

VESTIL MANUFACTURING CORP.
 2999 N. Wayne St., Angola, IN 46703
 Ph: 260-665-7586 · Fax: 260-665-1339
 E-mail: sales@vestil.com · www.vestil.com

OWNER'S MANUAL

MODELS WITH POWERED TRACTION DRIVE (PTDS)

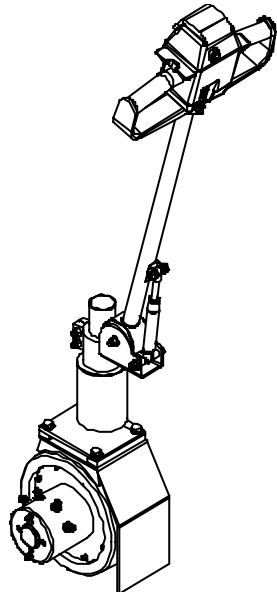
Serial number _____

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WARNINGS AND SAFETY INSTRUCTIONS

Ensure that all employees understand and follow the following.

- Failure to read and understand this owner's manual before using or servicing the traction drive constitutes a misuse of the product. All persons who will install, use, or care for this product must be familiar with this material.
- Do not use the traction drive if any damage, unusual noise, or unusual behavior is observed.
- Do not disable the lift's "creep" limit switch or the tiller's belly switch for any reason.
- Make certain that the load is stable, secure, and lowered as close as possible to the floor before transporting.
- Always watch the load on the equipment carefully when moving it with the traction drive.
- Use extreme care when using a traction drive unit in areas where tripping hazards exist or when it is being operated in reverse or across any non-level surface.
- Always use in a manner that will allow a path of escape for the operator and other personnel in the event that the load shifts or the traction drive malfunctions.
- Do not operate the traction drive unit in a manner, or a location, that could cause pinning of the operator or other personnel between the machine and any other object.
- Do not ride, or allow others to ride, on the driven product.
- Do not perform any modifications to the traction drive system without the manufacturer's approval. Failure to receive authorization for changes to the equipment could void the warranty.
- Maintenance and repairs are to be done only by personnel qualified to perform the required work.



WHEN ORDERING

REPLACEMENT PARTS:

We take pride in using quality parts on the equipment we manufacture. We are not responsible for equipment problems resulting from the use of unapproved replacement parts.

To order replacement or spare parts for this equipment, contact the factory.

In any communication with the factory please be prepared to provide the machine's serial number, which is indicated on the machine dataplate.

RECEIVING INSTRUCTIONS

Every unit is thoroughly tested and inspected prior to shipment. However, it is possible that the unit could incur damage during transit.

Inspect the unit closely when it arrives. *If you see evidence of damage or rough handling to either the packaging or to the product when it is being unloaded, **immediately** make a note of it on the Bill Of Lading!*

It is important that you remove the product's packaging upon its arrival to ensure that there is no concealed damage or to enable a timely claim with the carrier for freight damage.

Also verify that the product and its specifications are as ordered.

OPERATION INSTRUCTIONS – PTDS

- *Ensure that all employees involved in the operation of this powered traction drive understand and follow these instructions!*

Machines propelled by traction drives must follow many of the same rules of operation as those that apply to powered fork truck use. Consult ANSI B56.1 "Safety Standard for Low-Lift and High-Lift Trucks," OSHA regulation 1910.178 titled "Powered Industrial Trucks," ANSI/NFPA 505 "Fire Safety Standard for Powered Industrial Trucks," and UL 583 "Standard for Safety for Electric or Battery-Powered Industrial Trucks" for the owner's / user's responsibilities regarding the operation of the machine on which the traction drive is installed.

The standard models of material handling equipment that are equipped with the powered traction drive system are suitable for use indoors in most industrial locations and many commercial locations. The traction drive system is intended to allow for the transportation of stable, non-hazardous and non-classified loads aboard lift tables and pallet handlers.

Keep the traction drive system as clean and dry as possible.

Operation:

The traction drive is furnished with controls on the tiller assembly. These include:

- A key switch located on the bottom of the tiller assembly. When the key switch is OFF (the key is parallel with the tiller arm) the traction wheel brake will be set and drive motor will not function.
- A thumb lever on each side of the tiller assembly for Forward / Reverse control. Pushing forward on the upper half of the lever will cause the unit to move forward (away from the operator). Pushing forward on the lower half of the lever will cause the unit to move backward (toward the operator). The traction drive's speed is proportional to the amount the thumb lever is rotated forward. Releasing the thumb lever control will cause it return to its neutral position. The motor control will turn off, the drive wheel brake will set, and the unit will stop.
- A belly switch that will stop the traction drive's motion and set the drive wheel brake. When the large red operator is pressed the motor control shuts off and sets the drive wheel brake to prevent the operator from being pinned when moving loads backward.
- A horn button, identified by the horn symbol on the top of the button.
- RAISE and LOWER pushbuttons, identified by a legend located adjacent to each button. When these buttons are connected, the machine's lifting surface can be raised and lowered from the tiller assembly (as long as the power unit's key switch is in the "ON" position).

To operate the traction drive system:

Warning: Keep all personnel clear of the machine when it is in motion.

Warning: Use extreme care when using a traction drive unit in areas where tripping hazards exist or when it is being operated in reverse.

Warning: Always allow a path of escape for the operator and other personnel in the event that the load shifts or the traction drive malfunctions.

Warning: Do not operate the traction drive unit in a manner, or a location, that could cause pinning of the operator or other personnel between the machine and any other object.

Warning: Do not ride on, or allow others to ride on, the machine driven by the traction drive.

Caution: Always carefully watch the load when the machine is in motion.

- ◆ Fully lower the lifting surface before moving the machine unless only fine positioning movement is required.
- ◆ Turn the key switch to the ON position.
- ◆ Grip the tiller assembly by the handle on each side and pull the tiller handle down to a comfortable position, typically at about waist height.
- ◆ Use one or both thumbs to push the thumb lever forward -- push the upper lever to move forward, push on the lower lever to move backward. The farther the thumb lever is pushed, the faster the machine moves.
- ◆ To steer the machine, push the entire tiller assembly to the right or left. The tiller is easier to steer when the drive wheel is moving at least slightly.

Warning: Use only slow, smooth movement of the tiller to steer the machine. Reduce speed to a safe level when making turns.

- ◆ Release the thumb lever to stop the machine.

Caution: Do not stop the machine on inclines. This could result in unintentional movement of either the machine or of the load placed on the lifting surface of the machine.

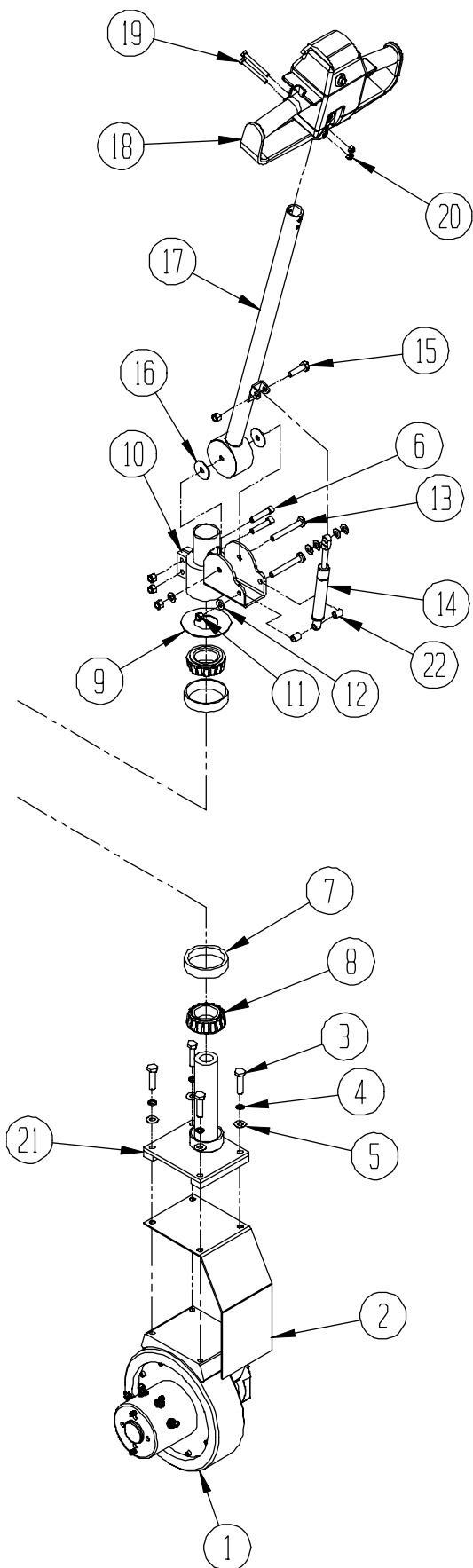
- ◆ Release the tiller handle to return it to the upright position.
- ◆ Turn the key switch to the OFF position if the traction drive will not be used again within a short time.

Caution: Do not use the traction drive system if any damage or unusual noise is observed, if it is in need of repairs, or if it seems to be malfunctioning. Notify your supervisor or maintenance personnel if you notice anything out of the ordinary.

ROUTINE MAINTENANCE & SAFETY CHECKS – PTDS

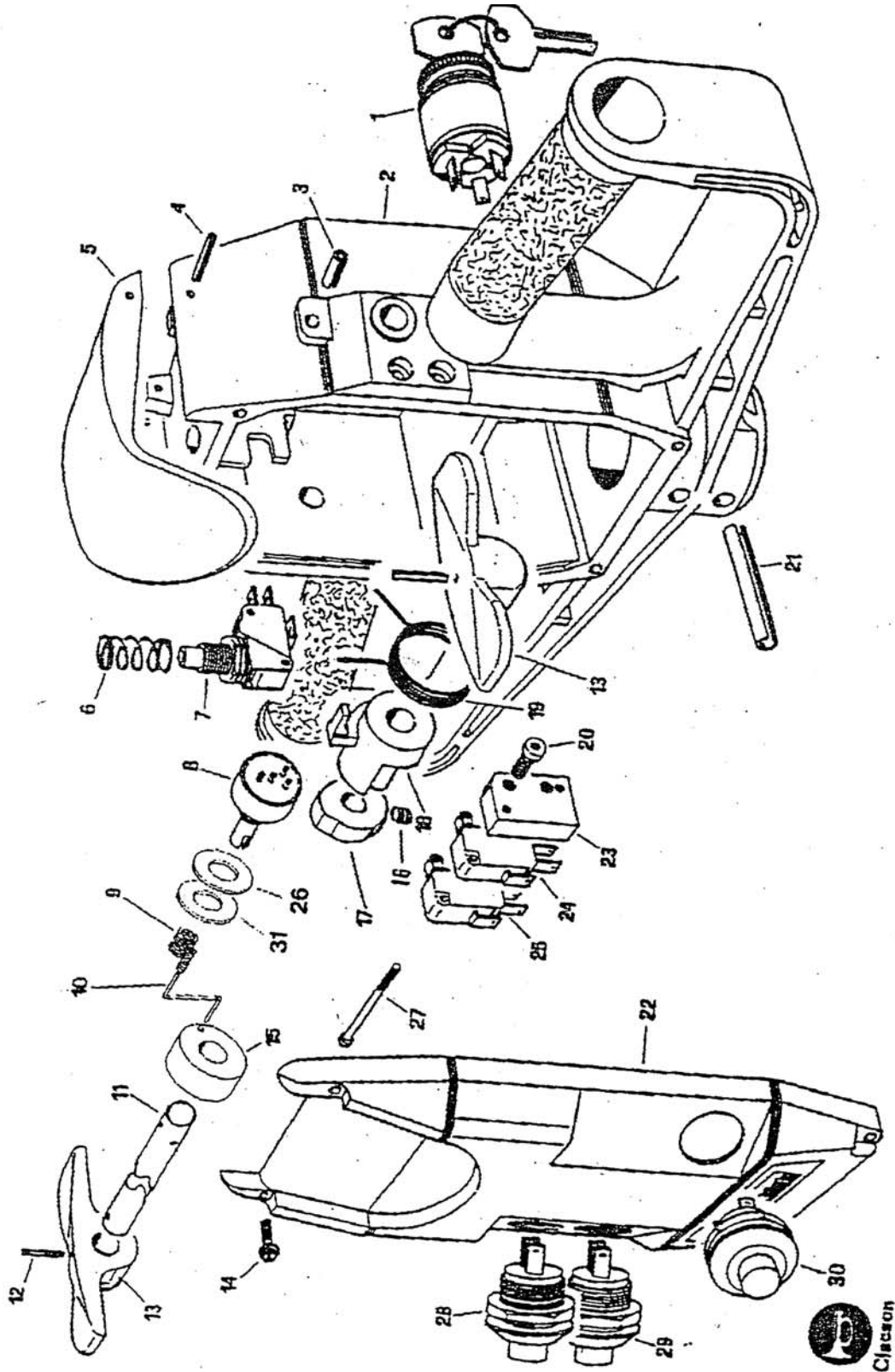
- *Warning: Care should be taken to identify all potential hazards and comply with applicable safety procedures before beginning work.*
 - *Only qualified individuals trained to understand mechanical devices and their associated electrical circuits should attempt troubleshooting and repair of this equipment.*
 - *Refer to the “Instructions for Battery Powered Units” page in the product’s owner’s manual.*
 - *Warning: Disconnect the motor or jack up the machine’s frame to get the drive wheels off the ground before attempting any work on the motor control circuitry.*
 - *Open the battery circuit before working on the motor control circuit to prevent the possibility of high current arcs, short circuits, and the potential for unexpected movement of the drive wheel.*
- (A) Before each use inspect for the following:
- 1.) Proper functioning of the belly switch and horn.
- (B) Inspect weekly for:
- 1.) Pinched, frayed, or chafed wires.
 - 2.) Damage to the drive wheel, the wheel’s surface, the wheel guard, the steering tiller handle, or the tiller control operators.
 - 3.) Damage to the battery cables connected to the drive wheel motor.
 - 4.) Full turning range of movement of the steering tiller.
 - 5.) Drive wheel brake effectiveness.
 - 6.) Unusual noise or movement from the drive wheel.
 - 7.) Proper functioning of the lift’s “creep” switch. (The traction drive should move only very slowly unless the lifting surface is fully lowered.)
- (C) Inspect monthly for:
- 1.) The batteries’ condition. (Corrosion, water level, voltage level after charging)
 - 2.) Worn or damaged electrical wires at the motor, where the wires enter the bottom of the tiller pivot tube, or where the wires bend at the tiller pivot pin.
 - 3.) Looseness in the drive wheel’s pivot bearing.
 - 4.) Looseness of the wheel on the drive motor.
 - 5.) Proper braking force.
 - 6.) The need to clean off dirt and debris.

EXPLODED PARTS VIEW AND BILL OF MATERIALS -- PTDS



Item #:	Qty.:	Part number:	Part description:
1	1	MRT18.0080	Assembly, drive wheel
2	1	99-024-008	Guard, drive wheel
3	4	A/L	Bolt, 10 mm x 1 3/4" long
4	4	A/L	Washer, lock, 10 mm ID
5	4	A/L	Washer, flat, 10 mm ID
6	2	A/L	Screw, socket head cap, 3/8"-16 x 1 3/4"
7	2	25526	Cup, bearing
8	2	25580	Cone, bearing
9	1	99-024-004	End cap, guard
10	1	99-525-002	Weldment, collar assembly
11	5	A/L	Nut, nylock, 3/8"-16
12	6	A/L	Washer, flat, 3/8" ID
13	2	A/L	Bolt, 3/8" 16 x 3" long
14	1	99-145-015	Positioner, tiller
15	1	A/L	Bolt, 3/8" - 16 x 1 1/2" long
16	2	A/L	Washer, fender, 3/8" ID x 1 1/2" OD
17	1	99-525-001	Weldment, assembly, tiller
18	1	TA-1000	Assembly, throttle
19	2	A/L	Bolt, 1/4" - 20 x 2 1/2" long
20	2	A/L	Nut, nylock, 1/4" - 20
21	1	99-516-003	Weldment, bracket, wheel mtg
22	2	N/A	Spacer, positioner, 5/8" long

THROTTLE ASSEMBLY EXPLODED PARTS VIEW -- PTDS

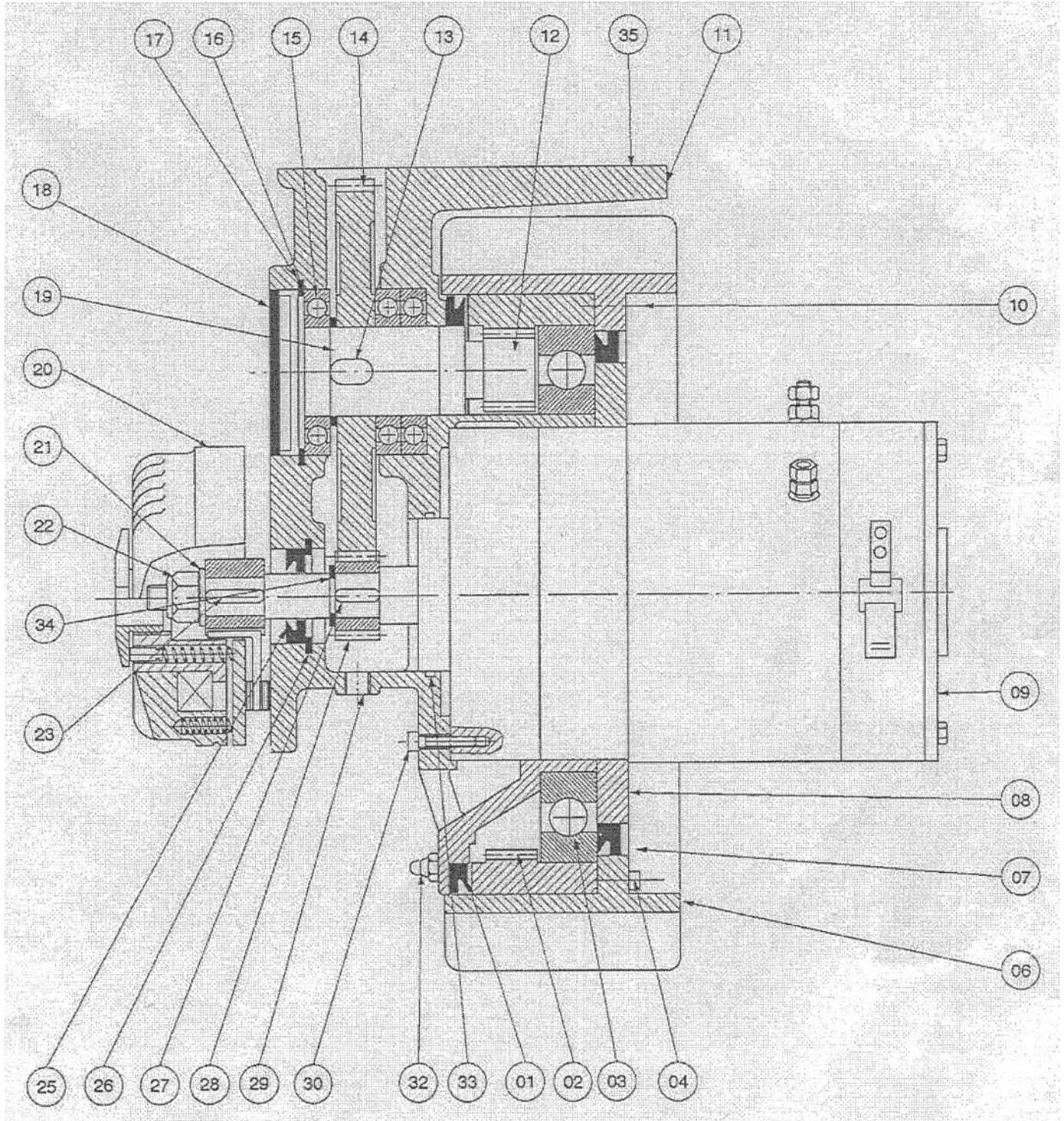


NOTE: THIS IS STANDARD EXPLODED VIEW DRAWING. YOUR HANDLE UNIT MAY DIFFER SOMEWHAT IF YOU HAVE REQUESTED DIFFERENT OPTIONS FOR PUSH BUTTON MICROSWITCHES.

THROTTLE ASSEMBLY BILL OF MATERIALS -- PTDS

<u>Part Number</u>	<u>Description</u>
1	Two-position keylock switch
2	Throttle assembly housing
3	Cotter spring, Dia. 5x20
4	Cotter spring, Dia 2x16
5	Reversing switch
6	Aluminum reversing switch spring
7	Microswitch with push button
8	5K potentiometer
9	Potentiometer double spring
10	Potentiometer pulling spring
11	Shaft
12	Cotter spring, dia. 3x26
13	Adjusting handle
14	Tapping screw, dia. 4.2x3/4
15	Potentiometer control wheel
16	Grub screw M5x8
17	Microswitch cam
18	Microswitch cam
19	Spring for cam return
20	Socket head screw M 4x12
21	Cotter spring, dia. 8x60
22	Housing cover
23	Microswitch plate
24	Short lever wheel microswitch
25	Short lever wheel microswitch
26	Grub screw, dia. 10x2
27	Cheese-headed screw M3x30
28	Normally open push button
29	Normally open push button
30	Silk screen printed horn push button
31	Grub screw, dia 10x0.8

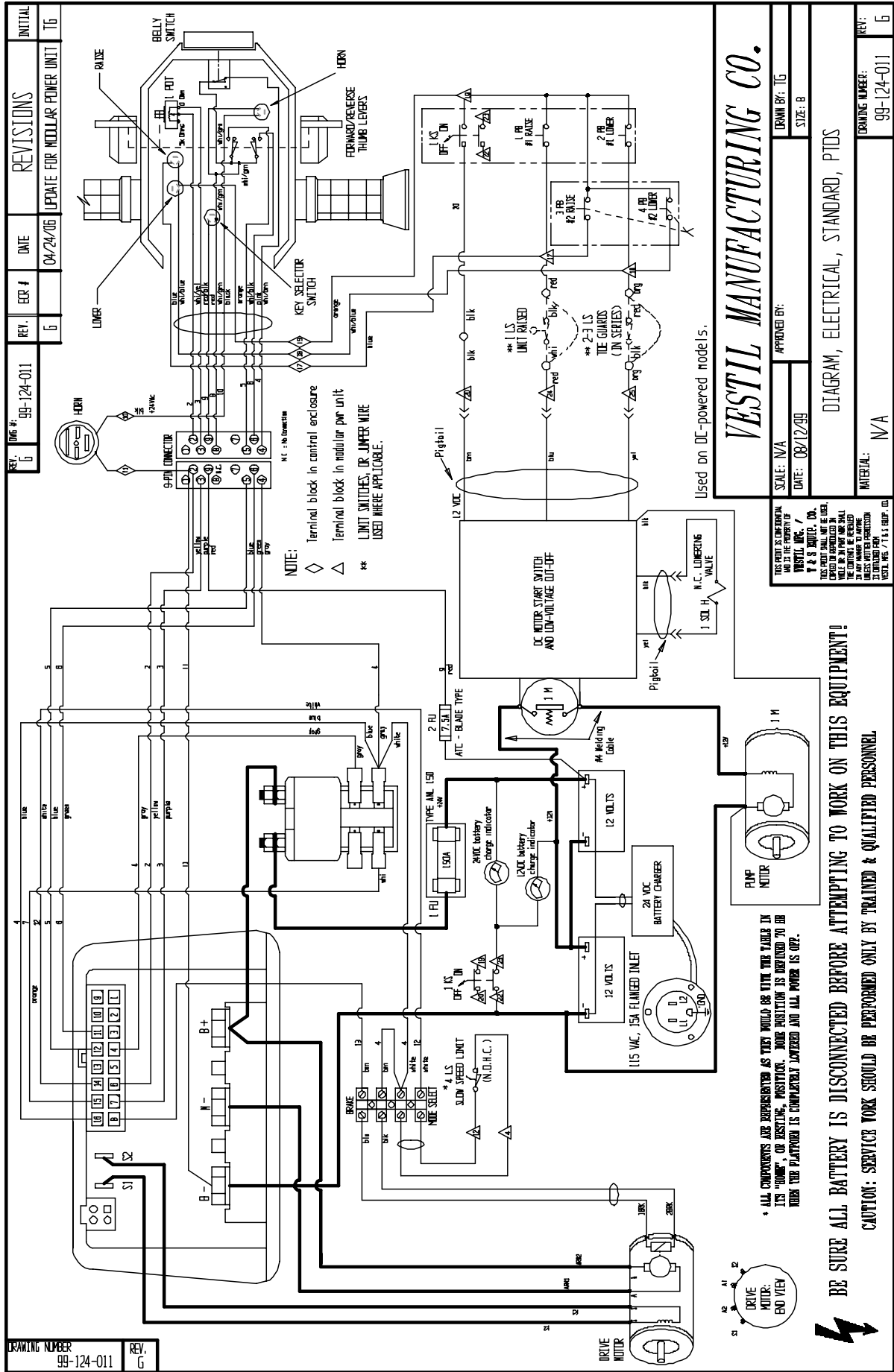
DRIVE MOTOR EXPLODED PARTS VIEW -- PTDS



DRIVE MOTOR BILL OF MATERIALS -- PTDS

01	87.3331	1	ANELLO DI TENUTA INTERNO	OIL SEAL	JOINT D'ETANCHEITE INTERNE
02	87.2632	1	CORONA 2a COPPIA	CROWN GEAR	COURONNE 2° ETAGE
03	87.2187	1	CUSCINETTO RUOTA	BEARING	ROULEMENT
04	87.5457	3	VITE TCEI M6x20	SCREW M6x20	VIS M6 x 20
06	87.0001	1	RUOTA CON RIVESTIMENTO	WHEEL	ROUE AVEC BANDAGE
07	87.5431	1	ANELLO DI TENUTA ESTERNO	OIL SEAL	JOINT D'ETANCHEITE ESTERNE
08	87.5432	1	ANELLO BLOCCARUOTA	RING	DISQUE
09	CA113.2026	1	MOTORE COMPLETO	D.C. MOTOR	MOTEUR ELECTRIQUE COMPLET
10	87.6879	2	SPINA CILINDRICA D. 5x20	PIN D. 5x20	GOUPILLE CYLINDRIQUE D. 5x20
11	87.6514	1	SCATOLA RIDUTTORE	SUPPORT	CARTER REDUCTEUR
12	87.1482	1	PIGNONE 2a COPPIA	2° PINION	PIGNON 2° ETAGE
13	87.5561	1	LINGUETTA 8x7x15	KEY 8x7x15	CLAVETTE 8x7x15
14	87.2000	1	CORONA 1a COPPIA	GEAR	COURONNE 1° ETAGE
15	87.2186	3	CUSCINETTO	BEARING	ROULEMENT A BILLES
16	87.9997	3	SPessori DI AGGIUSTAGGIO	SPACER	RONDELLE DE CALAGE
17	87.4457	1	ANELLO SEEGER E 155	SEEGER	ANNEAU SEEGER
18	87.4123	1	CAPPELLOTTO DI CHIUSURA	CAP	CHAPEAU DE FERMETURE
19	87.9612	1	ANELLO SEEGER E 30	SEEGER	ANNEAU SEEGER
20	17.0007	1	FRENO COMPLETO	BRAKE	FREIN
21	87.2358	1	ROSETTA PIANA 10.5x21	WASHER 10.5x21	RONDELLE PLATE 10.5x21
22	87.5544	1	DADO AUTOBLOCCANTE M10	BOLT M10	ECROU DE SECURITE M10
23	87.5563	1	LINGUETTA 5x5x18	KEY 5x5x18	CLAVETTE 5x5x18
25	87.2180	1	ANELLO DI TENUTA	OIL SEAL	JOINT D'ETANCHEITE
26	87.4452	1	ANELLO SEEGER E 132	SEEGER	ANNEAU SEEGER
27	87.5545	1	LINGUETTA 5x5x15	KEY 5x5x15	CLAVETTE 5x5x15
28	87.3000	1	PIGNONE 1a COPPIA	1° PINION	PIGNON 1° ETAGE
29	87.1096	1	TAPPO CONICO M10x1	CAP M10x1	BOUCHON CONIQUE M10x1
30	87.7800	3	VITE MOTORE TCEI M6x18	SCREW M6x18	VIS DE FIXATION MOTEUR M6x18
32	87.7810	1	INGRASSATORE M6	LUBRICATOR	GRAISSEUR
33	87.0008	1	ANELLO R MOTORE	OR	JOINT DE CENTRAGE MOTEUR O R
34	87.4436	1	ANELLO SEEGER E 15	SEEGER	ANNEAU SEEGER
35	87.6347	1	GUARNIZIONE AUTOADESIVA	SEAL	JOINT AUTOADHESIF

ELECTRICAL INTERCONNECTION DIAGRAM -- PTDS



REV. 0	DATE: 04/24/06	REV. 4	DATE: 04/24/06	REV. 5	DATE: 04/24/06	REV. 6	DATE: 04/24/06	
REVISIONS								
UPDATE FOR MODULAR POWER UNIT								
INITIAL							DATE	REV.
TG							06	5

DRAWING NUMBER	REV.
99-124-011	G

VESTIL MANUFACTURING CO.

Used on DC-powered models.

SCALE: N/A
DATE: 08/12/99
APPROVED BY: [Signature]
DRAWN BY: TG
SIZE: B

DIAGRAM, ELECTRICAL, STANDARD, PTDS

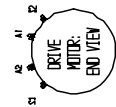
MATERIAL: N/A
DRAWING NUMBER: 99-124-011
REV: 6

THIS UNIT IS DESIGNED BY VESTIL MFG. CO. THIS UNIT SHALL NOT BE USED IN ANY MANNER THAT IS NOT SPECIFIED IN THE ORIGINAL DRAWING. VESTIL MANUFACTURING CO. IS NOT RESPONSIBLE FOR ANY DAMAGE TO THE UNIT OR TO THE OPERATOR.

* ALL COMPONENTS ARE REPRESENTED AS THEY WOULD BE WITH THIS TABLE IN ITS "HOME", OR RESTING, POSITION. HOME POSITION IS DEFINED TO BE WHEN THE PLATFORM IS COMPLETELY LOWERED AND ALL POWER IS OFF.

BE SURE ALL BATTERY IS DISCONNECTED BEFORE ATTEMPTING TO WORK ON THIS EQUIPMENT!

CAUTION: SERVICE WORK SHOULD BE PERFORMED ONLY BY TRAINED & QUALIFIED PERSONNEL



TROUBLESHOOTING GUIDE -- PTDS

Consult the factory for any problems not addressed below.

Note: A status LED is built into the top of the 1243 controller, visible through a window in the label on top of the controller. If the controller develops a problem, the LED will display a fault code. Normally the LED flashes steadily on and off. If the controller detects a fault, a two-digit fault identification code will flash until the fault is corrected.

For example, code "3,2" will appear as:

□□□ □□
(3 , 2)
□□□ □□
(3 , 2)
□□□ □□
(3 , 2)

<u>Problem:</u>	<u>Possible cause(s):</u>	<u>Action:</u>
The traction drive does not operate.	<p>A fuse in the traction drive control enclosure has blown.</p> <p>The battery voltage is too low.</p> <p>Wire connection problem.</p>	<p>With a meter, check both fuses. Replace the fuse if it has blown. Wait one hour after charging, then verify that there is at least 12.5 volts across each battery. Check for breaks, cuts, or scraping on the wires between the tiller assembly and the traction drive control enclosure.</p>
The traction drive moves in slow speed only.	<p>The traction drive motor controller has a fault.</p> <p>The forward/reverse switch(es) or the potentiometer in the tiller assembly is defective.</p> <p>The lifting surface is not fully lowered.</p>	<p>Check the LED (on the top surface of the controller) for a flashing fault code. (See the note at the top of this page.)</p> <p>Remove the tiller assembly cover and check the switches and the potentiometer for damage or a problem with their mounting. Readjust the creep speed limit switch so it is engaged when the lifting surface is fully lowered.</p>
The traction drive brake does not effectively brake the machine to a stop.	<p>Worn or loose brake friction disc.</p>	<p>Tighten the bolts holding the disc to the wheel assembly.</p>

POWERED PRODUCTS' WARRANTY

ONE YEAR LIMITED WARRANTY

The manufacturer warrants for the original purchaser against defects in materials and workmanship under normal use one year after date of shipment (not to exceed 15 months after date of manufacture). Any part that is determined by the manufacturer to be defective in material or workmanship and returned to the factory, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at our option. Labor costs for warranty repairs and/or modifications are not covered unless done at manufacturer's facilities or pre-approved in advance by the manufacturer. Any modifications performed without written approval of the manufacturer may void warranty. This limited warranty gives purchaser specific legal rights which vary from state to state.

All specifications are subject to change without notice.

LIMITATION OF LIABILITY

To the extent allowable under applicable law, the manufacturer's liability for consequential and incidental damages is expressly disclaimed. The manufacturer's liability in any event is limited to, and shall not exceed, the purchase price paid. Misuse or modification may void warranty.

Warranty does not cover labor or consequential damages including, but not limited to, business interruption costs, lost profits, or lost business opportunities.

WARRANTY DISCLAIMER

The manufacturer has made a diligent effort to accurately illustrate and describe their products. However, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

The provisions of the warranty shall be construed and enforced in accordance with the Uniform Commercial Code and laws as enacted in the State of Indiana.

DISPOSITION

The manufacturer will make a good faith effort for prompt correction or other adjustment with respect to any product that proves to be defective within the Limited Warranty Period. Warranty claims must be made in writing within said year.