


MaterialHandling.com

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CBS-Series Counterbalanced Stackers

Instruction Manual



Receiving instructions:

After delivery, remove the packaging from the product. Inspect the product closely to determine whether it sustained damage during transport. If damage is discovered, record a complete description of it on the bill of lading. If the product is undamaged, discard the packaging.

NOTE: The end-user is solely responsible for confirming that product design, use, and maintenance comply with laws, regulations, codes, and mandatory standards applied where the product is used.

Replacement Parts and Technical Assistance:

For answers to questions not addressed in these instructions and to order replacement parts, labels, and accessories, call our Technical Service and Parts Department at (260) 665-7586. The department can also be contacted online at http://www.vestilmfg.com/parts_info.htm.

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***NOTE:** Figures 3-10B are views of the modular power unit. These diagrams only apply to units manufactured before 12-01-2018. Units manufactured after 11-01-2018 receive a redesigned modular power unit (MPU GEN2). Diagrams and operating instructions for GEN2 power units are provided in separate MPU-AC/DC manuals.*

SIGNAL WORDS:

This manual uses SIGNAL WORDS to indicate the likelihood that a particular action will cause personal injuries or property damage. Signal words also specify the level of seriousness of injury if the product is misused in the ways described. The following signal words are used in this manual.



Identifies a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY.



Identifies practices likely to result in product/property damage, such as operation that might damage the product.

Improper Use Might Cause Personal Injuries:

Vestil strives to identify all hazards associated with the use of our products. However, material handling is dangerous and no manual can address every risk. The most effective means for preventing accidents is for the end-user to exercise common sense and sound judgment whenever using this product.

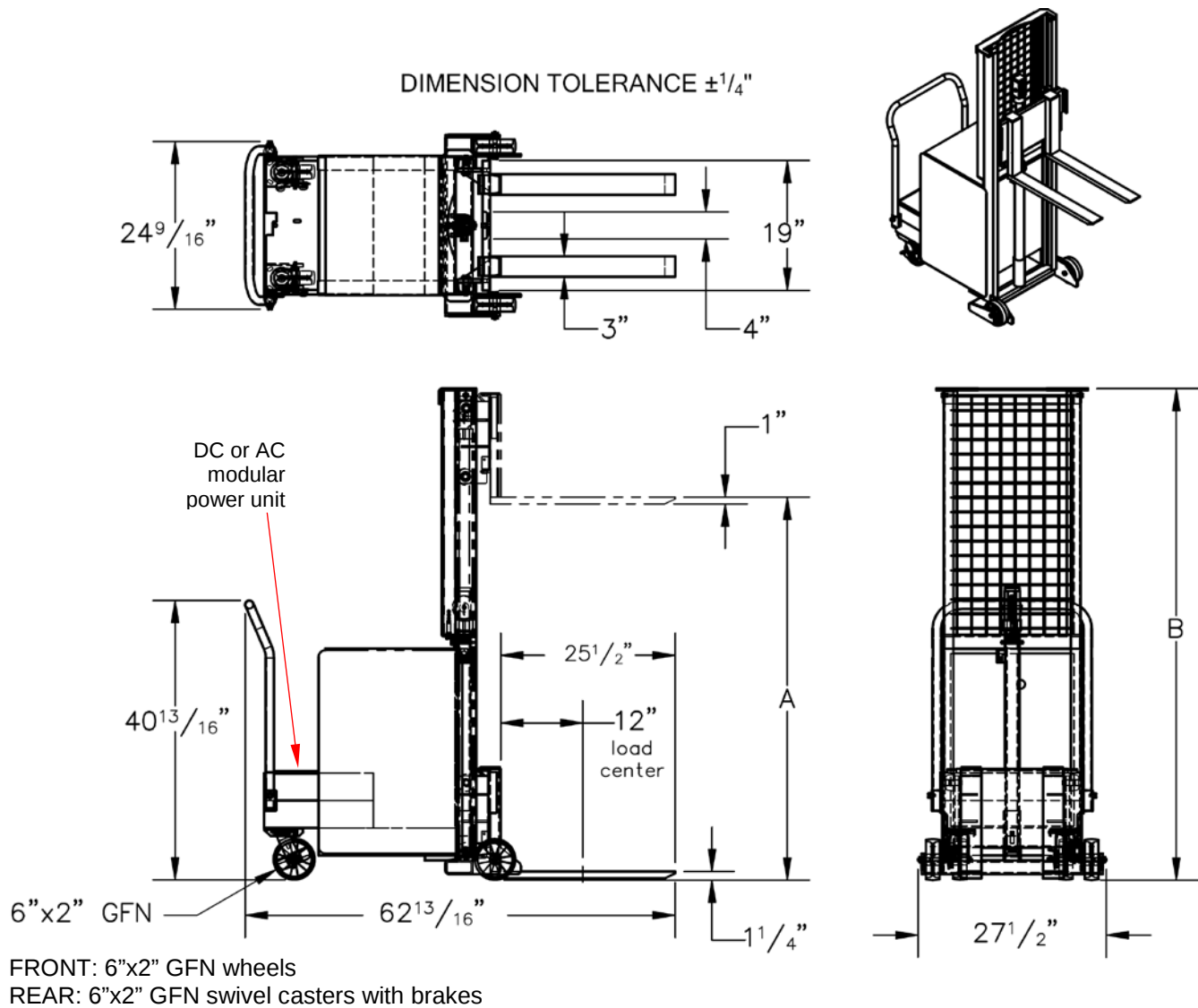


Improper or careless use of this product might result in serious personal injuries or even death.

- ***Read and understand the entire manual before assembling, using or servicing the product.***
- Read the manual to refresh your understanding of proper use and maintenance procedures.
- DO NOT modify the product in any way UNLESS you first obtain written approval from Vestil. Unauthorized modifications might make the lift unsafe to use and automatically void the [Limited Warranty](#) (see p. 20).
- DO NOT exceed the maximum rated load. See [Specifications](#) table on p. 3; Label 287 on product).
- Inspect the product before each use according to the instructions on p. 18.
 - A. DO NOT use this product if the inspection reveals structural damage. Examples of structural damage include, but are not limited to, the following: 1) Cracked, broken or deformed load-bearing members (forks, fork carriage, mast, wheels, and frame); 2) cracked welds; 3) corrosion or severe wear; 4) damaged, e.g. leaking, hydraulic system (cylinder, hoses, reservoir, etc.). Remove the product from service if it fails any part of the inspection. DO NOT use the product until it is fully restored to normal condition. In the event that part of the hydraulic system is damaged, AVOID contact with pressurized hydraulic oil (leaking from a ruptured hose, for instance). High pressure oil easily punctures skin which can cause injury such as gangrene.
 - B. DO NOT use the product if any unusual noise or movement is observed. If a malfunction occurs, remove the unit from service and notify your supervisor & maintenance personnel about the issue.
 - C. ONLY use manufacturer-approved replacement parts.
- DO NOT change the setting of the pressure relief valve.
- Whenever using this product, carefully watch the forks and the load.
- DO NOT use this device UNLESS all product labels (see “Labeling Diagram” on p. 19) are readable and undamaged AND all machine guards (i.e. the expanded metal mast guard and formed wheel guards) are in place.
- This product is NOT a personnel lift. DO NOT use this device to lift people.
- DO NOT walk or stand beneath the forks at any time.
- DO NOT leave the stacker unattended while it is loaded. ALWAYS fully lower the forks and engage the caster brakes before leaving the unit unattended.
- ONLY transport loads with the forks no higher than is necessary to fully support the load and avoid obstacles.
- To lift a pallet with this stacker, drive the unit as far forward as possible until the pallet firmly contacts the upright portions of both forks (i.e. the “heels”).
- DO NOT continue to push the “UP” button on the controller if the forks do not rise. Remove the unit from service and report the problem to maintenance personnel.

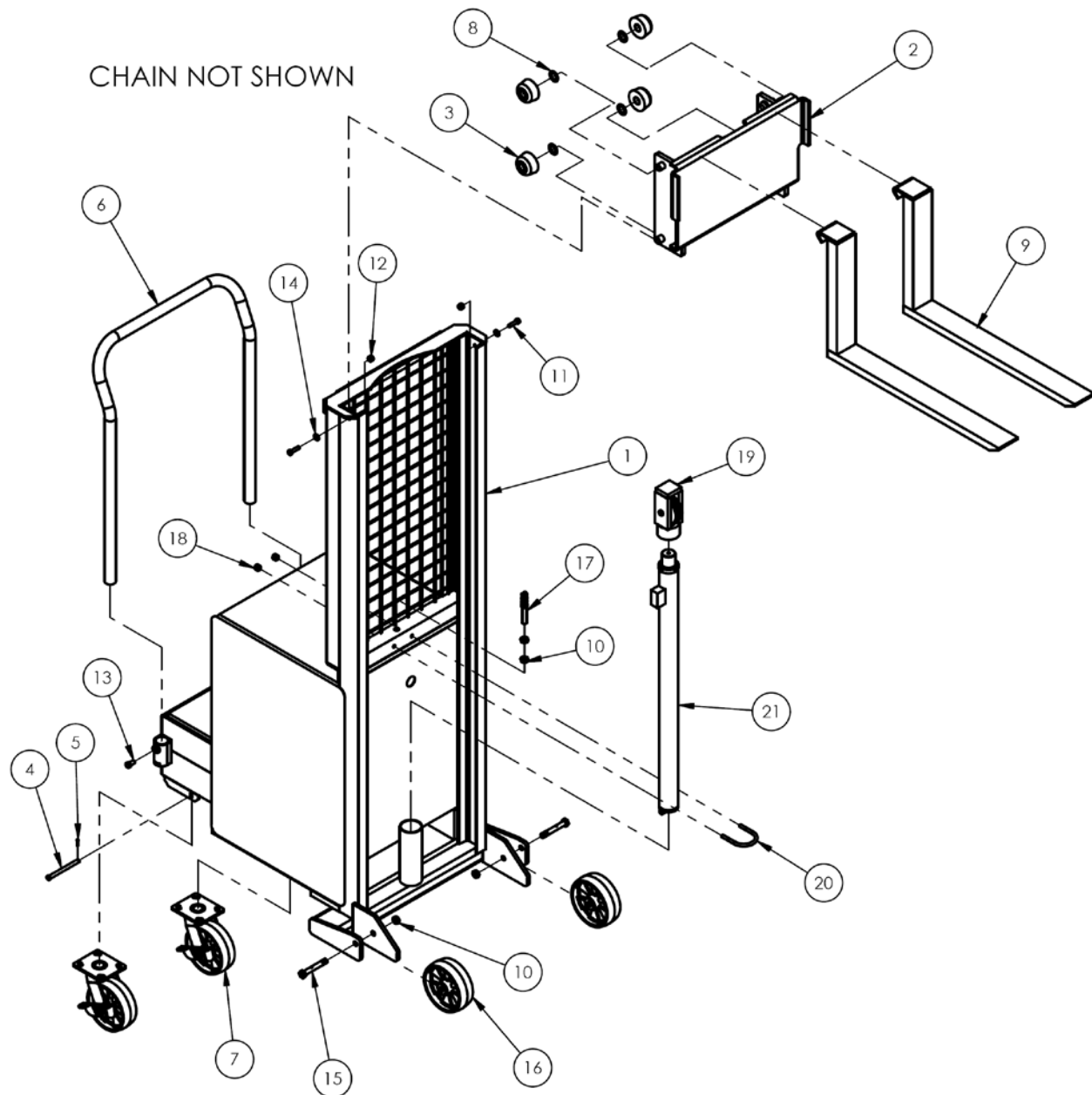
Specifications:

Dimensions and other product specifications appear in the diagrams and table below.

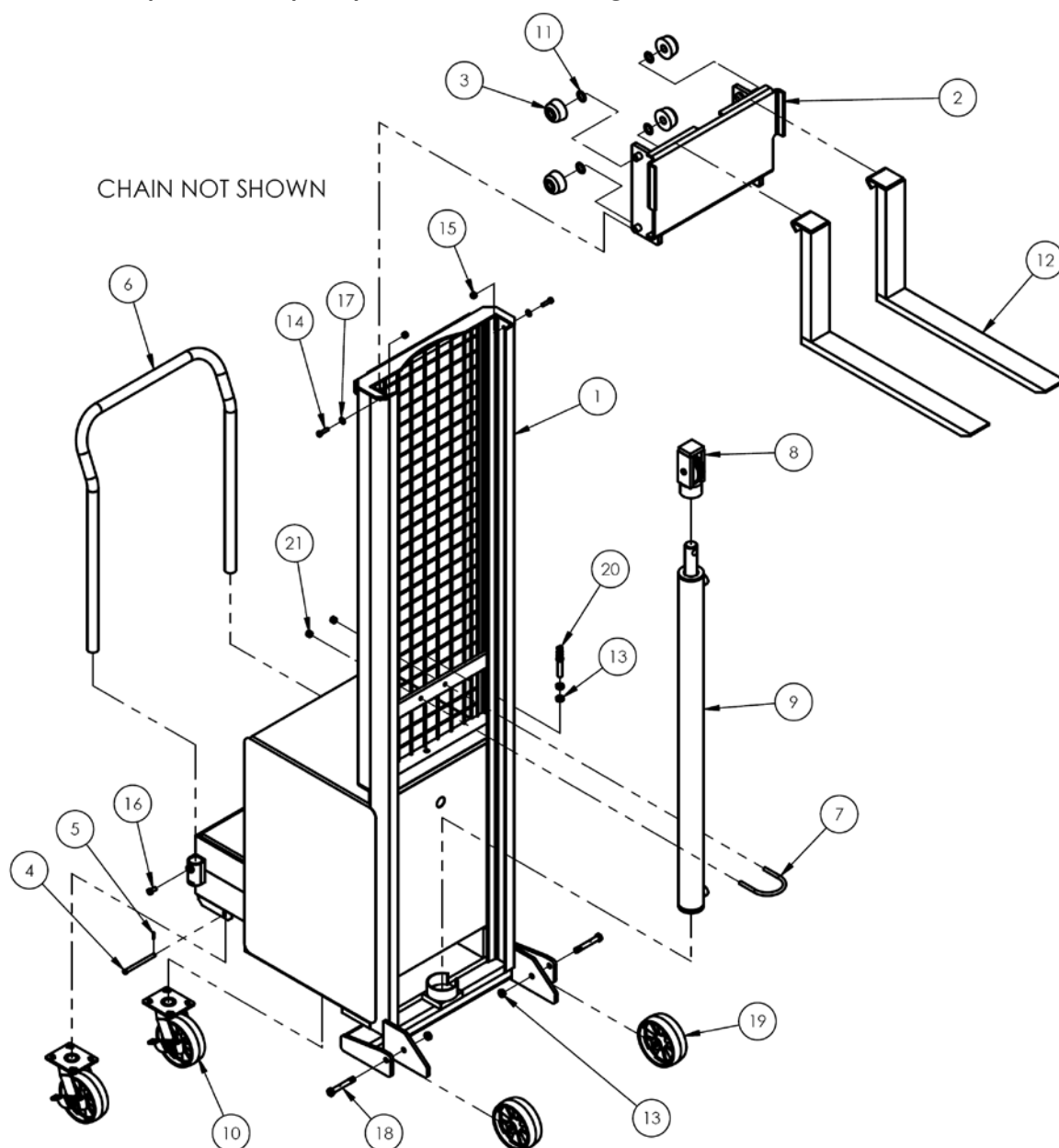


FRONT: 6"x2" GFN wheels
 REAR: 6"x2" GFN swivel casters with brakes

Model	Capacity at 12" Load Center	Fork Dimensions (W x L x T)	A: Max. Fork Height	B: Overall Height	Net Weight
CBS-56-1-DC	1,000 lb. ~454 kg	3" x $25\frac{1}{2}"$ x 1" 7.6cm x 64.8 cm x 2.5cm	56 in. 142.2 cm	$71\frac{7}{8}"$ in. 182.6 cm	1,148 lb. 521.8 kg
CBS-56-1-AC	1,000 lb. ~454 kg	3" x $25\frac{1}{2}"$ x 1" 7.6cm x 64.8 cm x 2.5cm	56 in. 142.2 cm	$71\frac{7}{8}"$ in. 182.6 cm	1,148 lb. 521.8 kg
CBS-76-1-DC	1,000 lb. ~454 kg	3" x $25\frac{1}{2}"$ x 1" 7.6cm x 64.8 cm x 2.5cm	76 in. 193 cm	$91\frac{7}{8}"$ in. 233.4 cm	1,194 lb. 542.7 kg
CBS-76-1-AC	1,000 lb. ~454 kg	3" x $25\frac{1}{2}"$ x 1" 7.6cm x 64.8 cm x 2.5cm	76 in. 193 cm	$91\frac{7}{8}"$ in. 233.4 cm	1,194 lb. 542.7 kg

FIG. 1: CBS-56-1 (AC and DC) Exploded Parts Diagram and Bill of Materials

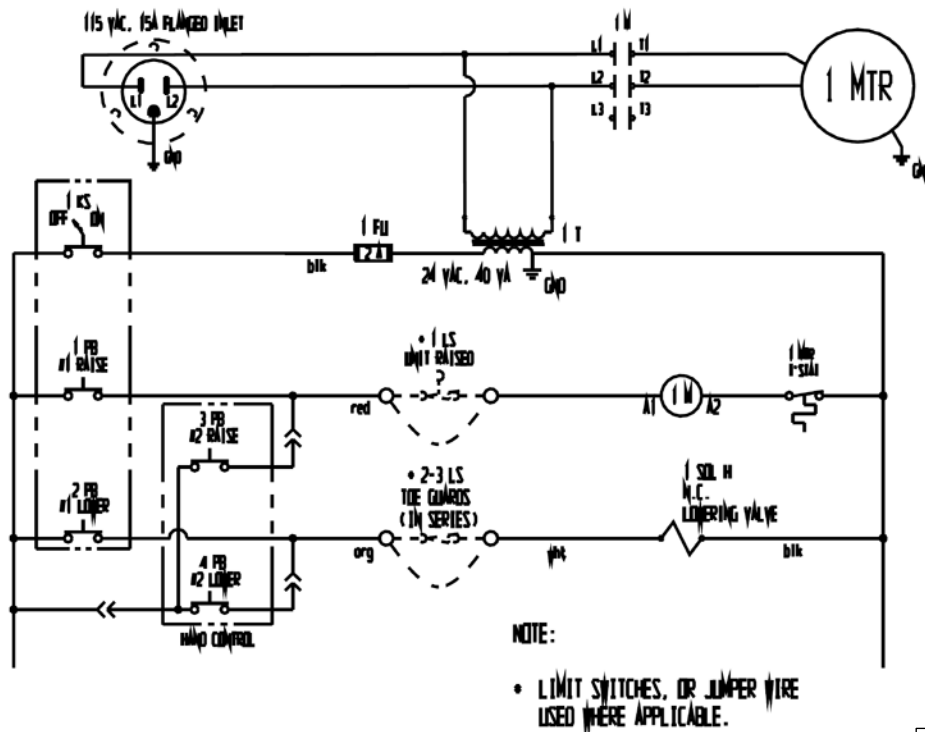
Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	21-514-077	Weldment, frame	1	12	37021	Nylon insert lock nut, grade 2, zinc finish, $\frac{5}{16}$ "-18	2
2	24-538-025	Weldment, carriage, fork mount	1	13	11103	Hex bolt, grade A, zinc-plated, $\frac{3}{8}$ "-16x $\frac{3}{4}$ "	2
3	21-527-003	Assembly, roller bearing	4	14	33004	Flat washer, USS, zinc plated $\frac{1}{4}$ "	2
4	99-112-006	Pin, clevis	2	15	16-145-031	Bolt with grease zerk, $\frac{1}{2}$ "-13x $3\frac{1}{2}$ "	2
5	65074	Pin, cotter	2	16	16-132-354	Caster wheel, GFN-6/2-W	2
6	99-025-014	Handle, push, 22" C/C	1	17	21-542-003	Chain subassembly	1
7	16-132-261	Caster, GFN-6/2-SWB	2	18	37024	Nylon insert lock nut, grade 2, zinc finish, $\frac{3}{8}$ "-16	2
8	33424	Machine bushing, low carbon, plain finish, $\frac{3}{4}$ "x18ga.	4	19	21-527-005	Pulley subassembly	1
9	21-528-003	Weldment, fork	2	20	42034	U-bolt, zinc plated, $\frac{5}{16}$ " - 18x2" pipe size	1
10	36209	$\frac{1}{2}$ " - 13 hex jam nut, plain	4	21	99-021-927-001	Cylinder, telescopic, 28" stroke	1
11	11057	Hex bolt, grade A, zinc plated, $\frac{5}{16}$ "-18x $1\frac{1}{4}$ "	2				

FIG. 2: CBS-76-1 (AC & DC) Exploded Parts Diagram and Bill of Materials

Item no.	Part no.	Description	Qty.	Item no.	Part no.	Description	Qty.
1	21-514-078	Weldment, frame	1	12	21-528-003	Weldment, fork	2
2	24-538-025	Weldment, carriage, fork mount	1	13	36209	$\frac{1}{2}$ " – 13 hex jam nut, plain	4
3	21-527-003	Assembly, roller bearing	4	14	11057	Hex bolt, grade A, zinc plated, $\frac{5}{16}$ "–18x $1\frac{1}{4}$ "	2
4	99-112-006	Pin, clevis	2	15	37021	Nylon insert lock nut, grade 2, zinc finish, $\frac{5}{16}$ "–18	2
5	65074	Pin, cotter	2	16	11103	Hex bolt, grade A, zinc-plated, $\frac{3}{8}$ "–16x $3\frac{3}{4}$ "	2
6	99-025-014	Handle, push, 22" C/C	1	17	33004	Flat washer, USS, zinc plated $\frac{1}{4}$ "	2
7	42044	U-bolt, zinc plated, $\frac{5}{16}$ " – 18x3" pipe size	1	18	16-145-031	Bolt with grease zerk, $\frac{1}{2}$ "–13x $3\frac{1}{2}$ "	2
8	21-527-008	Pulley subassembly	1	19	16-132-354	Caster wheel, GFN-6/2-W	2
9	21-021-019	Cylinder, 2 $\frac{1}{2}$ " rod x 42" stroke	1	20	21-542-004	Chain subassembly	1
10	16-132-261	Caster, GFN-6/2-SWW	2	21	37024	Nylon insert lock nut, grade 2, zinc finish, $\frac{3}{8}$ "–16	2
11	33424	Machine bushing, low carbon, plain finish, $\frac{3}{4}$ "x18ga.	4				

FIG. 3: 115VAC Modular power unit electrical circuit diagram

*See [note](#) in table of contents on cover page.

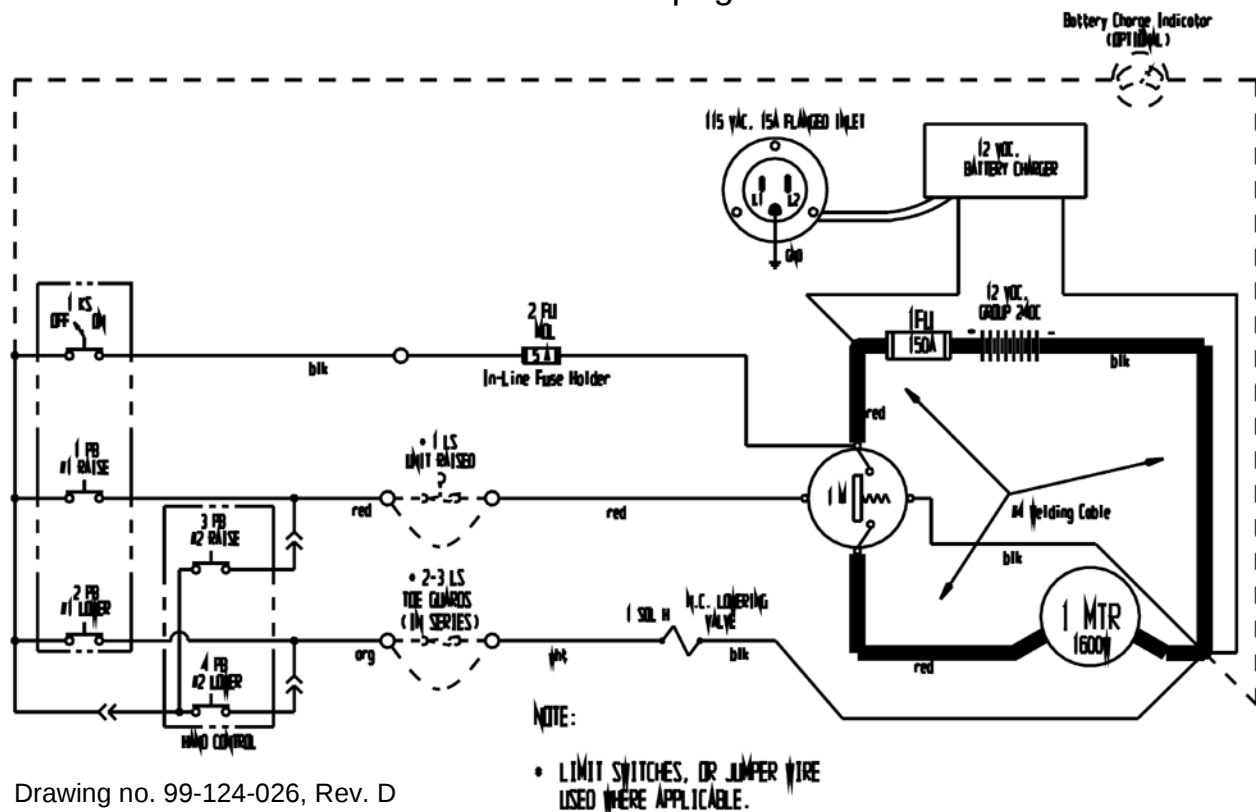


Drawing no. 99-124-026, Rev. D

Disconnect
power before
working on the
power unit!

FIG. 4: 12VDC Modular power unit electrical circuit diagram

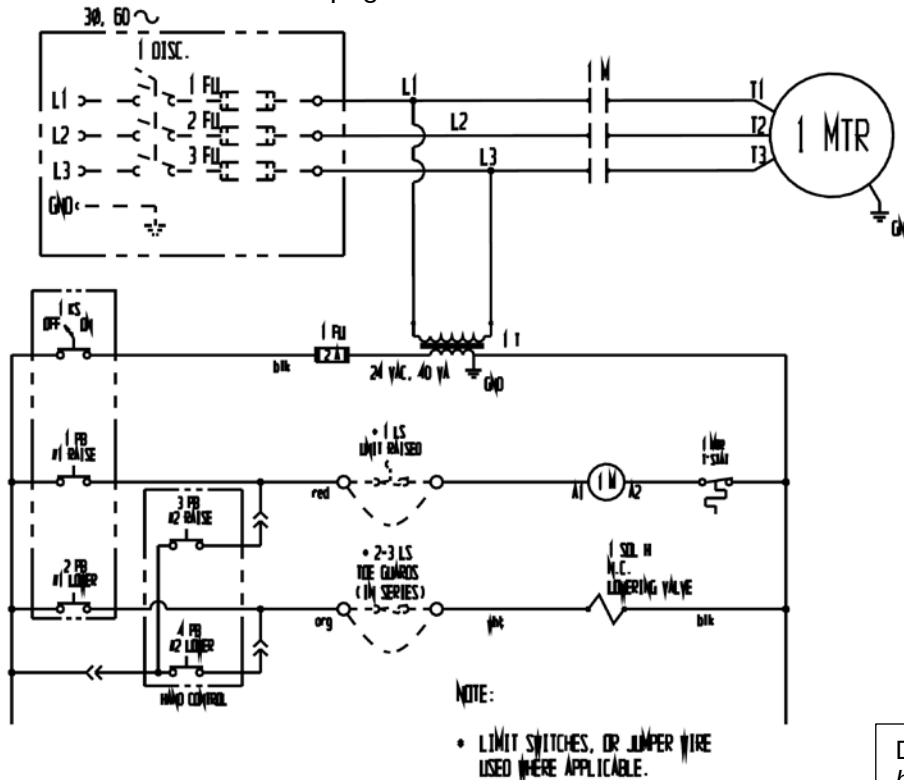
*See [note](#) in table of contents on cover page.



Drawing no. 99-124-026, Rev. D

FIG. 5: 3-Phase AC Modular Power Unit Diagram

*See [note](#) in table of contents on cover page.



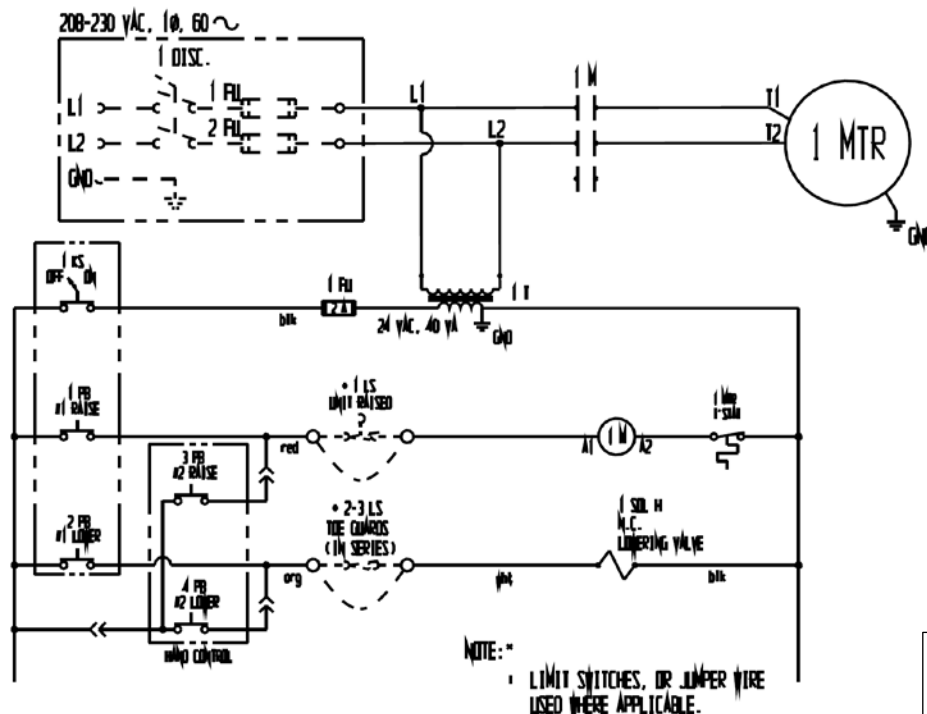
OVERCURRENT & SHORT-CIRCUIT PROTECTION, AND DISCONNECT, ARE TO BE PROVIDED BY THE END-USER PER THE NEC (NFPA 70) AND LOCAL CODES.

Disconnect power before working on the power unit!

Drawing no. 99-124-032

FIG. 6: Single Phase 208/230VAC Modular Power Unit Diagram

*See [note](#) in table of contents on cover page.



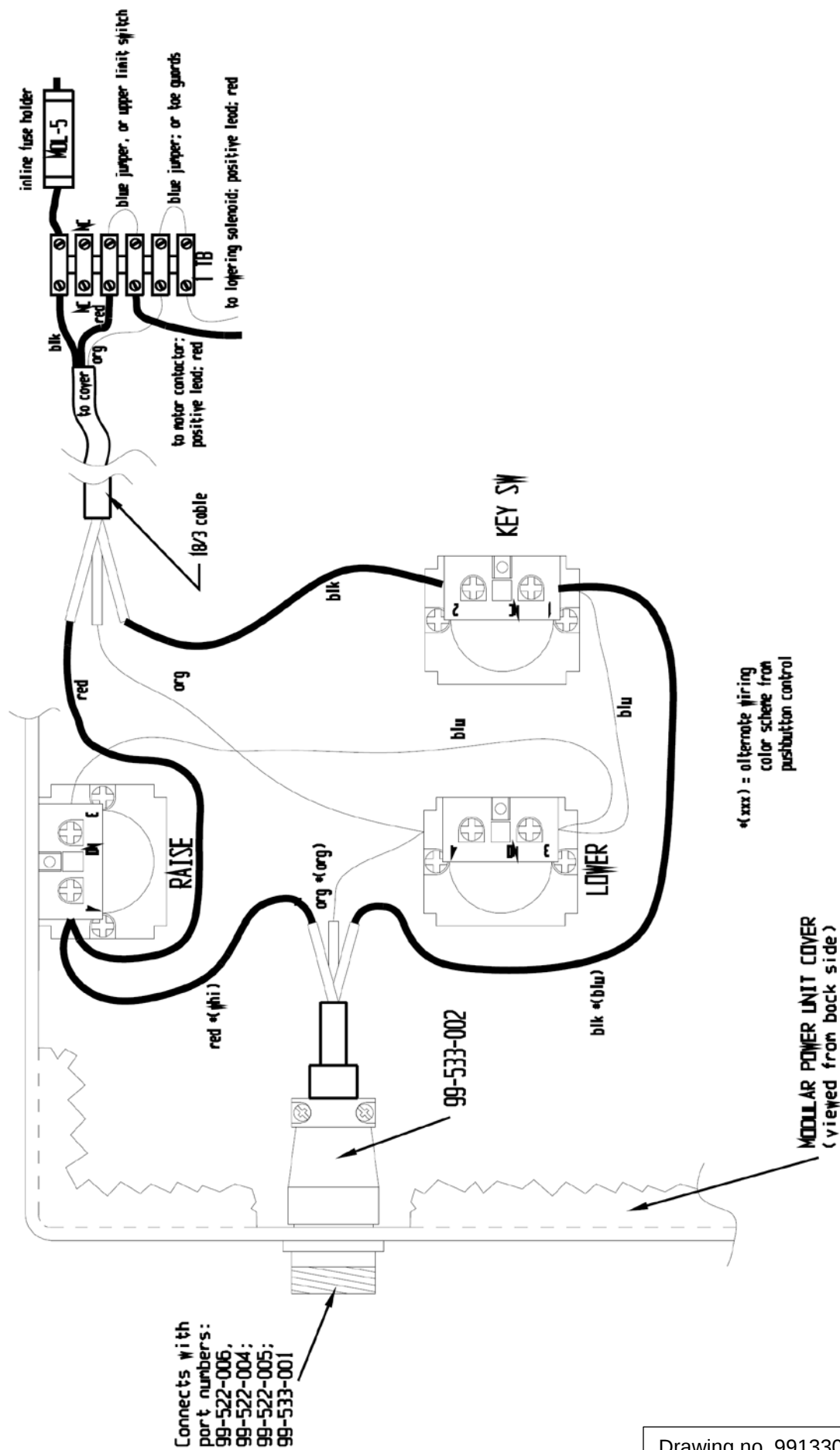
OVERCURRENT & SHORT-CIRCUIT PROTECTION, AND DISCONNECT, ARE TO BE PROVIDED BY THE END-USER PER THE NEC (NFPA 70) AND LOCAL CODES.

Disconnect power before working on the power unit!

Drawing no. 99-124-033

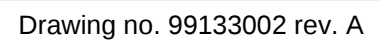
FIG. 7A: 12VDC Modular Power Unit Layout (part 1 of 2)

*See [note](#) in table of contents on cover page.



Drawing no. 99133001 rev. A

*See [note](#) in table of contents on cover page.



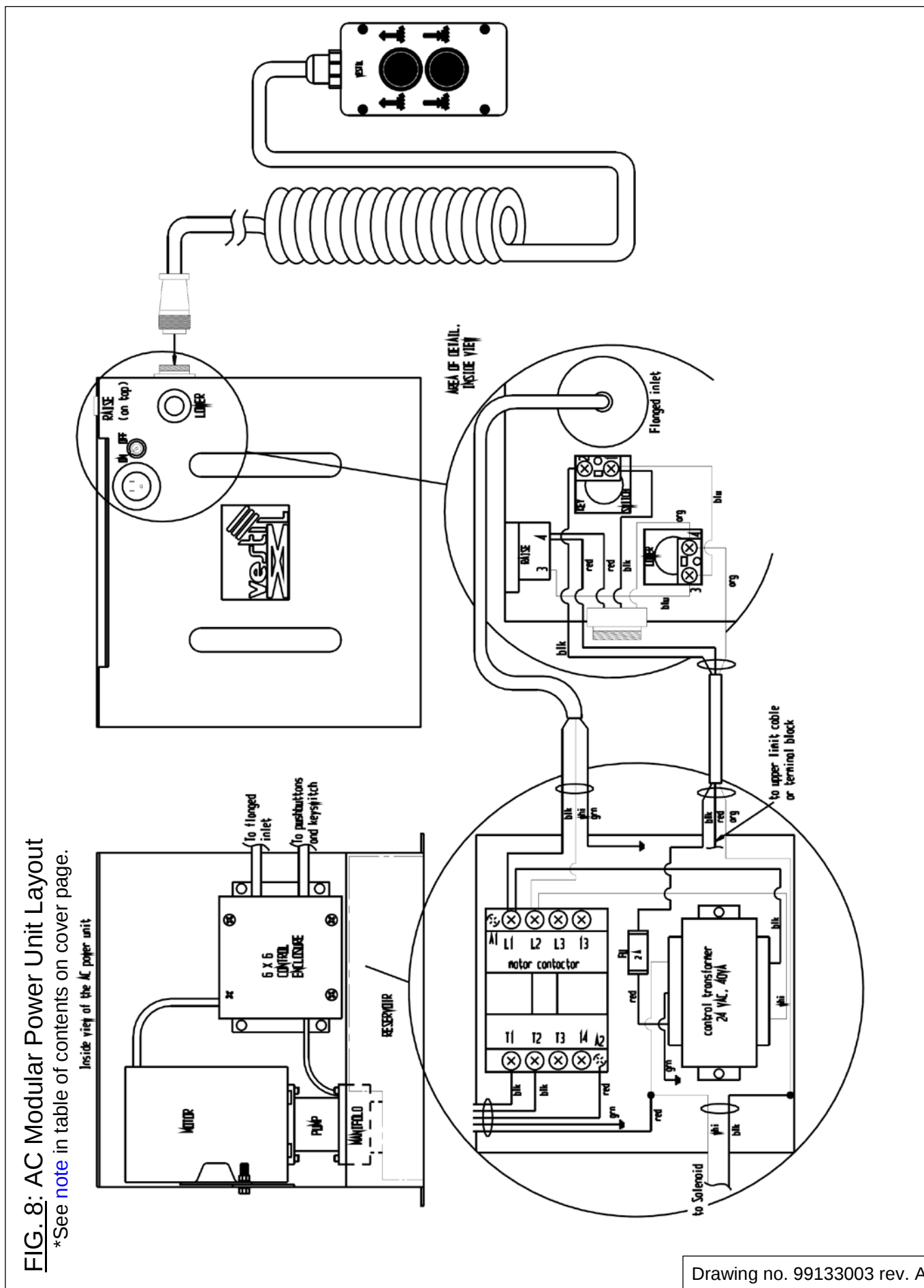
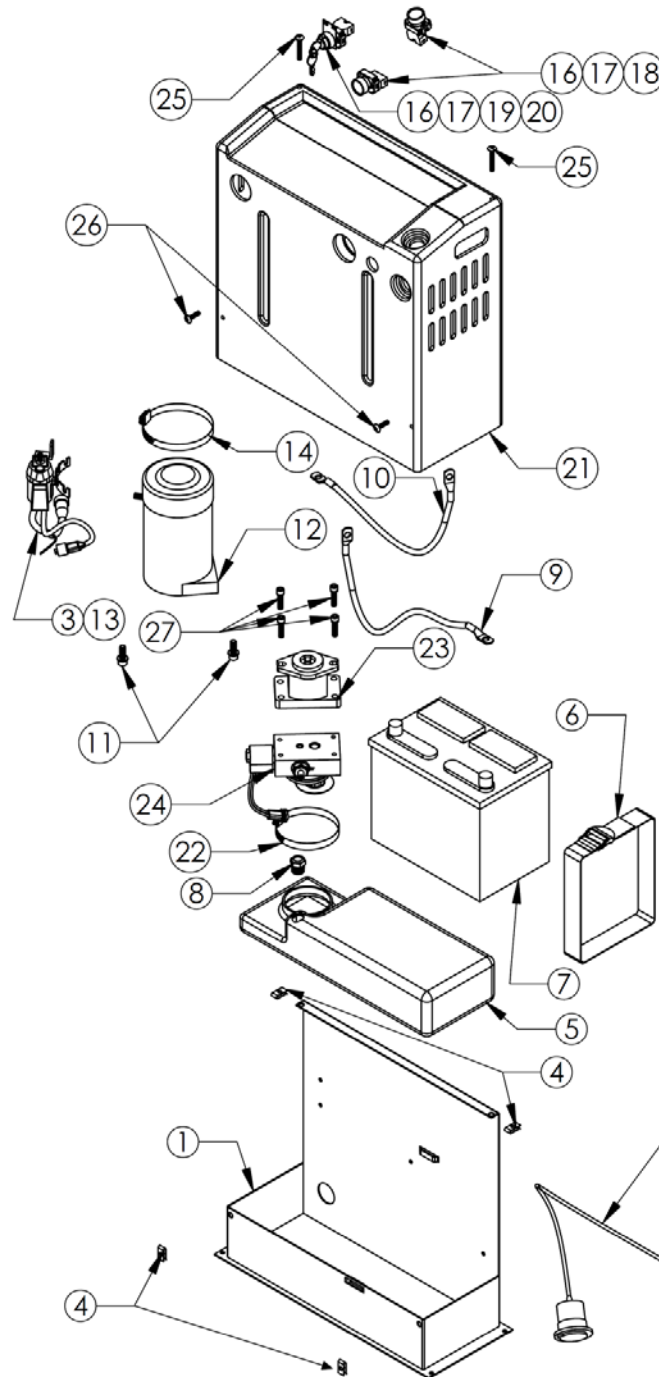


FIG. 9: DC Modular Power Unit Exploded Parts Diagram

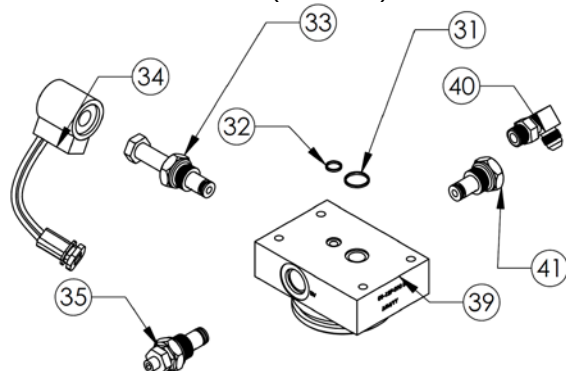
*See [note](#) in table of contents on cover page.



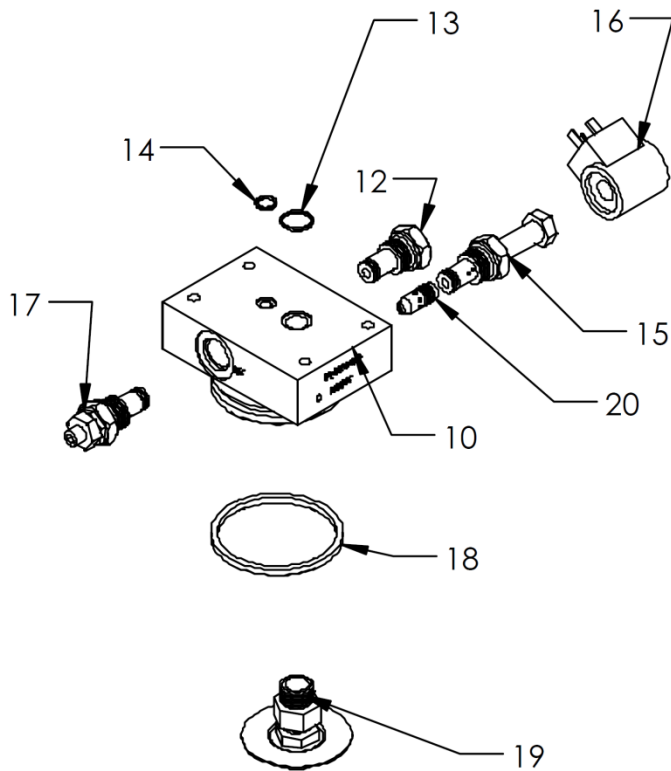
DC MODULAR POWER UNIT

ITEM	REQ	PART NO.	DESCRIPTION
1	1	99-016-933	BASE
2	1	21-034-008	BATTERY CHARGER
3	1	99-533-006	18/3 W4 PIN PLUG
4	4	37927	TINNERMAN CLIP
5	1	99-023-001	RESERVOIR
6	1	99-034-013	BATTERY STRAP
7	1	99-139-003	BATTERY
8	1	01-116-003	BREATHER
9	1	15-533-013	CABLE, BATTERY 23\"
10	1	15-533-013	CABLE, BATTERY 23\"
11	2	23305	SHCS UTILITY GRADE
	2	33688	HIGH COLLAR LOCK WASHER
	2	33008	USS FLAT WASHER Z PLATED
12	1	99-135-011	MOTOR, 12VDC
13	1	15-022-004	RELAY, START SOLENOID
14	1	HS64	CLAMP, WORM GEAR
15	1	BG-12V	GAUGE, BATTERY INDICATOR
16	3	01-022-003	BASE, CONTACT BLOCK
17	3	01-022-003	CONTACT BLOCK N.O.
18	2	ZB2BA2C	OPERTOR, BLACK, NON-ILLUM.
19	1		KEY SWITCH, 2 POSITION
20	1	01-134-007	LEGEND, ON - OFF
21	1	99-024-010	PLASTIC COVER
22	1	99-145-061	CLAMP, WORM GEAR
23	1	01-143-906	PUMP
24	1	01-627-010	MANIFOLD ASSM (SEE PAGE 2)
25	2	29201	TPHMS, Z PLATED
26	2	29185	TPHMS, Z PLATED
27	4	23255	SHCS UTILITY GRADE
	4	33687	HIGH COLLAR LOCK WASHER
28	1	152400-03	MOLDED CORD
29	1	21-034-025	CONNECTOR, CHARGE
30	10\"	99-051-014	1\"

Detail view of item 24 (manifold)



ITEM	REQ	PART NO.	DESCRIPTION
31	1	99-144-023	O-RING
32	1	99-144-022	O-RING
33	1	99-153-058	VALVE, CARTRIDGE, NC
34	1	99-034-010	COIL, WEATHER TITE PLUG
35	1	99-153-006	VALVE, PRESSURE RELIEF
36	1	99-144-007	O-RING
37	1	99-031-029	FILTER
38	1	99-153-038	FLOW CONTROL, 1.0 GPM
39	1	01-127-010	MANIFOLD
40	1	6801-06-06-NWO	MJ-MAORB 90 DEG.
41	1	99-153-011	VALVE, CHECK

FIG. 10A: Detail View of Items 2 and 12 on p. 13*See [note](#) in table of contents on cover page.

ITEM	REQ	PART NO.	DESCRIPTION
1	4	71616	TSHMS. SS
2	1	01-129-001	TRANSFORMER
3	1	132560	CONTACTOR, MOTOR
4	4	27531	PHSMS, Z PLATED
5	4	32028	HWH TEK DRILL & TAP
6	3"	TB-TRACK	RAIL, DIN
7	1	01-029-006	JUNCTION BOX
8	1	AB66JP	PANEL, JUNCTION BOX
9	4	C500	CONNECTOR, ROMEX, 2 SCREW
10	1	01-127-010	MANIFOLD
11	1	6801-06-06-NOW	MJ-MAORB 90 DEG.
12	1	99-153-011	VALVE, CHECK
13	1	568-015-BN70	O-RING
14	1	568-011-BN70	O-RING
15	1	99-153-015	VALVE, CARTRIDGE, NC
16	1	99-034-008	COIL, 24V AC
17	1	99-153-006	VALVE, PRESSURE RELIEF
18	1	568-334-BN70	O-RING
19	1	99-531-005	FILTER
20	1	99-153-038	FLOW CONTROL, 1.0 GPM

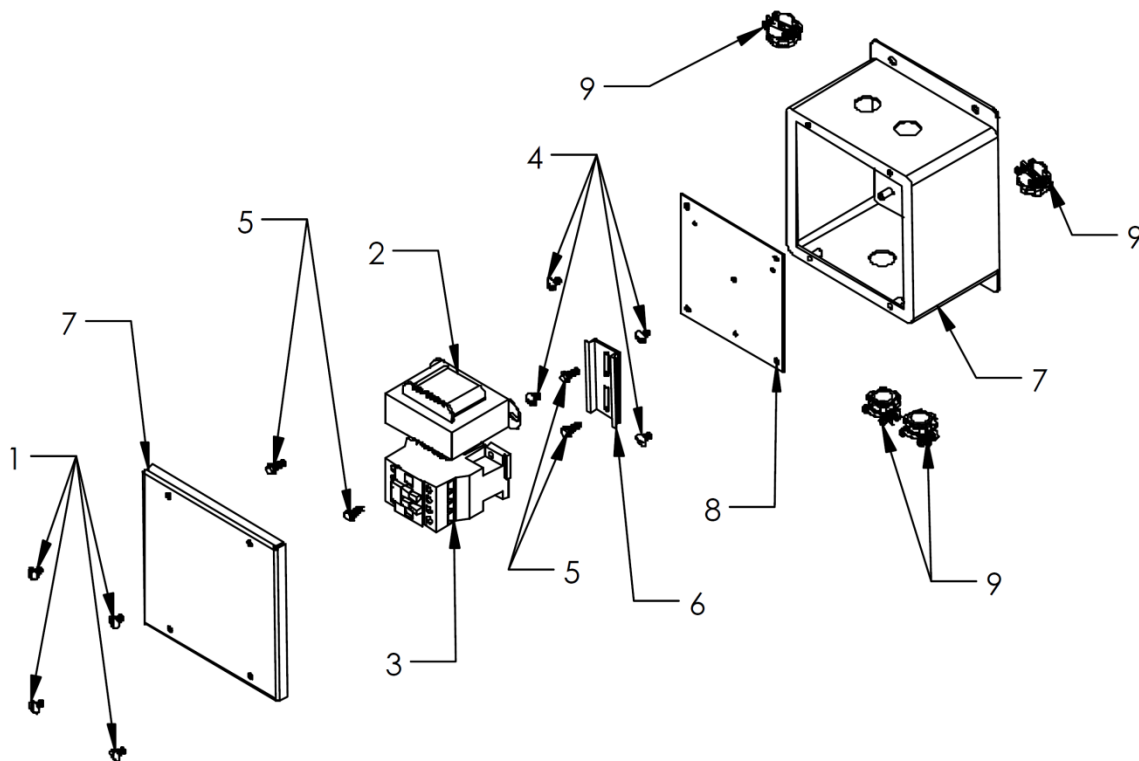
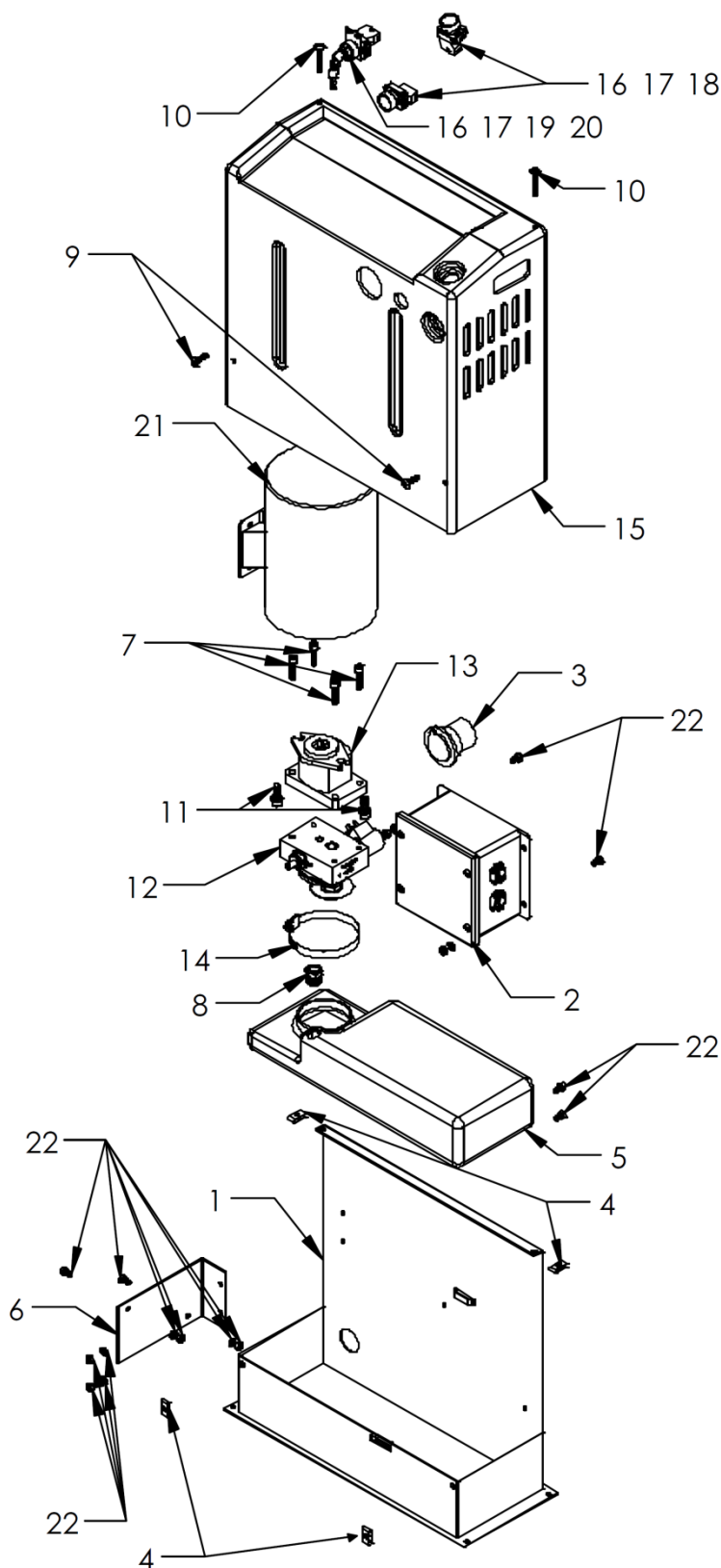


FIG. 10B: AC Modular Power Unit Exploded Parts Diagram

*See [note](#) in table of contents on cover page.



ITEM	REQ	PART NO.	DESCRIPTION
1	1	4JY1119	BASE
2	1		ELECTRIC BOX (SEE PAGE 2)
3	1	21-034-005	AC ADAPTER PLUG
4	4	37927	TINNERMAN CLIP
5	1	99-023-001	RESERVOIR
6	1		MOTOR BRACE
7	4	23255	SHCS UTILITY GRADE
	4	33687	HIGH COLLAR LOCK WASHER
8	1	BV-48	BREATHER
9	2	29185	TPHMS, Z PLATED
10	2	29201	TPHMS, Z PLATED
11	2	23305	SHCS UTILITY GRADE
	2	33688	HIGH COLLAR LOCK WASHER
	2	33008	USS FLAT WASHER Z PLATED
12	1	01-627-010	MANIFOLD ASSM (SEE PAGE 2)
13	1	01-143-906	PUMP
14	1	HS52	CLAMP, WORM GEAR
15	1	091802JY	FIBERGLASS COVER
16	3	ZB2BZ009	BASE, CONTACT BLOCK
17	3	ZB2BE101	CONTACT BLOCK N.O.
18	2	ZB2BA2C	OPERATOR, BLACK, NON-ILLUM.
19	1	ZB2BG4C	SWITCH, KEY, 2 POSITION
20	1	01-134-007	LEGEND, ON - OFF
21	1	99-135-003	MOTOR, ELECTRIC, 1PH
22	6	11005	HHCS, Z PLATED
	6	33004	USS FLAT WASHER, Z PLATED
	6	33618	LOCK WASHER, Z PLATED
	6	36102	HEX NUT, Z PLATED

LOADING THE STACKER AND TRANSPORTING LOADS:

The capacity of the unit appears on label 287. See [Labeling Diagram](#) p. 19. DO NOT apply a load to the forks that exceeds the capacity.

NOTE: Instructions for operating the powered functions of this stacker (raising and lowering the forks) is provided in the MPU-DC GEN2 instruction manual.

When loading the stacker, always follow these guidelines:

1. Adjust the height of the forks with the UP and DOWN buttons of the hand-controller (see instructions in MPU-DC GEN2 manual). DO NOT apply a load to the tips of the forks. Push the stacker forward until the pallet/skid contacts the heels of the forks.
2. Center the load on the forks;
3. Raise the forks just a few inches above the ground to transport the load. The unit is *not* self-propelled, i.e. the user must push it. Carefully push the stacker to the necessary location. **Never** transverse inclined ground. Only use this stacker on even, level ground.

HYDRAULIC SYSTEM:

NOTE: AC powered units must be plugged into a wall outlet via the flanged inlet. See [FIG. 10](#) on p. 10.

The lift cylinder can be controlled with either a handheld pendant controller or the push buttons in the housing of the modular power unit. To raise or lower the fork carriage:

- a) Push buttons on MPU: press the RAISE or LOWER button.
- b) Handheld controller: press the UP button to raise the forks. The DOWN button lowers the forks.

SEQUENCE OF OPERATION:

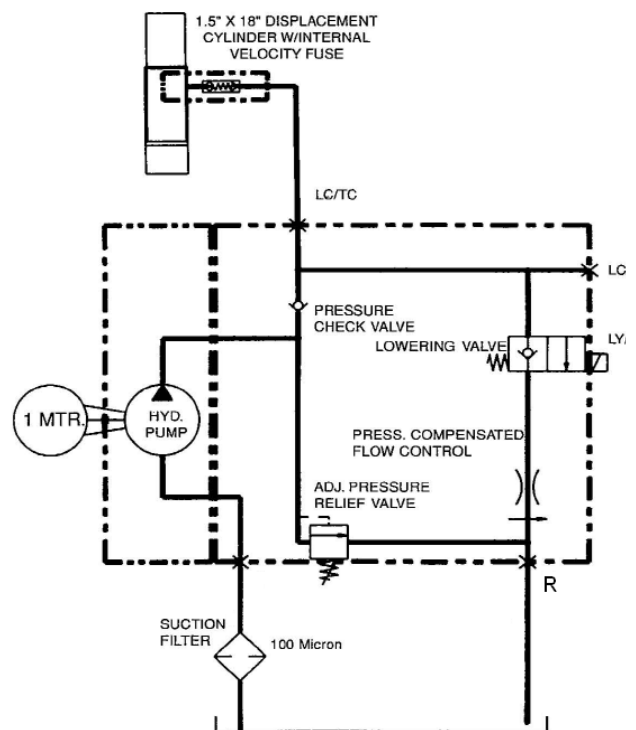
Pressing either raise button activates the electric motor. The motor turns the hydraulic pump, which draws oil out of the reservoir (inside the power unit). Oil flows through a suction filter and into the pump. Pressurized oil then flows from the pump, through a check valve (to prevent back flow when the pump is not running), and into the cylinder. Oil remains in the cylinder allowing the forks to maintain elevation after the raise button is released.

If the weight of the load applied to the forks exceeds the capacity of the stacker, the forks will not rise even though the raise button is pressed. Pressure will increase in the hydraulic circuit between the pump and the cylinder. When pressure reaches a preset level, a relief valve unseats and allows oil to circulate back to the reservoir. Redirecting oil during an overload situation prevents oil pressure from continuing to increase. Extremely high pressure might damage the hydraulic system.

To lower the forks, press the lower button. This energizes the lowering solenoid valve coil, unseats the poppet valve, and allows oil to return to the reservoir. As oil flows from the cylinder, it passes through a pressure compensated flow control valve (PCFC). The PCFC restricts the amount of oil leaving the cylinders. Governing flow ensures that the forks descend at a constant, controlled rate.

Releasing the DOWN button de-energizes the solenoid and closes the valve poppet. Both the closed poppet and the check valve work to prevent oil from returning to the reservoir. Consequently, the cylinder stops retracting and the forks maintain their positions.

HYDRAULIC SYSTEM DIAGRAM:



LOWERING SOLENOID VALVE:

Your stacker is equipped with a cartridge lowering valve. If a malfunction occurs while lowering the fork carriage, refer to the solutions presented in [Troubleshooting](#) on p. 15-16. To clean the lowering solenoid, follow this procedure:

1. Completely lower the fork carriage.
2. Use a sharp object, like a small screwdriver, to push the poppet in from the bottom and open the valve.
3. Repeat several times while immersing the valve in kerosene or mineral spirits. Blow the cleaned valve dry.
4. Blow compressed air through the valve while holding the valve open as described in step 2.
5. Inspect the O-rings and the PTFE washer (polytetrafluoroethylene). If either component is damaged, replace it.
6. Reinstall the valve. The valve should be tightened to approximately 20ft-lb of torque.

VELOCITY FUSE:

A brass velocity fuse with a stainless steel spring can be found in the base of the cylinder. If a hose or fitting fails, hydraulic pressure drops and the forks lower rapidly. As soon as the descent speed exceeds a preset speed, the velocity fuse activates to cease oil flow. Consequently, the forks will not lower until hydraulic pressure is reestablished. Always unload the forks if the velocity fuse activates.

Air in the hydraulic circuit can also cause the velocity fuse to activate although no failure has occurred. To reset the velocity fuse, activate the pump by jogging the raise button. Immediately after resetting the velocity fuse, fully lower the forks. Cycle the forks all the way to the top of the mast and back down several times to purge air from the system.

AIR BLEED PROCEDURE:

If the forks descend very slowly or do not lower, air probably is trapped in the hydraulic circuit and must be bled from the system. To bleed air from the circuit:

- 1.) Completely unload and lower the forks.
- 2.) Loosen the bleeder screw at the top of the cylinder approximately 1/4 to 1/2 turn to allow trapped air to escape. Jog the motor to push air out of the system.
- 3.) When air is no longer present in the cylinder, only clear hydraulic fluid will flow from the bleeder screw opening.
- 4.) Retighten the bleeder screw.

TROUBLESHOOTING GUIDE (HYDRAULIC SYSTEM)

Before performing maintenance on this product, unload the forks and completely lower the carriage.

Observation	Possible Cause	Remedy
1. Unit does not raise, motor does not run	a. Low battery voltage. (Check light) b. All chassis connections to negative post of battery not made well.	a. Recharge battery b. Check and tighten or clean connections if necessary.
2. Unit does not raise but motor is running or humming.	c. Voltage at motor terminals might be too low to run pump at existing load. d. Fluid level in reservoir is low. e. Load exceeds capacity requirements. Relief valve is allowing hydraulic fluid to flow back into the reservoir. f. Suction filter is clogged, starving pump. g. Suction line may be leaking air, due to loose fittings. h. Filter/Breather cap on tank might be clogged. i. Lowering solenoid valve might be energized by faulty wiring or might be stuck open. j. Hydraulic pump might be inoperative.	c. Measure voltage at motor terminals or as near as possible, while pump is running under load. Check for loose connections. d. Add fluid. Refer to Owner's Manual for proper fluid levels. e. DO NOT CHANGE RELIEF VALVE SETTING. Instead, reduce the load to rated capacity. f. Remove and clean. g. Inspect all fittings for proper tightness. h. Remove and clean. i. Remove lowering solenoid valve. Check and clean. (Refer to "Lowering Solenoid Valves".) j. Disconnect hydraulic line at power unit. Put pressure line in a large container and operate the pump. If no output, check the pump motor coupling which may be defective, and correct as necessary. If pump is worn, consult factory for replacement parts.
3. Unit rises too slowly.	k. Foreign material stuck in down solenoid valve, causing some fluid to flow back into the reservoir. l. Foreign material clogging suction filter, or breather cap, or a hose is pinched. m. Low motor voltage. n. Unit overloaded. o. Inoperative pump.	k. Lower the deck. Remove the down solenoid valve and clean. (Refer to Hydraulic Section of Owners Manual). l. Correct as necessary. (See also, 2(f), (h)). m. See 2 (c) n. See 2 (e) o. See 2 (j)
4. Motor labors or is excessively hot.	p. Voltage may be low. q. Oil starvation causing pump to bind & high internal heat develops. If this occurs, pump can be permanently damaged. r. Binding cylinders.	p. See 2 (c) q. See 2 (d), (f), (g), (h), (j) r. Align cylinders correctly.
5. "Spongy" or "Jerky" unit operation.	s. Fluid starvation. t. Air in system.	s. See 2 (d), (f), (g), (j) t. See air bleed procedure (p. 15).
6. Unit lowers too slowly when loaded.	u. Lowering solenoid valve filter screen	u. Remove lowering solenoid valve and

	clogged. v. Pinched tube or hose. w. Foreign material in flow control valve. x. Binding cylinders. y. Foreign material in velocity fuse.	clean filter screen. v. Correct as necessary. w. Remove and clean flow control valve. Refer to Hydraulic System Diagram on p. 14). x. Align cylinders correctly. y. Remove and clean velocity fuse. Refer to Hydraulic System Diagram on p. 14).
7. Unit lowers too quickly.	z. Foreign material stuck in flow control valve. (In this case, carriage initially lowers at a normal rate but accelerates as the carriage descends).	z. Remove flow control valve from the valve block and clean. (Refer to Hydraulic System Diagram on p. 14).
8. Unit raises then lowers slowly.	aa. Lowering solenoid valve may be incorrectly wired or is stuck open bb. Check valve may be stuck open. cc. Check for leaking hoses, fittings, pipes. dd. Cylinder packings may be worn or damaged.	aa. See 3 (a). bb. Remove and clean check valve; (Refer to Hydraulic Section of Owner's Manual). cc. See 2 (c). dd. Replace packings (contact factory for replacement parts).
9. Carriage elevates, but does not lower.	ee. Incorrect lowering solenoid valve wiring. ff. Lowering solenoid valve is stuck. gg. Faulty lowering solenoid coil. hh. Binding cylinders. ii. If the carriage lowers too rapidly, air is present in the hydraulic system causing the velocity fuse to activate and shut off the oil flow from the cylinders. Consequently, the deck will not lower.	ee. Correct per diagrams (p. 6-7). ff. Lightly tap down the solenoid coil body to seat it properly. (DO NOT hit coil hard as it will permanently damage the internal system. DO NOT remove the solenoid valve from the block because the carriage will descend dangerously quickly. gg. Remove and replace. DO NOT remove the down solenoid valve from the block as the unit will come down at a dangerous speed. hh. See 4 (c). ii. To unlock, re-pressurize the hydraulic system.

BATTERY CHARGER OPERATION

⚠ WARNING

Working with or near lead acid batteries is dangerous.

- Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT expose the battery to sparks or flames, i.e. DO NOT SMOKE NEAR THE BATTERY!!
- ONLY charge batteries in clean, dry, and well ventilated locations.
- DO NOT lay tools or any metallic item on top of a battery.
- When working with batteries, remove personal items such as rings, bracelets, necklaces, and watches. A battery can produce enough voltage to weld jewelry to metal.
- Always have plenty of fresh water and soap nearby in case contact with battery acid occurs.
- Operating the battery with a low battery voltage can cause premature motor contact failure.
- The charger is equipped with an external ground wire (small green). During installation the charger must be grounded to the equipment which it is connected to. Be sure this wire is always connected to the chassis, frame, or other metallic surface considered to be ground.
- Confirm that all battery connections are sound and clean.
- Replace defective cords and wires immediately.
- DO NOT use the charger if the flanged inlet is damaged.
- DO NOT connect the charger to a damaged extension cord.

Every CBS-series DC-powered stacker is equipped with an onboard battery charger having a flanged electrical inlet. The charger is current limited and will not exceed its rated output even if loads are placed on the battery while it is charging. The charger fuse will blow if it is connected in reverse polarity.

To charge the battery:

- 1.) Plug the charger into an 115V 60 Hz receptacle by connecting the flanged inlet on the charger to an extension cord. Plug the other end of the cord to a wall socket. Use a short, thick extension cord.
- 2.) When properly connected, the charge LED will indicate the status of charge current flowing to the battery.
 - If only the red LED is on, the charger is providing full output to the battery.
 - If both the red and green LED's are on, the charger is "topping off" the battery.
 - When only the green LED is on, the unit is providing a "float" (maintenance) charge.
 - DO NOT leave the charger on for long periods after the battery is fully charged.
- 3.) Unplug the charger before using the stacker.

TROUBLESHOOTING

If the charger does not work:

- 1) Make sure all battery connections are electrically and mechanically sound.
- 2) Confirm that the AC source (e.g. wall socket) for power.
- 3) Check the fuse. Replace only with a fuse having the same rating as originally supplied.
- 4) Determine battery condition. It may take some time before current begins to flow through a highly sulfated battery.

RECORD OF NORMAL CONDITION:

Before using the stacker for the first time, create a written record of its appearance and functions. Include detailed descriptions about the frame, wheels & casters, forks & fork carriage, mast, cylinder, and chain drive. Use the stacker to lift a load. Describe the motion of the fork carriage as it rises and lowers. Also describe how the unit sounds as the carriage cycles. Thoroughly photograph the unit including all labels. Add the photographs to the record. This record establishes normal condition. When conducting inspections in the future, compare your observations to the record to determine if a component is in normal condition or requires repair or replacement.

INSPECTIONS & MAINTENANCE:

NOTICE

Proper use, maintenance, and storage are essential for this product to function properly.

- o Always use this product in accordance with the instructions in this manual and consistent with any training relevant to machines, devices, etc. used in conjunction with this product.
- o Relieve hydraulic pressure whenever the unit is not in use by fully lowering the forks.
- o Keep the product clean & dry. Lubricate moving parts at least once per month.
- o ONLY use manufacturer-approved replacement parts. Vestil is not responsible for issues or malfunctions that result from the use of unapproved replacement parts.
- o Do not use brake fluid or jack oils in the hydraulic system. If oil is needed, use an anti-wear hydraulic oil with a viscosity grade of 150 SUS at 100°F, (ISO 32 cSt @ 40°C), or Dexron transmission fluid.
- o Contact the manufacturer for SDS information.

Inspections:

(A) Before Each Use—visually inspect the following:

1. Electrical system: inspect the modular power unit and electrical wiring for damage.
2. Casters and wheels: examine each caster/wheel and confirm normal operating condition, i.e. rolls smoothly without wobbling, not cracked, or severely worn,
3. Hydraulic hoses: check for pinches, punctures, and loose connections.
4. Frame: inspect for deformations and cracked welds.
5. Forks, carriage and mast: cycle the forks up and down while listening and watching for unusual noise, motion, or binding.
6. Pushbutton controller: inspect the controller and its electrical cable. Look for damage that exposes wiring.

(B) Monthly Inspections--at least once per month thoroughly inspect the following:

1. Oil level. Oil should be 1" to 1½" below the top of the tank when the forks are fully lowered. Add oil as necessary. Look for oil leaking from hoses, the cylinder, or the reservoir. See [Troubleshooting](#) on p. 15-16.
2. Battery: check the water level in the battery. (*DC models only*)
3. Clevis pins and pivot points: inspect for excessive wear.
4. Modular power unit, wiring, limit switches, and pushbutton controller: Check for severely worn or damaged hydraulic hoses, electrical wires, and cords. Repair as necessary.
5. Roller bearings (see p. 4-5): check rollers and retaining hardware for normal condition.
6. Forks, carriage, & mast: cycle the forks up and down. Listen and watch for unusual noise or motion (e.g. binding).
7. Labels ([Labeling diagram](#) on p. 19): confirm that all labels are in place and in good, readable condition.
8. Surfaces: remove dirt and debris.

(C) Yearly Inspection

Hydraulic oil should be changed at least once a year or sooner if the oil darkens or becomes gritty. Flush the reservoir before refilling. Similarly, if the oil appears milky, water is present and the oil should be changed.

Maintenance:

Implement a regular maintenance program to ensure that the stacker remains in normal condition. ANSI/ITSDF standard B56.10 describes some recommended maintenance procedures which should be followed. A copy of the standard is downloadable for free at <http://www.itsdf.org/>. The following steps should be applied in conjunction with those recommendations.

Step 1: Tag the unit, "Out of Service."

Step 2: Perform a monthly inspection. If deformity, corrosion, rusting, or excessive wear of frame members is noticed, DO NOT continue to use the stacker. Contact Vestil for instructions. If the fork carriage does not move smoothly or makes noise as it moves up or down the mast, apply a silicon wax or silicon spray to the inside of the mast frame.

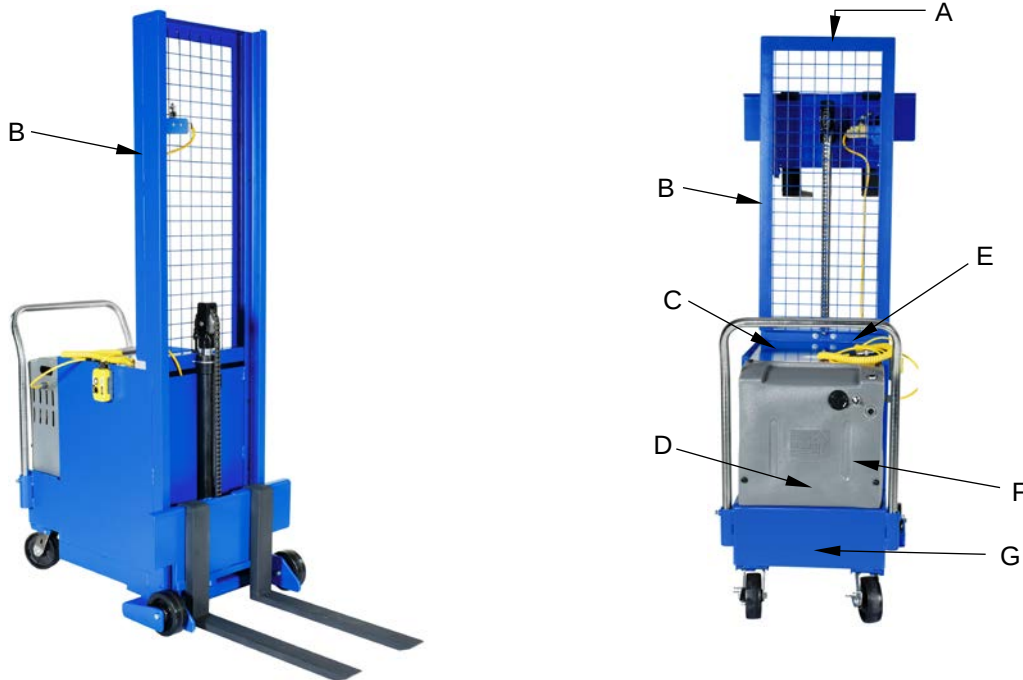
Step 3: Remove any dirt or other matter from the forks and other surfaces.

Step 4: Perform all other necessary adjustments and/or repairs. DO NOT modify the stacker. A modification is a change that alters the machine from normal operating condition, like bending frame members or removing parts.

Step 5: Make a dated record of the repairs, adjustments and/or replacements.

Labeling Diagram:

Each unit should be labeled as shown in the diagram. However, label content and location are subject to change so your product might not be labeled exactly as shown. Compare the diagram below to your *Record of Normal Condition*. If there are any differences between actual labeling and this diagram, adapt the diagram to reflect actual labeling. Replace all labels that are damaged, missing, or not easily readable (e.g. faded). To order replacement labels or to inquire whether your unit is properly labeled, contact the technical service and parts department online at http://www.vestilmfg.com/parts_info.htm or by calling (260) 665-7586 and asking for the Parts Department.



A: Label 220

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
KEEP CLEAR WHEN IN USE	MANTENGASE ALEJADO CUANDO SE ESTA OPERANDO	SE TENIR À DISTANCE LORS DU FONCTIONNEMENT

B: Label 208

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
KEEP CLEAR OF PINCH POINT	MANTENGASE ALEJADO DEL PUNTO DE CORTE	SE TENIR À DISTANCE DU POINT DE PINCEMENT

D: Label 295

Applied to outside of MPU housing

⚠ WARNING
Enclosed battery contains hazardous chemicals. DO NOT handle enclosed battery UNLESS wearing eye protection and other appropriate personal protective equipment. DO NOT directly contact skin with battery. DO NOT expose to sparks or extreme heat; battery contains explosive gases.
⚠ ADVERTENCIA
La batería incluida contiene materiales peligrosos. NO use la batería incluida A NO SER que lleve protección de ojos y otros equipos de protección apropiados para el personal. NO tenga contacto directo en la piel con la batería. NO exponga a destellos o a calor excesivo, la batería contiene gases explosivos.
295 rev 0111

E: Label 527

⚠ WARNING
Only trained, authorized persons should operate this device. Improper operation might result in serious personal injuries sustained by the truck operator and/or bystanders. Operators must observe the following safety-enhancing practices: • BEFORE operating, inspect mast, carriage, forks/deck, cable/chains, wheels, and brakes for damage. DO NOT use if damaged. • ALWAYS walk travel path before using truck to identify hazards: • DO NOT contact electrical lines or overhead objects with device or load. • DO NOT travel up/down inclines if an alternate route is available. • DO NOT travel over debris. • ONLY travel with forks/deck in lowest position appropriate for conditions. • ALWAYS center and evenly distribute loads on forks/deck. • ALWAYS secure load to forks/deck. • ONLY drive or operate truck functions from operator position. • DO NOT exceed maximum rated load (capacity). • DO NOT allow people to ride on device. • DO NOT lift loads over people. DO NOT permit people to walk beneath the forks/deck when raised (loaded or unloaded). • DO NOT leave unattended UNTIL fully lowered AND unloaded. • DO NOT modify device in any way.
⚠ ADVERTENCIA
Solo personas entrenadas y autorizadas deben operar este equipo. La operación inadecuada podría resultar en daños serios al operario del camión y/o a los transeúntes. Los operadores deben observar y seguir las siguientes prácticas de seguridad: • ANTES de usar, inspeccione el mástil, el equipo, las horquillas/plataforma, cables, cadenas, ruedas y frenos por daños. NO use si se observan daños. • SIEMPRE camine el trayecto de viaje antes de usar el camión para identificar riesgos: • NO toque las líneas eléctricas u objetos altos con el dispositivo o la carga. • NO viaje en inclinaciones de subida y bajada si hay otra ruta alternativa. • NO viaje sobre desechos. • SOLO viaje con las horquillas/plataforma en la posición de descenso más apropiada para las condiciones. • SIEMPRE centre y distribuya las cargas uniformemente en las horquillas/plataforma. • SIEMPRE asegure la carga a las horquillas/plataforma. • SOLO conduzca u opere las funciones del camión desde la posición del operario. • NO exceda la capacidad máxima tasada de carga. • NO permita que la gente viaje en el equipo. • NO eleve las cargas sobre la gente. NO permita que la gente camine debajo de las horquillas/plataforma cuando ésta está elevada (con carga o sin carga). • NO deje el equipo desatendido HASTA que éste completamente cargado y descargado. • NO modifique el equipo de ninguna manera.
527-Rev 1109

C: Label 287

DATE / FECHA / DATE:	
MODEL / MODELO / MODELE	
SERIAL / SERIE / SERIE	
CAPACITY / CAPACIDAD / CAPACITE	
SUPPLY VOLTAGE / SUMINISTRO DE VOLTAJE / TENSION D'ALIMENTATION: AC	
FREQUENCY / FRECUENCIA / FREQUENCE: HZ	
PHASE / FASE / PHASE:	
FULL LOADS AMPS / AMPS DE CARGA COMPLETA / COURANT A PLEINE CHARGE: A	
ELECTRICAL DIAGRAM / DIAGRAMA ELECTRICO / SCHEMA ELECTRIQUE:	

F: Label 206

Applied to outside of MPU housing

ISO 32 / 150 SUS
HYDRAULIC OIL OR NON-SYNTHETIC TRANSMISSION FLUID ACEITE HIDRAULICO O LIQUIDOS DE TRANSMISION NO SINTETICOS HUILE OU LIQUIDE HYDRAULIQUE NON-SYNTHETIQUE
VESTIL MANUFACTURING CORPORATION • Phone (260) 665-7586 • www.vestil.com

G: Label 212

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
LOCK CASTER and/or FLOOR LOCK when loading and unloading	La RUEDECILLA de la CERRADURA y/o el PISO CIERRAN al cargar y descargar	LOCK CASTER et/ou SOL LOCK lors du chargement et de déchargement

LIMITED WARRANTY

Vestil Manufacturing Corporation ("Vestil") warrants this product to be free of defects in material and workmanship during the warranty period. Our warranty obligation is to provide a replacement for a defective, original part covered by the warranty after we receive a proper request from the Warrantee (you) for warranty service.

Who may request service?

Only a warrantee may request service. You are a warrantee if you purchased the product from Vestil or from an authorized distributor AND Vestil has been fully paid.

Definition of "original part"?

An original part is a part used to make the product as shipped to the Warrantee.

What is a "proper request"?

A request for warranty service is proper if Vestil receives: 1) a photocopy of the Customer Invoice that displays the shipping date; AND 2) a written request for warranty service including your name and phone number. Send requests by one of the following methods:

US Mail
Vestil Manufacturing Corporation
2999 North Wayne Street, PO Box 507
Angola, IN 46703

Fax
(260) 665-1339
Phone
(260) 665-7586

Email
info@vestil.com
Enter "Warranty service request"
in subject field.

In the written request, list the parts believed to be defective and include the address where replacements should be delivered. After Vestil receives your request for warranty service, an authorized representative will contact you to determine whether your claim is covered by the warranty. Before providing warranty service, Vestil will require you to send the entire product, or just the defective part (or parts), to its facility in Angola, IN.

What is covered under the warranty?

The warranty covers defects in the following original, dynamic parts: motors, hydraulic pumps, motor controllers, and cylinders. It also covers defects in original parts that wear under normal usage conditions ("wearing parts"), such as bearings, hoses, wheels, seals, brushes, and batteries.

How long is the warranty period?

The warranty period for original dynamic components is 1 year. For wearing parts, the warranty period is 90 days. Both warranty periods begin on the date Vestil ships the product to the Warrantee. If the product was purchased from an authorized distributor, the periods begin when the distributor ships the product. Vestil may, at its sole discretion, extend a warranty period for products shipped from authorized distributors by up to 30 days to account for shipping time.

If a defective part is covered by the warranty, what will Vestil do to correct the problem?

Vestil will provide an appropriate replacement for any *covered* part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?

The Warrantee (you) is responsible for paying labor costs and freight costs to return the product to Vestil for warranty service.

Events that automatically void this Limited Warranty.

- Misuse;
- Negligent assembly, installation, operation or repair;
- Installation/use in corrosive environments;
- Inadequate or improper maintenance;
- Damage sustained during shipping;
- Collisions or other accidents that damage the product;
- Unauthorized modifications: Do not modify the product IN ANY WAY without first receiving written authorization from Vestil.

Do any other warranties apply to the product?

Vestil Manufacturing Corp. makes no other express warranties. All implied warranties are disclaimed to the extent allowed by law. Any implied warranty not disclaimed is limited in scope to the terms of this Limited Warranty. Vestil makes no warranty or representation that this product complies with any state or local design, performance, or safety code or standard. Noncompliance with any such code or standard is not a defect in material or workmanship.

