



## T500127 VMAC Throttle Commander Installation Guide

[Home](#) » [VMAC](#) » T500127 VMAC Throttle Commander Installation Guide 

### Contents

- [1 VMAC T500127 Throttle Commander](#)
- [2 Safety](#)
- [3 Warranty](#)
- [4 Illustrated Parts List](#)
- [5 Installation](#)
- [6 Posi-Tap Connectors](#)
- [7 Throttle Commander Installation](#)
- [8 Documents / Resources](#)
  - [8.1 References](#)



**VMAC T500127 Throttle Commander**



**Document:** 1930528  
Changes and Revisions

Revision	Revision Details	Revised by	Checked by		Tech.	Qual.	Implemented
			Eng.				
			Mech.	Elect.			
A	Initial release	MSP	N/A	TDF	MSP	LPH	17 Jun. 2024

**Additional Application Information**  
2023+ Ford Super Duty 7.3 L Gas.

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**Important Information**

The information in this manual is intended for certified VMAC installers who have been trained in installation and service procedures and/or for anyone with mechanical trade certification who has the tools and equipment to properly and safely perform the installation or service. Do not attempt installation or service without the appropriate mechanical training, knowledge, and experience. Follow all safety precautions. Any fabrication for correct fit in modified vehicles must follow industry standard “best practices”.

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## Safety




### Important Safety Notice

The information contained in this manual is based on sound engineering principles, research, extensive field experience, and technical information. Information is constantly changing with the addition of new models, assemblies, service techniques, and running OEM changes. If a discrepancy is found in this manual, contact VMAC Technical Support before initiating or proceeding with installation, service, or repair. Current information may clarify the issue. Anyone with knowledge of such discrepancies, who proceeds to perform service and repair, assumes all risks.

Only proven service procedures are recommended. Anyone who departs from the specific instructions provided in this manual must first ensure that their safety and that of others are not being compromised and that there will be no adverse effects on the operational safety or performance of the equipment. VMAC will not be held responsible for any liability, consequential damages, injuries, loss, or damage to individuals or equipment as a result of the failure of anyone to properly adhere to the procedures set out in this manual or standard safety practices. Safety should be the first consideration when performing any service operations. If there are any questions concerning the procedures in this manual or if more information is required, please contact VMAC Technical Support before beginning work.

### Safety Messages

This manual contains various warnings, cautions, and notices that must be observed to reduce the risk of personal injury during installation, service, or repair and the possibility that improper installation, service, or repair may damage the equipment or render it unsafe.

	<b><i>This symbol is used to call attention to instructions concerning personal safety. Watch for this symbol; it points out important safety precautions, it means, "Attention, become alert! Your personal safety is involved". Read the message that follows and be aware of the possibility of personal injury or death. As it is impossible to warn of every conceivable hazard, common sense and industry standard safety practices must be observed.</i></b>
	<b><i>This symbol is used to call attention to instructions on a specific procedure that if not followed may damage or reduce the useful life of the compressor or other equipment.</i></b>
	<b><i>This symbol is used to call attention to additional instructions or special emphasis on a specific procedure.</i></b>

## Warranty

### VMAC Standard Warranty (Limited)

For complete warranty information, including both VMAC Standard Warranty (Limited) and VMAC Lifetime Warranty (Limited) requirements, please refer to our current published warranty located at:

[www.vmacair.com/warranty](http://www.vmacair.com/warranty)



If you do not have access to a computer, please contact us and we will be happy to send you our warranty. VMAC's warranty is subject to change without notice.

### **VMAC Lifetime Warranty (Limited)**



A VMAC Lifetime Limited Warranty is offered on the base air compressor only and only on UNDERHOOD, Hydraulic Driven, Transmission Mounted, Gas and Diesel Engine Driven Air Compressors, Multifunction Power Systems, and other products as defined by VMAC, provided that (i) the purchaser fully completes and submits a warranty registration form within 3 months of purchase or 200 hours of operation, whichever occurs first; (ii) services are completed by the Owner's Manual; (iii) proof of purchase of applicable service kits are made available to VMAC upon request. The VMAC Lifetime Warranty applies to new products shipped on or after 1 October 2015.

### **Warranty Registration**

The VMAC warranty registration form is located near the back of this manual. This warranty registration form must be completed and sent to VMAC at the time of installation for any subsequent warranty claim to be considered valid. There are 4 ways the warranty can be registered with VMAC:



<https://www.vmacair.com/support/warranty-registration>



[warranty@vmacair.com](mailto:warranty@vmacair.com)



[877-740-3202](tel:877-740-3202)



VMAC – Vehicle Mounted Air Compressors  
1333 Kipp Road, Nanaimo, BC, Canada V9X 1R3

### **VMAC Warranty Claim Process**

VMAC warranty work must be pre-authorized by VMAC. Claims are processed via our dealer network. If you are not a VMAC dealer, please select one to work with via our Dealer Locator:

<https://www.vmacair.com/support/find-a-dealer>



1. Communicate with VMAC Technical Support at [888-241-2289](tel:888-241-2289) or [tech@vmacair.com](mailto:tech@vmacair.com) to help diagnose/troubleshoot the problem before repair. VMAC technical support will require the VMAC System ID and hours on the compressor.
2. VMAC will provide direction for the repair or replacement of the failed components.
3. If requested, failed parts must be returned to VMAC for evaluation.
4. Dealers may log in to the VMAC website to view the “VMAC Labour Time Guide” (under “Agreements”) to see the allowable warranty labor times.
5. Warranty invoices must include the Service Ticket number, VMAC System ID#, hours on the compressor, and a detailed description of the work performed.
6. VMAC Warranty does not cover consequential damages, loss of income, overtime charges, mileage, travel time, towing/recovery, cleaning, or shop supplies.
7. Dealers submit warranty claims on behalf of the Vehicle Owner/End User affected by the defective part(s). The dealer ensures that all warranty credits are refunded back to the Vehicle Owner/End User who made the initial warranty claim.

To qualify for Lifetime Warranty (Limited), the complete warranty registration form must be received by VMAC within 3 months of the buyer receiving the Product(s), or 200 hours of operation, whichever occurs first. If the completed warranty registration form has not been received by VMAC within 3 months of the buyer receiving the Product(s), or 200 hours of operation, the “Standard” warranty period will be deemed to commence 30 days from the date of shipment from VMAC. Failure to follow the warranty claim process may result in the denial of the warranty claim.

VMAC Product Warranty Policies & Warranty Registration can be found on the VMAC website (see previous page for URL).

## **General Information**

### **Optional Equipment Compatibility**

While VMAC strives to design systems compatible with optional OEM equipment (such as running boards), it is impractical to develop systems that accommodate every OEM and aftermarket option or add-on. Whenever possible, VMAC endeavors to advise of compatibility issues in the “Additional Application Information” section of the manual. Even when specific optional equipment is determined by VMAC to be incompatible, it does not preclude the vehicle upfitter or end user from modifying the optional equipment to make it compatible with the installed VMAC system. VMAC does not warranty or accept responsibility or liability for the fitment, function, or safety of any products modified in any way not expressly outlined in the installation manual.

## **Before Starting**

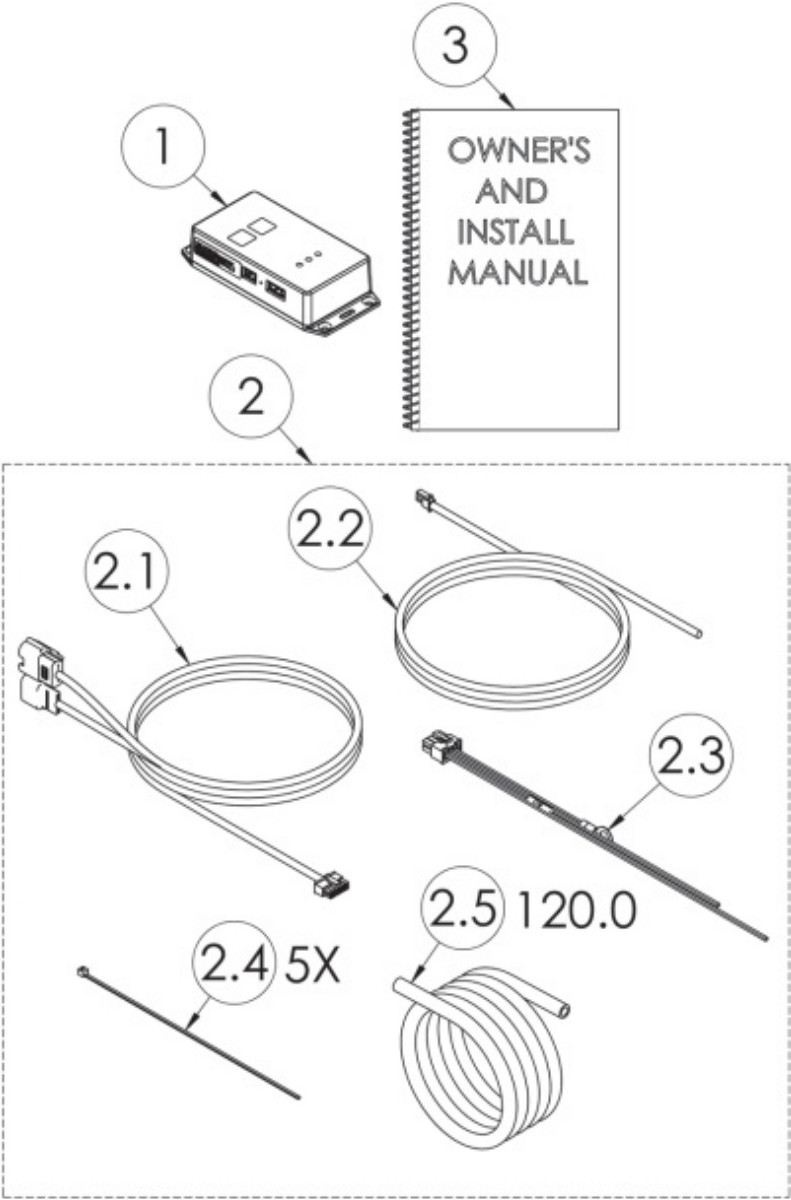
Read this manual before beginning the installation to ensure familiarity with the components and how they will fit on the vehicle. Identify any variations from the application list such as vehicle model, engines, or optional equipment (e.g., dual alternator, active steering assist, etc.). Open the package, unpack the components, and identify them using the Illustrated Parts List (IPL) on page 7.

## **Ordering Parts**

To order parts, contact a VMAC dealer. The dealer will ask for the VMAC serial number, part number, description, and quantity. Locate the nearest dealer online at <https://www.vmacair.com/support/find-a-dealer> or call [877-241-2289](tel:877-241-2289).

Illustrated Parts List

tem #	Part #	Qty	Description
1	3560306	1	DTC, SATC, FORD, 7.3G, 2023+
2	3810101	1	ELEC PACK, U40, MX64 PEDAL
2.1	3530803	1	CABLE SET, DTC, FOOT PEDAL, MX64
2.2	3530805	1	CABLE SET, DTC, OBD2
2.3	3530808	1	CABLE SET, DTC, MAIN WITH PBRAKE
2.4	2200164	5	TIE, NYLON, BLACK, 8"
2.5	1700581	120 in	LOOM, SPLIT PLASTIC, ¼, HIGH TEMP
3	1930528	1	MANUAL, INSTALLATION, T500127



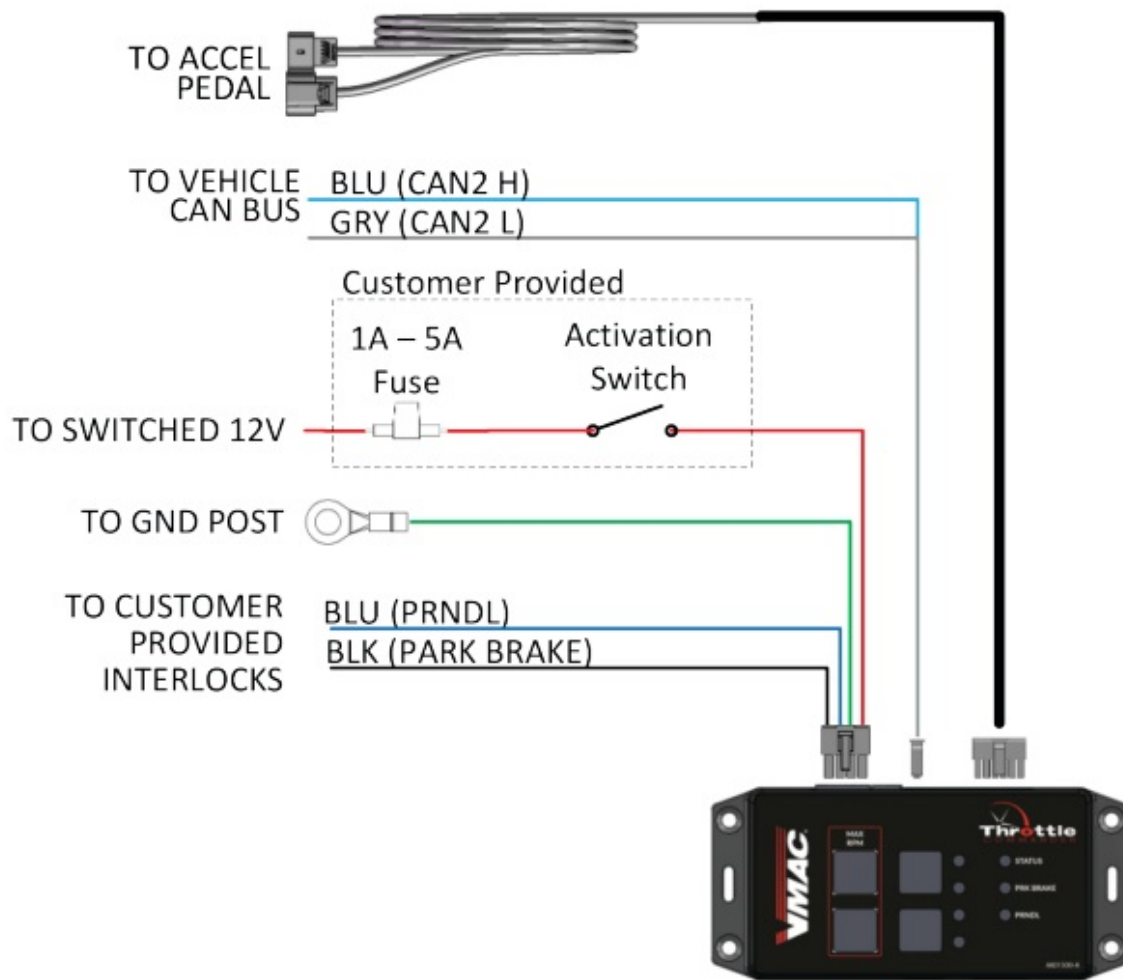


Figure 1 — Electrical schematic

Main Harness (8-Pin)			
Colour	Pin	Function	Notes
Green	1	Ground	—
Black	2	Park brake interlock	Active low.
Blue	6	PRNDL interlock	Active low.
Red	7	12 V Power (activates throttle)	This 12 V source must be fused between 1 A and 5 A.
CAN Harness (2-pin)			
Colour	Pin	Function	Notes
Grey	1	CAN Low	OEM is wisted pair.
Blue	2	CAN High	

## Installation

### Best Practices

- Ensure the system ground is connected to the VIMAC recommended ground locations whenever possible. These locations are designed to be used as a ground point and can handle high currents while providing a low



resistance connection. Do not use any bolt as a ground location as the increased resistance could cause system brown-out when the high current fan kicks on.

- Route all wires to ensure they will not contact hot, sharp, or moving parts (including the park brake mechanism, steering column, and pedals).
- Before drilling any holes ensure there are no OEM wires, hoses, or components that may be damaged.
- Do not use a test light to probe for power on vehicle circuits, the increased current draw of the test light may damage components.
- VMAC recommends using only sealed crimp connectors for all electrical connections (unless otherwise specified).
- To ensure a durable connection, use only good-quality crimping tools.
- Harness protection. High-temperature loom is used on all supplied harnesses. If the loom is to be added to harnesses:
  - Use a high-temperature loom where high temperatures may be expected.
  - Use spiral loom in areas with high vibration.

### **Inline Butt Splice Connections**

- Cut the wire approximately 2 in from the connector.
- Strip approximately 3/8 in from the end of both sides of the cut wire, as well as from the end of the wire being spliced inline.
- Twist the wire to be spliced inline, together with the “live” side of the wire (not the wire attached to the connector).
- Slide the butt connector onto the twisted wires and crimp it.
- Insert the “connector side” of the wire into the butt connector and crimp it.
- Lightly tug the wires to ensure they are properly crimped.
- Using a heat gun, carefully apply heat to the butt connectors to seal the connection.

### **OEM Wire Colours**

The OEM wire colors referenced in this manual are correct at the time of writing. OEMs may make running changes to the wire colors on their production line as needed and without notice. In the case of a wire color discrepancy, the described location (e.g. PIN in a specific connector) will be considered to be definitive. If there are any questions or concerns, please contact VMAC Technical Support.

### **Posi-Tap Connectors**

- Slide the OEM (live) wire into the slot on the large cap as far as it will go.  
Note: The OEM wire must be straight. Make this connection first.
- Thread the tap (barrel with pin) over the slotted cap, ensuring the pin is centered on the wire.
- Tighten the tap firmly but do not over-tighten it as over-tightening will cause the wire to twist.
- Unscrew the small cap but leave the last few threads engaged.
- Strip approximately 3/8 in from the end of the wire.
- Twist the wires to be Teed in together and insert the wire into the cap. Some resistance will be felt until the wire bottoms out.
- Firmly tighten the cap.
- Ensure all of the connections are firmly tightened by hand (overtightening will cause the threads to strip).



- Confirm the connection by giving a light tug to the Teed in wire (5 lb – 10 lb) to ensure it does not release from the connection.

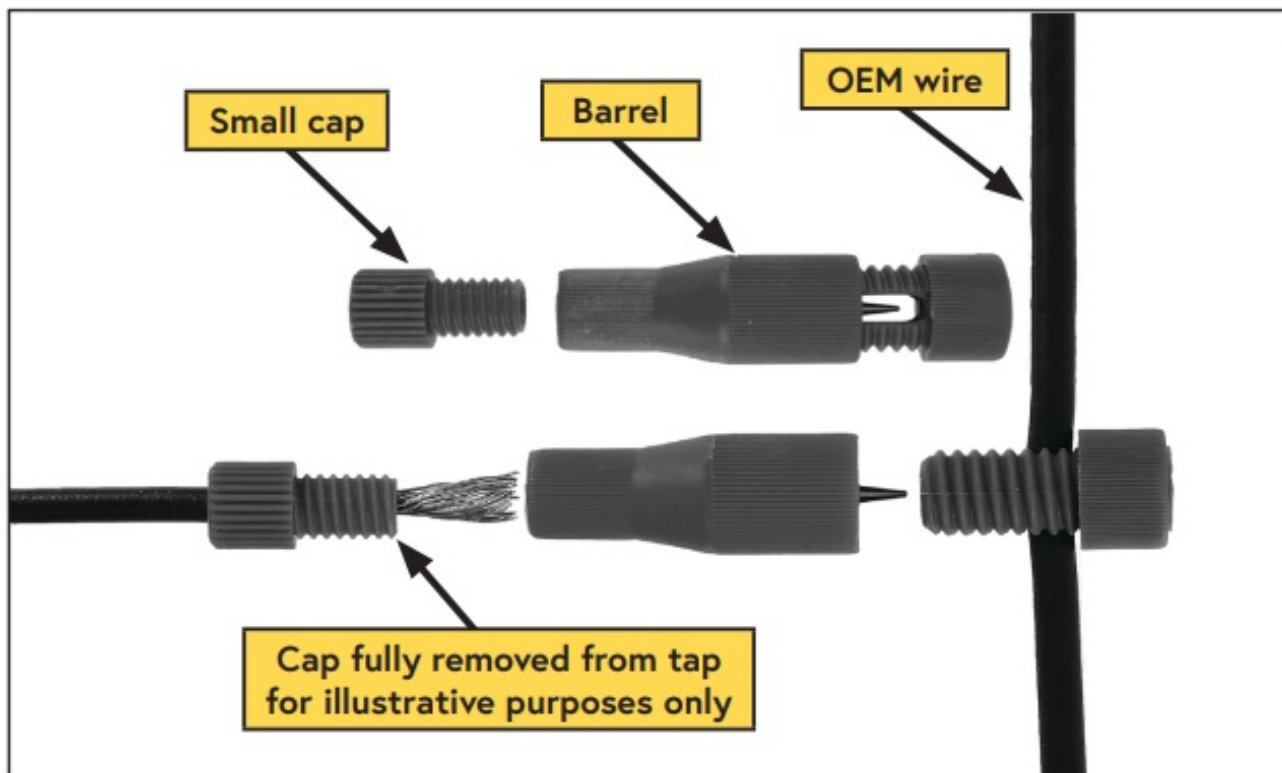


Figure 2 — Posi-Tap wire connector

## Throttle Commander Installation

### Power Connection

Ensure the Throttle Commander is mounted within reach of the supplied pedal harness. Normally the Throttle Commander is mounted near the accelerator pedal.

- Disconnect the battery(s).
- Mount the Throttle Commander.
- Unplug the OEM cable from the accelerator pedal and plug it into the matching connector from the Throttle Commander.
- Plug the cable from the Throttle Commander into the matching connector on the accelerator pedal.
- Connect the green 14 AWG wire to either of the two dedicated GND bolts.\*
- Behind the driver-side knee guard. The bolt will already have (×1) or more thick ground wires connected to it.
- Driver side outside wall behind a panel. The bolt will already have 1 or more thick ground wires connected to it.
- Connect the red wire running from the Throttle Commander via a switch to a 12 V power source that is key-switched and fused between 1 A and 5 A.
- Remove the kick panel beside the hood release lever.
- Locate the black C264 connector (Figure 3)

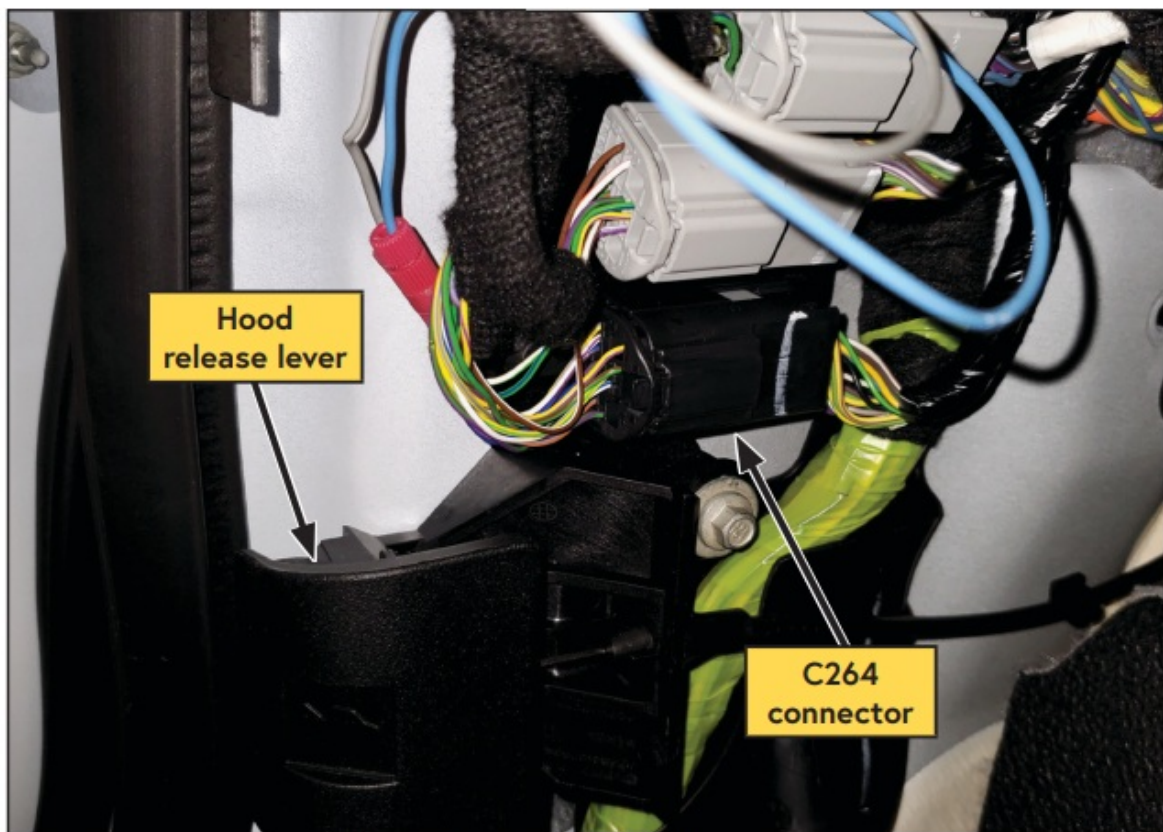


Figure 3 — Locate C264 connector

Disconnect the C264 connector and locate the green wire with the blue stripe at pin 19 (CAN H), and the white wire with a green stripe at pin 20 (CAN L) (Figure 4).

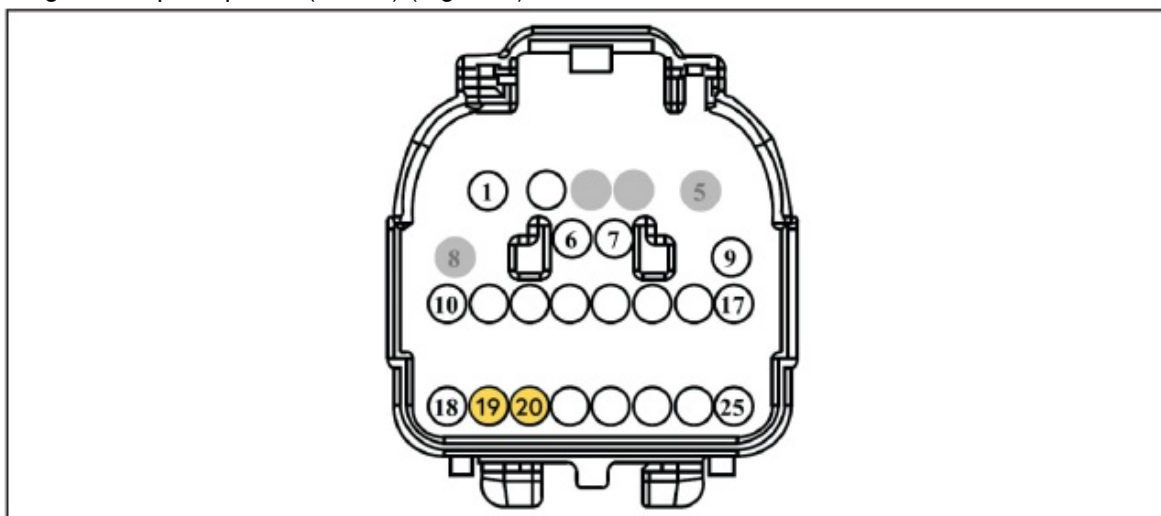


Figure 4 — C264 connector (male)

Using the supplied Posi-Taps or butt connectors, splice (see page 10 for Posi-Tap instructions):

- The grey wire from the Throttle Commander to the wire at pin 20 (CAN L).
- The blue wire from the Throttle Commander to the wire at pin 19 (CAN H)

### Interlocks

The two default interlocks, “PRNDL” and “Park Brake” are acquired from the CAN bus on the truck. Both interlocks can be overridden using their respective active low-input signals (black and blue wires). These wires can be used for alternative interlocks such as a proximity sensor. In addition to the weak pull-up resistors inside of the Throttle Commander, there are strong pull-up resistors included in the main harness. If these pull-ups are too strong, they can be deactivated by cutting the corresponding loop of wire (Figure 5).

- The PRNDL interlock (blue wire): grey pull-up loop.
- Park Brake interlock (black wire): pink pull-up loop.

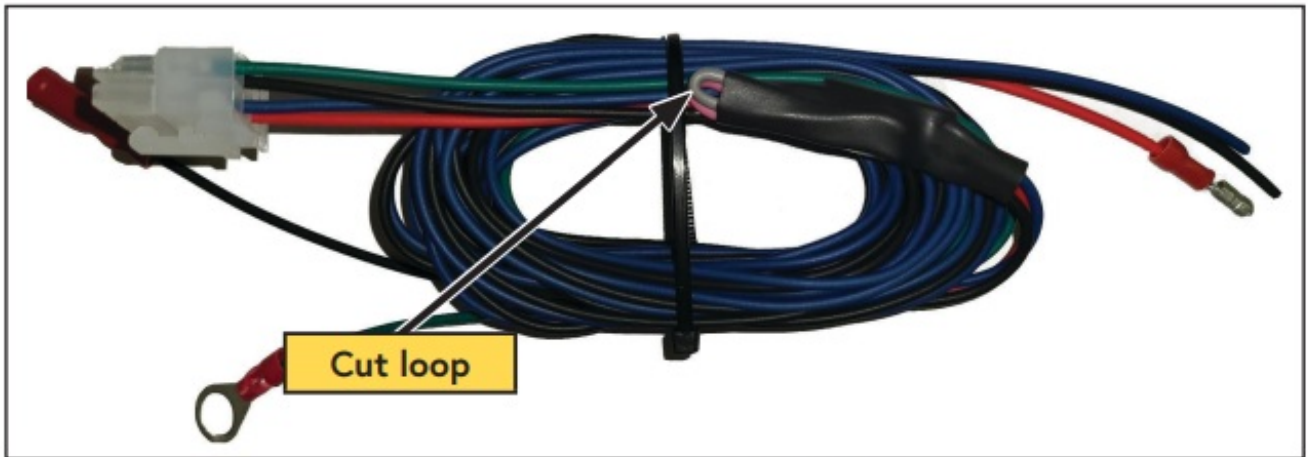


Figure 5 — Disable pull up harness

### SEIC PTO Integration (Optional)

Refer to the Ford Body Builder Layout Book for detailed connection and integration information. When using the Throttle Commander to control a PTO load, the SEIC must be put into “Mobile PTO Mode”. To do this, PTO2 must be tied to CBA07 (12V “Ignition Hotin-Run”) through a switch, and a 641  $\Omega$  resistor must be connected between PTO VREF and PTO RPM. This resistor sets the maximum allowable rpm while the PTO is active, it must be set above the maximum rpm of the Throttle Commander otherwise the Throttle Commander will not function correctly. If using a Parker Chelsea PTO with a potentiometer, adjust the potentiometer to set the rpm to the maximum. The switch is used to turn the PTO on/off.

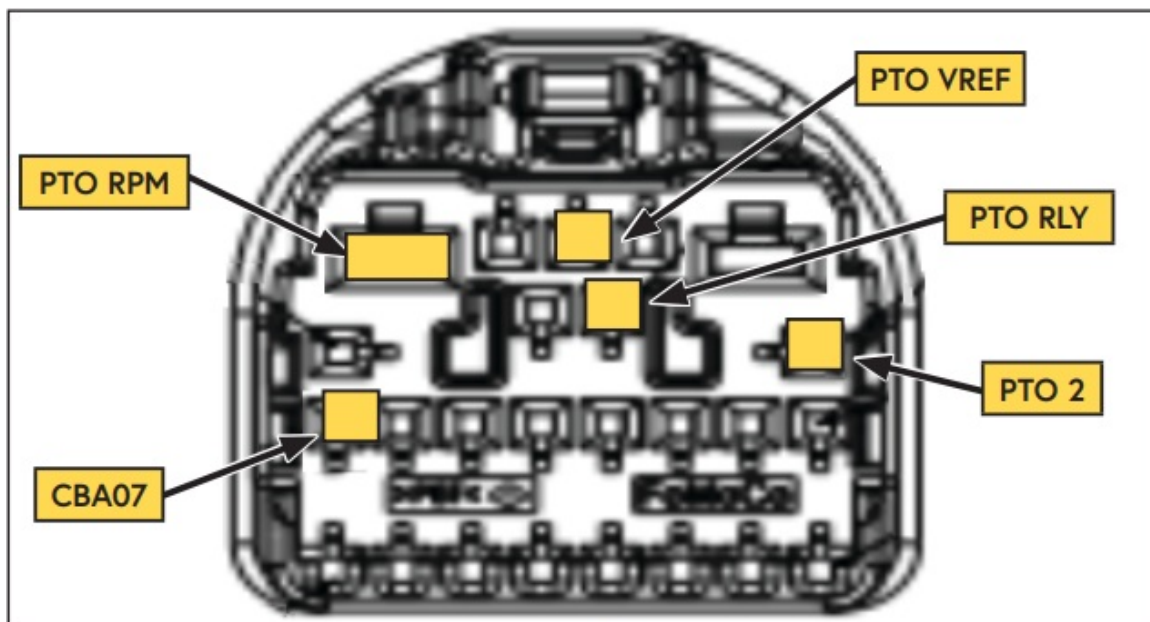
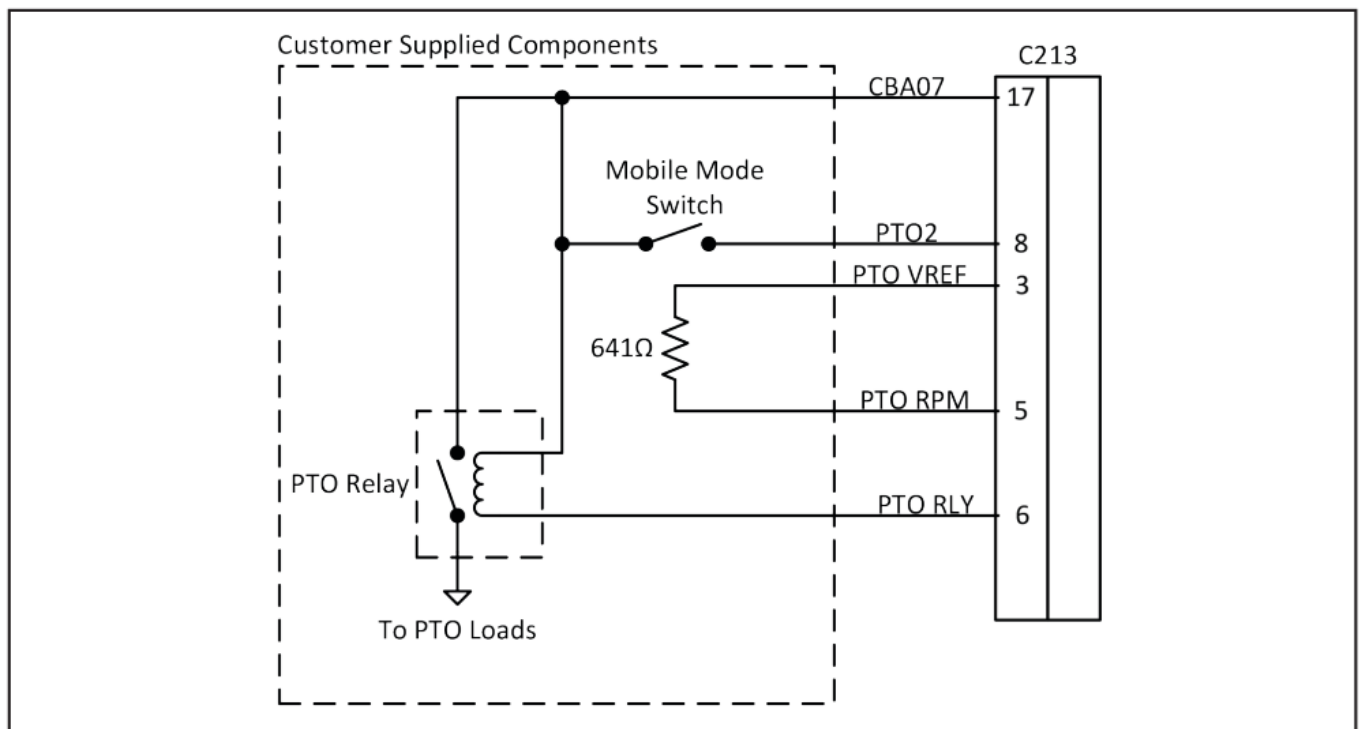


Figure 6 — SEIC connector  
(face view)

When used with a PTO, the Throttle Commander activation switch should be separate from the PTO engagement switch. The PTO should be given time to complete engagement before activating the Throttle Commander. The schematic on the following page is only applicable when driving a PTO load.



**Figure 7 — Optional PTO connection schematic**

### Completing the Installation

- Check all VMAC and OEM wiring to ensure it will not contact any hot, sharp, or moving components and will not interfere with the operation of the vehicle.
- Secure all wiring with rubber-coated P-clips, cable ties, and loom as required.
- Replace all dashboard panels and kick plates that were removed.
- Reconnect the battery(s).

### Testing the Installation

Lift the vehicle, ensuring the driven wheels are off of the ground. Support the vehicle securely with appropriately rated jack stands. Ensure there are no people around the vehicle before beginning the test. If the vehicle fails the test, ensure the wiring to all of the connections is correct and secure. If additional assistance is required, contact your local VMAC dealer or call VMAC Technical Support at 1-[888-241-2289](tel:888-241-2289) or [250-740-3200](tel:250-740-3200).

- Ensure the parking brake is engaged and the gear selector is in “PARK”.
- Start the engine.
- Allow the vehicle to reach operating temperature.

### Throttle Commander Calibration

To properly calibrate the Throttle Commander, ensure these calibration steps are performed with an equivalent load (i.e. if the throttle commander is used to control the rpm while the PTO is running, ensure the PTO is running during calibration). If it is not possible to supply the load (or simulate the load) at the time of installation, the system will need to be recalibrated once the system can be run with a load.

- Activate the throttle commander and an equivalent load.
- The throttle commander will turn on with the “STATUS”, “PRK BRAKE”, and “PRNDL” LEDs illuminated. If not, ensure that the vehicle is in Park with the Park Brake on.
- Press and hold the 2 hidden calibration buttons (see page 17) for several seconds until all of the LEDs turn on (this indicates the Throttle Controller is in “Idle Adjust Mode” and ready to calibrate).

- Allow the Throttle Commander to calibrate for 3 minutes. During this time, the “STATUS” LED will occasionally flash indicating that the Throttle Commander is calibrating. The engine speed will eventually settle at the VMAC base idle (approximately 1,000 RPM).
- After 3 minutes, deactivate the throttle commander and shut down the engine.

## Digital Throttle Control

### Operation and Adjustments

#### Safety features

The throttle control has built-in safety features that will disable the system if an unsafe condition is detected, or either of the lockout parameters is not met (the vehicle must be in “PARK” and the parking brake must be engaged). If an unsafe condition is detected, the “STATUS” LED will turn off, and the engine speed will return to idle. Once all unsafe conditions have been removed, the system must be cycled off, and then on again to reset it. Once the system powers up, the “STATUS” LED will illuminate, and the system will operate normally. If the vehicle is placed into gear, or the parking brake is disengaged, the “STATUS” LED and the “PRNDL” or “PRK BRAKE” LED will turn off and the throttle control will deactivate. This will reduce engine speed to base idle. To activate the system again, re-engage the app.

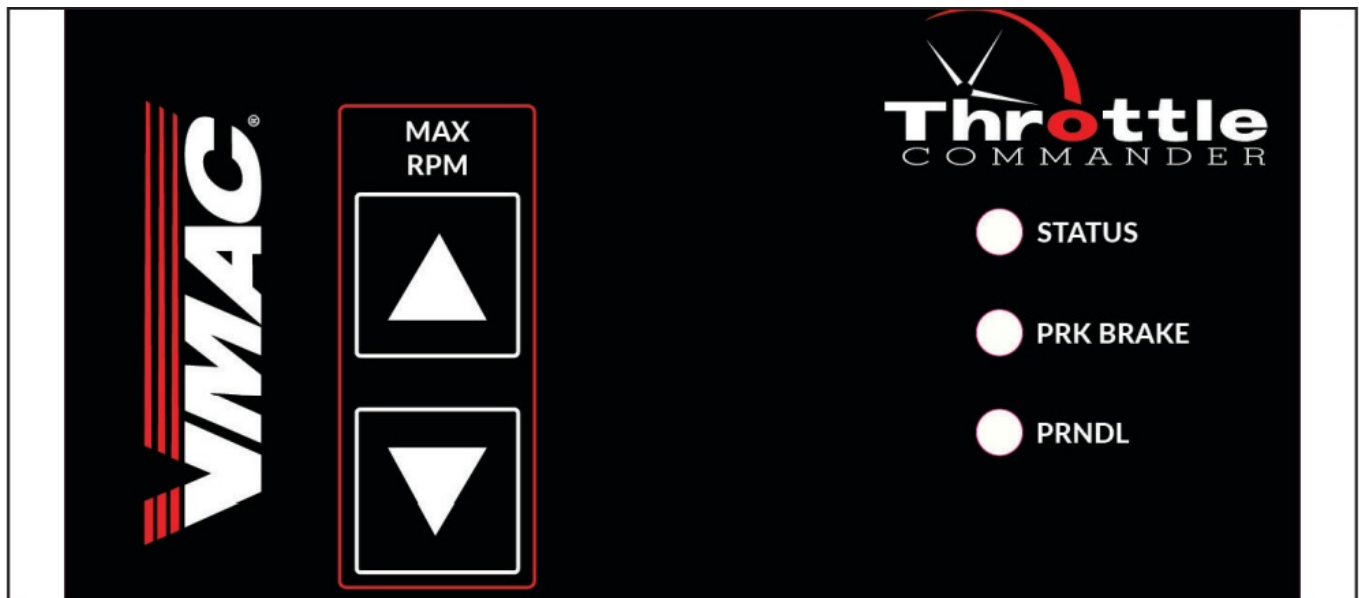
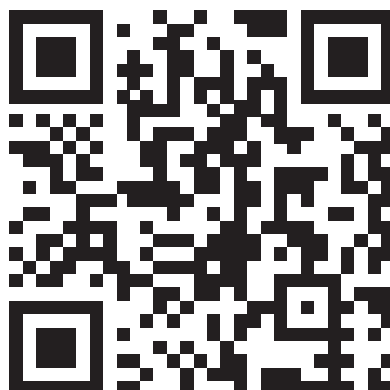


Figure 8 — Throttle Commander

For more information on the digital throttle, including error codes, see the related article in the VMAC Knowledge Base: <https://kb.vmacair.com/help/vmac-digital-throttle-control>.



To perform a factory reset, or adjust the “MAX RPM”, the throttle needs to be active and the engine rpm elevated.



## MAX RPM

Maximum VMAC rpm can be adjusted between 1,050 rpm and 1,800 rpm (in 50 rpm increments) via the “▲” or “▼” buttons in the “MAX RPM” column.

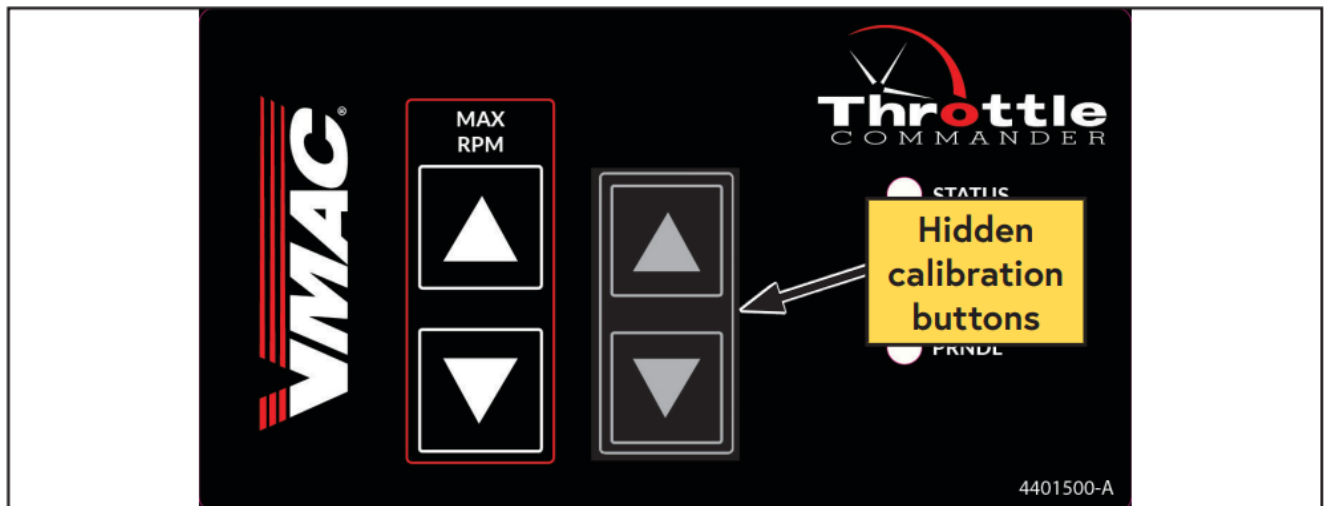
## Factory Reset

The throttle control can be reset to factory default values via a button inside the throttle control box. Using a paper clip (or similar object), push and hold the factory reset button for 5 seconds. All of the LED lights will illuminate for several seconds while the settings revert to their defaults.

Once the LEDs return to their normal state, the Throttle Commander will need to be recalibrated (see page 15).

## Throttle Commander Calibration

- With the vehicle started, the Park brake engaged, and the gear selector in “PARK” (or any alternate safety interlocks engaged), start the Throttle Commander.
- The Throttle Commander will turn on with the “STATUS”, “PRK BRAKE”, and “PRNDL” LEDs illuminated. If not, ensure that the vehicle is in Park with the Park Brake on.
- Press and hold the 2 hidden calibration buttons for several seconds until all of the LEDs turn on (this indicates the Throttle Commander is in “Idle Adjust Mode” and ready to calibrate) (Figure 9).



**Figure 9 — Throttle Commander calibration buttons**

- Allow the Throttle Commander to calibrate for 3 minutes. During this time the “STATUS” LED will occasionally flash indicating that the Throttle Commander is calibrating. The engine speed will eventually settle at VMAC base idle (approximately 1,000 rpm).
- After 3 minutes, turn the Throttle Commander off.
- Shut down the engine.

VMAC – Vehicle Mounted Air Compressors

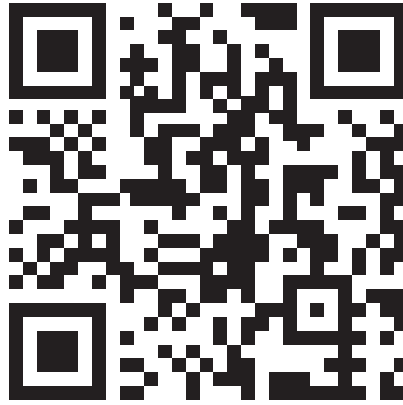
VMAC Technical Support: [888-241-2289](tel:888-241-2289)

VMAC Knowledge Base: [kb.vmacair.com](http://kb.vmacair.com)

## Warranty Registration

This form must be fully completed and returned to VMAC at the time the vehicle is put into service. Warranty may be void if this form is not received by VMAC within 3 months of receiving the vehicle, or 200 hours of operation, whichever occurs first. VMAC’s Warranty policy and registration can be viewed online at:

[www.vmacair.com/warranty](http://www.vmacair.com/warranty)



#### Product Information

System Identification Number: T 5 0 0

### Product Information

System Identification Number: T 5 0 0 \_ \_ \_ \_ \_

### Owner / End User Information

Company Name: \_\_\_\_\_

City: \_\_\_\_\_ State / Province: \_\_\_\_\_

Phone: (\_\_\_\_) \_\_\_\_-\_\_\_\_\_

Email Address: \_\_\_\_\_

Date vehicle was put into service: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Day Month Year

### Installer Information

Installer Company Name: \_\_\_\_\_

City: \_\_\_\_\_ State / Province: \_\_\_\_\_

### Submitted by

Name: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_-\_\_\_\_\_

Email: \_\_\_\_\_

### Vehicle Information (Optional)

Unit: \_\_\_\_\_ Year: \_\_\_\_\_

Make: \_\_\_\_\_ Model: \_\_\_\_\_

Vehicle Identification Number: \_\_\_\_\_

[888-241-2289](tel:888-241-2289) [tech@vmacair.com](mailto:tech@vmacair.com)

[877-740-3202](tel:877-740-3202) [warranty@vmacair.com](mailto:warranty@vmacair.com)

[www.vmacair.com](http://www.vmacair.com) [kb@vmacair.com](mailto:kb@vmacair.com)


1333 Kipp Road, Nanaimo, B.C., V9X 1R3 Canada



## Documents / Resources

 The image shows the cover of the 'Installation Manual for VMAC Throttle Commander T500127'. At the top is the VMAC logo with the tagline 'AIR INNOVATED.' Below the logo is a photograph of a white truck with a yellow crane. The text on the cover includes 'Installation Manual for VMAC Throttle Commander', 'T500127', '2022 First Super Duty F250, Super', and the website 'www.vmacair.com'.	<p><a href="#">VMAC T500127 VMAC Throttle Commander</a> [pdf] Installation Guide T500127 VMAC Throttle Commander, T500127, VMAC Throttle Commander, Throttle Commander, Commander</p>
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## References

-  [VMAC Knowledge Base](#)
- [User Manual](#)

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