

Versa-Pak V5 WD Manual Dump Valve

By PSI Waste Equipment Services, Inc.



Versa-Pak V5 SUPPORT www.versa-pak.net

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Introduction

- The purpose of this manual is to provide the installer and owner with the necessary information to install our Versa-Pak Control system.
- PSI Waste shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the features and options in the use of this product. The installer shall ensure, upon installation, the combination of features and options used are safe for the application and operational environment.
- Installer and user shall read and understand ANSI Standard Z245.2 (Compactor Safety), OSHA 29 CFR, Part 1910.147 (Lock out/ Tag out), and the OEM compactor operation, maintenance, and installation manual.
- If you are not fully qualified to install the Versa-Pak system safely, please stop and return it for a full refund!

Installation

Before installing

- Get familiar with the Versa-Pak system by studying the drawings and documentation included. It will not only save you time, but there are a lot of great features you'll want to use. Refer to it frequently.
- Spend a few minutes watching all our youtube videos at www.versa-pak.net . You'll learn a lot! Average video length is 3-1/2 mins. Videos are easy to watch on your smart phone too.
- Please do not leave your manual behind when heading out to install our control system in the field! If you do forget it, please go to www.versa-pak.net to download one. If you don't have a smart phone find a computer, download a manual, and print it out.
- Make sure your control panel has a transformer that provides 120V power. Most compactors do.
- There are compactors out there with two stage pumps, additional valves, etc. that may NOT be compatible with our control system. If you are not sure, take a few pics and email us. We'll steer you I the right direction.
- Please leave all documentation in the control panel. There is nothing worse than getting to a site and not having the info you need to make a simple adjustment or troubleshoot a problem. If you need extra copies you can download them or call us and we'll send you a set, free of charge.

Install- PLEASE, DON'T FORGET YOUR MANUAL!

1. We have included a manual, schematic decal, motor data tag decal, wire ties, tie pads, screws, wire nuts etc. to ensure you can install the Versa-Pak system in a professional manner. Please do so.
2. Remove control system and terminal blocks. Leave only the transformer and starter.
3. Remove all wires from contact blocks on the control buttons.
4. Start button and reverse button should have (1) N.O. contact block. E-Stop should have (1) N.C. contact block.
5. Install control system and wire according to diagram included.
6. Set pressure switch. We typically set the pressure switch 150-250psi below relief pressure.
7. Set relief pressure. Most compactors are set at 1800psi or so for timer shifting units. But some are much lower and some higher. If your compactor was limit or pressure shifting the relief is set too high for timer shifting.
8. Set Timers T0 (Forward Time), T1 (Reverse Time), T2 (Multi-Cycle Timer).
9. Enable other features as required.
10. Install data decal and schematic decal.
11. Give us a call if you have any problems.

Versa-Pak V5- Getting Started

Versa-Pak V5 is the 5th generation of PSI Waste's compactor control system designed especially for used stationary, self-contained and apartment style compactors. It provides all of your favorite features including safety and equipment longevity features you won't find in OEM units.

Versa-Pak is a timer shifting unit and has a smart-shift feature that shifts the compactor into reverse if it deadheads for more than a few seconds. There are many settings that can be changed to help you solve problems like poor power.

A few things to remember

- The Versa-Pak controller has a decal on the front to indicate the program version.
- You will use |ESC 0|, |OK 1|, |▼ 2|, |◀ 3|, |▶ 4|, and |▲ 5| buttons to navigate the menu. You can always go back by using the |ESC 0| button.
- All settings are in PARAMETERS. If you are asked for a password, you are in the wrong place. Hit |ESC 0|.
- When changing settings or navigating through PARAMETERS you will use |OK 1| a lot. |OK 1| indicates you want to change the setting or parameter or you are done changing the setting or parameter.
- You change digits not numbers. In other words, if the number is 10 and you are on the zero and press down one time it will be 19 because the 0 will turn into a 9, 1 will stay the same.
- Since our system is timer shifting- if you install on a pressure shifting, amp shifting, or limit switch shifting unit you will probably need to turn the pressures down. Either way its good practice to check pressures after install.

Status Screen

The Status Screen lets you know the program version, whether or not you are set to auto start, and error status. To switch to the status screen, press the |ESC 0| button. To change back to the home screen, press |ESC 0| again.

Use the status screen to check for the following.

- Program version will be displayed on line 1
- Auto Count. If unit is set to start automatically using door closes the screen will display "Auto Count" on line 2
- Eye Operation. If unit is set to start automatically using a photo eye, the screen will display "Eye Operate" on line 3. If Eye Operation is displays the Start button will have a 3 second delay.
- Error Status. If unit shut down because of an error, the error will be displayed on line 4.

Buttons

Buttons on the front of the Versa-Pak controller perform multiple functions. In addition to setting parameters you can operate the compactor using these buttons. Before attempting this, make sure you know where the power disconnect is. Press the indicated combination of buttons below to perform the listed task. FYI- the buttons still navigate the menu screen so after each command hit the |ESC 0| button to exit the menu so you don't accidentally change a parameter or something.

- Press |ESC 0| and |OK 1| to START compactor.
- Press |ESC 0| and |▼ 2| to STOP compactor.

Setting Parameters

We have a great youtube video for setting parameters. Stop, if you can, and go to www.versa-pak.net to watch our 3-1/2min video. It will save you time and walk you through better than the instructions below.

If you would rather wing it, keep reading.

To get to HOME screen turn power off and back on or press |ESC 0|. From HOME screen press |OK 1| ▼ 2| ▼ 2|. PARAMETERS should be blinking on and off. Press |OK 1|. Now you will see the 0 of T0 blinking on and off. Press |▼ 2|. You should be on Forward time. Press |OK 0| to change. Use |▲ 5| ▼ 2| ▶ 4| ◀ 3| to change each digit. You can set Forward and Reverse times down to the 1/10th of a second. Once the times are set press |OK| to save. Then navigate up to the parameter T0. To go to a different parameter press |OK| then use |▲ 5| to go to T1. Press |OK|. To get to a parameter other than "T" then instead of |▲ 5| to go to T1 hit |◀ 3| and then |▼ 2| ▼ 2| to go to C0.

Basic Timers

Parameter Default	Parameter Name	Function	Notes
T0 (S) 19.00	Forward Timer	Ends forward stroke. Set for the time it takes the ram to go from all the way back to all the way forward.	For pressure shifting type cylinders set the time so that the cylinder never bottoms out in either direction. Timers are able to be set down to the 1/100 th so no need to bottom out. For bypass type cylinders allow the cylinders to bottom out for a fraction of a second.
T1 (S) 14.00	Reverse Time	Ends reverse stroke. Set for the time it takes the ram to go from all the way forward to all the way back.	
T2 (MM:SS) 01.00	Multi Cycle Timer	Causes compactor to run multiple cycles.	Compactor will stop at the end of the cycle following T2 timing out.
T3 (MM:SS) Default 10.00	Auto Shut-down	Shuts compactor down if it runs too long.	Reset with E-stop, key switch, or main power.

Using Fullness Features

Feature	Feature Description	Parameter Default/ Suggested Setting	Notes
Part Full Light	Turns on full light (Q3) but compactor continues to operate as usual. Light is reset by E-stop, maintenance door, key switch, or main power.	#5 (S) 06.50/ 00.50 To activate Part Full feature, #5 must be set below Smart Shift timer (Tb) and 100% timer (T4).	Not compatible with Auto Start with Warning light and buzzer. Both features will work but Auto Start and Full features both use Q3 for their lights and buzzer outputs. So both features' lights/ buzzer will be activated at the same time causing confusion.
100% Full	Turns on full light (Q3). Shuts down compactor immediately. Feature is reset by E-stop, maintenance door, key switch or main power.	T4 (S) 06.00/ 02.00 To activate Full feature, T4 must be set below Smart Shift timer (Tb). To use with Part Full feature, it must be set above part full timer (#5)	Timer will ignore first stroke after cycle is interrupted or feed door is opened. So, if using a feed door interlock, the compactor must be set to run two cycles (T2). Only the second cycle will sense for fullness.

Motor Drives

- Remove jumper from 5A to 4
- Put the two control wires coming from the motor drive to 5 and 5A.
- Always use a pressure switch or amp switch to limit deadheading of the motor at full pressure.
- Wire up the main power wires using same wire size as a 1 phase motor. For 10HP motor drives you should use 4ga wire. Never wire up a 10HP motor drive using less than 6ga wire.
- We recommend the following, but these recommendations are optional.
 - Use 3 position open center valve and set T5 and Tf to 03.00 to allow drive to start unloaded.
 - Employ recommendations in "Motor Power Issues" section of this manual.

Errors

Versa-Pak shuts down the compactor if it detects certain errors. In this event the error will be displayed on line 4 of the Status Screen. Check the status screen before clearing the error and correct the issue before continuing to operate compactor. To clear error either press the E-Stop, turn key switch off, or turn power off and back on.

Error	Common Causes	Possible Solution
Motor Overload	This error is caused by the overload relay on the starter tripping Overload setting is wrong	Check Motor issues section of this manual for solutions Set overload setting correctly
Full/ Jam	Either the compactor is full Something blocking the ram in the charge box. Timers are set incorrectly	Empty compactor Clear the hopper and watch the ram cycle. Set timers correctly
Ran Too Long	T2 (Multi Cycle) is set too high T3 (Auto Shut Down) is set too low Photo eye is dirty or is out of adjustment Start button contacts have moisture Start wire shorted to power	Correct timer setting Correct timer setting Clean and adjust photo eye, reflector Change out contact, resolve moisture issue. Repair short
PSI Too Long	Pressure switch has been on too long during the run time. This time is cumulative. Parameter #0 is time setting. Compactor was run with hoses disconnected QD's are bad Pressure switch is out of adjustment Pressure switch is bad Oil is too thick or too cold Hoses are too long	Check time setting. Should be 01.00 (1 minute) Connect hoses Replace QD's Adjust pressure switch Replace pressure switch Use thinner oil or let oil warm up Use larger diameter hoses or shorten them in length.

Motor Power Issues (including 208volt, 10HP/1Ph, Motor Drives)

If you are having issues with poor power, you should always make sure to check the following and correct any issues you find.

- Proper wire size for circuit (consider length of run too).
- Good connections (including motor junction box)
- Proper breaker and fuse sizes
- Proper motor wiring
- Disconnect, breaker, starter, etc. are in good working order and properly sized.
- Pressure setting and size of pump vs motor size. You should be able to start the power at full pressure unit with hoses not connected to cylinder. (NOT with pressure already on the pump though).

Versa-Pak Features that can help- see appropriate section in manual to use feature

- Smart Shift- Prevents long periods of high pressure. Reduce time setting.
- Time Delay Shift- Starts motor with valve in center position so that motor never starts under a load.
- Time Delay Motor Off- allows motor to idle for a period of time so that compactor can be restarted without restarting the motor. This is especially helpful for 10HP/ 1Ph motors.

Other suggestions

- Install a smaller pump
- With self-contained compactors that do not have interlocks on the compactor wire up a "compactor gone" connector to prevent the power unit from running with the compactor disconnected. Wire up like Maintenance door.

Smart Shift Adjustments

Parameter Default	Parameter Name	Function	Notes
Tb (S) 02.10	Smart Shift Forward	Shifts compactor from forward to reverse if pressure switch detects pressure for Tb time setting.	Important for pressure shifting compactors. Prevents excessive deadheading.
#4 (S) 04.00	Smart Shift Reverse	Shifts compactor from reverse to forward if pressure switch detects pressure for #4 time setting.	Important for pressure shifting compactors. Prevents excessive deadheading when packing out. This may cause an issue (especially in colder weather) if the back pressure is high in reverse. If so you can shorten and/or oversize hoses.

NOTE 5.1: You can make unit pressure shifting if desired. Do not set below 00.50 (1/2 Sec) or it may cause a glitch. (Not compatible with fullness features.)

Time Delay Features

Parameter Default/ Alt	Parameter Name	Function	Notes
T5 (S) 00.01/03.00	Forward Delay	Delays shift of forward solenoid at beginning of cycle.	Requires open or tandem center valve. Allows motor to start under a no-load condition.
Tf (S) 00.01/01.00	Reverse Delay	Delays shift of reverse solenoid when pressing reverse button. Only change if necessary to prevent stalling of motor- mainly in poor power situations.	Requires open or tandem center valve. Allows motor to start under a no-load condition. Note: If running forward and Reverse button is pressed valve will shift to center for Tf time before shifting to Reverse.
T6 (S) 00.01/20.00	Motor off delay	Let's motor idle at end of cycle. Allows repeated starts without re-starting motor.	Requires open or tandem center valve. Great for 1 phase motors or motor drives or very poor power. Works well with auto-count (set C1 for 0001)

Dumper System Operation

Differences in Versa-Pak V5 Standard and WD with manual dumper valve version.

- Always use Push/Pull E-Stop with our WD versions. This enables you to stop the machine when it is in Dump Position.
- Not compatible with Auto-Count (we do have an auto-count compatible WD with Elec Controls version)
- Not compatible with Eye Operate

Operation

- Key Switch is 3 position maintained. Left is DUMP | Center is OFF | Right is PACK
- Switch to DUMP. Motor will start. Manual controls will lift or lower dumper
- Switch to PACK. Press Start. Compactor will cycle.

Dump Door Interlock

If Dump Door Interlock is used it should be installed so that the interlock is not made unless the door is all the way open and out of the way of the dumper. We typically use a magnet to hold the door in this position so the interlock is held closed (or interlock magnet is on the interlock switch). Motor will not come on if the interlock is not held closed.

Timer

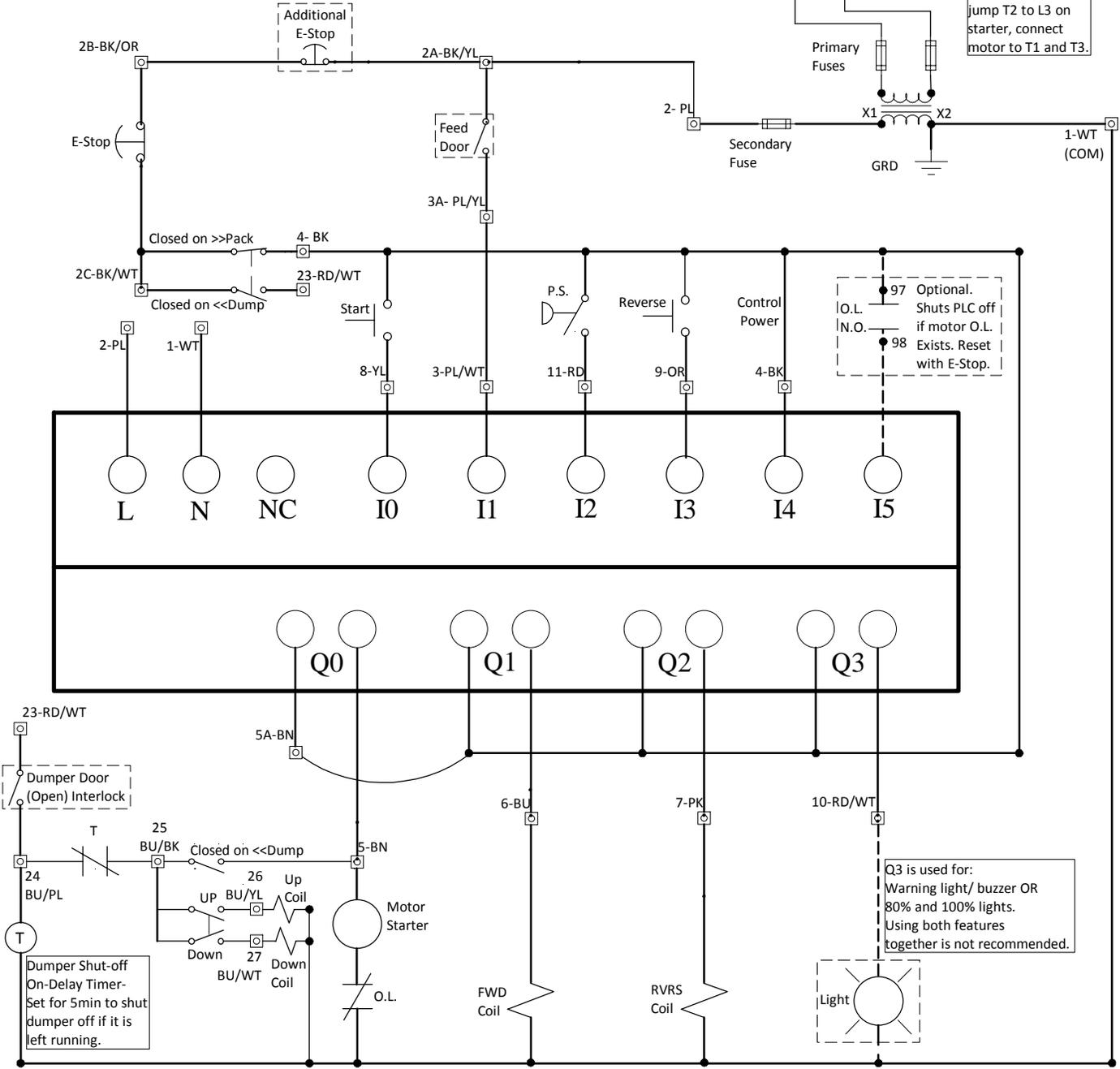
The relay style timer is used as an auto-shut off for the dumper. The timer is typically set at 5 minutes. If the dumper switch is on for 5 minutes or more the timer will turn on and shut the dumper system off. To reset, simply turn the machine off and back on or push and pull the E-Stop.

Notes:
 Both E-stops act the same. Both feed doors act the same.
 Maint door acts like E-stop. It does NOT count.
 Dump/Door interlock prevents dumper activation unless door is fully open.
 Dump/Off/Pack switch is 3 pos maintained. Dump position allows only UP and DOWN to activate. Motor starts in DUMP position. Timer Shuts dumper off if left unattended.
 Wire Start and Reverse parallel for additional stations.
 Dotted line boxes are optional connections- Jump if solid line connection, omit if dotted line connection.

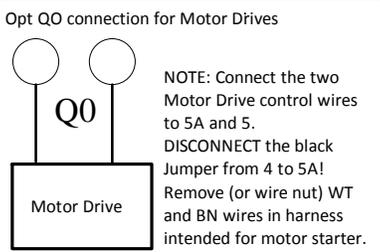
Main disconnect/ branch circuit protection must be supplied by customer. Refer to fuse and breaker chart and local codes.

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**For single phase jump T2 to L3 on starter, connect motor to T1 and T3.



Q3 is used for:
 Warning light/ buzzer OR
 80% and 100% lights.
 Using both features together is not recommended.



Basic Timers:
 T0-Forward | T1-Reverse | T2-Multi Cycle Timer | T3-Auto Shut Down | C0-Counter | Relay Timer- Dumper Shut Off

Description: Versa-Pak V5 WD Elec Marathon Twin Tandem Valves with PLC control:
 Change out 3-position spring center key switch for 3-position maintained key switch, add Start button, add relay timer to shut dumper down if left on. Wire per diagram