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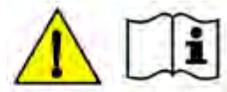
# ***CarCaddy***

## ***Vehicle Puller 12K***

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(CarCaddy Vehicle Puller 12K shown with optional equipment)



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### DJ Products Models Covered in this Reference Manual

1. CarCaddy Vehicle Puller 12K

## **Machine Information (continued)**

Actual CarCaddy Vehicle Puller 12K may vary from photographs, drawings, or other figures provided in this Reference Manual. These graphics may show optional equipment on the CarCaddy Vehicle Puller 12K.

## CarCaddy Vehicle Puller 12K



CarCaddy Vehicle Puller 12K shown with optional equipment



## Machine Specifications

The following applies to the CarCaddy Vehicle Puller 12K included in this Reference Manual.

<b>Intended-Use Information</b>	
Use Environment	Indoor and Outdoor (no precipitation and low winds)
	Daytime and well-lighted work area Indoors or at Night
Use Relative-Humidity Range	From 0% to 95% RH (non-condensing)
Use Surfaces	Flat and Smooth
	Improved (Concrete or Asphalt)
Vehicle-Attachment Types	Dependent upon model and options selected
<b>Storage Information</b>	
Storage Environment	Must be covered and well ventilated

Specific information for each model covered in this manual is provided below.

**Machine Specifications (continued)**

#	Item	CarCaddy Vehicle Puller 12K
1	Total Weight (with batteries)	635 kg (1400 lbs)
2	Frame	Heavy-Duty Steel
3	Motor Power	2.02 kw (2.75HP)
4	Maximum Weight of Vehicle to be Moved	5,443 kg (12,000 lbs)
5	Machine Dimensions	(See Drawing)
6	Differential/Transaxle Rating	2041 kg (4500 lbs)
7	Battery Voltage	3 (12 V)
8	Battery Charger	Onboard
9	Battery Discharge Indicator	•
10	Speed (Forward and Reverse)	0-4,9 kmh (0-3 MPH)
11	Speed Control	Variable-speed butterfly thumb control
12	Speed Controller	High Tech
13	Sigmagauge Display	•
14	Adjustable Acceleration/Braking	•
15	Automatic Braking	•
16	Steering	Wagon Wheel
17	Emergency-Stop switch	•
18	Flashing Strobe Light	○
19	Power Switch with Security Key	•
20	Horn	○
21	Ride-On Feature	○
22	Electric Actuator	×
23	Hydraulic Telescoping	○ 3629 kg (35,5 kN, 8,000 lbs)
1	Drive Tyre(s)--Number; size; type (D: Diameter, W: Width)	One (1) D: 300 mm (11,81 in) W: 100 mm (3.94 in)
2	Steer/Caster Tyre(s), Solid (D: Diameter, W: Width)	One (1) D: 33 mm (1,81 in) W: 100 mm (3.94 in)
	• - Standard Equipment	
	○ - Optional Equipment	
	× - Equipment Not Available	

## **Machine Set-Up**

The CarCaddy Vehicle Puller 12K is delivered to the customer in working order.

## **Optional Equipment**

Optional equipment is offered for the CarCaddy Vehicle Puller 12k by DJ Products. Please consult the Machine Specifications table or contact your DJ Products distributor or dealer for more information.

## Chapter 1. Safety



- Read and understand all parts of the Safety chapter and the Operation chapter of this DJ Products Inc. Reference Manual *before* using your model of CarCaddy Vehicle Puller 12K.
- If there is anything you do not understand, contact your supervisor or DJ Products, its dealer, or its distributor for more information.
- The CarCaddy Vehicle Puller 12K is an industrial machine.
- Serious injury or death can occur if this machine is not used as it is intended.

The CarCaddy Vehicle Puller 12K is specifically designed and intended to push or pull cars and trucks meeting the CarCaddy Vehicle Puller 12K specifications.

You should never operate the CarCaddy:

- With an operator under the age of 16 years
- With an operator sitting or riding on the CarCaddy or any vehicle it may be pushing or pulling, unless using the optional ride on feature
- With added weight not specifically added by DJ Products or a certified service representative
- With the hood in the open position
- Without being properly trained by a supervisor
- In severe weather
- With a known machine feature not working correctly
- While influenced by alcohol, medicine, or substance that may impair your vision, reflexes, or judgment

Disregarding any CarCaddy Vehicle Puller 12K instructions or limits may cause injury to the operator or damage to vehicle, the CarCaddy Vehicle Puller 12k, or your facilities.

Disregarding any of these limits will also void your warranty in case the CarCaddy Vehicle Puller 12k is damaged.

## Safety Features

The engineering design and operating characteristics of your DJ Products CarCaddy Vehicle Puller 12K are the results of years of industrial use and safe operation under a wide range of conditions and with many types of vehicles. Several models of CarCaddy Vehicle Puller 12k are available for you to select from. However, certain optional-equipment features are available to permit you to further tailor the CarCaddy Vehicle Puller 12k to your specific operating needs including your particular vehicles, personnel, and environment.

The DJ Products CarCaddy Vehicle Puller 12K can provide years of efficient and safe operation by following the guidance in this Reference Manual. If you ever have any questions about the operation of your CarCaddy Vehicle Puller 12k, ask your dealer, distributor, or DJ Products for assistance. This contact information is contained elsewhere within this Manual.

### Emergency-Stop (E-Stop) Switch

Your CarCaddy Vehicle Puller 12K is equipped with an Emergency-Stop switch.

The Emergency-Stop switch is shielded on each side by guards to prevent accidental damage to the switch and to prevent inadvertent activation of the switch while in use.



The E-Stop feature of the machine is activated by way of the red button (shown circled in the photograph above). Press the red button IN to stop the machine at any time. With the E-Stop activated the following happens:

1. The electrical controller disallows motion in either direction (forward or reverse)
2. The CarCaddy Vehicle Puller 12K—and vehicle, if attached—will come to a controlled stop
3. The motor brake is applied once the CarCaddy Vehicle Puller 12K comes to rest

After addressing any situation or condition that required the use of the E-Stop, re-activate the machine by turning the red E-Stop button in the clockwise direction. An audible “click” should be heard and the green ring around the base of the E-Stop button will become visible and the red button head will protrude beyond the side guards again. Operation of the CarCaddy Vehicle Puller 12K may resume.

### Horn (Optional)



Your CarCaddy Vehicle Puller 12K is equipped with a horn, it is circled in picture to the left. An audible horn sound will be heard in the vicinity of the CarCaddy Vehicle Puller 12K when the horn button is pressed and held on the handle bar.

The sound will stop when the horn button is released.

Please consult your supervisor on the proper use of the horn.

### Strobe Light (optional)



Your CarCaddy Vehicle Puller 12K may be equipped with a strobe light. If so, when your machine is turned ON with the key switch the light will flash and emit amber-colored light. The light is located at the end of a mast to the right-hand side of the operator as s/he stands behind the machine in the proper operating position (as shown in the photograph to the left). The light will continue to flash as long as the key is in the ON position. Failure to turn the key to its OFF position once the CarCaddy Vehicle Puller 12K is no longer in use will lead to further discharge of the battery pack.

## Chapter 2. Operation

### Intended-Use of Machinery

The CarCaddy Vehicle Puller 12K is designed for one person to safely and easily maneuver vehicles in/out of tight spaces including in garages and car parks. The quietness of the CarCaddy Vehicle Puller 12K electric motors allows an operator to manipulate the vehicle while having the full use of sound, sight, and touch.

### Operator Qualifications

The CarCaddy Vehicle Puller 12K is designed to be used by operators meeting certain requirements.

Do **NOT** operate the machine if any of the below apply to you:

- You have not been properly trained and authorized by a supervisor or manager
- You are less than 16 years of age
- You are influenced by alcohol, medicine, or substance that may impair your vision, reflexes, or judgement

Operators may ride the CarCaddy Vehicle Puller 12K, only if equipped with optional ride on equipment.



- NEVER ride on the CarCaddy Vehicle Puller 12K unless it has been properly equipped with stand on platform.

Always be aware of the CarCaddy Vehicle Puller 12K, the vehicle being pushed or pulled, and the operating environment (including bystanders) when you are using the machine.



- ALWAYS keep the CarCaddy Vehicle Puller 12K hood on or panel closed during operation.
- ALWAYS look around vehicles to be moved for obstacles, personnel, and equipment.
- Beware of people, vehicles, and equipment moving near the CarCaddy Vehicle Puller 12K and vehicle when in use.
- Beware of inclement weather and its effects on CarCaddy Vehicle Puller 12K operation.

**Pre-Operation Checklist**

Prior to each and every use of the CarCaddy Vehicle Puller 12K, go through the Pre-Operation Checklist in the table below.

*Pre-Operation Checklist*

✓	#	Task
	1	Unplug the AC charging cord from the outlet
	2	Be sure that the hood is on or that panels closed on the machine
	3	Verify that machine controls move freely and are free of any obstruction
	4	Turn the power switch to ON
	5	Verify that the E-Stop switch operates properly. Press the E-Stop button to confirm that the machine does not move in either direction
	6	If any of the above are not functioning properly or are not met by the machine, contact the following: 1. Your manager 2. Your company's maintenance personnel 3. Your authorized service representative / dealer 4. DJ Products, Inc.
	7	The CarCaddy Vehicle Puller 12K is now ready for operation

### Controls and Accessory Panel

Your CarCaddy Vehicle Puller 12K accessory panel will vary according to the model of machine that you have. It may look similar to one shown in the photographs below.



This panel will contain a key-operated power switch for both safety and security. This panel will also have a voltmeter to show the CarCaddy Vehicle Puller 12K battery-charge level. Finally, the accessory panel contains a circuit-breaker button to re-establish power to the CarCaddy Vehicle Puller 12K if an overload, or fault condition, is detected by the machine's control system.

### Master Disconnect Switch (Optional)



The Master Power Disconnect Switch (Optional) is located on the CarCaddyVP 12K (as shown in the photograph to the left). Isolate the CarCaddyVP 12K from its Power by rotating the switch counter-clockwise (anti-clockwise) to the OFF position. To re-establish machine power, rotate the Power Switch clockwise to its ON position.

**Power Switch (with Security Key)**

The power to the CarCaddy Vehicle Puller 12K is labeled and controlled by the keyed Power Switch (circled in picture to the left). The CarCaddy Vehicle Puller 12K is inoperable without the key or with the key inserted but not turned to the right (clockwise direction).

When the CarCaddy task is completed, move the machine to its storage location and turn the key off (counter-clockwise/anti-clockwise) and remove the key from the machine.

The CarCaddy batteries must be sufficiently charged in order for the machine to operate.

Retain the CarCaddy Vehicle Puller 12K key or return the key to your supervisor when done for personnel safety and machine security.

**Voltmeter**

The CarCaddy voltmeter is labeled (circled in picture to the left).

A digital voltmeter indicates the charge state of the CarCaddy Vehicle Puller 12K set of batteries.

### Circuit Breaker



The Circuit Breaker on the CarCaddy Vehicle Puller 12K is labeled and circled in picture to the left.

If the electrical load on the CarCaddy is too high, the circuit breaker will “trip” to protect the machine and the machine will stop working. The red circuit-breaker button will pop outward when this occurs.

The circuit breaker is operated (re-set) by pressing in the red button. It may be necessary to permit the circuit breaker to cool down before re-setting it or it may trip again.

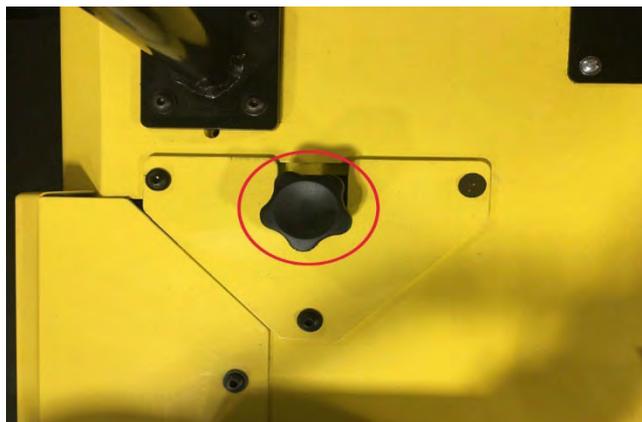
If the circuit breaker continues to trip, inspect your CarCaddy Vehicle Puller 12K and determine if there is a problem with either the machine or the application for which it is being used. If no issue can be detected, discontinue the use of the CarCaddy Vehicle Puller 12K and contact your dealer for assistance.

### Flow Valve (Telescoping Wheel Carriage Option)

The CarCaddy Vehicle Puller 12k has a flow valve on it to change the flow of the hydraulic fluid from the pump as needed to operate either the Telescoping Wheel Carriage or the Wheel Carriage loading arms (circled in picture below).

To operate the Wheel Carriage loading arms the flow valve needs to be in the up position. To check or change valve position grab the black knob of the flow valve and pull up on it. You will feel a click when the valve goes up or it will not move if already in the up position.

To operate the Telescoping wheel Carriage option the flow valve needs to be in the down position. To check or change valve position grab the black knob of the flow valve and push down on it until it stops. You will feel a click when the valve is in the down position. If already in the down position it will not move.

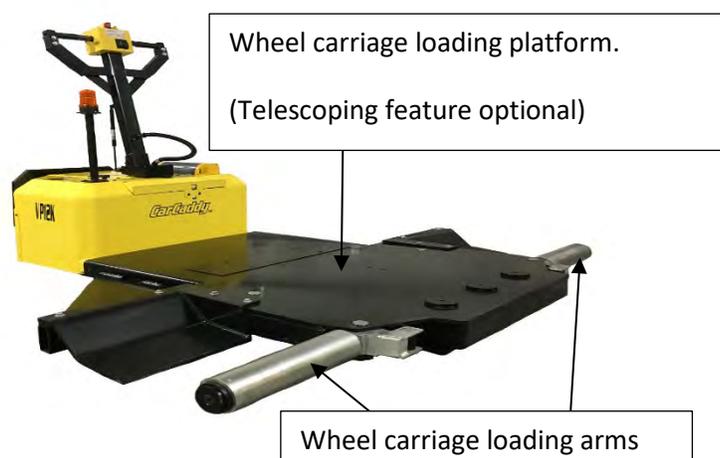


## Wheel Carriage

The carcaddy VP12k has a wheel carriage.

- **Loading arms (see pictures below):** Operate the wheel carriage loading arms by using the right hand switch on the control box circled in picture below. When pressing “IN” on the switch the loading arms will close. When pressing “OUT” on the switch loading arms will open
- **Telescoping wheel carriage platform (See pictures below {Optional}):** Operate the telescoping wheel carriage platform by using the right-hand switch on the control box circled in picture below. When pressing “IN” on the switch the platform moves towards the operator when standing in the operating position. When pressing “OUT” the platform moves away from the operator when standing in the operator position.

**\*\*\*\*NEVER OPERATE THE TELESCOPING WHEEL CARRIAGE PLATFORM WHEN THE VEHICLE PULLER IS LOADED WITH A VEHICLE\*\*\*\***



### Driving with the Butterfly Thumb Throttle

The CarCaddy Vehicle Puller 12K has variable speed butterfly thumb control throttle to control forward and reverse speed of the unit and any attached vehicle. The throttle is spring loaded and will automatically return to the Stop position when released by the operator. These controls are circled in the photograph below.



Application of throttle also releases the CarCaddy Vehicle Puller 12K service brake. Releasing the throttle automatically applies the CarCaddy Vehicle Puller 12K brake when the machine is in Neutral.

By pressing the **bottom** of either throttle lever in the vehicle direction, the operator begins moving the CarCaddy Vehicle Puller 12K and vehicle in the vehicle's forward direction. By pushing on the **top** of either throttle lever in the vehicle direction, the operator begins moving the CarCaddy Vehicle Puller 12K and vehicle in the vehicle's reverse direction. The farther the throttle lever is moved, the faster the CarCaddy Vehicle Puller 12K (and vehicle) move.

The operator steers the CarCaddy Vehicle Puller 12K and vehicle using tiller arm steering when moving the machine and vehicle in either direction.



- The operator should always be aware of other personnel whenever the CarCaddy is in motion or is about to move a vehicle.
- Striking or running over a person could result in serious injury or death.
- Observe a "safe zone" of 3 metres (10 feet) whenever possible.
- Never pass closer than one (1) metre (3 feet) of other persons.

## Batteries

This CarCaddy Vehicle Puller 12K has batteries meeting or exceeding the requirements of European Union Directive 2006/66/EC (see other Chapters 2 and 3 for details). Ask your CarCaddy Vehicle Puller 12K distributor or dealer for details on your particular battery pack. Batteries contain acid that is highly corrosive and release flammable hydrogen gas (H<sub>2</sub>). This acid, gas, and potential explosion and fire can result in severe injury or death.

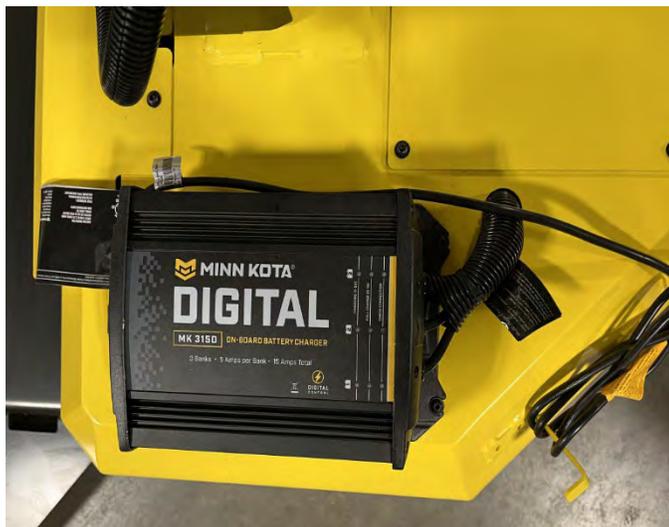


- Avoid getting battery acid in your eyes or on your skin
- Always wear gloves and eye protection when working on batteries
- Avoid getting battery acid on your clothes
- Clean spilled battery acid in accordance with company policy and applicable local laws
- Keep metal objects (such as rings and watches) away from battery terminals at all times to avoid short circuits and injuries
- Keep machine away from open flames and heat sources
- Only store or recharge the CarCaddy Vehicle Puller 12K in a well-ventilated location

## Battery Charger

Each CarCaddy Vehicle Puller 12K has a battery charger. Whenever the machine is not in use, the machine should be turned off and its battery charger should be plugged in.

Each battery charger (shown in picture to right, picture may not represent your specific battery charger on the caddy) is specifically designed to operate on the voltage in the purchaser's geographic region. The battery charger operates on either 110 VAC (60-Hz) or 230 VAC (50 Hz).



The electric-outlet plug shown (in the photograph on the top right of next page) may be different than the plug on your CarCaddy battery charger. Be sure that your electrical outlet is grounded in order to minimize the risk of electrical shock to personnel.



- NEVER use a non-grounded/non-grounding electrical outlet to charge the CarCaddy.

Disconnect the battery charger from the outlet prior to using the CarCaddy (see photograph on the right). However, prior to doing so, check the charging lights on the front display of the battery charger. The lights should be green to indicate a full battery charge. If the lights are not green, either let the batteries charge for a longer period or follow the troubleshooting guidance in Chapter 5 and the supplied battery-charger manual.



The CarCaddy Vehicle Puller 12K should be turned off and plugged in to recharge its batteries once it is no longer in use.

The CarCaddy Vehicle Puller 12K batteries have a run time of approximately two to four hours if fully charged. Moving very heavy loads will significantly shorten the run time you experience. Operating at maximum power will exhaust the batteries within 20 to 45 minutes.

It will take your charger approximately eight (8) hours to fully recharge your battery pack. The CarCaddy battery charger has a timer that automatically turns off the charger once the batteries have been fully charged.

### Post-Operation Battery Charging

After machine use or at the end of a work shift, the CarCaddy should be returned to its storage location and recharged so that it is ready for its next use. To recharge the batteries with the charger, follow the Recharging Checklist in the table below.

#### *Recharging Checklist*

✓	#	Task
	1	Move the machine into a flat, dry surface in a well-ventilated area
	2	Remove the machine's hood or open the machine's panel
	3	Replenish water in batteries with distilled water, if needed. Water level should be just above the top of the battery cells. Do NOT overfill battery cells.
	4	Wipe down the tops of all batteries with a clean cloth
	5	For external charger models, unplug the gray main power harness from the batteries power harness
	6	For external charger models, plug the gray connector lead from the battery charger into the gray or blue batteries lead on the CarCaddy.
	7	Plug the battery charger into a suitable AC power outlet

## Operation

For CarCaddy Vehicle Puller 12K:

1. Be sure that your CarCaddy Vehicle Puller 12K (“machine”) is ready for operation by following the procedures and checklists provided in this Reference Manual and any other materials provided with your machine.
2. Locate the vehicle you wish to move.
3. Clear the area surrounding the vehicle of any equipment or debris that could interfere with the safe operation of your machine or lead to damage the vehicle to be moved.
4. Determine a safe path to the final destination of the vehicle being moved.
5. Clear this path of any equipment or debris.
6. Repeat Step 3 for the final destination of the vehicle being moved.
7. Turn the power key “ON” activating the flashing strobe light (if unit is so equipped).
8. Move the machine into position
9. Be sure that the machine is centered with respect the vehicle.
10. Using the right-hand switch marked with “IN” and “OUT” on the machine’s control box, open—or UNLOAD—the **wheel carriage** arms.
11. **Optional Telescoping wheel carriage platform:** Using the right-hand switch marked “IN” and “OUT” on the machine’s control box, extend or retract the vehicle **wheel carriage** until an appropriate setting is found for the vehicle being moved.
  - a. **Instructions for unit with optional telescoping wheel carriage platform and flow valve to operate wheel carriage loading arms and telescoping wheel carriage platform**
    - i. When flow valve is in the up position (pull straight up on the flow valve till you feel a click and the valve does not pull up any further) loading wheel carriage roller arms will operate in and out using the right-hand switch marked with the raise and lower picture (“IN” and “OUT” on the machine’s control box)
      1. Press In/lower to close the arms
      2. Press out/raise to open the arms
    - ii. When flow valve is in the down position (push straight down on flow valve till it stops to close it) telescoping wheel carriage platform moves in and out (“IN” and “OUT” on the machine’s control box)
      1. Press In/lower to bring the platform toward the machine
      2. Press out/raise to move the platform away from the machine
      3. **\*\*\*NEVER OPERATING TELESCOPING WHEEL CARRIAGE PLATFORM IN OR OUT WHEN LOADED WITH A VEHICLE\*\*\***
12. Slowly drive the machine under the vehicle until the wheel carriage tire pans contact the front of the vehicle’s tires.
13. Close the wheel carriage loading arms using the “LOAD/IN” setting on the right-hand switch of the control box.
14. Be sure that the parking brake on the vehicle is released and/or that the vehicle transmission is in neutral (if necessary) to permit the vehicle to freely roll.
15. After being sure that it is safe to proceed with moving the vehicle, begin moving the vehicle with the machine by using either butterfly thumb control shown at either side of the control box.
16. Use the thumb controls to control the machine and vehicle’s speed and direction.
17. Use the wagon wheel steering system to direct the machine and vehicle.
18. Slowly move the vehicle along the cleared path to its final location while remaining aware of equipment, debris, people, and other vehicles.
19. Once the vehicle is in its desired final position, apply the vehicle’s parking brake and be sure that the vehicle is in gear or Park to prevent the vehicle from rolling when it is released by the machine.
20. Release the vehicle by using the right-hand switch on the control box to open the wheel carriage roller arms.
21. Drive the machine out from under the vehicle.
22. Move the empty vehicle to its next task or park the machine in a safe location for future use.
23. Turn the machine off De-activating the flashing strobe light (if unit is so equipped).
24. If the machine’s batteries are low, plug the machine’s battery charger into an appropriate mains electrical outlet at a location suitable for battery charging.
25. Remove the keys to the machine for safekeeping.

### Chapter 3. Maintenance

Follow the table below listing prescribed Maintenance tasks and the minimum intervals at which they must be performed.

Disconnect the batteries before working on the CarCaddy Vehicle Puller 12K.

*Maintenance-Interval Table*

Interval	Maintenance Item
<b>Every Day</b>	- All items on "Pre-Operation Checklist"
<b>Every Month</b>	<ul style="list-style-type: none"> <li>- Replenish water in batteries with distilled water, if needed.</li> <li>- Water level should be just above the top of the battery cells.</li> <li>- Do NOT overfill battery cells.</li> <li>- Visually inspect drive wheel for damage</li> <li>- Visually inspect caster wheels for damage/excessive wear</li> </ul>
<b>Every 3 Months</b>	<ul style="list-style-type: none"> <li>- Lubricate the castor bearings with grease</li> <li>- Pump grease into grease fittings with grease gun</li> <li>- Lubricate axle bearings and swivel bearings</li> <li>- Check torque on all fasteners and hardware</li> <li>- Use fastener-torque specifications below</li> <li>- Check, tighten, and lubricate all battery-post and cable connections</li> <li>- Check hydraulic fluid level</li> <li>- Check//inspect hydraulic hoses/fitting</li> <li>- Inspect UMHW slides for wear and damage</li> </ul>

Remember to reconnect the battery pack after working on the CarCaddy Vehicle Puller 12K.

#### Chassis Maintenance

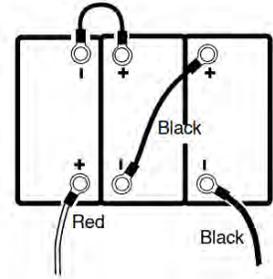
*Machine Specifications*

<b>Consumables</b>	
Grease	Multi-purpose
Battery water	Distilled water only (if required)
Hydraulic Fluid	Medium duty iso 46 hydraulic fluid
<b>Threaded Fasteners and Torque Specifications (Dry)</b>	
1/4-inch nuts/bolts	7.5 N-m (66 lb-in)
5/16-inch nuts/bolts	15 N-m (11 lb-ft)
3/8-inch nuts/bolts	27 N-m (20 lb-ft)
7/16-inch nuts/bolts	41 N-m (30 lb-ft)
1/2-inch nuts/bolts	68 N-m (50 lb-ft)
7/8-inch nuts/bolts	258 N-m (190 lb-ft)
Battery-Cable fasteners	5.9-8.0 N-m (50-70 in-lb)

### Replacing Batteries

Only use deep-cycle lead (Pb)-acid batteries in the CarCaddy Vehicle Puller 12K. The battery charger is designed to charge this type of battery. Using any other type of battery may result in overcharged batteries that could lead to serious damage to the machine or serious injury to personnel.

If batteries are replaced (within a battery pack), always replace all three batteries. Batteries should only be connected in the manner shown to the right. Make sure that the posts on the new batteries and battery-cable terminals are clean. Tighten the nuts on the battery cable terminals to the torque listed in *Machine Specifications*.



### Adjusting the Butterfly Thumb Control Throttle

If the CarCaddy Vehicle Puller 12K comes out of neutral and begins to creep with no operator input, then adjustment of the throttle may be necessary.

This can be done by:

1. Removing the four 5/16-inch (7.3-mm) SAE self-threaded screws in the yellow control box on the handle bar
2. Remove the cover to provide access to the control potentiometer.
3. Adjust the potentiometer with an 1/2-inch SAE wrench.
  - a. If the machine is creeping backwards, then turn the potentiometer towards the front of the machine.
  - b. If the machine is creeping forwards, then turn the potentiometer towards the rear of the machine.
4. Replace the cover.
5. Replace the four screws securing the cover.
6. Verify proper operation of the throttle.

## Chapter 4. Service

If you require service, replacement parts, or accessories for your CarCaddy Vehicle Puller 12K, contact DJ Products, Inc., its authorized dealer, or its distributor for assistance.

Whenever ordering parts or requesting service of any type, please provide the following:

1. The model of the machine
2. The serial number of the machine
3. The part number (if known)
4. The part description

Unless battery power is needed for Service, disconnect the CarCaddy battery pack from the machine whenever servicing the unit.

## Chapter 5. Troubleshooting

**Q. When I turn the key on, nothing happens at all.**

A. If the voltmeter doesn't come on or you don't hear the contactor click one of three things could be bad. Check the battery voltage across all three batteries; you should have at least 36 volts. If that is OK either the contactor is not working or the key switch is not working. To bypass the key switch, take the two wires going to the key switch and touch them together, if the key switch is bad the machine should turn on. To bypass the contactor please call DJ Products or your local distributor or dealer for further tests.

**Q. When I plug the onboard charger into the wall one or more of the banks say check connection.**

A. Check the fuse on that bank(s) to see if it is blown. Check the connection to the battery terminal. If both of these things are OK the battery voltage on the bank(s) is probably below 9 volts. The charger has a safety feature on it, when the battery voltage drops below 9 volts the charger says check connection and shuts down that bank. Either charge that battery with an external charger to bring the voltage up or cycle the power on the charger by plugging in the charger and unplugging it every 5 to 10 minutes until that bank shows it in charging mode.

**Q. When I plug in my onboard charger no lights come on at all.**

A. Try plugging it into a different outlet, if that doesn't work call DJ Products or your local distributor or dealer, you may need a new charger.

**Q. When I press the optional horn button the horn does not sound.**

A. Check the connections to the horn and the horn switch. If OK you can hook the horn directly to 36 volts, if the horn sounds then your switch is bad.

**Q. When I rotate the handle bar (if so equipped), it does not snap back into the center position.**

A. The torsion spring has either slipped off the centering bolt or the spring has broken. Take the screws out of the control box to and pull the box apart, the bottom part will pull completely off and the top part can rotate up. Inspect the torsion spring to make sure it is in the proper position.

**Q. The CarCaddy shows full power until I start using it, then the needle on the voltmeter drops down into the red area of the scale.**

A. You probably have one or more bad batteries. You can check the batteries with a multi-meter but a load cell tester is preferred. You should have 12 volts on each of the batteries; you may have a bad cell in one or more of the batteries causing the machine to lose power.

**Error Codes**

Below are codes that may appear on the CarCaddy Vehicle Puller 12K volt-meter display.

Contact DJ Products, Inc., its dealer, or its distributor if you have questions, your CarCaddy Vehicle Puller 12K continues to be inoperable, or whenever your machine becomes unsafe to operate.

Code / LED Flashes	Sigmatagauge Icon	Cause / Action
		Warning Error
0 / On		Controller is functioning.
1		Handbrake switch closed. Release Handbrake.
2		Battery voltage 'becoming' too low. Charge battery or check its condition and connections.
3		Not used.
4		Battery voltage 'becoming' too high. Reduce braking levels or vehicle speed.
5		Thermal foldback. Allow motor to cool, operate vehicle within specification.
6		Controller over-temperature. Allow controller to cool and check drive train.
7		Out-of-Range programming. Check all parameters are within permitted limits.
8		Default settings restored after re-flash. Cycle power.
		Main Error – Recycle to Neutral
9		Internal memory error. Contact Service Agent.
10		Direction selection error - both Fwd and Rev selected. Check direction switch operation and connections.
11		Seat or Tiller switch not closed. Check switch operation and connections.
12		Sequence error - the Footswitch or Direction switch is operated at power-up. Check switch operation and connections.
13		Accelerator deflected at power-up. Check Accelerator operation and connections.
14		Ride-on - forbidden input selected (Fwd, Rev, FS, Seat, Handbrake), when inching the vehicle. Walkie - drive is attempted without releasing the belly switch after time-out period has passed.
15		Internal 12 V supply too low. Check peripherals and battery.

16		Not used.
17		Battery voltage too low. Charge battery or check its condition and connections.
18		High-side MOSFET error in neutral or while pulsing. Check motor insulation and line contactor. If error persists, contact Service Agent.
19		Low-side MOSFET error while pulsing. Check motor insulation. If error persists, contact Service Agent.
		Hard Error – Recycle Key-switch
20		Motor over-current. Check programming of motor parameters.
21		Contactor coil error. Check contactor coil(s) and connections.
22		Battery voltage too high. Reduce braking levels or speed.
23		Low-side MOSFET error in neutral. Check motor insulation and line contactor. If error persists, contact Service Agent.
24		Controller error or line contactor coil error. Check line contactor coil. If error persists, contact Service Agent.
25		Contactor error. Check coil(s) & contacts.
26		Controller error. Contact Service Agent.
27		Low-side MOSFET error before line contactor has closed. Check motor insulation and line contactor. If error persists, contact Service Agent.
28		Wig-Wag wire off detected. Check pot. wiring on Connector A pins 8, 9 and 16.
29		CAN error. A CAN node is not responding. Check all nodes and their connections.
30		Over-speed or encoder error. Check encoder programming value 4.3 Number of Teeth and ensure that 4.8 Motor Speed Maximum is higher than 1.4 Maximum Forward Speed and 1.5 Maximum Reverse Speed.

**Chapter 6. Diagrams and Parts Lists****CarCaddy Vehicle Puller 12K**

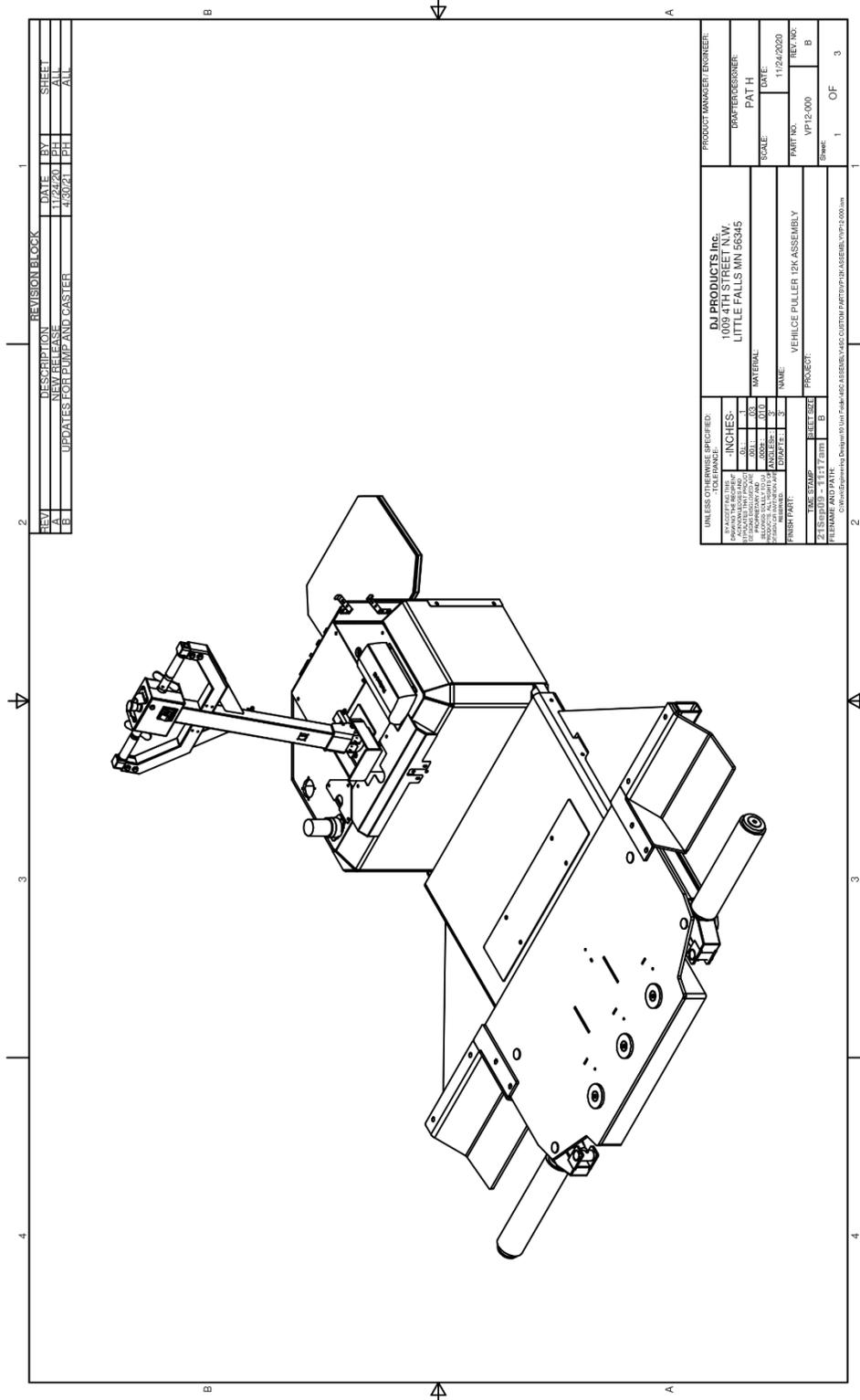
The following drawing and diagrams are included in this manual for the CarCaddy Vehicle Puller 12k:

- A. CarCaddy Vehicle Puller 12k Assembly and Parts (Oblique View)
- B. CarCaddy Vehicle Puller 12k Assembly and Section Views
- C. Electrical Schematic
- D. Hydraulic Schematic

Not all drawings are included for all models of CarCaddy Vehicle Puller 12k. These drawings may show optional equipment.

The CarCaddy Vehicle Puller models covered in this Reference Manual are listed below.

1. CarCaddy Vehicle Puller 12k

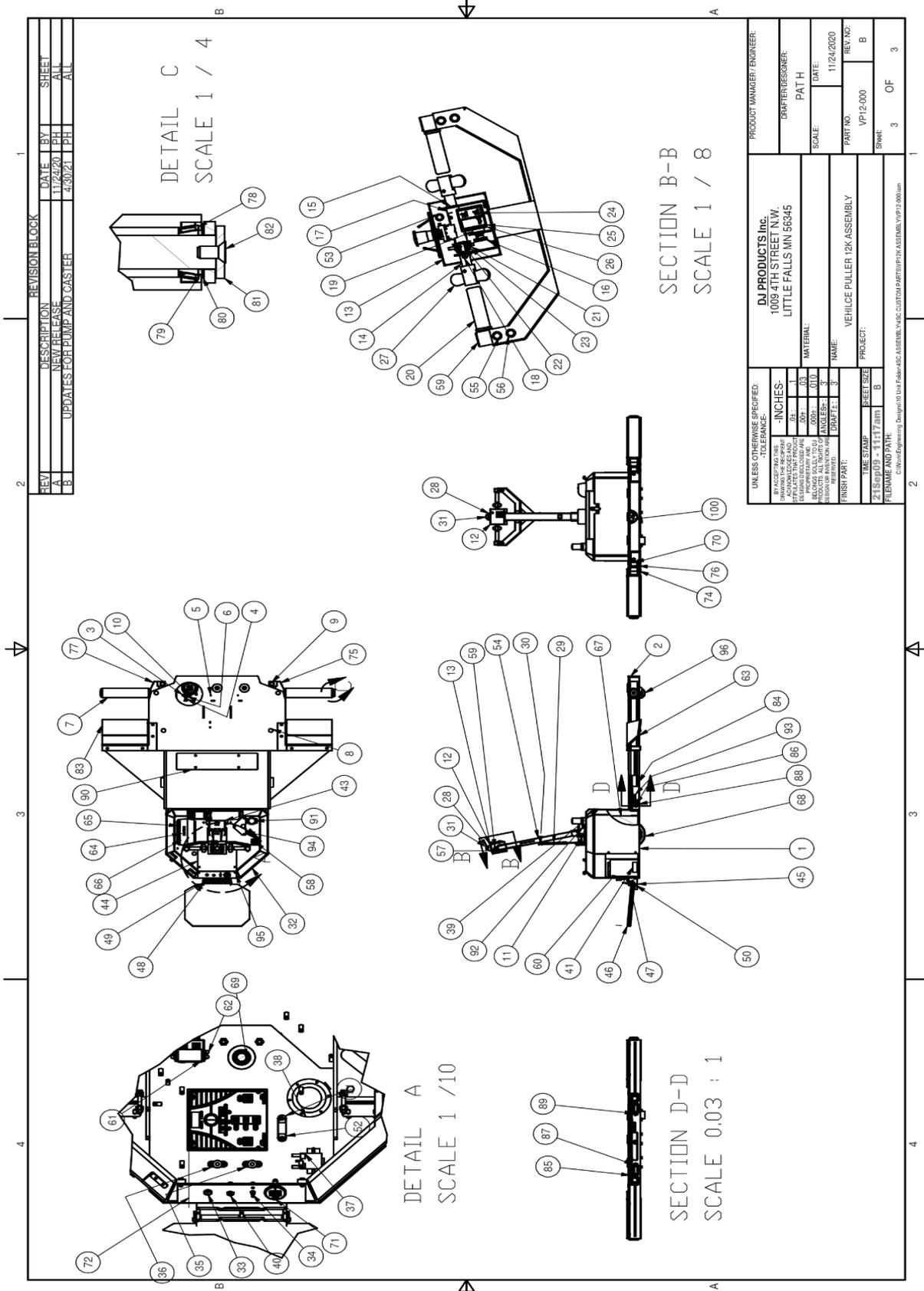


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A	NEW RELEASE	11/24/20	PH
B	UPDATES FOR PUMP AND CASTER	4/30/21	PH
			ALL

UNLESS OTHERWISE SPECIFIED: STANDARD TOLERANCES: DIMENSIONS IN INCHES: FRACTIONS DECIMALS 1/16 1/32 1/64 0.001 0.005 0.010 0.015 0.030 0.060 0.125 0.250 0.500 1.000 2.000 5.000 10.000 DIMENSIONS IN MILLIMETERS: FRACTIONS DECIMALS 1/16 1/32 1/64 0.05 0.10 0.20 0.50 1.00 2.00 5.00 10.00		<b>DJ PRODUCTS, INC.</b> 1009 4TH STREET N.W. LITTLE FALLS MN 56345 WA TERVAL DATE: 11/24/2020 NAME: VEHICLE PULLER 12K ASSEMBLY PRODUCT MANAGER/ENGINEER: DRUMFENDERNER PAT. H. SCALE: VP12.000 PART NO.: VP12.000 REV. NO.: B SHEET: 1 OF 3	
TIME STAMP	SHEET SIZE	PRODUCT MANAGER/ENGINEER: DRUMFENDERNER PAT. H. SCALE: VP12.000 PART NO.: VP12.000 REV. NO.: B SHEET: 1 OF 3	
ZT Spindle - 81177mm	B	PRODUCT MANAGER/ENGINEER: DRUMFENDERNER PAT. H. SCALE: VP12.000 PART NO.: VP12.000 REV. NO.: B SHEET: 1 OF 3	

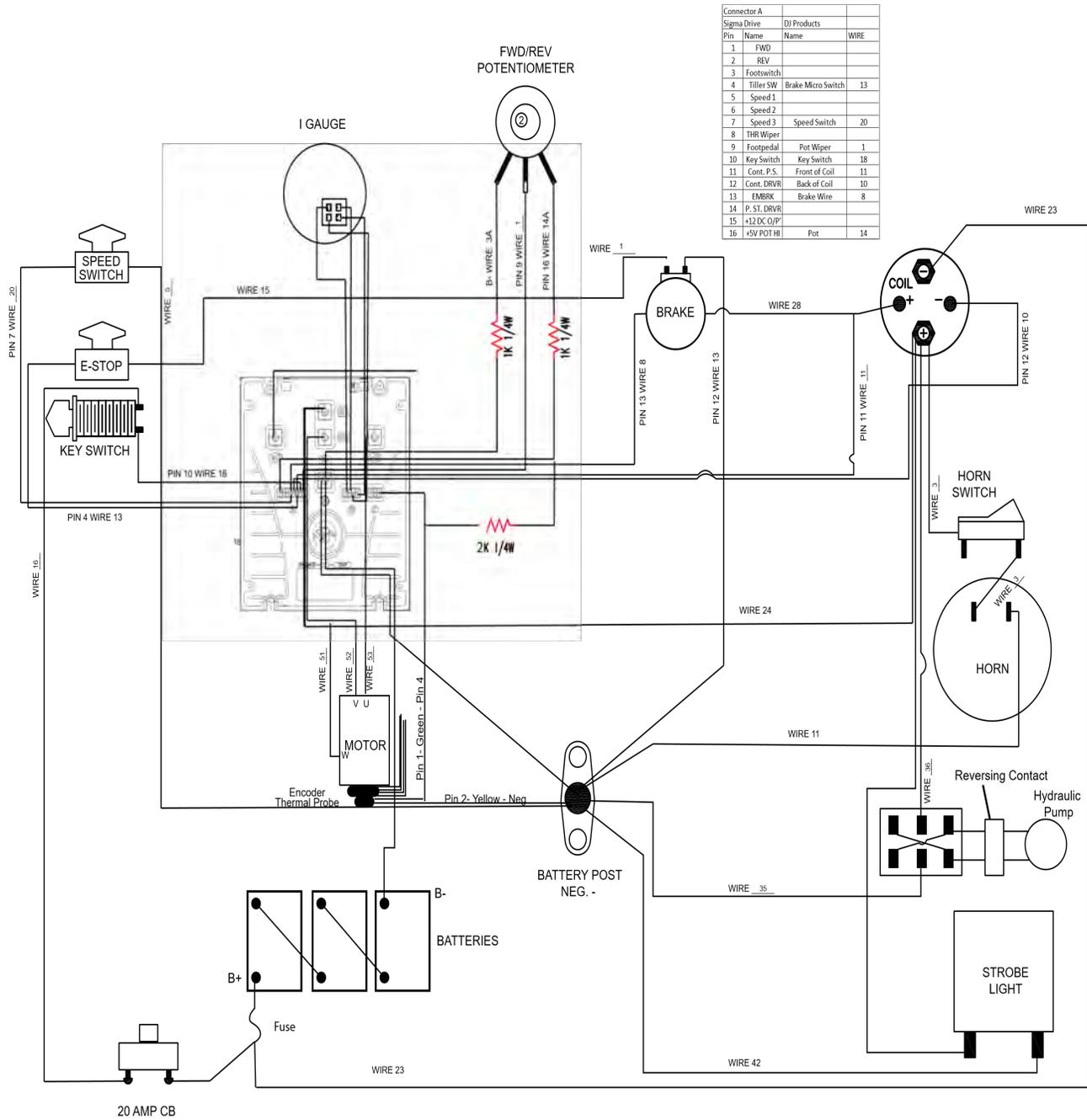
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A	NEW RELEASE	11/24/20	PH	ALL
B	UPDATES FOR PUMP AND CASTER	4/30/21	PH	ALL

Parts LIST					
ITEM	QTY	PART NO.	REV	DESCRIPTION	MATERIAL
100	3	PC-100377	A	VP12 CASTER DMS PARTS	
99	4	VP12-237	A	THICK ROLLER ARM WASHER	1/2" (.500) Hot Rolled, Steel
98	1	PC-100278	A	VP12K HYDRAULIC PUMP	
97	1	VP12-909	A	WHEEL PIN	Generic
96	1	VP12-900	A	VP12 CASTER WHEEL	
95	1	VP12-312	A	COMPONENT PANEL, VP12K	11 GA (.1196) Hot Rolled, Steel
94	1	VP12-311	B	HYDRO SELECTOR VALVE COVER	11 GA (.1196) Hot Rolled, Steel
93	2	301090	A	FLOW DIVIDER	
92	1	PC-100207	A	HYDRAULIC SELECTOR VALVE	Generic
91	1	500124-01	A	STROBE, 360 AMBER, 12-80VDC	Generic
90	2	VP12-307	A	PLATFORM EXTENSION CYLINDER COVERS	11 GA (.1196) Hot Rolled, Steel
89	4	7/8		Regular Helical Spring Lock Washers(Inch Series)	Steel, Mild
88	4	1 - narrow - Type A		Plain Washer (Inch )Type A and B	Steel, Mild
87	2	7/8-9 UNC - 4.5		Hex Bolt - UNC (Regular Thread - Inch)	Steel, Mild
86	2	7/8-9 UNC - 5		Hex Bolt - UNC (Regular Thread - Inch)	Steel, Mild
85	6	VP12-911	A	PLATFORM SLIDE	Generic
84	2	VP12-910	A	VP12 EXTENSION PLATFORM CYLINDER	
83	1	VP12-301	A	LEFT SIDE FIXED WHEEL TRAY, VP12K	
82	2	5/8-11 UNC x 1.25		Hexagon Socket Flat Countersunk Head Cap Screw	Steel, Mild
81	2	VP12-236	A	ROLLER ARM RETAINING WASHER	3/8" (.375) Hot Rolled, Steel
80	5	VP12-232	A	WHEEL ROLLER SPACER, VP12K	14 GA (.0747) Hot Rolled, Steel
79	4	VP12-231	A	WHEEL ROLLER BEARING SPACER, VP12K	3/16" (.1875) Hot Rolled, Steel
78	4	VP12-906	A	WHEEL ROLLER BEARING	Generic
77	1	VP12-230	B	WHEEL ROLLER ARM WELDMENT LEFT SIDE	
76	6	VP12-908	A	SIDE MOUNT RETAINING RING	Generic
75	1	VP12-225	B	WHEEL ROLLER ARM WELDMENT RIGHT SIDE	
74	6	1IN WASHER		Plain Washer (Inch )Type A and B	Steel, Mild
73	8	VP12-903	A	PIN BUSHING	Generic
72	1	300348	A	48V CONTROLLER	Generic
71	1	300349	A	48V VOLT METER	Generic
70	2	300363	A	6IN STROKE 2IN BORE HYDRAULIC CYLINDER	
69	1	VP12-310	B	VP12K STEERING YOLK WELDMENT	
68	1	300362	A	36V AC WHEEL DRIVE MOTOR	Generic
67	3	300022	B	J150 TROJAN BATTERY	Generic
66	1	590247	A	CHARGER BRACKET, RIGHT SIDE	14GA (.0747) Hot Rolled, Steel
65	1	590009	C	CHARGER BRACKET	14GA (.0747) Hot Rolled, Steel
64	1	300005	A	BATTERY CHARGER, 36VDC	Generic
63	1	VP12-300	A	LEFT SIDE FIXED WHEEL TRAY, VP12K	
62	1	VPL-911	A	CONTACTOR BRACKET	11 GA (.1196) Hot Rolled, Steel
61	1	VPL-910	A	PUMP CONTACTOR	Generic
60	1	VPL-127	A	PLATFORM MOUNTING BACKER PLATE	1/4" (.250) Hot Rolled, Steel
59	2	590432	A	HANDLE BAR GRIP WELDMENT	
58	1	C-0109	A	MASTER POWER DISCONNECT	Generic
57	4	3/8 - 16 NUT	A	Hex Nuts (Inch Series) Hex Nut	Steel, Mild
56	8	3/8 - WASHER		Plain Washer (Inch )Type A and B	Steel, Mild
55	4	3/8-16 UNC - 2.5		Hex Bolt - UNC (Regular Thread - Inch)	Steel, Mild
54	1	590425	A	HD HANDLE BAR WELDMENT	
53	1	HIL-903	A	WHITE PUSH BUTTON	Generic
52	1	500345-03	A	100 AMP FUSE BLOCK	Generic
51	1	500345-02	A	100A FUSE	Generic
50	2	VPL-907	A	COTTER PIN 1/2IN SHAFT VPL	Generic
49	1	VPL-124	A	PLATFORM PIVOT SHAFT	Generic
48	6	VPL-906	A	VPL PLATFORM WASHER	Generic
47	2	VPL-122	A	PLATFORM STOP BRACKET	1/4" (.250) Hot Rolled, Steel
46	1	VPL-125	C	RIDE ON PLATFORM WELDMENT	
45	1	VPL-120	C	PLATFORM MOUNTING BRACKET	
44	1	VP12-306	A	COMPONENT COVER	11 GA (.1196) Hot Rolled, Steel
43	1	707033	B	WAGON STEER STOP WELDMENT	
42	1	500519-071	A	PROSPORT 15 CHARGER	Generic
41	4	VPL-013	B	FRONT BATTERY STOP BRACKET	3/16" (.1875) Hot Rolled, Steel
40	1	500147	A	10AMP CIRCUIT BRAKER (RE CIRK IT)	Generic
39	1	VP12-314	A	HYDRAULIC PUMP COVER, VP12K	14 GA (.0747) Hot Rolled, Steel
38	1	500402-04	A	HORN	
37	1	500149	A	SOLENOID	Steel, Mild
36	1	JB-0002	A	POSITIVE POWER RED	Generic
35	1	JB-0001	A	NEGITIVE POWER BLK	Generic
34	1	500146	A	20 AMP CIRCUIT BRAKER	Generic
33	1	500145-01	A	KEY ASSY (CHROME) UL RATED	Generic
32	2	VP12-305	A	BATTERY COMPARTMENT DOOR, VP12K	14 GA (.0747) Hot Rolled, Steel
31	1	500187	A	E-STOP ASSEMBLY	
30	4	500911-03	A	1/4" GAS SHOCK BALL STUD	Generic
29	2	300049	B	HOOD SHOCK	
28	1	500262	B	E- STOP GAURD	11GA (.1196) Hot Rolled, Steel
27	2	506814	A	BUTTERFLY CONTROL	Generic
26	2	500414	A	SWITCH, MOUNTING PANEL END	Generic
25	1	500406-02	B	SWITCH, HORN, WITH DECAL	Generic
24	1	500405-01	A	SWITCH, LIFT, WITH DECAL	Generic
23	1	500297	A	1" HANDLE BAR GEAR SPACER	Delrin, White
22	1	500296	A	TORSION SPRING	Steel, Mild
21	1	500277	A	1.2 HANDLE BAR GEAR SPACER	Delrin, White
20	2	500152	A	Handle Bar Grip	Generic
19	1	500142	A	POT ASSY	
18	1	500140-01	A	TORSION SPRING CENTERING BOLT	
17	1	500140	A	HANDLE BAR GEAR-222079	UHMW, White
16	1	500139	A	POT GEAR	Steel, Mild
15	2	500137	A	HANDLE BAR GEAR BUSHING	Delrin, White
14	1	500136-01	E	HANDLE BAR	Steel, Mild
13	1	501288	K	CONTROL BOX BOTTOM	14GA (.0747) Hot Rolled, Steel
12	1	VPL-208	C	CONTROL COVER TOP, VPL	14GA (.0747) Hot Rolled, Steel
11	1	501212	K	Steering Knuckle Weldment	Welded, Cold Rolled, Steel
10	6	VPL-904	A	CASTER LOCK BEARING	Generic
9	2	VP12-907	A	FRONT ACTUATOR PIN	Generic
8	4	VP12-904	A	REAR ACTUATOR PIN	Generic
7	2	VP12-228	A	VP12 TIRE ROLLER	Generic
6	3	3/8 - WASHER	A	Plain Washer (Inch )Type A and B	Steel, Mild
5	3	CAR-109	A	Alloy Steel Thread-Locking Shoulder Screw	Generic
4	3	CAR-108	B	Zinc-Plated Music Wire, 1.50" Long, 500" OD, .062" Wire	Generic
3	3	CAR-620	C	VP SPRING LOADED CASTER LOCK	
2	1	VP12-200	B	VEHICLE PULLER ATTACHMENT, VP12K ASSEMBLY	
1	1	VP12-100	B	VEHICLE PULLER LITE FRAME WELDMENT	



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REV.	DESCRIPTION	DATE	BY
A	NEW RELEASE	11/24/20	PH
B	UPDATES FOR PUMP AND CASHER	4/30/21	PH
			ALL

UNLESS OTHERWISE SPECIFIED: -TOLERANCE: BY ACCEPTING THIS DRAWING THE BUYER ACKNOWLEDGES AND AGREES TO HOLD THE SUPPLIER HARMLESS FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, THAT MAY BE ASSERTED AGAINST THE BUYER IN CONNECTION WITH THIS CONTRACT. ALL RIGHTS ARE RESERVED.		-INCHES: 0.001 0.005 0.010 0.015 0.030 0.060 0.125	
FINISH PART:		PROJECT:	
TIME STAMP:		SHEET SIZE:	
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PRODUCT/MANAGER/ENGINEER:		PART NO.:	
DJ PRODUCTS Inc. 1009 4TH STREET N.W. LITTLE FALLS MN 56345		VP12-000	
DRAFTER/DESIGNER: PATH		REV. NO.:	
SCALE:		REV. B	
DATE:		REV. A	
11/24/2020		REV. C	
SHEET:		REV. D	
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OF		REV. F	
3		REV. G	





## Chapter 7. Warranty

**IMPORTANT:** Read this entire Limited Warranty before using the DJProducts product. The DJProducts product (or other DJ Products Inc. product-collectively referred to herein as the "Product" whether it be a unit or major product component part) manufactured by DJ Products Inc., a Minnesota corporation ("Manufacturer") is believed to be reliable if the directions for its use, maintenance, and operating procedures are followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this Product. Risk of failure, including personal injury, dismemberment, injury to property or even death, may result from misuse, abuse, neglect, negligent use, accidental or intentional damage, ordinary wear and tear, violation or omission of standard operating procedures, improper maintenance, failure to perform routine and preventive maintenance, alterations, additions and/or modifications to the Product, use by any individual not fully trained and fully authorized operator, and improper training of the operator, all of which are beyond the control of the Manufacturer. All such risks are fully assumed by the purchaser/customer of the Product referred to herein as the ("Customer").

Manufacturer offers a limited warranty (the "Limited Warranty") to each Customer who is the original purchaser of this Product that, effective for a period of one year ("Limited Warranty Period") from the date of shipment of the Product to the Customer, that the Product is free from defects in material or workmanship in normal use and service. Should any major Product component part prove not to conform to foregoing Limited Warranty, the remedies of Customer for any breach of the foregoing Limited Warranty shall be limited to the repair or replacement of the major Product component part.

IN NO EVENT SHALL MANUFACTURER'S OBLIGATIONS PURSUANT TO THIS LIMITED WARRANTY EXCEED THE PURCHASE PAID TO THE MANUFACTURER BY THE CUSTOMER FOR THE PARTICULAR PRODUCT INVOLVED, TO THE EXCLUSION OF ALL OTHER REMEDIES OR LIMITATIONS, INCIDENTAL OR CONSEQUENTIAL DAMAGES. The Limited warranty, which is Customer's EXCLUSIVE REMEDY, shall be FURTHER LIMITED as follows:

1. If the defect in material or workmanship of the major Product component part is disclosed to the Manufacturer by the Customer prior to the expiration of the Limited Warranty Period, the Limited Warranty shall be the manufacturer's cost of replacing the defective major Product component part with a factory certified major Product component part (excluding repair labor). Any replacement of major Products component parts shall occur at the Manufacturer's (or authorized service provider) place of business. In order to obtain a warranty service, the Customer must return the defective component part to the Manufacturer within the Warranty Period, together with proof of purchase by Customer establishing date of delivery, with freight charges and applicable costs of repair, if any, prepaid, any repaired or replaced component part covered by the Limited Warranty, to the Customer's facility located within the continental United States. After the component part has been repaired or replaced, the original Limited Warranty is still in effect on the replaced or repaired component part.

The Limited Warranty is invalid if the factory-applied serial number has been altered or removed from the Product. The Limited Warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, neglect, negligent use, accidental or intentional damage, ordinary wear and tear, violation or omission of standard operating procedures, improper maintenance, failure to perform routine and preventative maintenance, alterations, additions and/or modifications to the Product, use by any individual not a fully trained and fully authorized operator, and improper training of the operator, or repair or attempted repair by anyone other than Manufacturer or its authorized agents, nor to any Product which is leased or used as rental equipment. The occurrence of any of the foregoing voids the Limited Warranty.

This Limited Warranty does not cover Customer instruction or training. THIS LIMITED WARRANTY PROGRAM IS EXCLUSIVE AND IS GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, WHETHER WRITTEN OR ORAL, EXPRESSED OR IMPLIED OR INFERABLE FROM THE COURSE OF DEALING OR USAGE OF TRADE, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY ARISING FROM PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE, AND ALL OTHER OBLIGATIONS, LIABILITIES, RIGHTS, CLAIMS OR REMEDIES, INCLUDING ANY RIGHT IN CONTRACT, TORT, STRICT LIABILITY OR ANY RIGHT ARISING FROM MANUFACTURER'S NEGLIGENCE, ACTUAL OR IMPUTED FOR CLARIFICATION ONLY (AND NOT IN ANY WAY TO EXPAND THE FOREGOING EXCLUSIVE REMEDIES):

- A) UNDER NO CIRCUMSTANCES WILL MANUFACTURER BE LIABLE FOR LOST PROFITS OR ANY OTHER INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE PURCHASE OR USE OF THIS PRODUCT, INCLUDING, WITHOUT LIMITATION, ECONOMIC LOSS, COST OF CAPITAL, CLAIMS OF CUSTOMERS FOR FAILURE OF SUPPLY OR LOSS OF USE OR DAMAGE TO PERSONS OR TO OTHER PROPERTY, NOTWITHSTANDING THE FACT THAT THE MANUFACTURER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES;
- B) THE TOTAL LIABILITY OF THE MANUFACTURER TO CUSTOMER SHALL NOT EXCEED THE TOTAL PURCHASE PRICE PAID BY THE CUSTOMER TO MANUFACTURER FOR THE PARTICULAR PRODUCT INVOLVED; AND (C) NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTIES, REMEDIES OR LIMITATIONS WILL BE BINDING UPON THE MANUFACTURER UNLESS IN WRITING AND SIGNED BY A DULY AUTHORIZED CORPORATE OFFICER OF THE MANUFACTURER.

If any terms or conditions of this Limited Warranty program is in violation of applicable local, state, or federal law, this Limited Warranty program shall not be voided in its entirety, but rather, the court, or other appropriate authority having jurisdiction in the matter, shall rewrite and reform the Limited Warranty to the minimum extent required so as to be permitted under applicable law.



DJ Products, Inc.  
1009 4<sup>th</sup> St. NW  
Little Falls, MN 56345 USA

Tel: +1-320-632-2651  
Email: [info@djproducts.com](mailto:info@djproducts.com)  
Web: [www.djproducts.com](http://www.djproducts.com)

Reference Manual  
*CarCaddy Vehicle Puller 12K*

Rev. 01/2023