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EPT-Series Electric Pallet Trucks

Instruction Manual



EPT-30



EPT-45

Receiving Instructions

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

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

Technical Service & Replacement Parts

For answers to questions not addressed in these instructions and to order replacement parts, labels, and accessories, call our Technical Service and Parts Department at (260) 665-7586. The Department can also be contacted online at <https://www.vestil.com/page-parts-request.php>.

Electronic Copies of Instruction Manuals

Additional copies of this instruction manual may be downloaded from <https://www.vestil.com/page-manuals.php>.

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SPECIFICATIONS

Specifications for EPT-series electric pallet trucks are provided on Vestil's website. To access the appropriate specifications document, navigate to this webpage: <https://www.vestil.com/product.php?FID=342>. Scroll down to the "Product Specifications Table". Continue scrolling the page to the table row of the model you purchased. Click the button in the PDF column that looks like a pencil inside a box. A PDF document will open. This file is the specifications document. Print a copy of the document and keep it with your copy of this manual. The following is a copy of the specifications document for model EPT-2047-30 that is current as of the publication date of this manual. If you have any questions about accessing specifications information, contact the [TECHNICAL SERVICE](#) department.

FULLY POWERED ELECTRIC PALLET TRUCK, EPT-2047-30

COMPONENTS: BATTERY CHARGER, UP / DOWN CONTROLS (NOT SHOWN), THROTTLE (FORWARD / REVERSE), CHARGE INDICATOR, KEY, HORN, EMERGENCY STOP (BELLY-SWITCH), UP / DOWN CONTROLS (NOT SHOWN), RECESSED TRAY FOR STORAGE, LOAD ROLLERS - 3" x 3.75" POLY ON STEEL, 7.8" RAISED, 3.2" LOWERED, STABILIZING ROLLERS 3" x 1.42" PLOY ON STEEL, 3.1" x 9.8" DRIVE WHEEL PLOY ON STEEL.

DIMENSIONS: 28 1/4, 47 3/4, 33, 18, 45, 67, 20, 6.

TOLERANCES: DIMENSION TOL. +/- 1/2"

STANDARD FEATURES
 MODEL NUMBER: EPT-2047-30
 CAPACITY: 3,300 LBS.
 OVERALL FORK WIDTH: 20"
 USABLE FORK LENGTH: 45"
 FORK RAISED HEIGHT: 7.8"
 FORK LOWERED HEIGHT: 3.2"
 OVERALL WIDTH: 28 1/4"
 OVERALL LENGTH: 67"
 OVERALL HEIGHT: 47 3/4"
 24V DC POWERED

SPECIAL FEATURES
 NONE

PRODUCTION WILL START UPON RECEIPT OF SIGNED APPROVAL DRAWING

****SPECIAL UNITS ARE NON-RETURNABLE
 *AVAILABLE AT ADDITIONAL COSTS**

APPROVALS:

FOR INTERNAL USE ONLY	1. THE UNDERSIGNED, AGREE THAT THE PRODUCT AS REPRESENTED SATISFIES DESIGN & DIMENSION REQUIREMENTS. I ALSO ACKNOWLEDGE MY DUTY TO CONFIRM PRODUCT & INSTALLATION COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS & STANDARDS.	
PROJECT SIGN OFF	ANY MODIFIED UNITS ARE NON-RETURNABLE () As drawn () As marked	
SALES	Signed: _____	Date: _____
ENG	Printed Name: _____	
FAB.	LEAD TIME WILL START UPON RECEIPT OF SIGNED APPROVAL DRAWING	
POWER		

VESTIL MANUFACTURING

DRAWN BY: SR	DATE: 2-22-07	P.O.#: -
REFERENCE: -	SCALE: 1:14	V.O.#: -
QUOTED LEADTIME: -	DATE: -	SALES: -
		DWG./FILE NAME: EPT-2047-30

All graphics provided are for reference only. If certain dimensions are critical please verify those dimensions with your salesperson

SIGNAL WORDS

SIGNAL WORDS appear in this manual to draw the reader's attention to important safety-related messages. The following are signal words used in this manual and their definitions.

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

SAFETY INSTRUCTIONS

Vestil strives to identify foreseeable hazards associated with the use of its products, but no manual can address every conceivable risk. Minimize the likelihood of injury by observing the hazards identified below and by inspecting and maintaining the product as instructed in the *MAINTENANCE & INSPECTIONS* section.

DANGER

Electrocution risk!

- 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.
- DO NOT expose the pallet truck to rain, snow, and etc. Avoid contact with standing water.
- Disconnect batteries before performing maintenance.

WARNING

Risks of serious personal injuries or death.

- 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.
- **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 instruction 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.
- 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 approval from Vestil. Unapproved modifications could make the EPT unsafe to use.

NOTICE

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

- DO NOT use the machine in locations where temperature variations are extreme (e.g. in freezers and hot rooms), which will cause condensation to develop on the electronic components.
- Always use AND store the machine in a secure, dry location where it will be shielded from the elements.
- Maintain the product as suggested in [INSPECTIONS & MAINTENANCE](#) on p. 54-55.

REMOVE THE EPT 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:

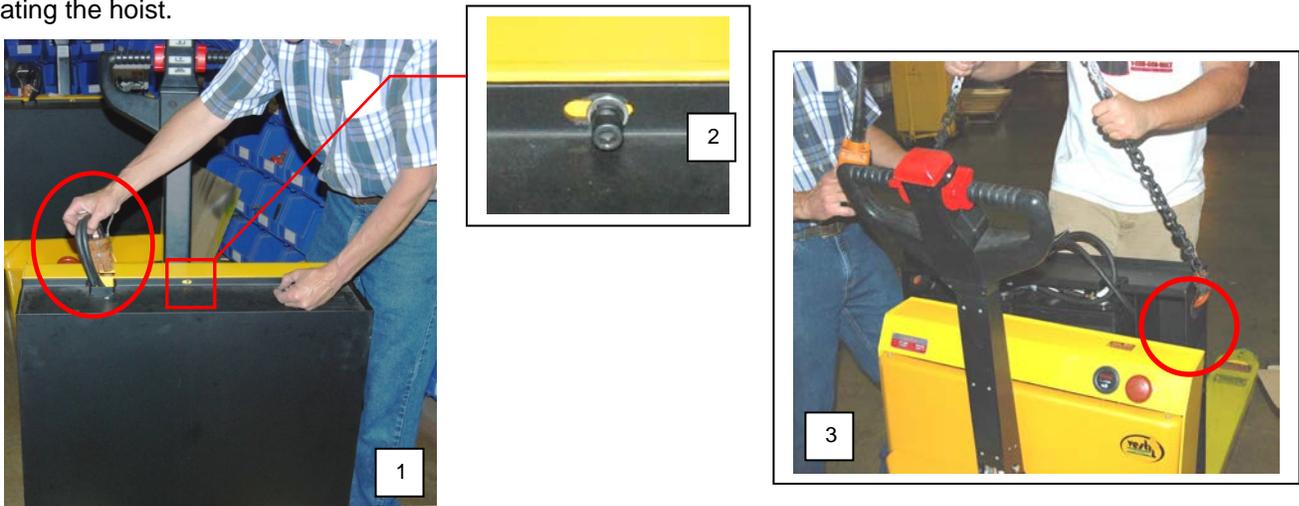
1. Remove all packing material.
2. Inform all personnel not participating in the unpacking process to clear the area.
3. Lift the EPT off of the pallet using either a hoist or a forklift with a capacity of at least 2,000 pounds. Always apply the proper hoisting procedures or forklift operation practices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

Extract the EPT from the shipping pallet (with overhead hoist):

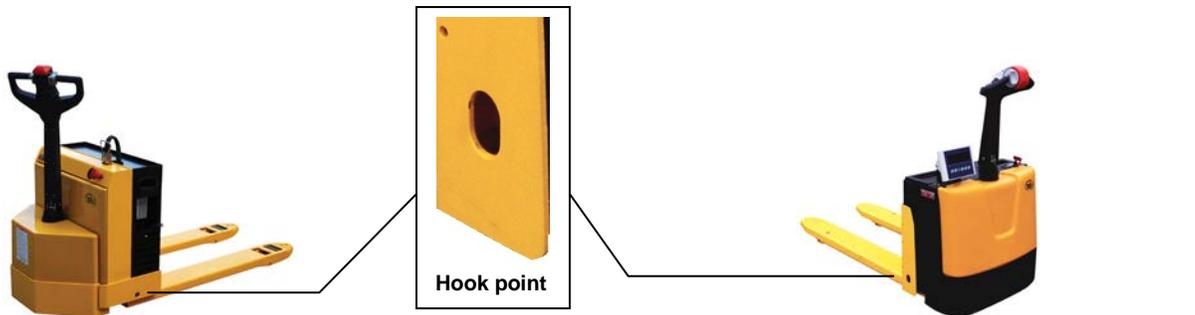
EPT-2###-45 models: Remove the battery box.

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.



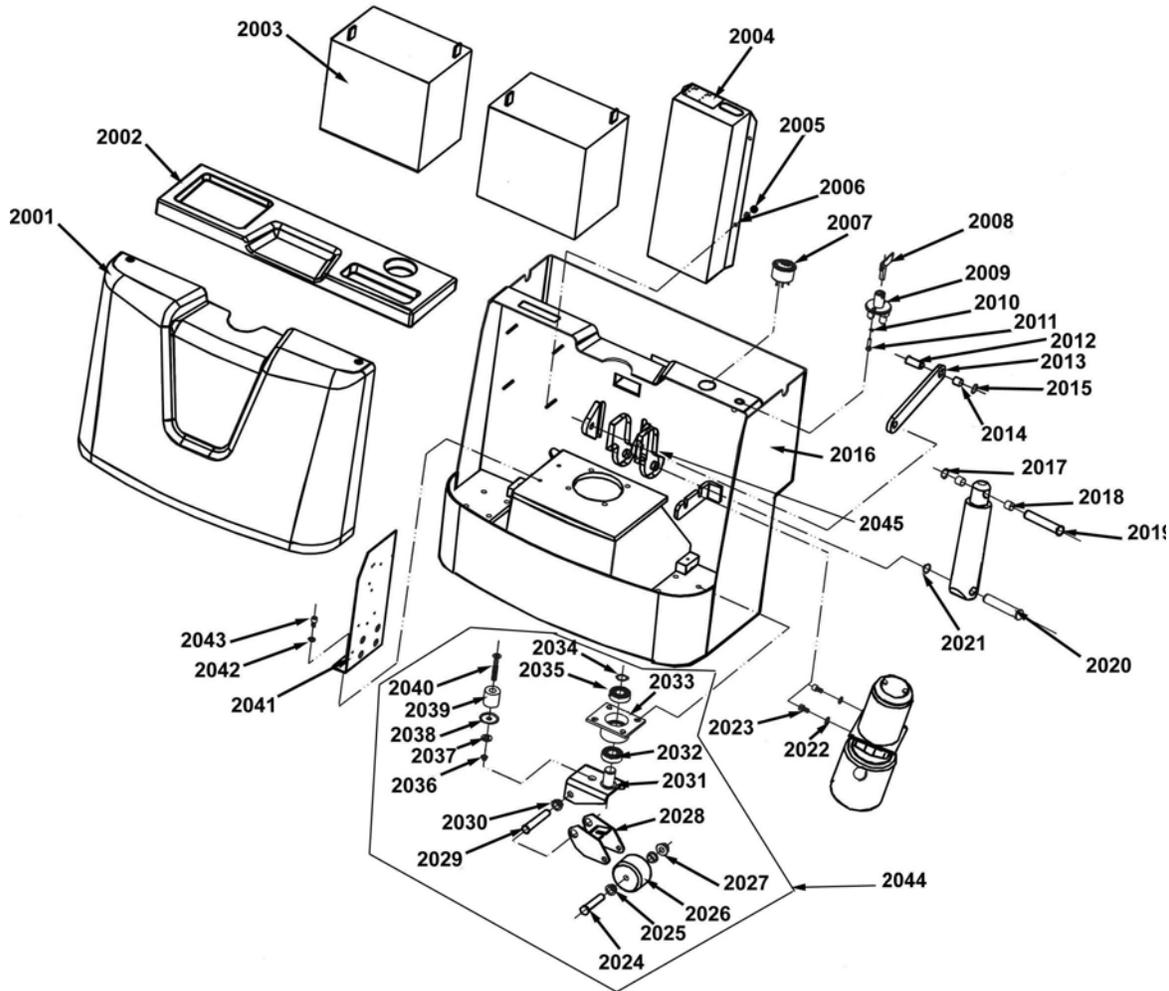
To lift the EPT with a forklift:

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.

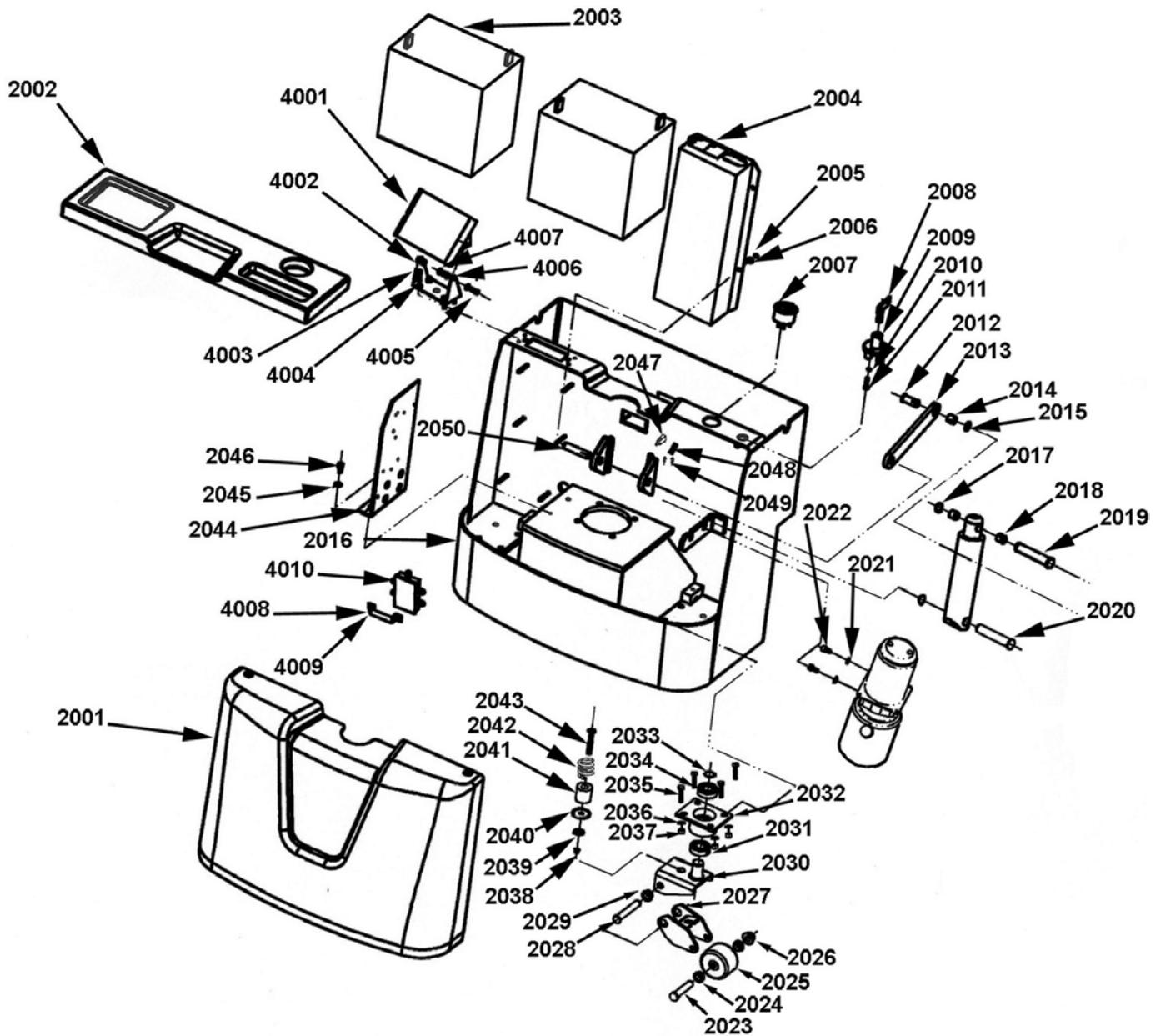


FIG. 1A: EPT-30 MODELS MAIN BODY COMPONENTS



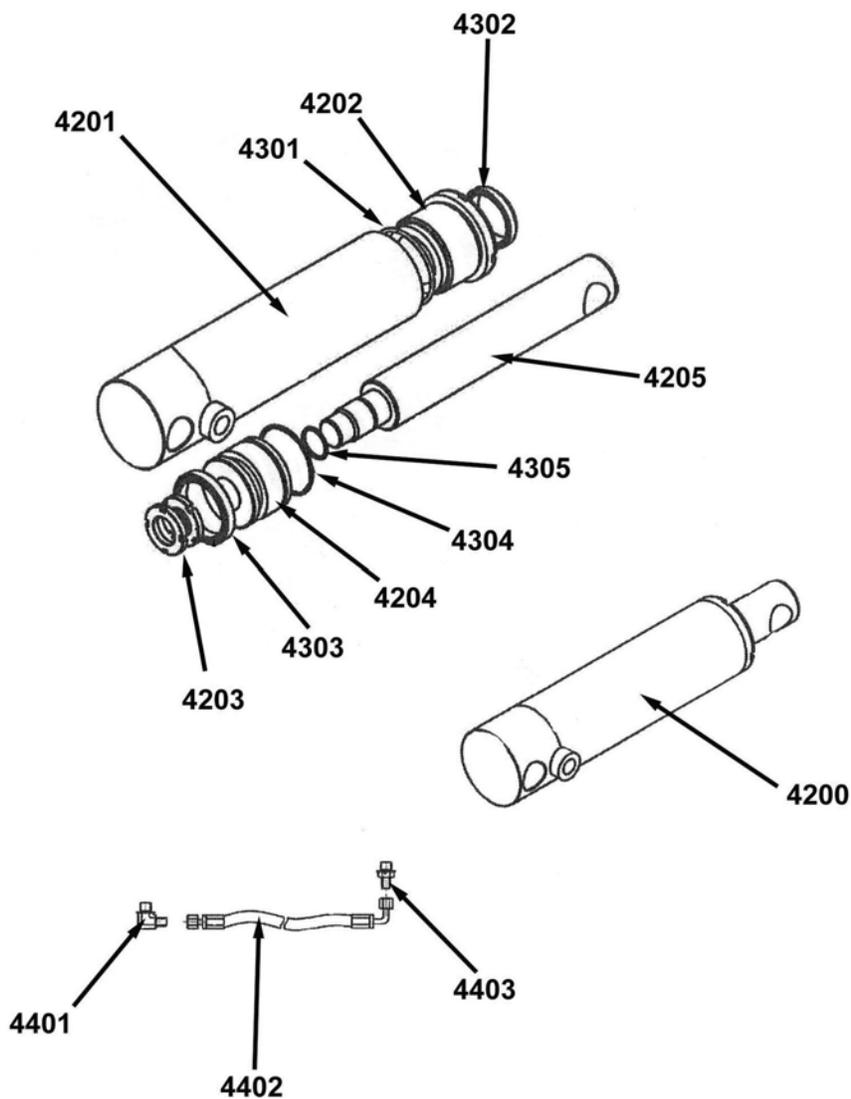
Item No.	Part No.	Description	Item No.	Part No.	Description
2001	EPT-30-2001	Main Body Housing	2021	EPT-30-2021	22mm Snap Ring
	EPT-30-2001-2	Housing Screw	2022	EPT-30-2022	10mm Washer
2002	EPT-30-2002	Battery Cover	2023	EPT-30-2023	M10 x 22 Screw
2003	EPT-30-2003	Battery (2 per unit)	2024	EPT-30-2024	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



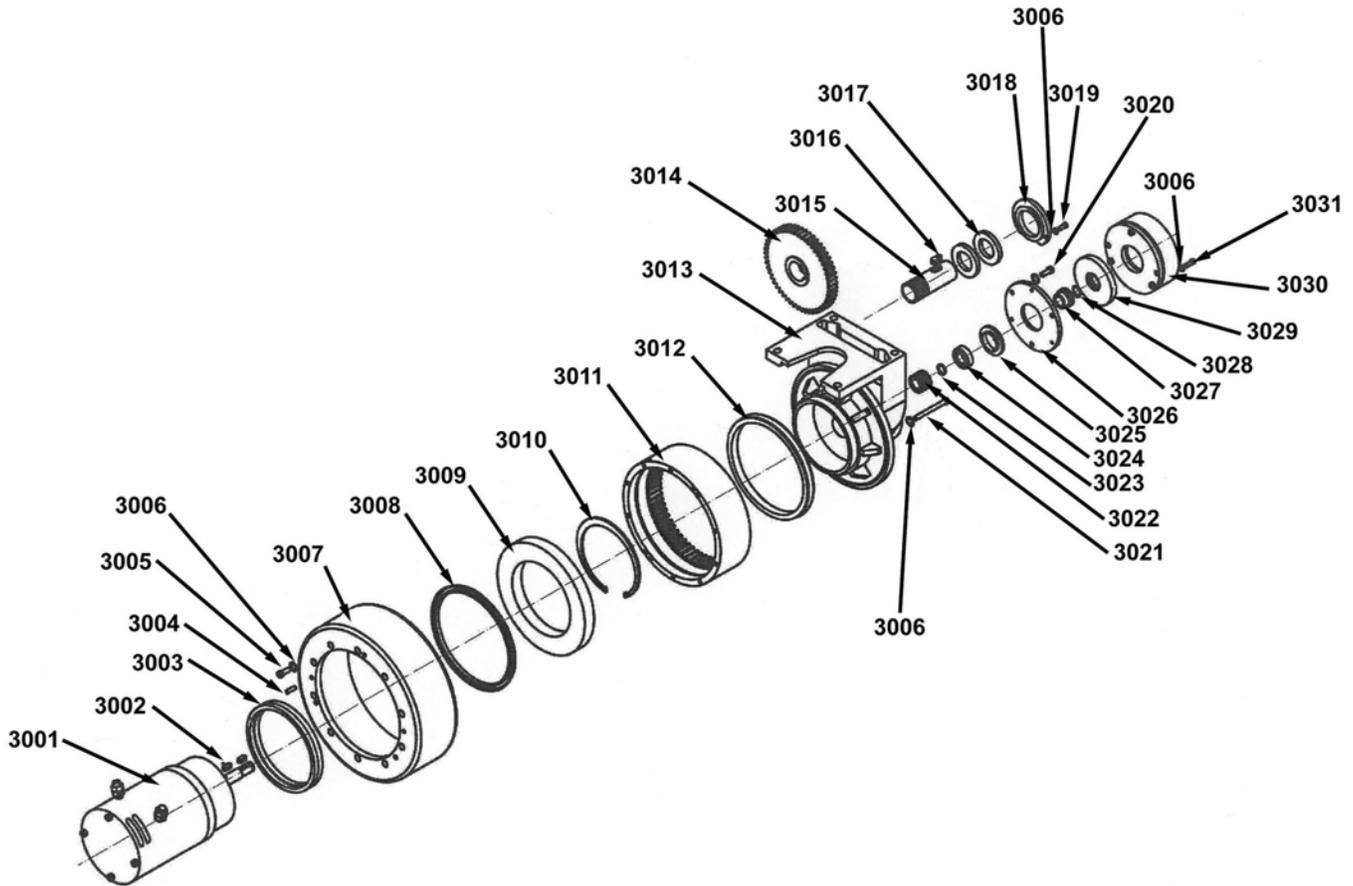
Item No.	Part No.	Description
4001	EPT-30-SCL-4001	Scale Display
4002	EPT-30-SCL-4002	Display Mounting Bracket
4003	EPT-30-SCL-4003	6mm Flat Washer
4004	EPT-30-SCL-4004	M6 x 10 Bolt
4005	EPT-30-SCL-4005	M6 x 30 Bolt
4006	EPT-30-SCL-4006	6mm Spring Washer
4007	EPT-30-SCL-4007	M6 Nut
4008	EPT-30-SCL-4008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

FIG. 2: EPT-30 MODELS HYDRAULIC CYLINDER ASSEMBLY



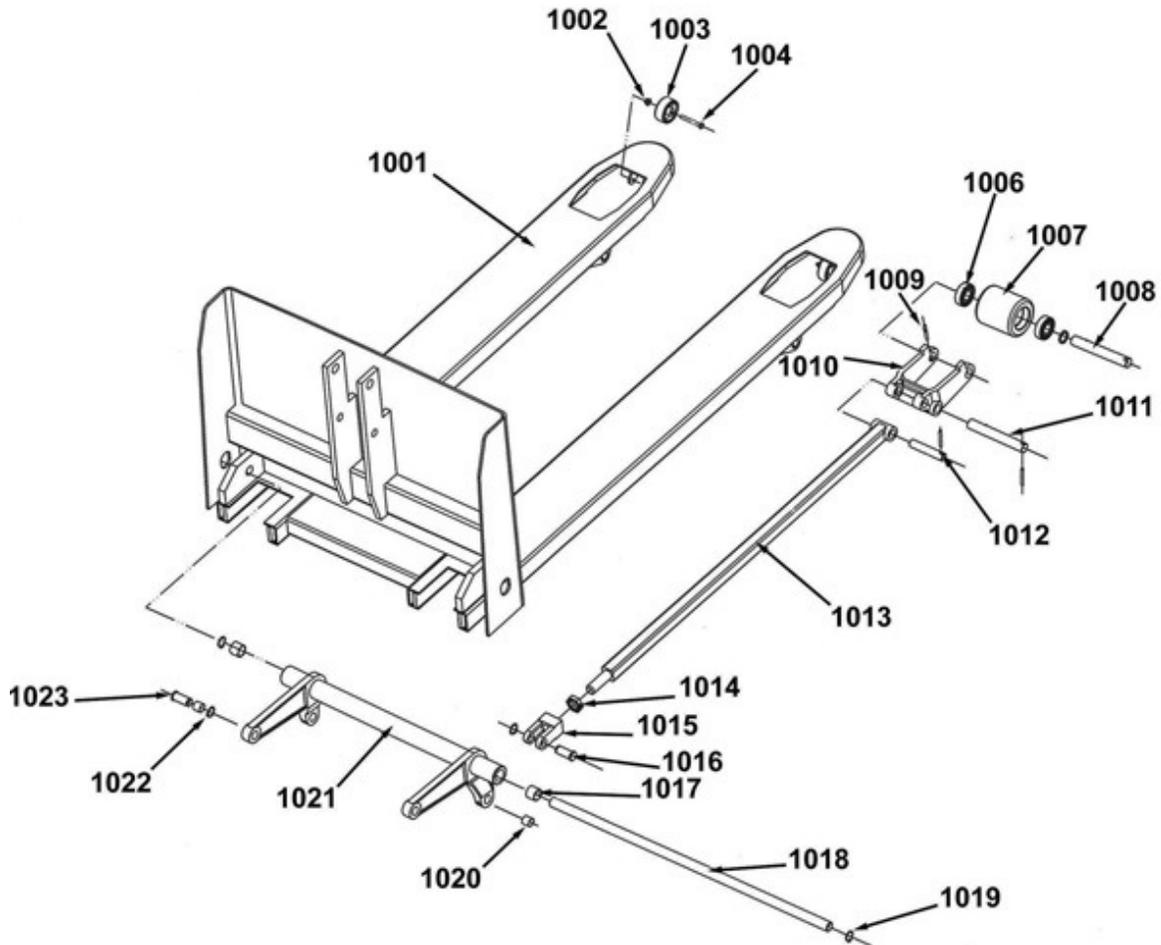
Item No.	Part No.	Description
4200	EPT-30-4200	Cylinder Assembly
4201	EPT-30-4201	Cylinder Body Tube
4202	EPT-30-4202	Gland Tube
4203	EPT-30-4203	Nut
4204	EPT-30-4204	Piston
4205	EPT-30-4205	Piston Rod
4301	EPT-30-4301	O-Ring
4302	EPT-30-4302	Seal Ring
4303	EPT-30-4303	Seal Ring
4304	EPT-30-4304	O-Ring
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



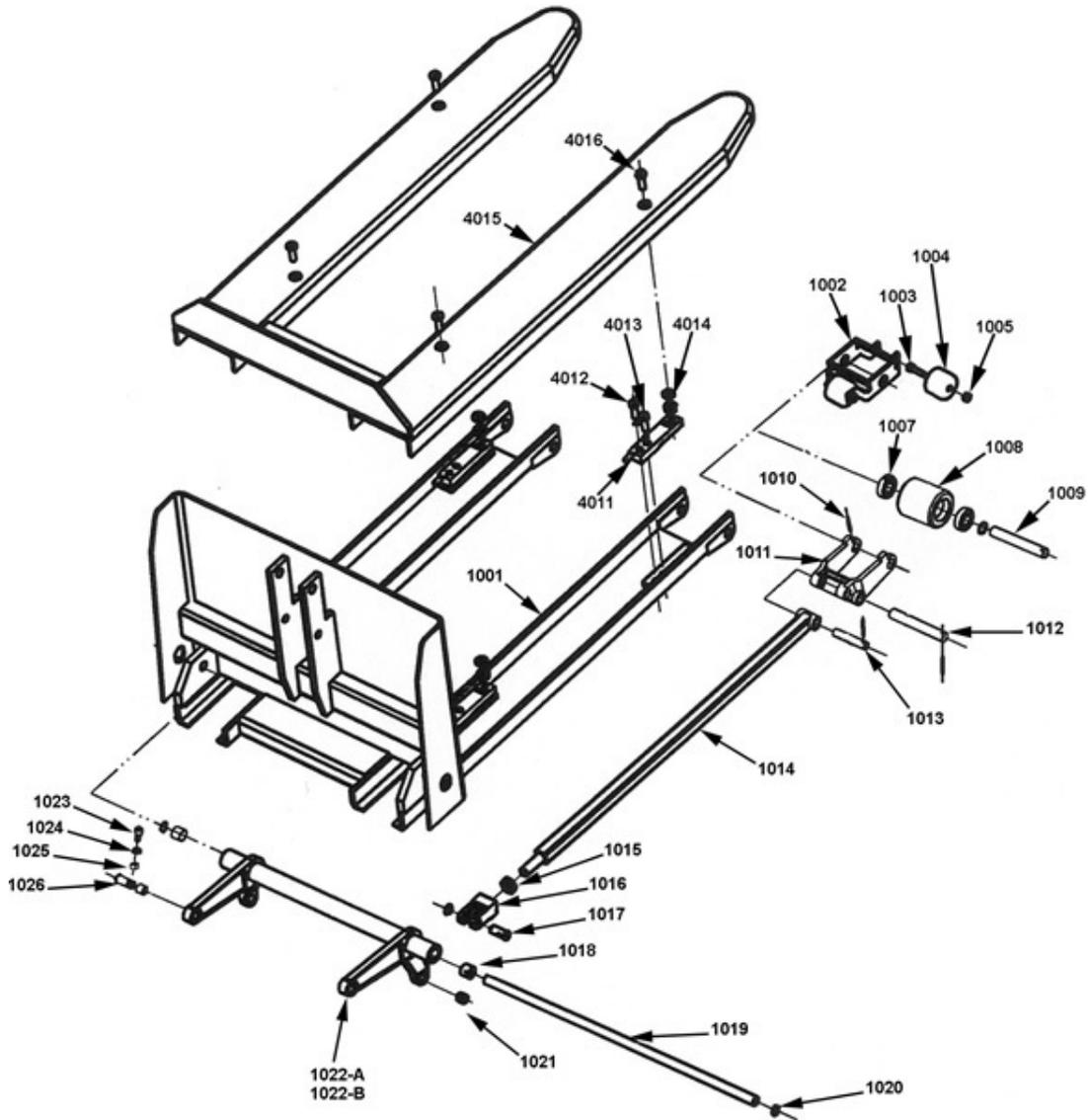
Item No.	Part No.	Description	Item No.	Part No.	Description
Not Shown	EPT-30/45-DBA	Drive Brake Assembly	3015	EPT-30-3015	Pinion Gear
3300	EPT-30-DWA	Complete Drive Wheel Assembly (includes Motor)	3016	EPT-30-3016	Key
3001	EPT-30-3001	24VDC (700W) Drive Motor	3017	EPT-30-3017	Pinion Gear Bearing
3002	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	N/A	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)

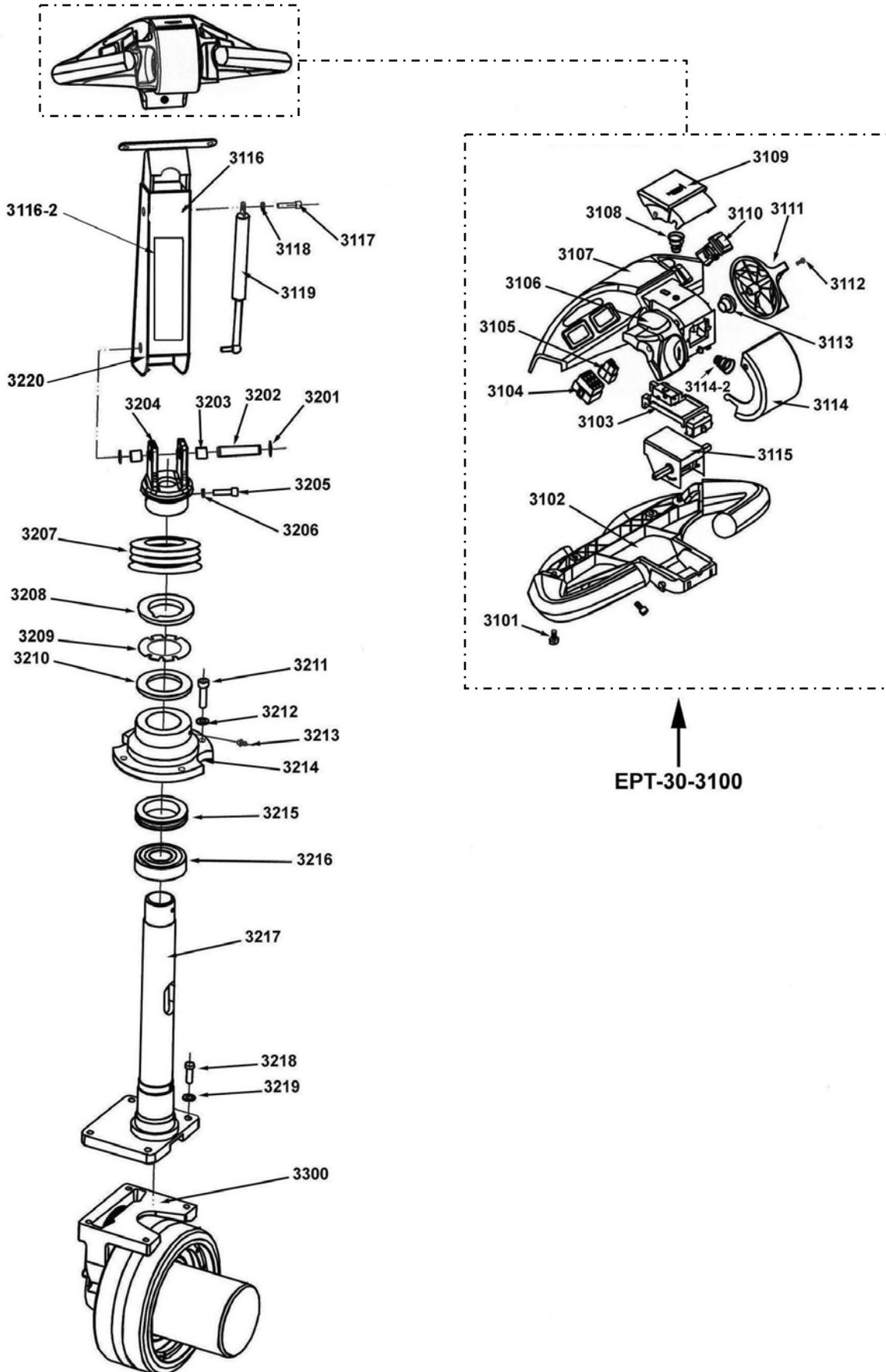


FIG. 5A BILL OF MATERIALS

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

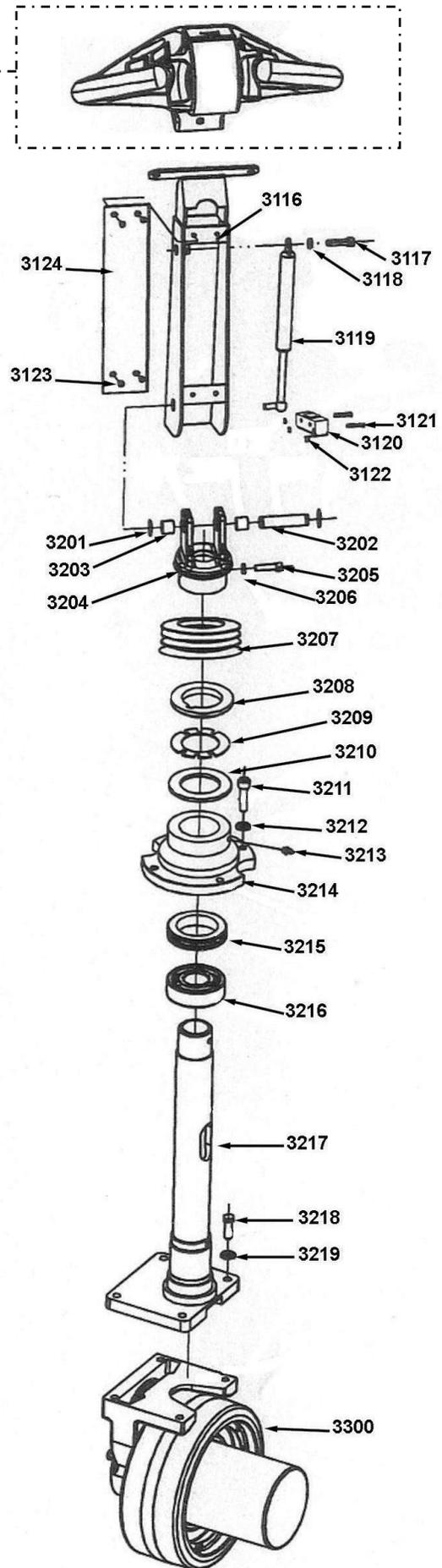
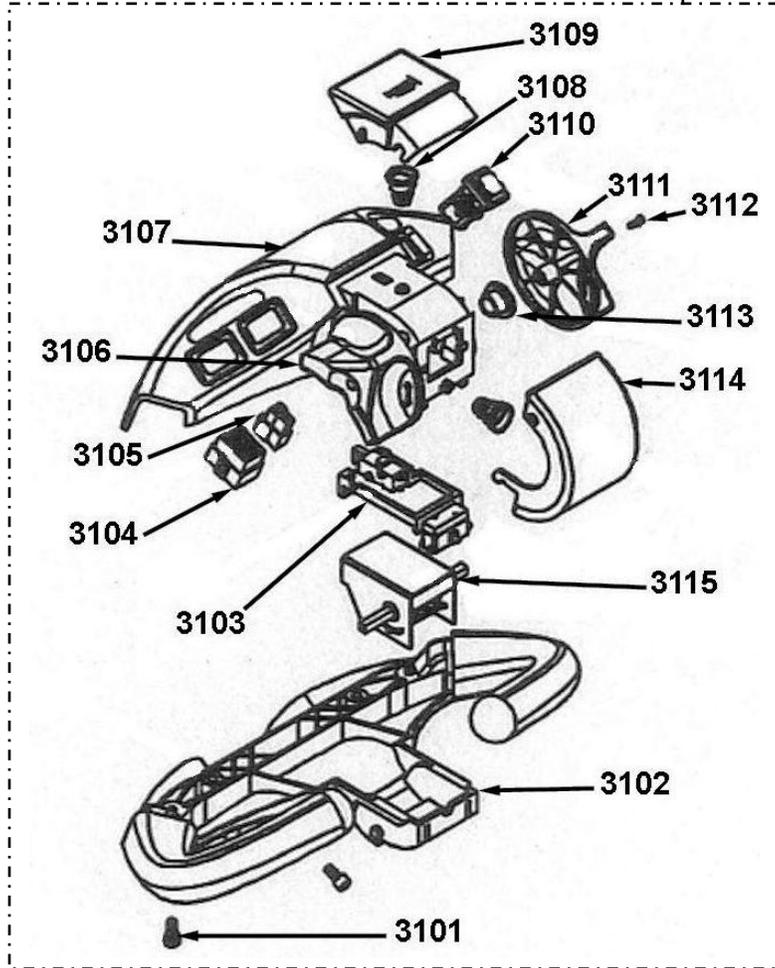
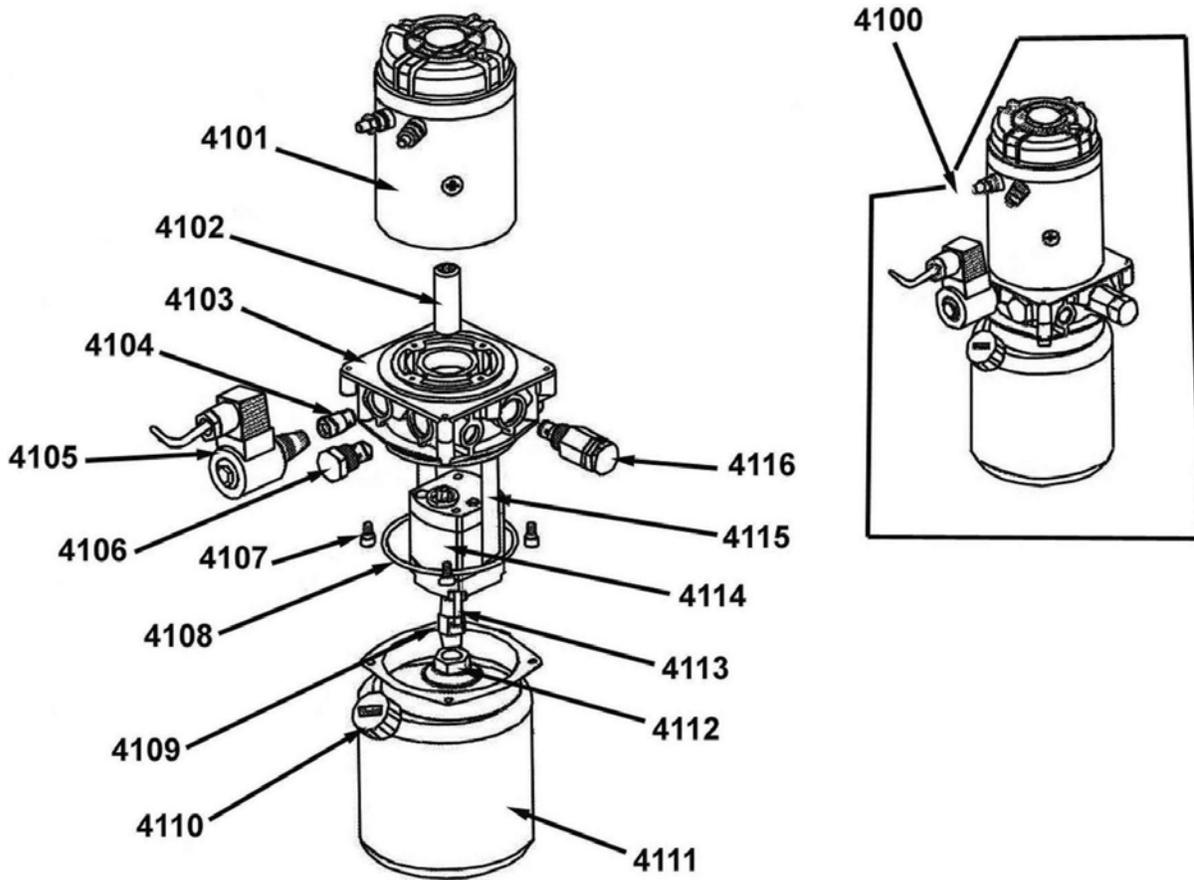


FIG. 5B BILL OF MATERIALS

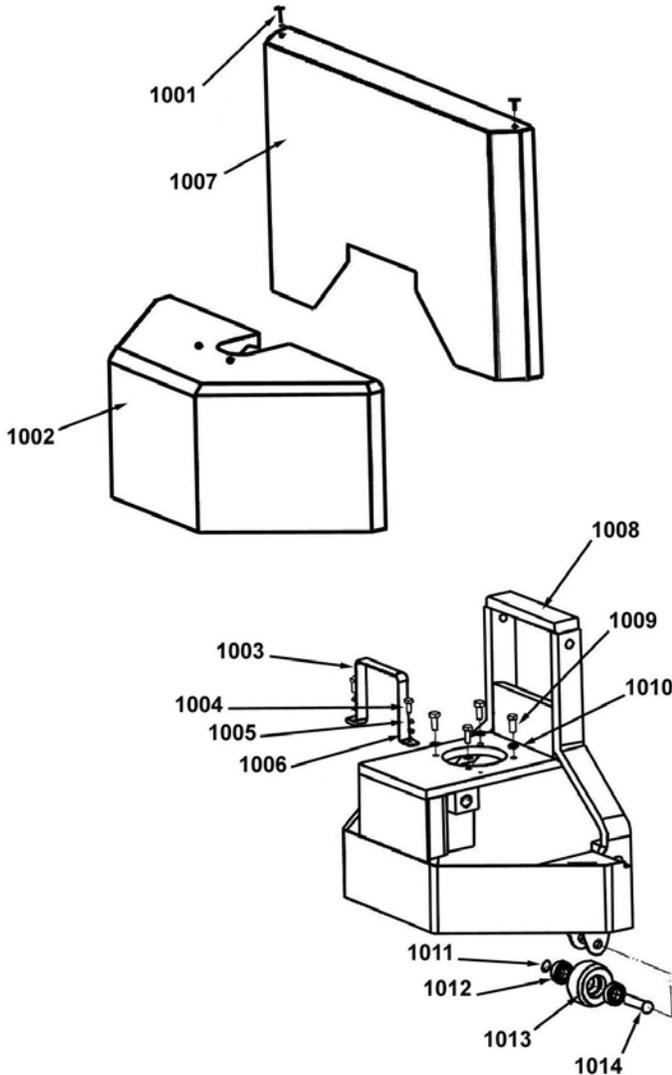
Item No.	Part No.	Description
3101	EPT-30-SCL-	M6 x 12 Bolt
3102	EPT-30-SCL-	Handle Cover (Bottom)
3103	EPT-30-SCL-	Throttle Seat
3103-2	EPT-30-SCL-	Belly / Horn Switch
3104	EPT-30-SCL-	Electrical Outlet (Large)
3105	EPT-30-SCL-	Electrical Outlet (Small)
3106	EPT-30-SCL-	Throttle Knob (left)
3107	EPT-30-SCL-	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)



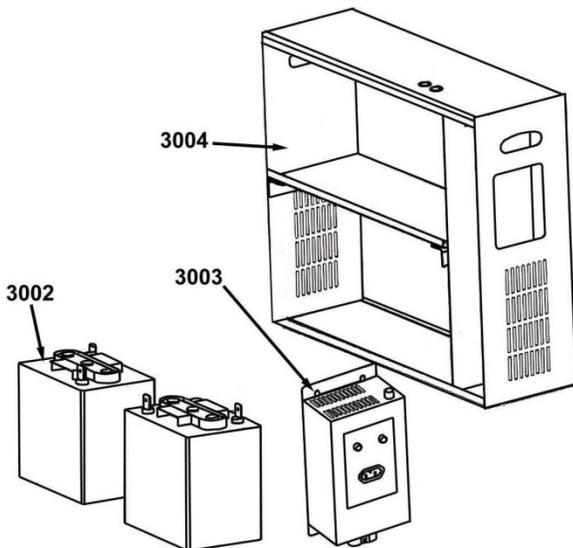
<u>Item No.</u>	<u>Part No.</u>	<u>Description</u>
4100	EPT-30-4100	Complete Motor Pump Assembly
4101	EPT-30-4101	24VDC (1.3kW) DC Motor
4102	EPT-30-4102	Motor-to-Pump Shaft Coupling
4103	EPT-30-4103	Manifold Base
4104	EPT-30-4104	Flow Control Valve 5LMRN
4105	EPT-30-4105	Solenoid Valve
4106	EPT-30-4106	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



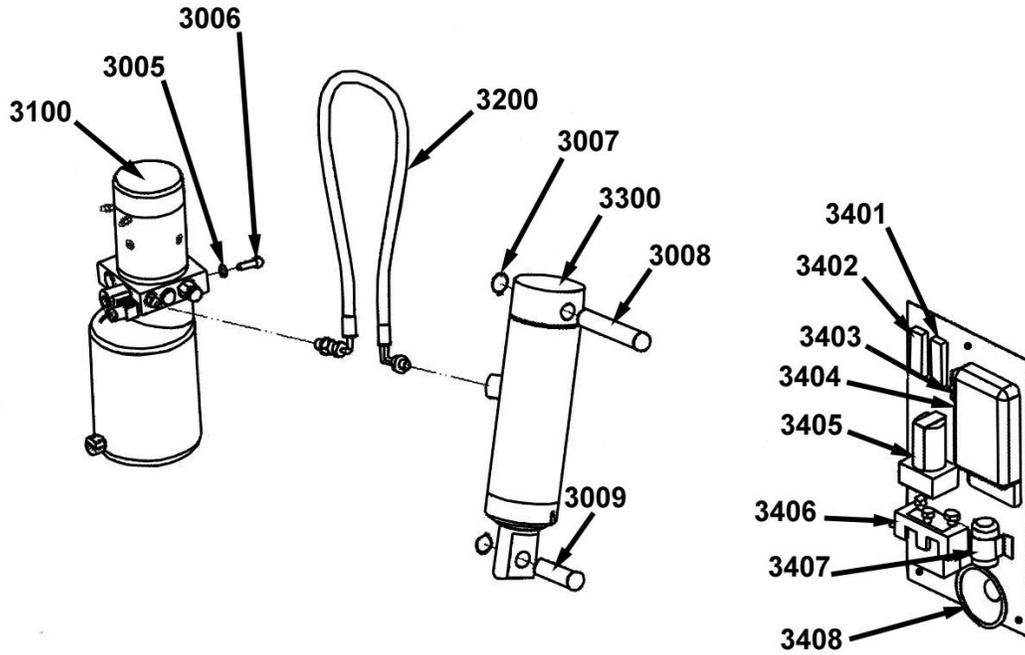
Item No.	Part No.	Description
1001	EPT-45-1001	M6 Hood Retaining Screw
1001	EPT-45-1001-1	M5 Hood Retaining Screw
1002	EPT-45-1002	Gear-Drive Cover (Fiberglass)
1002	EPT-45-1002-2	Gear-Drive Cover (Plastic)
1003	EPT-45-1003	Rear Cover Bracket
1004	EPT-45-1004	Bolt
1005	EPT-45-1005	Spring Washer
1006	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



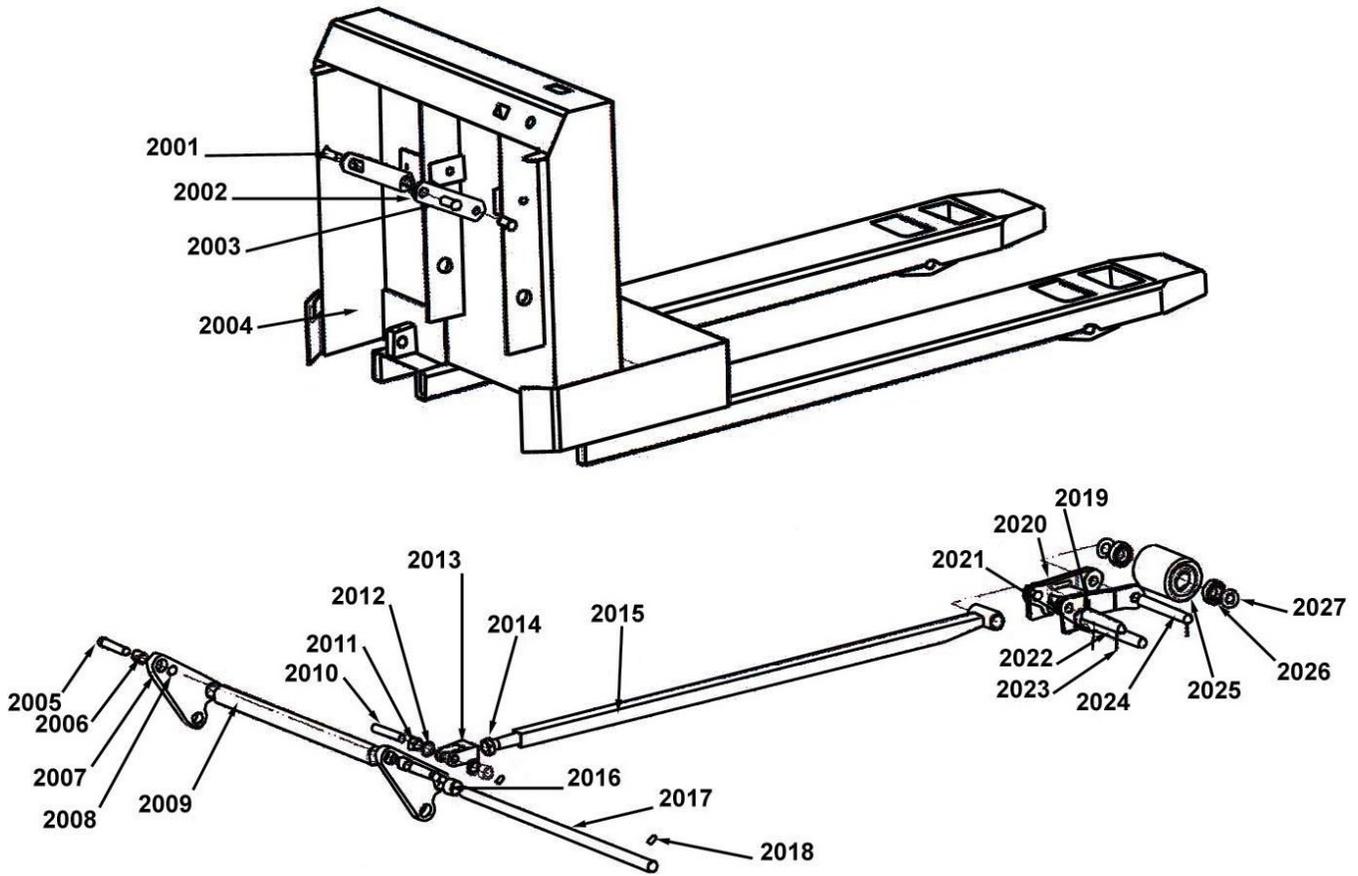
Item No.	Part No.	Description
3002	EPT-45-3002	Battery
3003	EPT-45-3003	Battery Charger – OEM
3003	EPT-45-3003-2	Battery Charger – Soneil
3003	EPT-45-3003-3	Battery Disconnect Connector
	EPT-CORD	Battery Charger Cord
3004	EPT-45-3004	Battery Box

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

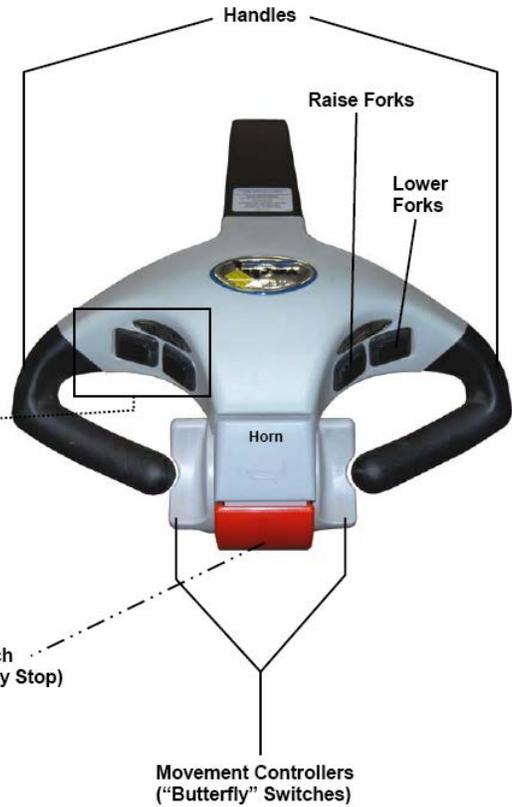
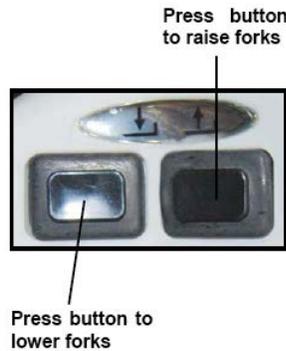
FIG. 11: Function Controls, Gauges, and Safety Features

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.



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.

USING THE EPT

EPT-series electric-hydraulic pallet trucks are type E powered industrial trucks. Operation, inspections, maintenance, and storage of the truck must conform to provisions of [US OSHA General Industry rule 1910.178](#) applicable to type E powered industrial trucks as well as to applicable provisions of the latest revision of ANSI/ITSDF B56.1. A copy of the standard is freely downloadable from the ITSDF website (www.ITSDF.org).

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; then

- a. Check the forks for deformations 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 all problems to authorized maintenance personnel.

Functions Tests (Refer to [FIG. 11](#) on p. 19)

Verify that all powered functions work properly.

1. Raise the forks to the maximum elevation;
2. Return the forks to the lowest position.
3. Raise the forks again. 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 [OPERATING THE EPT](#), Step 3 (below). Pull the red E-stop button up/out.
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. 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.
8. Verify that the control yoke automatically returns to the vertical position when released. See [OPERATING THE EPT](#), Step 3 (below).

WARNING Only use the pallet truck if it is in *SATISFACTORY CONDITION*. See [RECORD OF SATISFACTORY CONDITION](#). If malfunctions occur, park the truck in a safe location, tag it "Out-of-Service" and then report the malfunctions to qualified maintenance personnel.

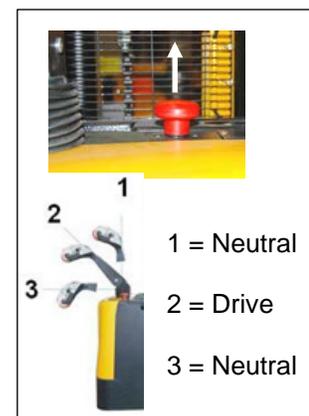
Operating the EPT

Step 1: Turn on the power. See "Power" callout box on [p. 19](#).

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

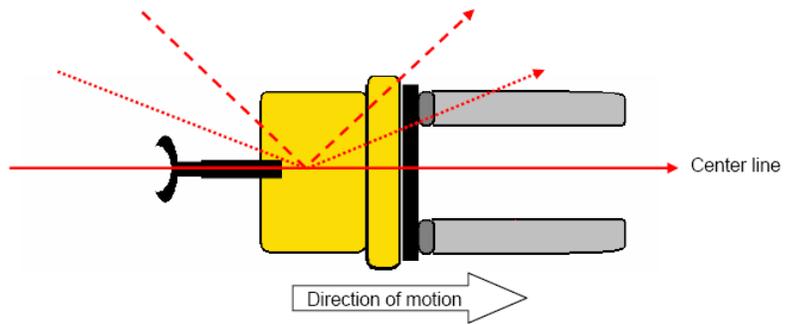
Step 3: Tilt the control yoke to the drive position (2), which is shown to the right.

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 drive forward or in reverse. See "Movement Controllers" text box and the corresponding photo in [FIG. 11](#) on p. 19.

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 Serious personal injuries or death could result from improperly operating this machine. DO NOT operate your EPT until you read AND understand the instructions in this manual.

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 INSTRUCTIONS](#) on p. 3 before each use:
 - Always apply proper loading techniques;
 - Ask a coworker to help you load and unload the lifter.
4. "Operator" means a trained and authorized person who controls any function(s) of the EPT. ONLY persons who have successfully completed a training program, like the material outlined in the latest revision of ANSI/ITSDF B56.1-2020 on pages 9-10, should operate the machine. Copies of ANSI/ITSDF B56.1-2020 are freely downloadable from www.itsdf.com by clicking the "Download Standards" button and selecting the appropriate PDF file hyperlink. Safe operation requires operators to:
 - Develop safe working habits & a process for identifying hazards that 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 lift beforehand. Do not use the 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. 54-55). 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. 11](#) on [p. 19](#).

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



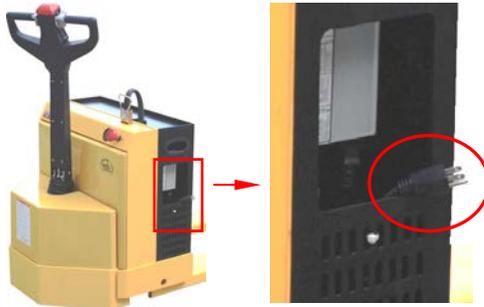
Plug the charger's AC cord into an 115VAC power source:

- 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>ISSUE</u>	<u>CAUSE</u>	<u>REMEDY</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.
	Problem with motor controller (check for LED flash code on side of controller)	Consult diagnostics page/factory
	Fuse blown	Remove back shroud and check fuses (3 fuses).
Unit will not charge	Charger malfunction	Verify output voltage on charger, will only get a reading when connected to batteries; should be approximately 28 volts.
	Bad batteries	Load test the batteries
Unit will not go forward; reverse works; belly switch just kills unit (does not go forward and time out)	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	When forward is depressed, there should be 24 volts on this wire from Molex connector to the contactor, if not, the motor controller may be bad; consult diagnostics page/factory. If 24 volts is present at contactor, verify ground connection. If ground is good, remove both wires 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)	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.

ISSUE

Unit will not go forward, or reverse, but belly switch still functions properly.

CAUSE

Broken wire, or loose connection, bad motor controller,

REMEDY

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 and the unit does not move, the motor controller may be bad, consult diagnostics page/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.

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 assembly, and that there is a good ground. If there is still no output voltage for pin 6, replace throttle assembly. See Fig. 1; also see p. 32-36. Verify fuses are good, replace if blown.

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

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. If there is continuity up to the throttle assembly, then check the ground wire that comes off of B- on the motor controller (3rd terminal down). Add more length to this wire if necessary, and re-terminate with a ring terminal.

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

Broken wire, or loose connection, bad motor controller

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, consult diagnostics page/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.

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 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. See pages 32-36.

ISSUE

CAUSE

REMEDY

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

Broken wire, or loose connection, bad motor controller

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 diagnostics page/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.

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 12, replace throttle assembly. See Fig. 1

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, consult diagnostics page/factory. 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. If there is still no output voltage for pin 13, replace the switch.

Unit will not reverse. The unit only goes forward for about 1 second and dies when the handle is pulled down. When the handle is re-set and pulled down the unit will move forward again then die.

Stuck Switch

The belly switch is stuck on. Tap the orange 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.

ISSUE

CAUSE

REMEDY

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"

Blown fuse

Check fuses above motor controller

Unit will not raise; motor runs

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.

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.

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.

Unit keeps blowing fuses when the raise button is pressed

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.

ISSUE

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

CAUSE

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

REMEDY

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.

CHANGING THE CYLINDER

Estimated time: 45 minutes

Necessary tools:

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

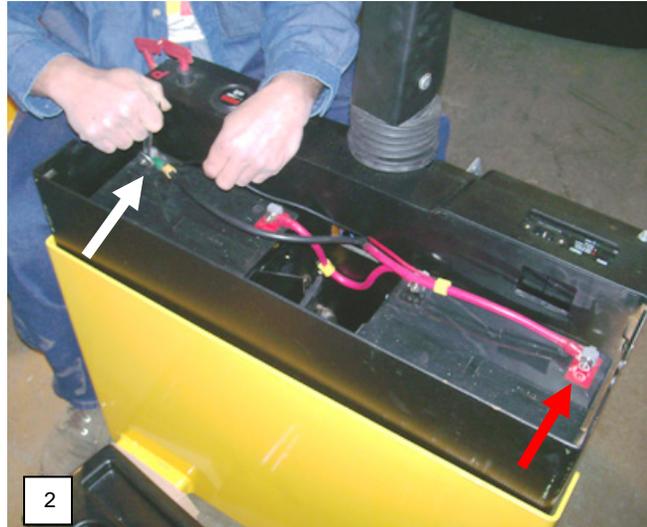
⚠️WARNING Only trained, authorized personnel should perform maintenance on this equipment. Lead acid batteries present hazards to the person(s) working on, with, or in the vicinity of them. To minimize the risk of serious personal injury, read every one of the instructions and DO NOT proceed with maintenance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

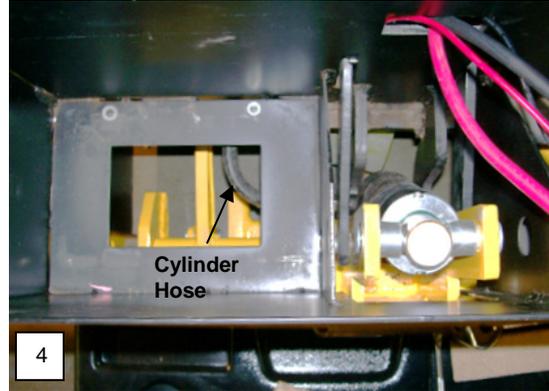
Purpose: To repair a leaking cylinder or to replace a damaged cylinder with a new cylinder.

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.**

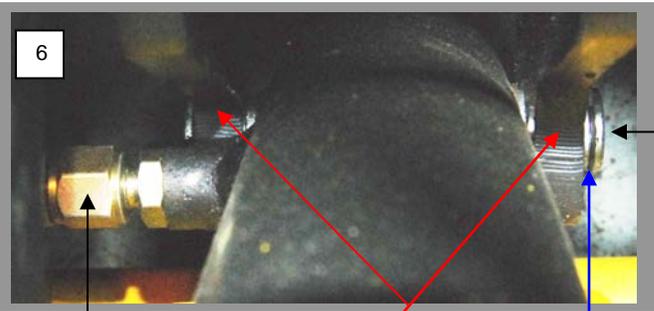
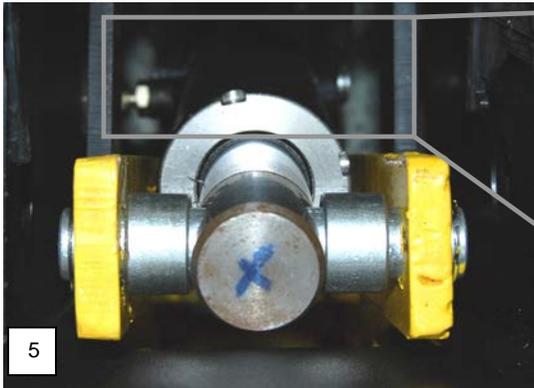


Step 2: Lift both sides of the battery, so that the battery remains level. To facilitate level lifting, attach tie wraps or other NONMETALLIC material (for example, two short lengths of nylon rope) to the terminals; then lift both sides simultaneously (see Photo 3). The cylinder hose will be visible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

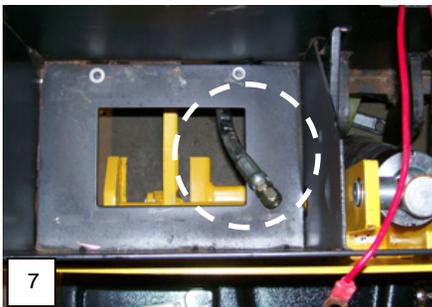


Disconnect hydraulic hose from cylinder with 16mm (or adjustable) wrench

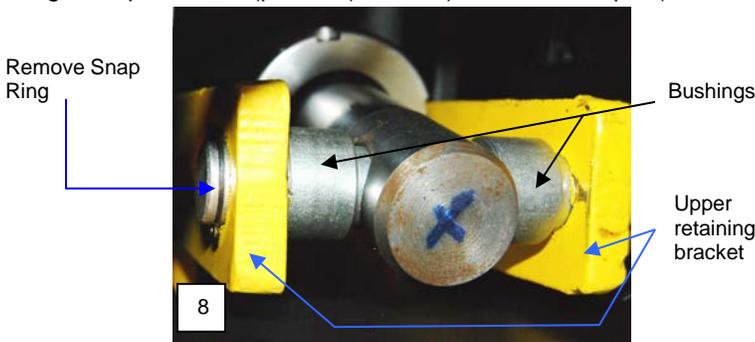
Lower retaining bracket

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

Retaining pin

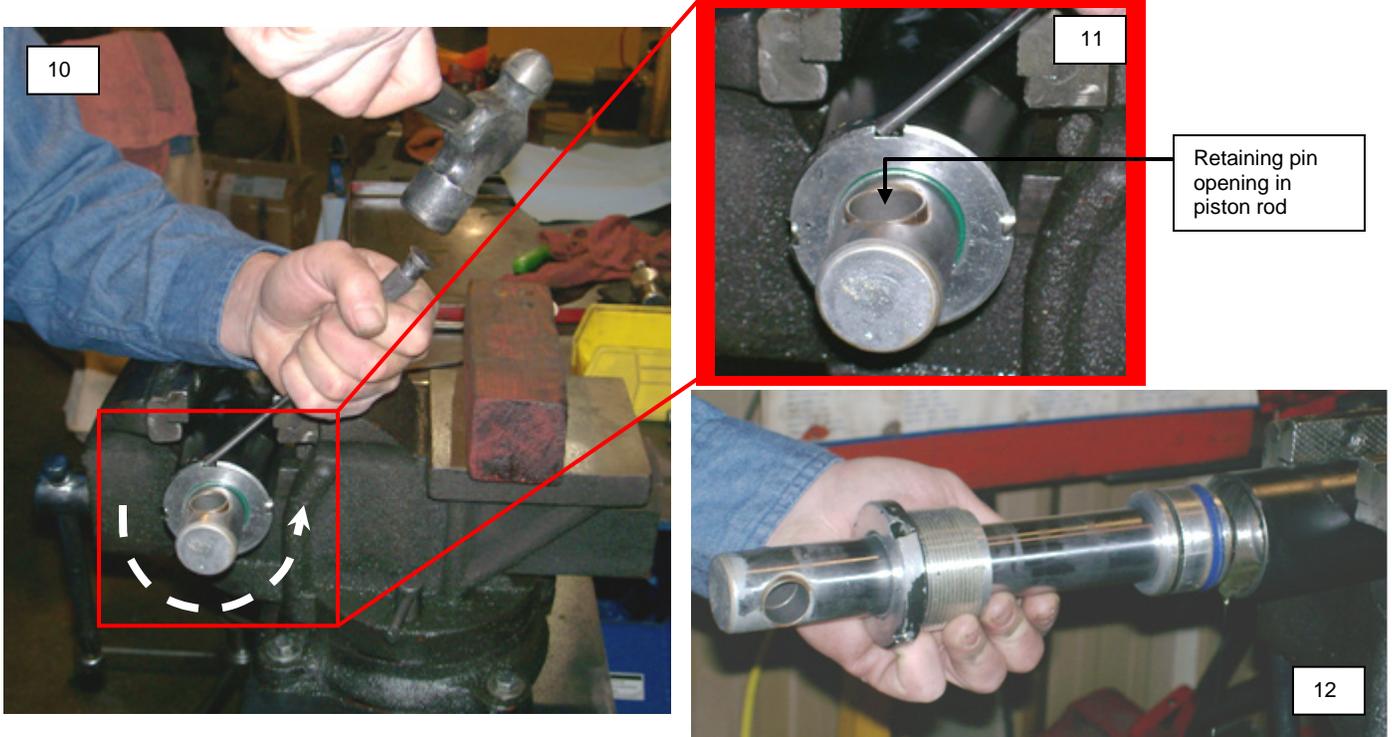


Step 4: Disconnect the cylinder from the upper retaining bracket: 1) Remove the snap ring from the pin that extends through the piston rod (photo 8); then 2) Remove the pin (see Photo 9) and collect the bushings.

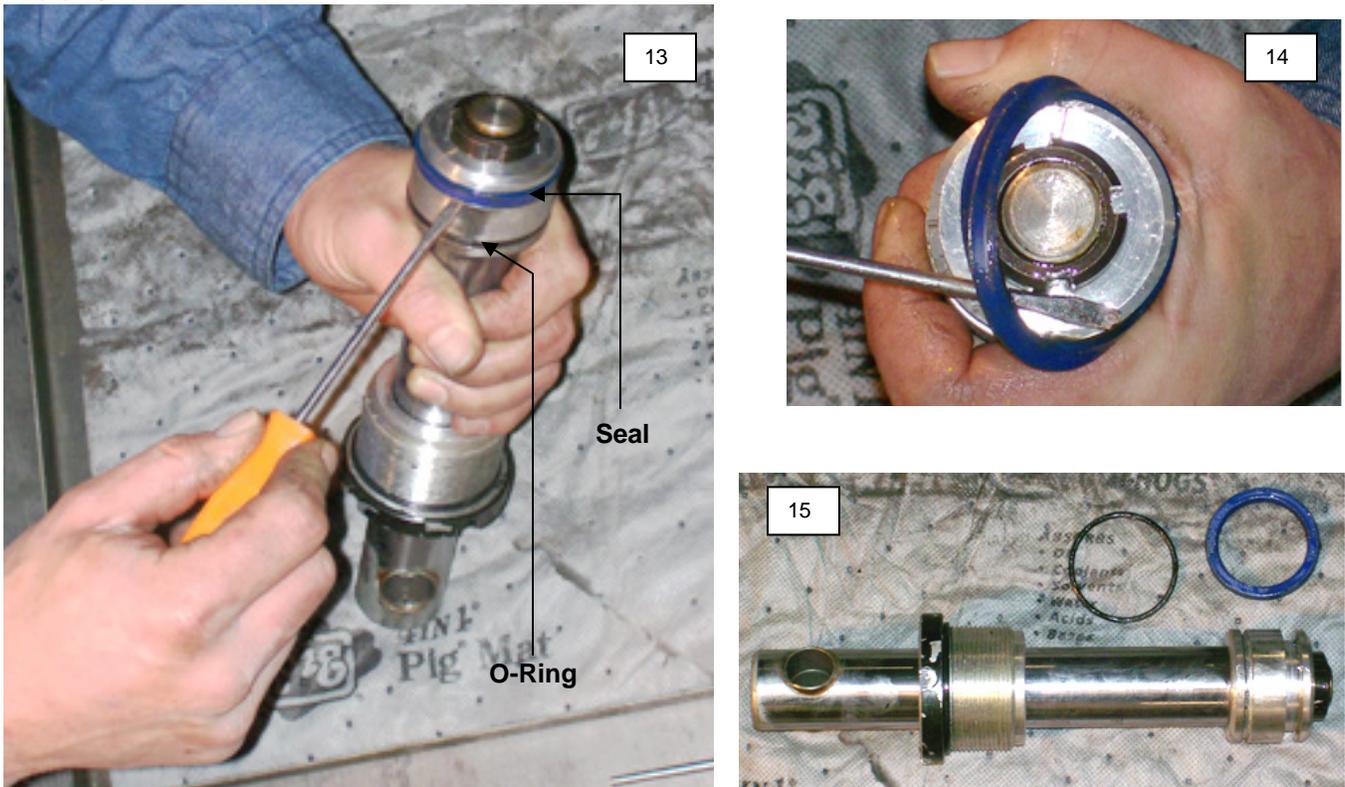


Step 5: The cylinder is now completely disconnected from the EPT frame; remove the disconnected cylinder.
To install a new cylinder: perform steps 1 through 4 in reverse order with the replacement cylinder.
To repair the cylinder: follow the remaining steps.

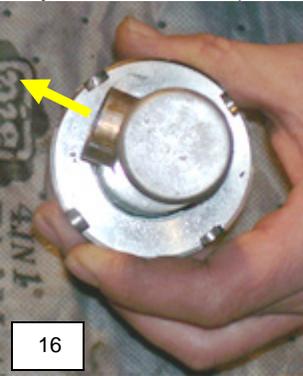
Step 6: Separate the piston rod from the barrel. To loosen the rod, immobilize the cylinder in a vise and use a flat punch and a hammer to tap the cylinder head in a counterclockwise direction (see Photos 10 & 11). Once the cylinder head loosens, you should be able to rotate it by hand to withdraw it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



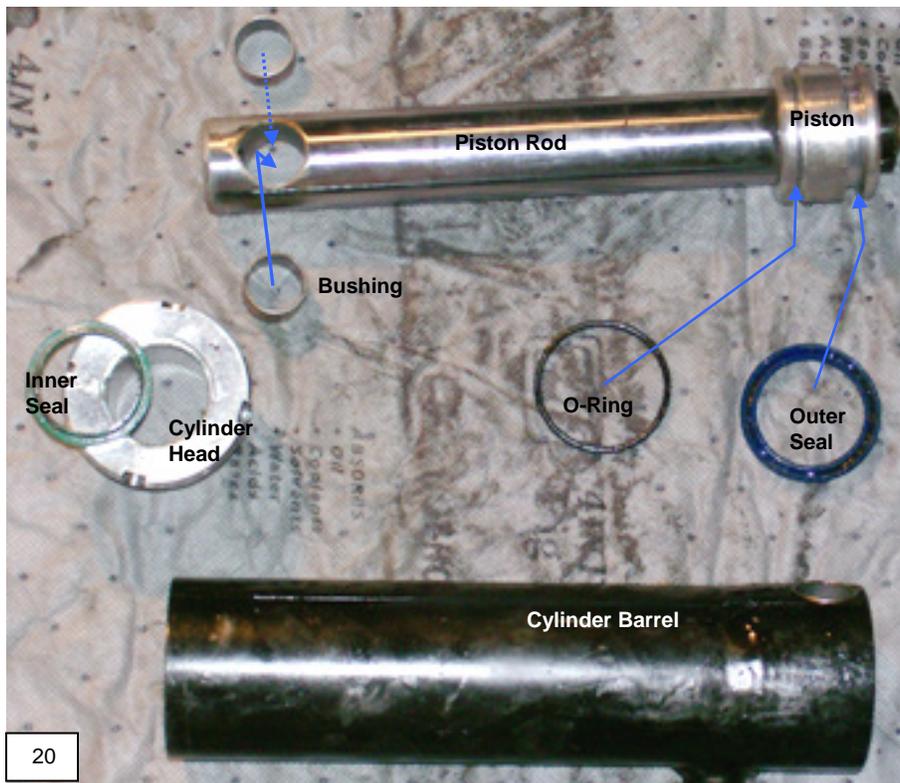
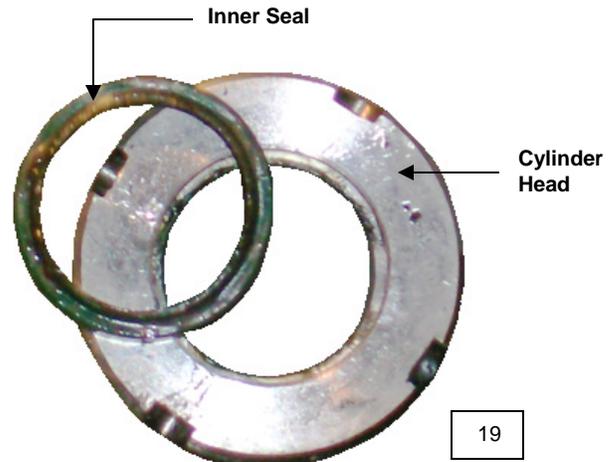
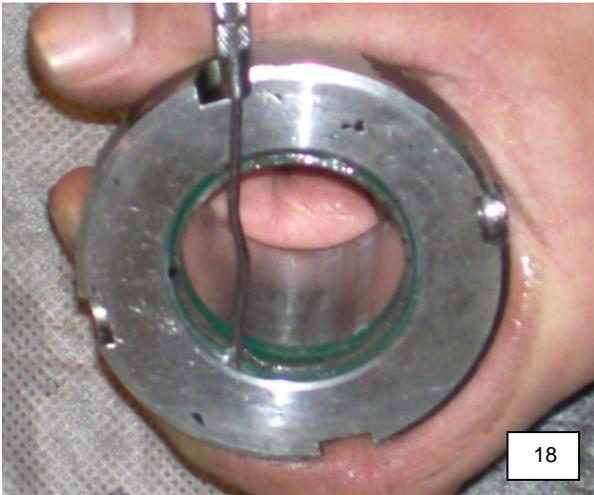
Step 7: With a small screwdriver, remove the Seal and the O-Ring from the piston, both of which are identified in Photo 13.



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.

CHANGING THE THROTTLE ASSEMBLY

Estimated time: 30 minutes

Necessary tools:

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

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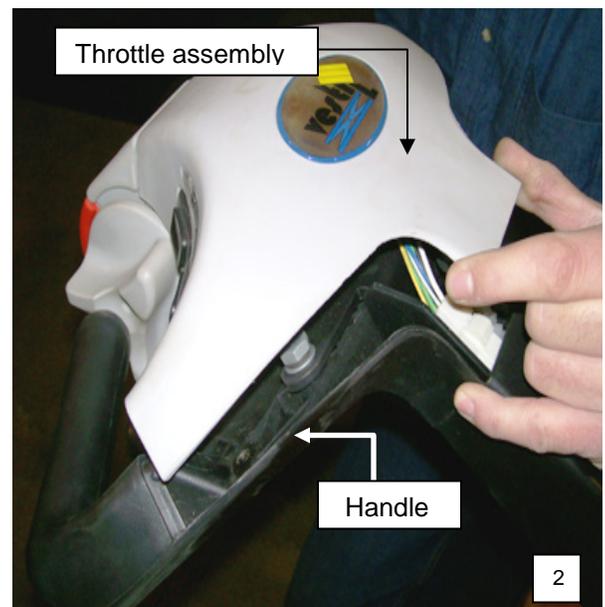
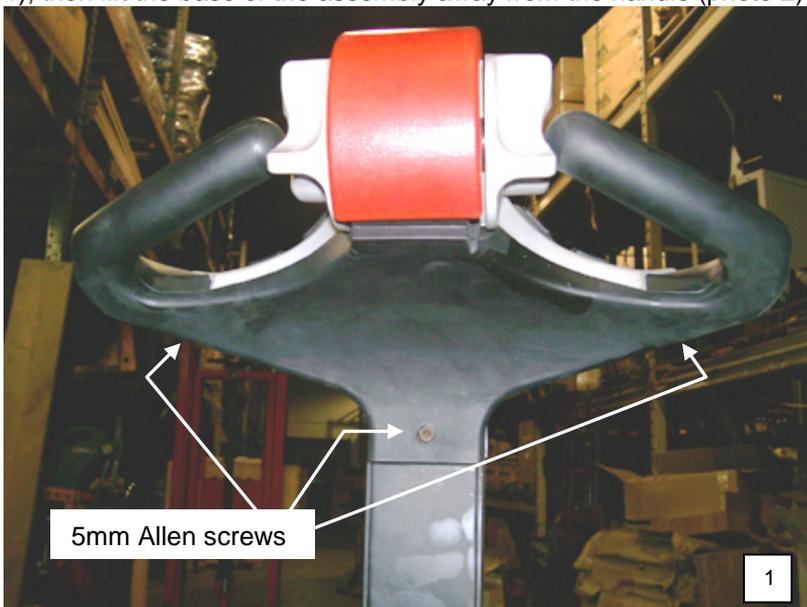
- Lock out all potential energy sources (i.e. battery) before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, 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.
- 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).



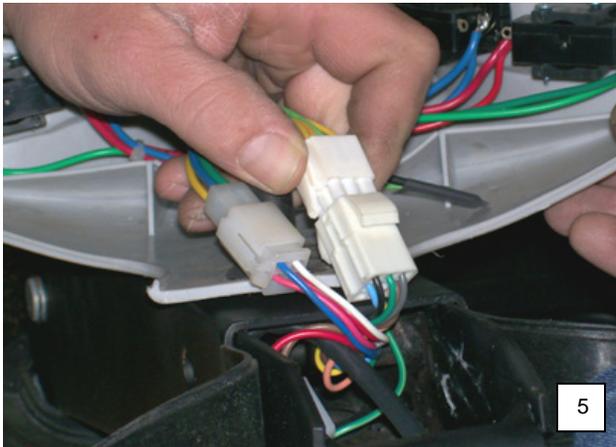
Step 2: Carefully pull the (red) belly switch cover away from the handle while continuing to lift the base of the housing. The housing should separate from the handle as shown in photo 4.

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

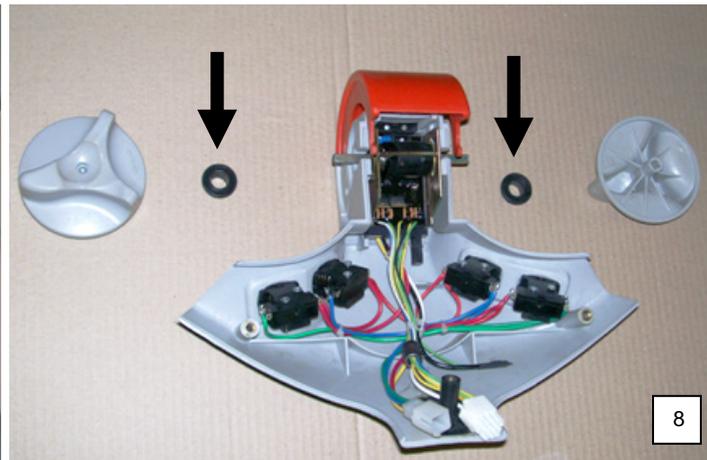


Step 3: Unplug the two connectors shown in photo 5. **[NOTE:** Wires may not attach to connectors. If this is the case, record the wire combinations before you separate them!]

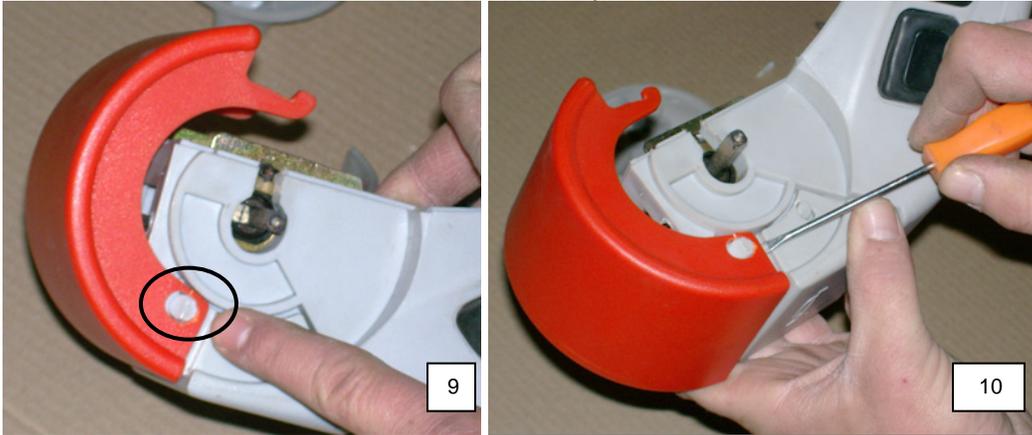
At this point, the entire assembly can be replaced with a new one by simply plugging the replacement assembly into the two connectors. If the problem appears to be in the belly switch, continue to disassemble the throttle. Remove the Philips screw located at the center of the throttle control wheel (photo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



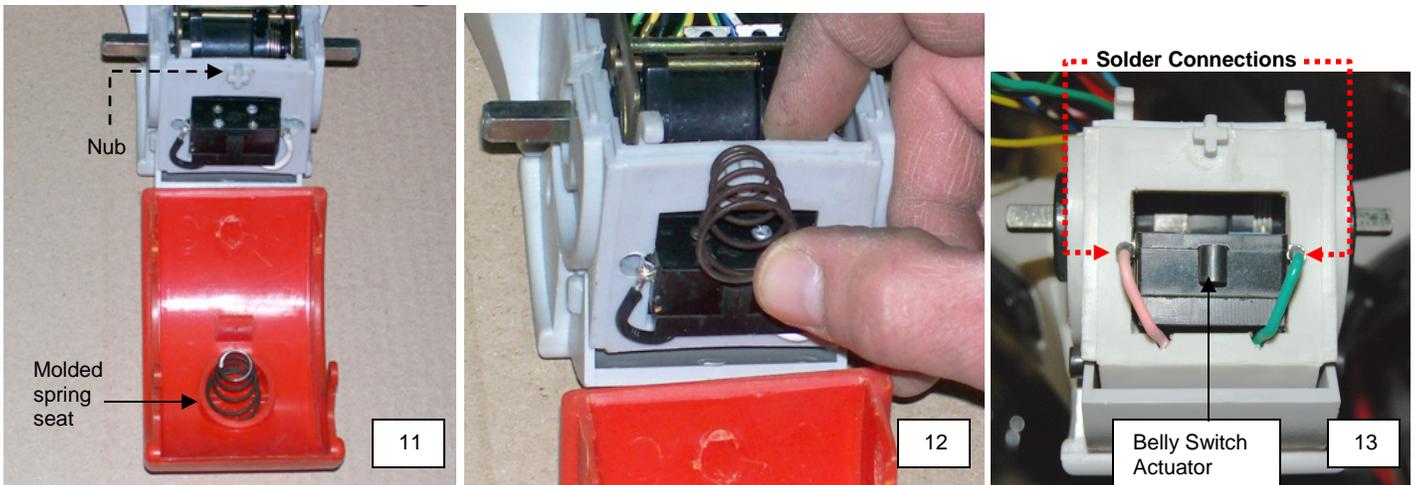
Step 4: Note the orientation of the control wheel on the shaft (correct orientation shown in Photo 7); then slide the it off of the shaft. Remove the remaining wheel from the other side; note the orientation of the two plastic bushings (identified with arrows in photo 8). **If the wheels stick or grind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



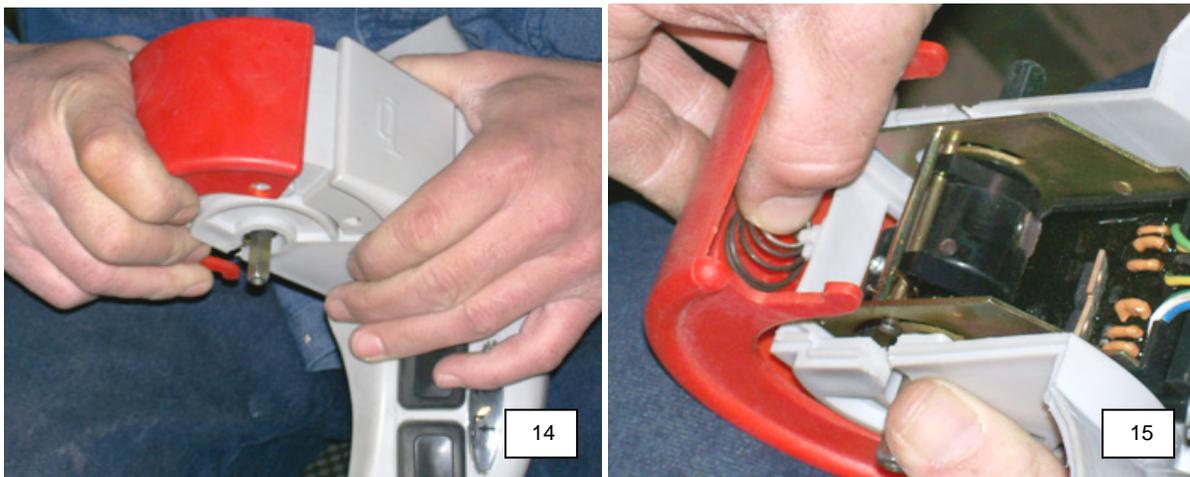
Step 5: The (red) belly switch cover connects to the throttle assembly via a tab on each side, one of which is circled in Photo 9. To remove the switch cover, lift an edge with a flat blade screwdriver; then push the cover over the tab. Next, disengage the tab on the other side. You should now be able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

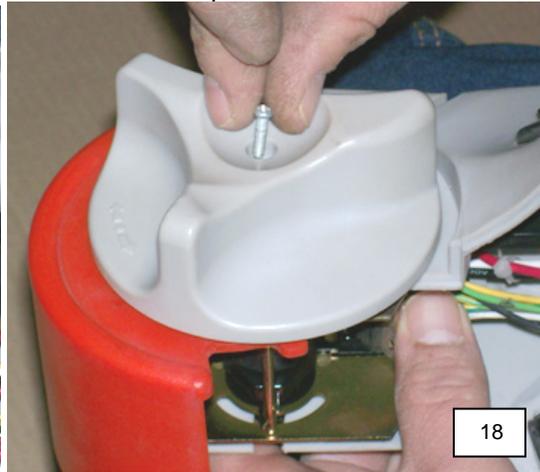


Step 8: Install the bushings onto the throttle wheel shaft. Notice that the bushing must be installed as shown the drawing to the right of Photo 16 below.

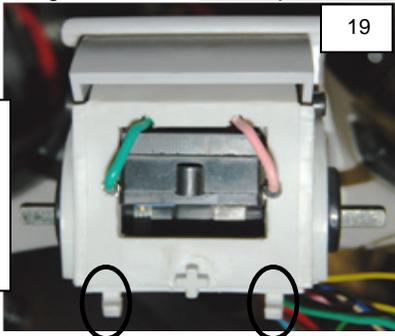


This end onto wheel shaft

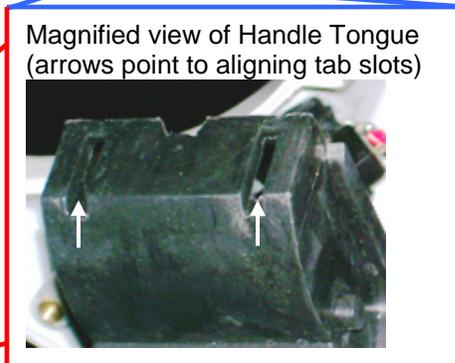
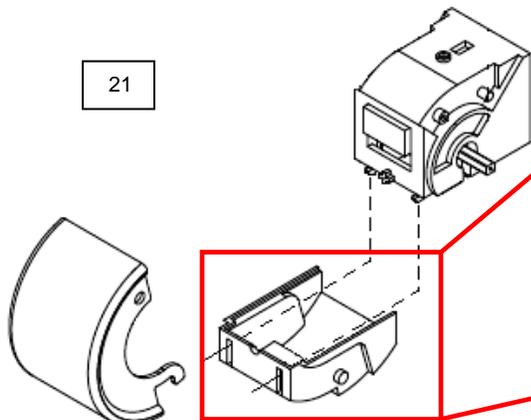
Step 9: Install the throttle wheels, and secure them to the wheel shaft with Philips head screws.



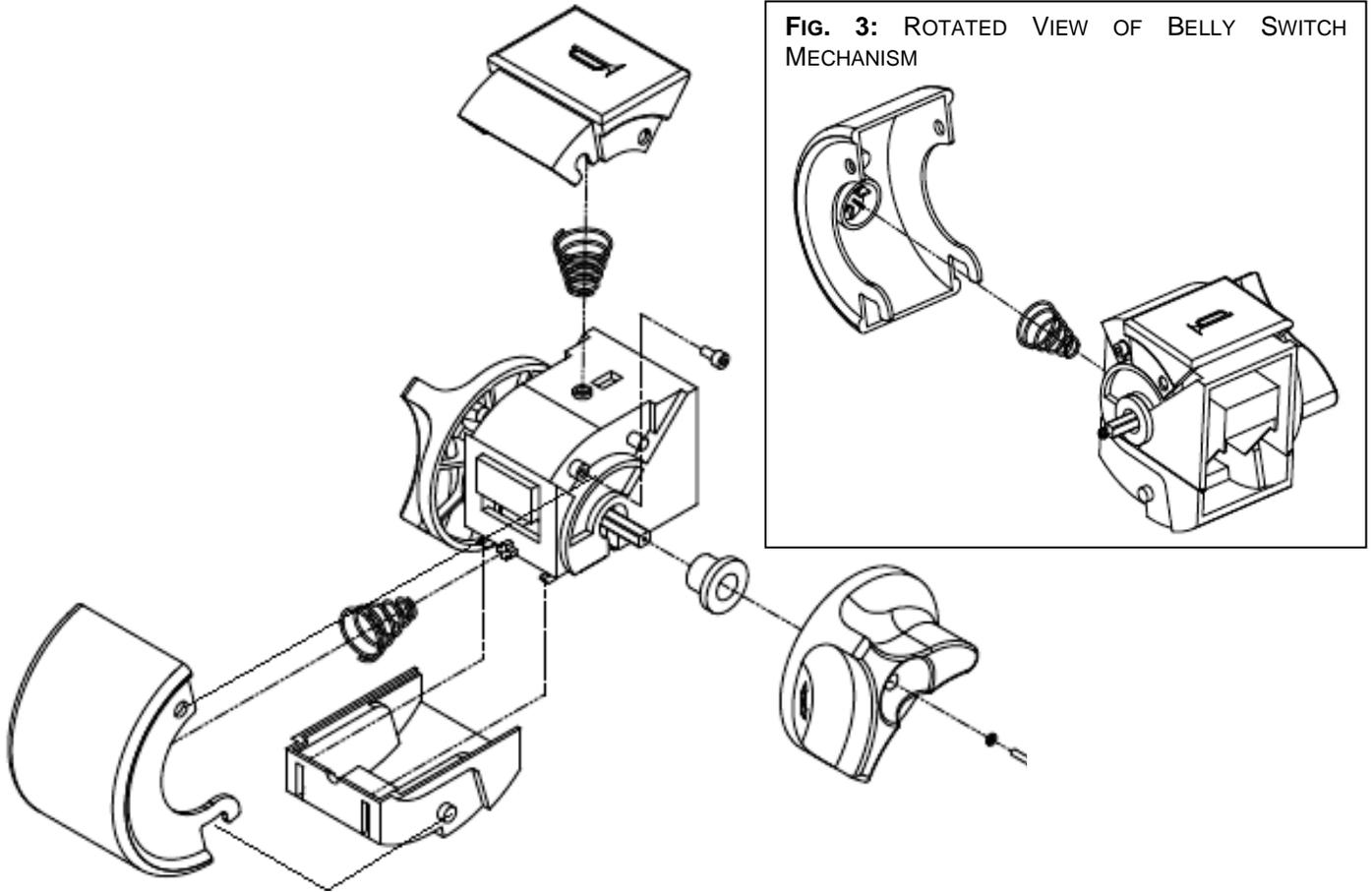
Step 10: To fasten the tiller assembly to the handle, first insert the assembly aligning tabs (circled in Photo 19; NOTE: Tabs underneath the switch cover; Photo 19) into the slots in the handle tongue shown in photos 20 and 21 and identified with arrows in the magnified view. An Exploded View of the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



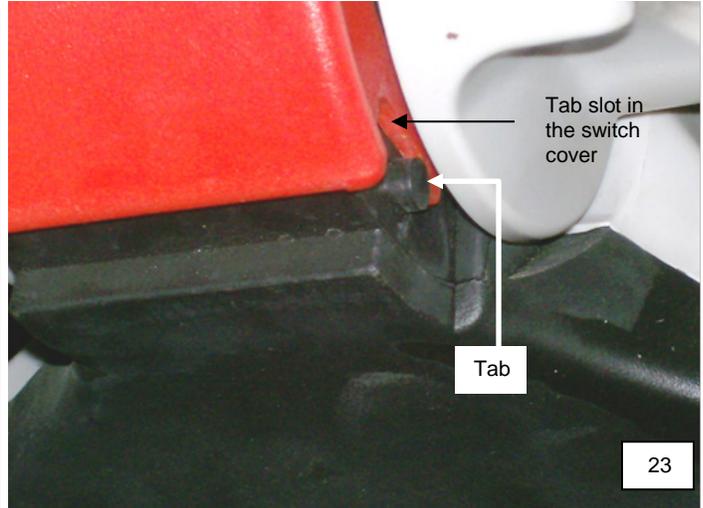
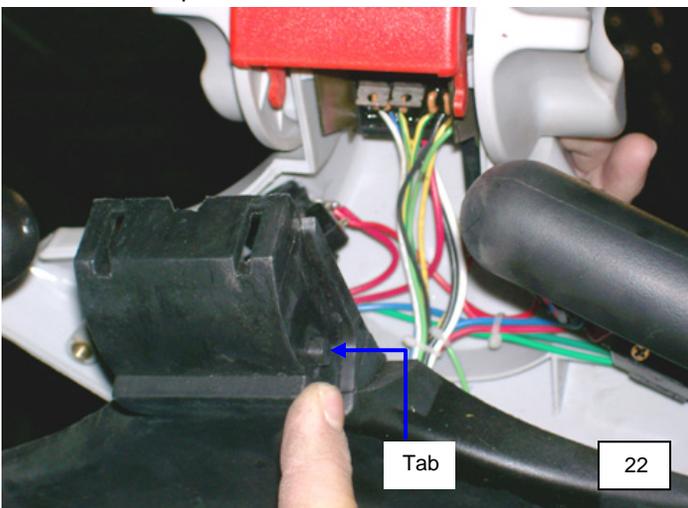
NOTE: In order to show the aligning tabs, the switch cover does not appear in this picture.



EXPLODED PARTS VIEW OF BELLY SWITCH ASSEMBLY



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.

CHANGING THE MOTOR CONTROLLER

Estimated time required: 30 minutes

Tools Required:

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

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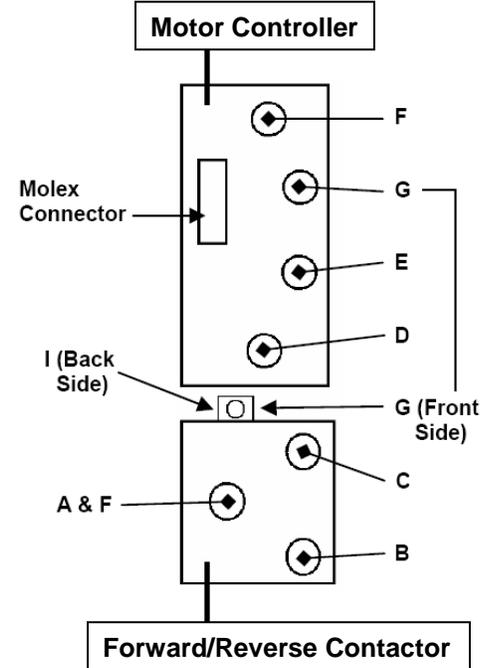
- Lock out all potential energy sources before attempting this installation according to OSHA lockout/tagout procedures (29 CFR 1910.147); turn off the unit and remove the key.
- DO NOT work on, with, or in the vicinity of the battery UNLESS you are wearing personal protective equipment, particularly 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.
- 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.
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- 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.

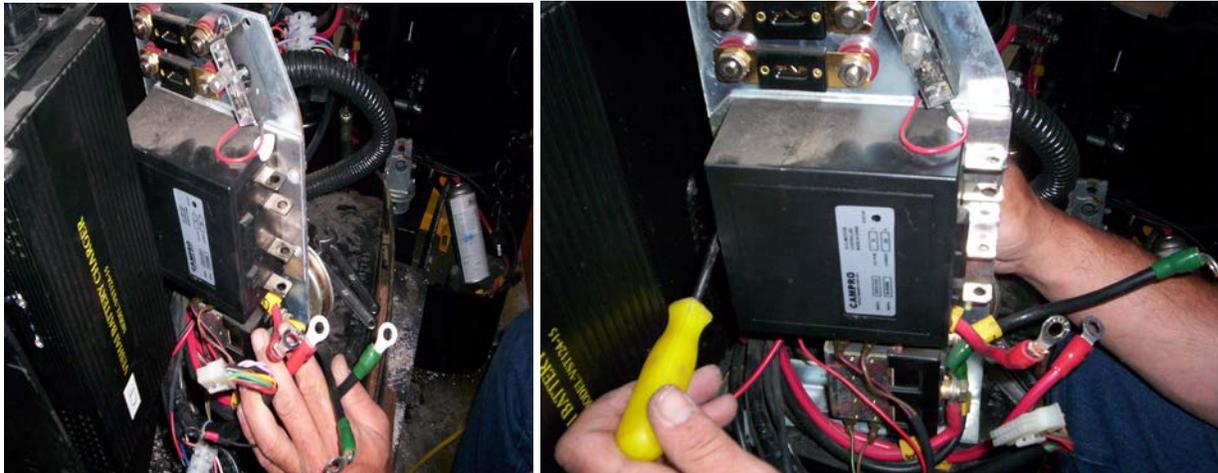


Step 4: Remove the Molex connector from the motor controller.

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



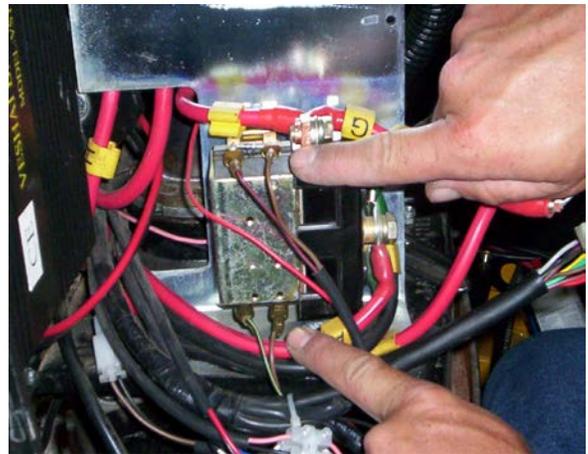
Step 6: After you have unfastened all 4 of the cable connections (first photograph below); then remove the three 8mm screws (1 screw in back and 2 in the front) holding the motor controller to the back plate with a Philips screwdriver, and 8mm wrench.



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.

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

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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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- 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.

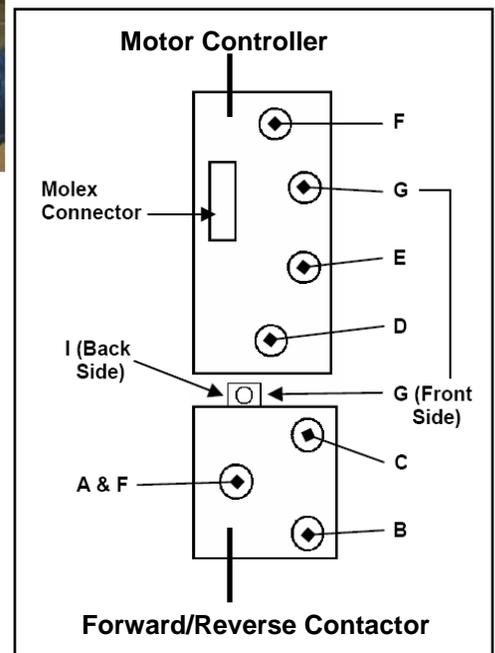
Purpose: To repair or replace a malfunctioning Forward/Reverse Contactor.

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.

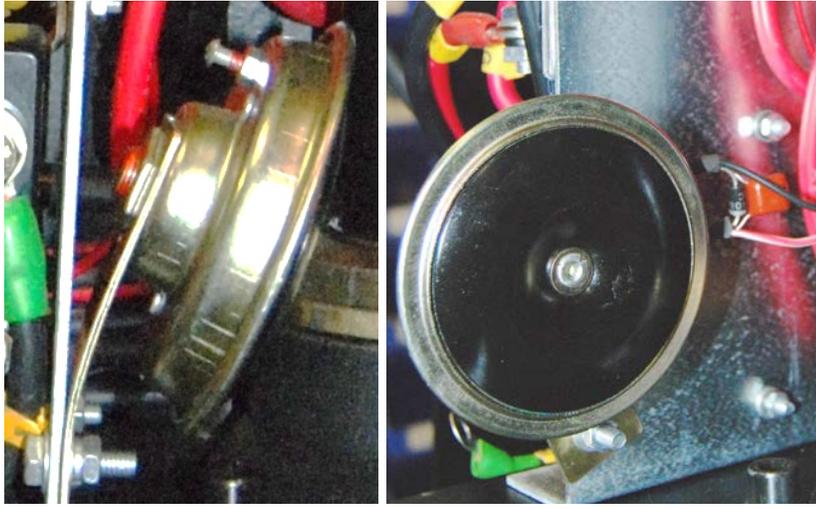
Step 1: Remove the Main Body Housing by unfastening the two (2) screws on either side of the housing as shown in photo 1; then remove the yellow cover. With the cover removed, the electrical components are visible, as shown in the second photograph to the right.



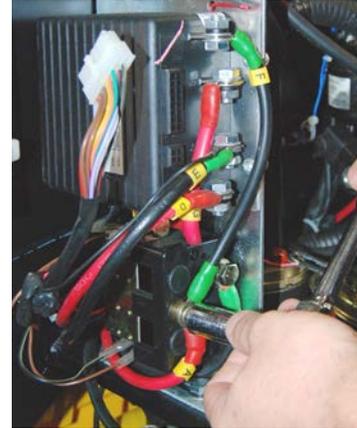
Step 2: Locate the Forward/Reverse Contactor (FRC) – pointed to in photograph 3. The diagram identifies each of the cables that attach to the Campro motor controller and to the FRC.



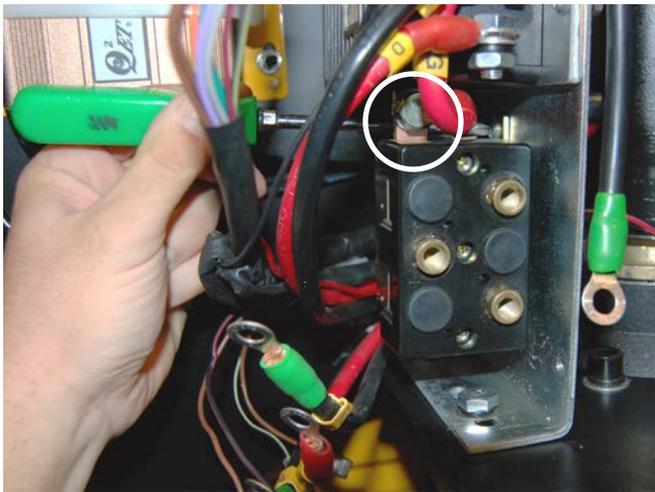
Step 3: Use 10mm wrenches (or adjustable wrenches) to disconnect the horn from the mounting plate.



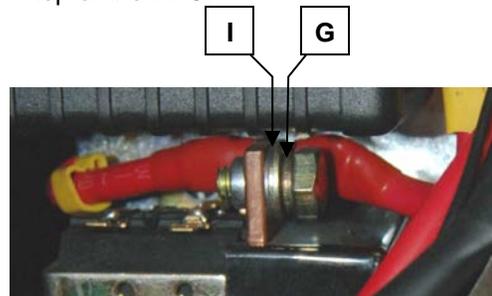
Step 4: Disconnect cables B, A, F, and C from the FRC, using either a 9/16 inch crescent wrench (or socket) or a 14mm wrench. [Photograph below shows disconnection of A & F cables.]



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

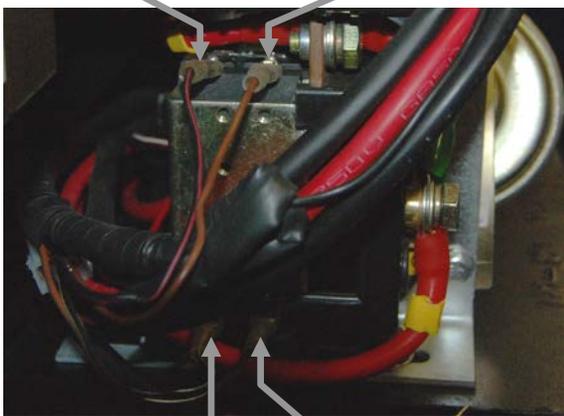


Close-up side view of the terminal on top of the FRC.

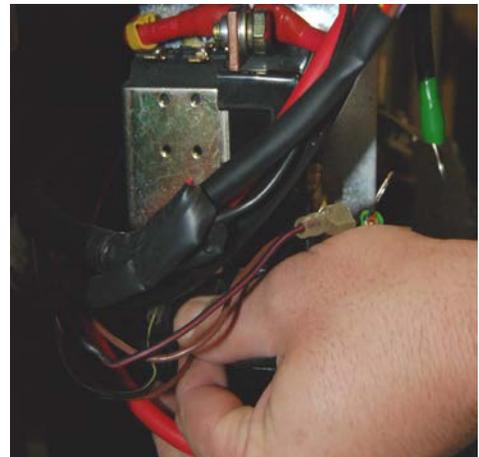


Step 5: Disconnect the spade terminals (locations shown in photograph below).

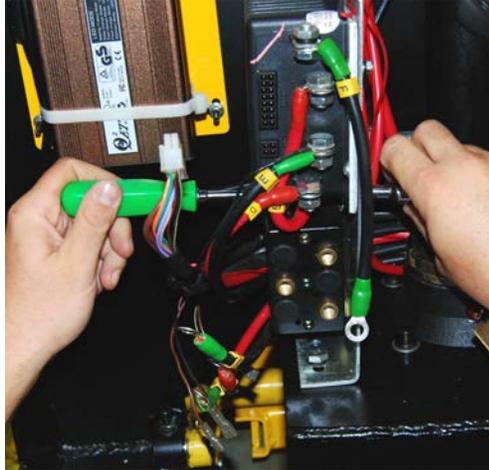
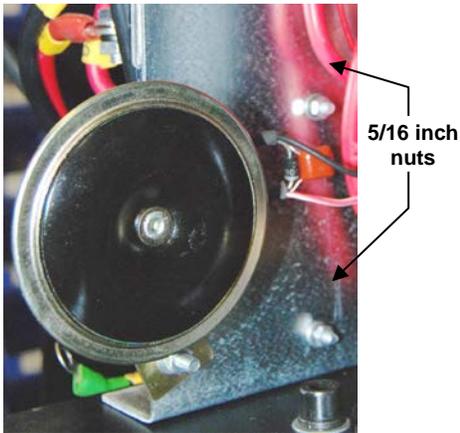
Red & Black wire Orange wire



Green & Black wire Orange wire

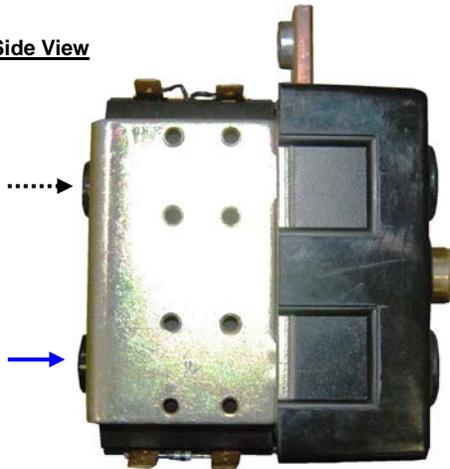


Step 6: Disconnect the FRC from the mounting plate. The FRC mounts on the plate with 2 Phillip's head bolts and 5/16 inch nuts. After the bolts are unfastened, remove the FRC.

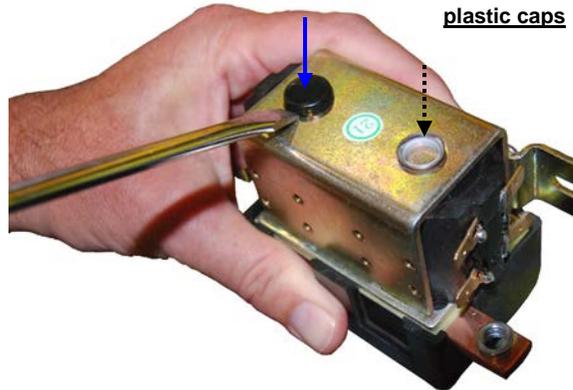


Step 7: The FRC may not need to be replaced if the malfunction results from mechanical binding of some of the moving parts. To apply lubricant, remove the plastic caps shown below (identified with arrows) with a flat-blade screwdriver.

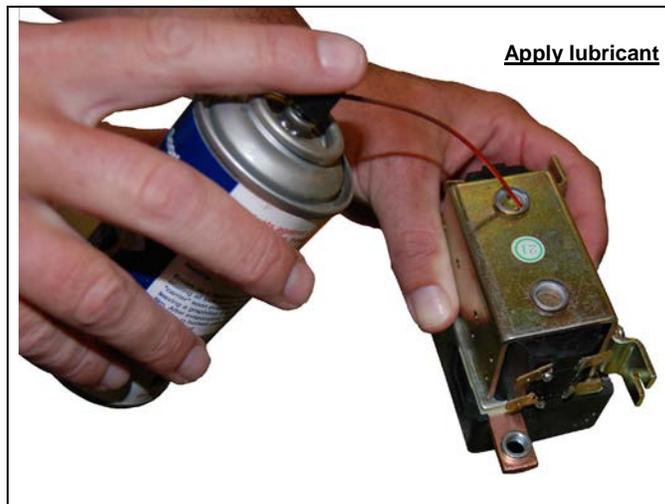
Side View



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.

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.

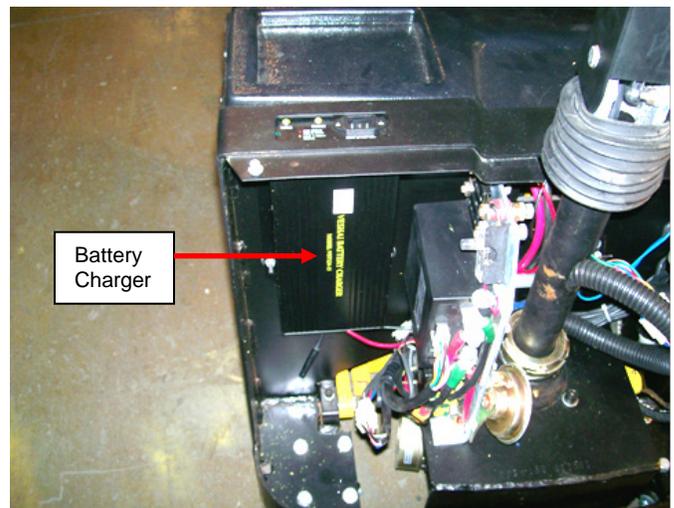
Battery Charger Operating Instructions for New Charger after Installation

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.

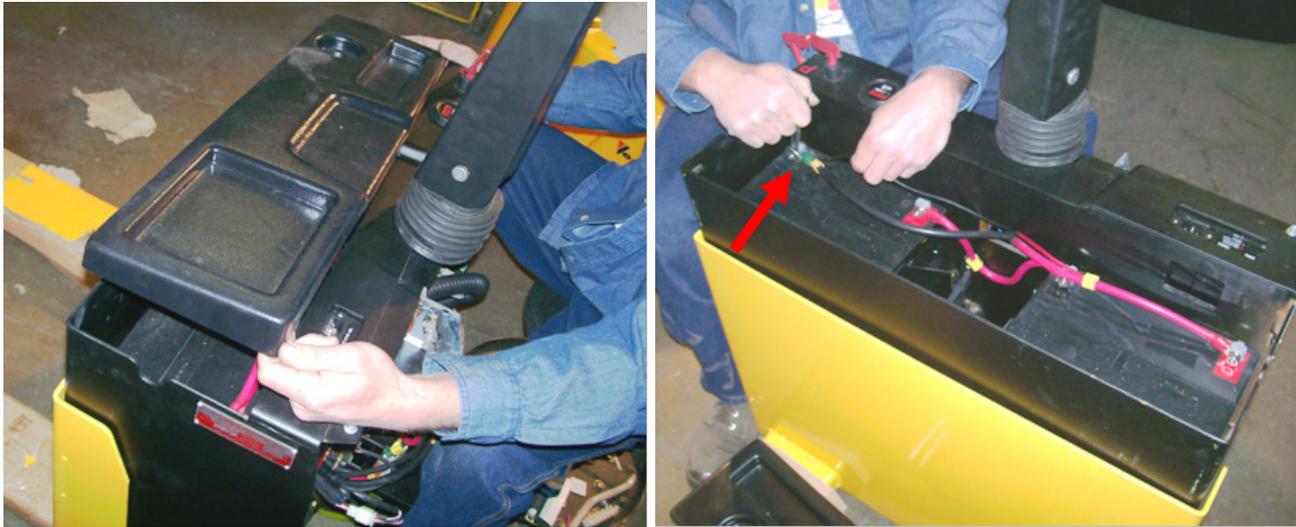
Remember to unplug the charger before moving the equipment. Failure to do so could cause damage to cords, receptacles and other equipment.

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.



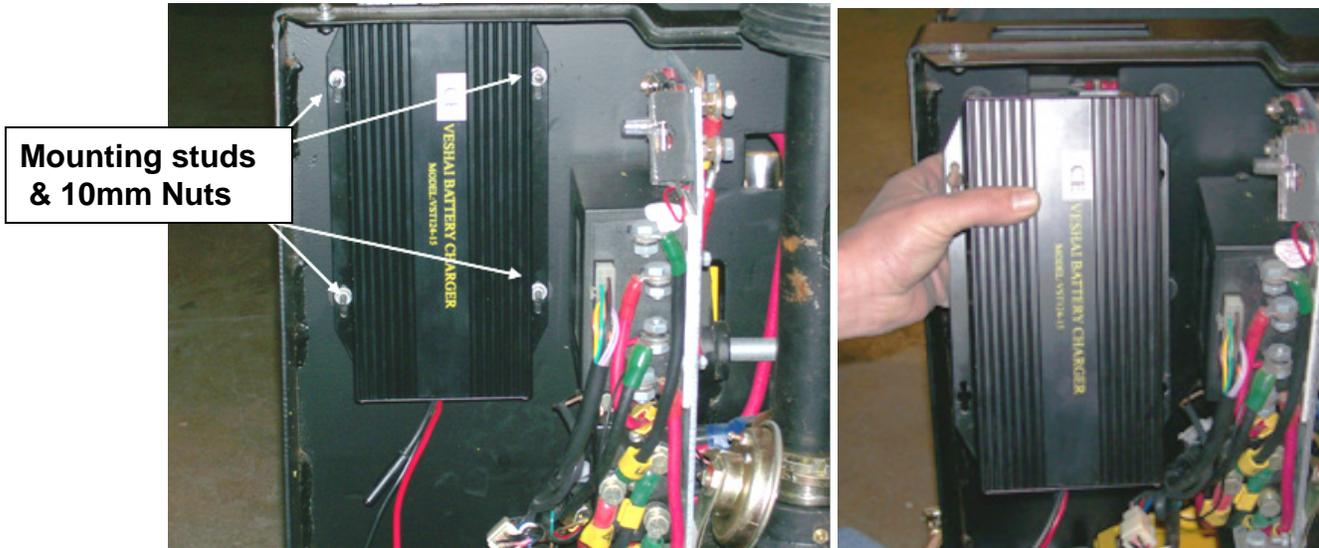
Step 3: Follow the wires that connect the charger to the batteries from the bottom of the charger (circled in the photograph below) to the ends of each wire, which connect to the positive and negative battery terminals. Once you understand how the wires get from the charger to the battery compartment,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



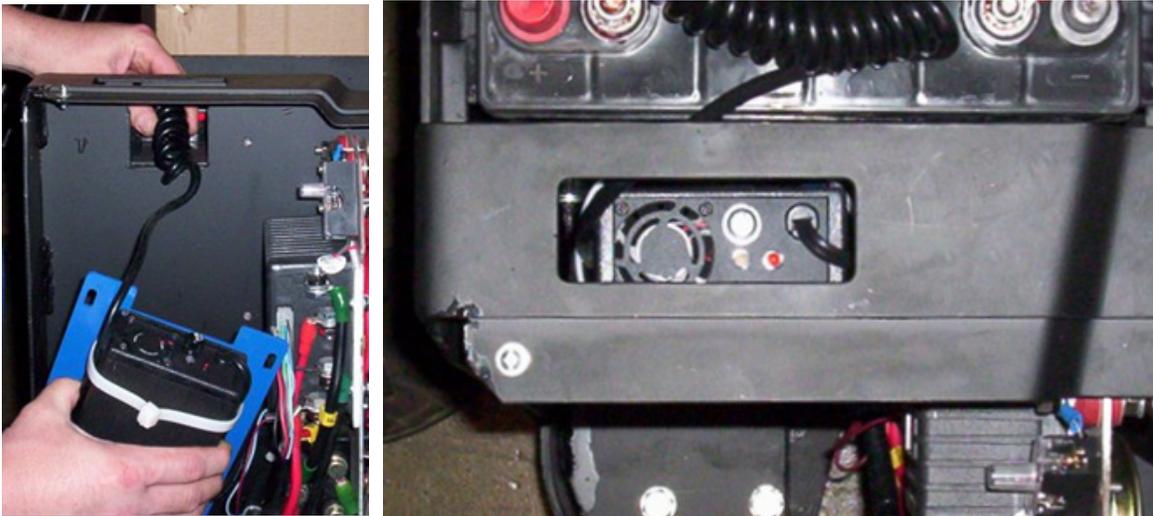
Step 4: Disconnect the red cable from the positive terminal.



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.

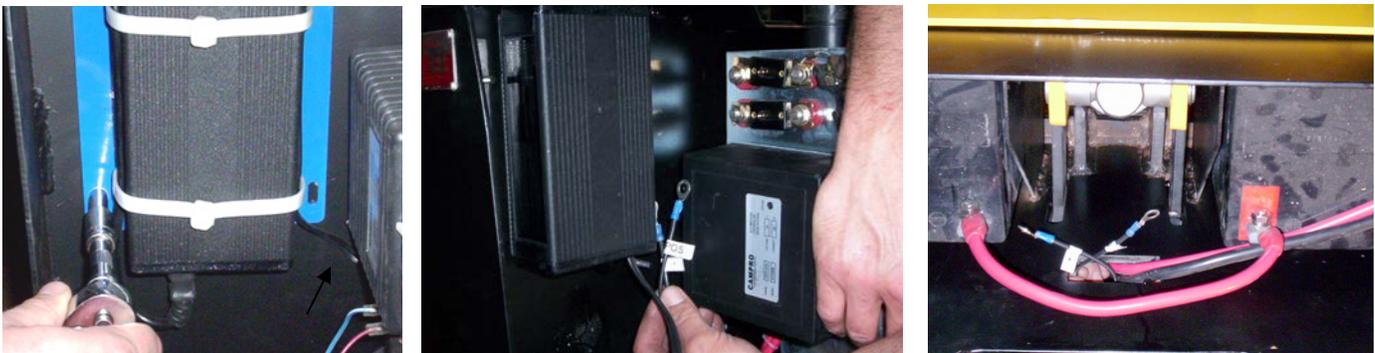


Step 6: Once the old battery charger is removed, the replacement charger can be installed. The new charger is attached to a mounting bracket (blue in the photograph below) so that it can install onto the 4 mounting studs. Install the new charger with the pigtail electrical cord facing downwards and the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

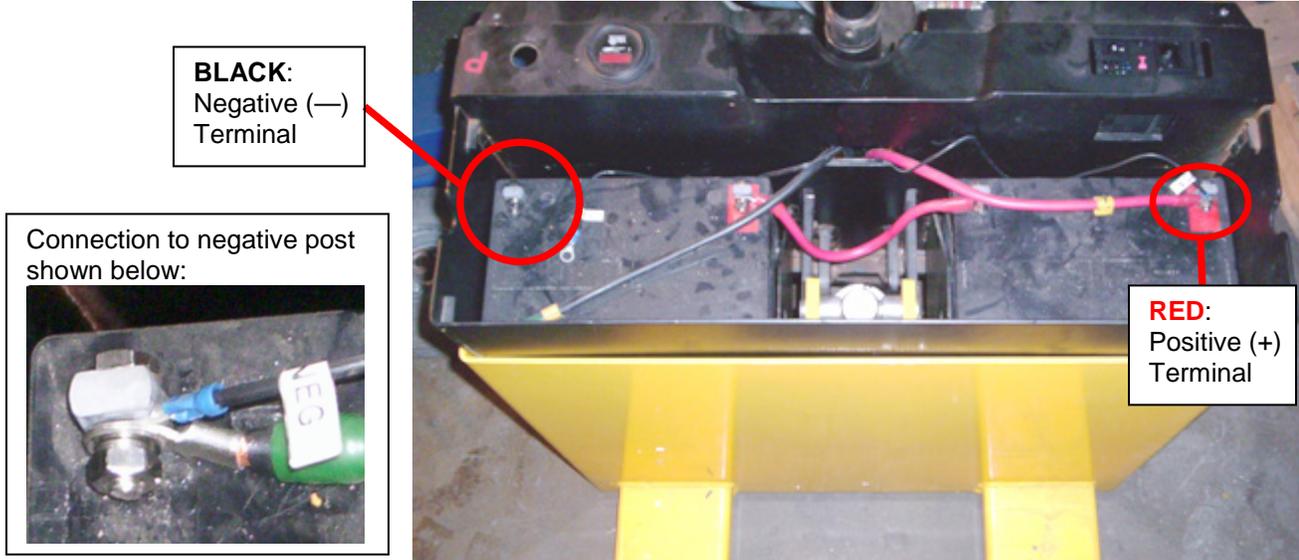


Step 7: Secure the new charger in position by winding the nuts back onto the mounting studs. Feed the wires labeled "POS" and "NEG" into the battery compartment following the same path noted in Step 4.

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 [BATTERIES AND BATTERY CHARGER](#), p. 21-22.



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.

INSTALLING QUENCHARCS

Estimated time: 15 minutes

Tools Required:

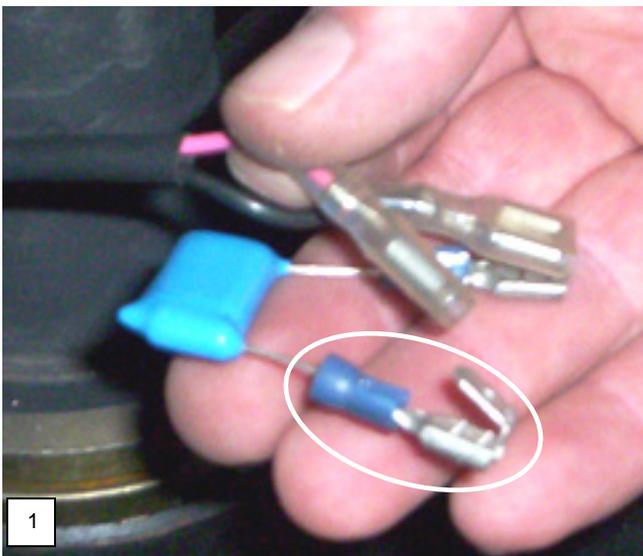
Regular flat bladed screw driver

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.

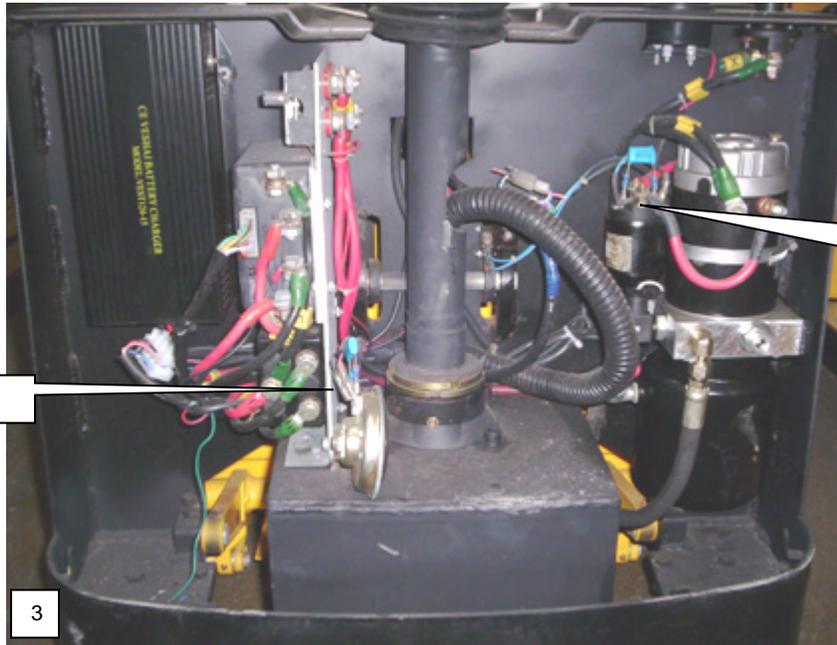
⚠WARNING Only qualified personnel should work on this equipment. READ ALL INSTRUCTIONS BEFORE PROCEEDING! To minimize the risk of serious personal injury, read every one of the instructions and DO NOT proceed with maintenance unless you understand each of them.

- 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 to 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)



Add one to the horn

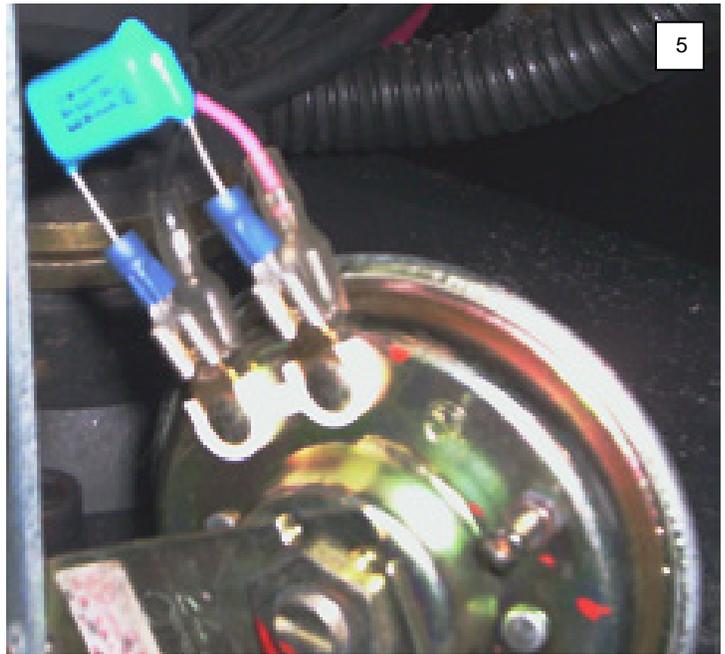
Add one to the pump solenoid

3

Quencharc installed on pump solenoid.



4



5

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

CHANGING THE DRIVE WHEEL ASSEMBLY

Estimated time: 1 hour 30 minutes

Tools Required:

- Gear Puller (recommended)
- Snap Ring Pliers
- 4mm and 5mm Allen wrenches
- Rubber Mallet
- 5/8in. and 9/16in. crescent wrenches

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 EACH INSTRUCTION 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.



Remove wiring, noting location of each cable.



Locate the brake connector.



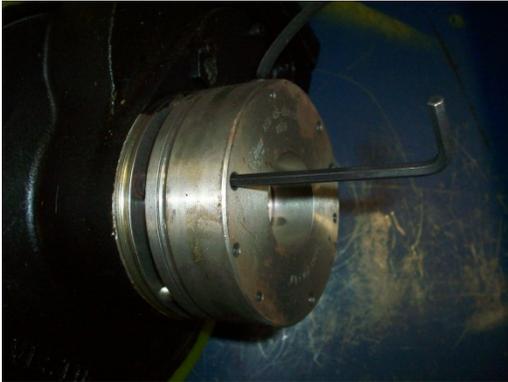
Unplug the brake.



Remove 4 bolts holding the motor/gearbox assembly on the unit.



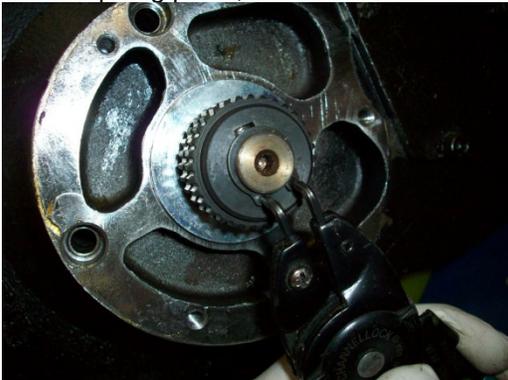
Remove the brake.



Brake will pull out straight.



Use snap ring pliers, and remove as shown.



Gear and key can then be taken off.



Remove 4 Allen head screws.



Put assembly on its' side as shown.



Tap motor free with mallet and remove.



Remove Allen screws holding wheel on.



Note: Pins need to be aligned with the holes when re-installing new wheel. Repeat instruction in reverse order to assemble.



RECORD OF SATISFACTORY CONDITION (THE “RECORD”)

Before putting this machine into service, make a record of its appearance and operation. Photograph the unit from multiple vantage points with the forks in both the lowered and fully elevated positions. Take close range photographs of all labeling applied to the machine, the drive wheel(s), casters, and rollers, control yoke and all control buttons, switches, and gauges, the hydraulic cylinder, and both forks. Remove the yellow cover and photograph the internal components. Use the control buttons to raise and lower the forks. Describe the motion of the forks as they elevate and descend, e.g. smoothly and evenly from side-to side without binding or lurching. Describe the sounds made by the machine as the cylinder extends and retracts to lift and lower the forks. Collect all photographs and writings into a file. Mark the file appropriately to identify it. This file is a record of the unit in satisfactory condition (the “Record”). Compare the results of all inspections to this RECORD to determine whether the pallet truck is in satisfactory condition. Do not use the truck unless it is in satisfactory condition. Purely cosmetic changes, like damaged paint or powdercoat, are not changes from satisfactory condition. However, touchup paint should be applied as soon as damage occurs.

INSPECTIONS & MAINTENANCE

Regular inspections and maintenance are necessary to keep the device in satisfactory condition. Compare the results of each inspection to your [RECORD](#) to determine whether the unit is satisfactory condition or requires repairs or replacement parts. If you are uncertain whether a part requires repair or replacement, contact [TECHNICAL SERVICE](#) for assistance.

- Periodically lubricate moving parts.
- Keep the product clean and dry.
- Only use manufacturer- approved replacement parts.

INSPECTIONS:

NOTICE

- 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.

Only trained, qualified persons should perform inspections or maintenance on this pallet truck. Perform a *Before Each Use* inspection before the truck is used for the first time and before each subsequent use.

If your truck is rarely used (1-2 times per month), inspect the unit at least once per month, or before each use, whichever is more frequent.

Before each use, inspect the truck for the following:

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. Battery: 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, casters, and rollers.

At least once per month, disconnect the battery, chock the wheels, and inspect the following:

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 and/or pins 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: Implement a scheduled maintenance program to ensure the proper and safe operation. The latest revision of ANSI/ITSDF standard B56.1 provide recommended maintenance procedures, and the following steps should be utilized in conjunction with those recommendations. A copy of the standard is freely downloadable from the ITSDF website (www.ITSDF.org).

⚠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 truck, “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. Contact Vestil for instructions.

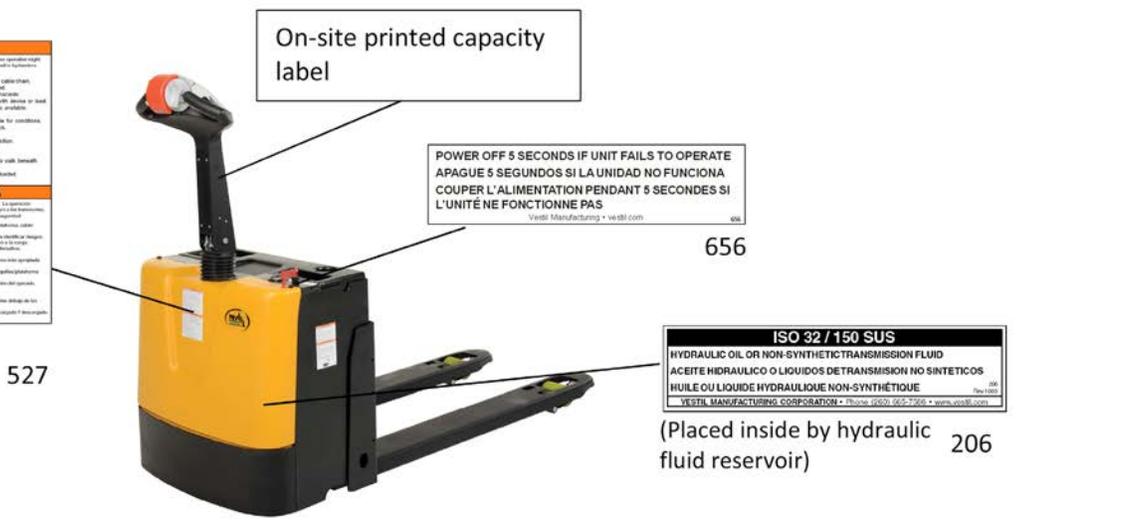
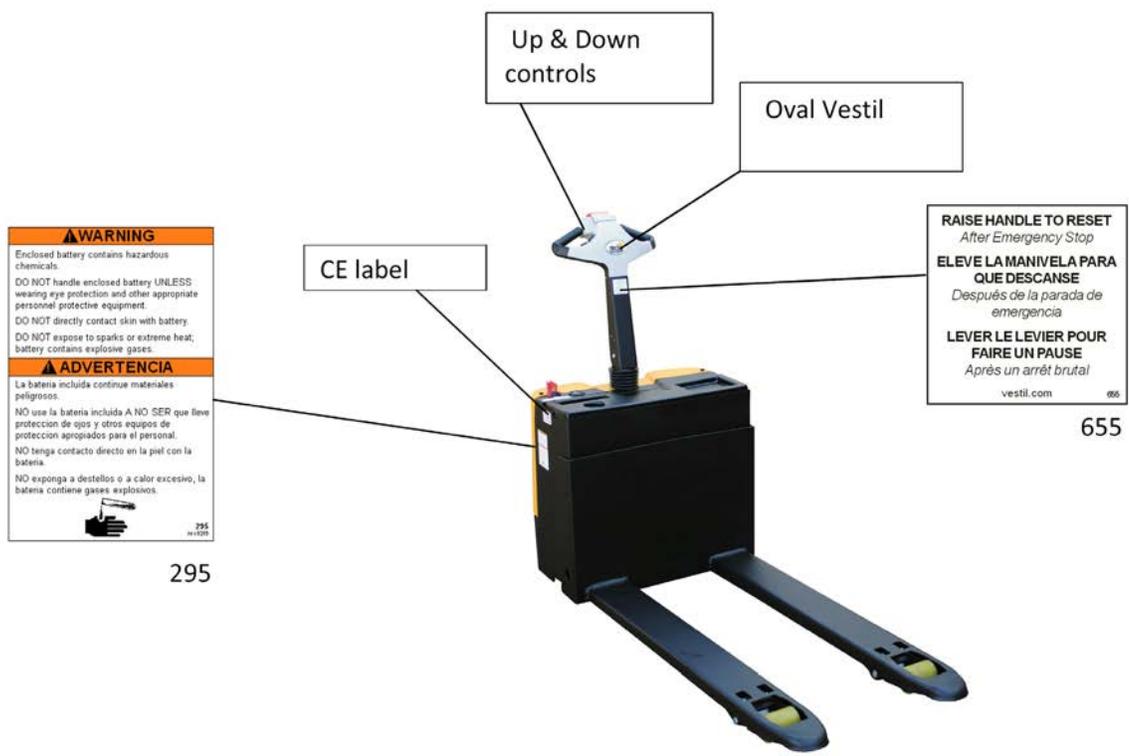
Step 3: Clean the forks and other surfaces.

Step 4: Perform all adjustments and/or repairs necessary to restore the truck to *SATISFACTORY CONDITION*. **DO NOT** modify the truck. **NEVER modify the unit without the express, written approval of Vestil. Modifications automatically void the LIMITED WARRANTY and could make the truck unsafe to use.**

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

LABELING DIAGRAM

The unit should be labeled as shown in the diagram. However, label content and location are subject to change so your product might not be labeled exactly as shown. Thoroughly photograph the unit when you first receive it as discussed in the [RECORD OF SATISFACTORY CONDITION](#) section of this manual. Make sure that your Record includes a photograph of each label. Modify this diagram, if necessary, to indicate labeling actually applied. Replace all labels that are, damaged, missing, or not easily readable (e.g. faded). Contact the [TECHNICAL SERVICE AND REPLACEMENT PARTS DEPARTMENT](#) online at http://www.vestilmfg.com/parts_info.htm to order replacement labels. You may also call (260) 665-7586 and ask the operator to connect you to the [REPLACEMENT PARTS DEPARTMENT](#).



LIMITED WARRANTY

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

Who may request service?

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

Definition of “original part”?

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

What is a “proper request”?

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

<u>US Mail</u>	<u>Fax</u>	<u>Email</u>
Vestil Manufacturing Corporation 2999 North Wayne Street, PO Box 507 Angola, IN 46703	(260) 665-1339 <u>Phone</u> (260) 665-7586	info@vestil.com Enter “Warranty service request” in the subject field.

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

What is covered under the warranty?

The warranty covers the following *original* drive and lift components: drive motors and lift motors, hydraulic pumps, electronic controllers, switches and cylinders. It also covers *original* parts that wear under normal usage conditions (“wearing parts”): bearings, hoses, wheels, seals, brushes, batteries, and the battery charger. The warranty period for drive and lift components is 1 year. For wearing parts, the warranty period is 90 days. Both warranty periods begin on the date when Vestil ships the product to the warrantee. If you purchased the product from an authorized distributor, the periods begin when the distributor ships the product, which extends the warranty by up to an additional 30 days.

How long is the warranty period?

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

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

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

What is not covered by the warranty?

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

Events that automatically void this Limited Warranty.

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

Do any other warranties apply to the product?

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