

OWNER'S MANUAL

MANUAL & DC POWERED TOTE LIFTERS MODEL L-220, L-270, L-220-DC & L-270-DC

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WARNINGS & SAFETY INSTRUCTIONS

Read owner's manual completely before operating unit!

- Not a personnel lift.
- Never go under forks if there is weight on unit.
- Remove weight & disconnect power before working on unit.
- Use only maintenance parts supplied or approved by the manufacturer.
- Do not clamp hydraulic cylinder in a vise as you may distort the barrel.
- Never operate the lift unless you are watching it.
- Do not go near leaks - High pressure oil easily punctures skin causing serious injury, gangrene, or death.
- Load tight against the bulkhead within the rated capacity.
- Transport loads in the lowered position only.
- Do not continue to operate the UP control if unit is not raising.
- Consult factory before adding or performing any modification to the original equipment.
- Do not use brake fluids or jack oils. Use AW-32 Hydraulic oil or equal.

RECEIVING INSTRUCTIONS

Every unit is thoroughly tested and inspected prior to shipment. However, it is possible that the unit may incur damage during transit. If you see damage when unloading make a note of it on the SHIPPER RECEIVER.

Remove all packing and strapping material, inspect for damage. IF DAMAGE IS EVIDENT, FILE A CLAIM WITH THE CARRIER IMMEDIATELY! Also, check the unit size, type of power unit, etc., to ensure the unit is correct for the intended application.

MANUAL OPERATION

There are three release lever positions:

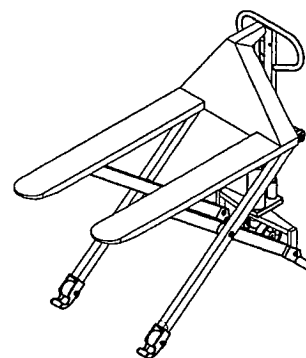
Normal Lift: Lift the release lever until the pawl engages. It can now lift 2,200 lbs.

Quick Lift: Disengage the small pawl and let the release lever move to its lowest position. You can now lift approximately 660 lbs.

Lowering: The load will be lowered by slowly raising the release lever to its upper position.

DC OPERATION

1. Push up-button, the fork goes up. Stop pushing, the fork can stop at any position and won't slid down.
2. Push down-button, the fork goes down. Stop pushing, the fork can stop at any position and won't slid down.
3. A safety valve is set in the pump station, when the Tote Lifter lifts a full load, only mid-cylinder can extend out fully, while the piston rod can not extract out to prevent overload.



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AIR BLEED PROCEDURE for Manual Tote Lifter

1. Raise unit all the way up.
2. Locate the release lever on the right side of the pump base.
3. Remove the roll pin that holds this lever in place.
4. With needle nose pliers pull the release plunger part way out.
 - a. When you do this you will hear a sucking sound.
5. When the suction sound stops, reinstall the plunger and release lever.
 - a. If you pulled the plunger out too far you will also have to reinstall the steel check ball and spring.
6. Reinstall the roll pin that holds the release lever in place.
7. Squeeze the release lever on the handle and lower the unit. You will now be able to use the complete stroke of the handle to pump the unit up.

PERIODIC MAINTENANCE OIL CHANGE

The hydraulic oil needs to be changed at least once a year. The oil should correspond to quality ISO VG 10.

To change oil, tip the truck over on its side and remove plug 158. The oil will now drain out. Raise the truck again and fill up about 0.7 liters of oil. After that, bleed the hydraulic system by pumping up the Scissor lift to the highest level and sink it down again quickly to remove air from the pump.

If the high-pressure pump does not operate at all because the cylinder is filled with air, it can be bled by loosening screw 130 and pressing down the piston until no more air escapes.

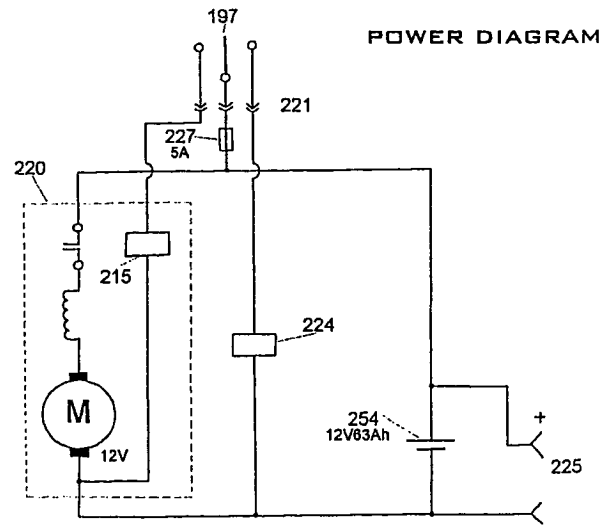
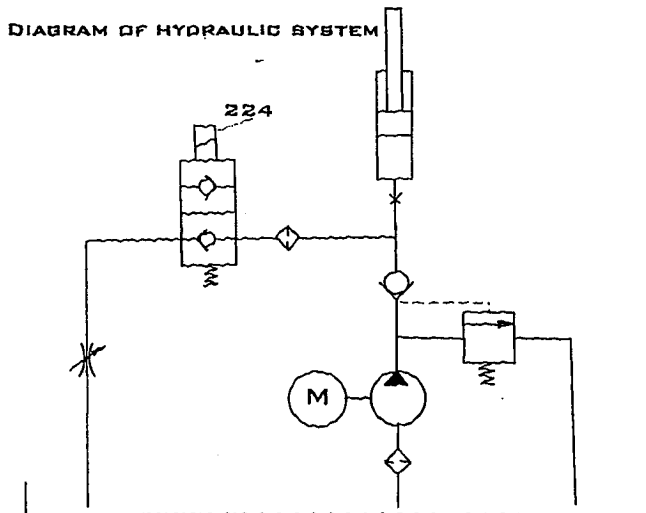
CHARGING BATTERY

Recharge battery when the lifting speed is remarkably slow. Plug charger into a power socket. Make sure your local power matches the recharger. Then connect the recharger to socket in the electrical control case. The battery will be automatically recharged. Recharging time is approximately 4 to 5 hours.

ASSEMBLY AND ADJUSTMENT for DC Powered Tote Lifter

1. Taking the packing materials away carefully. Don't damage the forks.
2. Insert handle into the socket of cylinder, lock it with pin and snap ring. Swing the handle up and down to see if it moves freely. Finally put on spring.
3. Open the electrical control case by removing the cover. Insert switch wire and plug hanging down from handle into socket in the case.
4. Check the electrical device and elements in the case to see if they are loose.
5. Check oil pipes in the hydraulic system to see if they are screwed tightly.
6. Push up-down on the top of handle intermittently to lift the fork, meanwhile to observe electrical device and elements in the case to see if there's any abnormal phenomenon. If there's none, continue to push the up-button to lift the fork to its highest position. Then push down-button to release the fork to its lowest position steadily.
7. Repeat the above procedure 3 or 4 times in order to release possible air in the hydraulic system.
8. Close the case with cover and screw it tightly with screws.

HYDRAULIC & POWER DIAGRAMS • DC Powered Tote Lifters





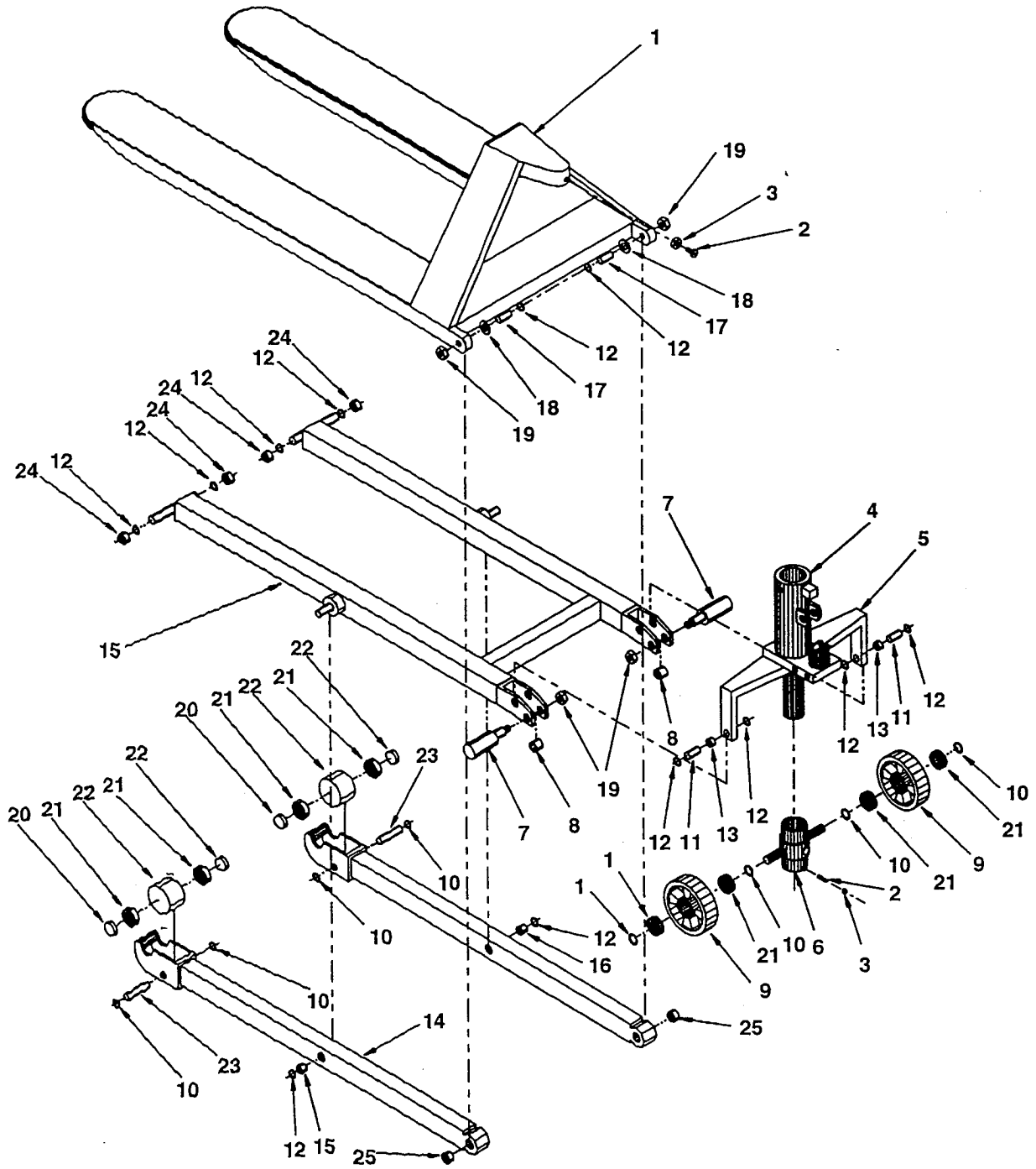
TROUBLE SHOOTING GUIDE • Manual Tote Lifters

<u>CONDITION</u>	<u>POSSIBLE CAUSE</u>	<u>CORRECTIVE ACTION</u>
1.) Hydraulic unit does no lift.	a.) Oil low tank. b.) Chain is not tight. c.) Bleed the system.	a.) Make sure of no oil leakage from the valve and add oil. b.) Tighten the chain by adjusting nut. c.) See oil change.
2.) Pump does not lift to maximum height.	a.) Oil low in tank.	a.) Make sure of no oil leakage from the valve and add oil.
3.) Forks moves up and down with pump strokes.	a.) Impurities in the valve system.	a.) Load the forks with about 440 lbs. and pump the handle rapidly with the release lever in lifting position.
4.) The unit won't lift rated capacity.	b.) The relief valve is not correctly adjusted.	a.) Remove plug and turn screw. Turn the screw clockwise until the adjustment is correct. Normally, a quarter turn is enough.
5.) Forks do not lower.	a.) The lowering mechanism is not correctly adjusted.	a.) Put the release lever in normal position. Tighten nut as much as possible without the forks beginning to sink.

TROUBLE SHOOTING GUIDE • DC Powered Tote Lifters

<u>CONDITION</u>	<u>POSSIBLE CAUSE</u>	<u>CORRECTIVE ACTION</u>
1.) Forks do not lift up when pushing up-button.	a.) Switch is out of order. b.) Fuse is broken. c.) Magnetic switch is broken. d.) Low oil.	a.) Check switch. b.) Replace fuse. c.) Check magnetic switch. d.) Fill oil.
2.) Forks do not descent when pushing the down-button.	a.) Switch is out of order. b.) Fuse is broken. c.) Magnetic switch is broken. d.) Low oil.	a.) Check switch. b.) Replace fuse. c.) Check magnetic switch. d.) Check and remove the object.
3.) Forks do not lift to highest position.	a.) Low oil.	a.) Fill oil.
4.) Motor does not run.	a.) Motor broken. b.) Terminals and inserters are loose. c.) Battery dead.	a.) Check motor brush. b.) Check terminals and inserters. c.) Recharge battery.
5.) Battery does not have enough power.	a.) Recharging time is not enough. b.) Battery is out of order.	a.) Recharge longer. b.) Fill battery liquid or replace battery.
6.) Oil is leaking from piston rod & mid cylinder.	a.) Oil seals broken.	a.) Replace seals.
7.) Unsteady when in the highest position.	a.) The ground is not flat or even. b.) Centrifugal axle is left the ground.	a.) Work on flat and even ground. b.) Adjusting centrifugal axle to touch the ground.

TOTE LIFTER PARTS DIAGRAM FRAME ASSEMBLY

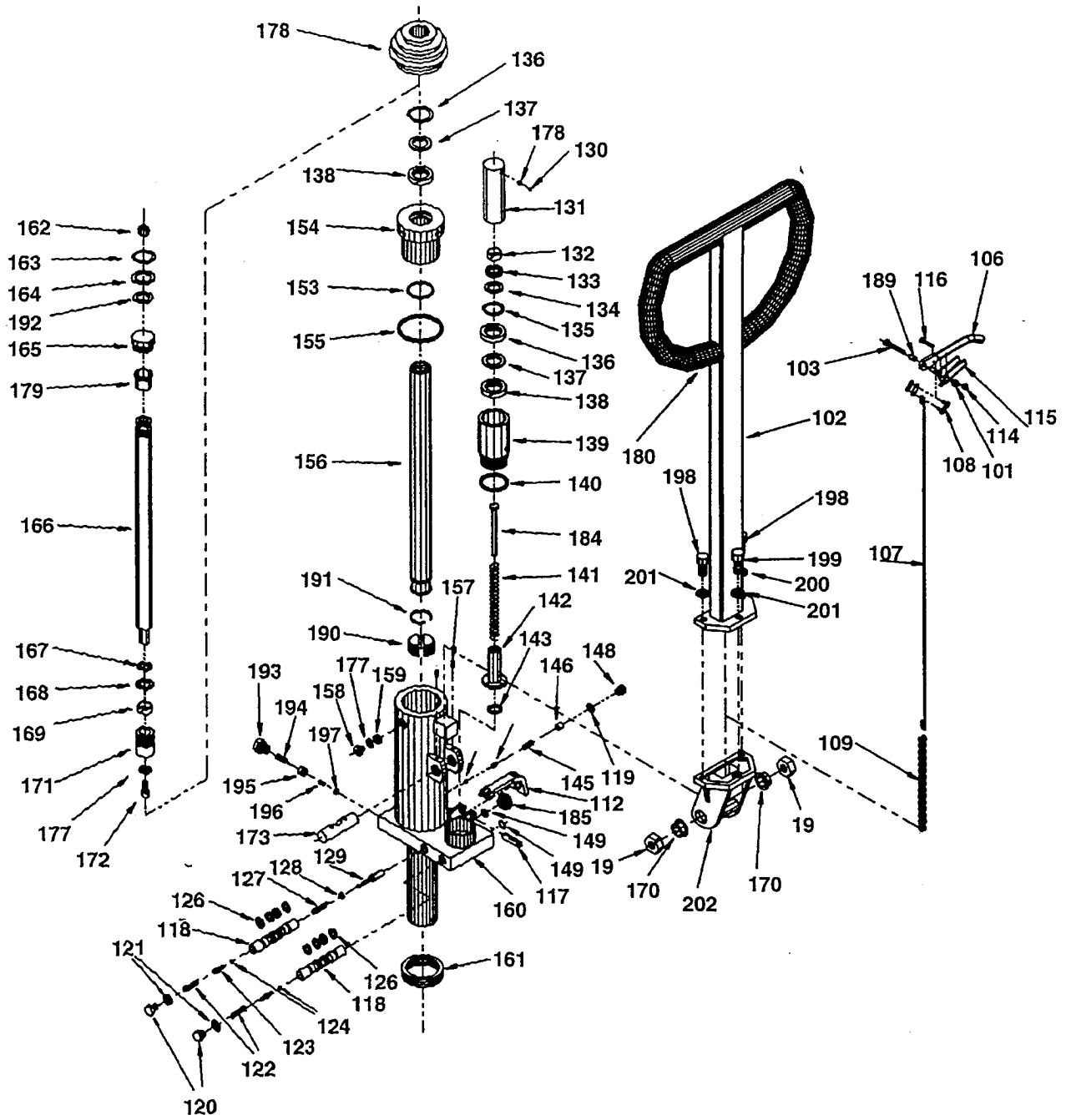


**TOTE LIFTER PARTS LIST
FRAME ASSEMBLY**

ITEM NO.	DESCRIPTION	PART NO.	QTY.
1	Chassis	L-270-001	1
2	Screw	L-270-002	2
3	Nut	L-270-003	2
4	Pump Complete	L-270-004	1
5	Thrust Plate	L-270-005	1
6	Wheel Holder	L-270-006	1
7	Centrifugal Axle	L-270-007	2
8	Spacer	L-270-008	2
9	Steering Wheel	L-270-009	2
10	Locking Ring	L-270-010	8
11	Pin	L-270-011	2
12	Locking Ring	L-270-012	12
13	Bush	L-270-013	2
14	Leg	L-270-014	2
15	Leg	L-270-015	1
16	Bush	L-270-016	2
17	Pin	L-270-017	2
18	Washer	L-270-018	2
19	Nut	L-270-019	4
20	Spacer	L-270-020	4
21	Ball Bearing	L-270-021	8
22	Fork Wheel	L-270-022	2
23	Wheel Axle	L-270-023	2
24	Fork Roller	L-270-024	4
25	Bush	L-270-025	2



TOTE LIFTER PUMP ASSEMBLY



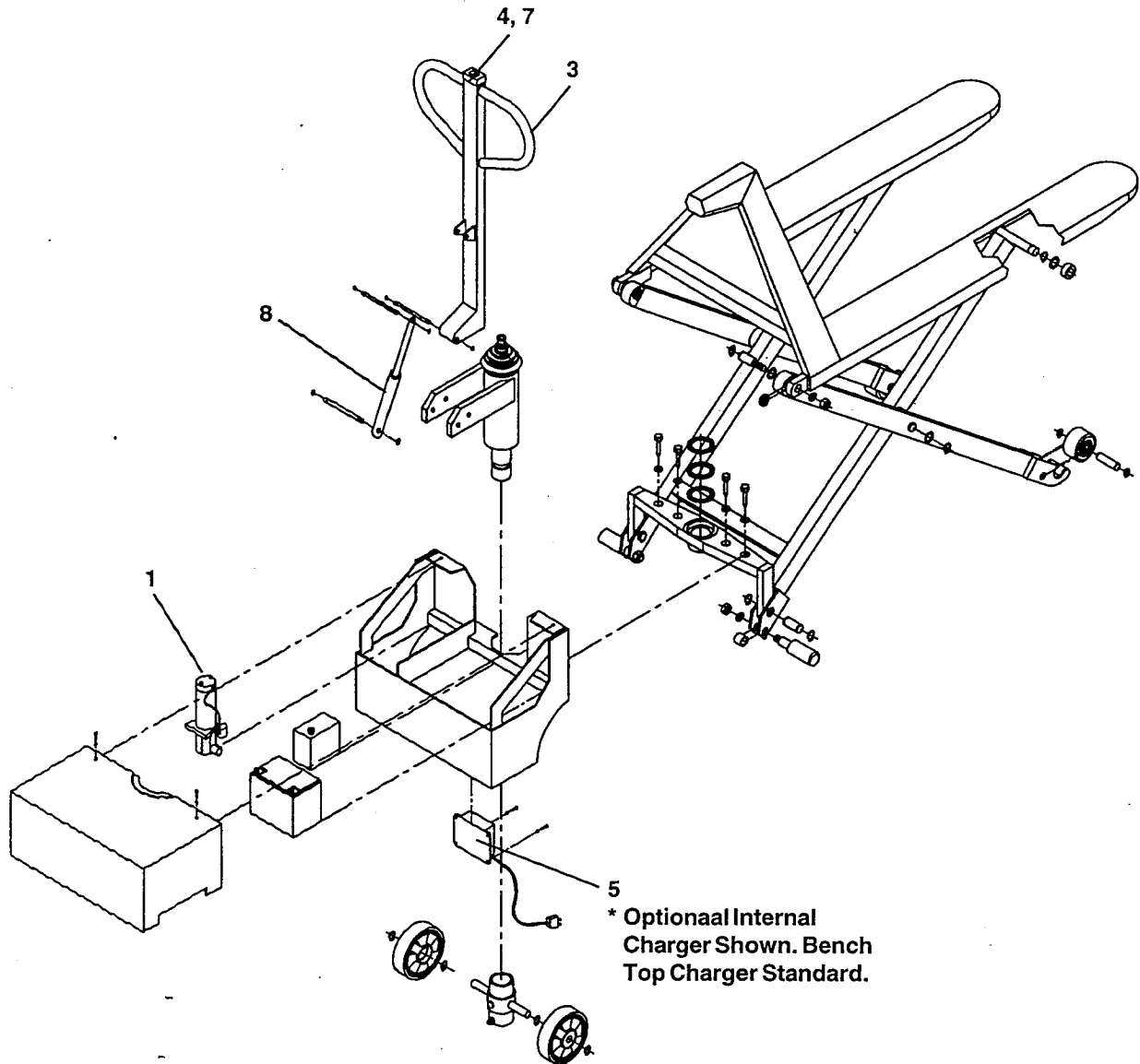
**TOTE LIFTER PARTS LIST
PUMP ASSEMBLY**

ITEM NO.	DESCRIPTION	PART NO.	QTY.
101	Lock Nut	L-270-101	1
102	Pull Rod	L-270-102	1
103	Screw	L-270-103	1
104	Tubular Pin	L-270-104	1
105	Roller	L-270-105	1
106	Release Lever	L-270-106	1
107	Release Rod	L-270-107	1
108	Chain Connector	L-270-108	3
109	Chain	L-270-109	1
110	Eye Bolt	L-270-110	1
111	Washer	L-270-111	1
112	Release Arm Cpl	L-270-112	1
113	Lock Nut	L-270-113	1
114	Lock Nut	L-270-114	1
115	Release Pawl	L-270-115	1
116	Screw	L-270-116	1
117	Tubular Pin	L-270-117	1
118	Valve Insert	L-270-118	2
119	Gasket	L-270-119	1
120	Screw	L-270-120	2
121	Gasket	L-270-121	2
122	Spring	L-270-122	2
123	Release Valve	L-270-123	2
124	Steel Ball	L-270-124	2
126	O-Ring	L-270-126	8
127	Spring	L-270-127	1
128	O-Ring	L-270-128	1
129	Release Plunger	L-270-129	1
130	Screw	L-270-130	1
131	Pump Piston	L-270-131	1
132	Guide Ring	L-270-132	1
133	Sleeve	L-270-133	1
134	Steel Washer	L-270-134	1
135	Locking Ring	L-270-135	1
136	Scraper Ring	L-270-136	2
137	O-Ring	L-270-137	2
138	Sleeve	L-270-138	2
139	Pump Cylinder	L-270-139	1
140	O-Ring	L-270-140	1
141	Spring	L-270-141	1
142	High-Pressure Piston	L-270-142	1
143	O-Ring	L-270-143	1
144	Valve	L-270-144	1
145	Spring	L-270-145	1
146	Adjusting Screw	L-270-146	1

**TOTE LIFTER PARTS LIST
PUMP ASSEMBLY**

ITEM NO.	DESCRIPTION	PART NO.	QTY.
148	Screw	L-270-148	1
149	Locking Ring	L-270-149	1
150	Locking Ring	L-270-150	1
153	O-Ring	L-270-153	1
154	Cylinder Head	L-270-154	1
155	O-Ring	L-270-155	1
156	Lifting Piston	L-270-156	1
157	Screw	L-270-157	2
158	Valve Screw	L-270-158	1
159	Plug Gasket	L-270-159	1
160	Pump Housing	L-270-160	1
161	Thrust Bearing	L-270-161	1
162	Steel Ball	L-270-162	1
163	Locking Ring	L-270-163	1
164	Steel Washer	L-270-164	1
165	Bronze Bushing	L 270-165	1
166	Piston	L-270-166	1
167	O-Ring	L-270-167	1
168	O-Ring	L-270-168	1
169	Sleeve	L-270-169	1
170	Bronze Bushing	L-270-170	2
171	Piston	L-270-171	1
172	Screw	L-270-172	1
173	Lever Axle	L-270-173	1
176	Rubber Sleeve	L-270-176	1
177	Washer	L-270-177	1
178	Washer	L-270-178	1
179	Bronze Bushing	L-270-179	1
180	Pull Rod Assy.	L-270-180	1
184	Spring Guide	L-270-184	1
185	Rubber Bushing	L-270-185	1
186	Steel Ball	L-270-186	1
190	Copper Piston	L-270-190	1
191	Locking Ring	L-270-191	1
192	Spring	L-270-192	1
193	High Pressure Piston	L-270-193	1
194	O-Ring	L-270-194	1
195	Valve	L-270-195	1
196	Spring	L-270-196	1
197	Adjusting Screw	L-270-197	1
198	Screw	L-270-198	2
199	Locking Ring	L-270-199	2
200	Locking Ring	L-270-200	2
201	O-Ring	L-270-201	1
202	Cylinder Head	L-270-202	1

DC POWERED TOTE LIFTER PARTS DIAGRAM DC POWER UNIT



DC POWERED TOTE LIFTER PARTS LIST • DC Power Unit

ITEM NO.	DESCRIPTION	PART NO.	QTY.
1	Pump/Motor/Resivoir Combination	1210748	1
2	12V Battery	L-220-BAT	1
3	Handle	L-220-HAN	1
4	Control Switch	L-220-SW	1
5	Battery Charger	L-220-CHG	1
6	n/a	n/a	1
7	Wire Harness with Switch (in some units this is on switch)	L-220-WH	1
8	Handle Gas Spring	L-220-SHO	1

These are the parts that are used on the DC units that are not on the manual units shown earlier in the owners manual.

U.S. DEPARTMENT OF LABOR
Occupational Health and Safety Administration
MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME CROWN BATTERY MANUFACTURING COMPANY		EMERGENCY TELEPHONE NUMBER (800) 645-8265 OR (800) OIL-TANK
ADDRESS 1445 MAJESTIC DRIVE, P.O. BOX 990, FREMONT, OHIO 43420		TELEPHONE NUMBER (FOR INFORMATION) (419) 334-7181
CHEMICAL NAME AND SYNONYMS BATTERIES, WET, FILLED WITH ACID		TRADE NAME AND SYNONYMS N/D

SECTION II - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS - Chemical Name and Common Names (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	%	OSHA PEL	OSHA PEL	OTHER LIMITS RECOMMENDED
LEAD/LEAD OXIDE/LEAD SULFATE CAS# 7439-92-1	60%	0.05 mg/m ³	0.05 mg/m ³	N/A
ANTIMONY CAS# 7440-36-0	1-5%	0.05 mg/m ³	0.05 mg/m ³	N/A
ARSENIC CAS# 7440-38-2	< 1%	0.50 mg/m ³	0.50 mg/m ³	N/A
SULFURIC ACID CAS# 7664-93-9**	3-12%	1.00 mg/m ³	1.00 mg/m ³	N/A
OTHERS				

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

****Note: ELECTROLYTE (water plus 25-40% sulfuric acid by weight) CONSTITUTES 3-12% OF TOTAL BATTERY WEIGHT**

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT (°F)	203°	SPECIFIC GRAVITY (H ₂ O = 1)	1.245-1.295 BATTERY ELECTROLYTE
VAPOR PRESSURE (mm Hg)	14 @ 37% @ 80°F	MELTING POINT	-35°F TO +10.6°F
VAPOR DENSITY (AIR = 1)	>1	WATER REACTIVE	YES, PRODUCES HEAT
SOLUBILITY IN WATER	100%		
APPEARANCE AND ODOR	CLEAR LIQUID WITH SHARP PUNGENT ODOR		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) NOT COMBUSTIBLE	FLAMMABLE LIMITS IN AIR % BY VOLUME N/D	AUTO IGNITION TEMPERATURE N/D	LeI/UeI NOT COMBUSTIBLE
EXTINGUISHING MEDIA For fires in area, Dry chemical, water fog, water, carbon dioxide			
SPECIAL FIREFIGHTING PROCEDURES Sulfuric acid fume, sulfur dioxide gas or carbon monoxide may be released when acid decomposes: Wear NIOSH approved self-contained breathing apparatus.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Water applied to sulfuric acid generates heat and causes acid to spatter: wear full-cover sulfuric acid resistant clothing. Sulfuric acid reacts violently with metals, nitrates, chlorates, carbides, fulminates, picrates and other organic materials. Reacts with most metals to yield explosive/flammable hydrogen gas: this reaction is intensified when sulfuric acid is diluted with water, to form battery electrolyte.			

PB-470

SECTION V - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY INHALATION: YES SKIN: YES INGESTION: YES		
HEALTH HAZARDS ACUTE: EYES, SKIN, RESPIRATORY SYSTEM AND DIGESTIVE SYSTEM		
CHRONIC: EYES, SKIN, RESPIRATORY SYSTEM AND DIGESTIVE SYSTEM		
SIGNS AND SYMPTOMS OF EXPOSURE IRRITATION OF EXPOSED AREA, BURNS, AND RESPIRATORY PROBLEMS. NO POSSIBILITY OF OVER EXPOSURE OF LEAD WILL OCCUR UNLESS BATTERY IS DESTROYED.		
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE EXPOSURE TO MIST MAY CAUSE LUNG DAMAGE AND AGGRAVATE PULMONARY CONDITON		
EMERGENCY AND FIRST AID PROCEDURES SEEK MEDICAL ASSISTANCE FOR FURTHUR TREATMENT, OBSERVATION AND SUPPORT IF NECESSARY		
EYE CONTACT - WASH WITH COPIOUS QUANTITIES OF COOL WATER FOR AT LEAST 15 MINUTES.		
SKIN CONTACT - FLUSH AREA WITH LARGE AMOUNTS OF COOL WATER FOR AT LEAST 15 MINUTES.		
INHALATION - REMOVE TO FRESH AIR, IF BREATHING IS DIFFICULT - GIVE OXYGEN		
INGESTION - GIVE MILK TO DRINK, DO NOT INDUCE VOMITING, CALL PHYSICIAN		

SECTION VI - REACTIVITY DATA

STABILITY	STABLE	X	CONDITIONS TO AVOID N/D
	UNSTABLE		
INCOMPATIBILITY (Materials to avoid) AVOID COMBUSTIBLES, ORGANIC MATERIALS, AND STRONG REDUCING AGENTS			
HAZARDOUS DECOMPOSITION PRODUCTS SULFUR TRIOXIDE, CARBON MONOXIDE, SULFURIC ACID FUMES, AND SULFUR DIOXIDE			
HAZARDOUS POLYMERIZATION	MAY OCCUR	X	CONDITIONS TO AVOID N/D
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

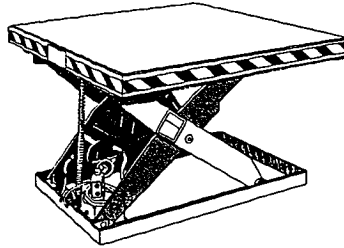
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED CONTAIN SPILL USING NON-COMBUSTIBLE MATERIALS; VERMICULITE, DRY SAND, AND EARTH. NEUTRALIZE WITH LIME, SODA ASH, SODIUM BICARBONATE, ETC.	
WASTE DISPOSAL METHOD CONSULT STATE ENVIRONMENTAL AGENCY. INDIVIDUAL STATE REGULATIONS VARY.	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE SEPARATE FROM INCOMPATIBLE MATERIALS, KEEP AWAY FROM FIRE, SPARKS AND HEAT	
OTHER PRECAUTIONS AND/OR SPECIAL HAZARDS CONTACT WITH METALS MAY PRODUCE TOXIC SULFUR DIOXIDE FUMES AND MAY ALSO RELEASE FLAMMABLE HYDROGEN GAS. THIS REACTION IS INTENSIFIED WHEN DILUTED.	
NFPA RATING: HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 2 SPECIAL: 0	
HMIS RATING: HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 2 PERSONAL PROTECTION: X	

SECTION VIII - CONTROL AND PROTECTIVE MEASURES

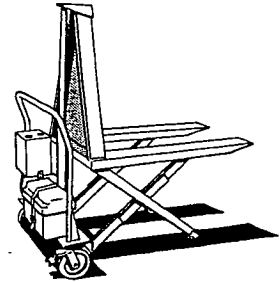
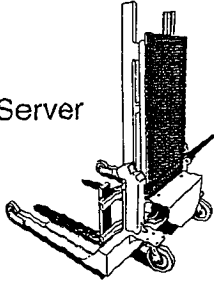
RESPIRATORY PROTECTION (Specify type) ABOVE P.E.L.: NIOSH APPROVED, FITTED, FULL FACE RESPIRATOR		
VENTILATION	LOCAL EXHAUST VENTILLATED AREA PREFERRED	SPECIAL MUST BE ACID AND EXPLOSIVE RESISTANT
	MECHANICAL (General) IF BELOW P.E.L.	OTHER MUST BE ACID AND EXPLOSIVE RESISTANT
PROTECTIVE GLOVES ACID RESISTANT	EYE PROTECTION FULL FACE PROTECTION	
OTHER PROTECTIVE EQUIPMENT ACID RESISTANT CLOTHING AND BOOTS		

Material Handling Problem Solvers

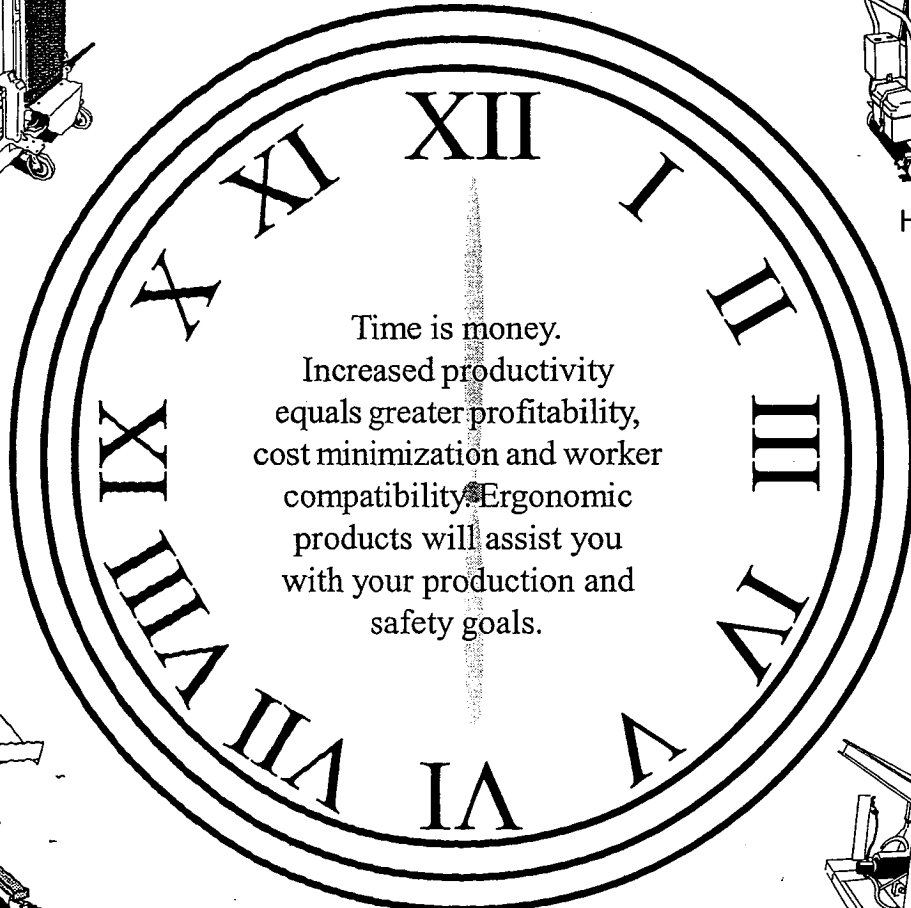
Scissor Lift Table



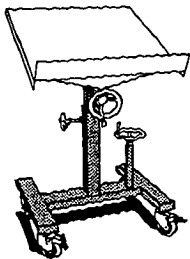
Pallet Server



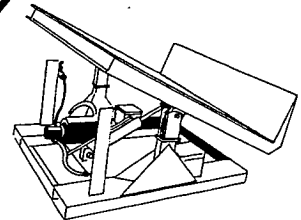
High Rise Lift



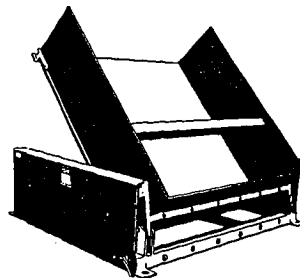
Time is money.
Increased productivity
equals greater profitability,
cost minimization and worker
compatibility. Ergonomic
products will assist you
with your production and
safety goals.



Mobile Lift & Tilt
Work Stand



45° Container Tilter



Ground Lift Tilter

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