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EPT-SERIES ELECTRIC PALLET TRUCKS

OPERATION AND MAINTENANCE MANUAL



Receiving instructions:

After delivery, IMMEDIATELY remove the packaging from the product in a manner that preserves the packaging and maintains the orientation of the product in the packaging; then inspect the product closely to determine whether it sustained damage during transport. **If damage is discovered during the inspection, immediately record a complete description of the damage on the bill of lading.** If the product is undamaged, discard the packaging.

NOTES:

- 1) Compliance with laws, regulations, codes, and non-voluntary standards enforced in the location where the product is *used* is exclusively the responsibility of the owner/end-user.
- 2) VESTIL is **not liable** for any injury or property damage that occurs as a consequence of failing to apply either:
 - a) Instructions in this manual; or b) Information provided on labels affixed to the product. Neither is Vestil responsible for *any* consequential damages sustained as a result of failing to exercise sound judgment while assembling, installing, using or maintaining this product.

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>	<u>TABLE OF FIGURES</u>	<u>PAGE</u>
Safety Principles	2	Fig. 1A EPT Main Body Components	5
Product Introduction	2	Fig. 1B EPT-30 (optional) Scale Components	6
Safety Guidelines	3	Fig. 2 EPT-30 Hydraulic Cylinder Assembly	7
Removing EPT from Pallet	3 - 4	Fig. 3 EPT-30 Drive Wheel Assembly	8
Use, 1 st Inspection, & Functions Tests	20	Fig. 4A EPT-30 Fork & Carriage	9
Operation	20-21	Fig. 4B EPT-30 Fork & Carriage (optional) Scale	10
Lifting & Transporting Loads	21	Fig. 5A Control Yoke & Handle Components	11-12
Batteries & Charger	21-22	Fig. 5B Control Yoke & Handle (optional) Scale	13-14
		Fig. 6 Hydraulic Pump & Motor Assemblies	15
<u>Troubleshooting</u>	23-48	Fig. 7 EPT-45 Main Housings & Supporting Structure	16
Changing Cylinder	28-31	Fig. 8 Removable Battery Box & Components	16
Changing Throttle Assy.	32-36	Fig. 9 EPT-45 Cylinder & Fuse Panel	17
Changing Motor Assy.	37-39	Fig. 10 EPT-45 Fork & Carriage Assemblies	18
Replacing Forward/Reverse Contactor	40-42	Fig. 11 Function Controls, Gauges, & Safety Features	19
Changing Battery Charger	43-46	Maintenance & Inspections	49-50
Adding Quencharcs	47-48	Markings	51

PRODUCT INTRODUCTION



Thank you for purchasing an electric pallet truck (“EPT,” “pallet truck,” “truck,” or “unit”) offered by Vestil Manufacturing Corporation (“Vestil”). Our EPT’s are durable, high-quality products that combine safety features and low-maintenance mechanisms. Despite the product’s relatively simple mechanics, all personnel must familiarize themselves with the safe operation instructions provided in this manual.

Specifications for each of the 4 models appear in the table below:

MODEL	Net Wt. (lbs.)	Fork Size (W x L) in inches	Service Range (in.)	Capacity (lbs.)	Overall Size (W X L x H) in inches
EPT-2047-30	660	20in. X 47in.	3.2 to 7.8	3,000	28 x 65 x 49
EPT-2547-30	671	25in. x 47in.	3.2 to 7.8	3,000	28 x 65 x 49
EPT-2048-45	990	20in. x 48in.	3.4 to 8	4,500	30x 78.5 x 49
EPT-2748-45	1012	27in. x 48in.	3.4 to 8	4,500	30x 78.5 x 49

Vestil Manufacturing Corp. created this manual to acquaint owners and users of our electric pallet trucks with safe operation and maintenance procedures. **Employers are responsible for instructing employees to use the product properly. Employees and any other persons, who might foreseeably use, repair, or perform maintenance on the EPT must read and understand every instruction BEFORE using the device. Cart operators should have access to the manual at all times and should review the directions before each use. Contact Vestil for answers to any question you have after reading the entire manual.**

Although Vestil diligently strives to identify foreseeable hazardous situations, this manual cannot address every conceivable danger. The end-user is ultimately responsible for exercising sound judgment at all times.

SAFETY PRINCIPLES

We offer four types of electric pallet truck (EPT): two 3,000 pound (~1364kg) capacity models, the EPT-2047-30 and 2547-30, and two 4,500 pound (~2045kg) capacity models, the EPT-2048-45 and 2748-45. Each unit conforms to the generalized specifications disclosed in this manual and fulfills our demanding standards for quality, safety and durability.

Vestil Manufacturing Corp. recognizes the critical importance of workplace safety. Each person who **might** participate in operation or maintenance of the product must read this manual. **Read the entire manual and fully understand the directions BEFORE using or performing maintenance on the cart. If you do not understand an instruction, contact Vestil for clarification. Failure to adhere to the directions in this manual might lead to serious personal injury or even death.**

Vestil is **not liable** for any injury or property damage that occurs as a consequence of failing to apply the safe operation and maintenance procedures explained in this manual or that appear on labels affixed to the product. Furthermore, failure to exercise good judgment and common sense may result in property damage, serious personal injury, or death, and also are **not the responsibility of Vestil**.

This manual applies the hazard identification methods suggested for instruction manuals by the American National Standards Institute (ANSI). In accordance with ANSI guidelines for hazard identification language, this manual classifies personal injury risks and situations that could lead to property damage with SIGNAL WORDS. These signal words announce an associated safety message. The reader must understand that the signal word chosen indicates the seriousness of that hazard according to the following convention:

⚠ DANGER Identifies a hazardous situation which, if not avoided, WILL result in DEATH or SERIOUS INJURY. Use of this signal word is limited to the most extreme situations.

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

⚠ CAUTION Indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE injury.

NOTICE Identifies practices not related to personal injury, such as operation that could damage the cart. No safety alert symbol (equilateral triangle enclosing an exclamation point) accompanies this signal word.

SAFETY GUIDELINES

Failure to read and understand the instructions included in this manual before using or servicing the pallet truck constitutes misuse of the product. Study the entire manual before you use the truck for the first time and before each subsequent use. Read the manual to refresh your understanding of the safe use and maintenance procedures on p. 50-51. If questions remain after you finish reading the manual, contact Vestil for answers. DO NOT attempt to resolve any problem with the truck unless you are certain that it will be safe to use afterwards.

⚠ DANGER

To decrease the risk of electrocution:

- DO NOT *contact* or *operate* the pallet truck *close to* electrified wires or other sources of electricity;
- Before operating the EPT, always inspect the area where you will use it.

⚠ WARNING

Improper use might result in serious personal injuries to the operator and/or bystanders. To minimize the possibility of injury, ALL persons who might operate, perform maintenance on, or service the EPT must read, understand and apply the following instructions:

- DO NOT operate the EPT unless and until you are:
 1. Trained to use the machine; AND
 2. Certified as a trained operator by your employer in accordance with U.S. OSHA regulations (29 CFR §1910.178) and any standards incorporated by reference (e.g. ANSI/ITSDF B56.1-2005).
- **DO NOT attempt to lift or transport loads that exceed the rated capacity.**
- Inspect the machine before each use; DO NOT use the EPT unless it is in normal condition. Normal operating condition exists if the EPT passes the inspection and functions tests described under the heading, "Inspect the EPT & Perform a Functions Tests" on p. 20.
- DO NOT use the unit until you read and understand the entire owner's manual. Review the manual before each use AND before performing maintenance on the device.
- DO NOT use the EPT if the load-supporting elements sustain any structural damage. Structural elements include, but are not limited to, the forks, carriage, and wheels. If structural damage is present, immediately tag the unit "Out of Service" and inform maintenance personnel of the problem.
- DO NOT use the EPT if it makes unusual noises during operation.
- DO NOT allow people to ride on the pallet truck. Only the operator of an EPT equipped with a properly installed rider platform (EPT
- DO NOT attempt to lift an unevenly distributed load. Always center and evenly distribute the load on the forks.
- DO NOT operate the EPT on surfaces (ramps or grades) angled more than 4 degrees.
- DO NOT leave the EPT unattended while it supports a load. Always fully lower the forks, and then completely disengage the skid or pallet. Complete the parking / storing procedure described in "Storing the EPT" on p. 22.
- DO NOT modify the pallet truck without first receiving written authorization from Vestil. Unauthorized modifications may make the EPT unsafe to use.

NOTICE

To maximize the service life of the EPT and to prevent damage:

- Always store the machine in a secure, dry location where it will not interfere with traffic or other activities.
- Maintain the product as suggested in "Maintenance & Inspections" on p. 49-50.

REMOVING THE PALLET TRUCK FROM THE SHIPPING PALLET:

The pallet truck is shipped in ready-to-use condition. However, it must first be removed from the shipping pallet before it can be used for the first time.

⚠ WARNING

DO NOT attempt to drive the pallet truck off of the pallet; it might tip over and cause bodily injuries or property damage. To minimize the risk of injury to yourself or other persons, perform the following steps to remove the machine from the shipping pallet:

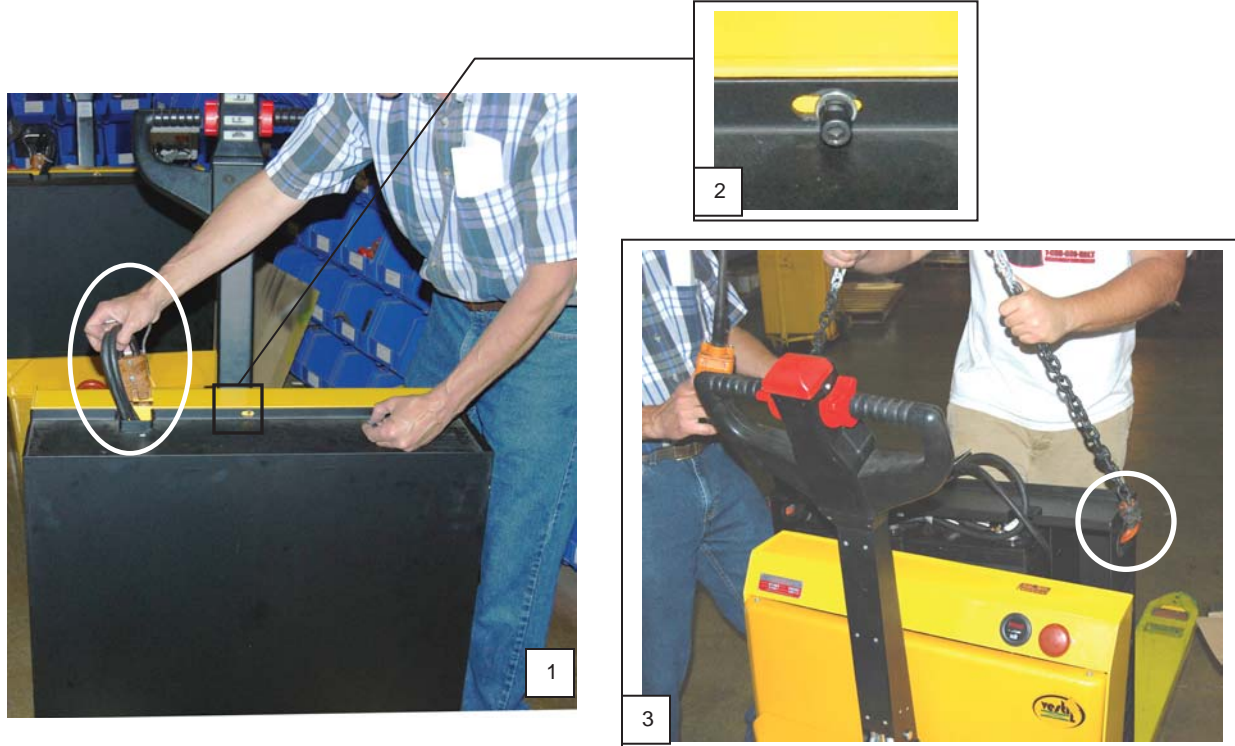
1. Remove all packing material.
2. Inform all personnel not participating in the unpacking process to clear the area.
3. Lift the EPT off of the pallet using either a hoist or a forklift with a capacity of at least 2,000 pounds. Always apply the proper hoisting procedures or forklift operation practices you learned during your training program.

To remove the EPT from the shipping pallet using a hoist:

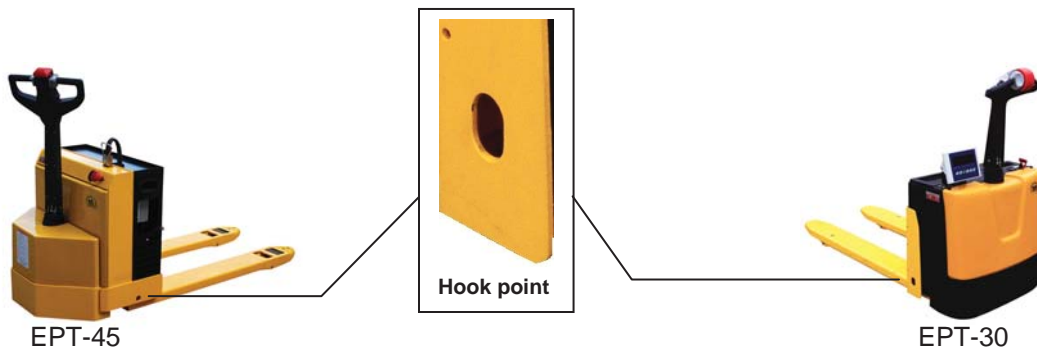
EPT-2###-45 models: Remove the battery box.

a) Disconnect the power cable from the socket on top of the EPT housing (circled in photo 1 below). Unfasten the box from the EPT frame by unscrewing the bolt in the center of the flange; the bolt is shown in photograph 2 (next page).

b) Connect the sling to both hook points on the EPT (1 on each side; the picture below only shows the hook point on the right side); then lift the unit no more than 6 – 8 inches above the pallet. The EPT will tilt towards the control yoke. Additionally, it may swing from side-to-side once free of the pallet if you did not properly position the hoist above the center of the sling. Stabilize the suspended truck with one hand, and stand safely to the side while operating the hoist.



All Models: Securely connect the sling hooks to the hook points (see photographs below), lift the EPT a few inches off of the pallet, direct the EPT away from the pallet, and then lower it until it is entirely supported by the ground.

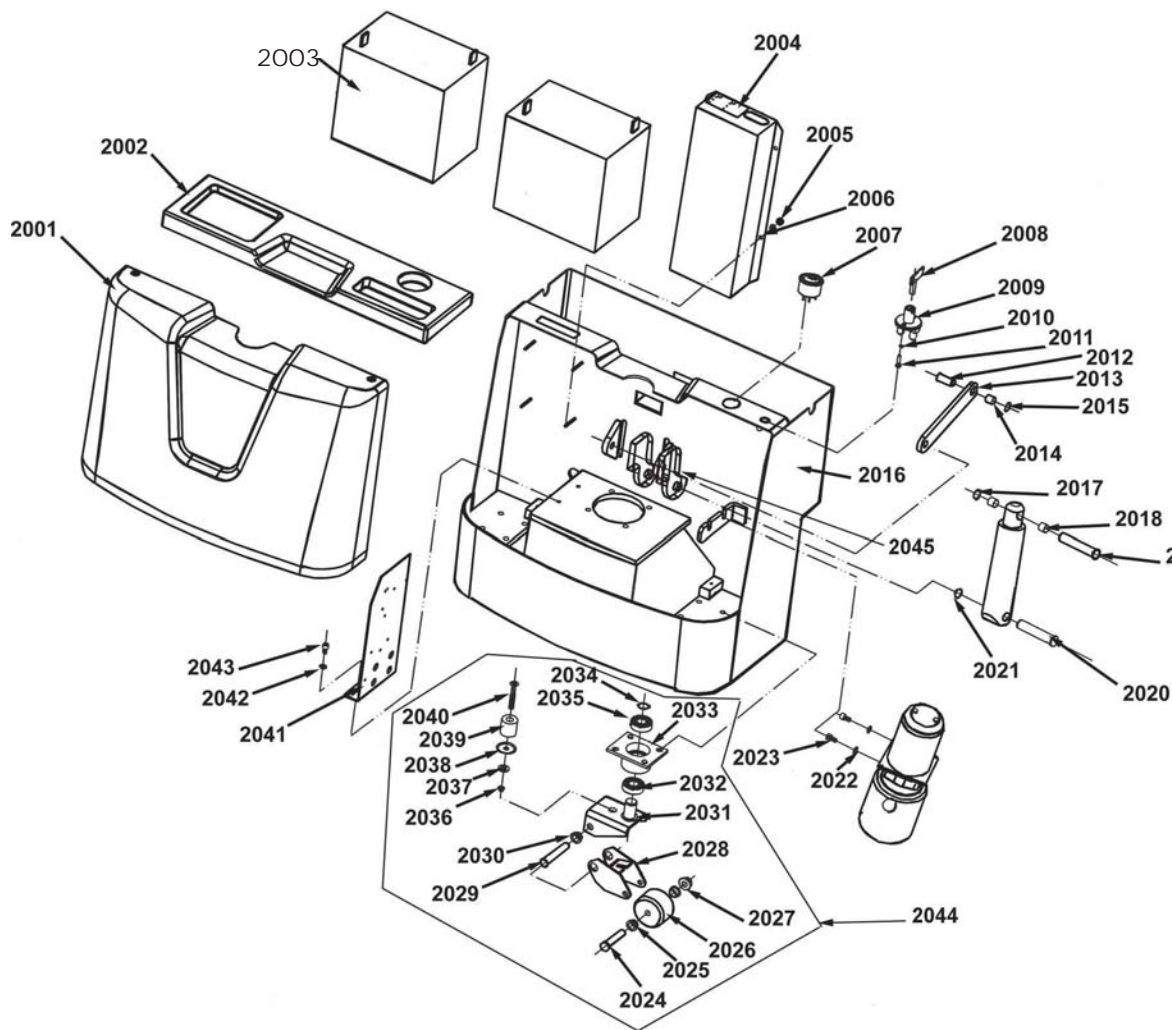


To lift the EPT with a forklift:

NOTICE Avoid contacting the drive wheel with the tines of your forklift; contact could damage the drive wheel.

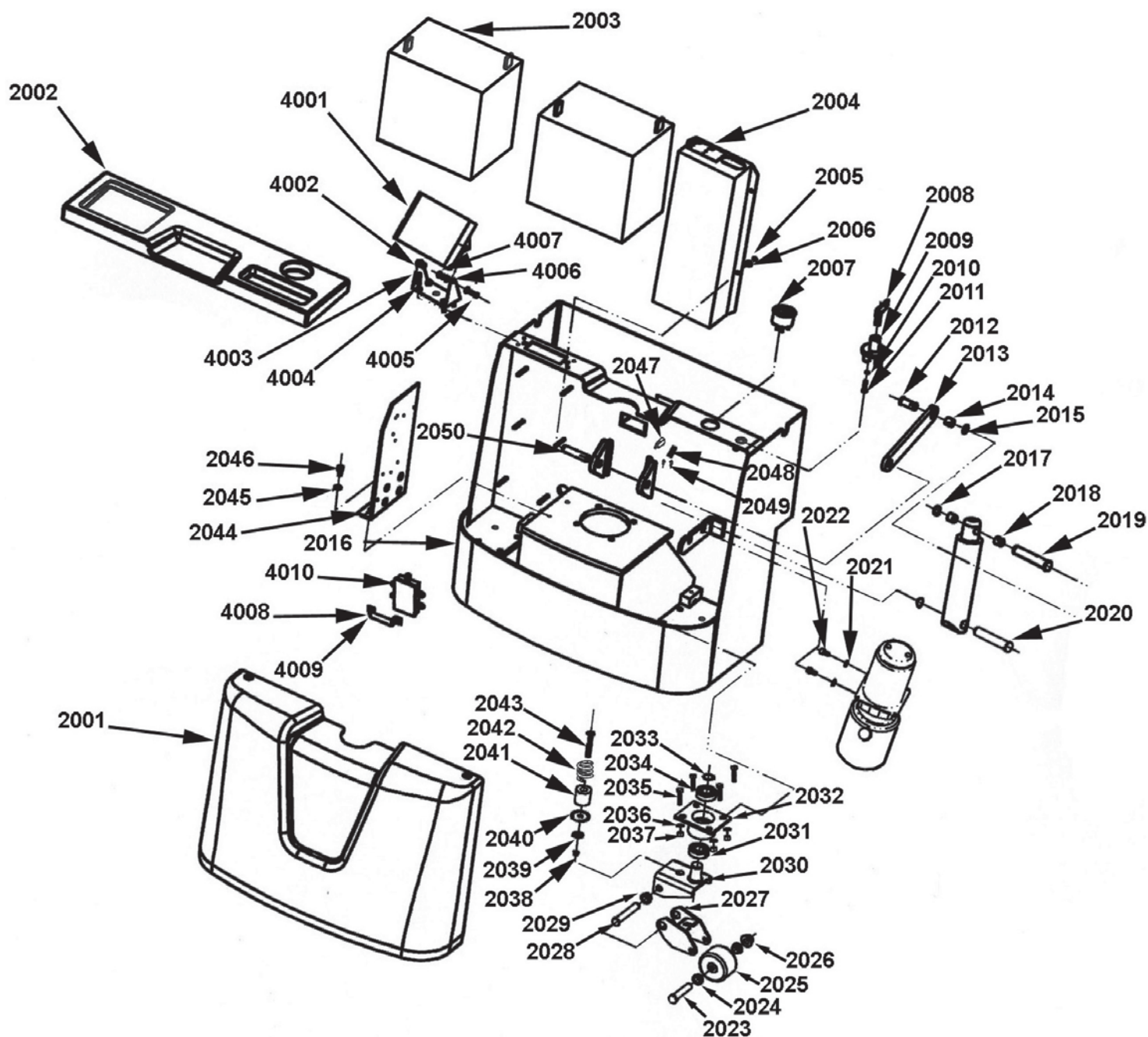
Approach the pallet truck from the operator side. Lift the EPT just a few inches above the pallet. Slowly back the forklift away from the pallet, and then carefully lower the forks until the EPT rests firmly on the ground.



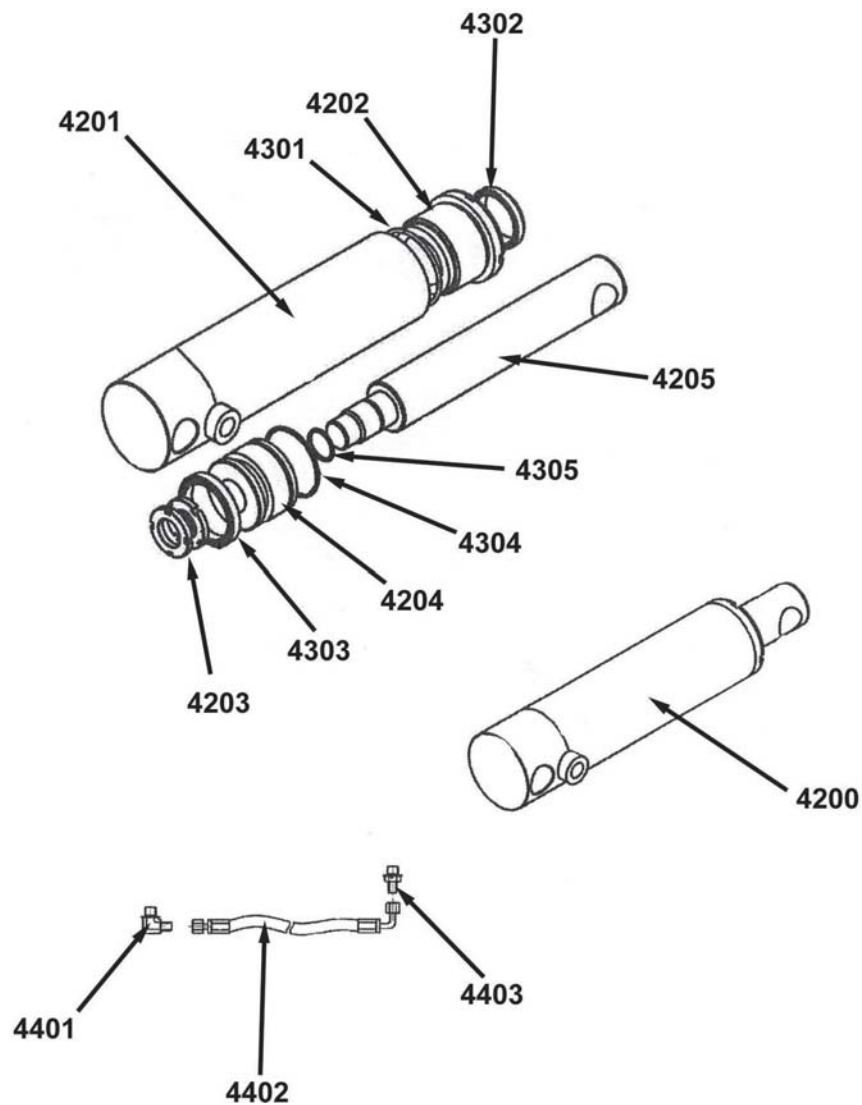
FIG. 1A: EPT-30 MODELS MAIN BODY COMPONENTS

Item No.	Part No.	Description	Item No.	Part No.	Description
2001	EPT-30-2001	Main Body Housing	2021	EPT-30-2021	22mm Snap Ring
	EPT-30-2001-2	Housing Screw	2022	EPT-30-2022	10mm Washer
2002	EPT-30-2002	Battery Cover	2023	EPT-30-2023	M10 x 22 Screw
2003	EPT-30-2003	Battery (2 per unit)	2024	EPT-30-2024	Bolt
2004	EPT-30-2004	Battery Charger (OEM)	2025	EPT-30-2025	Bolt
	EPT-30-2004-2	Replacement Charger (OEM Unit)	2026	EPT-30-2026	Wheel 76 x 36
	EPT-CORD	Battery Charger Cord	2027	EPT-30-2027	M12 Nut
2005	EPT-30-2005	M6 Spring Washer	2028	EPT-30-2028	Wheel Frame
2006	EPT-30-2006	M6 Nut	2029	EPT-30-2029	Shaft
2007	EPT-30-2007	24V Battery Charge Gauge	2030	EPT-30-2030	Bushing
2008	EPT-30-2008	Key Switch	2031	EPT-30-2031	Bearing Plate
2009	EPT-30-2009	Emergency Stop Switch	2032	EPT-30-2032	Bearing 30205
	EPT-30-KSA	Key Switch Assembly	2033	EPT-30-2033	Bearing Plate
2010	EPT-30-2010	M6 Flat Washer	2034	EPT-30-2034	Ball Bearing 6205
2011	EPT-30-2011	M6 x 25 Bolt	2035	EPT-30-2035	25mm Washer
2012	EPT-30-2012	Set Pin	2036	EPT-30-2036	M10 Nut
2013	EPT-30-2013	Pivot Link Arm	2037	EPT-30-2037	8mm Washer
2014	EPT-30-2014	Bushing	2038	EPT-30-2038	Fixed Ring
2015	EPT-30-2015	16mm Snap Ring	2039	EPT-30-2039	Link Rod
2016	EPT-30-2016	Main Body	2040	EPT-30-2040	Bolt
2017	EPT-30-2017	20mm Snap Ring	2041	EPT-30-2041	Mounting Plate
2018	EPT-30-2018	Bushing	2042	EPT-30-2042	8mm Washer
2019	EPT-30-2019	Cylinder Pivot Pin, Upper	2043	EPT-30-2043	Bolt
2020	EPT-30-2020	Cylinder Pivot Pin, Lower	2044	EPT-30-2044	Wheel Stabilizer Assembly
			2045	EPT-30-2045	Upper Travel Limit Switch

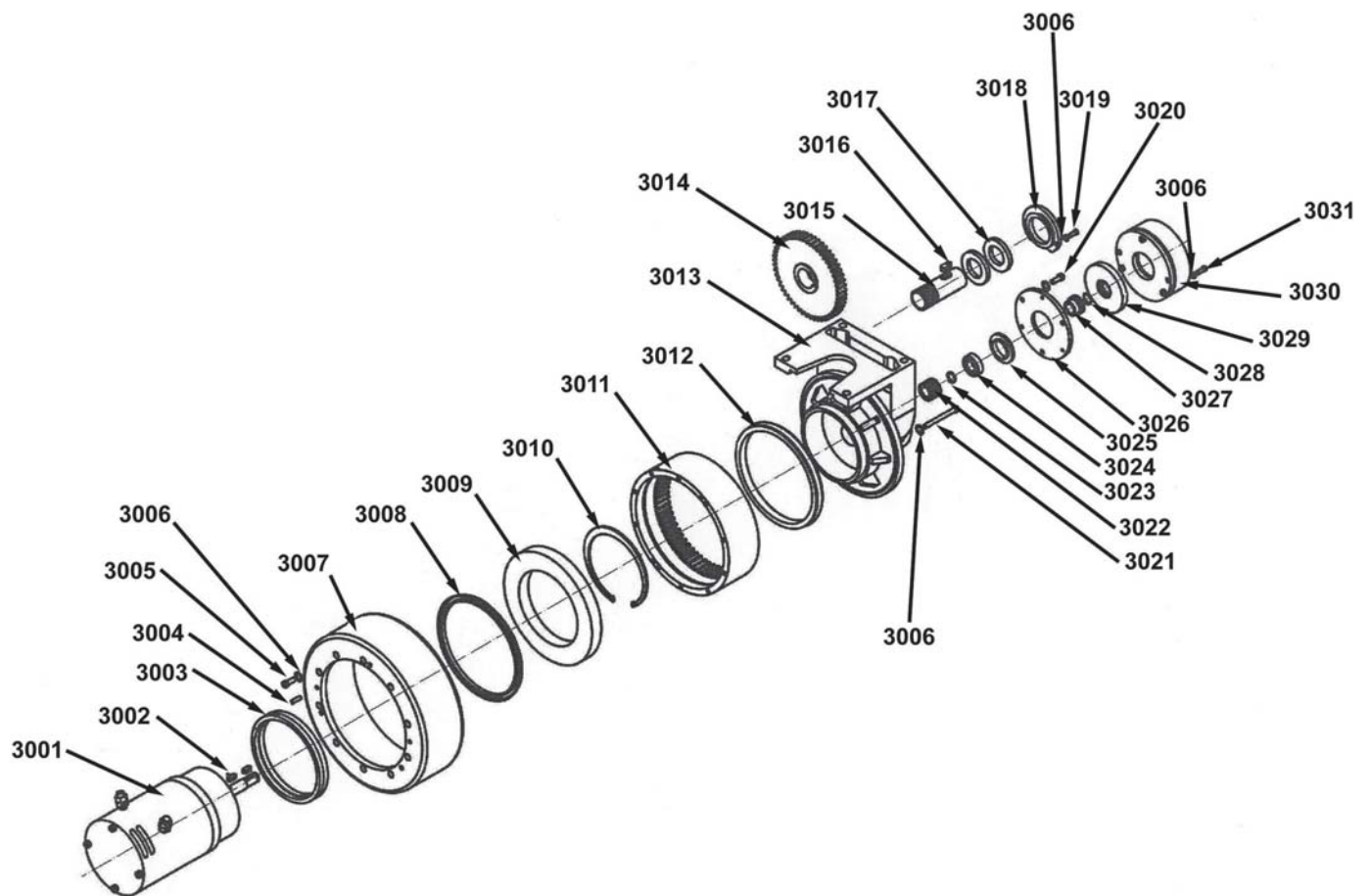
FIG. 1B: EPT-30 MODELS (OPTIONAL) SCALE COMPONENTS



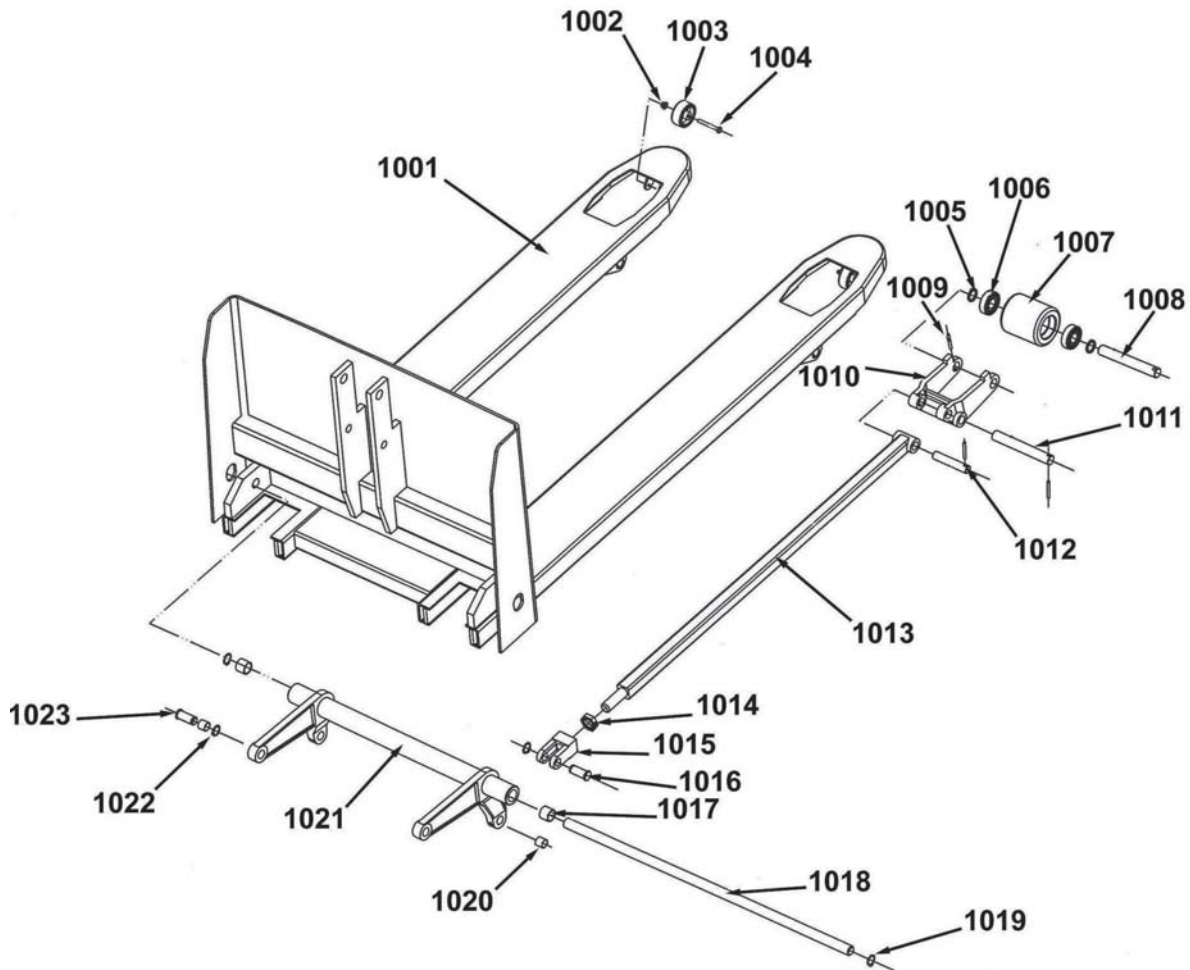
Item No.	Part No.	Description
4001	EPT-30-SCL-4001	Scale Display
4002	EPT-30-SCL-4002	Display Mounting Bracket
4003	EPT-30-SCL-4003	6mm Flat Washer
4004	EPT-30-SCL-4004	M6 x 10 Bolt
4005	EPT-30-SCL-4005	M6 x 30 Bolt
4006	EPT-30-SCL-4006	6mm Spring Washer
4007	EPT-30-SCL-4007	M6 Nut
4008	EPT-30-SCL-4008	M6 Nut
4009	EPT-30-SCL-4009	
4010	EPT-30-SCL-4010	

FIG. 2: EPT-30 MODELS HYDRAULIC CYLINDER ASSEMBLY

Item No.	Part No.	Description
4200	EPT-30-4200	Cylinder Assembly
4201	EPT-30-4201	Cylinder Body Tube
4202	EPT-30-4202	Gland Tube
4203	EPT-30-4203	Nut
4204	EPT-30-4204	Piston
4205	EPT-30-4205	Piston Rod
4301	EPT-30-4301	O-Ring
4302	EPT-30-4302	Seal Ring
4303	EPT-30-4303	Seal Ring
4304	EPT-30-4304	O-Ring
4305	EPT-30-4305	O-Ring
4401	EPT-30-4401	
4402	EPT-30-4402	Hydraulic Hose
4403	EPT-30-4403	
4300	EPT-30-4300	Seal Kit (EPT 30 & 45)

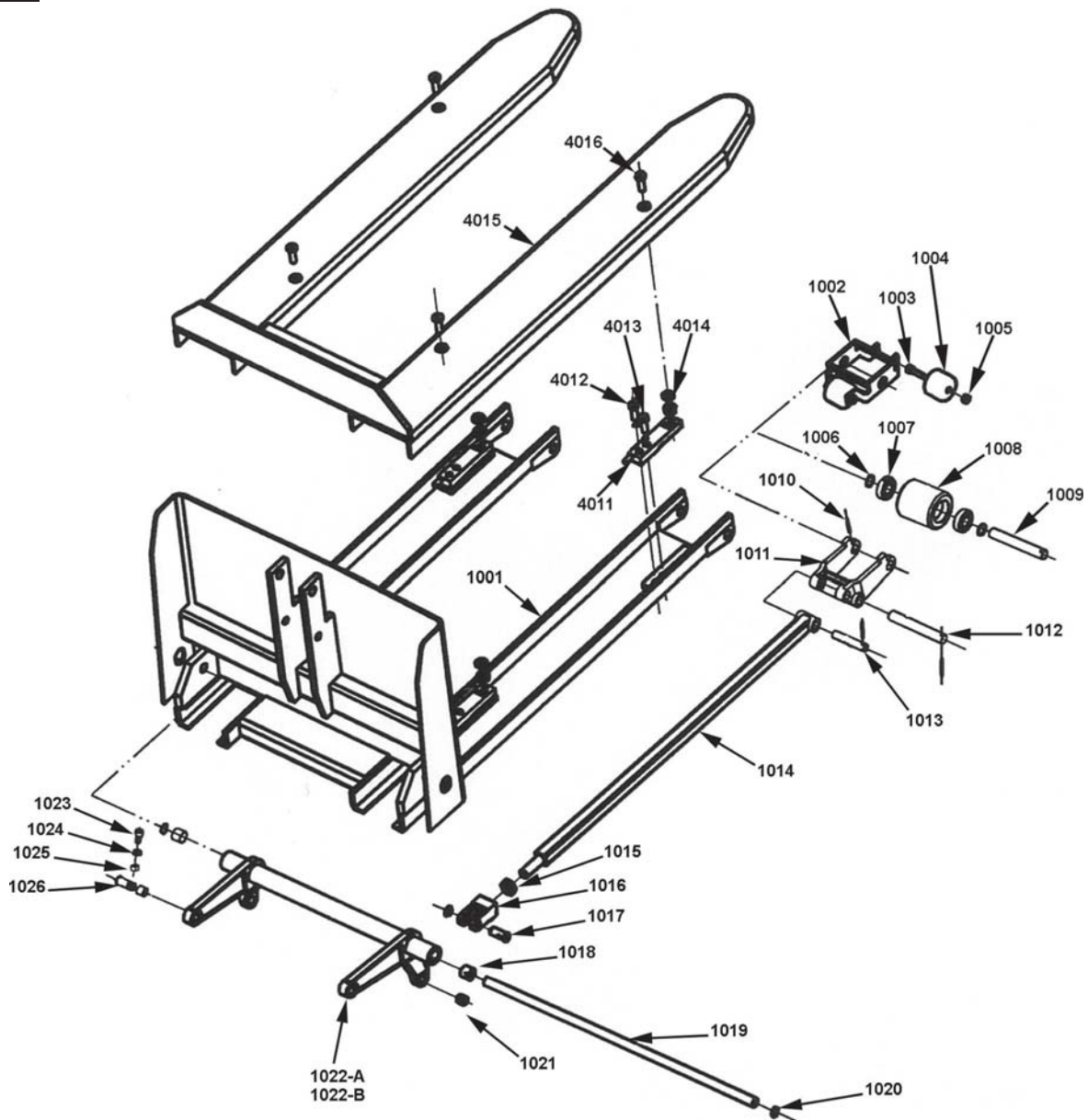
FIG. 3: EPT-30 MODELS DRIVE WHEEL ASSEMBLY

Item No.	Part No.	Description	Item No.	Part No.	Description
Not Shown	EPT-30/45-DBA	Drive Brake Assembly	3015	EPT-30-3015	Pinion Gear
3300	EPT-30-DWA	Complete Drive Wheel Assembly (includes Motor)	3016	EPT-30-3016	Key
3001	EPT-30-3001	24VDC (700W) Drive Motor	3017	EPT-30-3017	Pinion Gear Bearing
3002	EPT-30-3002	Woodruff Key	3018	EPT-30-3018	Cap
3003	EPT-30-3003	Motor Adaptor Ring	3019	EPT-30-3019	Cap Screw
3004	EPT-30-3004	5 x 16 Dowel Pin	3020	EPT-30-3020	M6 x 15 Cap Screw
3005	EPT-30-3005	M6 x 15 Cap Screw	3021	EPT-30-3021	Motor Retainer Cap Screw
3006	EPT-30-3006	6mm Washer	3022	EPT-30-3022	Drive Gear
3007	EPT-30-3007	Replacement Polyurethane Drive Wheel	3023	EPT-30-3023	Spacer
3007	EPT-30-3007-R	Replacement Rubber Drive Wheel	3024	EPT-30-3024	Motor Shaft Pilot Bearing
3008	EPT-30-3008	140 x 180 x 12 Oil Seal	3025	EPT-30-3025	Spacer
3009	EPT-30-3009	Wheel Bearing	3026	EPT-30-3026	Brake Mounting Adapter
3010	EPT-30-3010	Snap Ring	3027	EPT-30-3027	Splined Coupling
3011	EPT-30-3011	Bull Gear	3028	EPT-30-3028	Snap Ring
3012	EPT-30-3012	Grease Seal	3029	EPT-30-3029	Brake Pad
3013	EPT-30-3013	Gear Box Casting	3030	EPT-30-3030	Brake Coil
3014	EPT-30-3014	Idler Gear	3031	EPT-30-3031	Cap Screw
				EPT-30-MTR-BLT	M6-1.0 x 185mm Motor Bolt

FIG. 4A: EPT-30 MODELS FORK AND CARRIAGE

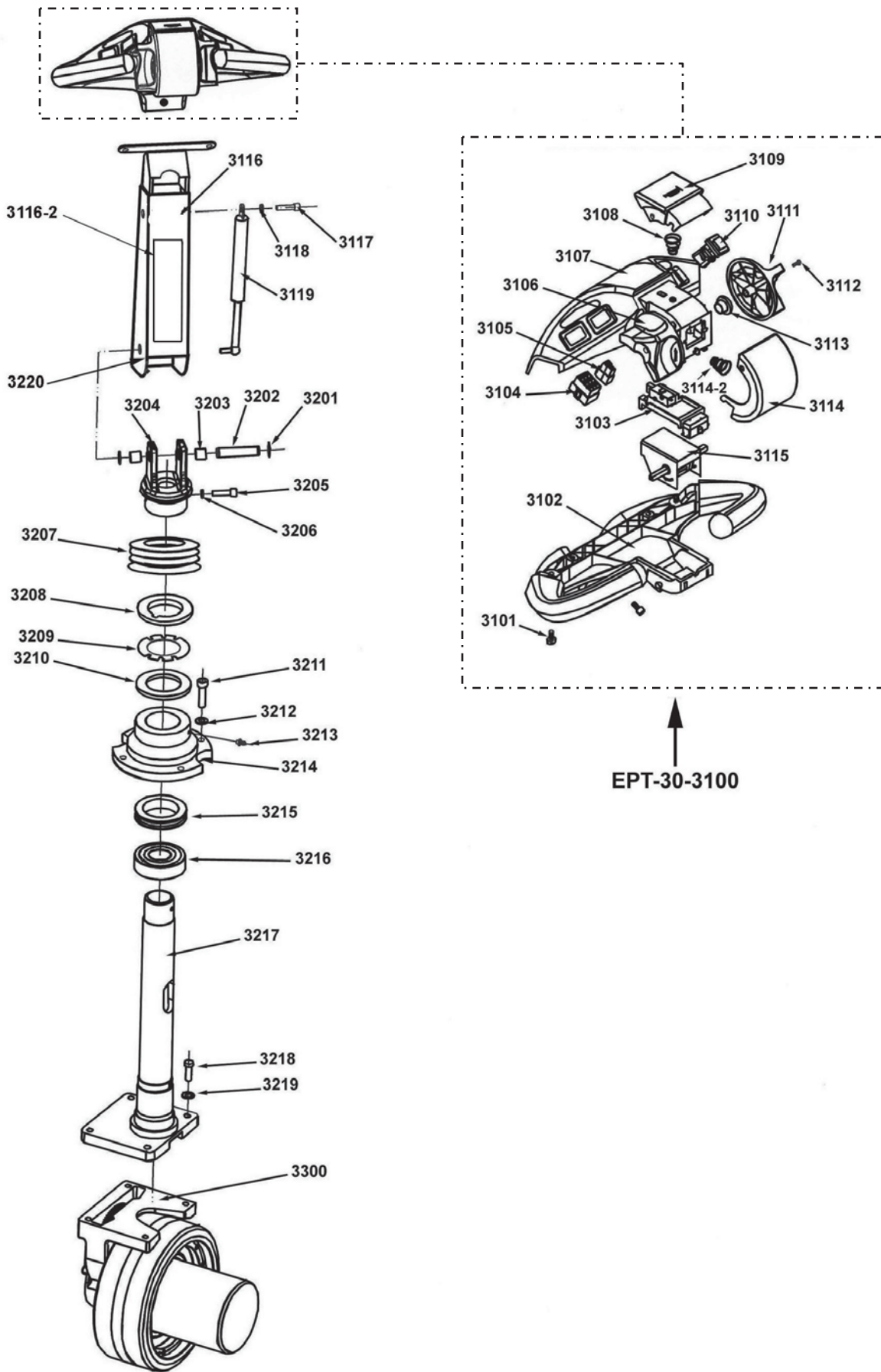
Item No.	Part No.	Description	Item No.	Part No.	Description
1001	EPT-30-1001	Fork Assembly	1012	EPT-30-1012-2	Push Rod Pin (Hole in Center)
1002	EPT-30-1002	M6 Nut	1013	EPT-30-1013	40" Push Rod
1003	EPT-30-1003	Nose Wheel	1013-2	EPT-30-1013-2	37-1/2" Push Rod
1004	EPT-30-1004	M6 x 45 Screw	1014	EPT-30-1014	Lock Nut
1005	EPT-30-1005	Snap Ring	1015	EPT-30-1015	Clevis
1006	EPT-30-1006	Ball Bearing 6204z	1016	EPT-30-1016	Clevis Pin
1007	EPT-30-1007	75 x 96 Load Roller	1017	EPT-30-1017	22 x 20 Sleeve Bearing
1008	EPT-30-1008	Load Roller Axle	1018	EPT-30-1018	Trunion Shaft
1009	EPT-30-1009	5 x 30 Roll Pin	1019	EPT-30-1019	16mm Snap Ring
1010	EPT-30-1010	Load Roller Bracket	1020	EPT-30-1020	16 x 16 Clevis Pin Sleeve Bearing
1011	EPT-30-1011	Bracket Pin	1021	EPT-30-1021-25	Trunion (Model EPT-2547-30)
Not Shown	EPT-30-EXT-RL	Steel Exit Roller	1021	EPT-30-1021-20	Trunion (Model EPT-2047-30)
1012	EPT-30-1012	Push Rod Pin	1022	EPT-30-1022	22mm Snap Ring
			1023	EPT-30-1023	Pin

FIG. 4B: EPT-30 MODELS FORKS AND CARRIAGE WITH INTEGRATED SCALE



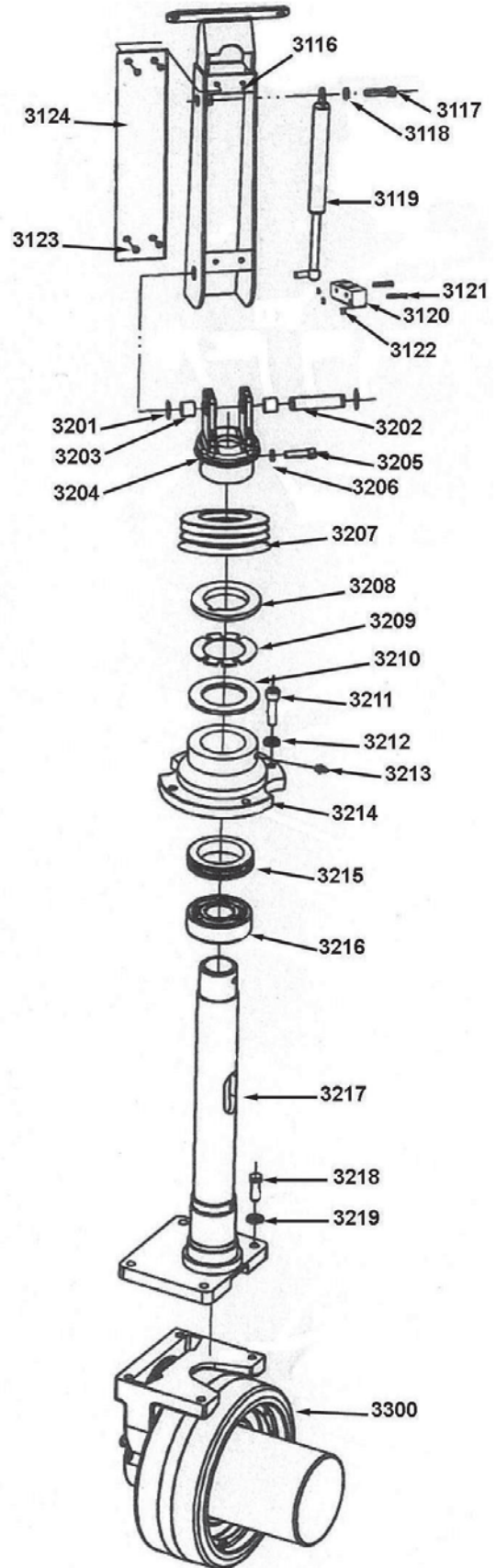
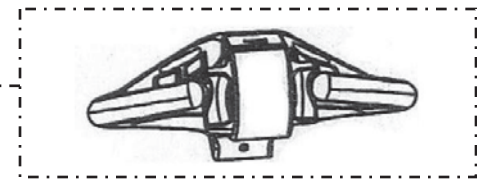
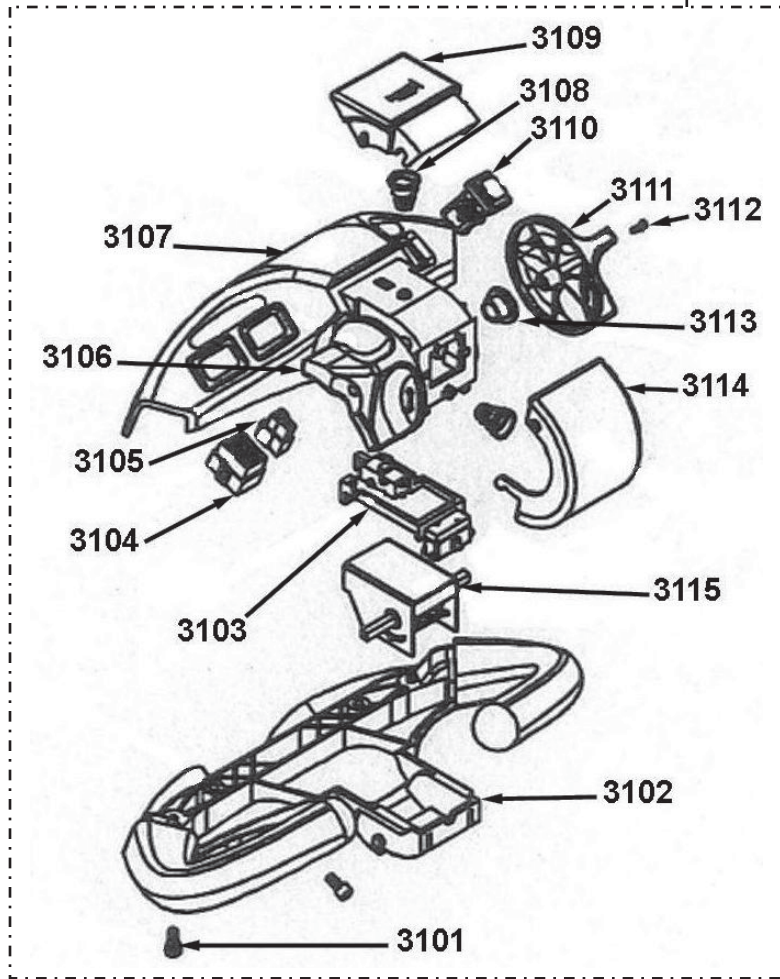
Item No.	Part No.	Description	Item No.	Part No.	Description
1001	EPT-30-SCL-1001	Fork Assembly	1018	EPT-30-SCL-1018	Sleeve Bearing 22 x 20
1002	EPT-30-SCL-1002	Nose Wheel Frame	1019	EPT-30-SCL-1019	Trunion Pivot Shaft
1003	EPT-30-SCL-1003	M10 x 65 Screw	1020	EPT-30-SCL-1020	Retaining Ring 16
1004	EPT-30-SCL-1004	Nose Wheel	1021	EPT-30-SCL-1021	Clevis Pin Sleeve Bearing 16 x 16
1005	EPT-30-SCL-1005	M10 Nut	1022-A	EPT-30-SCL-1022-A	Trunion (EPT-2547-30-SCL)
1006	EPT-30-SCL-1006	Retaining Ring	1022-B	EPT-30-SCL-1022-B	Trunion (EPT-2047-30-SCL)
1007	EPT-30-SCL-1007	Ball Bearing 6204z	1023	EPT-30-SCL-1023	M8 x 30 Screw
1008	EPT-30-SCL-1008	Drive/Load Wheel 75 x 90	1024	EPT-30-SCL-1024	Washer
1009	EPT-30-SCL-1009	Drive/Load Wheel Axle	1025	EPT-30-SCL-1025	M8 Nut
1010	EPT-30-SCL-1010	Roll Pin 5 x 30	1026	EPT-30-SCL-1026	Pin
1011	EPT-30-SCL-1011	Load Roller Bracket	Integral Scale Components		
1012	EPT-30-SCL-1012	Load Roller Bracket Pivot Pin	4011	EPT-30-SCL-4011	Load Cell
1013	EPT-30-SCL-1013	Push Rod Pivot Pin	4012	EPT-30-SCL-4012	M12 x 45 Bolt
1014	EPT-30-SCL-1014	Push Rod (Owner must provide measurement)	4013	EPT-30-SCL-4013	12mm Spring Washer
1015	EPT-30-SCL-1015	M22 x 1.5 Lock Nut	4014	EPT-30-SCL-4014	Washer
1016	EPT-30-SCL-1016	Push Rod Clevis	4015	EPT-30-SCL-4015	Weighing Forks
1017	EPT-30-SCL-1017	Clevis Pin	4016	EPT-30-SCL-4016	M12 x 38 Bolt

FIG. 5A: CONTROL YOKE AND HANDLE COMPONENTS (ALL MODELS)

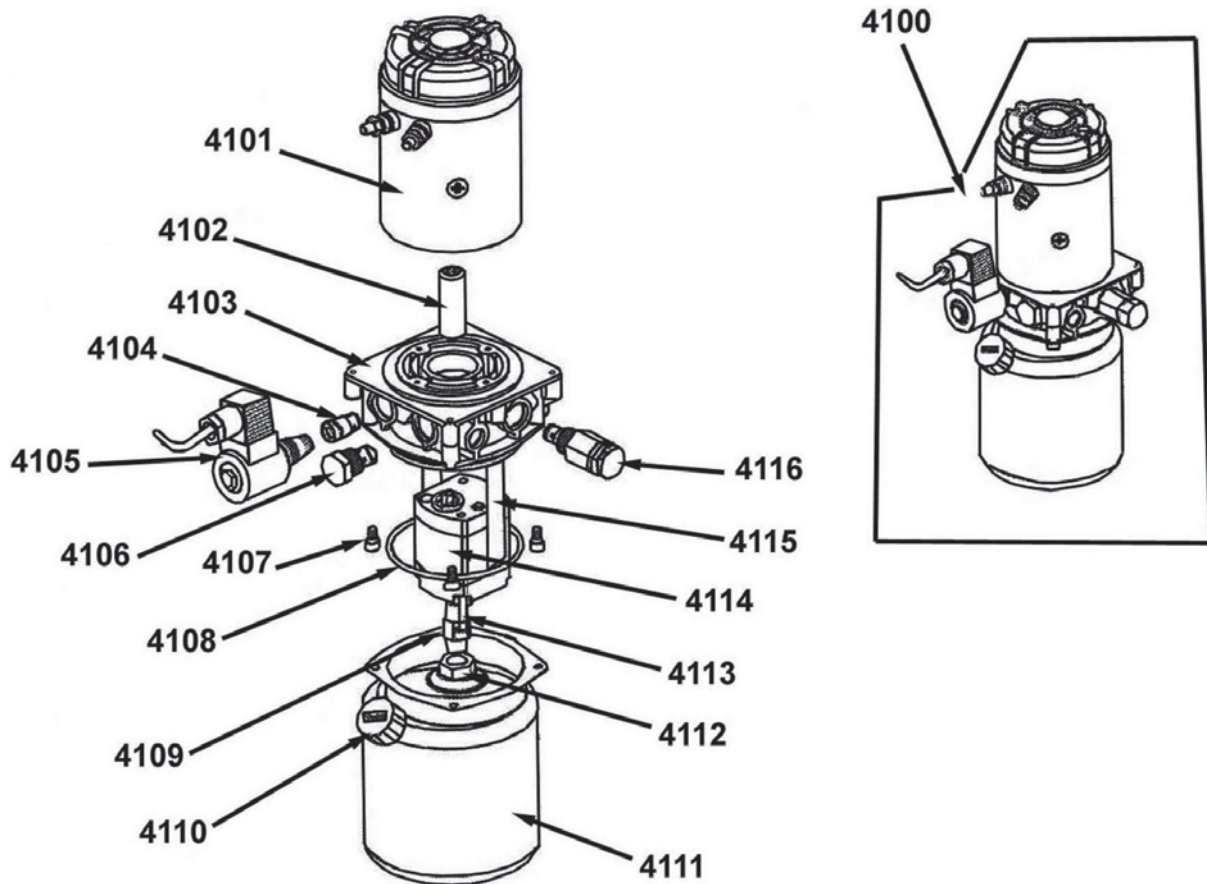


Item No.	Part Number	Description
3100	EPT-30-3100-2	Control Handle
3101	EPT-30-3101	Screw
3102	EPT-30-3102	Handle Cover (Bottom)
3103	EPT-30-3103	Throttle Seat with Switches
3103-2	EPT-30-3103-2	Belly / Horn Switch
3104	EPT-30-3104	Electrical Outlet (Big)
3105	EPT-30-3105	Electrical Outlet (Small)
3106	EPT-30-3106	Throttle Knob (Left)
3107	EPT-30-3107	Top Handle Cover (grey)
3108	EPT-30-3108	Spring – (Same as EPT-30-3114-2)
3109	EPT-30-3109	Horn Switch Operator
3110	EPT-30-3110	Raise / Lower Button with Micro-Switch
3111	EPT-30-3111	Throttle Knob (right)
3112	EPT-30-3112	M3 x 10 Screw
3113	EPT-30-3113	Throttle Shaft Bushing
3114	EPT-30-3114	Emergency Reverse Switch Cover
3114-2	EPT-30-3114-2	Emergency Reverse Return Spring
3115	EPT-30-3115	Throttle Assembly (identical to EPT-45-1112)
3115	EPT-30-3115-2	Throttle Assembly Unit
3115	EPT-30-3115-3	Curtis Throttle Assembly
3116	EPT-30-3116	Yoke Arm
3116-2	EPT-30-3116-2	Upper Removable Cover
3117	EPT-30-3117	Bolt
3118	EPT-30-3118	8mm Washer
3119	EPT-30-3119	Gas Shock
3201	EPT-30-3201	Snap Ring 20mm
3202	EPT-30-3202	Pivot Pin
3203	EPT-30-3203	Bushing
3204	EPT-30-3204	Handle Coupling (identical to EPT-45-1210)
3205	EPT-30-3205	Hex Head Cap Screw
3206	EPT-30-3206	8mm Washer
3207	EPT-30-3207	Rubber Coupling Cover (same as EPT-45-1210)
3208	EPT-30-3208	M56 x 1.5 Nut
3209	EPT-30-3209	56mm Washer
3210	EPT-30-3210	Washer
3211	EPT-30-3211	Bolt
3212	EPT-30-3212	Washer
3213	EPT-30-3213	Grease Zerk
3214	EPT-30-3214	Bearing Housing
3215	EPT-30-3215	Bearing 8112
3216	EPT-30-3216	Bearing 80113
3217	EPT-30-3217	Steering Post
3218	EPT-30-3218	M10 x 30 Bolt
3219	EPT-30-3219	10mm Washer
3220	EPT-30-3220	Handle Limit Switch
3300	EPT-30-3300	Drive Wheel System

FIG. 5B: CONTROL YOKE AND HANDLE COMPONENTS (ALL MODELS) WITH INTEGRAL SCALE

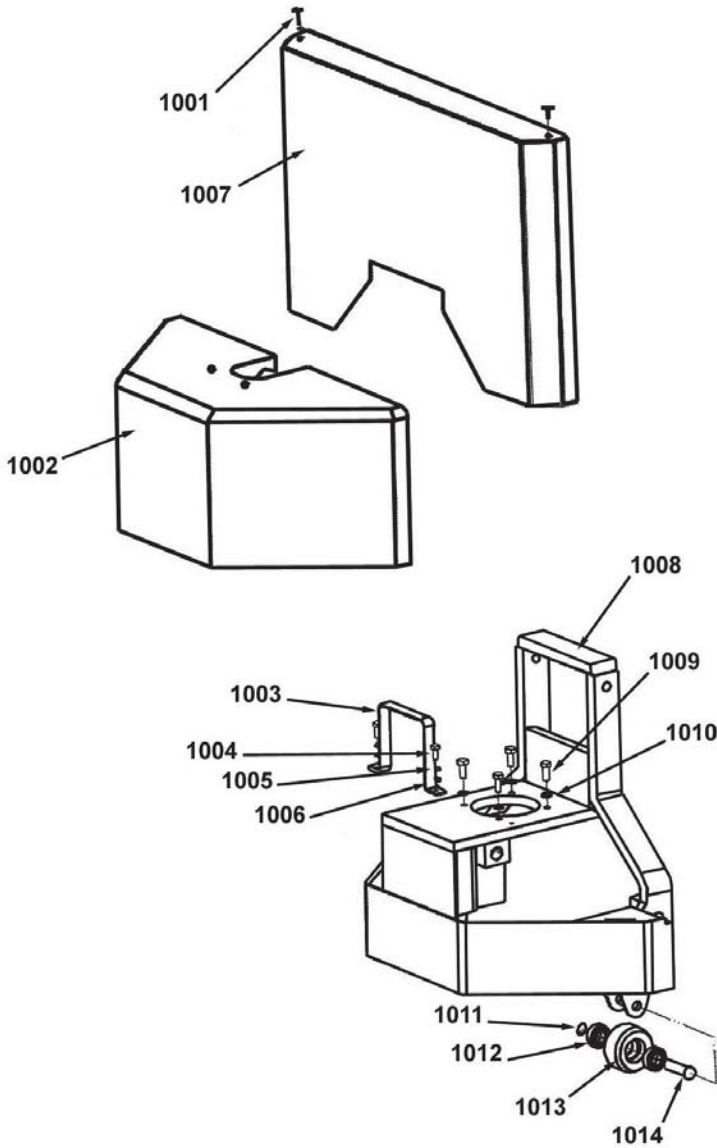


Item No.	Part No.	Description
3101	EPT-30-SCL-	M6 x 12 Bolt
3102	EPT-30-SCL-	Handle Cover (Bottom)
3103	EPT-30-SCL-	Throttle Seat
3103-2	EPT-30-SCL-	Belly / Horn Switch
3104	EPT-30-SCL-	Electrical Outlet (Large)
3105	EPT-30-SCL-	Electrical Outlet (Small)
3106	EPT-30-SCL-	Throttle Knob (left)
3107	EPT-30-SCL-	Handle Cover (Top)
3108	EPT-30-SCL-	Spring
3109	EPT-30-SCL-	Horn Switch Operator
3110	EPT-30-SCL-	Raise / Lower Button
3111	EPT-30-SCL-	Throttle Knob
3112	EPT-30-SCL-	M3 x 10 Screw
3113	EPT-30-SCL-	Throttle Shaft Bushing
3114	EPT-30-SCL-	Emergency Stop / Reverse Switch Cover (Red)
3114-2	EPT-30-SCL-	Switch Cover Spring
3115	EPT-30-SCL-	Throttle
3116	EPT-30-SCL-	Yoke Arm
3117	EPT-30-SCL-	M8 x 10 Bolt
3118	EPT-30-SCL-	8mm Spring Washer
3119	EPT-30-SCL-	Gas Shock
3120	EPT-30-SCL-	Handle Limit Switch
3121	EPT-30-SCL-	M4 x 30 Screw
3122	EPT-30-SCL-	M4 Nut
3123	EPT-30-SCL-	M5 x 6 Screw
3124	EPT-30-SCL-	Yoke Arm Access Panel
3201	EPT-30-SCL-	20mm Washer
3202	EPT-30-SCL-	Pivot Pin
3203	EPT-30-SCL-	16 x 20 Sleeve Bearing
3204	EPT-30-SCL-	Handle Coupling
3205	EPT-30-SCL-	M8 x 30 Bolt
3206	EPT-30-SCL-	8mm Spring Washer
3207	EPT-30-SCL-	Rubber Boot, Coupler Cover
3208	EPT-30-SCL-	M56 x 1.5 Nut
3209	EPT-30-SCL-	Washer 56
3210	EPT-30-SCL-	Flat Washer
3211	EPT-30-SCL-	M10 x 40 Bolt
3212	EPT-30-SCL-	10mm Spring Washer
3213	EPT-30-SCL-	M8 x 1 Grease Zerk
3214	EPT-30-SCL-	Bearing Housing
3215	EPT-30-SCL-	Bearing 8112
3216	EPT-30-SCL-	Ball Bearing 80113
3217	EPT-30-SCL-	Steering Post
3218	EPT-30-SCL-	M10 x 30 Bolt
3219	EPT-30-SCL-	10mm Flat Washer
3300	EPT-30-SCL-	Drive Wheel Assembly

FIG. 6: Hydraulic Pump and Motor Assemblies (All Models)

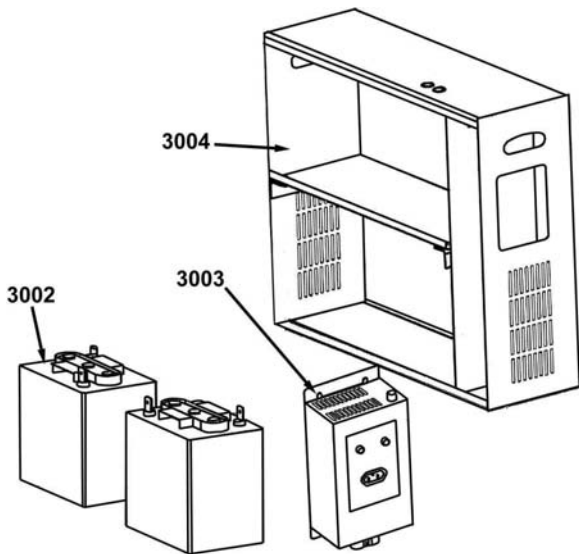
<u>Item No.</u>	<u>Part No.</u>	<u>Description</u>
4100	EPT-30-4100	Complete Motor Pump Assembly
4101	EPT-30-4101	24VDC (1.3kW) DC Motor
4102	EPT-30-4102	Motor-to-Pump Shaft Coupling
4103	EPT-30-4103	Manifold Base
4104	EPT-30-4104	Flow Control Valve 5LMRN
4105	EPT-30-4105	Solenoid Valve
4106	EPT-30-4106	Check Valve
4107	EPT-30-4107	Bolt
4108	EPT-30-4108	90 x 3.1 O-Ring
4109	EPT-30-4109	Pick Up Tube
4110	EPT-30-4110	Breather
4111	EPT-30-4111	Hydraulic Fluid Reservoir
4112	EPT-30-4112	Intake Strainer
4113	EPT-30-4113	Pump Retaining Bolt
4114	EPT-30-4114	Hydraulic Gear Pump
4115	EPT-30-4115	Return Tube
4116	EPT-30-4116	Relief Valve

FIG. 7: EPT-45 MAIN HOUSINGS AND SUPPORTING STRUCTURE

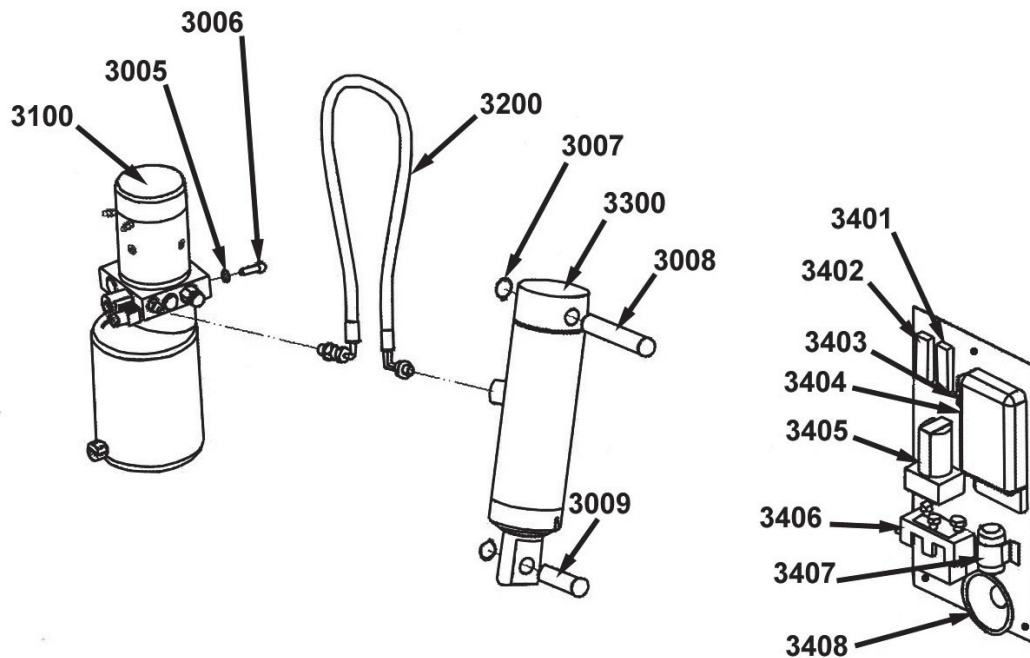


Item No.	Part No.	Description
1001	EPT-45-1001	M6 Hood Retaining Screw
1001	EPT-45-1001-1	M5 Hood Retaining Screw
1002	EPT-45-1002	Gear-Drive Cover (Fiberglass)
1002	EPT-45-1002-2	Gear-Drive Cover (Plastic)
1003	EPT-45-1003	Rear Cover Bracket
1004	EPT-45-1004	Bolt
1005	EPT-45-1005	Spring Washer
1006	EPT-45-1006	Washer
1007	EPT-45-1007	Rear Cover (Fiberglass)
1007	EPT045-1007-2	Rear Cover (Plastic)
1008	EPT-45-1008	Rear Frame
1009	EPT-45-1009	Screw
1010	EPT-45-1010	Spring Washer
1011	EPT-45-1011	Snap Ring
1012	EPT-45-1012	Bearing
1013	EPT-45-1013	Wheel
1013	EPT-45-1013-2	Complete Stabilizing Wheel Assembly
1014	EPT-45-1014	Wheel Axle

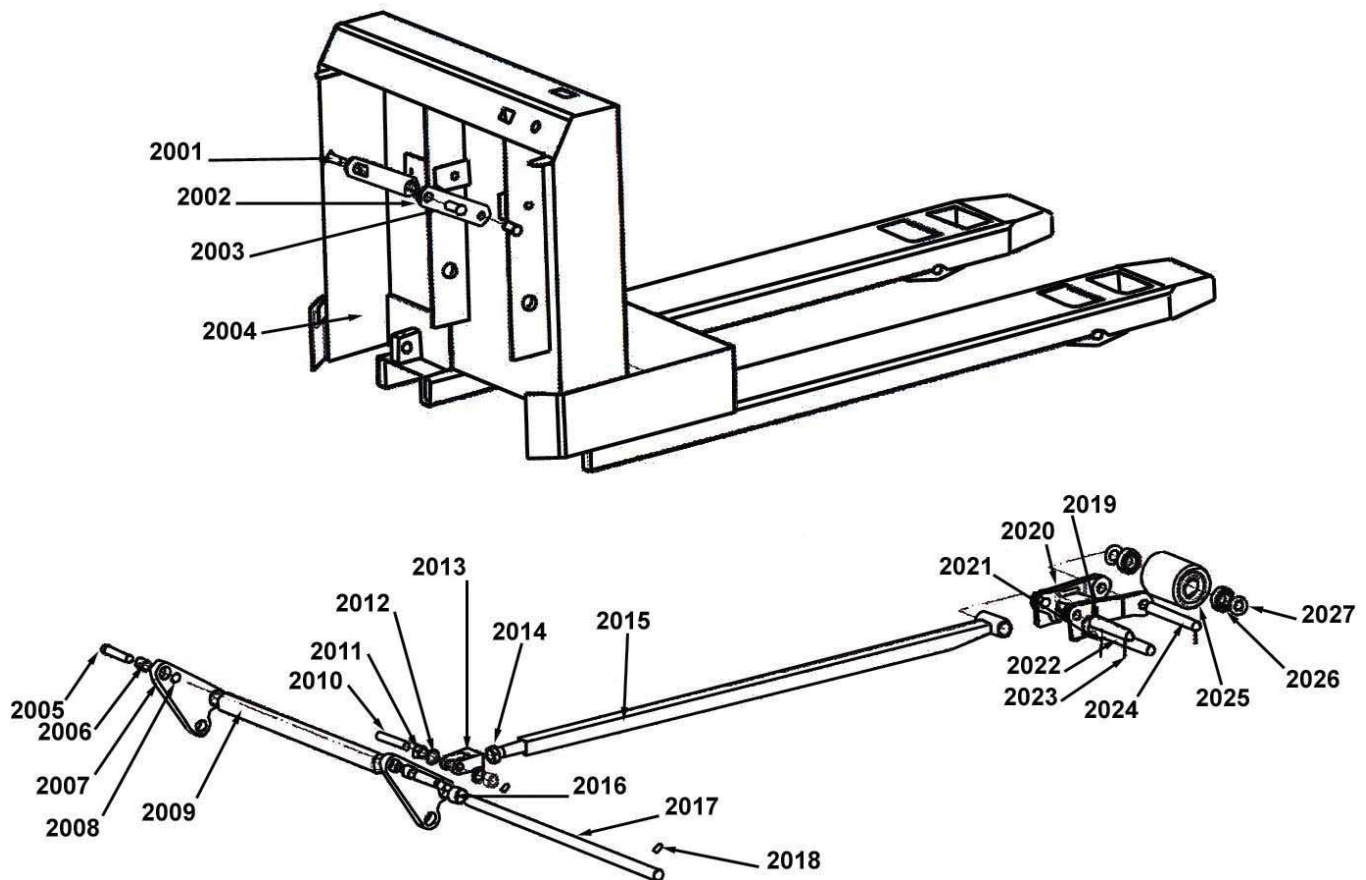
FIG. 8: EPT-45 REMOVABLE BATTERY BOX AND COMPONENTS



Item No.	Part No.	Description
3002	EPT-45-3002	Battery
3003	EPT-45-3003	Battery Charger – OEM
3003	EPT-45-3003-2	Battery Charger – Soneil
3003	EPT-45-3003-3	Battery Disconnect Connector
	EPT-CORD	Battery Charger Cord
3004	EPT-45-3004	Battery Box

FIG. 9: EPT-45 CYLINDER AND FUSE PANEL

Item No.	Part No.	Description	Item No.	Part No.	Description
3005	EPT-45-3005	Spring Washer	3401	EPT-45-3401	150Amp Drive Motor Circuit Fuse
3006	EPT-45-3006	Bolt	3402	EPT-45-3402	100Amp Pump Circuit Fuse
3007	EPT-45-3007	Retaining Ring	3403	EPT-45-3403	5Amp Control Circuit Fuse
3008	EPT-45-3008	Upper Cylinder Pin	3403	EPT-45-3403-2	Fuse Holder
3009	EPT-45-3009	Lower Cylinder Pin	3404	EPT-45-3404	Motor Controller
3100	EPT-45-3100	Power Pack	3405	EPT-45-3405	Main Circuit Contactor
3200	EPT-45-3200	Hydraulic Hose	3406	EPT-45-3406	Forward/Reverse Contactor
3300	EPT-45-3300	Hydraulic Cylinder	3406	EPT-45-3406-2	Forward/Reverse Contactor (Curtis)
3300	EPT-45-3300-2	Hydraulic Cylinder	3407	EPT-45-3407	Pump Motor Contactor
			3408	EPT-45-3408	Horn

FIG. 10: EPT-45 FORK AND CARRIAGE ASSEMBLIES

Item No.	Part No.	Description	Item No.	Part No.	Description
2001	EPT-45-2001	Retaining Ring	2015	EPT-45-2015	Push Rod
2002	EPT-45-2002	Link Arm	2016	EPT-45-2016	Sleeve Bearing
2003	EPT-45-2003	Sleeve Bearing 22 x 20	2017	EPT-45-2017	Trunion Shaft
2004	EPT-45-2004	Fork Frame	2018	EPT-45-2018	Roll Pin
2004-2	EPT-45-2004-2	Upper Travel Limit Switch	2019	EPT-45-2019	Push Rod Pin
2005	EPT-45-2005	Pin	2020	EPT-45-2020	Load Roller Frame
2006	EPT-45-2006	Sleeve Bearing 22 x 20	2021	EPT-45-2021	Roll Pin
2007	EPT-45-2007	Plate	2022	EPT-45-2022	Load Roller Frame Pin
2008	EPT-45-2008	Snap Ring	2023	EPT-45-2023	Roll Pin
2009	EPT-45-2009	Trunion (caller must measure)	2024	EPT-45-2024	Load Roller Pin
2010	EPT-45-2010	Clevis Pin	2025	EPT-45-2025	Load Roller
2010-1	EPT-45-2010-1	Snap Ring	2025	EPT-45-2025-2	Load Roller
2011	EPT-45-2011	Nut	2026	EPT-45-2026	Bearing
2012	EPT-45-2012	Washer	2027	EPT-45-2027	Washer
2013	EPT-45-2013	Clevis	2028	EPT-45-2028	Roll Pin
2014	EPT-45-2014	Clevis Lock Nut		EPT-45-KSA	Key Switch Assembly

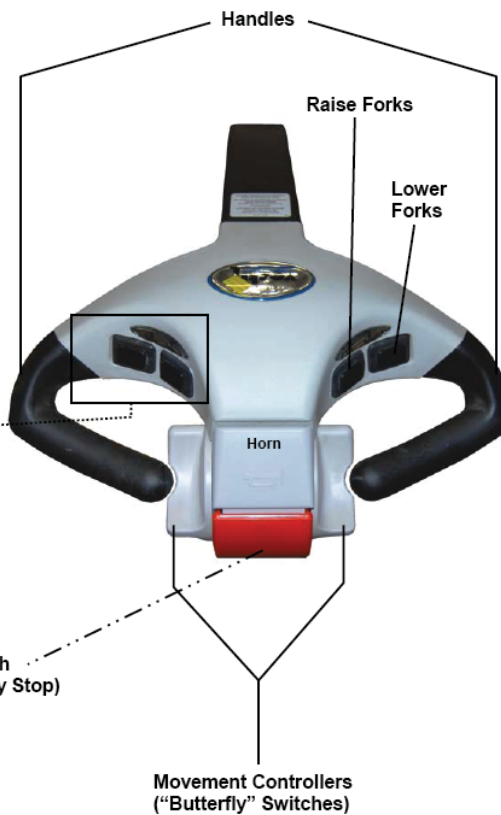
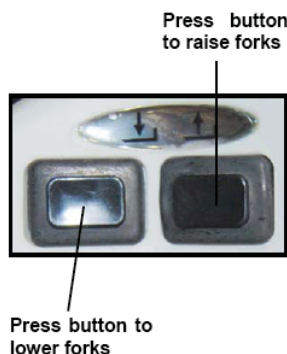
FIG. 11: Function Controls, Gauges, and Safety Features

BATTERY CHARGE GAUGE:

The battery charge gauge indicates the status of the battery. It is located on top of the EPT main body and to the right of the control yoke. As the battery discharges, display lines disappear from right to left.



Always check the gauge before using the device; make sure that the battery is charged before using the pallet truck.



BELLY SWITCH:

The belly switch protects the operator from injury while driving the EPT in reverse. When pressed, the truck will change direction, i.e. move forward, for approximately 3 seconds; after 3 seconds it will stop completely. If the belly switch becomes jammed or stuck, the stacker will move forward (away from the operator) for at most 3 seconds; the control circuit will remain disabled until reset.

- To reset the circuit, either raise the handle to the fully vertical position (or simply release the handle), or press it downwards to the fully horizontal position.

EMERGENCY STOP ("E-STOP") BUTTON:

Press the E-stop button to immediately interrupt all powered functions. Use the E-stop during operation if the travel or fork (raise and lower) functions do not respond normally to operator commands.



Use the E-stop as a service brake to secure the EPT when parked.

POWER:

EPT-30's and 45's activate differently. EPT-30's feature a removable, red key-like power disconnect switch shown at right. Turn the switch clockwise to turn on the power. Turn off power by turning the switch counterclockwise.



EPT-45's are activated simply by pulling the red E-stop button up. Turn off power by pressing the button down.

MOVEMENT CONTROLLERS:

To drive the EPT in the **forward** direction, rotate the movement control forward with your thumbs as indicated by the solid arrow superimposed on photograph below. To move the pallet truck in **reverse**, rotate the control wheel in the opposite direction, which is shown with a dashed arrow.



Reverse Forward



The degree of rotation determines the speed of movement, so the farther you press the wheel in either direction, the faster the EPT will travel, up to a maximum speed of ~3mph when unloaded or ~2.6mph when loaded to capacity. Simply by releasing the movement control, the EPT will decelerate to a complete stop.

USE INSTRUCTIONS:

1. Determine Condition of Floor or Other Supporting Surface: Inspect the floor (or other surface; for example a parking lot, dock board or dock leveler) prior to use. The supporting surface must be smooth and dry so choose a route that avoids obstacles, spills, and surface damage.

CAUTION Casters might become stuck in gaps or cracks in the surface, which could cause the EPT to stop suddenly. A sudden stop can cause the load to shift and the load and truck might tip over.

2. Inspect the EPT & Perform a Functions Test:**Inspection Prior to Use:**

ALWAYS inspect the unit before you use it. Begin the inspection by removing all debris found on the surface of the forks and the housing, and then:

- a. Check the forks for deformation and cracks;
- b. Check the floor beneath the truck and the truck itself for leaked hydraulic fluid or battery acid.

WARNING DO NOT use the EPT if you discover any damage or abnormalities. Tag the unit "Out-of-Service" and report the problem[s] to authorized maintenance personnel.

Functions Test:

Verify that the unit works properly. Drive the stacker to a location where the following tests can be performed without contacting overhead obstructions or items on the ground:

1. Raise the forks to the maximum elevation;
2. Return the forks to the lowest position.
3. Raise the forks, and while raising them, press the E-stop button. The forks should immediately stop moving. Reset the E-stop by returning the control yoke to either position 1 or 3 (see Operation Step 3 below on this page), and then pull up on the red button.
4. Fully raise the forks, and while lowering the forks press the E-stop. The forks should immediately stop moving. Reset the E-stop.
5. Drive the EPT in reverse at low speed and while driving press the belly switch. The machine should immediately move in the opposite direction for ~3 seconds and then stop. Reset the control yoke.
6. Drive the EPT in both the forward and reverse directions for a few seconds.
7. Test the horn (see Fig. 1, p. 9).
8. Verify that the control yoke automatically returns to the vertical position when released (see Operation Step 3 on this page).

WARNING Only use the pallet truck if all mechanisms function normally. If [a] malfunctions occurred, park the stacker in a safe location, tag it "Out-of-Service" and then report the malfunctions to maintenance personnel.

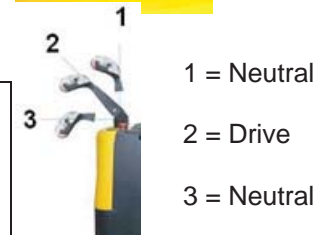
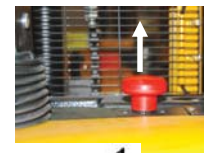
Operation:

Step 1: Turn on the power. [See "Power" callout box on p. 9].

Step 2: Pull the red E-Stop button up to disengage the service brake.

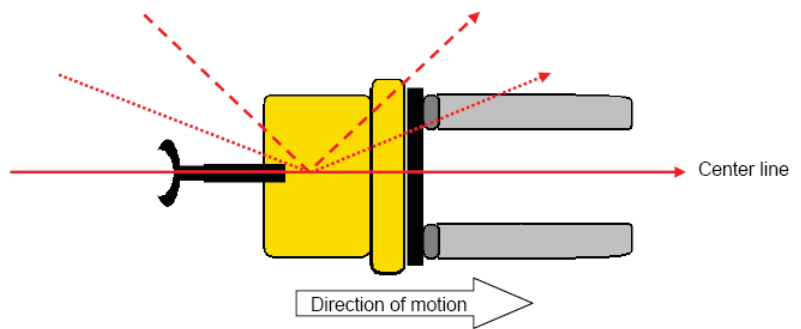
Step 3: Tilt the control yoke to the drive position (#2), which is shown in the photograph to the right.

NOTE: The EPT uses magnetic brakes, which engage when the handle is in or near either of the neutral positions (1 and 3). The yoke is designed to automatically return to neutral position #1 after the handle is released; therefore, the brakes will engage automatically as well.



Step 4: Rotate the movement control wheel in the appropriate direction to move either forward or in reverse. [See "Movement Controls" text box and the corresponding photo on p. 9]

Step 5: Drive the pallet truck to the desired location. To steer the unit, turn the yoke to the right or left of the center line. Moving the yoke to the right will cause the EPT to turn to the right, and moving the yoke to the left of the center line will cause the unit to turn left. The degree of deflection from the centerline determines how sharply the EPT turns. The illustration at right demonstrates how the position of the yoke determines the direction the machine follows.



Lifting and Transporting Loads:

⚠ WARNING

DO NOT operate the EPT until you read AND understand every instruction. If you do not understand an instruction, contact Vestil for clarification. To reduce the possibility of sustaining or causing serious personal injuries, ALWAYS:

1. Make sure that all other persons clear the area while you use the EPT.
2. Apply the fork truck operation and lifting practices learned during your operator training, and applied by your employer. Follow the instructions below ONLY to the extent that they do not disagree with the operating practices required by your employer.
 - Make sure that the net weight to be lifted (load + skid) does not exceed the rated load (capacity) of your truck;
 - Center and evenly distribute the load on the forks. The load must not project more than 2" beyond the tips of the forks.
3. Review the safety guidelines on p. 3 before each use:
 - Apply proper loading techniques (p. 8);
 - Ask a coworker to help you load and unload the lifter.
4. "Operator" means a person, who is trained and authorized to use a manually propelled high lift device. ONLY persons who have successfully completed a training program, like the courses outlined on p. 4-5 of B56.10-2006, should operate the HYRDA-Lift. Safe operation requires operators to:
 - Develop safe working habits and a process for identifying hazards that exist or might be encountered during operation;
 - Conduct thorough inspections of the usage area to identify unusual/hazardous conditions. Walk the path you will use to transport loads with the lifter beforehand. Do not use the HYDRA lift if the floor (or other supporting surface) is uneven or damaged or cannot support the combined weight of the operator, the lifter and the load.
 - Make sure that the lifter has been inspected as recommended in the "Inspections & Maintenance" section of this manual (p. 9). Use the lifter ONLY IF it is deemed safe to use by designated inspection personnel.

To engage a pallet/skid, drive the unit to a position in front of the intended load. Before engaging the load, confirm that the forks will fit within the fork pockets. Fully lower the forks to allow them to slide into the fork pockets of the skid. Confirm that the net weight of the load plus the skid do not exceed the capacity of the EPT.

Continue forward until either the skid rests against the back (vertical/upright portion), or the forks are as far underneath the skid as they can be. When the skid contacts the back of the forks, put the yoke in a neutral position to stop forward motion. Wait until the stacker stops completely, and then lift the skid off of the ground/supporting surface by pressing one of the two fork raising buttons. [See Fig. 1 on p. 9].

Proper Transport Configuration: To avoid unintended contact between the skid/pallet and surface features, transport the load to the desired location with the forks elevated.

To release the load, stop in the desired location; fully lower the forks; and then slowly drive the EPT forward until the forks are no longer beneath the skid/pallet.

Batteries and Charger:

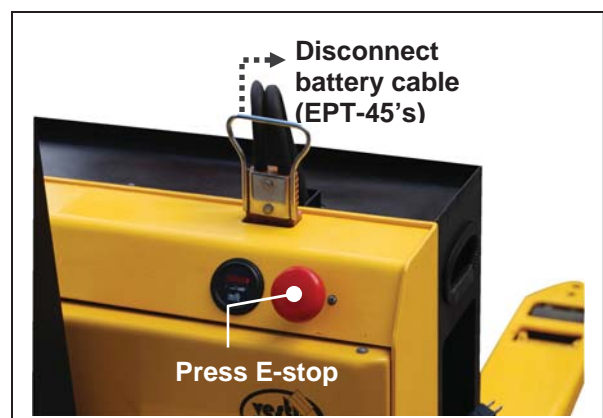
⚠ DANGER

The charger allows electrical current to flow from a wall socket through the batteries. While operating the charger, contact with water (rain, snow, etc.) could result in electric shock or electrocution. Do NOT recharge the batteries if the EPT is outdoors. Only recharge the batteries indoors.

Turn off your EPT:

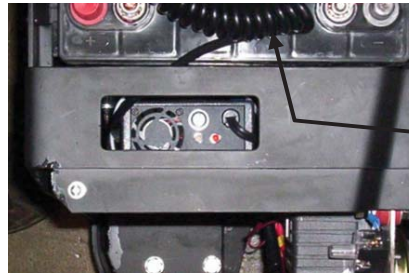
- EPT-45's: Push E-stop to turn off the EPT;
- EPT-30's: Press the E-stop button and turn the key switch to the off position;

Disconnect the battery cable (EPT-45's);



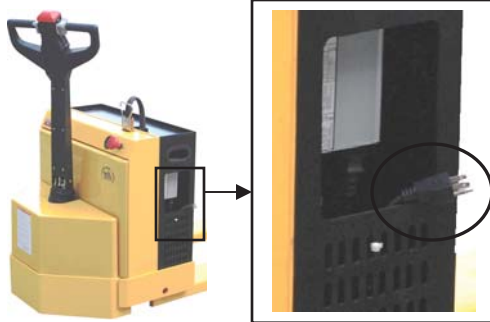
Plug the charger's AC cord into an 115VAC power source:

- EPT-30's: to access the cord, remove the top tray.



AC charger
cord

- EPT-45's: the AC cord is tucked inside the battery box on the right side (circled in the second photo below)



Plug this end into a standard 115 volt outlet and charge batteries for at least 8 hours. The charger will not overcharge the batteries, so leaving the unit plugged in overnight or over a weekend is ok. However, the **charger should only be used indoors!** When the charge cycle completes, disconnect the AC cord from the outlet, and reinstall the tray (EPT-30's).

Storing the EPT: Unload the lifter; then return it to the designated storage location.

NOTICE A proper storage location is one where the unused lifter will not:

1. Interfere with or obstruct traffic or other operations;
2. Be exposed to corrosive chemicals or water, either as a consequence of weather or of worksite conditions.

TROUBLESHOOTING:

⚠WARNING Before performing any corrective action described in the following table, block the drive wheel off of the ground.

Contact Vestil for problems at time of installation, or for any problems not addressed below.

<u>Problem:</u>	<u>Possible cause(s):</u>	<u>Action:</u>
Unit does not respond to movement controls (does not move either forward or in reverse).	Battery voltage low (battery charge lower than 17 Volts)	Charge batteries. Bad batteries; load test batteries and replace if necessary.
	Problem with motor controller (check for LED flash code on side of controller)	Consult diagnostics page Table 2 Troubleshooting Chart; or Refer to 15-124-029 electrical drawing for proper voltage readings and operation; or Consult Factory
Unit will not charge	Fuse blown	Remove back shroud and check fuses (3 fuses).
	Charger malfunction	Verify output voltage on charger, it should be 26 to 30 volts, dc, connected to batteries, and plugged into 115vac.
Unit will not go forward; reverse works; belly switch just kills unit (does not go forward and faults out)	Bad batteries	Load test the batteries
	Broken wire, or loose connection	Locate Pin 2 on Molex connector at motor controller. Trace wiring to contactor and verify connection.
	Contactor bad, motor controller bad	While attempting to go forward, tap on the contactor with a screwdriver handle. If the unit moves forward, then the contactor may need replaced, or plungers lubed with a light oil.
		Remove both wires from each side of the contactor, and check with ohm meter; resistance should be approximately 38 ohms. If it's open or zero, the contactor should be replaced.
Unit will not go reverse; belly switch works (i.e. when the handle is in operating range and rotating throttle in reverse and the belly switch is hit, the unit moves forward and times out)		Consult diagnostics page Table 2 Troubleshooting Chart; or Refer to 15-124-029 electrical drawing for proper voltage readings and operation; or Consult Factory.
	Broken wire, or loose connection, contactor bad, motor controller bad	Same as above; except locate Pin 3 on Molex connector on motor controller...and follow procedure.

Problem:

Unit will not go forward, or reverse.

Possible cause(s):

Broken wire, or loose connection, bad motor controller.

Action:

Locate Pin 6 on Molex connector at the motor controller. Try to drive the unit in forward, there should be 0 to 5 volts (5V is full throttle) at this pin. If there is voltage at pin 5, and 24 volts on either pin 11, or 12 and the unit does not move, the motor controller may be bad. Consult diagnostics page Table 2 Troubleshooting Chart; or Refer to 15-124-029 electrical drawing for proper voltage readings and operation; or Consult Factory.

Throttle assembly bad

If the connections are all good, and there is no voltage coming out of throttle assembly, then the throttle assembly may be bad. Verify there is 24 volts going into the throttle assembly, and that there is a good ground. If there is still no output voltage for pin 6, or forward and reverse outputs replace throttle assembly. Consult diagnostics page Table 2 Troubleshooting Chart; or Refer to 15-124-029 electrical drawing for proper voltage readings and operation; or Consult Factory

Unit will not move forward, or reverse, and the Belly switch will not function, unit does turn on as indicated by the battery gage lighting up.

Blown fuse

Verify fuses are good, replace if blown.

Broken wire, or loose connection

Locate Pin 7 on Molex connector at the motor controller. Trace wire back up to tiller head and verify continuity all the way to the throttle assembly. Repair any loose connections.

When replacing throttles, it may be necessary, and does not hurt to run a jumper wire from pin 7 to B-.

Check the ground wire that comes off of "B-" on the motor controller. Re-terminate with a ring terminal if loose.

Run jumper wire around large diode coming off of small AGC fuse. If this diode is bad it can cause the unit to not move.

Problem:

Unit will not go forward; the belly switch functions; reverse works.

Possible cause(s):

Broken wire, or loose connection, bad motor controller

Action:

Locate Pin 11 on Molex connector at the motor controller. Try to drive the unit in forward, there should be 24 volts at this pin. If there is voltage and the unit does not move, the motor controller may be bad. If there is no voltage, trace the wiring back towards the tiller head and check voltage on each side of connectors. Continue this until bad connection is found.

Bad throttle assembly

If the connections are all good, and there is no voltage coming out of throttle assembly, then the throttle assembly may be bad. Verify there is 24 volts going into the assembly, and that there is a good ground. If there is still no output voltage for pin 11, replace throttle assembly. Reference 15-124-029.

Belly switch does not function; forward ok; reverse ok

Broken wire, or loose connection, bad motor controller

Locate Pin 13 on Molex connector at the motor controller. Try to drive the unit in reverse, and hit the belly switch... there should be 24 volts at this pin. If there is voltage and the unit does not move, the motor controller may be bad. If there is no voltage, trace the wiring back towards the tiller head and check voltage, or continuity on each side of connectors. Continue this until bad connection is found.

Bad belly switch

If the connections are all good, and there is no voltage, then the switch may be bad. Verify there is 24 volts going into the switch; and check to see if it is coming back out of the switch when depressed. If there is no output voltage, replace the switch.

Unit will not move at all.

Stuck Switch

The belly switch is stuck on. Tap the orange belly switch assembly to see if the switch can be freed. If this doesn't work, disassemble the tiller head by removing 3 screws from bottom. Slightly loosen up the two screws that hold the switch in place, this may free the switch. If it is still stuck, contact the factory for a replacement switch.

<u>Problem:</u>	<u>Possible cause(s):</u>	<u>Action:</u>
Unit will not raise; motor does not run	Loose wire	Verify 24 volts at coil when raise is pushed, if no voltage, trace wiring back to tiller head looking for voltage on each side of the connectors until the bad connection is found.
	Bad solenoid	If voltage is present at the solenoid and the unit does not raise, remove the two wires to the coil and measure the coil resistance. It should be around 19 ohms. If it's open, or shorted replace the solenoid.
	Upper limit switch out of adjustment	Bypass upper limit switch and see if the unit raises...DO NOT TAKE IT ALL THE WAY UP... If it does raise, verify the limit switch is normally closed and will open when activated. If the limit switch is ok, try to adjust the switch accordingly so that the units raise height is approximately 7 to 8"
Unit will not raise; motor runs	Blown fuse	Check fuses.
	Lower solenoid stuck on	Check to see if the lowering switch is stuck on. If it is, remove the tiller head via 3 screws on bottom and replace switch, or tap on switch to see if it can be freed up. If the lower switch is not stuck "on," the pump could be bad, consult factory.
Unit will not lower	Loose wire; bad coil	Verify 24 volts at coil when lower is pushed, if no voltage, trace wiring back to tiller head looking for voltage on each side of the connectors until the bad connection is found.
		If voltage is present at the coil and the unit does not lower, remove the connector to the coil and measure the coil resistance. It should be around 39 ohms. If it's open, or shorted replace the coil.
Unit keeps blowing fuses when the raise button is pressed	Upper limit switch out of adjustment	Loosen hydraulic line at pump to relieve pressure build up. Re-adjust limit switch so unit stops at 7 to 8 inches above the ground.
	Shorted solenoid for motor raise	Remove the wire to the solenoid coil on the pump motor. Measure the resistance, it should be around 19 ohms. If it is nearly zero ohms replace the solenoid.

Problem:

Unit will not reverse; belly switch does not function; forward ok

Possible cause(s):

Broken wire, or loose connection, bad throttle assembly, bad motor controller.

Action:

Locate Pin 12 on Molex connector at the motor controller. Try to drive the unit in reverse, there should be 24 volts at this pin. If there is voltage and the unit does not move, the motor controller may be bad, consult factory. If there is no voltage, trace the wiring back towards the tiller head and check voltage on each side of connectors. Continue this until bad connection is found. If the connections are all good, and there is no voltage coming out of throttle assembly, then the throttle assembly may be bad. Verify there is 24 volts going into the assembly, and that there is a good ground. If there is still no output voltage for pin 12, replace throttle assembly. Reference 15-124-029.

Instructions for Changing the Cylinder

Estimated time: 45 minutes

Necessary tools:

- 14mm wrench, 16mm wrench, or 2 adjustable crescent wrenches
- Regular (flat) blade screwdriver
- "Dental" Pick

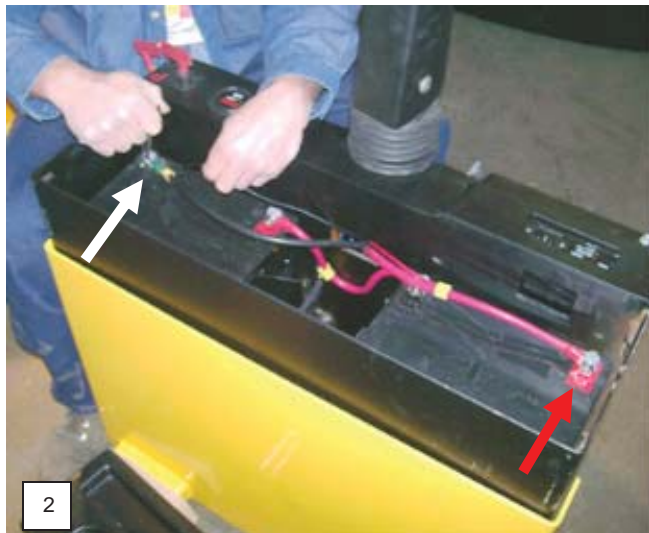
⚠WARNING Only trained, authorized personnel should perform maintenance on this equipment. Lead acid batteries present hazards to the person(s) working on, with, or in the vicinity of them. To minimize the risk of serious personal injury, read every one of the instructions and DO NOT proceed with maintenance unless you understand each of them.

- Lock out all potential energy sources (i.e. battery) before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly a face shield. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT smoke near the battery or expose the battery to sparks or flames.
- Charge batteries ONLY in clean, dry, and well-ventilated locations.
- DO NOT lay tools or anything metallic on top of a battery.
- Remove personal items like rings, bracelets, necklaces, and watches BEFORE beginning to work on the battery. The battery can produce energy sufficient to weld jewelry to metal; underlying skin could be severely burned.
- Keep fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes. Immediately rinse any skin that has been contacted by acid. If acid gets in your eyes, rinse them thoroughly with eye wash. After rinsing the affected area, notify your supervisor about the incident.
- DO NOT expose the unit or the charger to rain or other adverse conditions. ALWAYS return the unit to its designated storage location when you finish using it. The designated storage location should offer protection from the elements and should not interfere with or obstruct traffic.
- Replace defective cords or wires immediately.
- Routinely check the water level in the battery.
- Make sure the battery charger is unplugged from the 115V source BEFORE driving the unit.
- Operating the pallet truck when battery voltage is low can cause premature motor contact failure.

Turn off power to the pallet truck and remove the key.

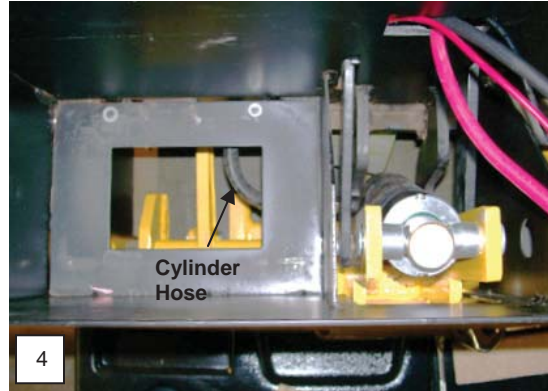
Purpose: To repair a leaking cylinder or to replace a damaged cylinder with a new cylinder.

Step 1: Remove the black plastic cover by lifting it as shown below; then disconnect the black battery cables from the negative post with 13mm wrench (negative terminal identified with a white arrow in Photo1 below). Next, disconnect the red cables from the positive terminal (red arrow). **NOTE: Make a record of the cable connections, so that you will be able to reconnect the batteries later.**

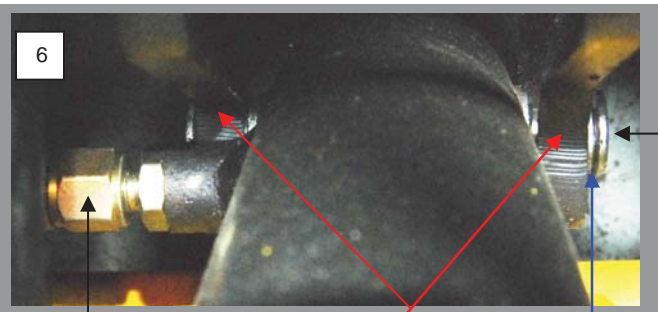
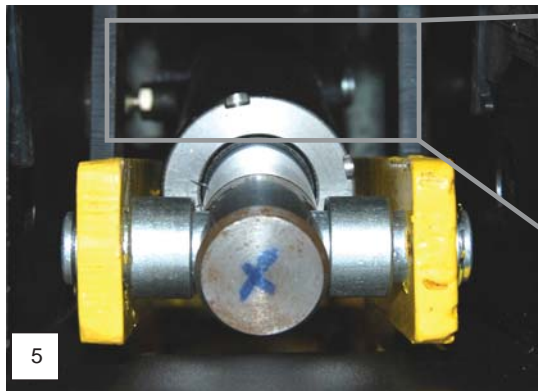


Step 2: Lift both sides of the battery, so that the battery remains level. To facilitate level lifting, attach tie wraps or other NONMETALLIC material (for example, two short lengths of nylon rope) to the terminals; then lift both sides simultaneously (see Photo 3). The cylinder hose will be visible through the opening in the base of the battery box after the batteries are removed. See Photo 4.

⚠ WARNING DO NOT create a path between the terminals by connecting the tie wraps (or sections of nylon rope).



Step 3: Disconnect the cylinder from the lower retaining bracket: 1) Disconnect the hose from the bottom of the cylinder with a 16mm wrench (see Photo 5); 2) To prevent leakage from the hose, pull the free end of the hose into the battery box (shown in Photo 7); 3) Remove the snap ring from the pin (see Photo 6); 4) Pull the pin out of the bracket and cylinder.

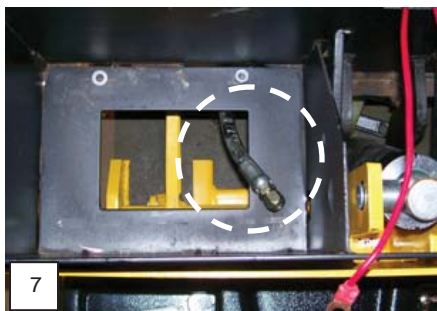


Disconnect hydraulic hose from cylinder with 16mm (or adjustable) wrench

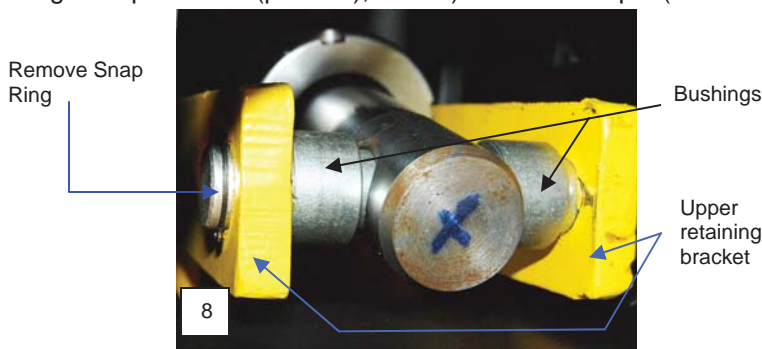
Lower retaining bracket

Snap ring (another snap ring is fastened to the other end of the pin)

Retaining pin



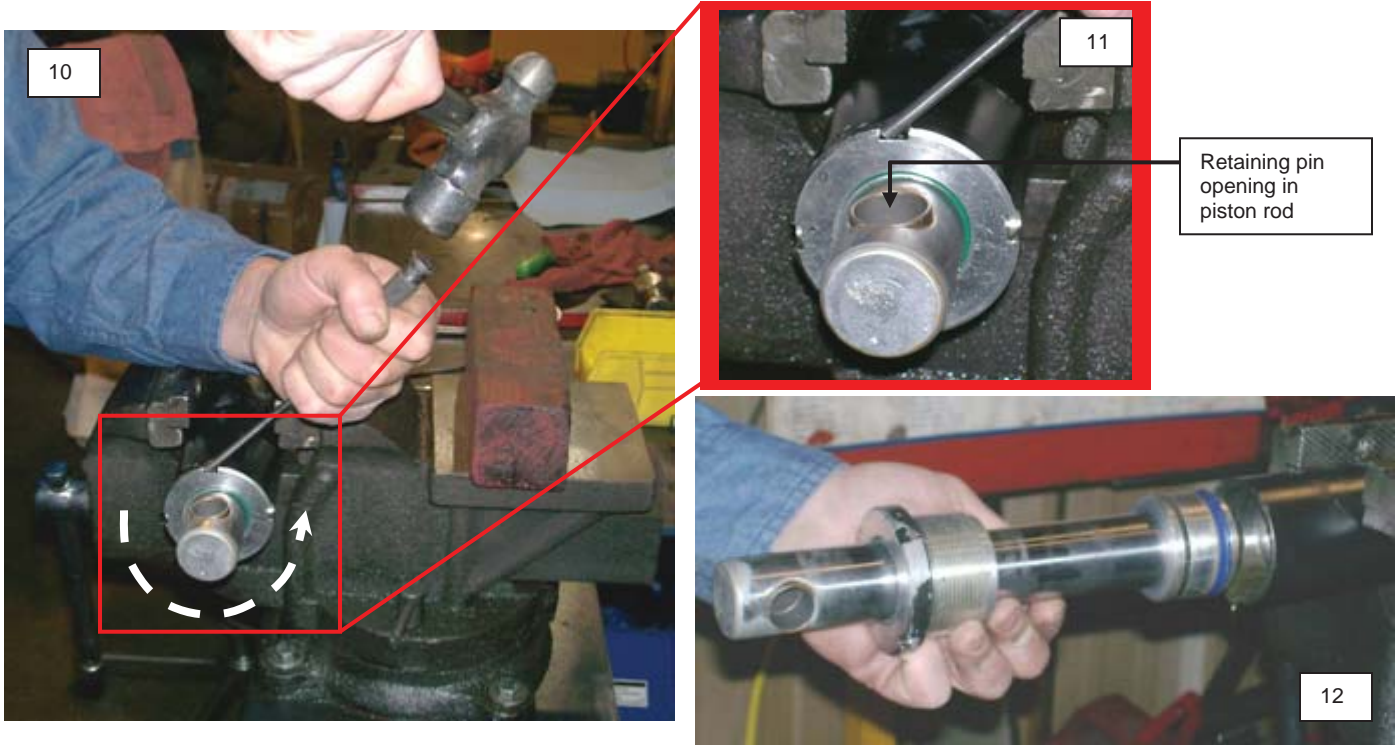
Step 4: Disconnect the cylinder from the upper retaining bracket: 1) Remove the snap ring from the pin that extends through the piston rod (photo 8); then 2) Remove the pin (see Photo 9) and collect the bushings.



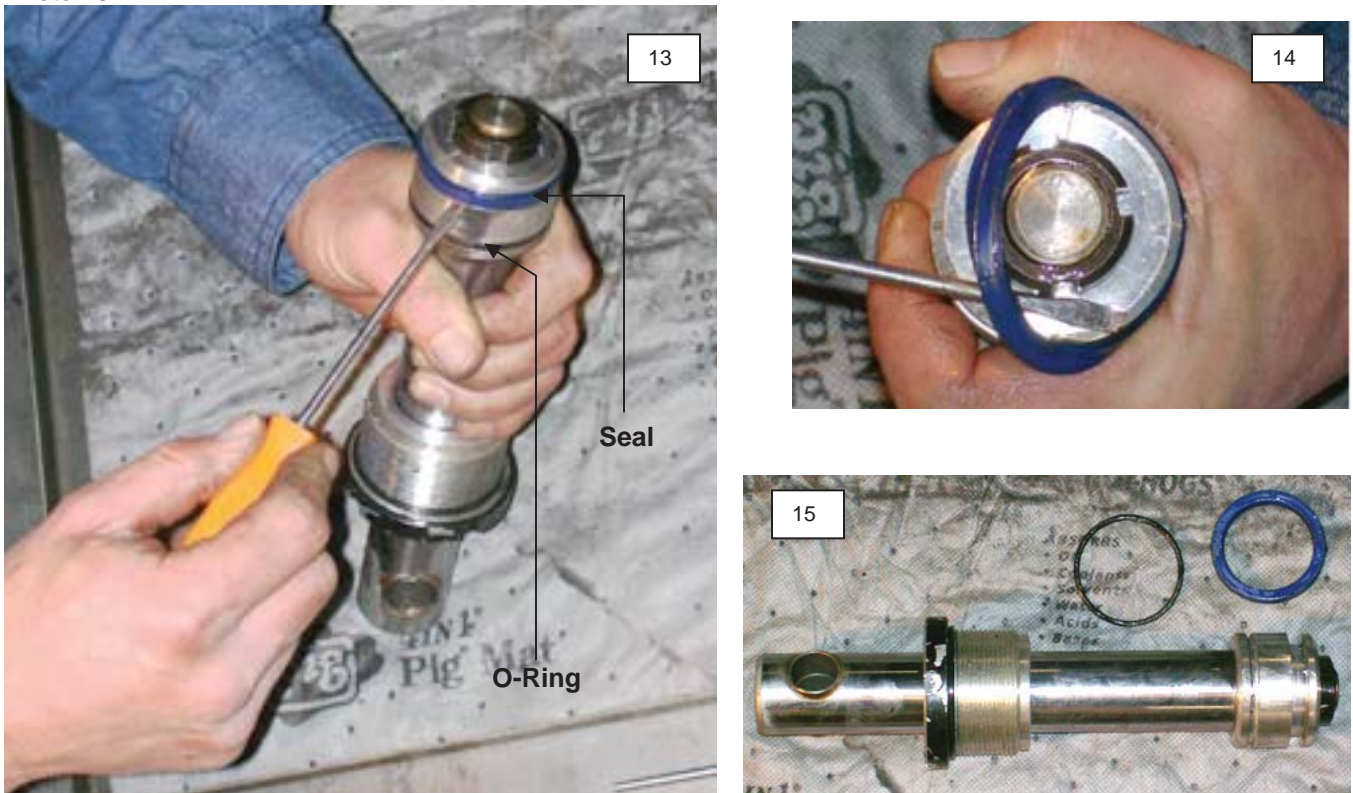
If the pin requires encouragement to move, use a flat punch and hammer.

Step 5: The cylinder is now completely disconnected from the EPT frame; remove the disconnected cylinder.
To install a new cylinder: perform steps 1 through 4 in reverse order with the replacement cylinder.
To repair the cylinder: follow the remaining steps.

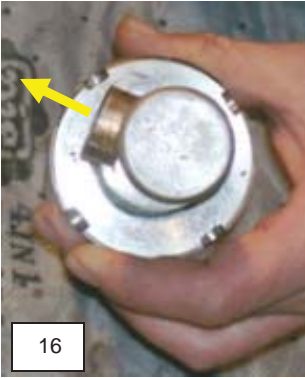
Step 6: Separate the piston rod from the barrel. To loosen the rod, immobilize the cylinder in a vise and use a flat punch and a hammer to tap the cylinder head in a counterclockwise direction (see Photos 10 & 11). Once the cylinder head loosens, you should be able to rotate it by hand to withdraw it from the barrel (see Photo 12).



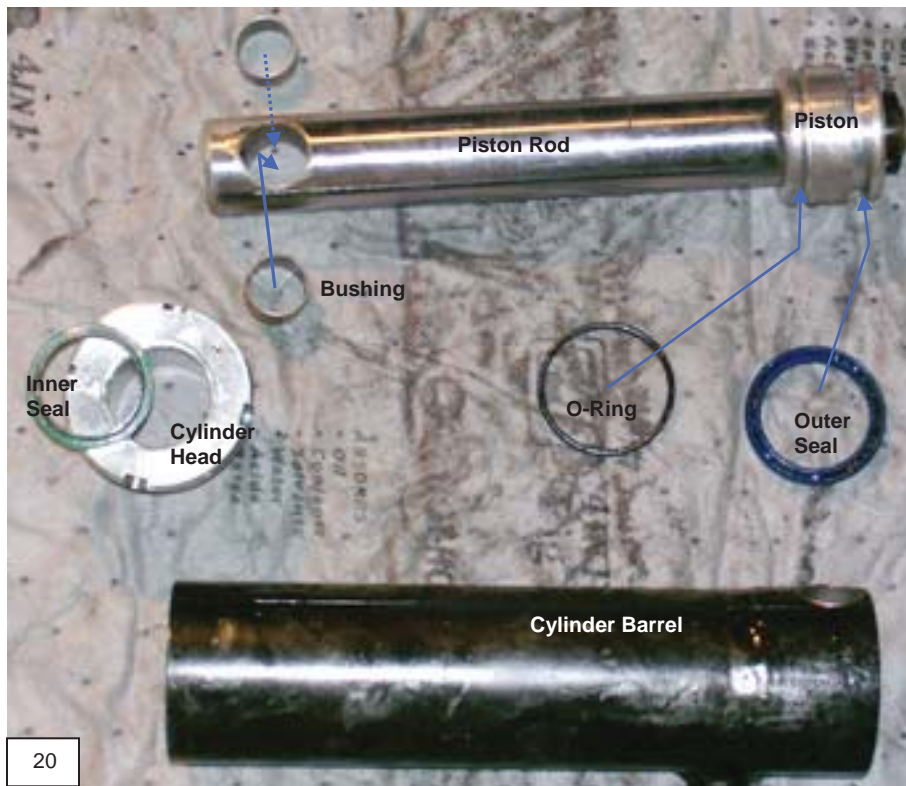
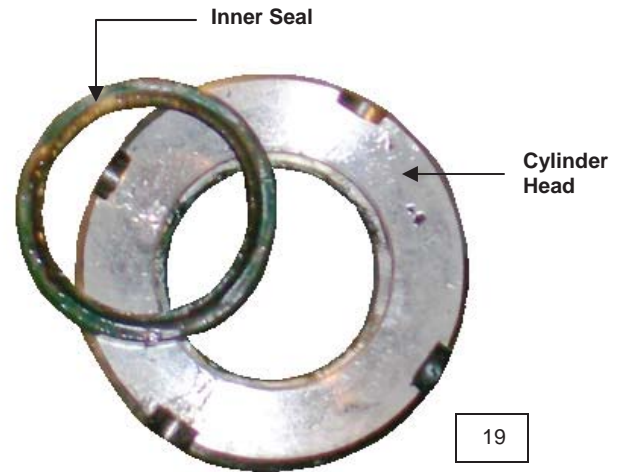
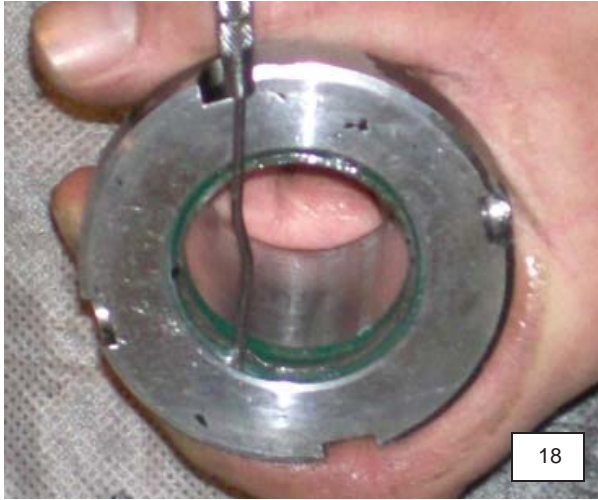
Step 7: With a small screwdriver, remove the Seal and the O-Ring from the piston, both of which are identified in Photo 13.



Step 8: Remove the bushings from the top of the cylinder rod, (see Photo 16; Note: In the photograph, one bushing has already been removed.) Slide the cylinder head off of the piston rod.



Step 9: Remove the internal seal (photo 18 & 19). Photo 20 shows a fully disassembled cylinder.



Step 10: Replace the seals; then perform steps 1 through 9 in reverse order to reassemble the cylinder and to refasten it to the pallet truck.

Instructions for Changing the Throttle Assembly

Estimated time: 30 minutes

Necessary tools:

- 5mm Allen wrench
- Philips-blade screwdriver
- Small Regular (flat) blade screwdriver

⚠WARNING Only trained, authorized personnel should perform maintenance on this equipment. Lead acid batteries present hazards to the person(s) working on, with, or in the vicinity of them. To minimize the risk of serious personal injury, read every one of the instructions and DO NOT proceed with maintenance unless you understand each of them.

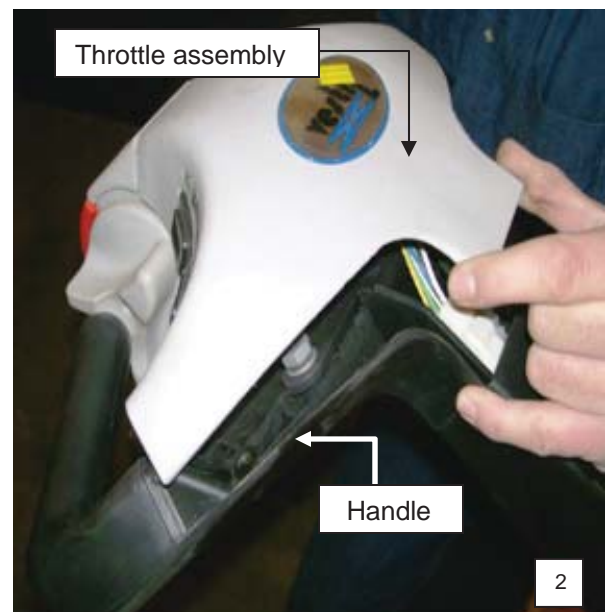
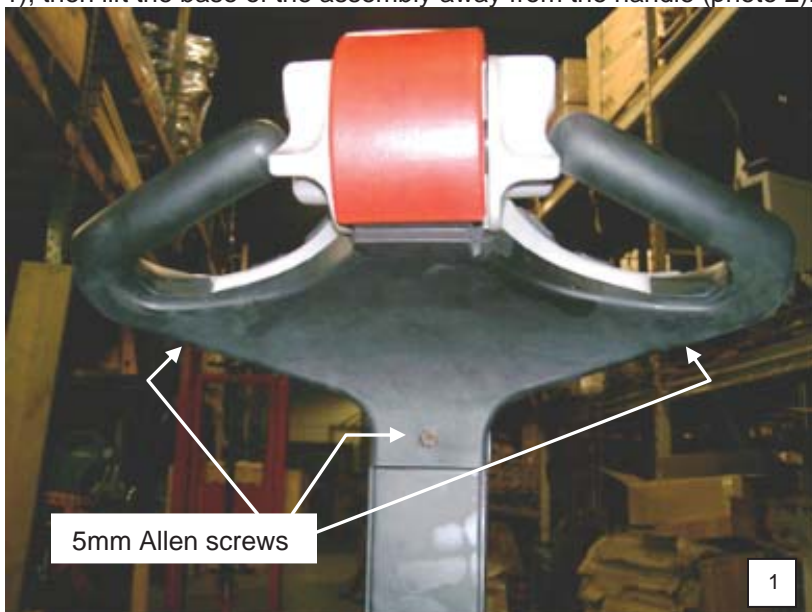
- Lock out all potential energy sources (i.e. battery) before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly a face shield. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT smoke near the battery or expose the battery to sparks or flames.
- Charge batteries ONLY in clean, dry, and well-ventilated locations.
- DO NOT lay tools or anything metallic on top of a battery.
- Remove personal items like rings, bracelets, necklaces, and watches BEFORE beginning to work on the battery. The battery can produce energy sufficient to weld jewelry to metal; underlying skin could be severely burned.
- Keep fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes. Immediately rinse any skin that has been contacted by acid. If acid gets in your eyes, rinse them thoroughly with eye wash. After rinsing the affected area, notify your supervisor about the incident.
- DO NOT expose the unit or the charger to rain or other adverse conditions. ALWAYS return the unit to its designated storage location when you finish using it. The designated storage location should offer protection from the elements and should not interfere with or obstruct traffic.
- Replace defective cords or wires immediately.
- Routinely check the water level in the battery.
- Make sure the battery charger is unplugged from the 115V source BEFORE driving the unit.
- Operating the pallet truck when battery voltage is low can cause premature motor contact failure.

Turn off power to the pallet truck and remove the key.

Purpose: To repair a non-functional or malfunctioning belly switch, i.e. the batteries are fully charged, but the belly switch does not function. The following procedure includes instructions for:

- A) Replacing the entire throttle assembly, which incorporates the belly switch and throttle controls; AND
- B) A method for restoring normal function to the belly switch mechanism.

Step 1: Open the throttle assembly by removing the three 5mm Allen head bolts from the underside of the handle (photo 1); then lift the base of the assembly away from the handle (photo 2).



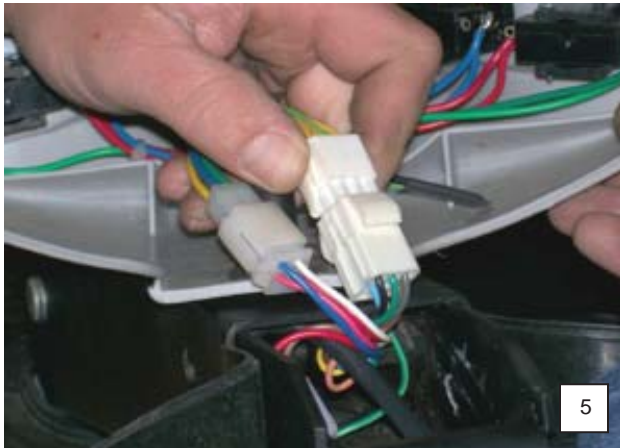
Step 2: Carefully pull the (red) belly switch cover away from the handle while continuing to lift the base of the housing. The housing should separate from the handle as shown in photo 4.

NOTICE Do not drop the assembly once it is disconnected from the handle, because the wires might be damaged or might rip out of the connectors

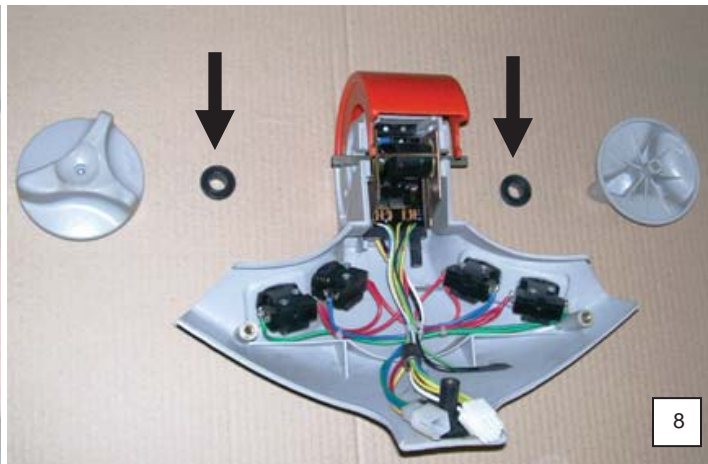


Step 3: Unplug the two connectors shown in photo 5. **[NOTE:** Wires may not attach to connectors. If this is the case, record the wire combinations before you separate them!]

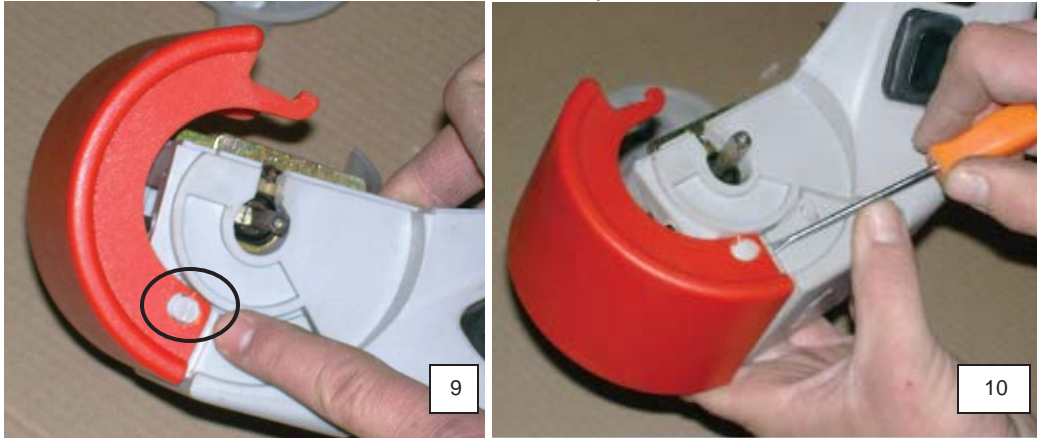
At this point, the entire assembly can be replaced with a new one by simply plugging the replacement assembly into the two connectors. If the problem appears to be in the belly switch, continue to disassemble the throttle. Remove the Philips screw located at the center of the throttle control wheel (photo 6).



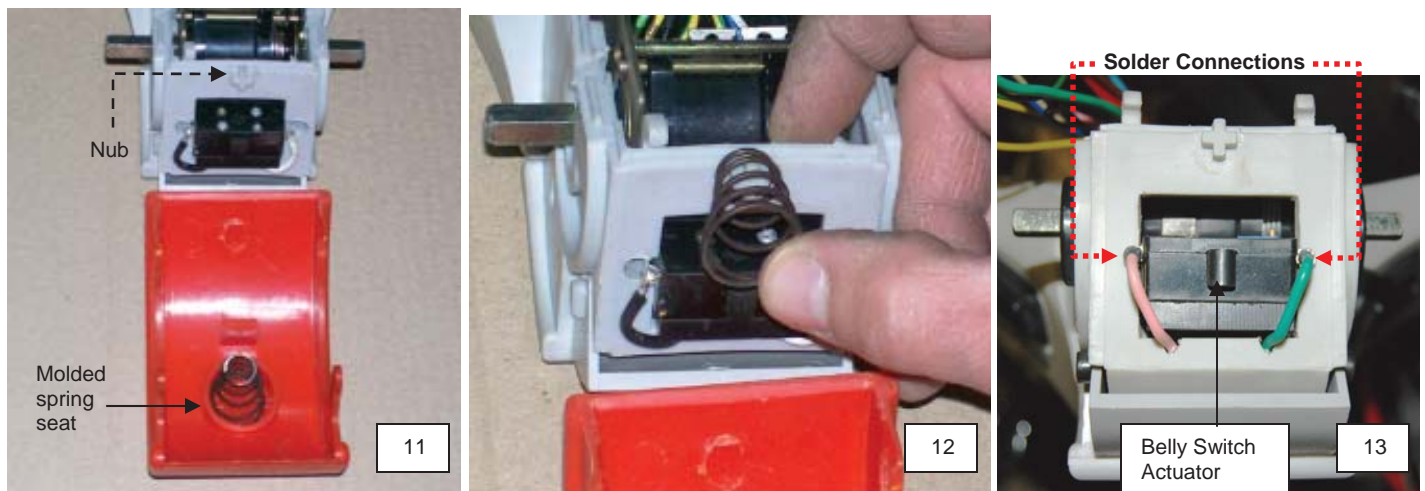
Step 4: Note the orientation of the control wheel on the shaft (correct orientation shown in Photo 7); then slide it off of the shaft. Remove the remaining wheel from the other side; note the orientation of the two plastic bushings (identified with arrows in photo 8). **If the wheels stick or grind when rotated, contact Vestil to request replacement bushings.**



Step 5: The (red) belly switch cover connects to the throttle assembly via a tab on each side, one of which is circled in Photo 9. To remove the switch cover, lift an edge with a flat blade screwdriver; then push the cover over the tab. Next, disengage the tab on the other side. You should now be able to separate the cover from the rest of the assembly.



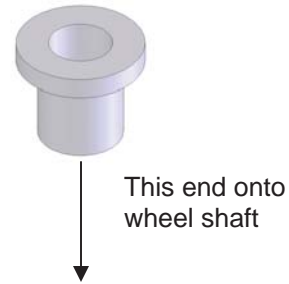
Step 6: A spring rests in a seat molded into the inner surface of the switch cover (see Photo 11). The top of the spring fits over a molded nub (see Photo 12). Confirm that both solder joints are intact and that the two wires (green and pink in Photo 13) are securely attached to the switch as shown below. Also verify that the belly switch actuator moves freely between the actuated position (pressed) and the inactive position (released). The switch activator should click as it moves between positions. If the switch is stuck, or if you notice any other broken or missing components, contact Vestil to discuss replacement options.



Step 7: To reconstruct the throttle assembly, first press the switch cover until it snaps into place over the tabs (see Photo 14). You may need to lift the edge of the cover over the tabs with a flat-blade screwdriver. Push the larger end of the spring into the pocket, and position the top of the spring around the nub (Photos 12 and 15).



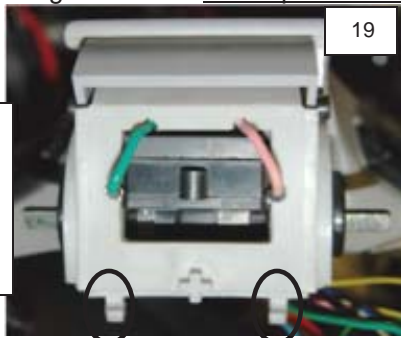
Step 8: Install the bushings onto the throttle wheel shaft. Notice that the bushing must be installed as shown the drawing to the right of Photo 16 below.



Step 9: Install the throttle wheels, and secure them to the wheel shaft with Philips head screws.



Step 10: To fasten the tiller assembly to the handle, first insert the assembly aligning tabs (circled in Photo 19; NOTE: Tabs underneath the switch cover; Photo 19) into the slots in the handle tongue shown in photos 20 and 21 and identified with arrows in the magnified view. An Exploded Parts Diagram appears on the next page.



NOTE: In order to show the aligning tabs, the switch cover does not appear in this picture.

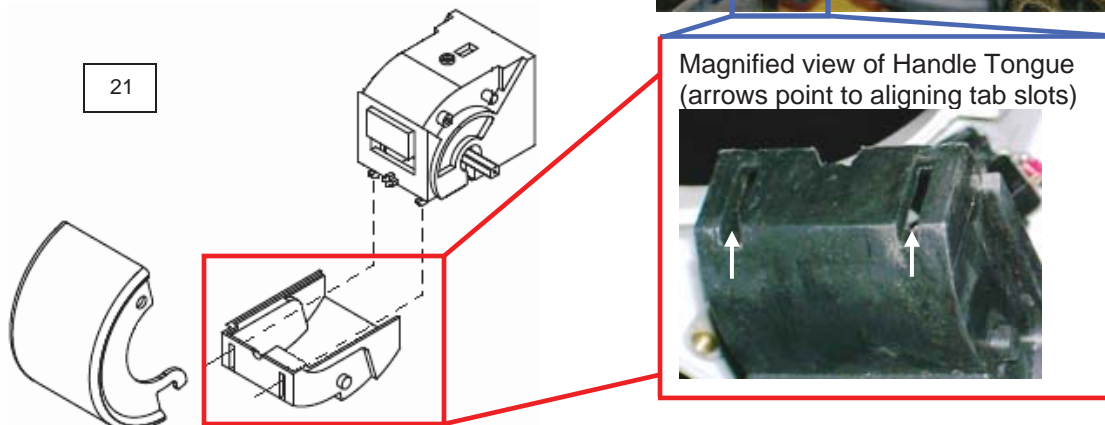


FIG. 2: EXPLODED PARTS VIEW OF BELLY SWITCH MECHANISM

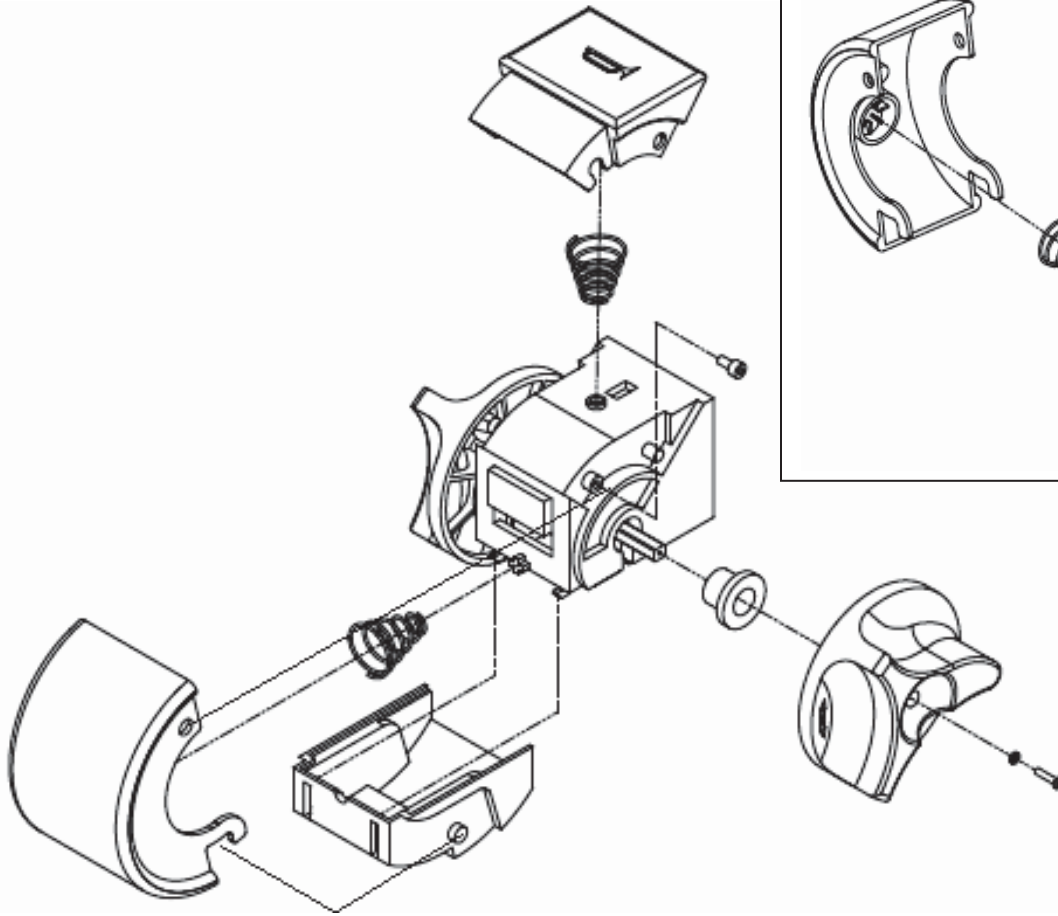
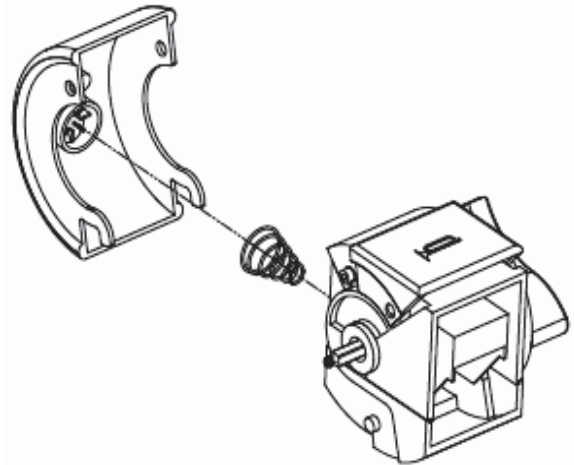
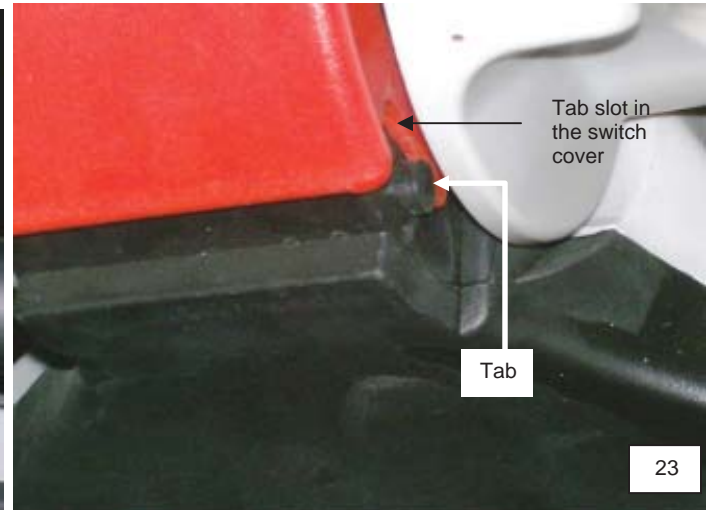
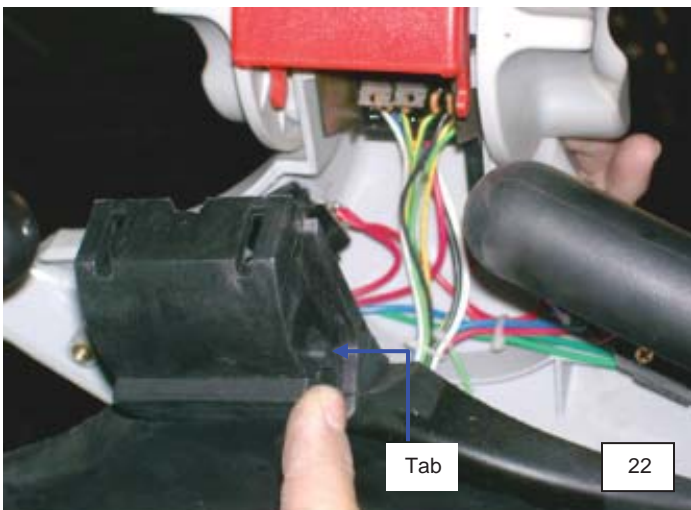


FIG. 3: ROTATED VIEW OF BELLY SWITCH MECHANISM



Step 11: Press and hold the switch cover; then slide the assembly down the handle tongue. The tab slot of the switch cover must wrap around the tabs on both sides of the handle.



Step 12: Make sure that the wires tuck securely inside the tiller handle; then press the assembly and handle together. Do not crush wires between the two parts as they come together. Fasten the assembly to the handle with the three 5mm Allen head bolts removed in Step 1.

Instructions for Changing the Motor Controller

Estimated time required: 30 minutes

Tools Required:

- 2x 14mm wrench, open face;
- Philips head screwdriver;
- 8mm wrench or adjustable crescent wrench.

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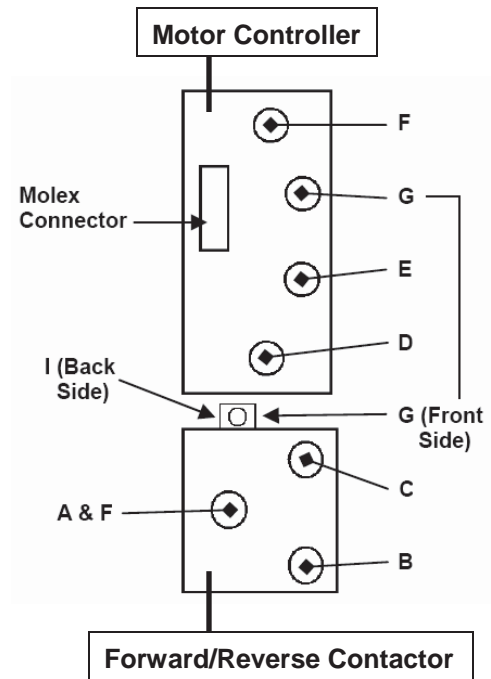
- Lock out all potential energy sources before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly a face shield. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT smoke near the battery or expose the battery to sparks or flames.
- Charge batteries ONLY in clean, dry, and well-ventilated locations.
- DO NOT lay tools or anything metallic on top of a battery.
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- Keep fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes. Immediately rinse any skin that has been contacted by acid. If acid gets in your eyes, rinse them thoroughly with eye wash. After rinsing the affected area, notify your supervisor about the incident.
- DO NOT expose the unit or the charger to rain or other adverse conditions. ALWAYS return the unit to its designated storage location when you finish using it. The designated storage location should offer protection from the elements and should not interfere with or obstruct traffic.
- Replace defective cords or wires immediately.
- Routinely check the water level in the battery.
- Make sure the battery charger is unplugged from the 115V source BEFORE driving the unit.
- Operating the pallet truck when battery voltage is low can cause premature motor contact failure.

Turn off power to the unit and remove the key.

Step 1: Remove the screws (2) shown below; then remove the yellow cover. The battery charger is located on the left side of the unit; the Campro motor controller is adjacent to the charger and is identified with an arrow in Photo 2 below.



Step 2: If necessary, mark each of the cables with a unique identifier to make it easier to reconnect them to the new motor controller. For instance, in the photograph below the red and green insulated ring terminals display a distinct number of hash marks to indicate order of attachment from top to bottom. In newer EPT's, a yellow tag marked with a specific letter identifies each cable. The diagram below and to the right indicates where cables A through I attach to the Motor Controller or the Forward/Reverse Contactor.



Step 3: Remove the two (1 front, 1 back) 14mm bolts that fasten the motor controller mounting plate (identified with a yellow asterisk) to the frame.



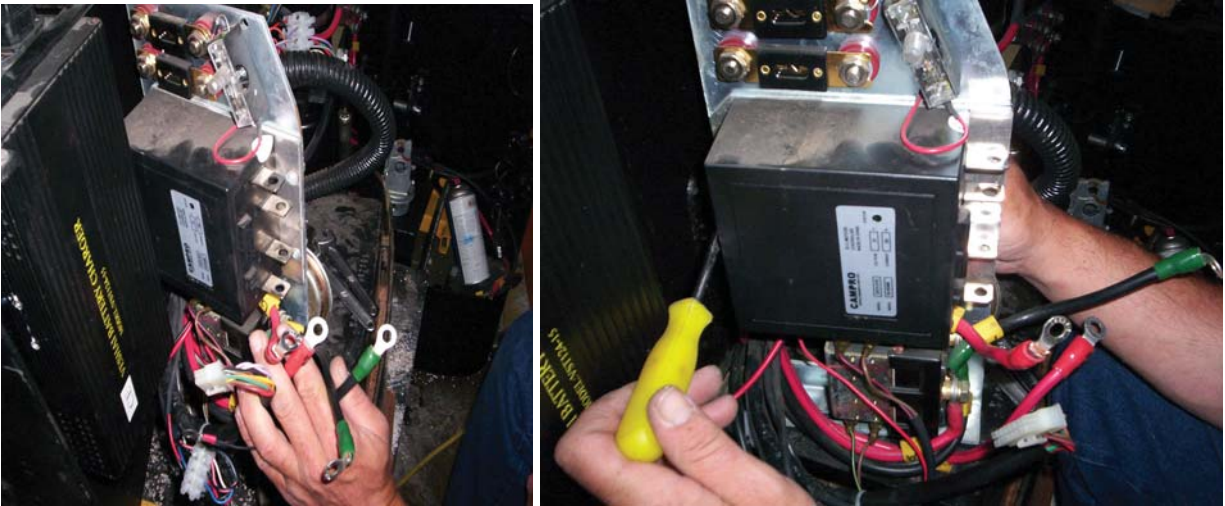
Step 4: Remove the Molex connector from the motor controller.



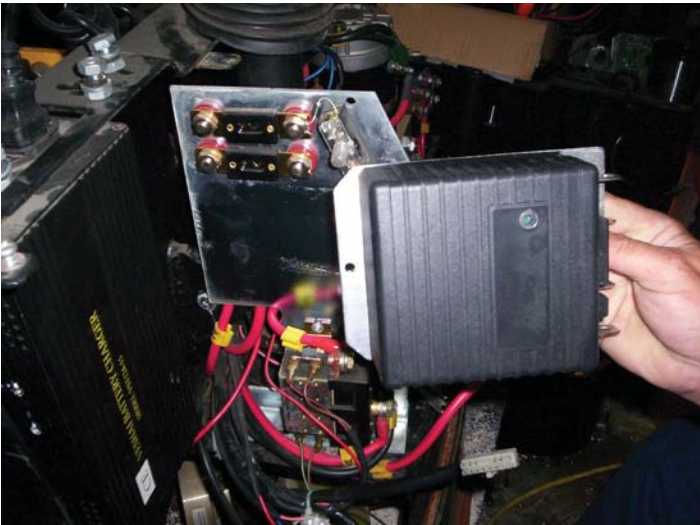
Step 5: Disconnect the motor controller wiring with two 14mm wrenches.



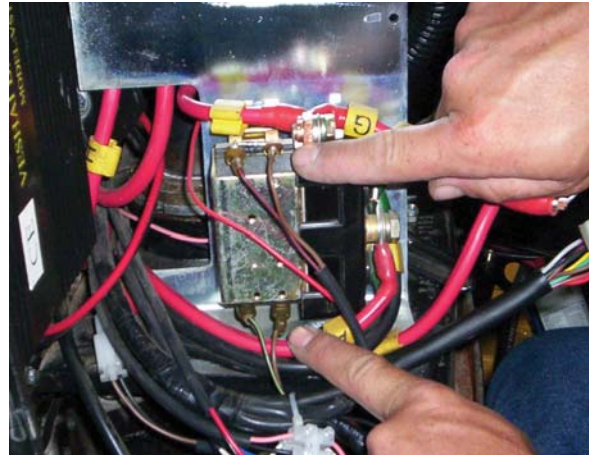
Step 6: After you have unfastened all 4 of the cable connections (first photograph below); then remove the three 8mm screws (1 screw in back and 2 in the front) holding the motor controller to the back plate with a Philips screwdriver, and 8mm wrench.



Step 7: Remove the motor controller.



Step 8: Verify that each of the 4 spade terminal connections on the forward / reverse motor contactor is sound.



Step 9: Install a new controller by reversing steps 1 through 8.

Instructions for Replacing the Forward/Reverse Contactor

Estimated time: 45 minutes

Necessary tools:

1. Two 9/16 inch or 14mm sockets/wrenches;
2. Phillips head screwdriver
3. 10mm crescent wrench
4. 5/16 inch crescent wrench/socket

WARNING

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- Lock out all potential energy sources (i.e. battery) before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly a face shield. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT smoke near the battery or expose the battery to sparks or flames.
- Charge batteries ONLY in clean, dry, and well-ventilated locations.
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- Keep fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes. Immediately rinse any skin that has been contacted by acid. If acid gets in your eyes, rinse them thoroughly with eye wash. After rinsing the affected area, notify your supervisor about the incident.
- DO NOT expose the unit or the charger to rain or other adverse conditions. ALWAYS return the unit to its designated storage location when you finish using it. The designated storage location should offer protection from the elements and should not interfere with or obstruct traffic.
- Replace defective cords or wires immediately.
- Routinely check the water level in the battery.
- Make sure the battery charger is unplugged from the 115V source BEFORE driving the unit.
- Operating the pallet truck when battery voltage is low can cause premature motor contact failure.

Turn off power to the pallet truck and remove the key.

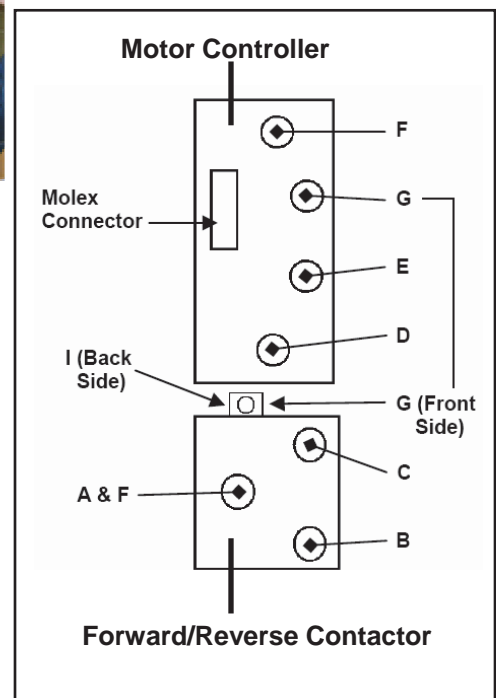
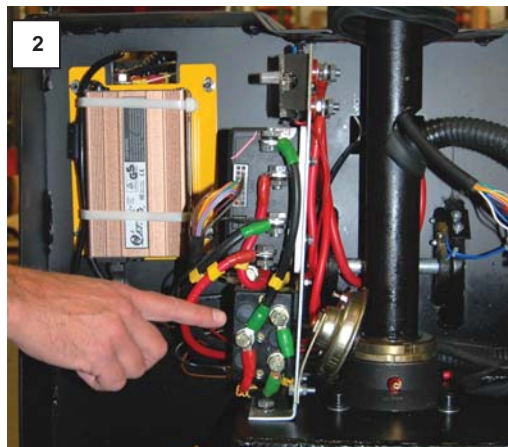
Purpose: To repair or replace a malfunctioning Forward/Reverse Contactor.

NOTE: Malfunction may not warrant replacing the Forward/Reverse Contactor, because the problem may be the result of binding of some of the moving parts. To apply lubricant, complete steps 1, 2, 3, 6 and 7.

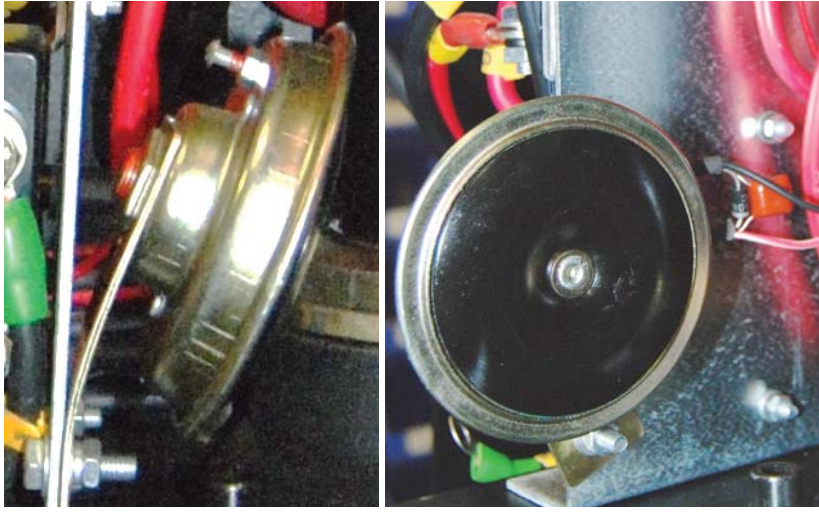
Step 1: Remove the Main Body Housing by unfastening the two (2) screws on either side of the housing as shown in photo 1; then remove the yellow cover. With the cover removed, the electrical components are visible, as shown in the second photograph to the right.



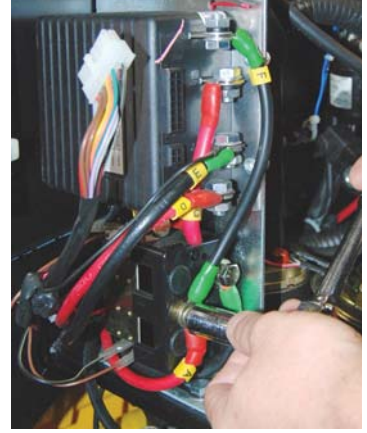
Step 2: Locate the Forward/Reverse Contactor (FRC) – pointed to in photograph 3. The diagram identifies each of the cables that attach to the Campro motor controller and to the FRC.



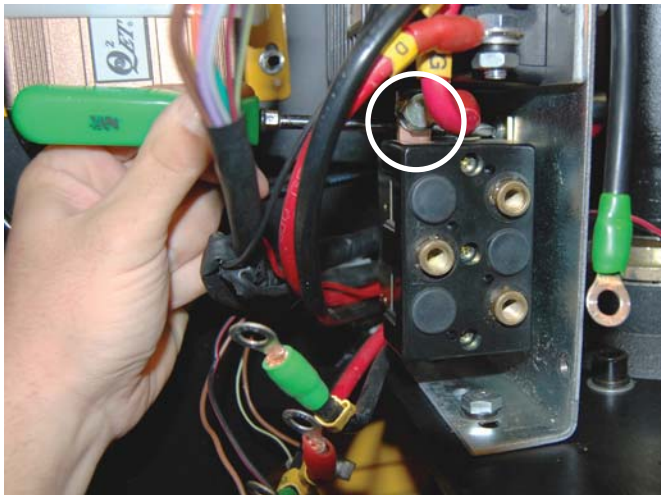
Step 3: Use 10mm wrenches (or adjustable wrenches) to disconnect the horn from the mounting plate.



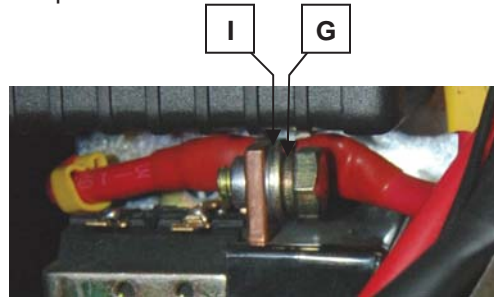
Step 4: Disconnect cables B, A, F, and C from the FRC, using either a 9/16 inch crescent wrench (or socket) or a 14mm wrench. [Photograph below shows disconnection of A & F cables.]



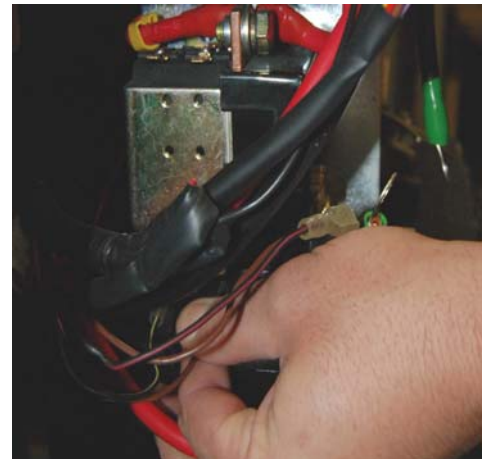
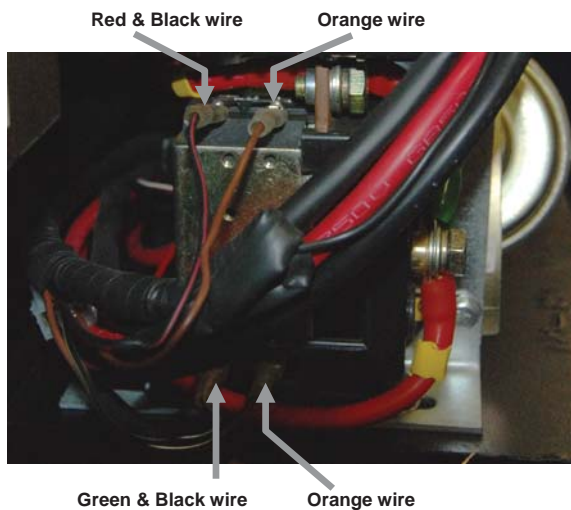
Step 4: Disconnect cables I and G from the terminal on the top side of the FRC.



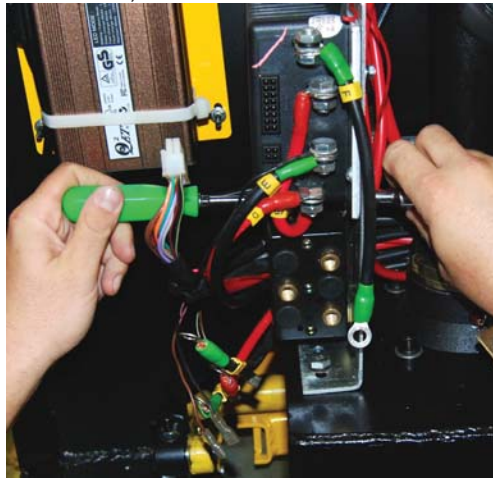
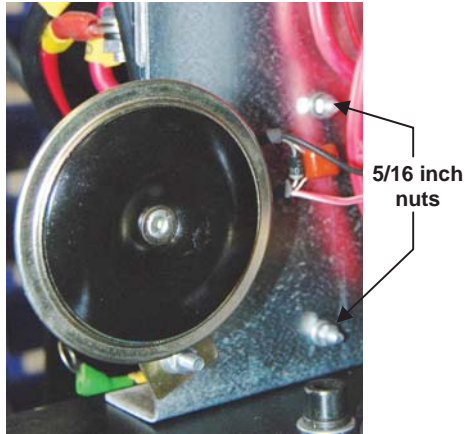
Close-up side view of the terminal on top of the FRC.



Step 5: Disconnect the spade terminals (locations shown in photograph below).

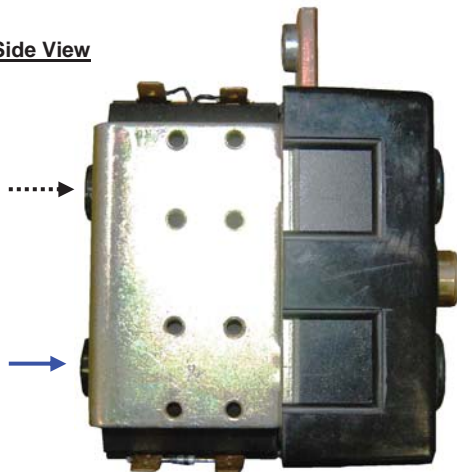


Step 6: Disconnect the FRC from the mounting plate. The FRC mounts on the plate with 2 Phillip's head bolts and 5/16 inch nuts. After the bolts are unfastened, remove the FRC.

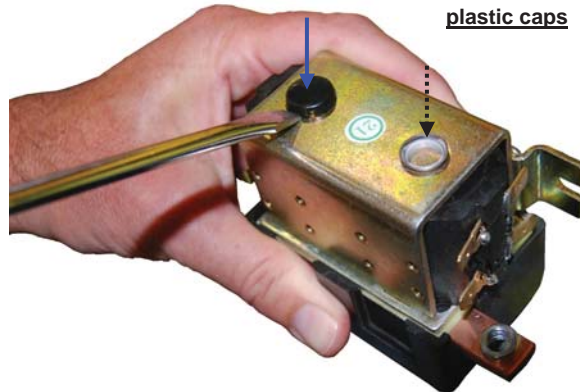


Step 7: The FRC may not need to be replaced if the malfunction results from mechanical binding of some of the moving parts. To apply lubricant, remove the plastic caps shown below (identified with arrows) with a flat-blade screwdriver.

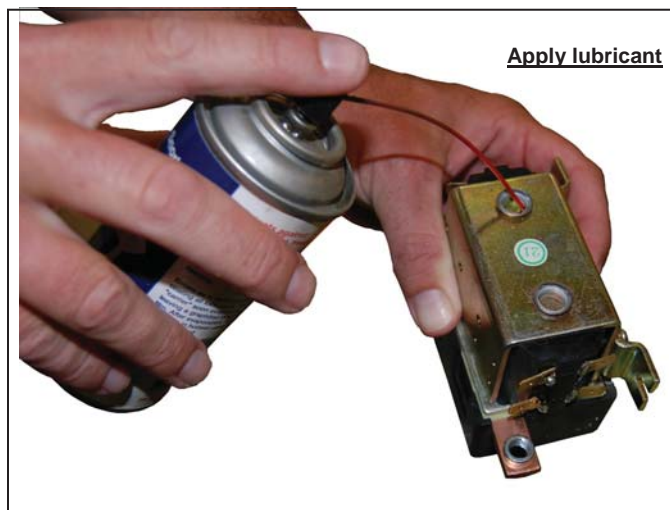
Side View



Remove plastic caps



Apply lubricant



Step 8: Install the replacement FRC by performing Steps 1 through 7 in reverse order. Similarly, if you simply lubricated the original FRC, perform steps 1, 2, 3, 6 and 7 in reverse order.

Instructions for Changing the Battery Charger

Estimated time: 30 minutes

Tools Required:

10mm deep socket, or small wrench

14mm wrench, or crescent wrench

Regular (flat) blade screw driver

⚠WARNING Only trained, authorized personnel should perform maintenance on this equipment. Lead acid batteries present hazards to the person(s) working on, with, or in the vicinity of them. To minimize the risk of serious personal injury, read every one of the instructions and DO NOT proceed with maintenance unless you understand each of them.

- Lock out all potential energy sources before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly a face shield. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT smoke near the battery or expose the battery to sparks or flames.
- Charge batteries ONLY in clean, dry, and well-ventilated locations.
- DO NOT lay tools or anything metallic on top of a battery.
- Remove personal items like rings, bracelets, necklaces, and watches BEFORE beginning to work on the battery. The battery can produce energy sufficient to weld jewelry to metal; any underlying skin could be severely burned.
- Keep fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes. Immediately rinse any skin that has been contacted by acid. If acid gets in your eyes, rinse them thoroughly with eye wash. After rinsing the affected area, notify your supervisor about the incident.
- DO NOT expose the unit or the charger to rain or other adverse conditions. ALWAYS return the unit to its designated storage location when you finish using it. The designated storage location should offer protection from the elements and should not interfere with or obstruct traffic.
- Replace defective cords or wires immediately.
- Routinely check the water level in the battery.
- Make sure the battery charger is unplugged from the 115V source BEFORE driving the unit.
- Operating the pallet truck when battery voltage is low can cause premature motor contact failure.

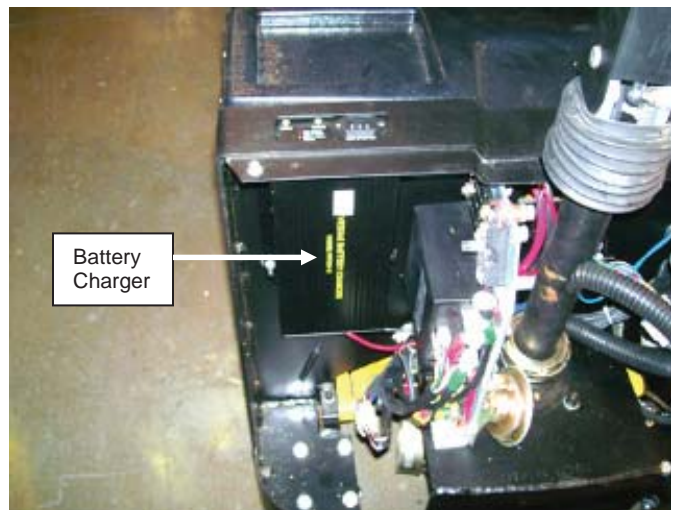
Battery Charger Operating Instructions for New Charger after Installation

Plug the charger into a standard 115V receptacle. If an extension cord must be used, keep it as short and as large as possible. A small cord will decrease the output of the charger due to the voltage drop in the line. This will increase the charging time. It can also cause the 115V cord to overheat.

Remember to unplug the charger before moving the equipment. Failure to do so could cause damage to cords, receptacles and other equipment.

The following procedure will explain how to replace the existing charger with a Soneil charger.

Step 1: Remove the screws (2) shown below; then remove the yellow cover. The battery charger is located on the left side of the unit.



Step 2: Remove the black plastic cover by lifting it as shown below; then remove battery wiring from the negative post with 13mm wrench (negative terminal identified with a white arrow). There will be one large black wire, and one smaller black wire. The smaller black wire connects to the battery charger.



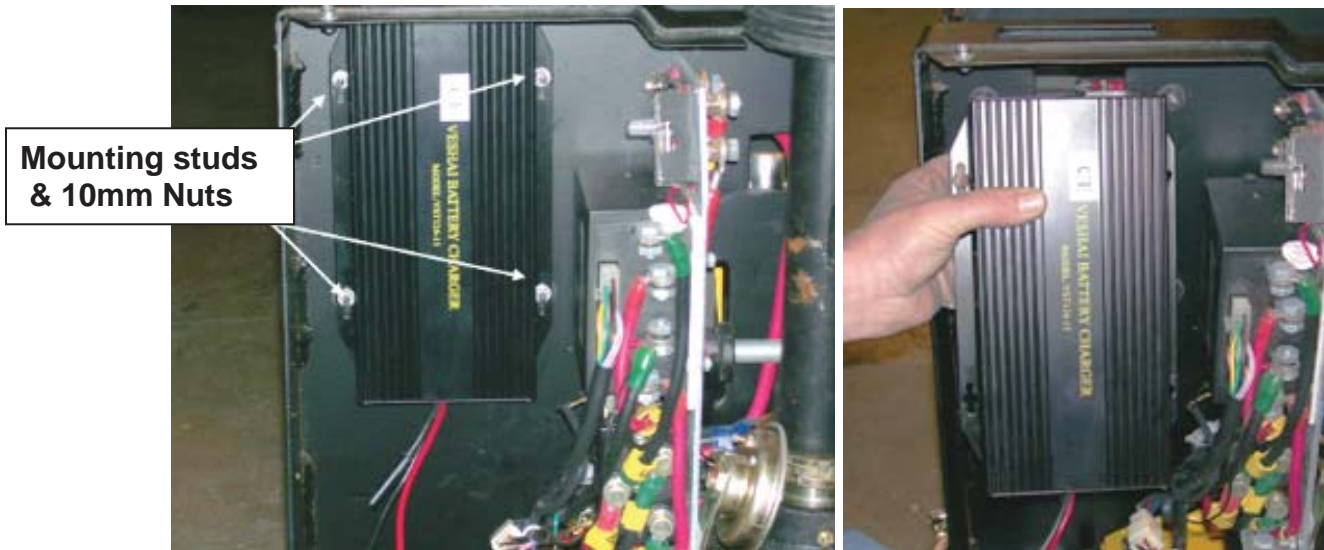
Step 3: Follow the wires that connect the charger to the batteries from the bottom of the charger (circled in the photograph below) to the ends of each wire, which connect to the positive and negative battery terminals. Once you understand how the wires get from the charger to the battery compartment, carefully pull the two battery charger wires out of the battery compartment.



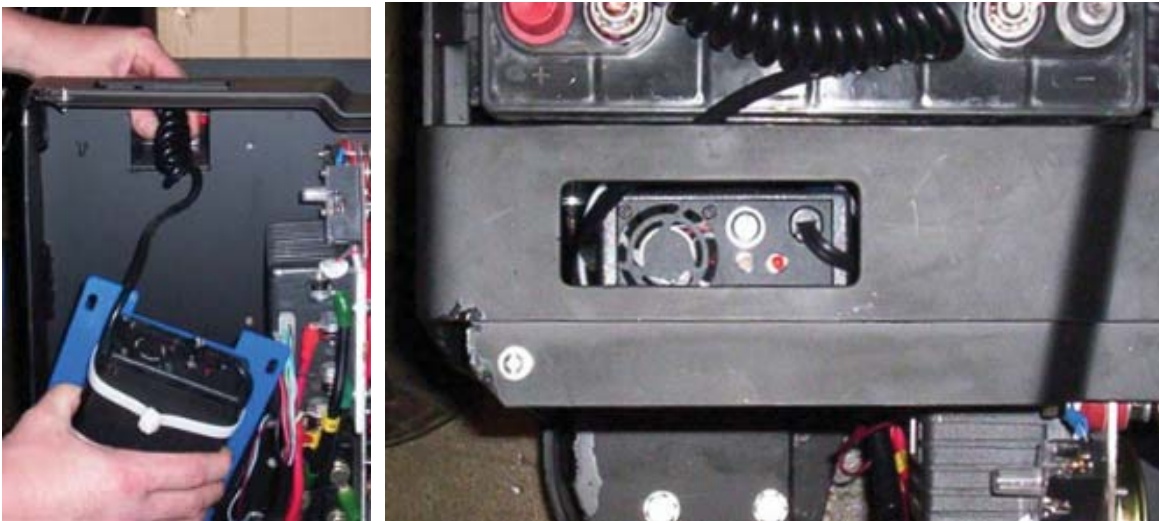
Step 4: Disconnect the red cable from the positive terminal.



Step 5: Four mounting studs project through the base of the charger to secure it in place. Remove the nuts with a deep well 10mm socket, or small 10 mm wrench; then pull the charger off of the retaining bolts.

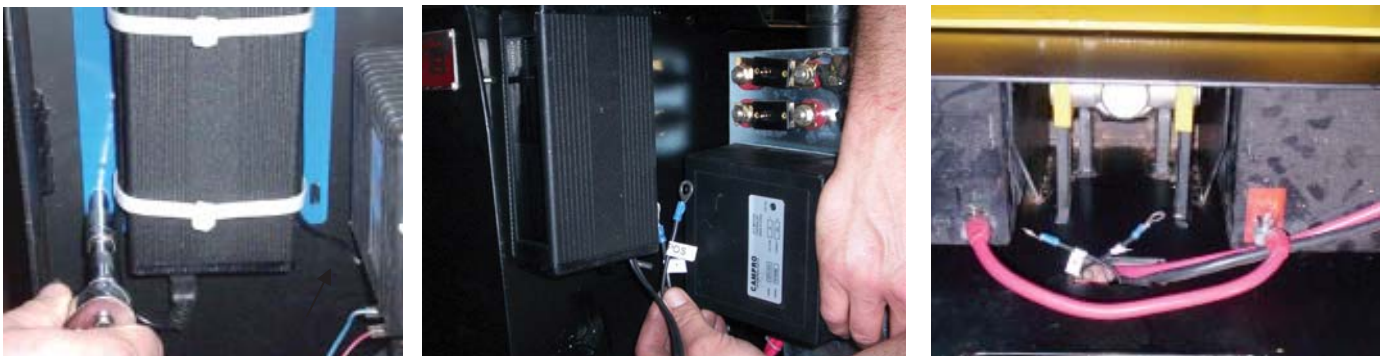


Step 6: Once the old battery charger is removed, the replacement charger can be installed. The new charger is attached to a mounting bracket (blue in the photograph below) so that it can install onto the 4 mounting studs. Install the new charger with the pigtail electrical cord facing downwards and the LED's facing upwards.

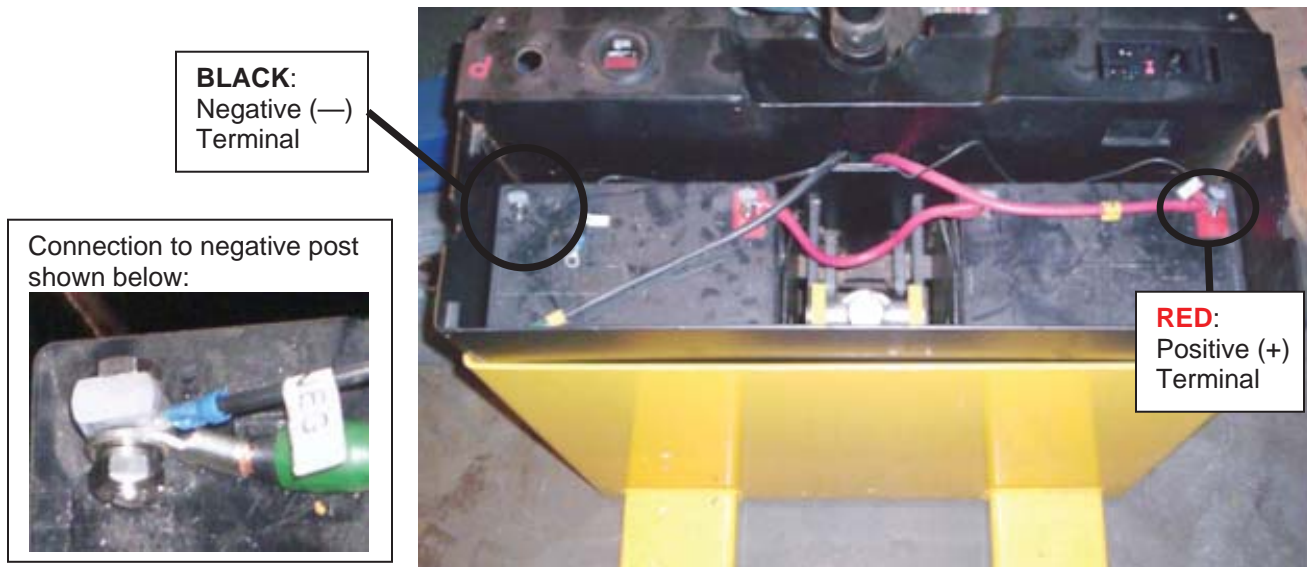


Step 7: Secure the new charger in position by winding the nuts back onto the mounting studs. Feed the wires labeled "POS" and "NEG" into the battery compartment following the same path noted in Step 4.

NOTICE The mounting studs may be damaged if the nuts are over-tightened. Stop tightening each nut when you first begin to feel resistance.



Step 8: Connect the “POS” wire to the red, positive (+) post; then connect the “NEG” wire to the negative terminal. Reconnect the positive cable to the positive post and fasten it with the corresponding nut. On the other side, reconnect the negative cable to the negative post, and then fasten the connection with the post nut.



Step 9: Plug this end into a standard 115 volt outlet and charge batteries for at least 8 hours. The charger will not overcharge the batteries, so leaving the unit plugged in overnight or over a weekend is ok. However, the **charger should only be used indoors!** [See p. 25, “Batteries and Charger”].



Troubleshooting:

If the unit does not operate:

1. Charge the unit overnight.
2. Check all of the wiring connections to make sure they're both mechanically and electrically sound. Give particular attention to the connections with the battery terminals and to the motor.

A fully-charged lead acid battery in nominal condition at room temperature should store 12.65 Volts. When battery voltage drops to 11.9 Volts, the battery is considered fully discharged. If you need to check the voltage, turn off the charger and then wait at least 1/2 hour before checking the battery's voltage.

If the charger fails to charge the batteries, check the output fuse on the bottom of the charger. Verify the fuse is good with an ohmmeter, or by visual inspection. The output fuse is 10Amp, 250 Volt; GDA 10A. If the fuse is good, plug the charger in and check the lights next to the fuse:

- Red: Power On
- Yellow: Charging
- Green: Full Charge
- Green Flashing: Batteries are not connected to charger

Verify that the on/off toggle switch is in the ON (—) position.

With the charger connected to the battery, read the output voltage of the battery charger. Depending on the battery voltage, the reading should be within the range of 26V to 29V DC.

Instructions for Adding Quencharcs

Estimated time: 15 minutes

Tools Required:

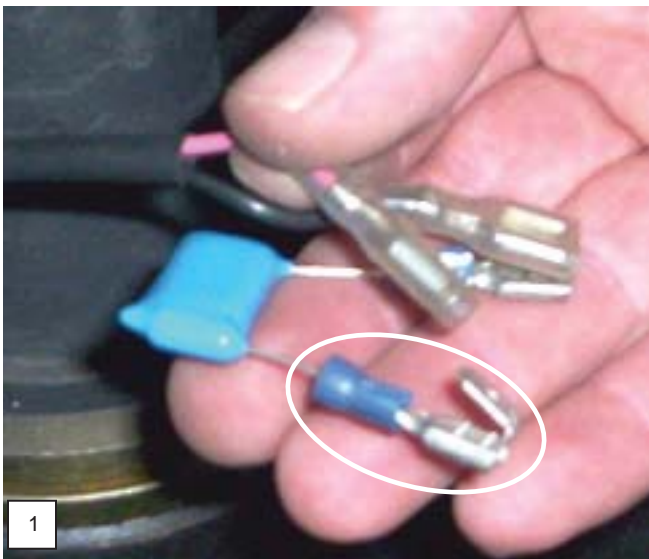
Regular flat bladed screw driver

PURPOSE: If the pallet truck operates normally, but stops running when the horn is activated, then devices that suppress electrical noise called “Quencharcs” should be added. Each electrical coil (for example the horn, raise/lower buttons) generates noise, which interferes with normal motor operation.

⚠WARNING Only qualified personnel should work on this equipment. READ ALL INSTRUCTIONS BEFORE PROCEEDING! To minimize the risk of serious personal injury, read every one of the instructions and DO NOT proceed with maintenance unless you understand each of them.

- Lock out all potential energy sources before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly a face shield. Batteries contain sulfuric acid and produce explosive gases. A battery explosion could result in loss of eyesight or serious burns.
- DO NOT smoke near the battery or expose the battery to sparks or flames.
- Charge batteries ONLY in clean, dry, and well-ventilated locations.
- DO NOT lay tools or anything metallic on top of a battery.
- Remove personal items like rings, bracelets, necklaces, and watches BEFORE beginning to work on the battery. The battery can produce energy sufficient to weld jewelry to metal; any underlying skin could be severely burned.
- Keep fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes. Immediately rinse any skin that has been contacted by acid. If acid gets in your eyes, rinse them thoroughly with eye wash. After rinsing the affected area, notify your supervisor about the incident.
- DO NOT expose the unit or the charger to rain or other adverse conditions. ALWAYS return the unit to its designated storage location when you finish using it. The designated storage location should offer protection from the elements and should not interfere with or obstruct traffic.
- Replace defective cords or wires immediately.
- Routinely check the water level in the battery.
- Make sure the battery charger is unplugged from the 115V source BEFORE driving the unit.
- Operating the pallet truck when battery voltage is low can cause premature motor contact failure.

Step 1: The quencharcs Vestil supplies (Photo 1) have baby back terminals (circled). Remove the screws (2) shown below; then remove the yellow cover.



Step 2: Disconnect the wires from the horn and the pump solenoid; then plug the horn and pump solenoid wires into the quencharcs' piggy back terminals. plug the piggy back terminals into the horn and pump solenoid as shown in the following pictures. Quencharc shown on horn (photo 4)



Quencharc installed on pump solenoid.



Step 3: Reinstall the yellow cover and reinstall the screws.

Maintenance and Inspections:

According to ANSI B56.1, the pallet truck is a “motorized hand truck, pallet truck” (MHT). For this type of lift truck, only trained, authorized persons should perform inspections or maintenance.

Inspections: ALWAYS review the following warning messages and procedures BEFORE inspecting the MHT.

⚠️WARNING DO NOT use the pallet truck if an inspection reveals structural damage. Structural damage includes, but is not limited to, cracked welds, warping or other deformation of the cylinder brackets, forks, front rollers and wheel(s), handle, or the housing that protects the electrical components.

If an inspection exposes any problem, restore the MHT to normal operating condition BEFORE returning it to regular service. The MHT must not be used until all repairs have been completed.

NOTICE According to B56.1-2005:

- A “User” is “a person or organization responsible for employing powered industrial trucks.” Therefore, the person or business that owns the MHT is a user.
- “Authorized” means any person designated by the user to operate or maintain the equipment. In other words, the owner, most likely your employer, is responsible for training and selecting people to inspect and maintain the MHT.

NOTE: A user may choose to contract with a person or an organization for maintenance services. **Vestil is not responsible for the actions of independently contracted maintenance service providers.**

- DO NOT use brake fluid or jack oil in the hydraulic system. If oil is needed, use an anti-wear hydraulic oil, viscosity grade 150 SUS at 100°F, (ISO 32 @ 40°C), or a non-synthetic transmission fluid.
- Only use replacement parts either supplied or approved by the manufacturer.

The person(s) authorized **by the end-user** to inspect the MHT must do so before it is used for the first time, and before each subsequent use. If the MHT is rarely used, inspect the unit at least once per month, or before each use, whichever is more frequent. Before the inspection, a) disconnect the battery, and b) either chock the wheels or lift the MHT until the drive wheels no longer contact the ground.

Inspect the pallet truck prior to each use. Specifically look for:

1. Frayed wires;
2. Oil leaks;
3. Pinched or damaged hoses;
4. Structural damage: cracked welds, warping or other deformation of the cylinder brackets, forks, front rollers or drive wheel(s), handle, or the housing that protects the electrical components;
5. Proper function of all limit switches;
6. Proper horn operation;
7. Normal battery condition: clean, not leaking electrolyte solution, secure connections with both terminals. Also make sure that the battery is immobilized so that it cannot move during operation.
8. Proper rotation of all wheels.

Inspect the MHT each month:

1. Oil level: raise the forks to the maximum height; when the cylinder(s) are properly filled, the oil level should be 1-1/2 to 2 inches below the reservoir fill hole. Return the forks to the fully lowered position.
2. Damage to or excessive wear of:
 - a. Pivot points;
 - b. Hydraulic hoses;
 - c. Electric wires;
 - d. Retaining rings for the rollers, drive wheels, and all pivot points;
 - e. Bearings
3. Wobbliness or looseness of rollers and/or drive wheels;
4. Proper function of the hand or foot actuated mechanisms;
5. Proper battery water level;
6. Unusual noise or abnormal movement during operation;
7. Legibility and undamaged condition of all product labels.

Maintenance: the end-user must implement a scheduled maintenance program to ensure the proper function and safety of the lifter. Pages 12-13 of ANSI/ITSDF standard B56.1-2005 describe some recommended maintenance procedures, and the following steps should be utilized in conjunction with those recommendations.

⚠️WARNING The user is responsible for training persons to work on the MHT. “Work on” refers to operating, loading, cleaning, servicing, maintaining, or repairing the product. ONLY trained, authorized maintenance personnel or independent contractors chosen by the user should perform inspection, maintenance, or repair work.

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

Step 2: Complete an every use and a monthly inspection. If deformity, corrosion, rusting, or excessive wear of structural members is present, DO NOT use the MHT. Consult Vestil for instructions.

- 49 -

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

Step 4: Perform all other necessary adjustments and/or repairs, but DO NOT modify the truck.

▲WARNING The reader should understand the significant difference between necessary adjustments and repairs, and modifications.

An adjustment is a simple correction that restores the MHT to normal operating condition, such as tightening loose fasteners, or removing dirt or other debris from the surface; a repair refers to replacing worn parts with new or replacement parts.

➤ DO NOT use the truck if adjustments and/or repairs are incomplete! Return it to service ONLY after finishing all necessary repairs and adjustments.

A modification is a change that alters the MHT from normal operating condition, like bending the structural members or removing a part or several parts. **NEVER modify the unit without the express, written approval of Vestil.**

Modifications may render the product unsafe to use.

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

MARKINGS:

Only use the lifter if ALL labels are readable and undamaged. Contact Vestil for replacement labels if necessary, and DO NOT use the pallet truck until all replacement labels are affixed to the device.

Proper label placement is shown below:

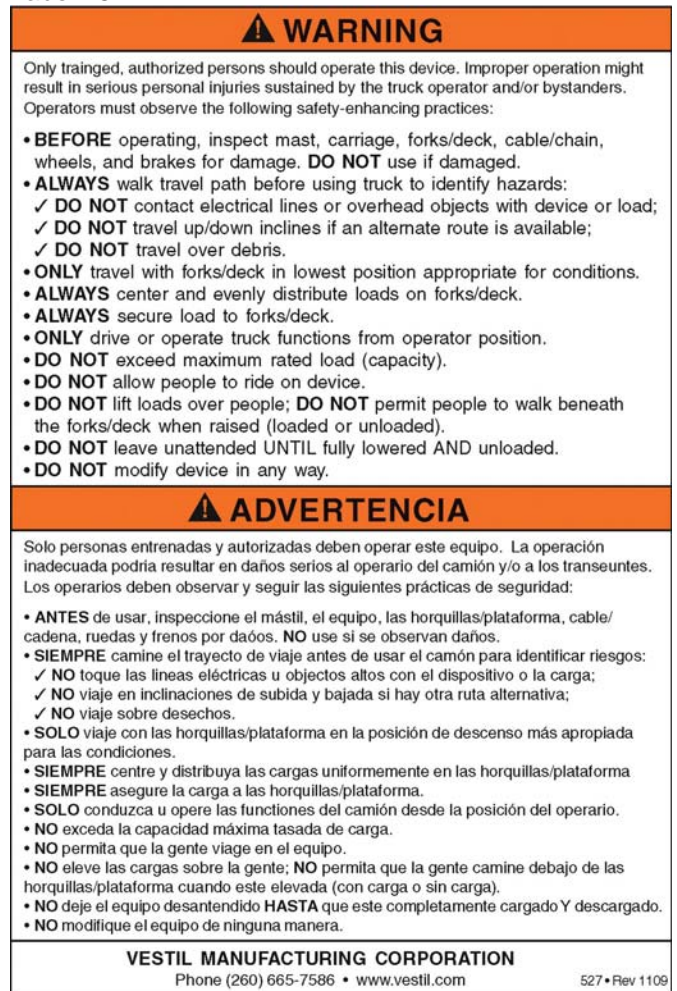
Label #206



Label #220



Label #527



Label #295



Label #208

