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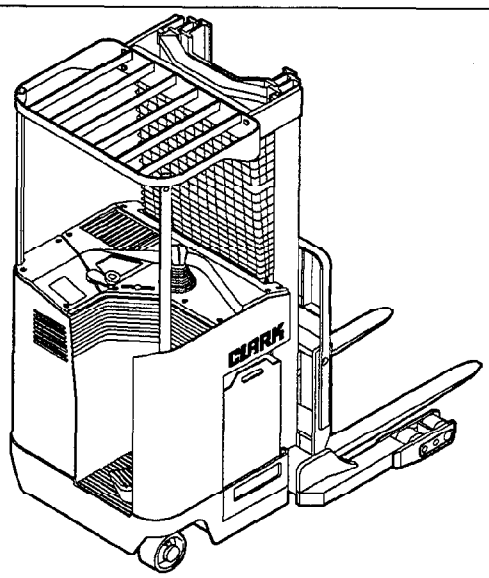
Service Manual

SM -587



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CLEANING

Cleaning Summary

- Battery Compartment.
- Lower Compartment.
- Drive Motor and Steer Motor.
- Brake Components.
- Axle Mounting.
- Caster Wheel and Brake.
- Hydraulic Compartment.
- Pump Motor.
- Control Compartment.
- Upright and Pantograph.

IMPORTANT

Do not clean electrical components with steam. Only approved solvents should be used to clean Solid State components. Scheduled cleaning (*as outlined*) should preclude the need for using a degreaser. Not all degreasers are acceptable. If a degreaser is to be used, we recommend Clark #1801146 degreaser or the equivalent to MS-180 Freon TF degreaser and cleaner.

⚠ WARNING

When cleaning with compressed air:

- **Wear eye protection and protective clothing when cleaning or drying with air pressure.**
- **Reduce air pressure to 30 PSI (207 kPa). Debris removed with air pressure can cause injury.**

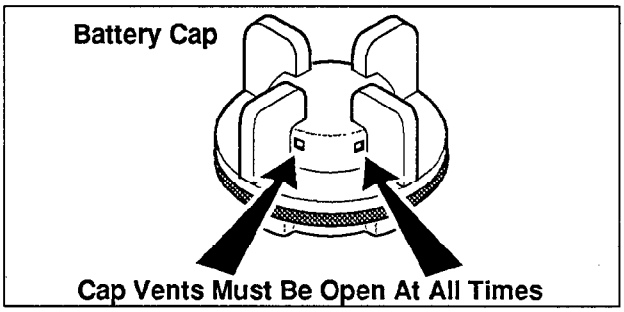
Normal Cleaning

Blowing dirt off with an air hose periodically will, for the most part, eliminate any serious cleaning problems. Should the need arise for a more thorough cleaning, water may be hosed over the control and if necessary a mild detergent applied such as that used in washing dishes in the home. This detergent should be rinsed off and the control dried with an air hose. ***The control must be thoroughly dry before putting the truck back into service.***

Cleaning the components of the truck is a vital part of the P.M. process. Keeping the components clean will increase their service life and assure trouble free truck operation.

a. Remove Battery

- Disconnect battery from truck receptacle.
- Remove battery retainers and inspect them for damage.
- Remove battery from truck. Refer to Group 12 for removal and safety instructions.
- Clean off deposits of corrosion on the battery.
- Check battery cables for fraying and damage. A frayed or damaged cable can cause a short. Report condition on P.M. Check List.



- Check battery vents for obstruction. The cap vents must be open at all times. If any are found to be plugged, they may be washed in a solution of baking soda and water.

b. Access Internal Components

- Remove fasteners securing front console cover to truck.

  Slip boot off cover lip and tuck bottom of boot into cover hole.

  Carefully lift cover a little forward and upward until the cover is free of the control.

  Remove console cover from truck.
- Remove fasteners securing the side cover to the truck.

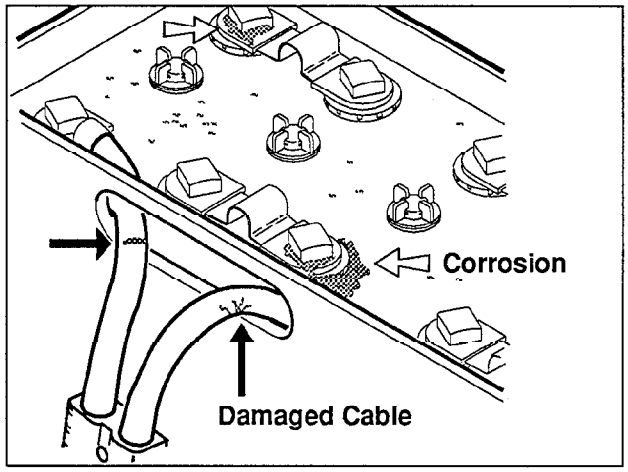
  Lift cover off truck.
- Remove fasteners securing floor plate to truck.

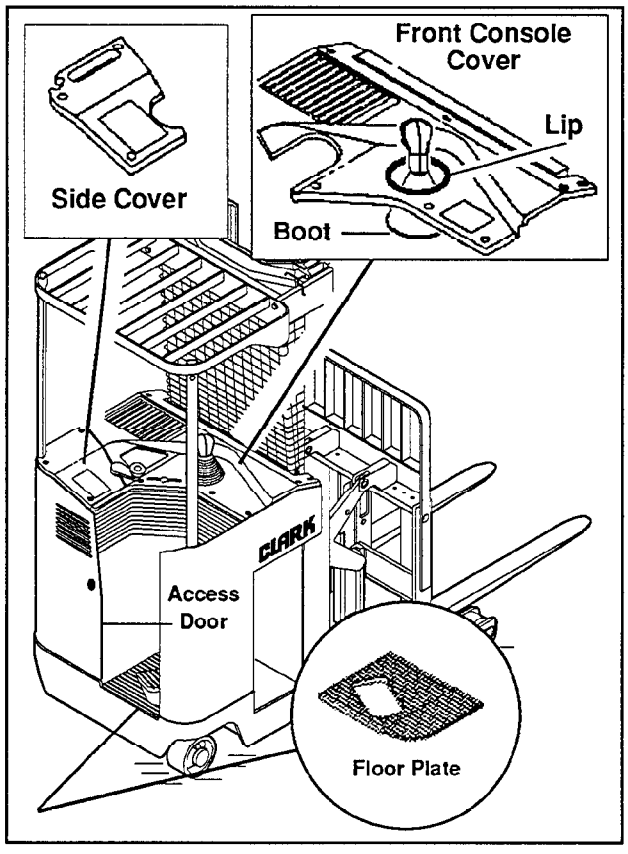
  Lift floor plate upward and over the brake pedal.
- Open Access Door. Loosen door fasteners until the door is free to open exposing internal components.

⚠ WARNING

The battery contains corrosive acid which can cause injury. If acid contacts your eyes or skin, flush immediately with water and get medical assistance.

Do not smoke or allow open flame near the battery. Explosive gas is always present around batteries.





c. Discharge the Capacitors

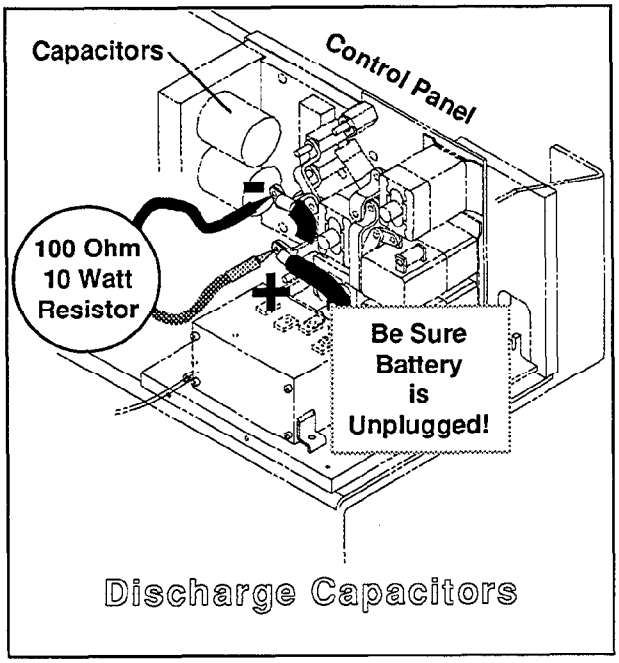
- Be sure the battery is unplugged.
- Discharge capacitors using a 100 ohm, 10 watt resistor connected between the **Positive** and **Negative** power terminals on the Transistor Control. ***Hold the resistor in place for 2 seconds before removing.***

⚠ CAUTION

Using a shorting device without a *"resistor load"* could cause damage to the control.

⚠ WARNING

Discharging the capacitors without using specified resistor could cause serious injury to yourself and bystanders.



Discharge Capacitors

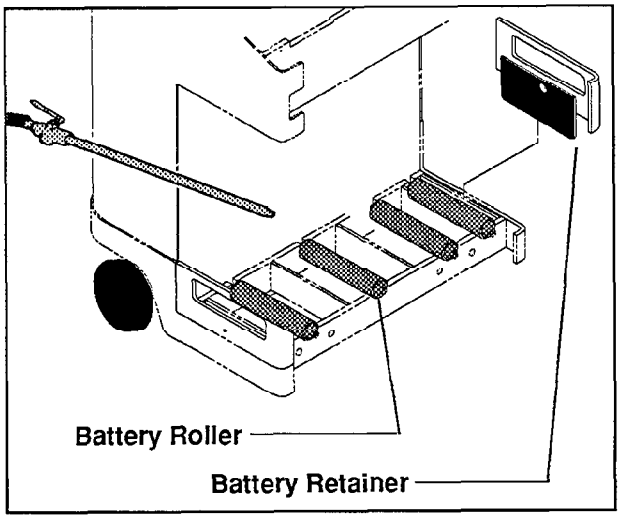
⚠ Warning

When cleaning with compressed air:

- **Wear eye protection and protective clothing when cleaning or drying with air pressure.**
- **Reduce air pressure to 30 PSI (207 kPa). Debris removed with air pressure can cause injury.**

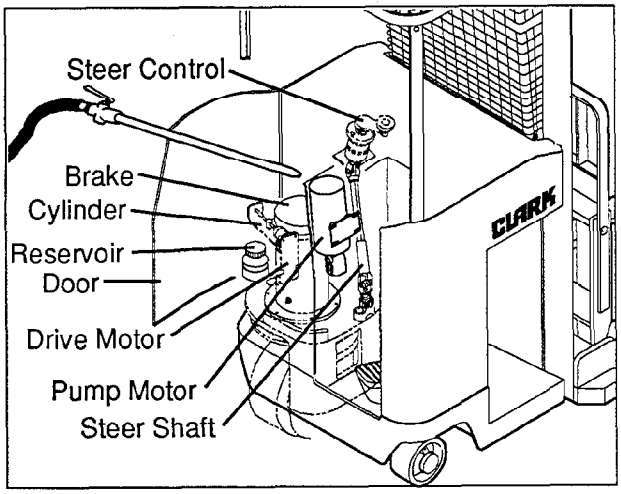
d. Air Clean

- Using clean, dry air, and a nozzle extension on the air compressor hose, air clean truck and components.



e. Air Clean Battery Compartment

- Blow off rollers and roller wells.
- Inspect rollers for damage. Replace any that are unfit for further service.
- Be sure battery retainers are not damaged and fit properly in their respective grooves.



f. Air Clean Lower Compartment

- Completely air clean the compartment. Blow off the steer control, steer pump & motor, drive motor, brake, cylinder and reservoir.

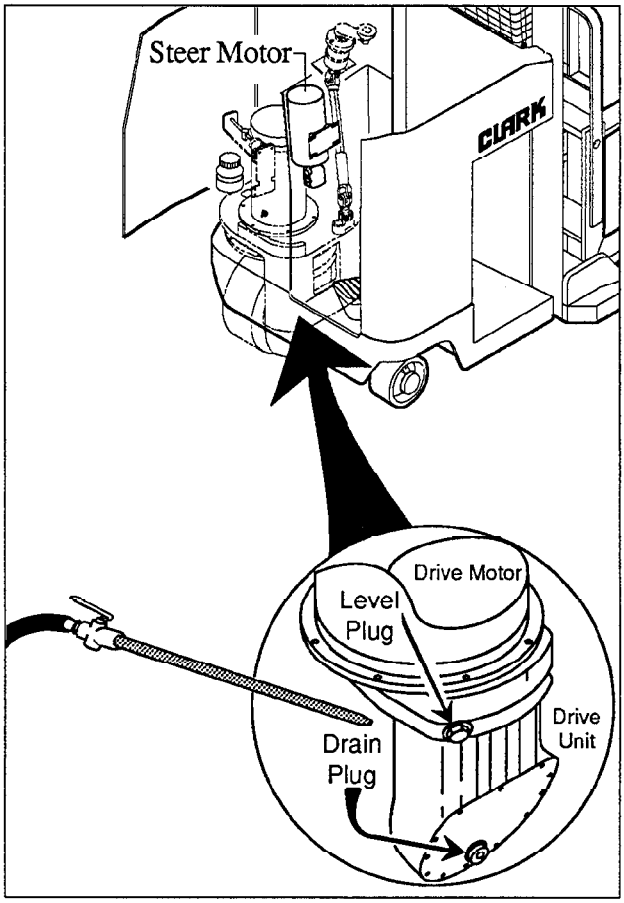
- Check condition of the steering slip shaft and the universal joints. Clean area around the grease fittings. Check their condition and be sure none are missing.
- Check components for security of mounting and general condition.

g. **Air Clean Drive Unit**

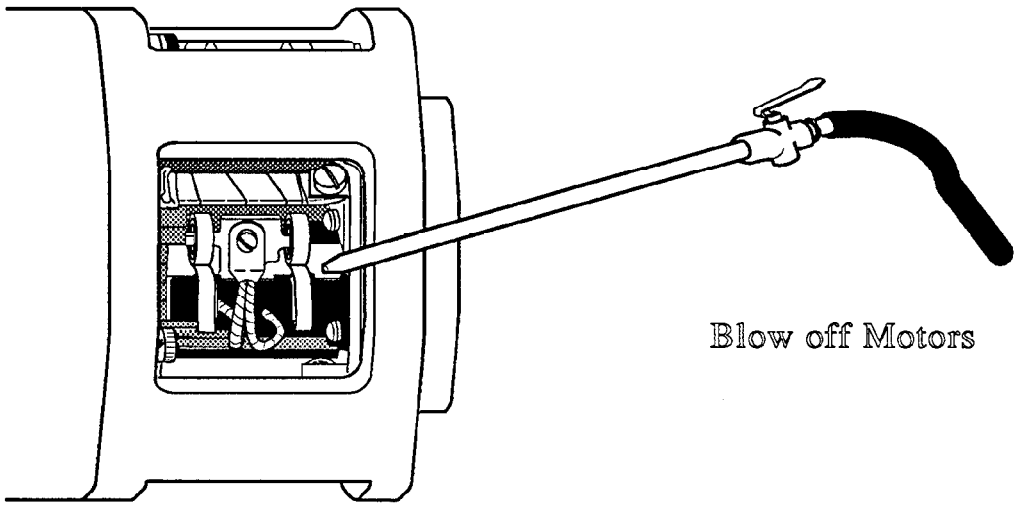
- Blow off the drive unit. Be sure all dirt and dust is removed around the level and drain plugs.

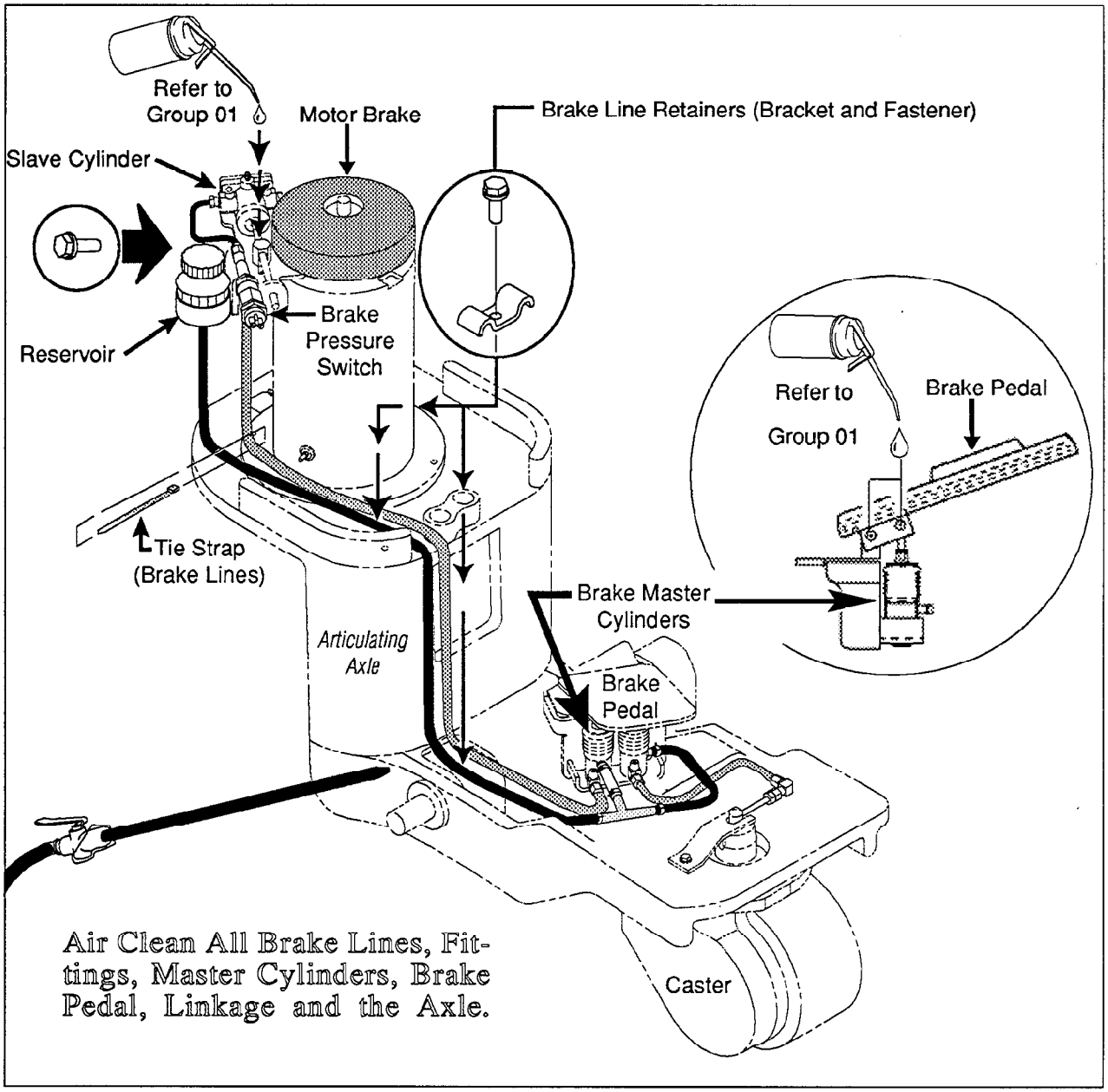
Drive Motor and Steer Motor

- If the motors are equipped with brush covers, remove the covers.
- Remove the brushes and inspect them for wear. Refer to the Brush Inspection Chart in Group 16.
- Inspect commutator bars for "bridging" dust or copper material while slowly rotating the brake drum. If bridging exists, **gently remove** the bridging dust using a sharp pointed tool such as a scribe or ground off hacksaw blade. Air clean the commutator after removing bridges.
- Reinstall brushes and brush covers (if applicable).
- Record commutator condition and brush lengths on the P.M. Check List.



Make certain that all dust is removed from both the outside and inside of the motor.

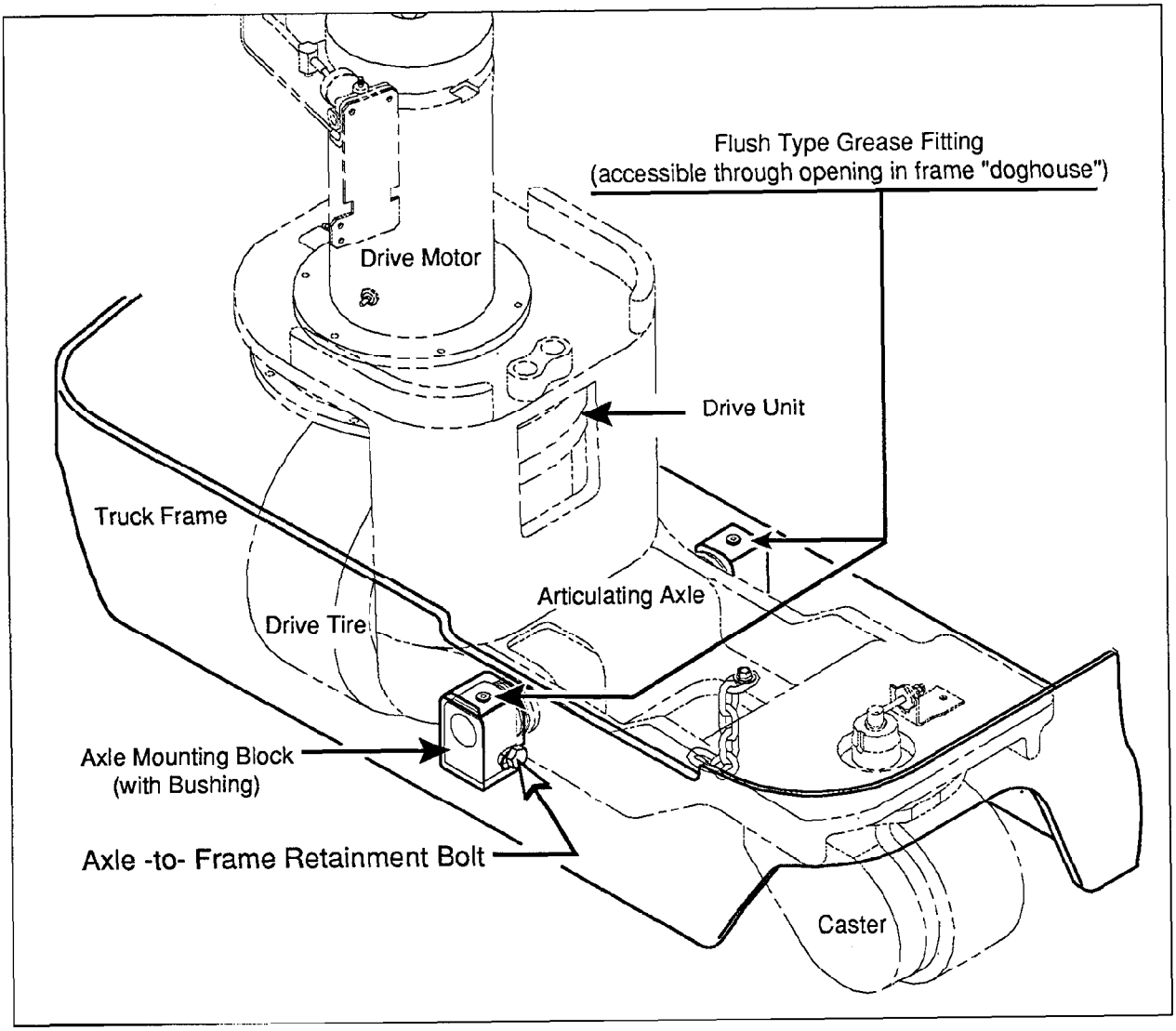




Brake Components

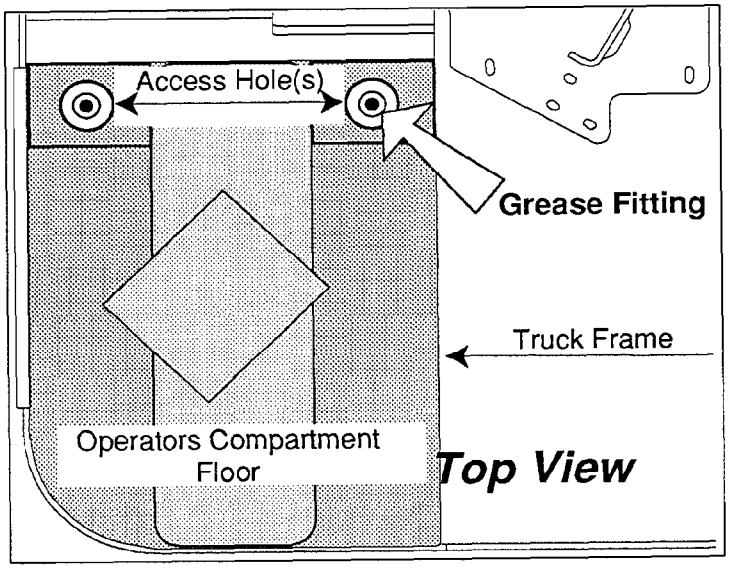
- Air clean master cylinders located beneath the brake pedal. Blow off the brake lines in the operators compartment.
- Check brake cylinders, lines and fittings for damage and leakage. Be certain the brake line retainer brackets are in place and tightened securely. Tighten all fasteners and replace any that are damaged or missing.

If there is leakage at the connections, tighten the fittings. If leakage still exists, replace damaged parts. **If brake cylinder leakage exists, report condition to designated authority.**



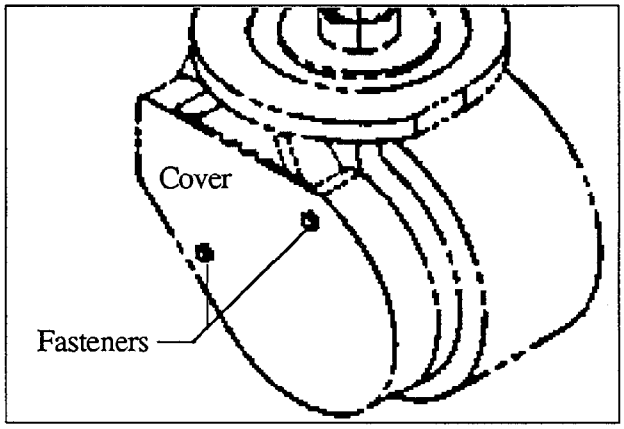
h. **Axle Mounting**

- Be sure the axle to frame retainment bolts are in place and tightened securely.
- Each axle mounting block is equipped with one bushing and a flush type grease fitting. The grease fitting is accessible through an opening in the top side of the axle weldment or "doghouse" located just beneath the operators compartment floor. Clean the area around the fitting and wipe the fittings clean. Be certain they are in good condition.



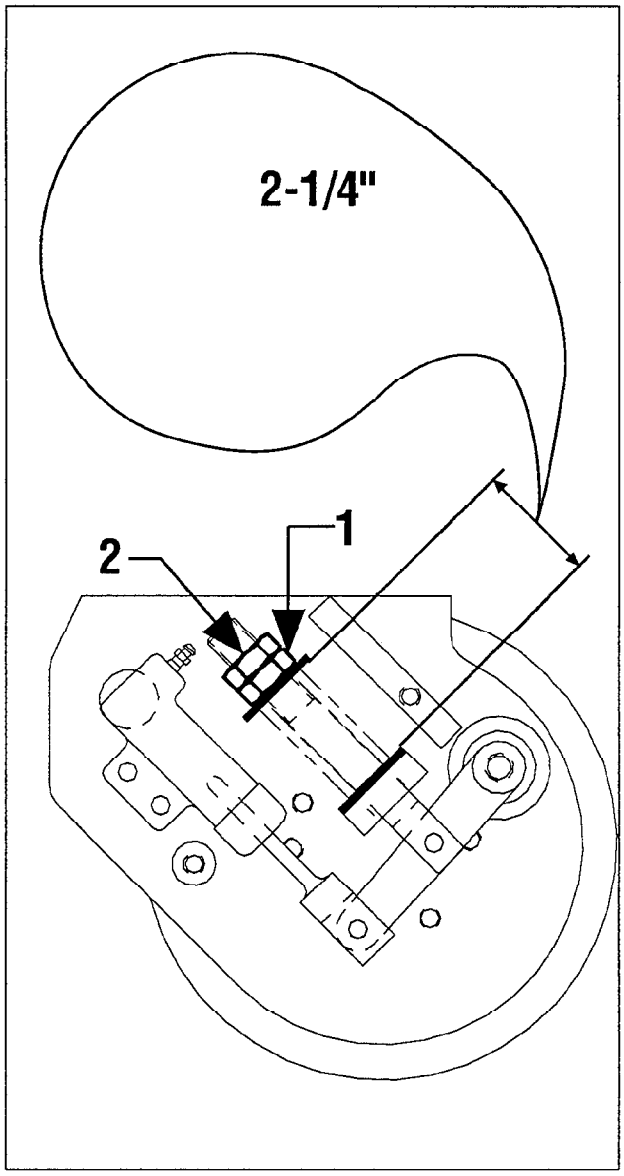
j. **Air Clean Caster Wheel & Brake**

- Blow off the caster wheel assembly.
- Check for obvious damage and security of mounting.
- Check caster wheel for loose wheel bearings.
- Air clean the cover located on the back side of the caster wheel and check it for damage.
- Remove the cover and air clean the caster brake cylinder, spring and linkage.
- Inspect brake cylinder and lines for leakage.
- Check the brake spring, linkage and cylinder for damage and security of mounting.

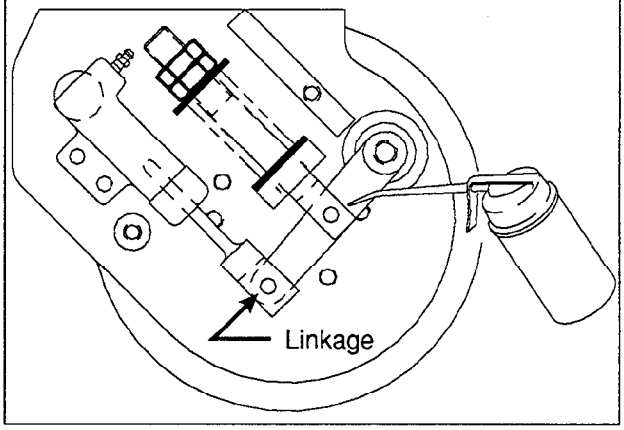


k. **Check Brake Spring Length**

- Measure the distance between the inside of one washer to the inside of the opposite washer (as shown here). If spring length is not as specified, an adjustment must be made.
- Using wrench, turn nut (1) against washer until 2-1/4" (57.2mm) can be measured between inside of one washer to the inside of opposite washer.
- After obtaining correct spring adjustment, use a second wrench and tighten jam nut (2) against nut (1) without disturbing spring adjustment.



Be sure to Lubricate linkage. Refer to Group 01.



Adjusting for Lining Wear

When to Replace Brake Linings

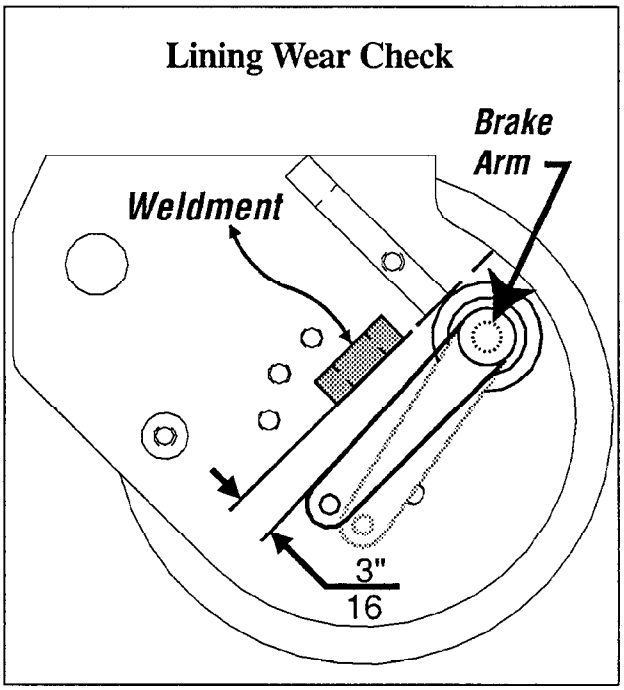
As brake linings wear, the brake arm will move inward toward the caster "weldment". **When the arm is within 3/16 of an inch** from this weldment, move arm 1-spline away from weldment.

Refer to Group 23, Section 2 for Check and Adjustment Procedures.

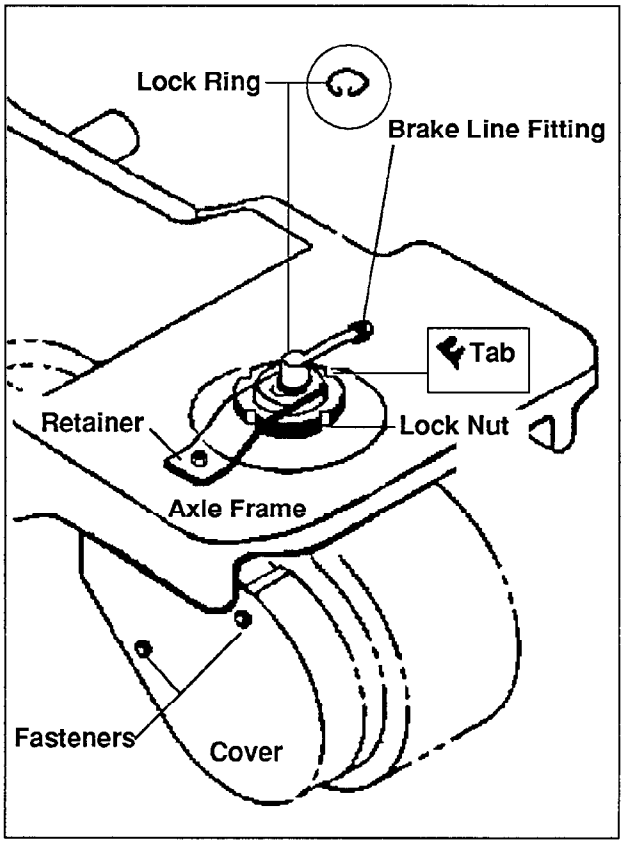
IMPORTANT: This adjustment may be made a **maximum of four (4) times.** When the brake arm reaches the 3/16" measurement a **fifth time, install new brake linings.**

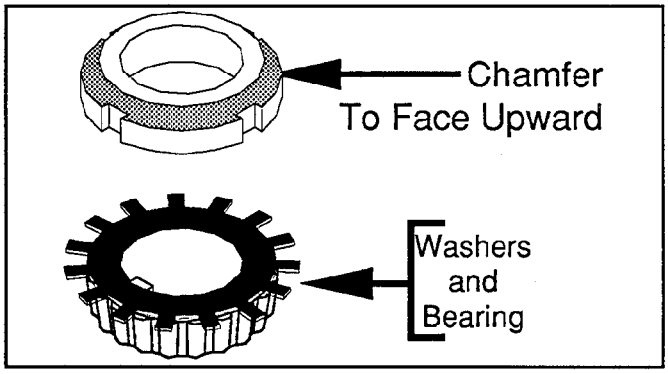
Brake Pedal Up-Height should be checked after installing new brake linings.

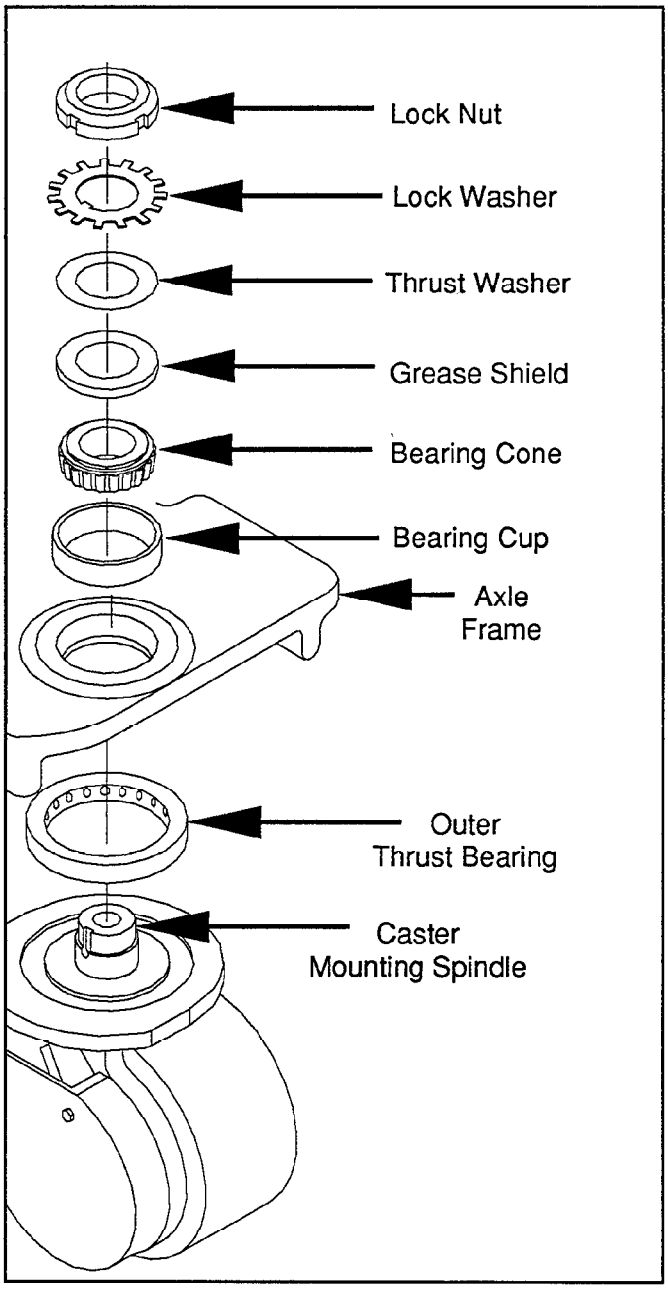
Refer to Group 23, Section 4 to the Check and Adjustment Procedures.



- Now install the cover onto the caster assembly being certain the fasteners are tightened securely. Never place truck into service with the cover missing. It should be installed at all times.
- Check the brake line for damage and security of mounting.
- Check to be sure lock ring is not missing or damaged.
- Make certain retainer plate is properly located against the brake line fitting.
- Make certain the retainer plate is tightly secured to the axle frame.







- <u>Check Caster (Stabilizer) Installation for loose Trunnion Bearings.</u>
- Try to move the caster assembly up and down and check for side to side movement. If the bearings appear to be loose, they should be inspected for damage and proper adjustment. (Refer to Group 01 for lubrication specifications.) If bearings appear to be fit for further service, then adjust the pivot (trunnion) bearings as outlined here.

Adjustment

- Unlock bearing lock nut.

IMPORTANT

Be sure the lock nut is installed with the chamfer side (UP) away from bearing.

- Using a torque wrench, torque nut to 30 lb.ft. (40.7 N•m).
- Next, rotate caster assembly **at least** two (2) full revolutions. Now, retorque nut to 30 lb.ft. <u>Repeat procedure until torque is stabilized at 30 lb.ft. (40.7 N•m).</u>

IMPORTANT

The above procedure must be repeated until bearing preload is <u>stabilized</u> (you can no longer turn the nut) at the 30 lb.ft. torque. Once this has been accomplished, tighten the lock nut (do not back off nut) to the next available locking tab. Lock the nut in place with washer locking tab.

NOTE

Check, adjust and lubricate axle trunnion bearings every "P.M.". Refer to Lubrication in Group 01.