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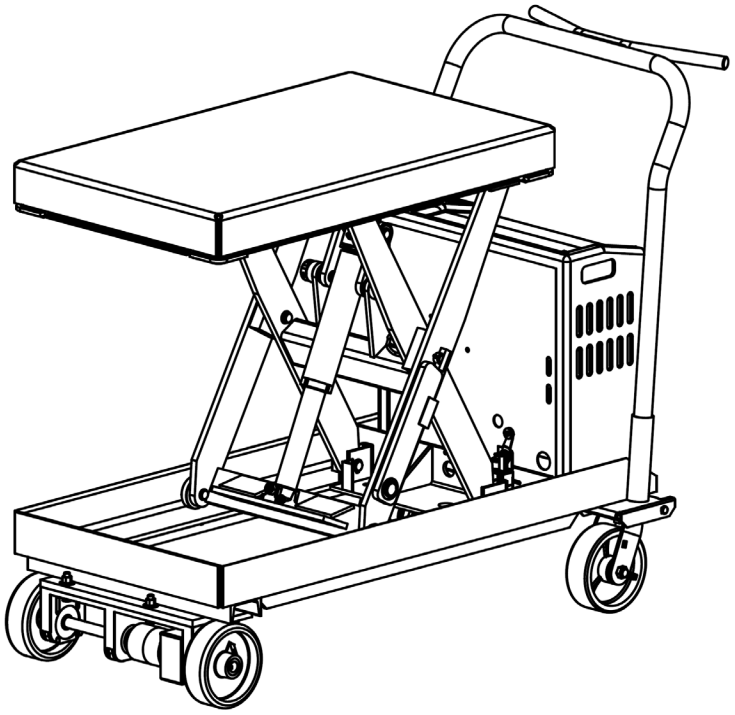
CART-CTD Scissor Carts with Powered Tabletop and Powered Drive Operation and Maintenance Manual



Receiving Instructions

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

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

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 http://www.vestilmfg.com/parts_info.htm.

Electronic copies of Instruction Manuals

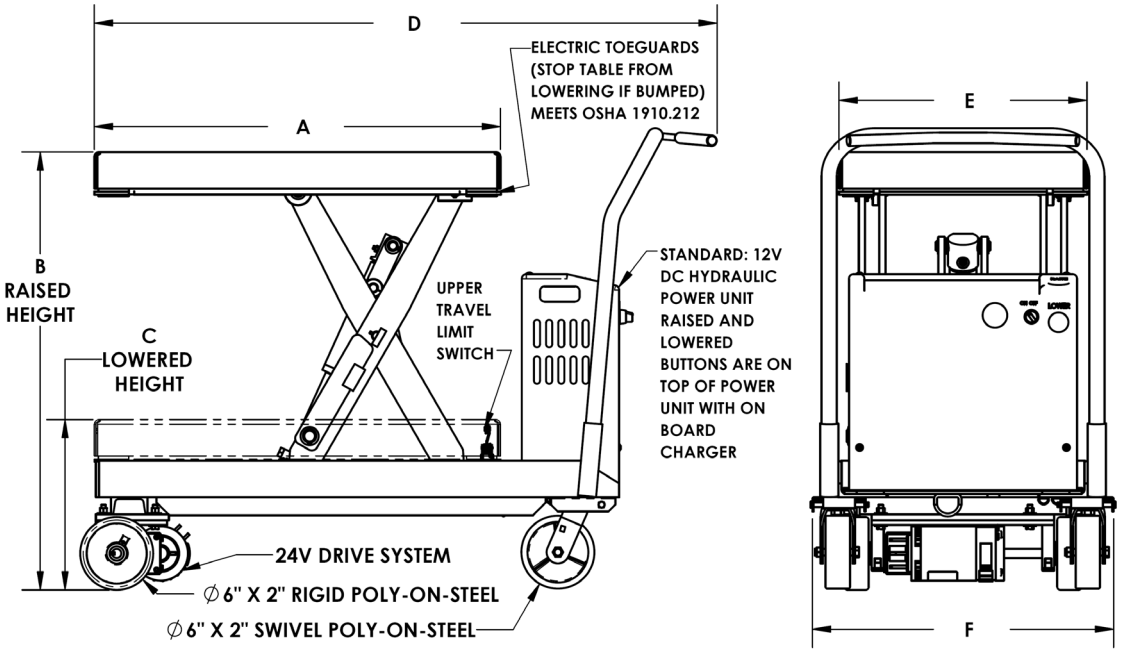
Additional copies of this instruction manual may be downloaded from https://www.vestil.com/page-manuals.php.

Table of Contents

SPECIFICATIONS

Dimensions for various cart configurations as well as net weight and capacity information appear in the following diagrams and table.

NOTE: Documents that provide current specifications for CART-CTD series carts are downloadable from Vestil's website. Specifications include dimensions, net weight, and capacity information. To access the most recent specifications document for your product, navigate to this webpage: https://www.vestil.com/product.php?FID=298. Click the *Product Specifications Table* tab. Scroll the page to the entry for the model you purchased, and click the button in the *PDF* column that looks like a pencil inside a box. A PDF file will open. This file is the specifications document for your cart. Print a copy of the document and keep it with your copy of this manual.



Model	A	B	C	D	E	F	Capacity	Net weight
CART-500-2033-CTD	33 3/8"	36"	14"	51 3/16"	20 3/8"	24 3/4"	500 lb. 227.3 kg	382 lb. 173.7 kg
CARTD-750-2040-CTD	40 3/8"	43"	15"	58 7/16"	20 3/8"	24 3/4"	750 lb. 340.9 kg	418 lb. 189.9 kg
CARTD-1000-2033-CTD	33 3/8"	42 1/2"	15"	51"	20 3/8"	24 3/4"	1,000 lb. 454.5 kg	407 lb. 184.7 kg
CART-1000-2040-CTD	40 3/8"	40"	16"	58"	20 3/8"	24 3/4"	1,000 lb. 454.5 kg	421 lb. 191.2 kg
CART-2000-2040-CTD	40 3/8"	40"	16"	58"	20 3/8"	24 3/4"	2,000 lb. 909.1 kg	434 lb. 197.3 kg

SIGNAL WORDS

This manual uses SIGNAL WORDS to indicate the likelihood of personal injuries, as well as the probable seriousness of those injuries, if the product is misused in the ways described. Other signal words call attention to uses of the product likely cause property damage. 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. However, no manual can address every conceivable risk. The most effective way to avoid injury is to exercise sound judgment when assembling, using, inspecting, and maintaining this crane.

⚠ WARNING

Risks of serious personal injuries or death.

- ***Failure to read and understand the entire manual before assembling, using or servicing the product constitutes misuse*.** Read the manual to refresh your understanding of proper use and maintenance procedures as necessary.
- DO NOT attempt to lift a load that weighs more than the capacity of your cart. The capacity appears on label 287 as shown in *LABELING DIAGRAM* on p. 10. Also see *SPECIFICATIONS* on p. 2. If the capacity displayed on label 287 differs from information on p. 2, the number shown on the label should be regarded as correct.
- DO NOT allow people to stand or sit on either the cart or the load.
- Stand clear of the cart while raising or lowering the tabletop.
- Keep clear of pinch points while the deck rises and lowers.
- DO NOT reach through the legs or crawl under the tabletop unless the tabletop is supported by maintenance prop(s).
- DO NOT use the cart in corrosive environments.
- ONLY use the cart on compacted, improved surfaces capable of supporting the combined weight of the cart plus a maximum rated load.
- DO NOT perform maintenance on this cart UNLESS it is unloaded and maintenance stops are in place. If repairs are necessary, ONLY install manufacturer-approved replacement parts.
- Center and evenly distribute loads on the tabletop. Secure loads to the tabletop if they are likely to roll or slide.
- DO NOT use the cart unless it is in normal condition. Inspect the unit before each use according to the *INSPECTION* instructions on p. 9-10 to determine whether the unit is functioning normally. DO NOT use the cart unless it passes *every* part of the inspection or until it is restored to normal operating condition.
- ALWAYS observe the cart while raising and lowering the tabletop. It should rise smoothly and evenly from side-to-side. Watch for binding or jerky movement and listen for unusual noises. Tag the unit "Out of order" and do not use it if you observe anything abnormal.
- Always watch the load carefully while raising and lowering the tabletop.
- DO NOT continue to press the UP button if the tabletop is fully elevated (does not continue to rise).
- Before leaving the cart unattended, unload it and relieve hydraulic pressure by pressing the DOWN button and holding it until the tabletop is fully lowered.
- DO NOT use the cart UNLESS all labels are in place and readable. See *LABELING DIAGRAM* on p. 10.
- DO NOT modify this product in any way. Modifications automatically void the limited warranty and might make the cart unsafe to use.

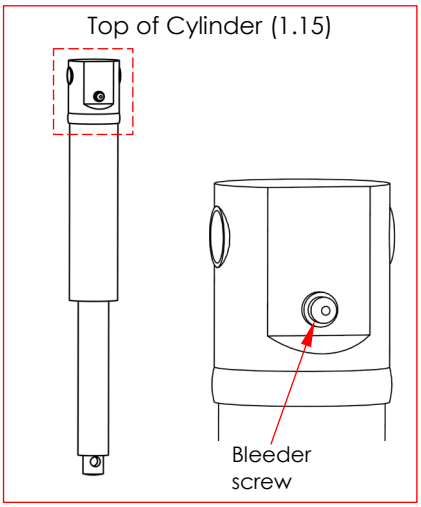
NOTICE

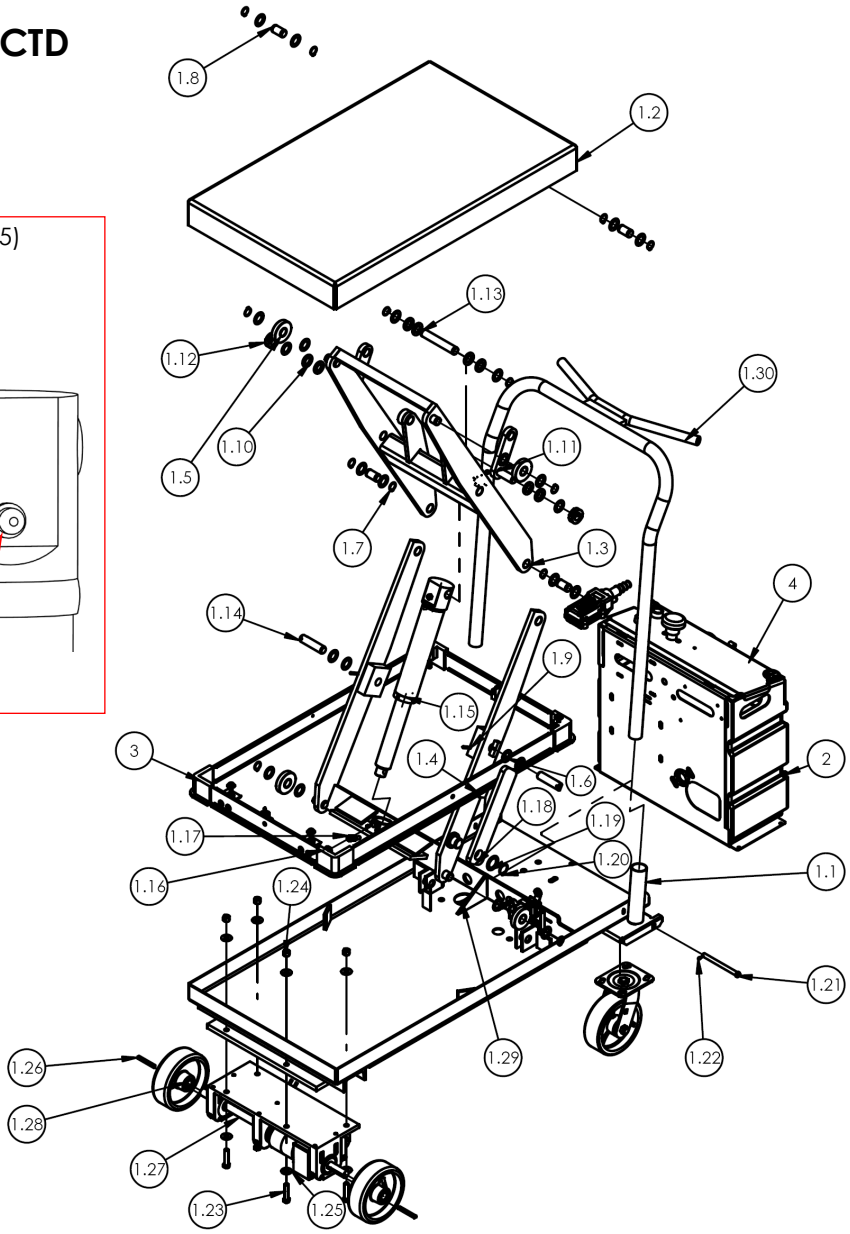
Proper use and maintenance are essential for this product to function properly.

- Turn the power unit off whenever the cart is stopped or otherwise not in use to preserve battery charge.
- Batteries should be kept at full charge when the cart is stored for prolonged periods. Maintain battery charge by plugging in the charger. If the cart will be out of use for longer than 3 months, remove the batteries and store them in a cool, dry location.
- Do not use this cart in damp/wet environments. The motor and controller are not sealed.
- Periodically lubricate moving parts.
- Keep the product clean & dry. Do not store this cart where it is exposed to the elements.
- Only use approved replacement parts. To order replacement or spare parts for this equipment, contact the technical service department.

CART-500-2033-CTD EXPLODED VIEW

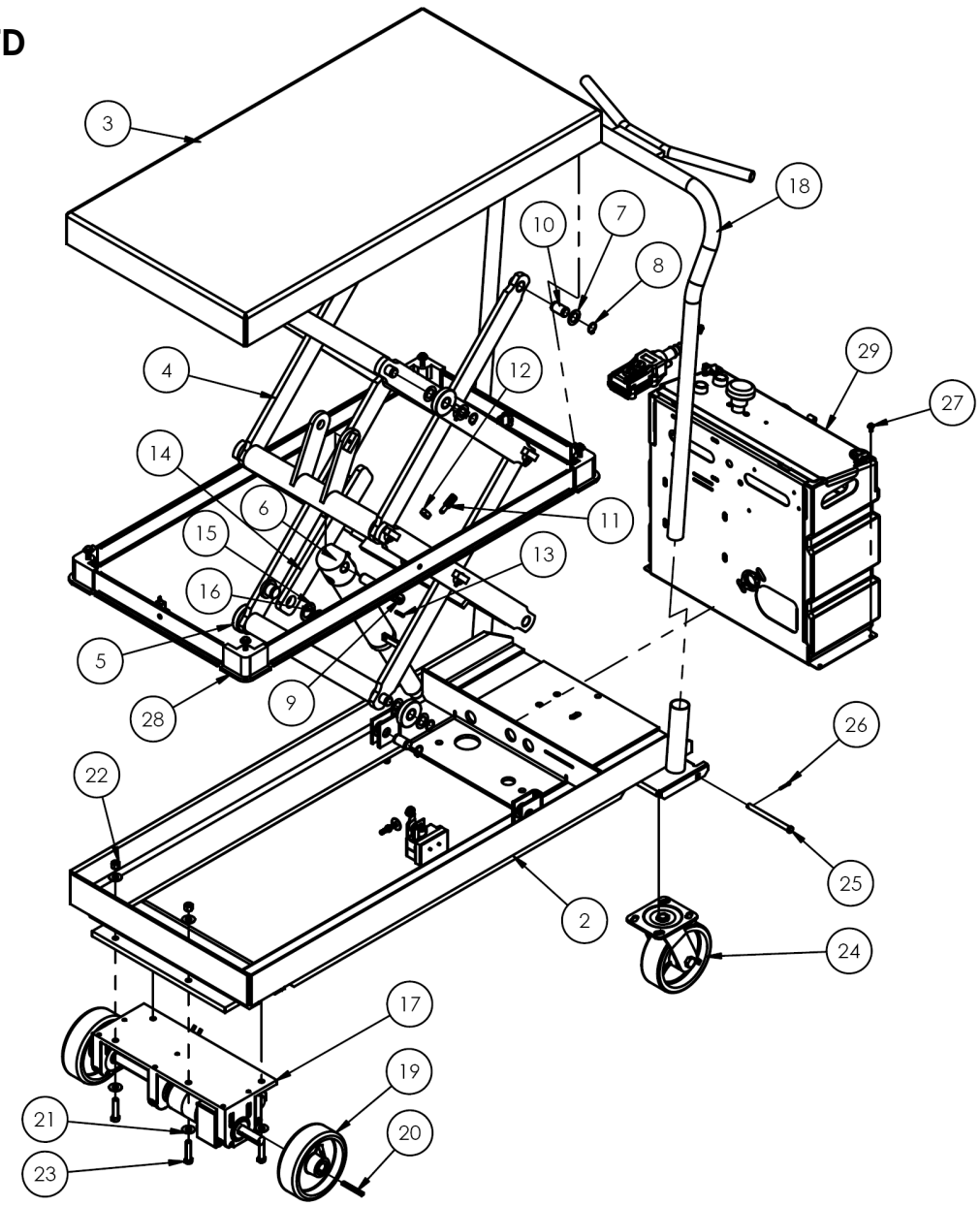
(01-006-372)



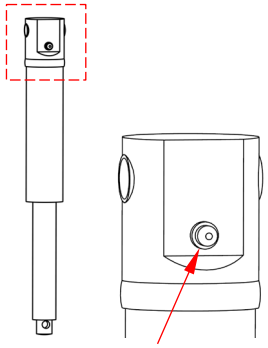


Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	01-002-372	FINAL ASSEMBLY W/O POWER UNIT	1	**1.17**	01-118-002	BOLT, CYLINDER RETAINING	1
1.1	01-514-155	WELDMENT, FRAME, CART	1	**1.18**	01-037-009	MAIN PROP, CART	1
1.2	01-513-007	WELDMENT, DECK 20" X 33"	1	**1.19**	33444	MACHINE BUSHING, Ø 1 X 18 GA.	1
1.3	01-510-016	WELDMENT, LEG, INNER	1	**1.2**	20-117-003	EXTERNAL RETAINING RING, 1" DIA SHAFT	1
1.4	01-510-017	WELDMENT, LEG, OUTER	1	**1.21**	99-112-006	PIN, CLEVIS	2
1.5	01-527-002	ROLLER, ASSY Ø2 1/4" X 1/2" W	4	**1.22**	65076	Ø1/8" X 1" COTTER PIN, Z-PLATED	2
1.6	01-113-001	SPACER/SHIM (MCH BUSHING)	24	**1.23**	11110	HEX BOLT, GRADE A, ZINC FINISH, 3/8"-16 X 1 3/4"	4
1.7	38-117-001	RETAINER RING, EXTERNAL FOR 3/4 SHAFT	14	**1.24**	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	4
1.8	01-112-009	PIN, HINGE PIVOT	4	**1.25**	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	8
1.9	64134	SPRING PIN	2	**1.26**	99-130-006	PIN, KEY	2
1.1	33426	MACHINED BUSHING, LOW CARBON STEEL, PLAIN FINISH, Ø3/4"	8	**1.27**	99-159-003	POWER TRACTION DRIVE UNIT	1
1.11	01-511-002	WELDMENT, CYLINDER SWIVEL BRACKET	2	**1.28**	16-632-003	ASSEMBLY, CASTER	2
1.12	34308	SPLIT SHAFT COLLAR, LOW CARBON STEEL, BLACK OXIDE FINISH, Ø3/4"	2	**1.29**	16-132-031	CASTER, 6" X 2", SWIVEL	2
1.13	01-112-017	PIN, HINGE PIVOT	1	**1.3**	01-525-006	HANDLE, CART-CTD	1
1.14	01-112-013	PIN, AXLE	2	**2**	31802	SCREW, SELF-TAPPING SCREW	2
1.15	99-021-915-001	CYLINDER, HYDRAULIC, Ø1 1/2" x 7", RAM STYLE	1	**3**	01-515-033	SUB-ASSEMBLY, TOE GUARD, 20" X 33", INCLUDES HARDWARE & SWITCHES	1
1.16	36209	1/2 - 13 HEX JAM NUT PLAIN, GRADE A	1	**4**	99-160-097	MODULAR POWER UNIT, GEN II (DISPLAY ONLY)	1

CARTD-750-2040-CTD
EXPLODED VIEW
(01-006-375)



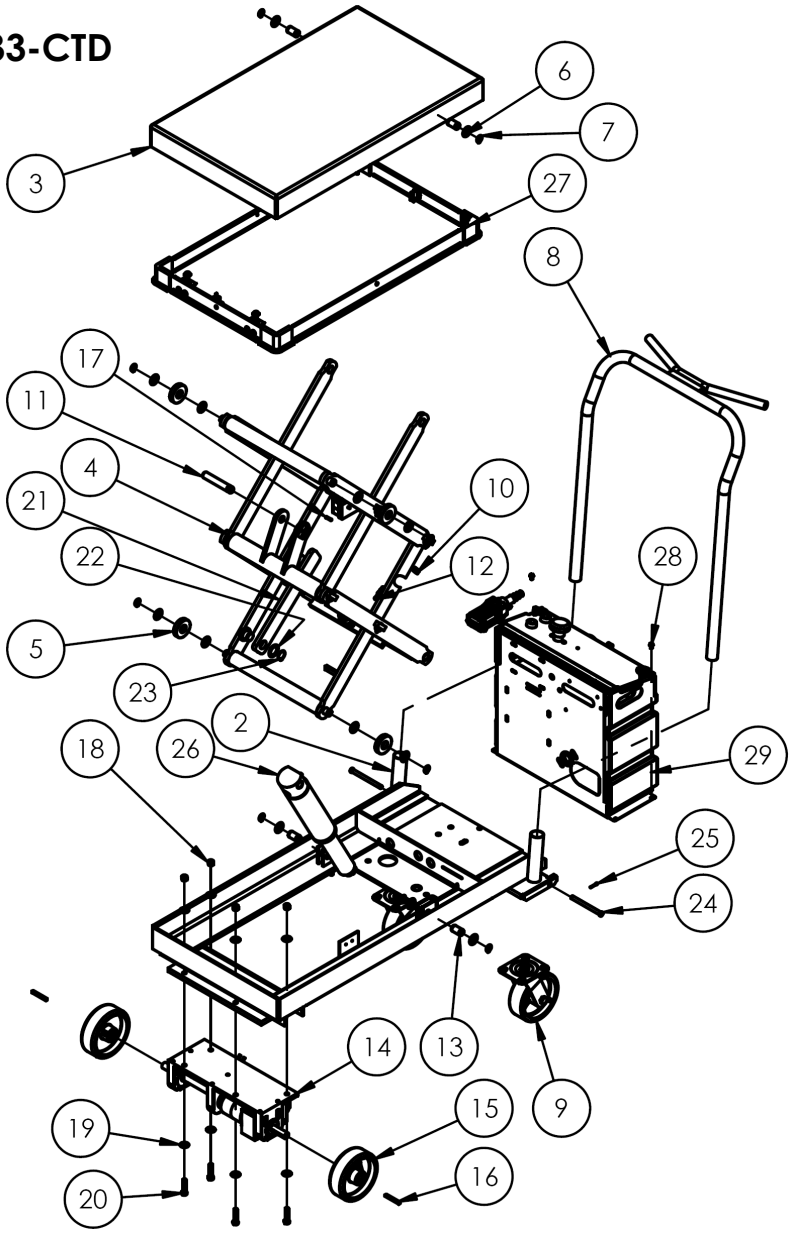
Detail view of top of cylinder (6)



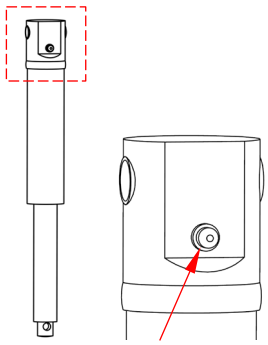
Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	01-002-375	FINAL ASSEMBLY W/O POWER UNIT	1	**16**	20-117-003	EXTERNAL RETAINING RING, 1" DIA SHAFT	1
2	01-514-153	WELDMENT, FRAME	1	**17**	99-159-003	POWER TRACTION DRIVE UNIT	1
3	01-513-005	WELDMENT, DECK	1	**18**	01-525-006	HANDLE, CART-CTD	1
4	01-510-005	WELDMENT, LEG, DOUBLE SCISSOR	1	**19**	16-632-003	ASSEMBLY, CASTER	2
5	01-527-002	ROLLER, ASSY Ø2 1/4" X 1/2" W	4	**20**	99-130-006	PIN, KEY	2
6	99-021-915-001	CYLINDER, HYDRAULIC, Ø1 1/2" x 7", RAM STYLE	1	**21**	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	8
7	01-113-001	SPACER/SHIM (MCH BUSHING)	16	**22**	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	4
8	38-117-001	RETAINER RING, EXTERNAL FOR Ø3/4 SHAFT	12	**23**	11110	HEX BOLT, GRADE A, ZINC FINISH, 3/8"-16 X 1 3/4"	4
9	01-112-010	PIN, CYLINDER PIVOT	1	**24**	16-132-031	CASTER, 6" X 2", SWIVEL	2
10	01-112-009	PIN, HINGE PIVOT	4	**25**	99-112-006	PIN, CLEVIS	2
11	01-118-002	BOLT, CYLINDER RETAINING	1	**26**	65076	Ø1/8" X 1" COTTER PIN, Z-PLATED	2
12	36209	1/2 - 13 HEX JAM NUT PLAIN, GRADE A	1	**27**	31802	SCREW, SELF-TAPPING SCREW	2
13	64134	SPRING PIN	1	**28**	01-515-034	SUB-ASSEMBLY, TOE GUARD, 20" X 40", SCTAB-750D, INCLUDES HARDWARE & SWITCHES	1
14	01-037-011	MAINPROP, CART	1	**29**	99-160-097	MODULAR POWER UNIT, GEN II (DISPLAY ONLY)	1
15	33444	MACHINE BUSHING, Ø 1 X 18 GA.	1				

CARTD-1000-2033-CTD EXPLODED VIEW

(01-006-074)



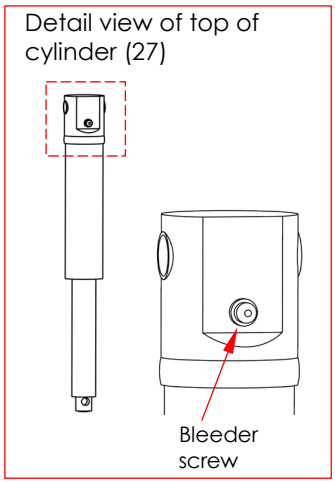
Detail view of top of cylinder (26)

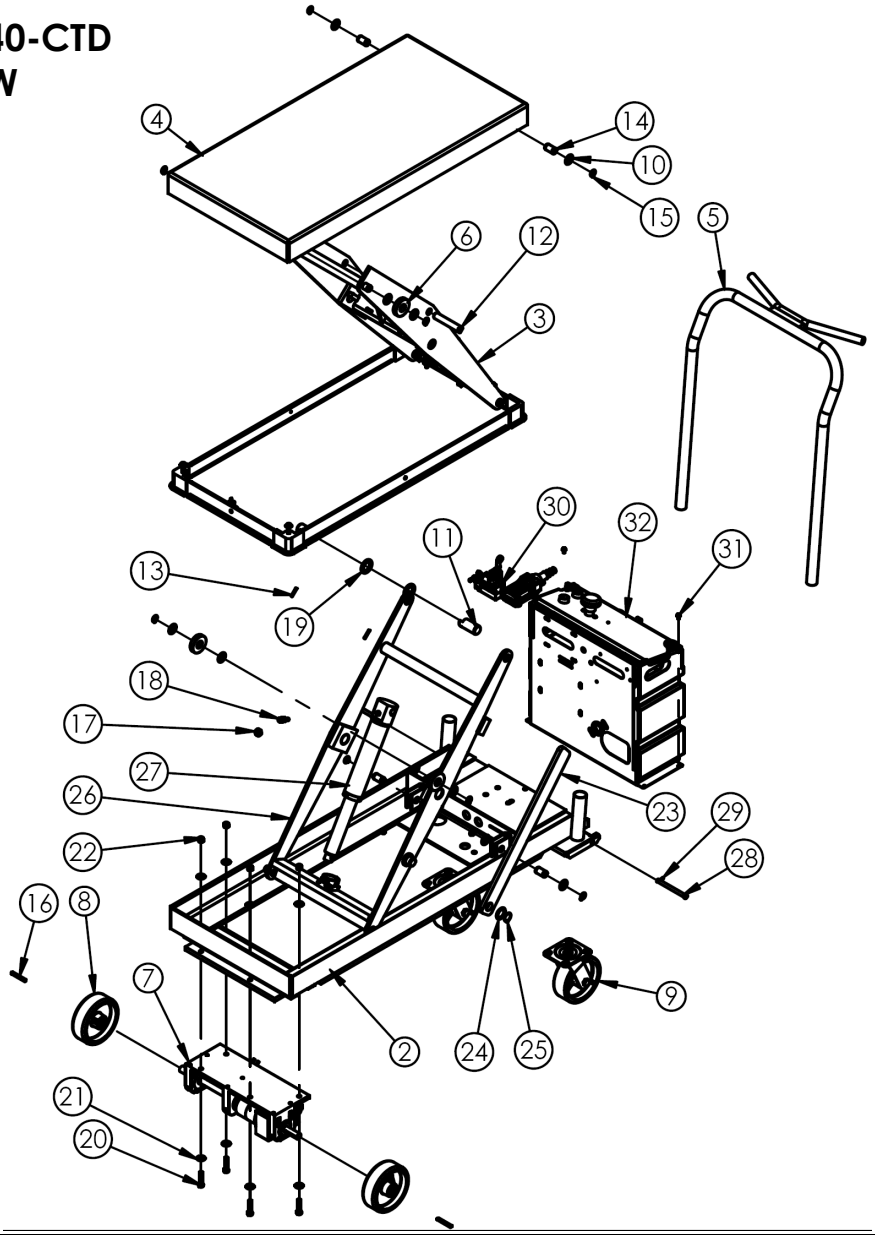


Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	01-002-074	FINAL ASSEMBLY W/O POWER UNIT	1	**16**	99-130-006	PIN, KEY	2
2	01-514-097	WELDMENT, FRAME	1	**17**	64134	SPRING PIN	1
3	01-513-008	WELDMENT, DECK 20 X 33	1	**18**	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	4
4	01-510-005	WELDMENT, LEG, DOUBLE SCISSOR	1	**19**	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	8
5	01-527-002	ROLLER, ASSY Ø2 1/4" X 1/2" W	4	**20**	11110	HEX BOLT, GRADE A, ZINC FINISH, 3/8"-16 X 1 3/4"	4
6	01-113-001	SPACER/SHIM (MCH BUSHING)	16	**21**	01-037-011	MAINPROP, CART	1
7	38-117-001	RETAINER RING, EXTERNAL FOR Ø3/4 SHAFT	12	**22**	33444	MACHINE BUSHING, Ø 1 X 18 GA.	1
8	01-525-006	HANDLE, CART-CTD	1	**23**	20-117-003	EXTERNAL RETAINING RING, 1" DIA SHAFT	1
9	16-132-031	CASTER, 6" X 2", SWIVEL	2	**24**	99-112-006	PIN, CLEVIS	2
10	36209	1/2 - 13 HEX JAM NUT PLAIN, GRADE A	1	**25**	65076	Ø1/8" X 1" COTTER PIN, Z-PLATED	2
11	01-112-010	PIN, CYLINDER PIVOT	1	**26**	99-021-950-001	CYLINDER, HYDRAULIC, Ø2" x 7", RAM STYLE	1
12	01-118-002	BOLT, CYLINDER RETAINING	1	**27**	01-515-033	SUB-ASSEMBLY, TOE GUARD, 20" X 33", INCLUDES HARDWARE & SWITCHES	1
13	01-112-009	PIN, HINGE PIVOT	4	**28**	31802	SCREW, SELF-TAPPING SCREW	2
14	99-159-003	POWER TRACTION DRIVE UNIT	1	**29**	99-160-097	MODULAR POWER UNIT, GEN II (DISPLAY ONLY)	1
15	16-632-003	ASSEMBLY, CASTER	2				

CART-1000-2040-CTD EXPLODED VIEW

(01-006-373)

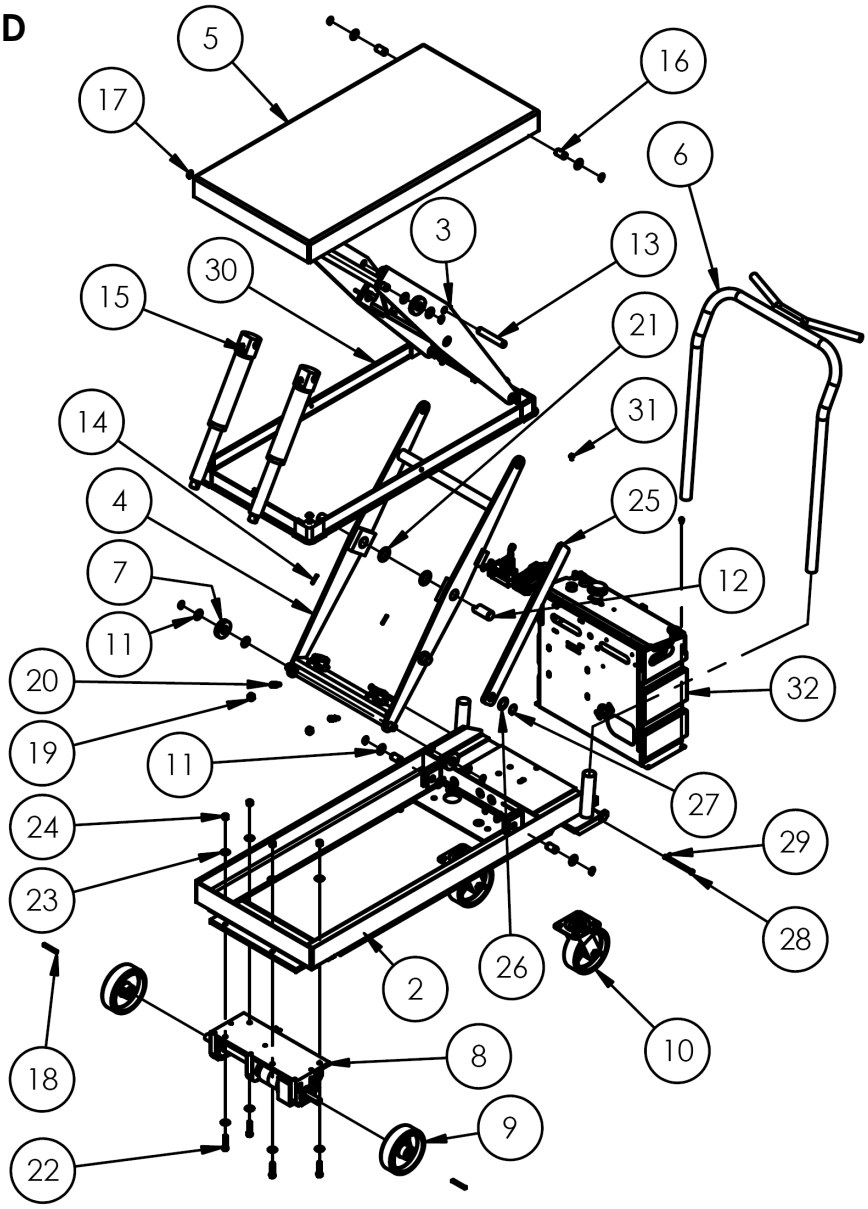




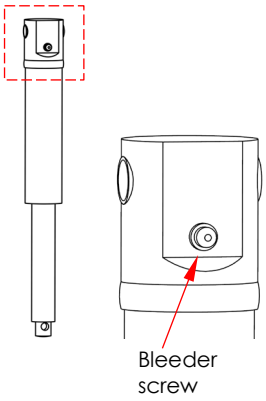
Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	01-002-373	FINAL ASSEMBLY W/O POWER UNIT	1	17	36209	1/2 - 13 HEX JAM NUT PLAIN, GRADE A	1
2	01-514-093	WELDMENT, FRAME	1	18	01-118-002	BOLT, CYLINDER RETAINING	1
3	01-510-048	WELDMENT, LEG, INNER	1	19	33456	MACHINERY BUSHING, PLAIN FINISH, Ø1 1/8" X 10 GA	2
4	01-513-003	WELDMENT, DECK, 20" X 40"	1	20	11110	HEX BOLT, GRADE A, ZINC FINISH, 3/8"-16 X 1 3/4"	4
5	01-525-006	HANDLE, CART-CTD	1	21	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	8
6	01-527-002	ROLLER, ASSY Ø2 1/4" X 1/2" W	4	22	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	4
7	99-159-003	POWER TRACTION DRIVE UNIT	1	23	24-037-001	MAIN PROP, EHLT	1
8	16-632-003	ASSEMBLY, CASTER	2	24	33444	MACHINE BUSHING, Ø 1 X 18 GA.	1
9	16-132-031	CASTER, 6" X 2", SWIVEL	2	25	20-117-003	EXTERNAL RETAINING RING, 1" DIA SHAFT	1
10	01-113-001	SPACER/SHIM (MCH BUSHING)	16	26	01-510-049	WELDMENT, LEG, OUTER	1
11	01-112-008	PIN, SCISSOR PIVOT	2	27	99-021-915-001	CYLINDER, HYDRAULIC, Ø1 1/2" x 7", RAM STYLE	1
12	01-112-010	PIN, CYLINDER PIVOT	1	28	99-112-006	PIN, CLEVIS	2
13	64134	SPRING PIN	3	29	65076	Ø1/8" X 1" COTTER PIN, Z-PLATED	2
14	01-112-009	PIN, HINGE PIVOT	4	30	01-515-030	SUB-ASSEMBLY, TOE GUARD, 20" X 40", INCLUDES HARDWARE & SWITCHES	1
15	38-117-001	RETAINER RING, EXTERNAL FOR Ø3/4 SHAFT	12	31	31802	SCREW, SELF-TAPPING SCREW	2
16	99-130-006	PIN, KEY	2	32	99-160-097	MODULAR POWER UNIT, GEN II (DISPLAY ONLY)	1

CART-2000-2040-CTD EXPLODED VIEW

(01-006-069)



Detail view of top of cylinder (15)

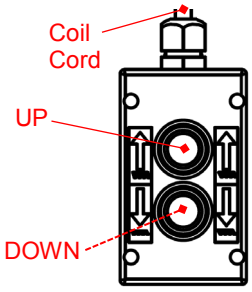


Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	01-002-069	FINAL ASSEMBLY W/O POWER UNIT	1	**17**	38-117-001	RETAINER RING, EXTERNAL FOR Ø3/4 SHAFT	12
2	01-514-093	WELDMENT, FRAME	1	**18**	99-130-006	PIN, KEY	2
3	01-510-006	WELDMENT, LEG SCISSOR, INNER	1	**19**	36209	1/2 - 13 HEX JAM NUT PLAIN, GRADE A	2
4	01-510-007	WELDMENT, LEG, SCISSOR, OUTER	1	**20**	01-118-002	BOLT, CYLINDER RETAINING	2
5	01-513-003	WELDMENT, DECK, 20" X 40"	1	**21**	33456	MACHINERY BUSHING, PLAIN FINISH, Ø1 1/8" X 10 GA	2
6	01-525-006	HANDLE, CART-CTD	1	**22**	11110	HEX BOLT, GRADE A, ZINC FINISH, 3/8"-16 X 1 3/4"	4
7	01-527-002	ROLLER, ASSY Ø2 1/4" X 1/2" W	4	**23**	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	8
8	99-159-003	POWER TRACTION DRIVE UNIT	1	**24**	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	4
9	16-632-003	ASSEMBLY, CASTER	2	**25**	24-037-001	MAIN PROP, EHLT	1
10	16-132-031	CASTER, 6" X 2", SWIVEL	2	**26**	33444	MACHINE BUSHING, Ø 1 X 18 GA.	1
11	01-113-001	SPACER/SHIM (MCH BUSHING)	16	**27**	20-117-003	EXTERNAL RETAINING RING, 1" DIA SHAFT	1
12	01-112-008	PIN, SCISSOR PIVOT	2	**28**	99-112-006	PIN, CLEVIS	2
13	01-112-010	PIN, CYLINDER PIVOT	2	**29**	65076	Ø1/8" X 1" COTTER PIN, Z-PLATED	2
14	64134	SPRING PIN	4	**30**	01-515-030	SUB-ASSEMBLY, TOE GUARD, 20" X 40", INCLUDES HARDWARE & SWITCHES	1
15	99-021-915-001	CYLINDER, HYDRAULIC, Ø1 1/2" x 7", RAM STYLE	2	**31**	31802	SCREW, SELF-TAPPING SCREW	2
16	01-112-009	PIN, HINGE PIVOT	4	**32**	99-160-097	MODULAR POWER UNIT, GEN II (DISPLAY ONLY)	1

USING THE CART

A. Loading

HAND CONTROL



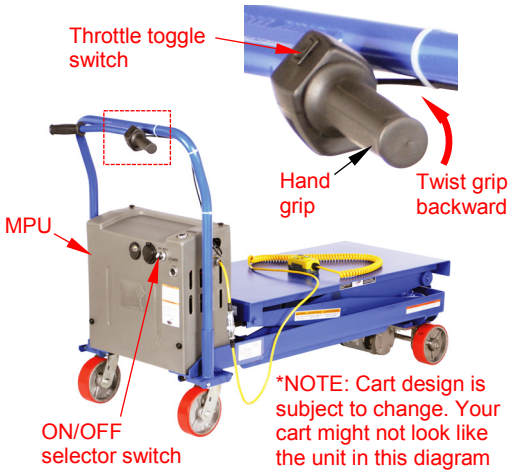
All loads applied to the tabletop must be centered and evenly distributed. Loads should not overhang the deck, i.e. should be entirely contained within the deck area. The capacity of the cart appears on the data label of your unit (see label 287 on p. 10). Capacity is the maximum *net* weight the cart can support. Exceeding the capacity might result in personal injury and/or the cart might be permanently damaged.

Elevate the tabletop by pressing the UP button on the hand control. Lower the deck by pressing the DOWN button. **See your MPU-DC instruction manual for detailed instructions about the operation of the hand control and modular power unit.** Transport loads with the tabletop lowered. Elevate the tabletop to an ergonomic height when removing loads or working on items.

B. Propulsion system:

[NOTE: The MPU supplies energy required for all of the cart's powered functions, i.e. raising and lowering the tabletop as well as propulsion. Turn off the MPU whenever the cart is not in use to preserve battery charge. **Consult the MPU-DC manual for detailed information about the power unit**.]

The cart is propelled by a battery powered (24VDC), motorized traction drive system with a differential axle. A programmable electronic motor controller coordinates motor functions. Although parameters are programmable, they cannot be changed in the field. If you wish to change parameters, the controller must be removed and sent to Vestil for reprogramming.



To use the traction drive turn the ON-OFF selector switch on the modular power unit (MPU) to ON. The drive system is activated by a hand grip throttle controller. A toggle switch next to the hand grip controls the direction of travel (forward or reverse). Push the top of the switch down to go forward. Press the bottom of the switch down for reverse. Once the proper direction is selected, slowly twist the hand grip backward. The farther the grip is twisted, the faster the speed. Always allow the cart to come to a full stop before reversing directions. ***Turn slowly because the differential drive system increases speed during turns***.

The system will enter sleep mode and shut off if it is left on but not used for several minutes. To reset the system, simply turn the selector switch off and on again and twist the throttle several times.

BLEEDING AIR FROM HYDRAULIC SYSTEM

If the tabletop lowers extremely slowly or not at all when the DOWN button is pressed, air might be caught in the cylinder. Air causes a safety feature called a velocity fuse to close. When the velocity fuse is closed, the tabletop will not lower. To correct this issue, bleed air from the system. A bleeder screw is located at the top of the cylinder. See appropriate *EXPLODED VIEW* on page 4, 5, 6, 7, or 8. The bleeder screw includes a hose fitting for a small diameter hose. By attaching a hose to the screw, any oil that escapes during the bleeding process can be directed into a container for proper disposal.

- Unload the tabletop.
- Rotate the maintenance stop into position. See diagram in *INSPECTIONS AND MAINTENANCE* section.
- Press the DOWN button until the tabletop is entirely supported by the maintenance stop.
- Locate the bleeder valve located at the top of the cylinder (it looks like a grease zerk; see the appropriate *EXPLODED VIEW* on page 4, 5, 6, 7, or 8). Hold a rag over the valve. Open it about a half turn with a wrench (turn the hex until air begins to escape). Oil and air will sputter from the valve.
- Jog the motor a few times by briefly pressing and then releasing the UP button. If air continues to escape from the bleeder valve, jog the motor several more times. Wait at least a few seconds (5-10) between jogs.
- Close the valve once air no longer is heard or seen bubbling out of it. Just a clear stream of oil should be seen flowing from the valve.
- Remove the cover from the modular power unit. Check the oil level in the reservoir. If the surface of the oil is lower than 1 to 1½ in. below the fill port, then add oil. Use anti-wear hydraulic fluid with a viscosity grade of 150 SUS at 100°F (ISO 32 @ 40°C) like AW-32 or Dexron transmission fluid.

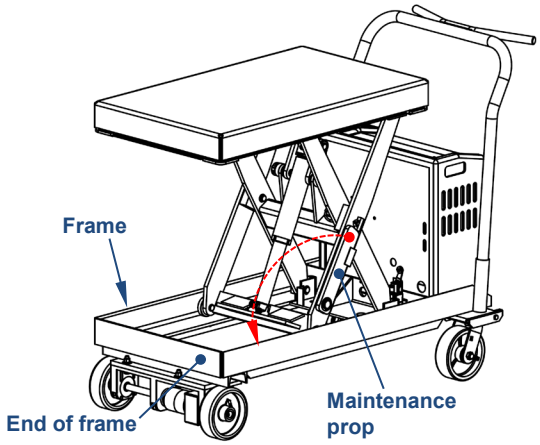
INSPECTIONS AND MAINTENANCE

Before putting the cart into regular service, make a written record of its appearance and operation. Pay particular attention to pivot points and pivot point hardware. Cycle the tabletop up and down. Describe the motion of the legs and roller. Describe the sound of the power unit as it operates. Also include a description of

the cylinders and pistons as they extend and retract. Each piston should extend and retract smoothly and at the same rate as the other. Engage the traction drive system. Drive forward and in reverse. Describe the operation and sound of the traction drive. ***This record establishes normal condition (the "RECORD")***. Compare the results of all inspections to your RECORD to determine if a component is in normal condition. DO NOT use the cart unless it is in normal condition.

Before inspecting or performing maintenance on the cart, immobilize the tabletop with the maintenance prop.

1. Unload the cart.
2. Raise the tabletop to its maximum height.
3. Rotate the maintenance prop into contact with the frame (see dotted arrow).
4. Lower the tabletop until the maintenance prop presses against the end of the frame.



(A) Before each use, check the cart for any of the following conditions. Correct all problems before using the cart

- Oil leaks;
- Pinched or chafed hoses;
- Deformation of legs, frame, or tabletop;
- Unusual noise or binding.

(B) Monthly inspections:

- Check the oil level. Oil should be 1in. to $1^{1}/_{2}$in. below the top of the reservoir/tank (see MPU-DC instruction manual) with the tabletop fully lowered. Check for oil leaks. Resolve the issue as described in *TROUBLESHOOTING* on p. 11-12. Add oil, if necessary.
- Check the hydraulic hoses for wear, kinks, cuts, etc. Replace damaged hoses.
- Check hardware: roller bushings, axle pins and retaining rings, clevises, pivot points, fasteners, and casters for severe wear and damage. Replace all components that are severely worn or damaged.
- Inspect each leg roller for looseness and/or severe wear. Replace rollers as necessary.
- Cycle the tabletop. Listen for unusual noises; watch for abnormal movement. See *TROUBLESHOOTING* on p. 11-12.
- Make sure all labels are in place & in readable condition. See *LABELING DIAGRAM* (below).
- Clean debris from all surfaces.

(C) Yearly: Change the oil at least once a year. The oil should be changed as soon as it darkens, becomes gritty, or appears milky. Milky appearance indicates the presence of water. Replace the oil with AW-32 hydraulic fluid or its equivalent.

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. Replace all labels that are damaged, missing, or not easily readable (e.g. faded). To order replacement labels, contact the technical service and parts department online at http://www.vestilmfg.com/parts_info.htm. Alternatively, you may request replacement parts and/or service by calling (260) 665-7586 and asking the operator to connect you to the PARTS DEPARTMENT.

Label 658:

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
Do not operate or move with unstable loads DO NOT LOAD beyond rated capacity DISTRIBUTE LOAD EVENLY DO NOT sit or ride	No use a mueva con cargas inestables No cargue mas de la capacidad tasada DISTRIBUYA LA CARGA A NIVEL NO SE SIENTE o vaya en el carro	Ne pas utiliser avec une charge instable NE PAS CHARGER au-delà du débit nominale DISTRIBUER la charge régulièrement NE PAS VOUS ASSEOIR OU VOUS PROMENER sur le chariot

658 rev 0808

Label 824: Stand clear

⚠ DANGER	⚠ PELIGRO
To avoid bodily injury, stand clear while in motion.	Para evitar daños, mantengase alejado cuando en movimiento

824

Label 208: Keep clear of pinch point

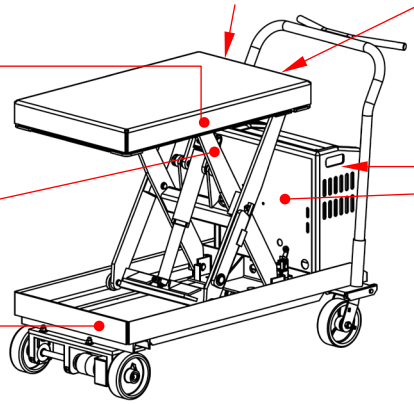
⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
KEEP CLEAR OF PINCH POINT	MANTENGASE ALEJADO DEL PUNTO DE CORTE	SE TENIR À DISTANCE DU POINT DE PINCEMENT

208A

Label 269: Use maintenance prop

⚠ WARNING	⚠ ADVERTENCIA
INSTALL ALL SUPPLIED MAINTENCE STOPS before any maintenance is preformed on unit. DO NOT perform maintenance with load on unit.	INSTALE TODAS LAS PARADAS DE MANTENIMIENTO SUMINSTRADAS antes de hacer cualquier reparación en la unidad. NO haga ninguna reparación con la unidad cargada.

269 rev 0611



Label 1153: Model & capacity

MODEL / MODÉLO / MODÈLE _____
WEIGHT / PESO / MASS _____
CAPACITY / CAPACIDAD / CAPACITÉ _____
SERIAL / SERIE / SÉRIE _____
UNITS: 2.2 lb. = 1kg 1" (or 1in.) = 2.54cm
1153

Label 206 (inside power unit housing): Hydraulic oil specifications

ISO 32 / 150 SUS
HYDRAULIC OIL OR NON-SYNTHETIC TRANSMISSION FLUID
ACEITE HIDRAULICO O LIQUIDOS DE TRANSMISION NO SINTETICOS
HUILE OU LIQUIDE HYDRAULIQUE NON-SYNTHÉTIQUE

206 Rev. 1001
VESTIL MANUFACTURING CORPORATION • Phone (260) 665-7586 • www.vestil.com

Label 295 (on outside of power unit housing): Hazards of handling battery h

⚠ WARNING
Enclosed battery contains hazardous chemicals.
DO NOT handle enclosed battery UNLESS wearing eye protection and other appropriate personal protective equipment.
DO NOT directly contact skin with battery.
DO NOT expose to sparks or extreme heat; battery contains explosive gases.

⚠ ADVERTENCIA
La bateria incluida continue materiales peligrosos.
NO use la bateria incluida A NO SER que lleve proteccion de ojos y otros equipos de proteccion apropiados para el personal.
NO tenga contacto directo en la piel con la bateria.
NO exponga a destellos o a calor excesivo, la bateria contiene gases explosivos.

295 rev 0111

TROUBLESHOOTING

NOTE: Use this guide in conjunction with the Troubleshooting section of your MPU-DC manual. Solutions in *italics* are found in the MPU-DC manual. Contact Vestil for assistance with issues not listed below.

Issue	Explanation	Solution
1. Tabletop does not rise when UP button pressed, but pump is running.	a. Voltage at motor terminals too low to run pump.	a. *Measure voltage at motor terminals (or as close to terminals as possible) while pump runs under load. If voltage is adequate, check wiring*.
	b. Hydraulic hose leaking.	b. Correct as appropriate.
	c. Fluid level in hydraulic reservoir too low.	c. *Add fluid. The system uses HO150 hydraulic fluid. Replace the hydraulic fluid with an anti-wear hydraulic fluid of viscosity grade of 150 SUS at 100°F (ISO 32 @ 40°C) such as AW-32 or Dexron transmission fluid*.
	d. Load exceeds capacity/max. rated load limit (relief valve opening).	d. Reduce weight applied to tabletop. DO NOT change relief valve setting!!
	e. Clogged suction filter.	e. *Remove filter and clean it*.
	f. Suction line leaking or loose fittings.	f. *Inspect all fittings for proper fit*.
	g. Clogged filler/breather cap on tank.	g. *Remove and clean*.
	h. Lowering valve energized by faulty wiring or stuck open.	h. *Remove lowering valve and clean*.
	i. Hydraulic pump malfunctioning.	i. *Disconnect hydraulic line from cylinder. Put free end of hose in large container and cycle the pump. If no oil output, check pump-motor coupling. Contact factory to order replacement pump, if necessary*.
	j. Low battery charge.	j. *Recharge battery*.
2. Tabletop rises very slowly	k. Debris stuck in lowering solenoid valve causing portion of fluid to flow to reservoir.	k. *Lower tabletop. Remove solenoid valve and clean*.
	l. Debris clogging suction filter or breather cap.	l. *Correct as appropriate (see also solutions "f" and 'h")*.
	m. Pinched hose.	m. Repair the hose.
	n. Low motor voltage.	n. *Measure voltage at motor terminals (or as close to terminals as possible) while pump runs under load. If voltage is adequate, check wiring.*
	o. Too much weight applied to tabletop.	o. Reduce weight applied to tabletop. DO NOT change relief valve setting!!
	p. Pump malfunctioning.	p. *Disconnect hydraulic line from cylinder. Put free end of hose in large container and cycle the pump. If no oil output, check pump-motor coupling. Contact factory to order replacement pump, if necessary*.
	q. Insufficient battery charge.	q. *Recharge battery*.
3. Motor labors or is really hot	r. Low voltage.	r. See solution a.
	s. Incorrect wiring.	s. *Confirm that one leg of motor line not connected to ground*.
	t. Oil starvation causing pump to bind. High heat produced. Pump might be permanently damaged.	t. See d, f, g, h, and i.
	u. Binding cylinders.	u. Contact technical service.
	v. Insufficient battery charge.	v. *Recharge battery*.
4. Tabletop rises in jerks or support of the tabletop feels spongy.	w. Fluid starvation.	w. See solutions d, f, g, l.
	x. Air trapped in cylinder(s).	*x. See "Bleeding air from hydraulic system" on p. 9.*
5. Tabletop lowers too slowly when loaded.	y. Filter of lowering solenoid valve clogged.	y. *Remove lowering solenoid. Clean filter*.
	z. Pinched hydraulic hose.	z. Repair hose.
	aa. Debris in flow control valve.	aa. *Remove and clean flow control valve*.

	bb. Binding cylinders. cc. Debris in velocity fuse.	bb. Contact technical service. cc. *Remove and clean fuse*.
6. Tabletop lowers too rapidly.	dd. Leaking hoses and/or fittings. ee. Check valve stuck open. ff. Debris in flow control valve.	dd. Repair as appropriate. *ee. Remove and clean check valve.* ff. *Remove flow control valve from manifold and clean*.
7. Tabletop rises but does not maintain elevation and slowly lowers on its own.	gg. Lowering solenoid valve incorrectly wired or stuck open. hh. Check valve stuck open. ii. Leaking hoses or fittings. jj. Cylinder packing worn or damaged.	gg. *See solution k*. *hh. Remove and clean check valve.* ii. Repair as appropriate. jj. Replace packing.
8. Tabletop rises but does not lower.	kk. Lowering solenoid wired incorrectly. ll. Lowering solenoid valve stuck open. mm. Faulty lowering solenoid coil. nn. Object in frame blocking leg rollers. oo. Binding cylinders. pp. Velocity fuse is open.	*kk. Correct wiring.* ll. *<u>Lightly</u> tap the solenoid coil body to seat it properly. Striking the coil hard might damage the stem. DO NOT remove the solenoid from the manifold because the tabletop will descend dangerously quickly*. *mm. Refer to electrical system diagram* nn. Raise tabletop a clean debris affecting rollers from frame. oo. Contact technical service. pp. *Jog motor to repressurize hydraulic system*.
9. Erratic operation	qq. Insufficient battery charge.	qq. *Recharge battery*.

LIMITED WARRANTY

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

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

Definition of "original part"?
An original part is a part used to make the product as shipped to the Warrantee.

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

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

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

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

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

If a defective part is covered by the warranty, what will Vestil do to correct the problem?
Vestil will provide an appropriate replacement for any *covered* part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?
The Warrantee (you) are responsible for paying labor costs and freight costs to return the product to Vestil for warranty service.

Events that automatically void the 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.