SL120 Series
SwingMast® Lift Truck
Operator's Manual

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F-397-0511

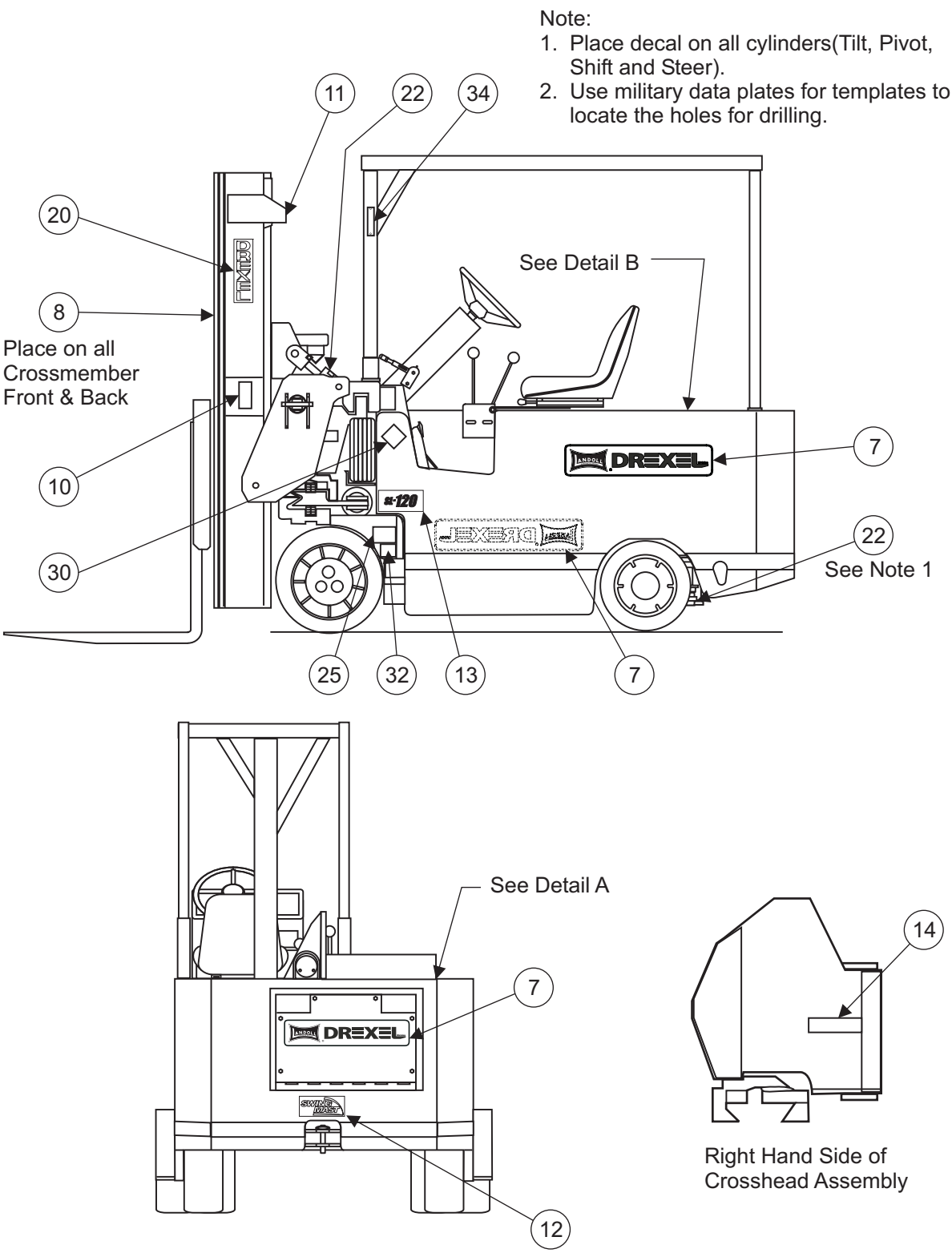
Note:
1. Place decal on all cylinders(Tilt, Pivot, Shift and Steer).
2. Use military data plates for templates to locate the holes for drilling.
11
22
34
20
8
Place on all Crossmember Front & Back
10
30
See Detail B
7
22
See Note 1
25
32
13
7
See Detail A
7
12
14
Right Hand Side of Crosshead Assembly
M1420674C.CDR

Figure S-2

Service Repair

When it becomes necessary to do any electrical or mechanical service repair or maintenance to the truck, it is important to first review the following safety guidelines.

⚠ WARNING

You could be injured and the truck could be damaged if you try to do service work without proper training or equipment.

- Be sure you have sufficient knowledge, experience and the proper tools and replacement parts before you attempt any truck maintenance.
- Be sure to use the proper nuts, bolts and other fasteners. Many are specifically rated; that is, SAE Grade 5, SAE Grade 8, ISO Prop Class 8.8, etc., and must be replaced with the identical type. It is recommended to use only Landoll authorized replacement parts.

⚠ WARNING

If you use the wrong nuts, bolts or other fasteners, parts can later break or loosen. Serious injury could occur.

Whenever possible, return the truck to a service area having sufficient lighting, work space and an assortment of tools needed to complete the service.

- Set the key switch to the OFF position and set the control lever to NEUTRAL.
- Set the parking brake.
- Disconnect the battery.
- Never place a tool or any metal object on top of the battery where it could possibly touch battery terminals causing a short or serious electrical shock.

- Make sure all lifting devices and supports, such as, a jack or support stand, are capable of handling the weight of the load being applied.

7. **Flood light switch** - Optional pull switch, turns floodlights on and off.
8. **Battery discharge indicator (BDI)** - monitors the capacity (or percentage) of the battery charge remaining.

Note: When the battery drops to 20% of full charge, the red LED flashes and the lift function is disabled. The operator must return the truck to the charging station. This prevents a deep discharge of the battery (which shortens battery life), and also protects the electric motors and other electrical components from damage caused by low voltage.

1. **LIFT control lever** - Forks lift when lever is pulled rearward; forks descend when lever is pushed forward.
2. **TILT control lever** - Mast tilts forward when lever is pushed forward; mast tilts backward when lever is pulled rearward.
3. **SHIFT control lever** - Mast shifts to right when lever is pulled rearward; mast shifts to left when lever is pushed forward.
4. **PIVOT control lever** - Mast pivots clockwise when lever is pushed forward; mast pivots counterclockwise when lever is pulled rearward.
5. **Accelerator pedal** - is pressed by the driver's right foot to control the speed of the truck.

   The **SL120** offers a maximum speed of 6 mph (9.65kph) loaded, 5mph (8 kph) unloaded.

⚠ WARNING

Driving speed of the truck must be governed by your work environment, such as, slippery floors, cross aisles, slanted driving surfaces, load size, visibility or other people working in the area.

Never travel at speeds with or without a load that could be dangerous to yourself or others! Also see separate heading Safety, in the beginning of this manual.

6. **Key switch** - Two-position switch (OFF and ON). Connects the battery to the electrical system (through a relay contactor) provided that all safety interlock switches are closed.
7. **Emergency STOP push/pull switch** - Optional latching push-button switch, disconnects electrical system from battery when pushed.
8. **Lift limit bypass switch** - Optional - Some trucks may be provided with a lift interlock which limits the height to which the forks can be lifted. As a further option, this key switch may be provided to bypass the lift limit. Usually, the key is retained by a supervisor and is provided to the truck operator for special conditions. The key positions are RESTRICTED (the normal lift limit) and BYPASS. The key cannot be removed while the switch is in the BYPASS position.
9. **Brake pedal** - when pressed, applies the service brakes, to STOP the truck.
10. **Automatic / manual switch** - Optional toggle switch, selects Automatic or Manual guidance. See Appendix, Step 1. "Auto-Guidance," on page 4 for proper use.

11. **Automatic / manual indicator** - Optional light-emitting diodes (LEDs); one RED and one YELLOW which indicate status of optional guidance system. See "Auto-Guidance," for proper use.

To Charge The Battery:

5. Remove each vent cap and check electrolyte levels. Ambient temperature should be +77° F (+25° C) to get a proper reading. In cold weather, batteries may look dry.
6. Do not add water until an accurate level is obtained - cold weather can affect the level. If water must be added, use only distilled water.
7. Make sure the electrolyte level is at the level indicator.
8. Charge the battery using a constant current charger set to 5% of the six-hour battery capacity. For example, 55 amps for an 1,100 AH (ampere-hour) battery.

IMPORTANT !

Do not charge the battery at a finish current which exceeds the rating on the battery's name-plate. Consult the label on your battery for information on cell-type, ampere-hour capacity, charge rate and normal full-charge voltage. Do not charge the battery at a current greater than 1.5 amp per 100 amp-hours capacity at the end of charge.

9. Replace the vent caps. They must be secured in place during charging. Ordinarily, the charge should take about 3 to 5 hours to complete.
10. During the initial charge the volume of electrolyte decreases through electrolysis and evaporation. Water approved for use in lead-acid storage batteries should be added if the electrolyte level falls below the indicator.

    If the cell temperature rises higher than +110° F (+61.2° C) either reduce the charging current to half the original value or stop charging until the temperature falls below +110° F (+61.2° C). If you reduce the charging current, extend the charging time accordingly.
11. Continue charging until the cells gas freely and the specific gravity remains constant over a three-hour period. At the end of the charge period the cell voltages rise to about 2.55 volts and the specific gravity rises to about 1.280, corrected to 77° F. (See Figure: 2-22)
12. When charging is complete, REPLACE the vented cell caps on the battery, and connect battery cables and install battery in truck.

Charging A Dry Battery

The truck battery contains concentrated sulfuric acid which can cause severe chemical burns. When the battery is charging, it releases hydrogen, a highly explosive gas which can be ignited by a spark. Shorting battery terminals can release enormous amounts of energy, causing sparks or flame, or heating nearby components to dangerous temperatures.

The battery is also very heavy, and if restraints are not replaced after maintenance, the battery could slide out of the truck causing electrical shorts or acid to spill - or it could cause the truck to tip.

Temp. °F	Correction	Temp. °F	Correction
39-41	-0.012	101-103	+0.008
42-44	-0.011	104-106	+0.009
45-47	-0.010	107-109	+0.010
48-50	-0.009	110-112	+0.011
51-53	-0.008	113-115	+0.012
54-56	-0.007	116-118	+0.013
57-60	-0.006	119-121	+0.014
61-63	-0.005	122-124	+0.015
64-66	-0.004	125-127	+0.016
67-69	-0.003	128-130	+0.017
70-72	-0.002	131-133	+0.017
73-75	-0.001	134-136	+0.019
76-78	0	137-139	+0.020
79-81	+0.001	140-142	+0.021
82-84	+0.002	143-145	+0.022
85-87	+0.003	146-148	+0.023
88-91	+0.004	149-151	+0.024
92-94	+0.005	152-154	+0.025
95-97	+0.006	155-157	+0.026
98-100	+0.007	158-160	+0.027

Figure:2-22 Hydrometer Correction table

SECTION 3
Before You Begin

This section of your Drexel SL120 Forklift Operator's Manual discusses the following concepts that must be thoroughly understood before you can operate a Drexel SL120 forklift:

Operator training - Discusses the operator training required by legislation and its implications for operators of Drexel SL120 forklifts.

Operator safety - Reviews the safety guidelines operators need to be aware of before they operate a fork lift.

Understanding stability - In this discussion you will learn about the stability triangle and how to use it to help prevent your Drexel SL120 forklift from tipping over.

Knowing the rated capacity - The meaning of rated capacity and how it relates to how high you lift the load, the load center, and attachments used is discussed in detail using several examples.

Understanding workplace conditions - This discussion makes you aware of hazards in the workplace that you must understand to avoid accidents. You need to stay aware of changing conditions in your workplace such as potholes, overhead obstructions, and pedestrian traffic that may change on a daily basis. You also need to understand how to load and unload transport vehicles.

Seat Belt

The seat belt must always be worn when driving this truck.

1. First, sit up straight in the driver's seat.

2. Pull the belt across you. Do not let it get twisted.

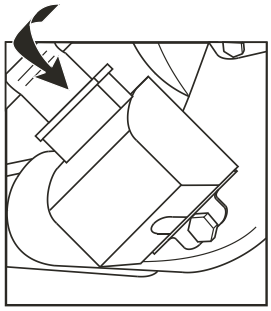

Figure: 4-31 Seat Belt Latch

3. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure. (See figure: 4-31)
   - Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure. If the belt stops before it reaches the buckle, let it go back all the way and start again.
   - The lap part of the belt must be worn low and snug on the hips, just touching the thighs.

⚠ Warning

Make sure the release button on the buckle is positioned so you could unbuckle the seat belt quickly in an emergency.

Tilt Steering Panel - Optional

⚠ Caution

Adjusting the steering panel while driving the truck is dangerous. The movement of the panel could startle or confuse you causing you to lose control of the truck.

Adjust the steering wheel only when the truck is not being driven.

1. To adjust the optional steer panel, loosen the left and right adjustment handle and knob, then pull the quick release plunger out to release the pin. (See Figure: 4-32)

2. Move the steering panel to a comfortable level. Release the plunger to seat the pin in the nearest latch hole in the side panel.

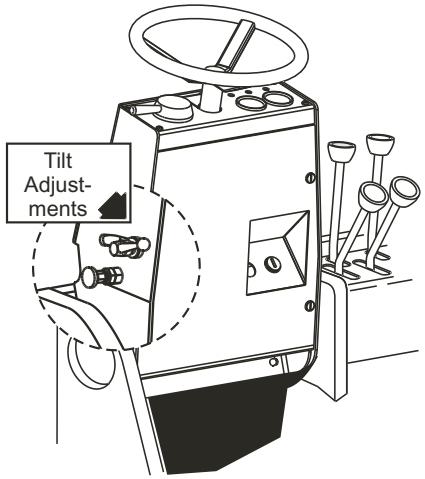

Figure:4-32 Steer Panel Adjustment

3. Tighten the left and right panel adjustment handle and knob.

4. Pull up on the steering wheel to ensure it is firmly locked in place.

6. * When the forks are aligned to the pallet, shift the mast to the right, inserting the forks all the way into the pallet. (See Figure 4-51.)

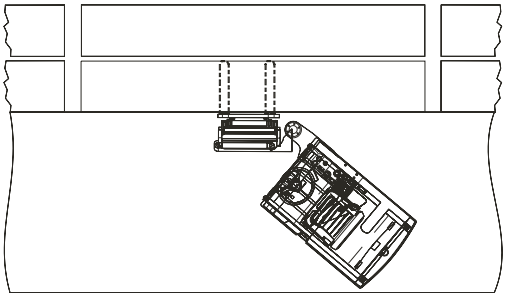

Figure: 4-51 Shifting the Forks into the Pallet

7. Raise the load above the rack about 2” (51mm) to clear the rack horizontal members. Be careful of any cross members above the load.
8. Make sure the load is centered and appears balanced before you move the load any distance.
9. Tilt the mast back to secure the load on the forks. You may have to wait until the load has been withdrawn somewhat, before you can tilt it completely without striking any cross members above it. (See Figure 4-42 on page 4-10 .)

The following steps marked *, although listed as separate steps, are combined together to produce one smooth motion for inserting the forks. This may require some practice to be performed smoothly and effectively.

10. *Shift the load to the left and out of the rack being careful that it does not strike the truck’s overhead guard or that the load ends do not strike other pallets on the rack.

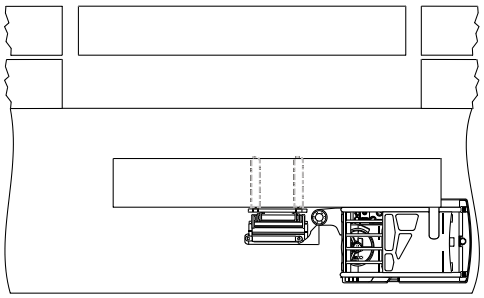

Figure: 4-53 Travel with Long Load

11. *Slowly move (creep) the truck in reverse. At the same time, pivot the load to the right to position it parallel to the truck. (See Figure 4-52.)

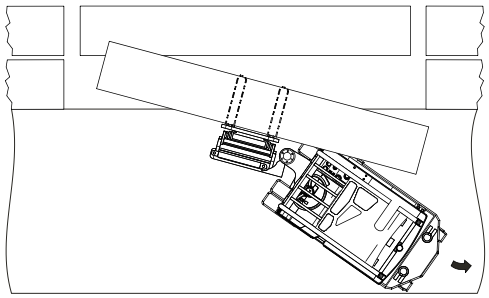

Figure: 4-52 Removing the Load

12. *When you are sure the pallet clears the rack completely, continue pivoting the mast while shifting to the right until the load is parallel to the truck. (See Figure 4-53.)
13. As soon as possible, lower the forks enough to rest the load on the truck side deck.

⚠ Warning

Lowering the mast improves driver visibility, and improves the stability of the truck and load by reducing the possibility of personal injury or damage to the load if it were to slip from the forks.

Transport long loads at reduced speed. Long loads have a tendency to bounce as the truck rides over uneven floor surfaces.

14. Maneuver forward and backward to straighten the truck within the aisle and continue to your next position. (See Figure 4-53.)

LANDOLL CORPORATION
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Phone: (785)562-5381 Fax: (785)562-4853

Customer ELECTRIC TRUCK Installation Report

CUSTOMER _____
ADDRESS _____
INSTALLATION DATE _____
12 MONTH WARRANTY END DATE _____
36 MONTH WARRANTY END DATE _____

TRUCK SERIAL NO._____
CITY, STATE, ZIP _____

Before any warranty claim can be honored for new equipment being installed, this form must be filled out completely and properly signed by the dealer/branch representative and responsible customer official. Installation report must be submitted within five days after delivery. The installation date will initiate the warranty.

NOTE: CUSTOMER MUST FILE CLAIM WITH CARRIER FOR ANY DAMAGES RECEIVED DURING TRANSIT.
List damages:
CHECK OPERATION AND ADJUST WHERE NECESSARY

1. Upright and Fork Carriage
   a. Forks or Parts . . . . . .
   b. Chain Adjustment of Lift Tie Bar Assembly . . . . . .
2. Load Backrest . . . . . .
3. Sheet Metal (battery compartment) . . . . . .
4. Tires:
   a. Drive Tires; Torque wheel nuts to 530 ft. Lbs. (720 Nm) .
   b. Steer Tires . . . . . .
5. Wheel Bolts: Tighten . . . . . .
6. Seat Adjuster . . . . . .
7. Brakes:
   a. Pedal Firmness . . . . . .
   b. Pedal Free Play . . . . . .
   c. Adjustment . . . . . .
8. Horn and Lights:
   (Head-Spot-Tail) . . . . . .
9. Drive Controls:
   a. Direction Master Switch (Return to Neutral) . . . . . .
   b. Accelerator Switch . . . . . .
10. Speed Control:
    a. Review control panel settings . . . . . .
    b. Plugging . . . . . .
11. Steering:
    a. Power Steer Operation . . . . . .
    b. Motor Locks . . . . . .
12. Hour Meter Reading . . . . . .
13. Electrical Controls: . . . . . .
    a. Contactor . . . . . .
    b. Drive Motors. . . . . .
    c. Pump Motor . . . . . .
    d. Switches (limit-brake-seat-valve) . . . . . .
    e. Battery care and charging . . . . . .
14. Hydraulic Controls
    a. Lift/Tilt (Angle and Alignment) . . . . . .
    b. Pivot/Shift . . . . . .
    c. Attachment . . . . . .
    d. Limit Switches . . . . . .
15. Hydraulic System - Oil Leaks:
    a. Hydraulic Pump . . . . . .
    b. Control Valve . . . . . .
    c. Hoist Cylinder . . . . . .
    d. Tilt Cylinders . . . . . .
    e. Attachment Cylinders . . . . . .
    f. Hydraulic Lines and Fittings . . . . . .
16. Test Run
    Was truck operator instructed? . . . . . Yes No
    Was truck manual delivered? . . . . . Yes No
    Was maintenance department instructed? . . . . . Yes No
    Was truck already in service? . . . . . Yes No
    Were caution/warning plates reviewed with operator? . . . . . Yes No
17. Battery Specific Gravity:
    a. Voltage and water level (lead acid) . . . . . .
18. Fluid and Lube:
    a. Master Brake Cylinder. . . . . .
    b. Hydraulic Oil; Check Dipstick . . . . . .
    c. Transmission(s) . . . . . .
    d. Lube Points . . . . . .
19. Battery:
    a. Make & Model_____
    b. Service Weight_____

COMMENTS
TRUCKS SHOULD BE GIVEN GENERAL INSPECTION - PARTICULARLY APPEARANCE - BOLTS, COTTER PINS, ETC.

DISTRIBUTION
Original - Landoll Corporation
Part 2 - Dealer Copy
Part 3 - Customer Copy

LAN-0054
REV-000
May 2003

I hereby certify that this machine has been thoroughly checked and found to be in good mechanical and operating condition.

SERVICEMAN_____ **DATE**_____

DEALER/BRANCH_____

ADDRESS_____

ACCEPTANCE BY COMPANY OFFICIAL

CUSTOMER_____ **DATE**_____

SIGNATURE_____ **TITLE**_____