

# **SERVICE MANUAL**

**N30AH**

**B210**

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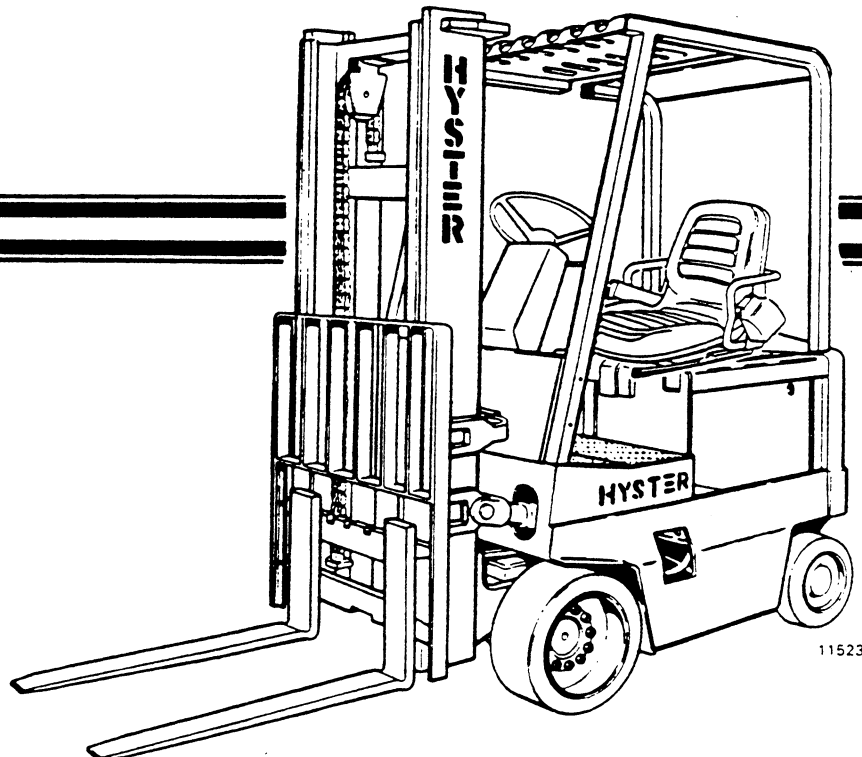
*Rev key 7/20/93*

*Changes on Pgs  
2, 3, 4, 6, 8, 11*

# THE FRAME

**E/J25-60XL, E70-120XL**

N30AH



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## **SAFETY PRECAUTIONS MAINTENANCE AND REPAIR**

- When lifting parts or assemblies, make sure that all slings, chains or cables are correctly fastened and that the load being lifted is balanced. Make sure that the crane, cables and chains have the capacity to support the weight of the load.
- Do not lift heavy parts by hand. Use a lifting mechanism.
- Wear safety glasses.
- **DISCONNECT THE BATTERY CONNECTOR** before doing any maintenance or repair on electric lift trucks. **DISCONNECT THE BATTERY GROUND CABLE** on internal combustion lift trucks.
- Always use correct blocks to prevent the unit from rolling or falling. See "How To Put The Lift Truck On Blocks" in the **OPERATING MANUAL** or the **PERIODIC MAINTENANCE** section.
- Keep the unit and working area clean and in order.
- Use the correct tools for the job.
- Keep the tools clean and in good condition.
- Always use **HYSTER APPROVED** parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.
- Make sure that all nuts, bolts, snap rings and other fastening devices are removed before using force to remove parts.
- Always fasten a **DO NOT OPERATE** sign to the controls of the unit when making repairs or if the unit needs repairs.
- Make sure you follow the **DANGER, WARNING** and **CAUTION** notes in the instructions.
- Gasoline, Liquid Petroleum Gas (LPG), and Diesel are flammable fuels. Make sure that you follow the necessary safety precautions when handling these fuels and when working on these fuel systems.
- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area has ventilation.

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This section is for the following models:  
SitDrive Electric XL Series

)

## INTRODUCTION

### GENERAL

This section has a description and the service procedures for the parts of the frame. These parts include the frame, counterweight assembly, overhead guard, hydraulic tank, access panels, and decal positions. The procedure for removing the traction motor is also described in this section.

### DESCRIPTION

The frame is a single weldment. The frame has mounts for the counterweight, overhead guard, tilt cylinders, steering axle, and drive axle assembly. The hydraulic tank is a plastic tank mounted in the right side of the frame on all of the XL series of lift trucks except the E3.50-5.50XL (E70-120XL) series. On the E3.50-5.50XL (E70-120XL) models, the hydraulic tank is part of the lift truck frame and is a welded steel unit. The lift trucks must have a hood over the battery, or a covered battery if a hood is not installed. The floor plates can be removed for access to the hydraulic systems. A panel in the bottom of the battery compartment can be removed for access to the traction motor and the hydraulic pump motor.

On the E3.50-5.50XL (E70-120XL) models, this panel also gives access to the power steering pump motor. The SCR (silicon controlled rectifier) electronic controller and contactors are in the counterweight. A panel in the counterweight can be removed for access to the SCR controller and contactors.

The frames for the lift trucks are similar in design, but are different sizes for each XL series. The J1.25-1.75XL (E25-35XL) models with pneumatic tires have fenders welded to the frame because of the wider drive tires.

The E2.00-3.00XL (E40-60XL) lift trucks have frames made in four different configurations. The lift truck with the long (842 mm battery compartment) frame has a larger battery compartment than the lift truck with the short (695 mm battery compartment) frame. Some lift trucks have additional counterweight metal added to the frame in front of the steering axle because of differences in some battery weights. The remainder of the frame parts are the same.

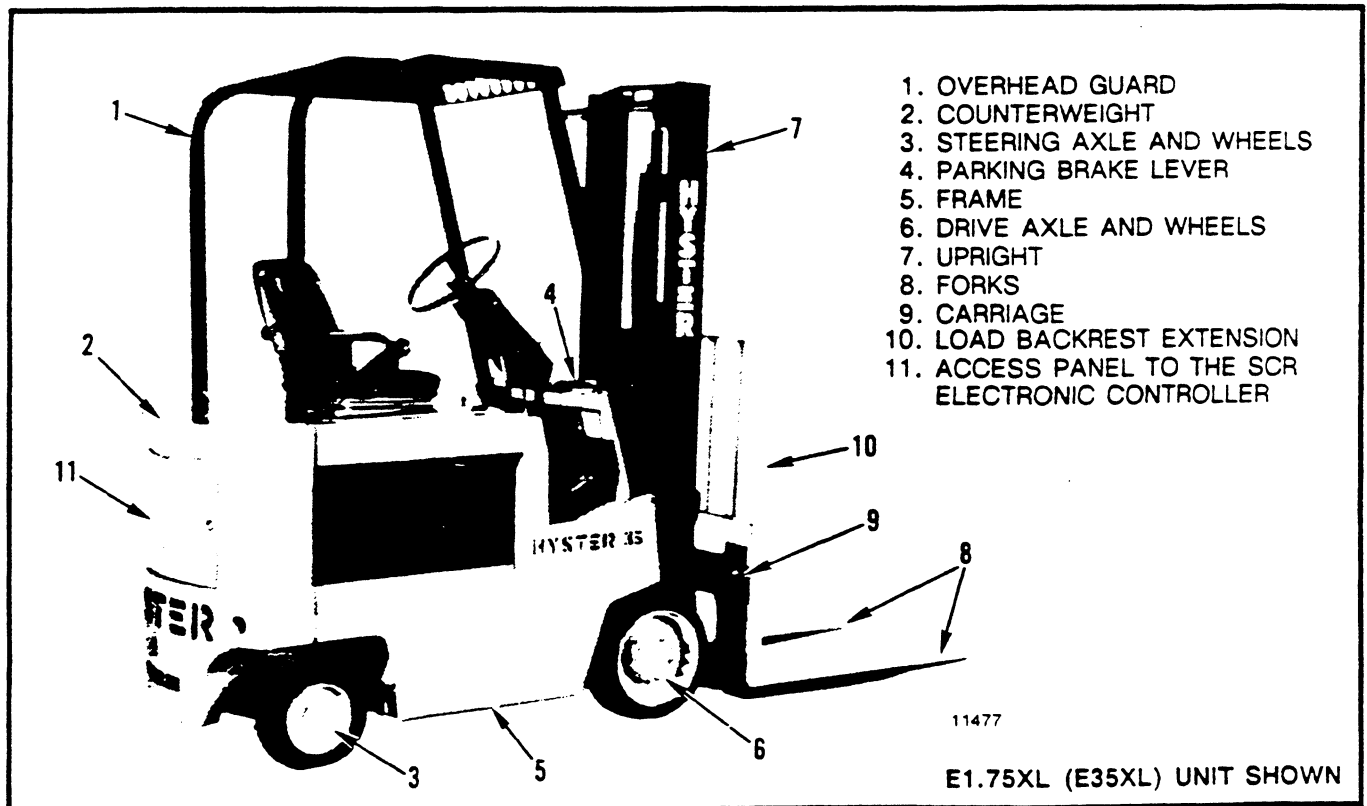


FIGURE 1. PARTS OF THE LIFT TRUCK



The J2.00-3.00XL (J40-60XL) models are made with two sizes of frames. A short frame (842 mm battery compartment) is available for the J2.00-2.50XL (J40-50XL) models. A long frame (1010 mm battery compartment) is available for all of the J2.00-3.00XL (J40-60XL) models. The size of the battery compartment and battery size specifications are shown in Table 1.

and N30A4

The E3.50-5.50XL (E70-120XL) models are made with two sizes of frames. A short frame (1018 mm battery compartment) is available for the E3.50-3.00XL (E70-80XL) and the E5.00XLS (E100XLS) models. A long frame (1183 mm battery compartment) is available for the E5.00-5.50XL (E100-120XL) models. The size of the battery compartment and battery size specifications are shown in Table 1.

The lift trucks are equipped with adjustable spacers in the battery compartment (See Figure 2). Add or remove shims from under the front spacer bar to control the movement of the battery in the forward and backward directions. Install an equal number of shims at each capscrew. Install the additional shims under the nuts of the capscrews (outside battery compartment). The spacers on each side of the battery can be adjusted to control the movement of the battery from side to side. Access to the nuts for the spacers for the sides of the battery is under the frame near the steer tires on all units. Tighten all capscrews. It can be necessary to install the side spacers facing the opposite direction for some batteries. If the spacers can not be adjusted for a battery that is specified for this lift truck, see your Hyster lift truck dealer for the correct spacers.

**NOTE:** Maximum tolerances are +0 and -13 mm (+0 and -0.5 in) for the size of the battery compartment. The battery specification chart shows the maximum size tolerances that will permit a battery to still fit into a battery compartment.

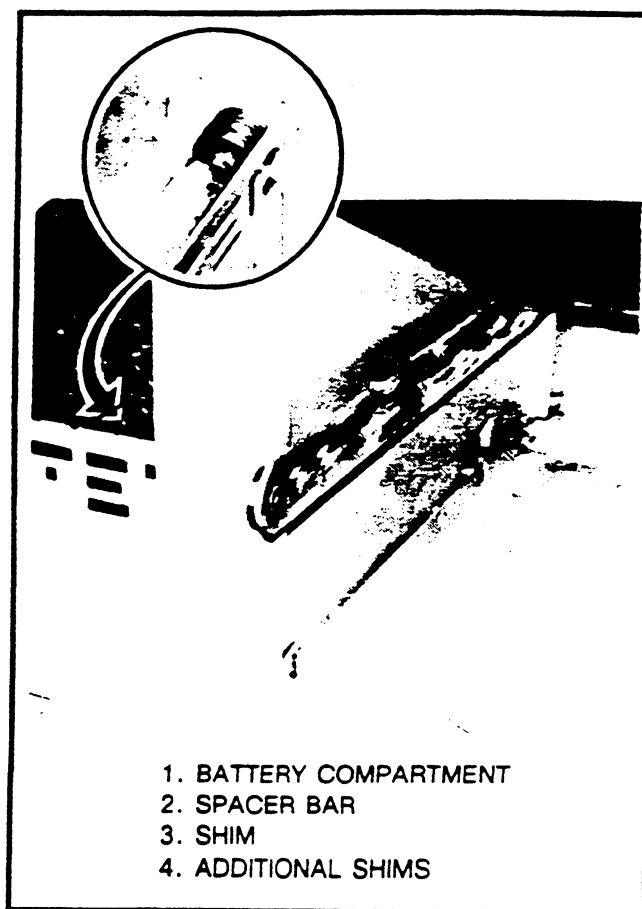


FIGURE 2. BATTERY SHIMS

### **WARNING**

The battery must fit the battery compartment so that the battery restraint system will operate correctly. Use spacers to prevent the battery from moving more than 13 mm (0.5 in) in any horizontal direction.

The weight of the battery is a large part of the counterweight system on an electric lift truck. Make sure that the battery is within the weight limits indicated on the nameplate. Each model of lift truck has a cast-iron counterweight that provides the additional weight necessary for the indicated capacity. A slot in the overhead guard permits removal of the battery without removing the overhead guard.

TABLE 1. BATTERY SIZE SPECIFICATIONS

TYPE: LEAD-ACID BATTERY

MODEL	MINIMUM COMPARTMENT SIZE LENGTH x WIDTH	BATTERY SIZE MIN/MAX		WEIGHT	
		LENGTH	WIDTH	MIN	MAX
E1.25XL (E25XL)	695 x 909 mm 27.4 x 37.8 in	654 / 692 mm 25.8 / 27.2 in	784 / 907 mm 30.9 / 35.7 in	794 kg 1750 lb	1200 kg 2645 lb
E1.50XL (E30XL)	695 x 909 mm 27.4 x 37.8 in	654 / 692 mm 25.8 / 27.2 in	784 / 907 mm 30.9 / 35.7 in	839 kg 1850 lb	1200 kg 2645 lb
E1.75XL (E35XL)	695 x 909 mm 27.4 x 37.8 in	654 / 692 mm 25.8 / 27.2 in	784 / 907 mm 30.9 / 35.7 in	917 kg 2020 lb	1200 kg 2645 lb
E2.00-2.50XL (E40-50XL)	695 x 987 mm 27.4 x 38.9 in	681 / 691 mm 26.8 / 27.2 in	978 / 983 mm 38.5 / 38.7 in	1045 kg 2300 lb	1450 kg 3197 lb
E2.50-3.00XL (E50-60XL)	842 x 987 mm 33.1 x 38.9 in	800 / 838 mm 31.5 / 32.9 in	978 / 983 mm 38.5 / 38.7 in	1315 kg 2900 lb	1690 kg 3726 lb
E3.50-4.00XL (E70-80XL)	993 x 1146 mm 39.3 x 45.1 in	916 / 1117 mm 37.4 / 43.9 in	950 / 990 mm 37.4 / 38.9 in	1542 kg 3400 lb	2300 kg 5070 lb
E4.50XLS* (E100XLS*)	993 x 1146 mm 39.3 x 45.1 in	916 / 1117 mm 37.4 / 43.9 in	950 / 990 mm 37.4 / 38.9 in	1633 kg 3600 lb	2300 kg 5070 lb
E4.50XL (E100XL)	1153 x 1146 mm 45.9 x 45.1 in	916 / 1117 mm 37.4 / 43.9 in	1115 / 1150 mm 43.9 / 45.3 in	1814 kg 4000 lb	2750 kg 6063 lb
E5.50XL (E120XL)	1153 x 1146 mm 45.9 x 45.1 in	916 / 1117 mm 37.4 / 43.9 in	1115 / 1150 mm 43.9 / 45.3 in	1919 kg 4230 lb	2750 kg 6063 lb
J2.00-2.50XL (J40-50XL)	842 x 987 mm 33.1 x 38.9 in	800 x 838 mm 31.5 / 32.9 in	978 / 983 mm 38.5 / 38.7 in	1315 kg 2900 lb	1690 kg 3726 lb
J2.00-3.00XL (J40-60XL)	1010 x 987 mm 39.8 x 38.9 in	986 / 1001 mm 38.1 / 39.6 in	978 / 983 mm 38.5 / 38.7 in	1550 kg 3417 lb	1800 kg 3968 lb

617 mm (24.3 in) = maximum height for batteries with a cover used in lift trucks without a hood.  
 585 mm (23.0 in) = maximum height for batteries without a cover used in lift trucks with a hood.  
 E1.25-1.75XL (E25-35XL): 907 mm (35.7 in) = maximum width of a battery without a hood  
 885 mm (34.8 in) = maximum width of battery with a hood.

\* Short Wheelbase

NOTE: Maximum tolerances are +0 and -13 mm (+0 and -0.5 in) for the size of the battery compartment. The battery specification chart shows the maximum size tolerances that will permit the battery to still fit into a battery compartment.



## WARNING

The battery must fit the battery compartment so that the battery restraint system will operate correctly. Use the spacers designed by Hyster Company to prevent the battery from moving more than 13 mm (0.5 in) in any horizontal direction.

## REPAIRS

### OVERHEAD GUARD



## WARNING

Do not operate the lift truck without the overhead guard correctly fastened to the lift truck.

### Removal

1. Remove the battery as described in the PERIODIC MAINTENANCE section under "How to Change the Battery".
2. Access to the capscrews that hold the rear supports of the overhead guard to the counterweight is from the battery compartment. Remove the capscrews.

3. Remove the two capscrews that hold each front support of the overhead guard to the cowl. Disconnect any electric wires from under the cowl that go through the supports of the overhead guard. When the overhead guard is lifted from the frame, make sure these electric wires move through the holes in the frame so that they are not damaged.

4. Use a lifting device or another person to help lift the overhead guard from the lift truck.

Installation

Put the overhead guard on the lift truck. Install any electric wires from the overhead guard supports through the holes in the cowl. Install the four capscrews, washers and nuts that hold the front supports to the cowl. Tighten the capscrews to the correct torque. Install the capscrews and washers that hold the rear supports to the counterweight. Tighten the capscrews to the the correct torque. See Figure 3 for the correct torque values. Install the battery.

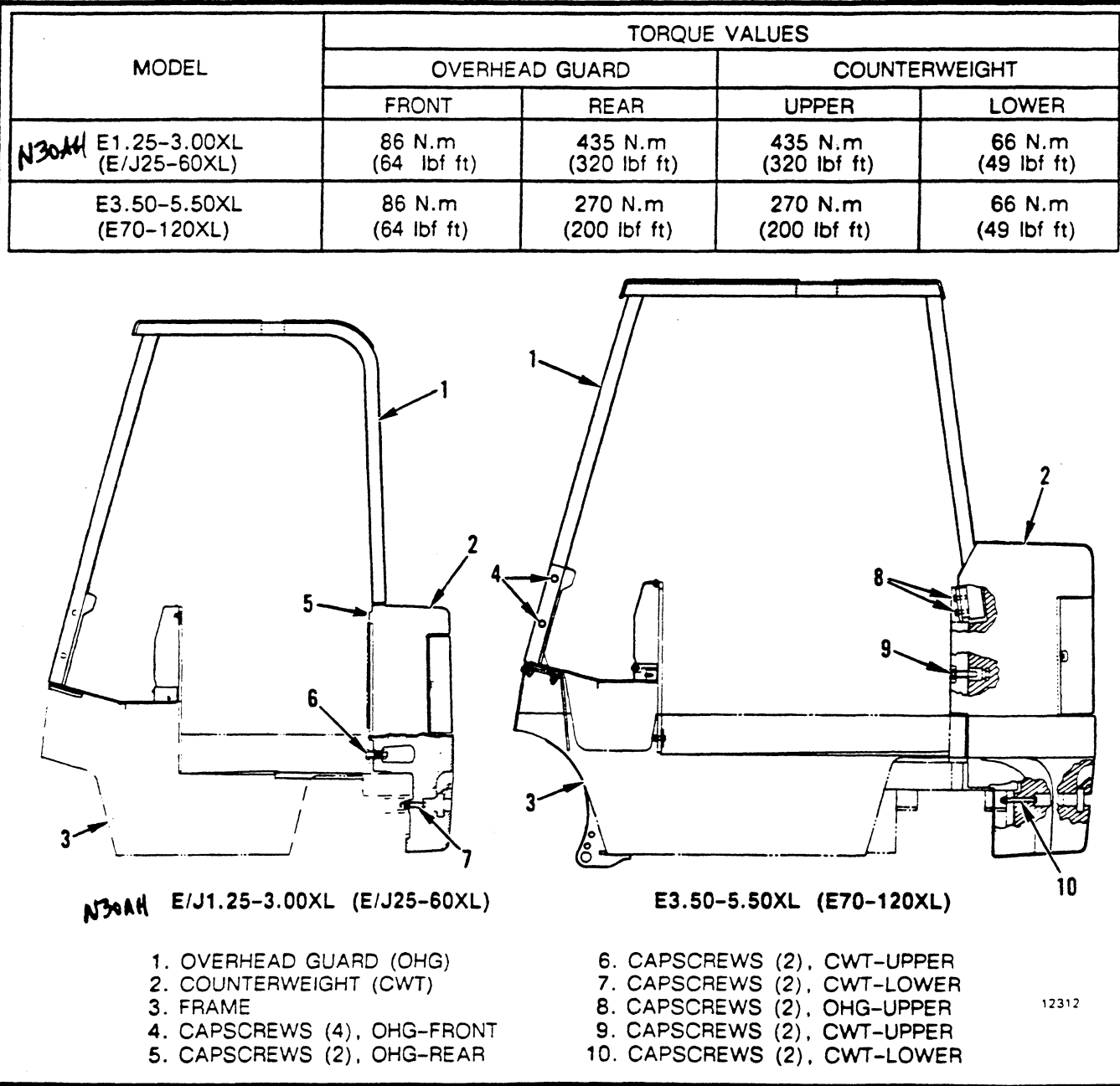


FIGURE 3. FRAME, OVERHEAD GUARD AND COUNTERWEIGHT

## BATTERY RESTRAINT AND SEAT ASSEMBLY

A battery restraint system is installed as a safety device. The function of the battery restraint system, when correctly locked in the down position, is to hold the battery in the battery compartment if an accident causes the lift truck to tip over. The battery restraint is a steel plate that is connected to the frame with a hinge. A sliding latch mechanism locks the battery restraint in the down position for operation. A knob near the hinge unlocks the battery restraint from the frame so that the battery restraint can be raised to the up position for access to the battery. The battery restraint is also the support for the seat. A spring brace holds the seat and battery re-

straint in the up position. The operator must hold the seat assembly with one hand. Use the other hand on the knob to release the spring brace and lower the seat and battery restraint assembly to the operating position. Make sure that the battery restraint is correctly locked to the frame for operation of the lift truck.

An additional battery retention bar is used on models E3.50-5.50XL (E70-120XL) where batteries can be longer. This bar has a hinge fastened to the counterweight and is part of the hood mechanism on lift truck with hoods. The bar is also installed on lift trucks without hoods.

Spacers are used inside the battery compartment to prevent horizontal movement of the battery.

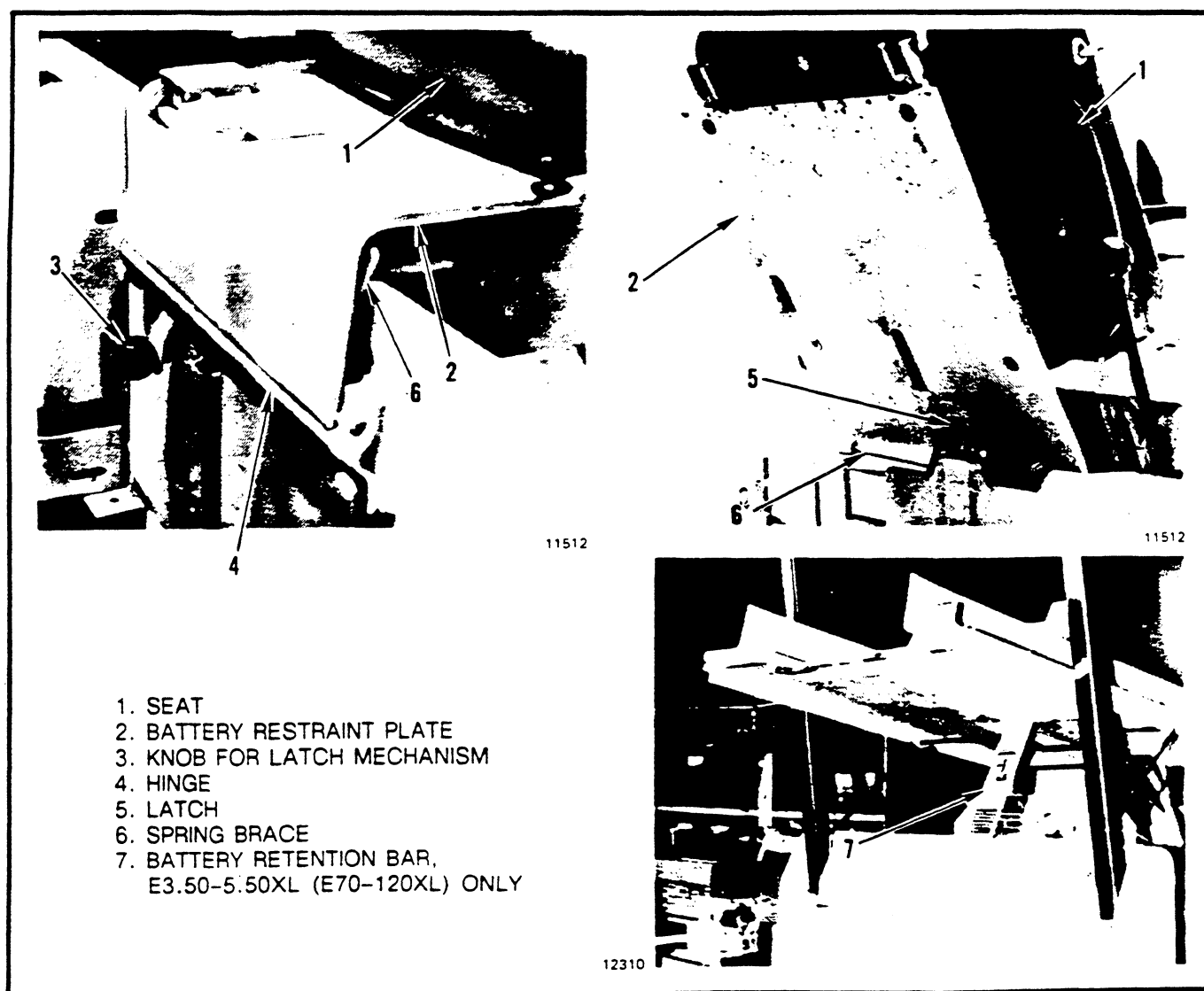
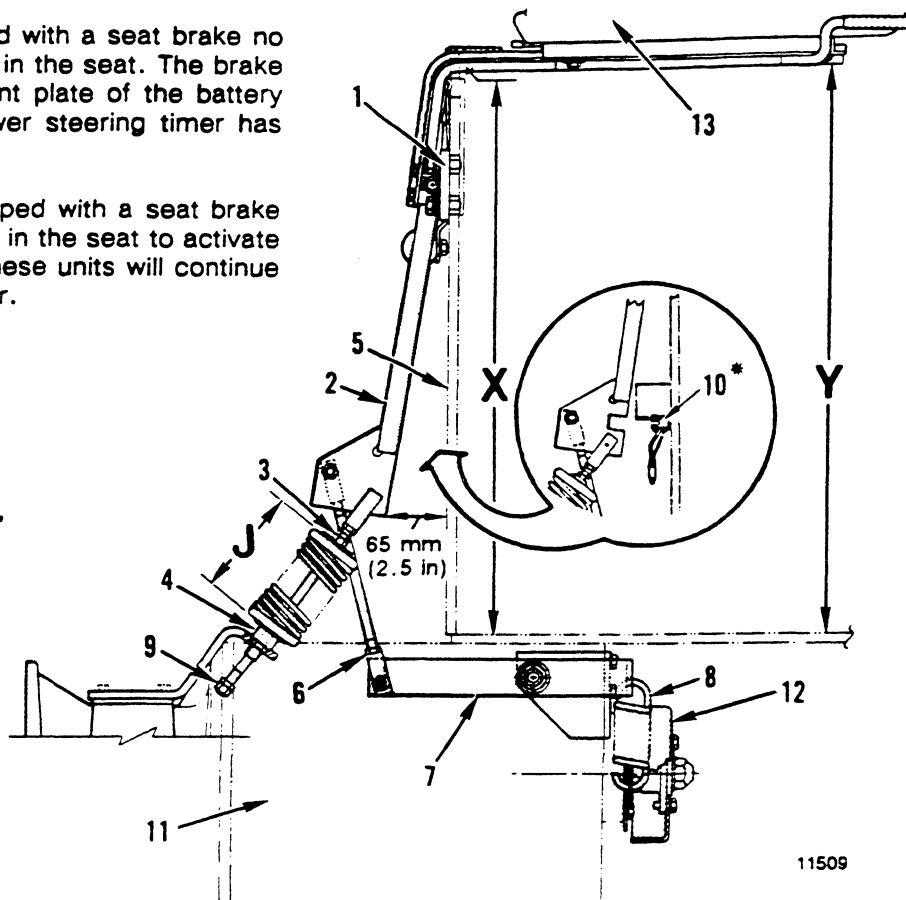


FIGURE 4. BATTERY RESTRAINT AND SEAT ASSEMBLY

\* The latest lift trucks equipped with a seat brake no longer have a switch located in the seat. The brake switch is attached to the front plate of the battery compartment. Also, the power steering timer has been replaced with a filter.

Lift trucks that are not equipped with a seat brake will still have a switch located in the seat to activate the power steering circuit. These units will continue to use a power steering timer.

1. CLAMP
2. LEVER
3. SPRING ADJUSTMENT
4. BEARING
5. BATTERY COMPARTMENT, FRONT PLATE
6. ROD ADJUSTMENT
7. LEVER
8. SPRING
9. JAM NUTS
10. BRAKE SWITCH
11. MOTOR
12. BRAKE ASSEMBLY
13. SEAT



#### ADJUSTMENT PROCEDURE

1. Put a weight in the seat to release the seat brake. Measure dimensions "X" and "Y". Add or remove shims under the clamp (1) so that dimension "Y" is 6 to 9 mm (0.23 to 0.35 in) greater than dimension "X".

2. Adjust the setscrew at the top of the lever (2) so that the bottom of the lever is 65 mm (2.5 in) from the front plate of the battery compartment.

3. Turn the spring adjustment (3) so that the length is dimension "J".

Dimension "J": E/J1.25-1.75XL (E25-35XL)	standard seat	63 mm (2.46 in)
	suspension seat	74 mm (2.91 in)

<b>N30AH</b> E/J2.00-3.00XL (E/J40-60XL)	standard seat	107 mm (4.13 in)
	suspension seat	118 mm (4.65 in)

4. Adjust the length of rod (6) to remove the clearance in the lever (7) and the spring (8). Make sure that the adjustment does not apply the brake.

5. Raise the seat to the "up" position and make sure the jam nuts (9) do not hit the bearing (4). Test the operation of the seat brake to make sure the seat brake is actuated correctly. Make sure the measurements for the linkage adjustments are correctly done. If the seat brake does not correctly actuate the brake after the adjustments have been made, make additional adjustments to the length of the rod (6).

The seat can be removed from the battery restraint plate by removing four bolts. The battery restraint plate is removed from the frame by removing the hinge pin that holds the assembly to the frame.

FIGURE 5. SEAT BRAKE ASSEMBLY, E/J1.25-3.00XL (E/J25-60XL)

- |                                     |                           |
|-------------------------------------|---------------------------|
| 1. CLAMP                            | 10. JAM NUT               |
| 2. LEVER                            | 11. JAM NUT               |
| 3. SPRING ADJUSTMENT                | 12. ADJUSTMENT NUT        |
| 4. BEARING                          | 13. ADJUSTMENT NUT        |
| 5. BATTERY COMPARTMENT, FRONT PLATE | 14. JAM NUT               |
| 6. SPRING ASSEMBLY                  | 15. SETSCREW              |
| 7. LEVER, MOTOR                     | 16. MOTOR, 280 mm (11 in) |
| 8. LEVER, MOTOR                     | 17. MOTOR, 330 mm (13 in) |
| 9. SPRING                           | 18. BRAKE                 |
|                                     | 19. SEAT                  |

### ADJUSTMENT PROCEDURE

1. Put a weight in the seat to release the seat brake. Measure dimensions "X" and "Y". Add or remove shims under the clamp (1) so that dimension "Y" is equal to dimension "X" within  $\pm 3$  mm (0.12 in). Use equal number shims under each clamp (1).

2. Adjust the setscrew at the top of the lever (2) so that the bottom of the lever equals dimension "L" from the front plate of the battery compartment.

3. Adjust the spring adjustment (3) so that the length is dimension "J".

This adjustment can be made with the spring assembly removed from the lift truck.

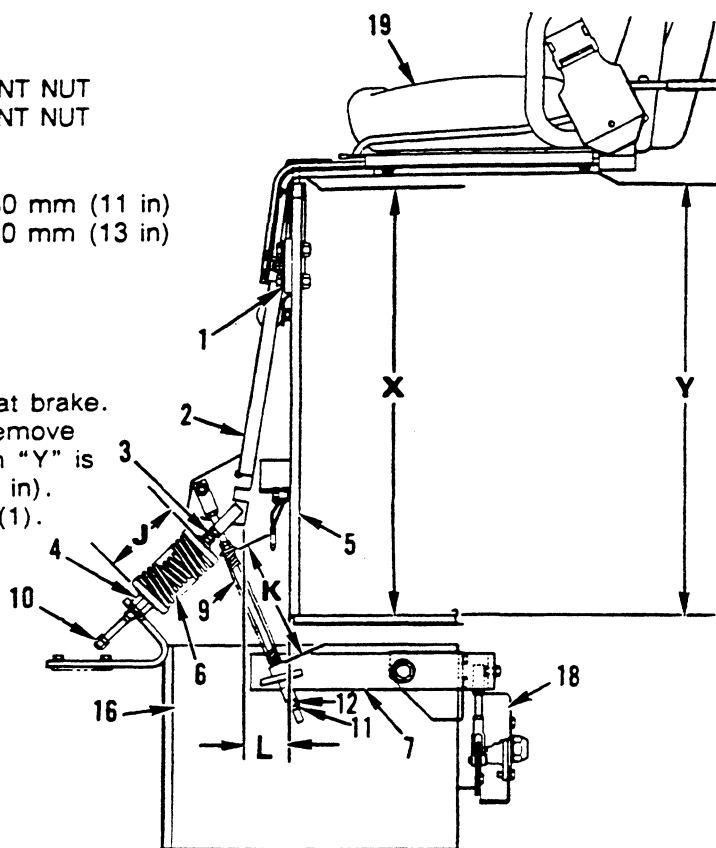
4. On 280 mm (11 in) diameter motor: Adjust the lever (7) to a level position using nut (12). On 330 mm (13 in) diameter motor: Adjust the lever (8) to  $25 \pm 2$  mm ( $1 \pm .08$  in) using nut (12). Lock nut (12) with jam nut (11). Make sure this adjustment does not apply the brake.

5. Adjust the spring (9) to dimension "K". Lock the nut (13) with the jam nut (14). This adjustment can be made with the spring assembly removed from the lift truck.

6. Adjust the position of the rod end (15) so that the brake will start to apply when the brake lever is raised 3 mm (0.12 in) or less. Rotate the brake drum by hand to feel the brake start to apply.

Test the operation of the seat brake to make sure the seat brake is actuated correctly. Make sure the linkage is adjusted to the correct measurements. If the seat brake does not correctly actuate the brake after the adjustments have been made, adjust the length of the rod (6) again and make sure the dimension is correct.

The seat can be removed from the battery restraint plate. Remove the four bolts. The battery restraint plate can be removed from the frame. Remove the hinge pin that holds the assembly to the frame.



MOTOR DIA.	SEAT TYPE	DIMENSION		
		"J"	"K"	"L"
280 mm (11 in)	STANDARD	80 mm * (3.2 in)	173 mm (6.7 in)	65 mm (2.5 in)
	SUSPENSION	75 mm (2.9 in)		
330 mm (13 in)	STANDARD	85 mm ** (3.3 in)	165 mm (6.5 in)	55 mm (2.1 in)
	SUSPENSION	80 mm (3.2 in)		

\* 90 mm (3.5 in), \*\* 80 mm (3.2 in) on early models.

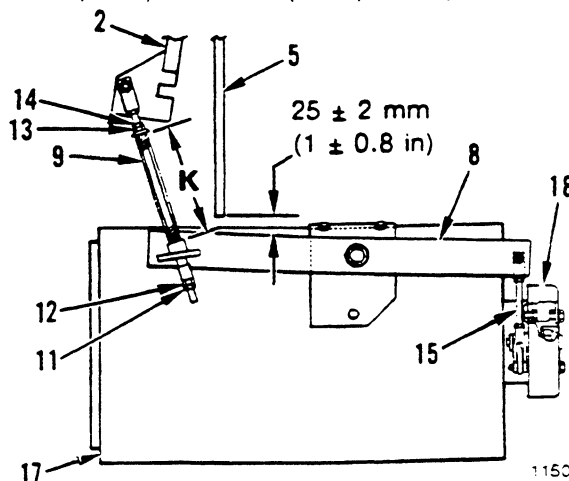


FIGURE 6. SEAT BRAKE ASSEMBLY, E3.50-5.50XL (E70-120XL)

To operate correctly, the battery restraint plate must be locked in the down position. On E3.50–5.50XL (E70–120XL) units the battery retention bar (and hood) must be lowered first, then the battery restraint plate is locked in the down position over the bar. The battery must have spacers to prevent movement in any one horizontal direction of 13 mm (0.5 in) maximum. Use the knob near the hinge (see Figure 4) to release the battery restraint plate. Use the handle on the restraint plate to raise the plate and seat. A spring brace will hold the assembly in the up position. If installed, raise the hood. Make sure that the battery cannot move more than a total of 13 mm (0.5 in) in any one horizontal direction. Make sure the correct spacers are installed to prevent the movement. See your Hyster lift truck dealer to replace damaged or missing spacers. If a smaller battery of the correct weight (see nameplate) is installed and the spacers cannot prevent movement, your Hyster lift truck dealer has larger spacers. Push the seat and the battery restraint down until the latch locks. Make sure the battery restraint is locked securely. Lift on the battery restraint to make sure it is latched and will not move.

### WARNING

The battery restraint and its latch mechanisms must operate correctly before a lift truck is operated. Make sure the battery has a cover if the lift truck does not have a hood.

### COUNTERWEIGHT (See Figure 3 and 7)

If the lift truck must be put on blocks for maintenance and repair, see the PERIODIC MAINTENANCE section of this manual under “How to put a Lift Truck on Blocks”.

### WARNING

The counterweight is very heavy. Make sure that the crane and lifting devices have enough lifting capacity to safely lift the counterweight. The weights of the counterweights are shown in Table 2.

The counterweight normally is not removed for most repairs. Replacement of some large parts of the SCR

electronic controller is easier when the counterweight is removed. The counterweight is fastened to the frame with four capscrews. The weights for the counterweights are in Table 2.

### Removal

1. Remove the battery. See the PERIODIC MAINTENANCE section of this manual under “How to Change the Battery”.
2. Remove the overhead guard as described in the paragraphs on the Overhead Guard.
3. Install lifting eyebolts in the holes that are used to fasten the overhead guard to the counterweight on E/J1.25–3.00XL (E/J25–60XL) models. The E3.50–5.50XL (E70–120XL) models have a hole on the top of the counterweight for a single eye bolt. Attach a chain or sling to the eyebolt(s). Use a crane to hold the weight of the counterweight.
4. From inside the battery compartment, remove the two capscrews that hold the counterweight to the frame. Remove the two capscrews from the tow pin area of the counterweight. Use the crane to lift the counterweight away from the frame. Make sure that you do not damage the SCR electronic controller.

TABLE 2. COUNTERWEIGHTS

MODEL	(mm*)	WEIGHT
E/J1.25XL (E25XL)		300 kg (661 lb)
E/J1.50XL (E30XL)		506 kg (1116 lb)
E/J1.75XL (E35XL)		678 kg (1495 lb)
E2.00XL (E40XL)	695 mm	562 kg (1239 lb)
E2.00XL (E40XL)	842 mm	373 kg (822 lb)
E2.50XL (E50XL)	695 mm	975 kg (2150 lb)
E2.50XL (E50XL)	842 mm	660 kg (1455 lb)
E3.00XL (E60XL)	842 mm	975 kg (2150 lb)
E3.50XL (E70XL)	1018 mm	700 kg (1545 lb)
E4.00XL (E80XL)	1018 mm	1134 kg (2500 lb)
E4.50XL (E100XL)	1183 mm	1134 kg (2500 lb)
E4.50XLS (E100XLS)	1018 mm	1747 kg (3850 lb)
E5.50XL (E120XL)	1183 mm	1747 kg (3850 lb)
J2.00XL (J40XL)	All	373 kg (822 lb)
J2.50XL (J50XL)	842 mm	373 kg (822 lb)
J2.50XL (J50XL)	1010 mm	373 kg (822 lb)
J3.00XL (J60XL)	1010 mm	373 kg (822 lb)

\* mm dimensions are battery compartment sizes

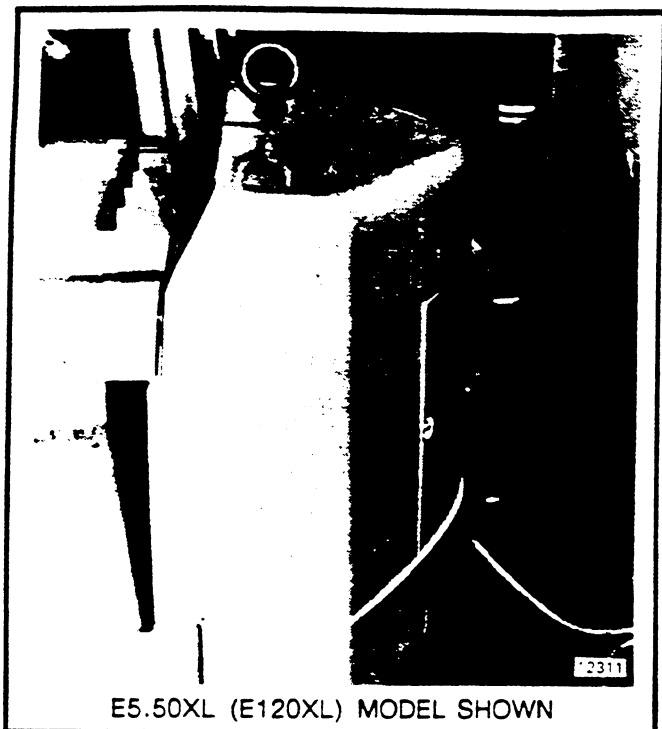


FIGURE 7. LIFT THE COUNTERWEIGHT

### Installation

1. Use a crane to lift the counterweight into position. Make sure that you do not damage the electronic controller. Install the two upper capscrews from inside the battery compartment that hold the counterweight to the frame. Install the two lower capscrews in the tow pin area of the counterweight. Tighten the capscrews to the correct torque. See Figure 3 for the correct torque values for capscrews.

2. Disconnect the sling or chain. Remove the eye-bolts from the counterweight.

3. Install the overhead guard as described in the paragraphs for the Overhead Guard.

4. Install the battery. See the PERIODIC MAINTENANCE section of this manual under "How to Change the Battery".

**NOTE:** The access panel to the electronic controller can be removed from the counterweight to make checks and adjustments on the controller. Make sure the lugs are correctly engaged when the access panel is installed again or the panel will fall from the counterweight during operation.

## TRACTION MOTOR

### Removal

This procedure will show the removal of the traction motor through the battery compartment. Some lift trucks have a seat brake that actuates the brake on the armature shaft of the traction motor. (See Figure 8.) The seat brake linkage must be disconnected at the front of the traction motor before the motor is removed.

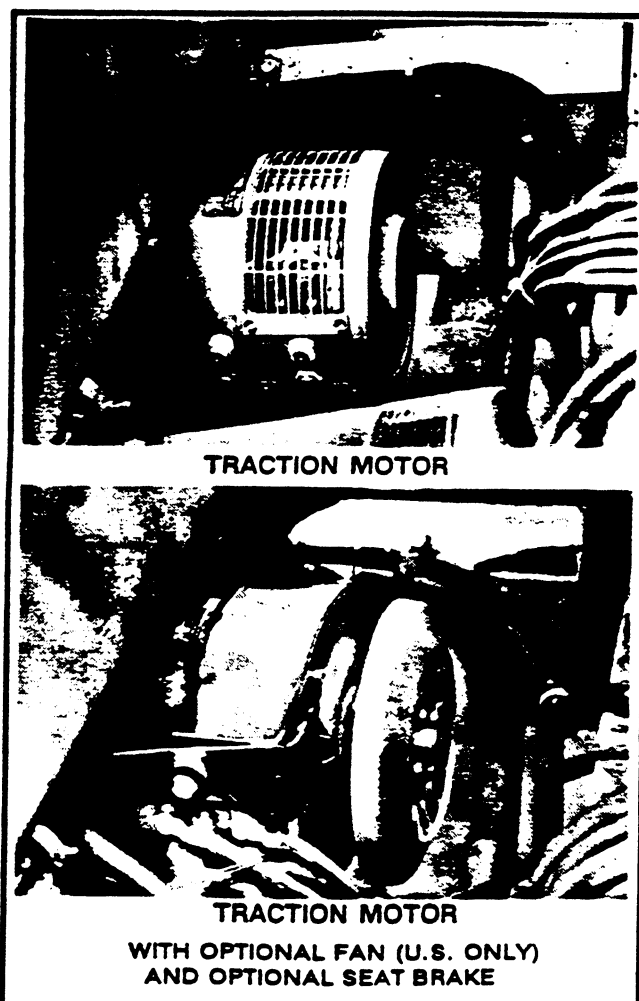
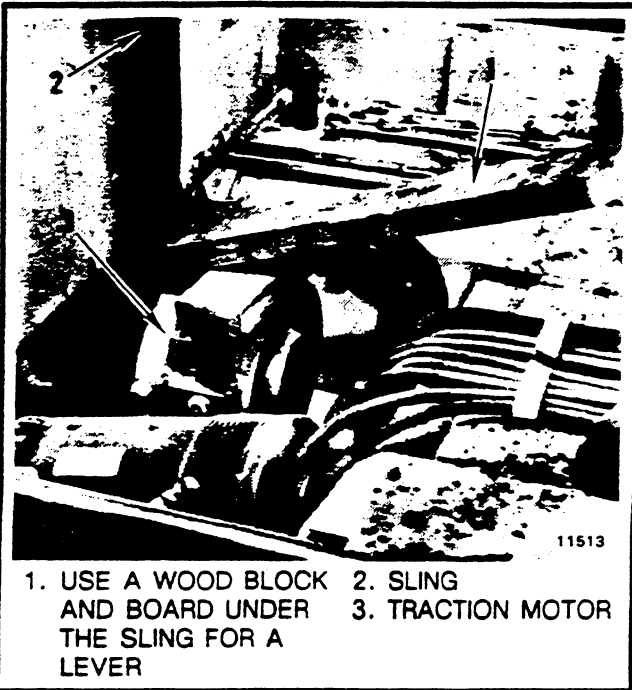


FIGURE 8. TRACTION MOTOR

**NOTE:** The traction motor can also be removed from under the lift truck with the use of a floor jack, but is more difficult. The lift truck must be on blocks with clearance for the jack and traction motor, if the traction motor is removed from under the lift truck. The hydraulic lines from the hydraulic tank must also be disconnected if the traction motor is removed from under the lift truck.



1. Remove the battery. Remove the floor plates and the access panel in the bottom of the battery compartment.
2. Disconnect the seat brake linkage. Disconnect the hydraulic line to the main control valve so that the motor mount can be disconnected. Put caps on the open hydraulic fittings.



**FIGURE 9. INSTALL A SLING TO LIFT TRACTION MOTOR**



**FIGURE 10. USE A CRANE TO LIFT THE TRACTION MOTOR**

3. Disconnect the power cables from the traction motor. Make an identification of which cable is connected to each terminal.

4. Put the lift truck on blocks for easier access to the bottom bolts between the traction motor and the speed reducer. Remove the bolts between the speed reducer and the motor.

5. Install a sling to hold the traction motor. (See Figure 9.) Use a wood block and a board under the sling as shown in the illustration to control the traction motor during removal and installation. Use the crane to hold the weight of the traction motor.

**NOTE:** The traction motors are in different configurations for different applications of the lift trucks. Traction motors weigh approximately 90–140 kg (200–310 lb). Make sure that the sling can not slide and permit the traction motor to fall.

6. Remove the motor mount that holds the traction motor to the frame. Pull the traction motor from the speed reducer.

7. Use the crane to move the traction motor to a space to make repairs.

## Installation

1. Install a sling to lift the traction motor. Use a wood block and a board under the sling as shown in Figure 11 to control the traction motor during installation.

2. Lower the traction motor into position in the lift truck. Align the traction motor with the speed reducer.

3. Use a board or prybar as necessary to push the traction motor into the speed reducer.

4. Align the bolt holes in the speed reducer and the motor housing. Install the bolts that hold the traction motor to the speed reducer. Tighten the bolts to 38 N.m (28 lbf ft).

5. Remove the sling and install the traction motor mount.

6. Connect the inlet hydraulic line to the main control valve. Install the power cables.

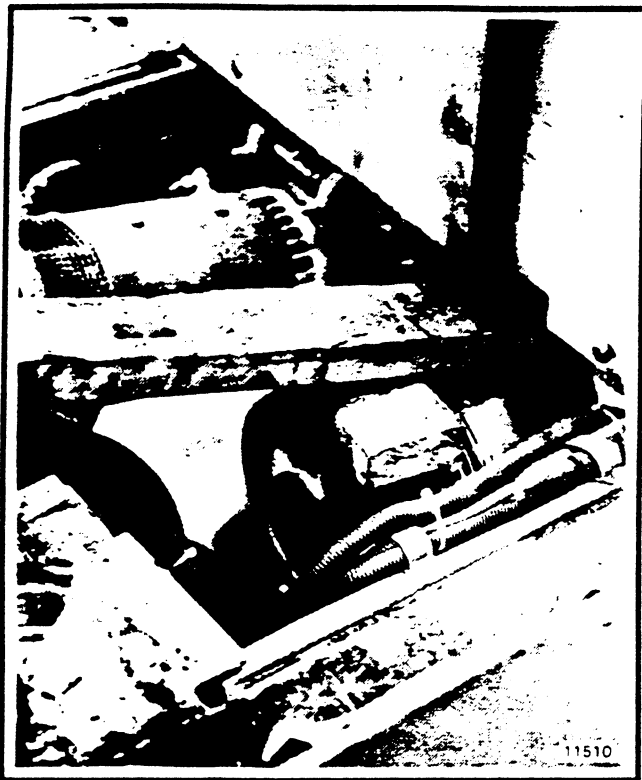


FIGURE 11. ALIGN THE TRACTION MOTOR WITH THE SPEED REDUCER

## HYDRAULIC TANK REPAIRS

### E/J1.25-3.00XL (E/J25-60XL) N30AH

The hydraulic tank is plastic and is normally replaced if it is damaged. The traction motor must be removed before the hydraulic tank can be replaced. A bracket on the front plate of the battery compartment holds the hydraulic tank in position. The hydraulic tank must be drained through one of the hydraulic supply hoses. Disconnect the hydraulic hoses from the hydraulic tank when it must be replaced.

### E3.50-5.50XL (E70-120XL)

The hydraulic tank is part of the frame weldment and can not be removed from the lift truck. Repairs for leaks in the hydraulic tank can require special procedures described in the next paragraphs.

#### Small Leaks

Small leaks can be sealed as follows:

1. Use steam to clean the area around the leak. Remove all paint and dirt around the leak.

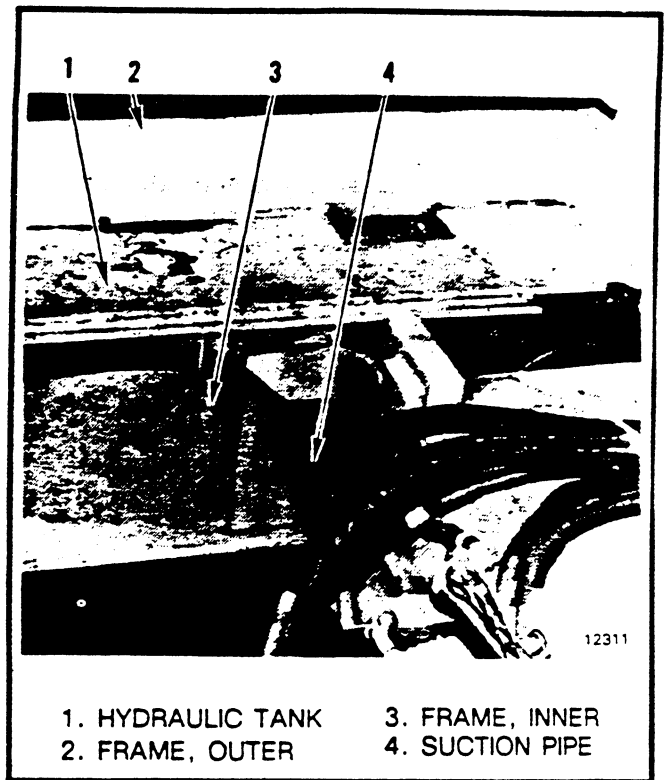


FIGURE 12. HYDRAULIC TANK ON E3.50-5.50XL (E70-120XL) MODELS

## ⚠ WARNING

Do not use tools that can make sparks, heat or static electricity. The vapors in the tank can cause an explosion.

2. Apply Loctite 290 to the leak. Follow the instructions of the manufacturer.

## Large Leaks

## ⚠ WARNING

Special procedures must be followed when large leaks or other repairs need welding or cutting. All work must be done by authorized personnel. If the tank is cleaned inside of a building, make sure there is enough ventilation. See the following manuals for additional information:

- "Safe Practices For Welding And Cutting Containers That Have Held Combustibles", by the American Welding Society, A6.0-65.
- "Safety In Welding And Cutting", American National Standard, ANSI Z 49.1 - 1973.

When cleaning the tank, do not use solutions that make dangerous gases at normal temperatures or when heated. Wear a device for the protection of the eyes. Protect the body from burns.

When cleaning with steam, use a hose with a minimum diameter of 19 mm (0.75 in). Control the pressure of the steam by a valve installed in front of the hose. If a metal nozzle is used, it must be made of a material that does not make sparks. Make an electrical connection between the nozzle and the tank. To prevent static electricity, connect a ground wire to the tank.

### Steam Method Of Cleaning

Clean the tank as follows:

1. Remove the parts from the tank and install the drain plug.
2. Fill the tank 1/4 full with a solution of water and sodium bicarbonate or sodium carbonate. Mix 0.5 kg (1 lb) per 4 litres (1 gal) of water.
3. Mix the solution in the tank using air pressure. Make sure all the surfaces on the inside of the tank are flushed. Drain the tank.
4. Put steam into the tank until the tank does not have colors and the metal is hot. Steam vapors must come out of all the openings.
5. Flush the inside of the tank with boiling water. Make sure all the loose material is removed from the inside of the tank.
6. Make an inspection of the inside of the tank. If it is not clean, repeat steps D and E and make another inspection. When making inspections, use a light that is approved for locations with flammable vapors.
7. Put plugs in all the openings in the tank. Wait 15 minutes, then remove the inlet and outlet plugs. Test

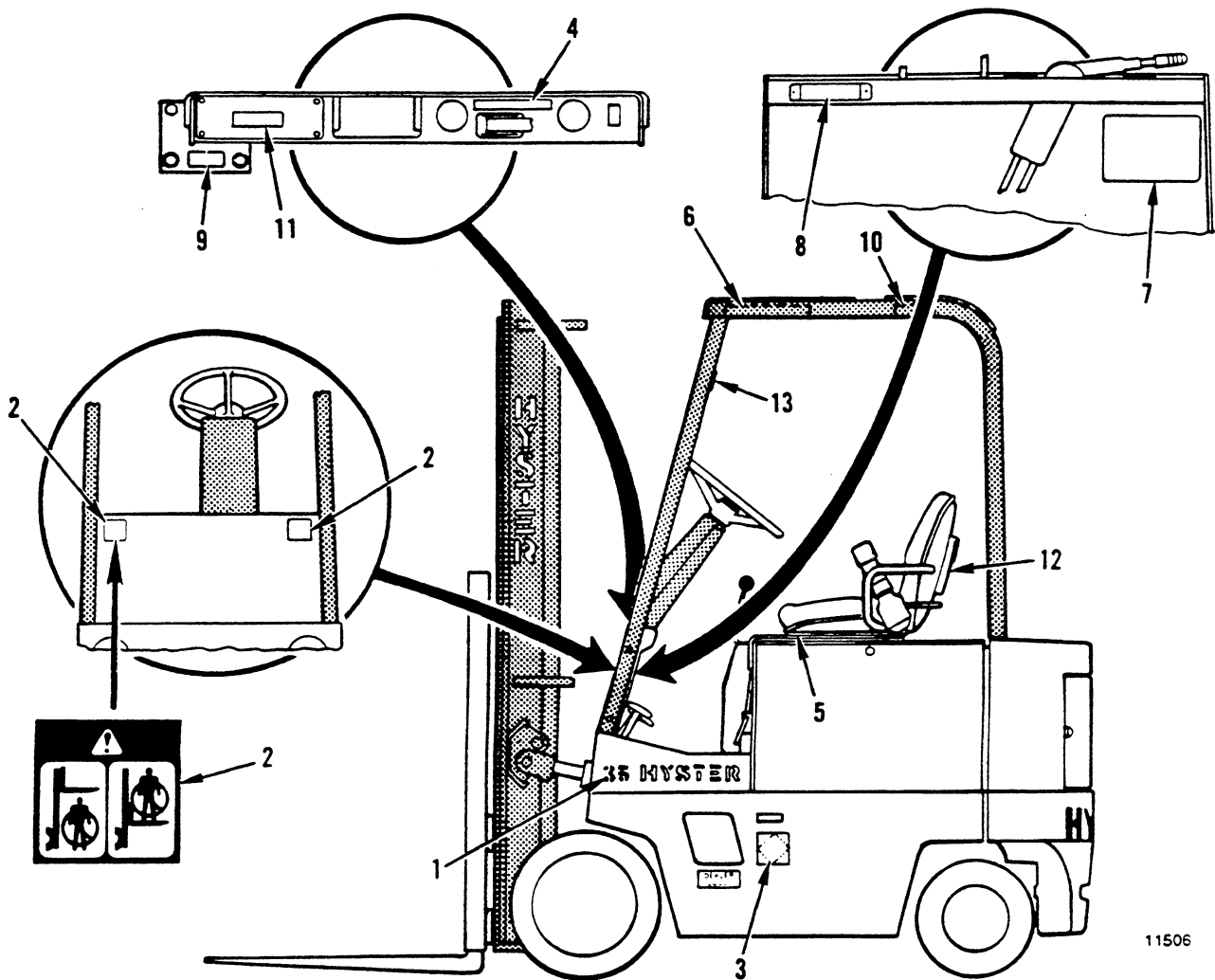
a sample of the vapor with a special indicator for gas vapors. If the amount of flammable vapors is above the lower flammable limit, repeat the cleaning procedures.

### Chemical Solution Method Of Cleaning

If the tank cannot be cleaned with steam, use the following procedure:

1. Mix a solution of water and trisodium phosphate or a cleaning compound with an alkali base. Follow the instructions given by the manufacturer.
2. Fill the tank with the cleaning solution. Use compressed air to mix the solution in the tank.
3. Drain the tank. Flush the inside of the tank with hot (boiling) water. Make sure all the cleaning compound is removed.
4. Make an inspection of the inside of the tank. If the tank is not clean, repeat steps A to C. Make another inspection of the tank. When making inspections, use a light that is approved for locations with flammable vapors.
5. Check the tank for flammable vapors using special indicator or gas vapors. If the amount of flammable vapors is not below the lower flammable limit, repeat the cleaning procedures. If nitrogen gas or carbon dioxide gas is available, prepare the tank for welding using these gases. See the manual "Safe Practices For Welding and Cutting Containers That Have Held Combustibles", by the American Welding Society, A6.0-65. **If these gases are not available, another method using water can be used as follows:**
  1. Fill the tank with water to just below the point where the work will be done. Make sure the space above the level of the water has a vent.
  2. Use acceptable welding practices to repair the tank. See the American National Standard "Safety In Welding And Cutting" ANSI Z 49.1 - 1973.

E/J1.25-1.75XL (E25-35XL) MODELS  
E/J2.00-3.00XL (E40-60XL) MODELS



11506

1. MODEL DECAL
2. UPRIGHT SAFETY DECAL
3. FIRE SAFETY DECAL
4. HAND BRAKE WARNING
5. HAND WARNING (PINCH POINT)

6. RULES DECAL FOR LIFT TRUCK OPERATION
7. PATENT PLATE
8. UL LISTING PLATE (U.S. AND CANADA)

9. INSTRUCTIONS, BDI ADJUSTMENT
10. OVERHEAD GUARD TEST PLATE
11. NAMEPLATE (INFORMATION MUST BE COMPLETE)
12. OPERATING MANUAL AND CASE
13. OPERATOR RESTRAINT DECAL

FIGURE 13. DECAL POSITIONS

## DECAL REPLACEMENT (See Figures 13 and 14)

If the decals or information plates are missing or have damage, they must be replaced.

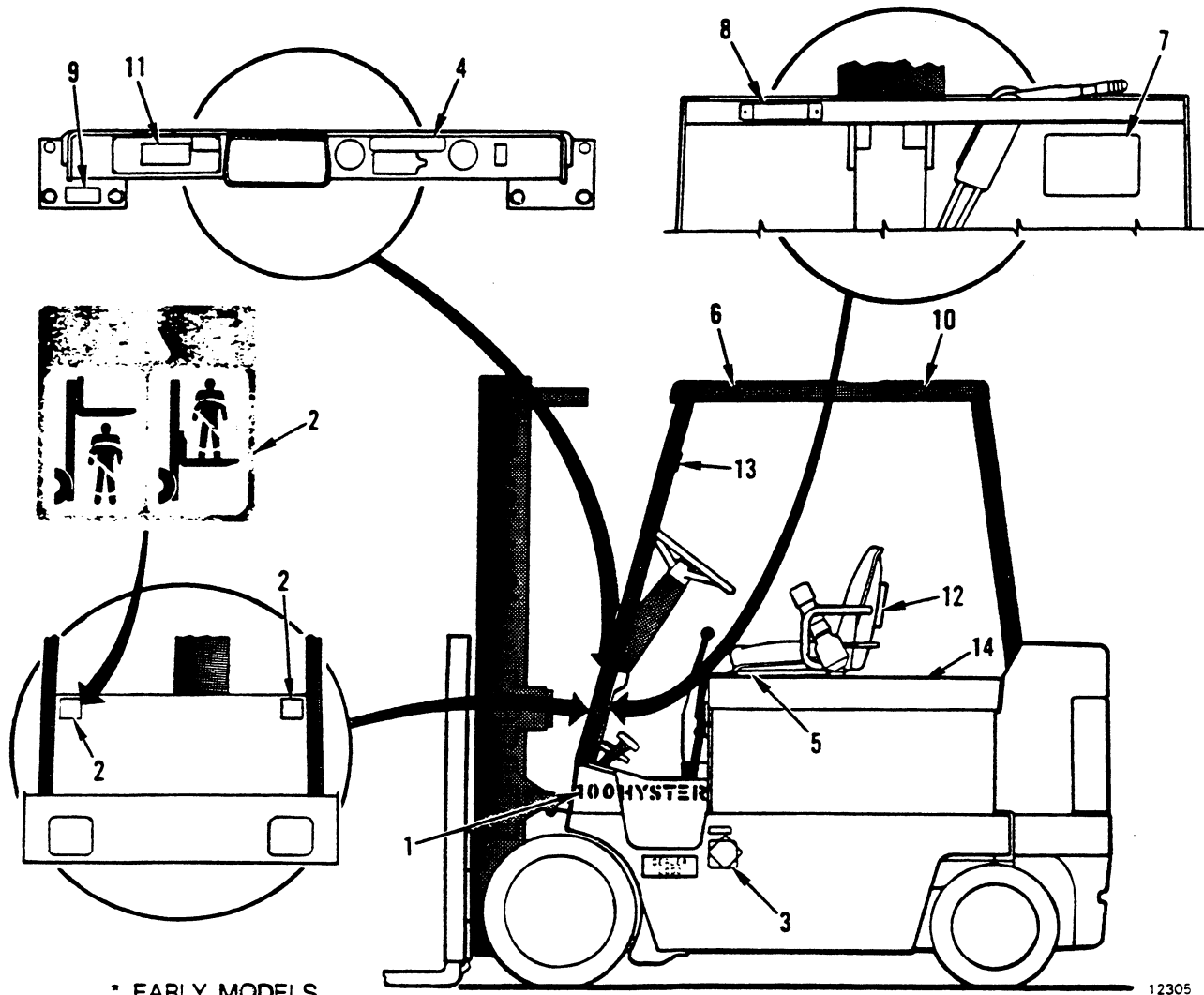


### WARNING

Decals that have WARNINGS or CAUTIONS must

be replaced if they are damaged. If an upright of a different size or an accessory carriage is installed, the capacity rating can change. Changes in the kind of drive tires can change the capacity rating. See a **HYSTER Dealer** for a replacement nameplate. The nameplate information is a safety item and must be correct for the equipment and configuration of the lift truck.

E3.50-5.50XL (E70-120XL) MODELS



\* EARLY MODELS  
\*\* LATER MODELS

12305

- |                               |   |  |
|-------------------------------|---|--|
| 1. MODEL DECAL                | 6. RULES DECAL FOR LIFT TRUCK OPERATION | 10. OVERHEAD GUARD TEST PLATE                |
| 2. UPRIGHT SAFETY DECAL       | 7. PATENT PLATE                         | 11. NAMEPLATE (INFORMATION MUST BE COMPLETE) |
| 3. FIRE SAFETY DECAL          | 8. UL LISTING PLATE (U.S. AND CANADA)   | 12. OPERATING MANUAL AND CASE                |
| 4. HAND BRAKE WARNING         | 9. INSTRUCTIONS, BDI ADJUSTMENT         | 13. OPERATOR RESTRAINT DECAL                 |
| 5. HAND WARNING (PINCH POINT) |   | 14. BATTERY RETENTION BAR DECAL (ON THE BAR) |

FIGURE 14. DECAL POSITIONS

**NOTE:** The nameplate is installed using rivets. The old rivets must be removed before installing new nameplate.

1. Make sure the surface is dry and has no oil or grease. Do not use solvent on new paint. Clean the surface of old paint using a cleaning solvent.

2. Remove the paper from the back of the decal. Do not touch the adhesive surface.

3. Carefully hold the decal in the correct position above the surface. The decal cannot be moved after it touches the surface. Put the decal on the surface. Make sure all air is removed from under the decal and the corners and edges are tight.