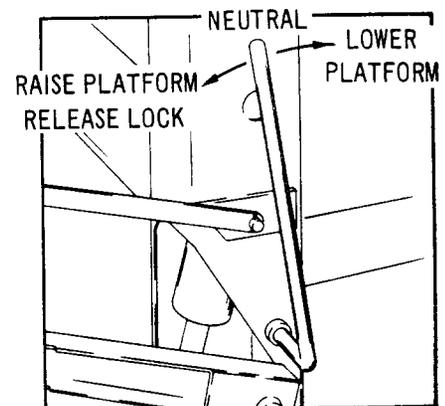


Fig. 11

13. OPERATING INSTRUCTIONS FOR DAYBROOK MODELS T-1 AND T-1E AND FOR GAR WOOD MODELS MC-14 AND MC-14E

13.01 Open platform by depressing foot pedal located on right side of lift gate. See Fig. 12. Manually pivot platform to "horizontal" position.

13.02 To start power take-off model, declutch truck engine. With engine running, shift power take-off in gear, then release clutch pedal. Throttle engine to slightly more than "idle" speed. Lift gate is ready to operate.

(a) Electric model unit will operate immediately when control handle is used. See below.

13.03 The control for raising or lowering platform is located on extreme right rear corner of truck or trailer. Refer to Fig. 13 or 14 for the following operations:

(a) Lower gate by lifting control handle to release hook, then push handle down to "lower" position. Model T-1E has two "lower" positions. (See Fig. 13.)

(b) Raise gate by moving handle up from "neutral" position. Upon reaching truck body height, a safety hook locks platform in position.

(c) Stop (or hold) platform at any intermediate height by moving control handle to "neutral" position.

13.04 To close platform, raise completely, then manually pivot platform to "vertical" position; foot pedal will automatically lock platform in "transit" position.

13.05 Checking and adding oil: Lower platform to ground before checking or adding oil to reservoir. Keep oil level 1 inch from bottom of reservoir. See Fig. 15. Use hydraulic oil or a high-grade motor oil (S.A.E. 10W-30) in system.

13.06 Cold weather operation: When operating in extremely cold temperatures, it is permissible to add kerosene to dilute the oil. Use the same procedure to add kerosene as is indicated in 13.05 for adding hydraulic oil. Diluting the oil is necessary when action of lift gate is slow or sluggish and pump chatters from starvation due to thick oil.

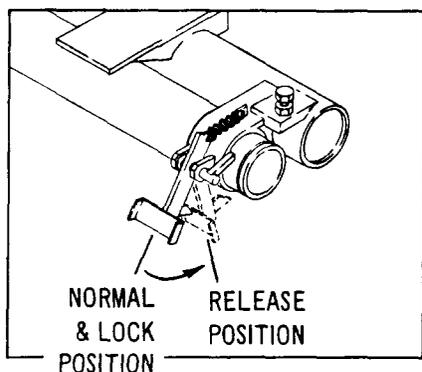


Fig. 12

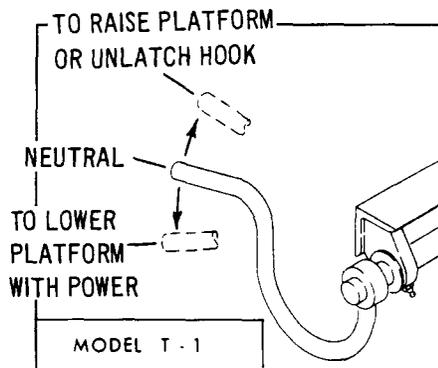


Fig. 14

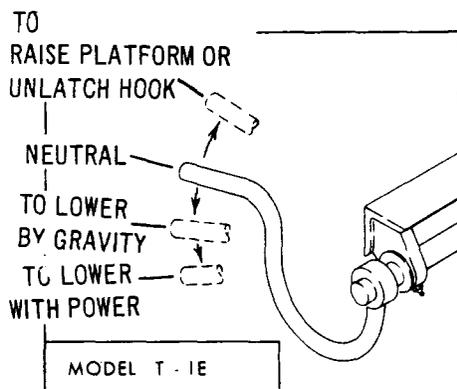


Fig. 13

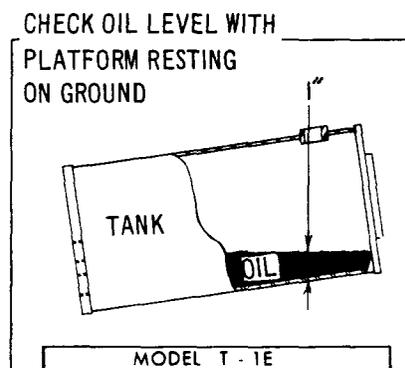


Fig. 15

14. OPERATING INSTRUCTIONS FOR DAYBROOK MODELS T-600E, T-600E-CF, AND T-600E-FS

14.01 To open platform, release hand latches (Fig. 16) by pulling both inward; platform can then be lowered manually to "horizontal" (Fig. 17) position.

14.02 To close platform, lift platform to "vertical" position until latches spring back automatically into "positive" lock.

14.03 To lower platform, open platform, then lift up on control handle assembly (Fig. 18) and hold until platform reaches desired level.

Release handle and platform will stop and hold in position.

14.04 To elevate platform, push down on control handle assembly (Fig. 18) until it engages the starter switch. Hold handle down until platform reaches desired level. Releasing permits handle to return to "neutral," and platform will stop and hold in position.

Note: Holding handle down after platform has reached the maximum elevated position causes unnecessary drain on the truck battery.

14.05 Do not carry load on platform while in transit.

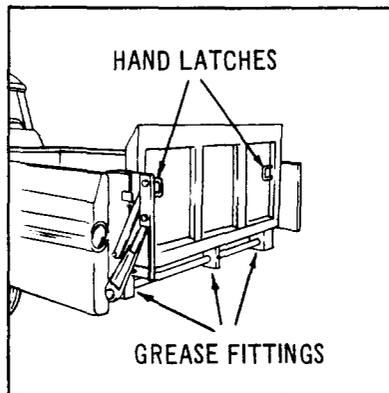


Fig. 16

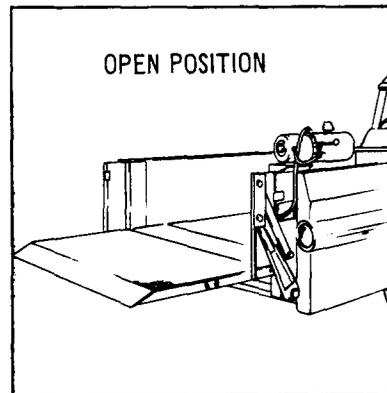


Fig. 17

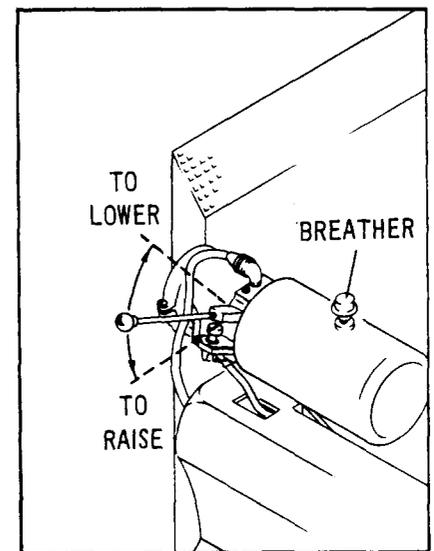


Fig. 18

14.06 Keep platform locked ("vertical" position) in transit.

14.07 Use a high-grade motor oil (S.A.E. 10W-30) in hydraulic system. To fill, lower platform to ground level and remove breather (Fig. 18) of power unit. Using above grade oil,

fill to one inch from top of reservoir. Replace breather.

14.08 Keep unit well lubricated. Use a pressure gun grease on each grease fitting. See Fig. 16. Oil contacting faces of other working parts.

15. OPERATING INSTRUCTIONS FOR GAR WOOD MODELS: FRATE GATE-2000, 4000, AND 5000

15.01 Platform holds automatically in any raising or lowering position. Self-centering spring in valve returns valve spool to neutral (hold) position when control handle is released.

(a) Note position of links, valve control rod, and valve lever in Figs. 19 through 24. They should be as shown in accordance with control lever positions.

15.02 Do not move control lever all the way forward to raise platform, as full throw raises locking latches and prevents engagement with studs on lift arms. Hold lever in "raise" position until platform contacts body in maximum upward travel. Then place lever in "float" position (Fig. 24) until platform lowers to floor level of truck body. This locks the latches on lift gate studs.

15.03 Move lever to extreme rear to close platform from truck body floor level. With platform closed, safety lock at base of center lift arm holds in this position for traveling.

15.04 "Open" position of control lever is same as "raise" position. Release lever when platform reaches level of truck body. If desired to close platform again from this position, proceed as in 15.03 and Fig. 21.

15.05 Latches must be released to lower platform from truck body level. Move control lever all the way forward. Hold momentarily, then move lever backward to "float" position. To lower platform, proceed as shown in Fig. 24.

15.06 "Float" position is preferred for lowering loads. Power lowering may be necessary in extremely cold weather when oil becomes heavy.

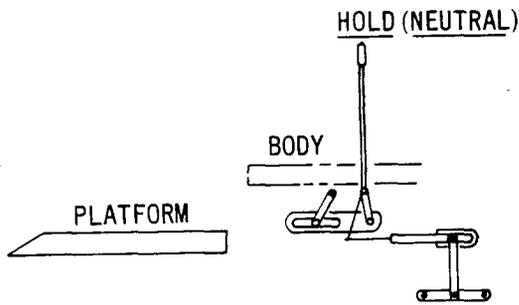


Fig. 19

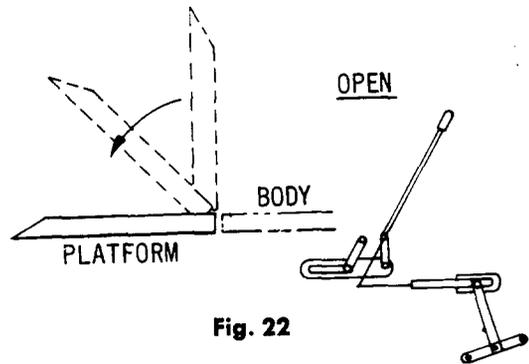


Fig. 22

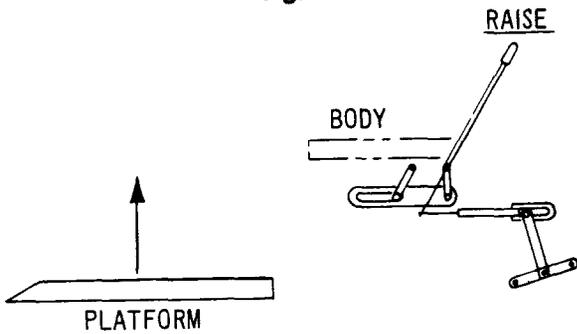


Fig. 20

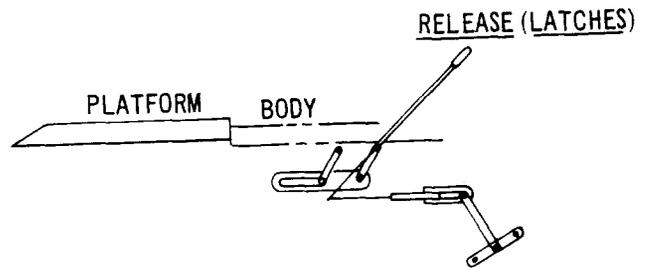


Fig. 23

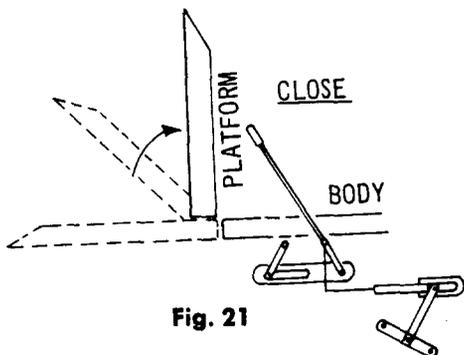


Fig. 21

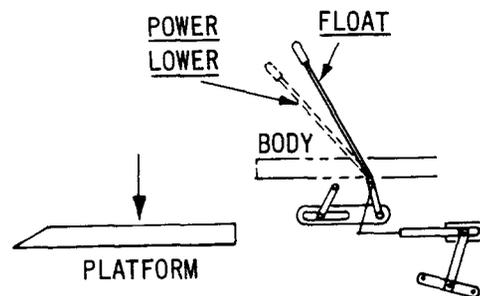
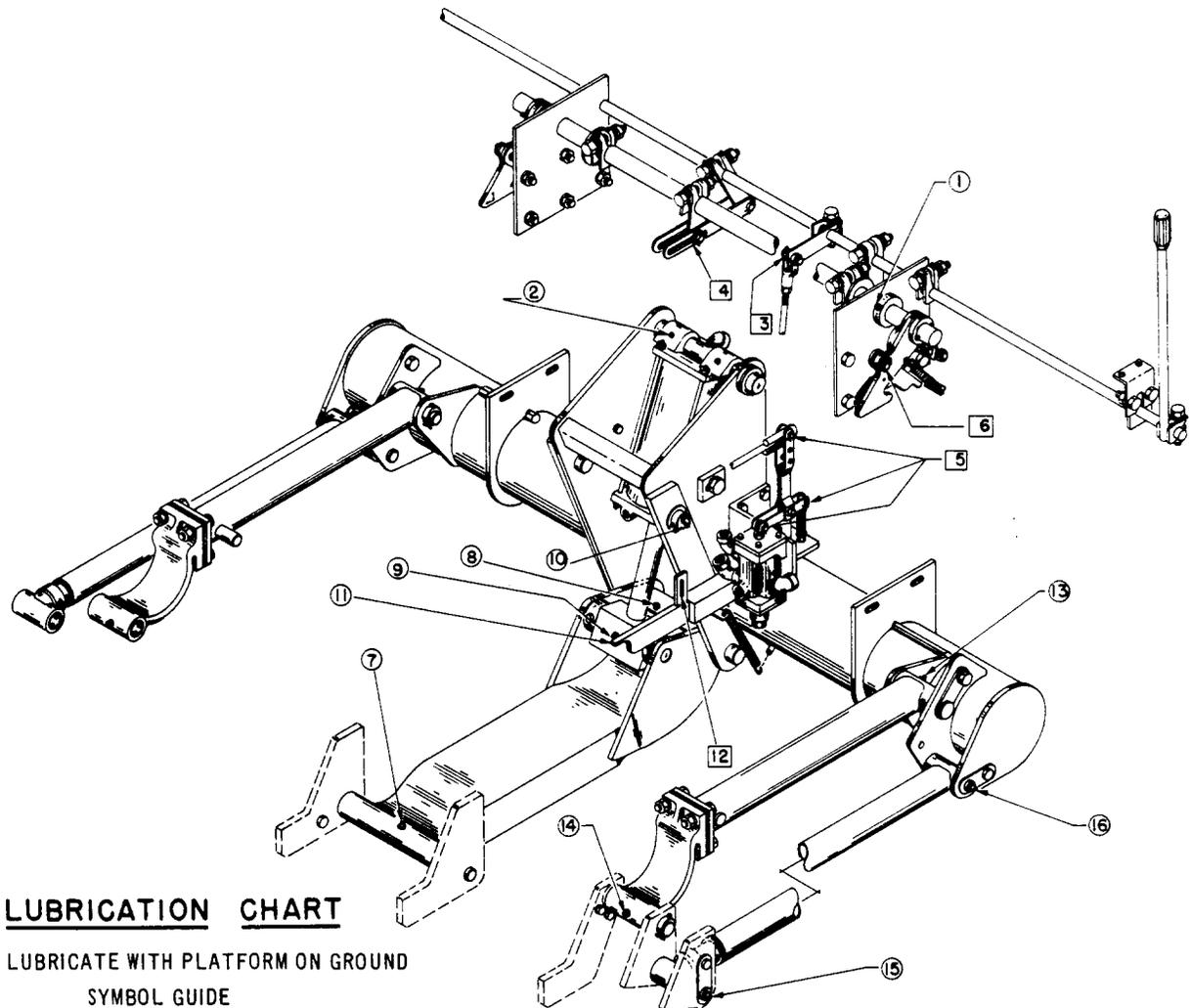


Fig. 24

- 15.07** Lubricate lift gate frequently, in accordance with lubrication chart (Fig. 25).
- 15.08** To fill oil reservoir, raise platform to level of truck body.

- 15.09** Fill reservoir to within 1½ inches to 2 inches of top. Use a good grade of motor oil as follows:



LUBRICATION CHART

NOTE: LUBRICATE WITH PLATFORM ON GROUND
SYMBOL GUIDE

- INDICATES PRESSURE GUN
- INDICATES OIL CAN OR SPRAY

IMPORTANT:
 DRIVE SHAFT UNIVERSAL JOINTS (NOT SHOWN)
 MUST BE GREASED EVERY 40 OPERATING HOURS.

- ① LATCH SHAFT (BOTH SIDES)
- ② CYLINDER BASE (TWO FITTINGS)
- ⑦ CENTER ARM (LOWER)
- ⑧ CENTER ARM (UPPER)
- ⑨ PISTON ROD CLEVIS
- ⑩ ARM LINK PIVOT
- ⑪ SUPPORT LATCH (FITTING AT PIVOT)
- ⑬ LIFT ARM (UPPER - BOTH SIDES)
- ⑭ LIFT ARM (LOWER - BOTH SIDES)
- ⑮ COMPRESSION ARM PIN (LOWER - BOTH SIDES)
- ⑯ COMPRESSION ARM PIN (UPPER - BOTH SIDES)
- ③ CONTROL ROD CLEVIS
- ④ CONTROL SHAFT LINK
- ⑤ CONTROL LINKAGE PINS
- ⑥ LATCH PIN
- ⑫ SLIDE BLOCK

Fig. 25

SECTION 720-330-300

Summer (Above 32° F.)—S.A.E. 20W
Tropical (Above 90° F.)—S.A.E. 30W
Winter (Below 32° F.)—S.A.E. 10W
Arctic (Below 0° F.)—S.A.E. 5W

15.10 Keep oil reservoir clean.

**16. OPERATING INSTRUCTIONS FOR WATSON
MODELS 1050W, 1250W, AND 1500W**

16.01 Before opening or lowering the lift gate, move operating handle to the "raise" position, to disengage the safety hooks. See Fig. 26.

16.02 To close the lift gate, proceed as follows:

(a) Lower the platform until the forks can swing over the pins on the idler arms.

(b) Move operating handle to "close" position. Forks will engage idler arms and gate will close. See Fig. 26.

16.03 Use pressure gun grease on each grease fitting every time truck is serviced.

16.04 Oil contacting faces of other working parts every time truck is serviced.

16.05 Keep oil reservoir about $\frac{3}{4}$ full. Change oil yearly. Use S.A.E. 10W - 30 oil. Complete system uses six quarts of oil.

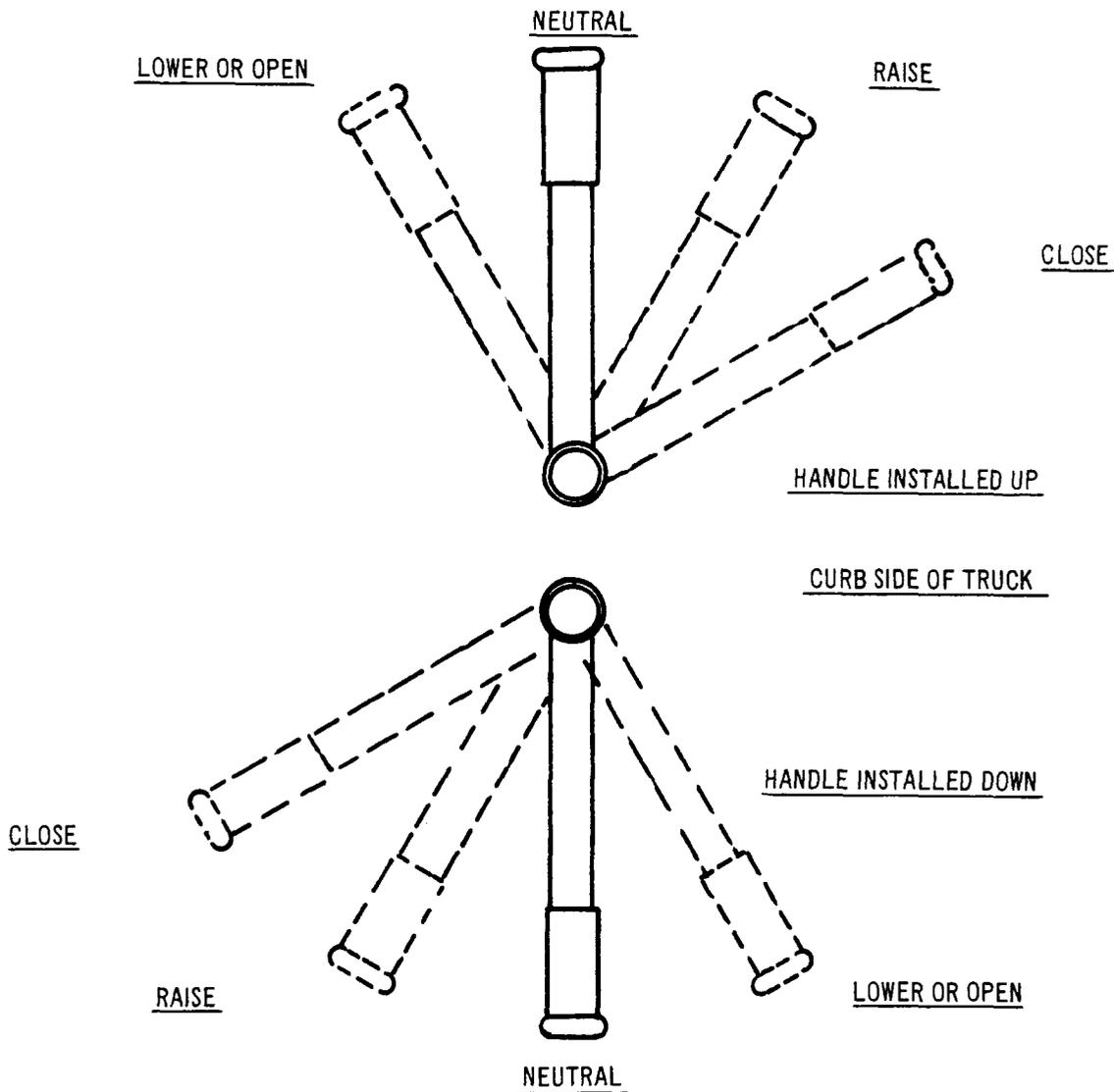


Fig. 26

**17. OPERATING INSTRUCTIONS FOR WATSON
MODEL 2000W**

17.01 Before opening or lowering the lift gate, move operating handle to the "raise" position, to disengage the safety hooks. (See Fig. 27.)

17.02 To close the lift gate, proceed as follows:

- (a) Lower the platform until the forks can swing over the pins on the idler arms.
- (b) Pull small safety release lever, and hold.
- (c) Move operating handle to "close" position and let go of small safety release lever.

Forks will engage pin on idler arms, and platform will close.

17.03 Use pressure gun grease on each grease fitting every time truck is serviced.

17.04 Oil contacting faces of other working parts every time truck is serviced.

17.05 Keep oil reservoir about $\frac{3}{4}$ full. Change oil yearly. Use S.A.E. 10W - 30 oil. Complete system uses six quarts of oil.

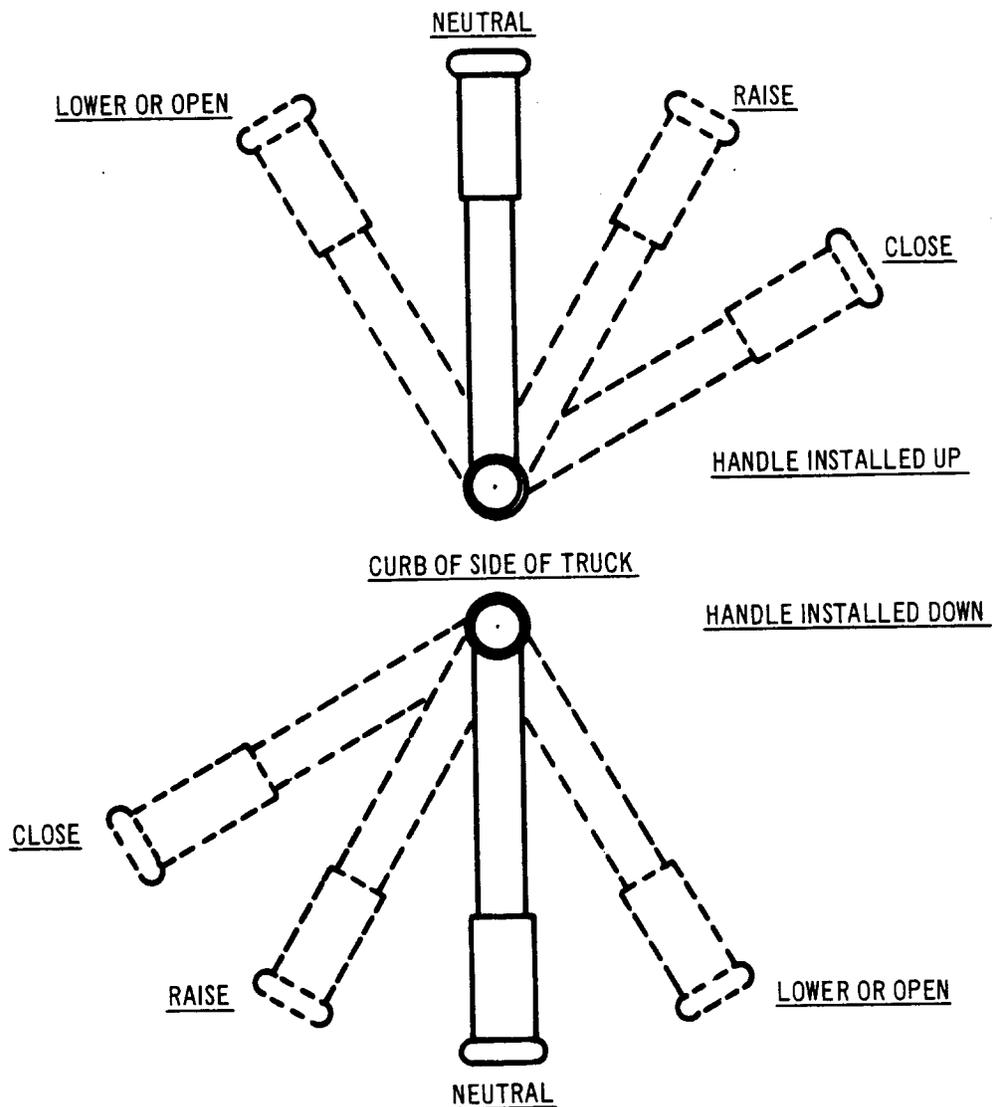


Fig. 27