

Instructions



A-PTO501-A **SEIC System - Refuse Truck Application** **2023-2026 Ford F250-F600 Diesel engine (-G)** **2023-2026 Ford F250-F600 Gas engine (-G3)**

System Operation

Ford's PCM requires the parking brake to be set to engage the SEIC. If the parking brake is not set the user must engage the parking brake.

The PTO501 will bypass the parking brake precondition to enable the vehicle's SEIC. The vehicle must be on level ground otherwise the PTO501 will automatically engage the parking brake so the SEIC can be engaged.

IMPORTANT—READ BEFORE INSTALLATION

It is the installer's responsibility to route and secure all wiring harnesses where they cannot be damaged by sharp objects, mechanical moving parts and high heat sources. Failure to do so could result in damage to the system or vehicle and create possible safety concerns for the operator and passengers.

Avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Avoid radio frequency energy from antennas or inverters next to the module. Avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

Installation Instructions

Disconnect vehicle battery before proceeding with installation.



WARNING

Disconnect the battery to prevent setting a check engine light.

PTO501Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the module so that the Diagnostic LED's can be viewed with the lower dash panel removed. Secure using 2-sided foam tape, screws or wire ties. Locate the module in an area away from any high heat sources. Do not actually mount the module until all wire harnesses are routed and secure. The last step of the installation is to mount the module.

Data Link Harness Installation - Ford F250-F600

The Ford Super Duty has an OEM pass-through connector located by the front hood latch in the driver side compartment.



DLC Harness 840-00450

Instructions

Installation Instructions (continued)

1. Remove the panel covering the hood latch



2. Locate the black connector right above the hood latch and unplug it from its connector.



3. Plug the Intermotive harness 840-00450 in-between the black connectors. Confirm both sides of the connectors are fully seated.

Instructions

Installation Instructions (continued)

4. Locate the white OBDII connector and detach it from the metal housing by pressing the side clips.



5. Plug in the Intermotive OBDII harness in between there connector and the bracket.



6. Plug in the 6 pin connector into the PTO501 module.

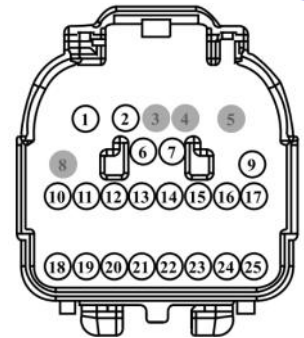
Instructions

Installation Instructions (continued)

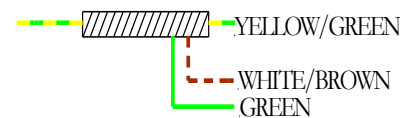
2023+ F250-F600 Super Duty SEIC connection

The Ford Super Duty can no longer Fast Idle over the CAN network, the following connections must be made:

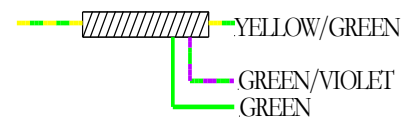
1. Locate the Customer Access 25-pin harness located behind the passenger kick panel.
 2. The mating 25-pin pigtail is included with the vehicle and will be located in the vehicle's glovebox.
 3. Using solder and heat shrink, connect the following wires together: (note: If vehicle already has SEIC resistor just connect the yellow/green wire)
- **Diesel:** White/Brown wire from the InterMotive SEIC harness to the White/Brown wire of the OEM 25-pin pigtail. (1200 RPM)
 - **Gas:** Green/Violet wire from the InterMotive SEIC harness to the White/Brown wire of the OEM 25-pin pigtail. (1500 RPM)
 - Green wire from the InterMotive SEIC harness to the Green/White wire (Pin 5) of the OEM 25-pin pigtail.
 - Yellow/Green wire from the InterMotive SEIC harness to the Yellow/Green wire (Pin 7) of the OEM 25-pin pigtail.
4. Plug the Yellow/Green wire with the molex terminal into pin 4 of the 10 pin connector.
 5. Connect the 10 pin harness to the PTO module
 6. Secure Relays inside the cabin



DIESEL (840-00058)



GAS (840-00296)



PTO Harness (10-Pin Connector) Engage Inputs

+12V Engage Input (Pink)

Attach the PTO Harness connector Pin #3 Pink wire to any equipment that provides a +12V signal when the PTO needs to be engaged.

Ground Engage Input (Green)

Attach the PTO Harness connector Pin #6 Green wire to any equipment that provides a +Ground signal when the PTO needs to be engaged.

Note: Only use one input to engage the SEIC.



Harness 840-00455

Instructions

Installation Instructions (continued)

Park Brake Actuators Installation

Locate the in-line connectors for park brake actuators . There is a black and gray connector and they are next to each other near the rear of the chassis. See picture for the location

Unplug both connectors and plug in the Intermotive harness 840-00456 in between the OEM connectors.



Rear of vehicle

Mount the relays in a secure spot



Harness 840-00456

Instructions

Installation Instructions

The 8 way molex connector will need to be routed inside the vehicle cabin and connect to the mating connector of harness 840-00855

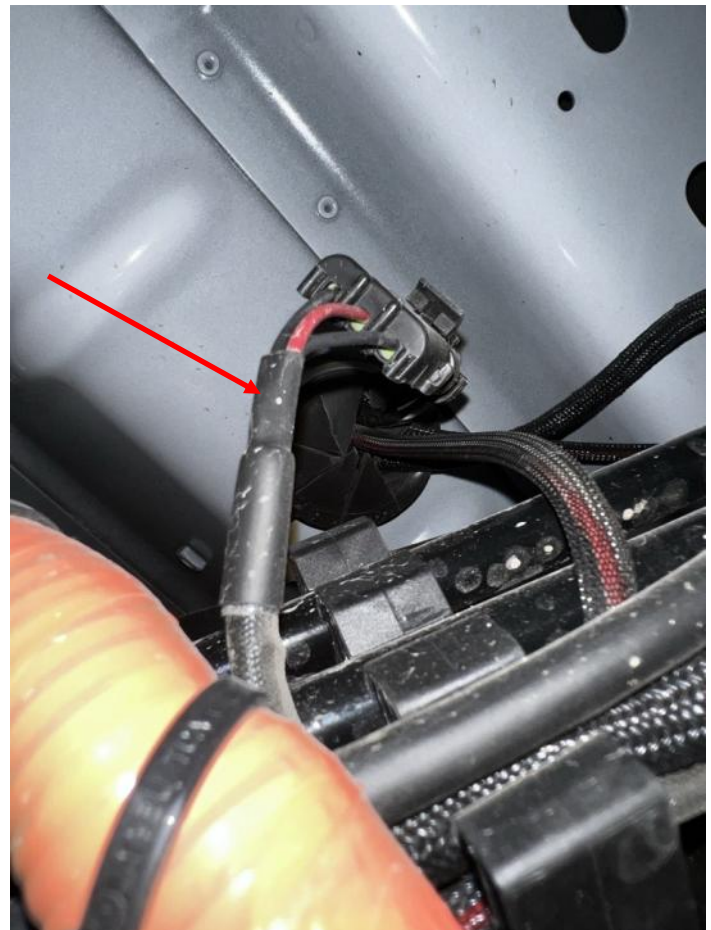


There is a plastic opening at the rear of the cab on the drivers side.

840-00455 and
840-00456 connection



View behind driver cabin



View from below

Instructions

Vehicle Angle Safety

The PTO501 will determine the angle of the vehicle and if it is below the configured limit (1° to 5°) the module will bypass the parking brake to engage SEIC.

If the angle of the vehicle is above the configured angle then the PTO will automatically apply the parking brake to prevent the vehicle from rolling.

The safety angle can be set to 0° and will always set the parking brake automatically.

When the Parking brake is bypassed for SEIC the parking brake indicator will flash.

The truck believes the parking brake is set but the actuators are not set.

The driver can do two things to get the parking brake back in sync:

- Shift into gear and press the accelerator pedal to get the parking brake back into sync.
- Release the parking brake by holding the service brake and pressing the parking brake switch.

Both instances will stop the parking brake from flashing.

Changing the Vehicle Angle Safety

There is a sequence to change the configured vehicle angle.

- Have the transmission in park
- Place key to RUN but do not start the engine
- Press the red diagnostic twice to get to the Angle programming
- The LED's will determine the current angle programmed. See table.
- To change the angle, press the service brake and apply ground to the green wire and the angle will increment by 1 degree until it hits 5 then it will cycle to 0 degrees.

Angle Diagnostics	
None on:	0°
LED1 on:	1°
LED2 on:	2°
LED3 on:	3°
LED4 on:	4°
STATUS on:	5°

WARNING: Before taking the key out of the ignition, confirm the parking brake indicator is not flashing. If it is flashing, release and then set the parking brake using the switch to get the parking brake back into sync.

Instructions

Post Installation System Operation Test

Perform the following tests before actually mounting the module, to allow easy viewing of the diagnostic LED's, if needed.

1. Place transmission in Park, Parking Brake released and start the engine.
2. Apply +12V to the Pink wire pin 3 of the 10 pin connector by having aftermarket vehicle equipment power the Input wires.
3. The PTO501 will bypass the PB and allow the SEIC to be set to the RPM speed. When the parking brake is bypassed the parking brake indicator will flash continuously.
 - If the truck is on an angled road the PTO will set the parking brake automatically
4. When Fast Idle is engaged, keep the Input wire powered, and depress the Service Brake for 1 second. Fast idle will temporarily disengage anytime the Service Brake is pressed, and will automatically reengage after approximately 2 seconds once the Brake pedal is released.
5. Place transmission shift lever in the "Neutral" position. (Input wire still active). Verify the vehicle does not go into Fast Idle.
6. Repeat steps by grounding the Green input wire.

If the PTO501 fails any of the above tests, check harnesses and review instructions, or check diagnostics below. If necessary, call InterMotive Technical Support at (530) 823-1048.

Diagnostics

Diagnostic mode is entered by pressing the RED test button. The module provides diagnostic LEDs which illuminate according to the following table. To exit this mode, cycle the key or momentarily ground the "Test" pad again.



Fast Idle Status Codes

Status Codes provide the current status of the Fast Idle system. The on-board "Status" LED will flash a 2-digit code as shown in the table. The first digit will flash, wait one second, flash the second digit, then wait four seconds before the next code. The Status Codes continue to flash until the module is reset (cycle key), or the test input is momentarily grounded again.

LED #	Diagnostic Mode LED Descriptions
1	On when fast idle is engaged
2	On when Green wire is grounded
3	On when Pink wire is applied +12V
4	On when the PTO has bypassed the parking brake
STATUS	Continuously flashes two digit status codes. See Status Code table

AFIS Status Codes	
Status Code	Description
1-1	Ready for fast idle
2-8	Triggered: Engage Input 1
3-1	RPM > 2800
3-2	RPM < 200
3-3	TR not = to PARK
3-4	VSS not 0 MPH
3-5	Service Brake applied
3-7	Unsafe; Need to cycle TR
3-8	ECT > 230°F
3-9	PB Fault

Module Mounting

Ensure all harnesses are properly connected and routed, and are not hanging below the dash area. Mount the PTO501 module using screws or double sided tape. Reinstall the lower dash panel.

Instructions

LEAVE IN VEHICLE

A-PTO501-A

Fast Idle System - Work Truck Application **2023-2026 Ford F250-F600 Diesel engine (-G)** **2023-2026 Ford F250-F600 Gas engine (-G3)**

System Operation

The PTO501 will bypass the parking brake precondition to enable the vehicle's SEIC. The vehicle must be on level ground otherwise the PTO501 will automatically engage the parking brake so the SEIC can be engaged and elevates engine idle speed in response to a number of "triggers" in order to assist electrical or mechanical systems on the vehicle.

Fast Idle may be initiated by either input trigger

Fast Idle will only occur when the required preconditions are met, as listed below. Fast Idle operation will be terminated by a loss of any of the preconditions, or removal of the trigger(s).

SEIC Preconditions

- The following preconditions must be met prior to initiating Fast Idle operation:
- Vehicle speed zero
- Transmission in Park
- Accelerator pedal must not be applied
- Engine Coolant temperature less than 230°F
- Engine RPM must be greater than 200 and less than 2800.
- Service Brake not applied

A-PTO501-A-G

1200 RPM Diesel

A-PTO501-A-G3

1500 RPM Gas

Vehicle Angle Safety

The PTO501 will determine the angle of the vehicle and if it is below the configured limit (1° to 5°) the module will bypass the parking brake to engage SEIC.

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The safety angle can be set to 0° and will always set the parking brake automatically.

When the Parking brake is bypassed for SEIC the parking brake indicator will flash.

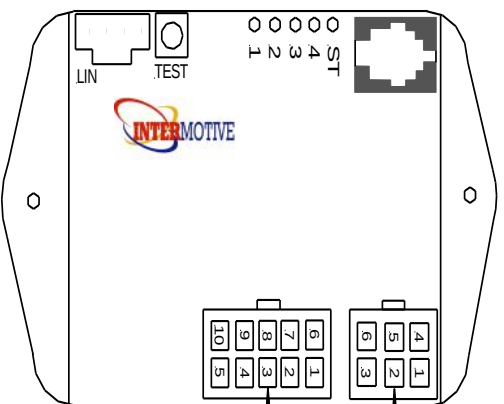
The truck believes the parking brake is set but the actuators are not set.

The driver can do two things to get the parking brake back in sync:

- Shift into gear and press the accelerator pedal to get the parking brake back into sync.
- Release the parking brake by holding the service brake and pressing the parking brake switch.

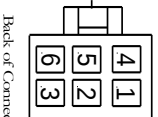
Both instances will stop the parking brake from flashing.

WARNING: Before taking the key out of the ignition, Confirm the parking brake indicator is not flashing . If it is flashing, release then set the parking brake using the switch to get the parking brake back into sync.

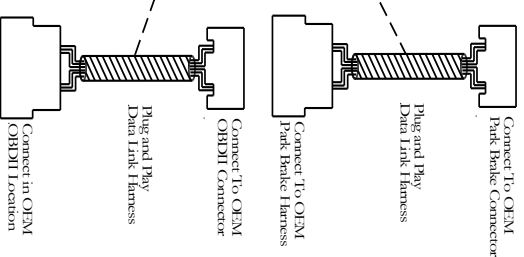
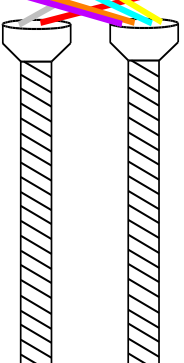


PTO501
Part # 820-00012-005

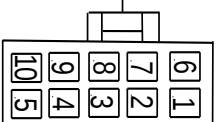
Harness Part # 840-00450



- 1 Red (Battery Voltage)
- 2 Yellow (CAN 1 High)
- 3 Lt Blue (CAN 2 High)
- 4 Gray (Ground)
- 5 Orange (CAN 1 Low)
- 6 Violet (CAN 2 Low)



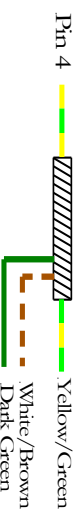
Harness Part #840-00455



Back of Connector

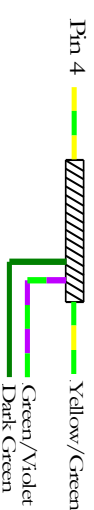
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Diesel SEIC harness 840-00058 - 2023+ Ford F250-F600



- Connect to the Yellow/Green wire of the OEM Pigtail (See Instructions)
- Connect to the White/Brown wire of the OEM Pigtail (See Instructions)
- Connect to the Green wire of the OEM Pigtail (See Instructions)

Gas SEIC harness 840-00296 - 2023+ Ford F250-F600



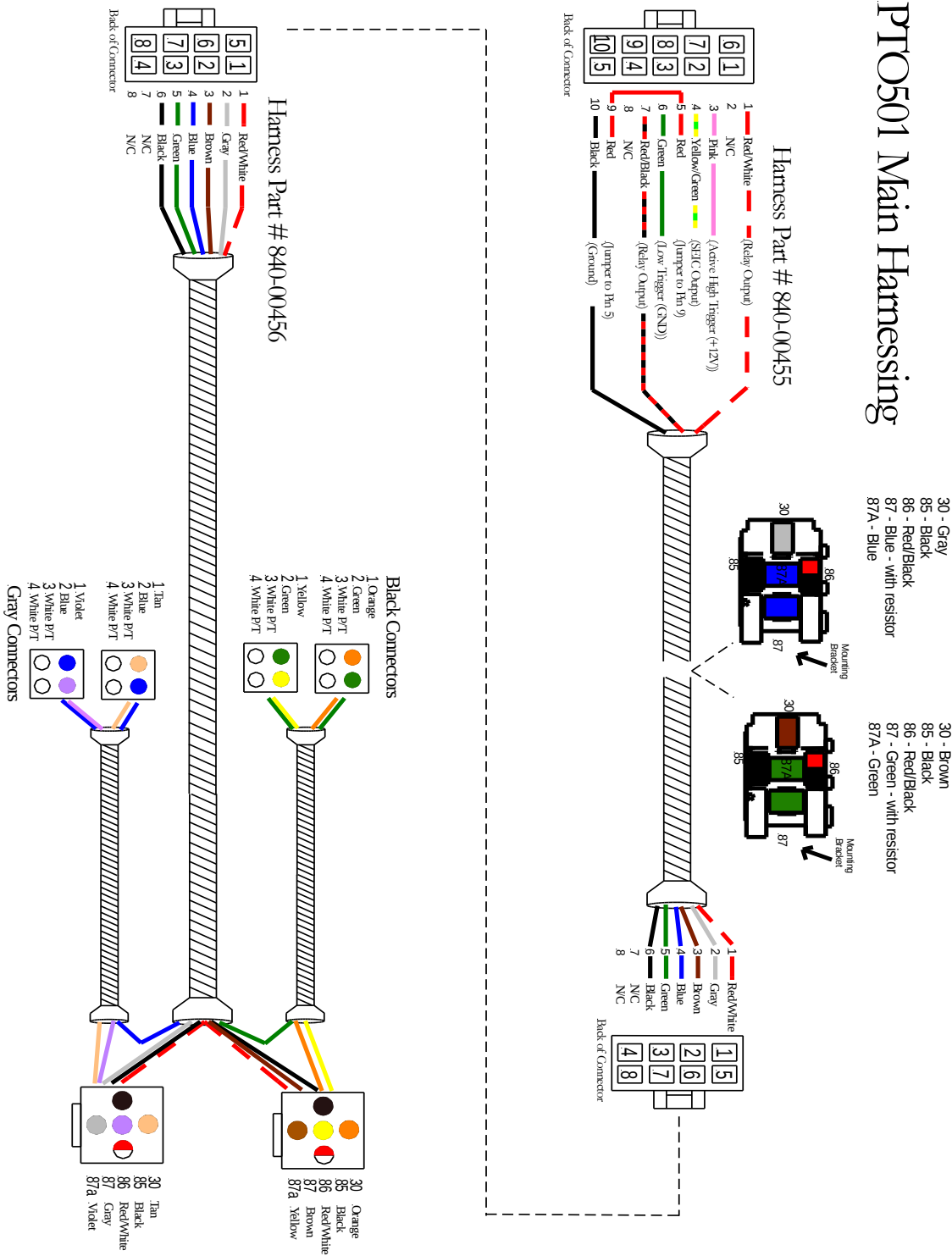
- Connect to the Yellow/Green wire of the OEM Pigtail (See Instructions)
- Connect to the White/Brown wire of the OEM Pigtail (See Instructions)
- Connect to the Green wire of the OEM Pigtail (See Instructions)

Submit product registration at www.intermotive.net

If the PTO501 fails any step in the Post Installation Check List, review the installation instructions and check all connections.

If necessary, call Intermotive Technical Support at (530) 823-1048.

PTO501 Main Harnessing



Submit product registration at www.intermotive.net

If the PTO501 fails any step in the Post Installation Check List, review the installation instructions and check all connections.

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