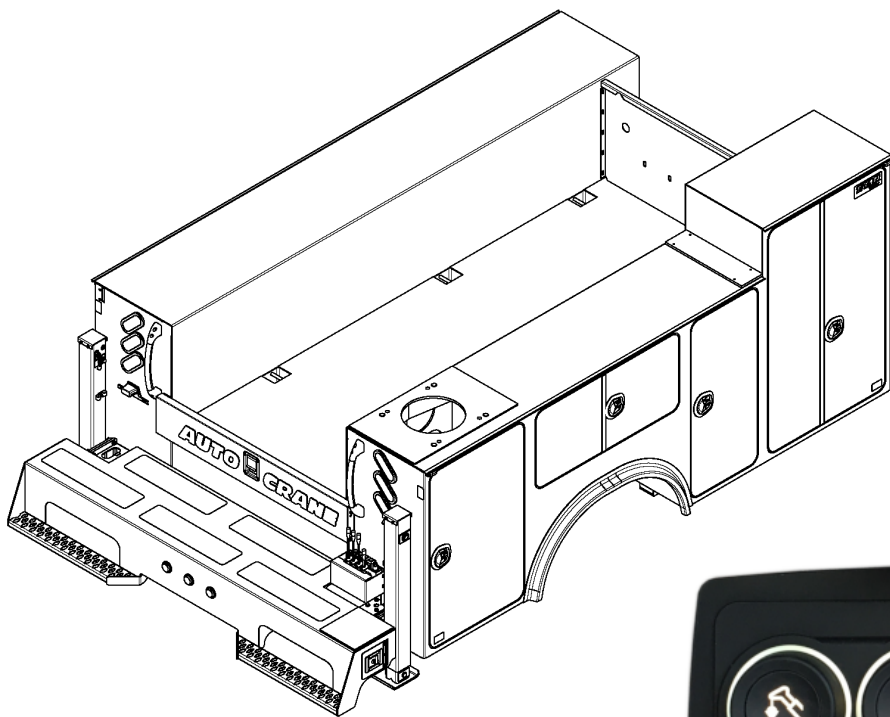




Installation/Service Manual **TITAN Connect**



475300399-0512-H

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At the time of publishing this manual is accurate to the best of our knowledge. Auto Crane reserves the right to change any or all items, components and parts, necessary for any reason. This right does not obligate Auto Crane to immediately update the manual. If in doubt, please call your local Auto Crane distributor for the most up-to-date information.

Auto Crane Company issues a limited warranty with each unit sold. See warranty pages at the end of the manual.



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Safety Tips and Precautions

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates information considered important, but not hazard-related.

WARNING

Federal law (49 CFR part 571) requires that the Final Stage Manufacturer of a vehicle certify that the vehicle complies with all applicable federal regulations. Any modifications performed on the vehicle prior to the final state are also considered intermediate stage manufacturing and must be certified as to compliance. The installer of this crane and body is considered one of the manufacturers of the vehicle. As such a manufacturer, the installer is responsible for compliance with all applicable federal and state regulations and is required to certify that the vehicle is in compliance.

WARNING

It is the further responsibility of the installer to comply with the OSHA Truck Crane Stability Requirements as specified by 29 CFR part 1910.180 (C) (1). In applications, where the rotation of the load is hazardous, a tag or restraint line should be used, (ref. OSHA 1910.180(h)(3)(xvi)). To reduce the potential for the load to rotate or rope twist, operate at minimal boom angles and extension.

WARNING

Do not weld, modify, or use unauthorized components on any Auto Crane unit! This will void any warranty or liability. Also failure of the crane may result.

WARNING

Vehicle must meet Federal Law (49 CFR 393), which states the required parts and accessories are necessary for safe operation. This includes lighting, reflectors, etc..

WARNING

Federal Law (49 CFR 568) requires each final-stage manufacturer to complete the vehicle in such a manner that it conforms to the standards in effect on the date of manufacture of the incomplete vehicle, the date of the final completion, or a date between those two dates. This requirement shall, however, be superseded by any conflicting provisions of a standard that applies by its terms to vehicles manufactured in two or more stages. Each final-stage manufacturer shall affix a label to the completed vehicle in accordance with 49 CFR 567.5.

Introductions

Auto Crane products are designed to provide many years of safe, trouble-free, dependable service when properly used and maintained.

To assist you in obtaining the best service from your body and to avoid untimely crane and/or vehicle failure, this manual provides the following installation and service instructions. It is specifically recommended that all service personnel consider this manual as mandatory material for reading and study before servicing or installing Auto Crane products.

Remember, the body adds weight to the vehicle. Adding weight may change the driving and riding characteristics of the vehicle unless the appropriate overload spring(s) are installed on the truck. The payload of the vehicle is reduced by the weight of the body. The operator should exercise care when loading the vehicle. Distributing the payload on the vehicle evenly will greatly improve the driving and riding characteristics of the vehicle.

Auto Crane Company issues a limited warranty certificate with each unit sold. See last page for warranty.

It has always been Auto Crane Company policy to handle all warranty claims we receive as promptly as possible. If a warranty claim involves discrepant material or workmanship, Auto Crane will take immediate corrective action. It is understandable that Auto Crane Company cannot assume responsibility of liability when it is obvious that our products have been abused, misused, overloaded or otherwise damaged by inexperienced persons trying to operate the equipment without reading the manual.

NOTICE

Auto Crane will not assume responsibility or liability for any modifications or changes made to unit, or installation of component parts without authorization.

This manual does not cover all installation, maintenance, or repair instructions pertinent to all possible situations. Auto Crane maintains a knowledgeable Customer Service Department. In most cases, an equipment problem is solved via phone conversation with our Customer Service Department. The Customer Service Department also has the ability to bring a regional sales manager or a factory serviceman into the solution of an equipment problem.

If, through no fault of Auto Crane Company, it is necessary to send an experienced factory serviceman on a field service call, the rates stated in the Auto Crane Distributor's Flat Rate Manual will apply.

Auto Crane Company's extensive Research and Development Program allows our customers to use the best equipment on the market. Our Engineering Staff and our knowledgeable sales people are always available to our dealers in solving crane and winch-type application problems. When in doubt, call the Auto Crane factory. Please contact the Auto Crane Company at the following telephone number: **1-800-777-2760**.

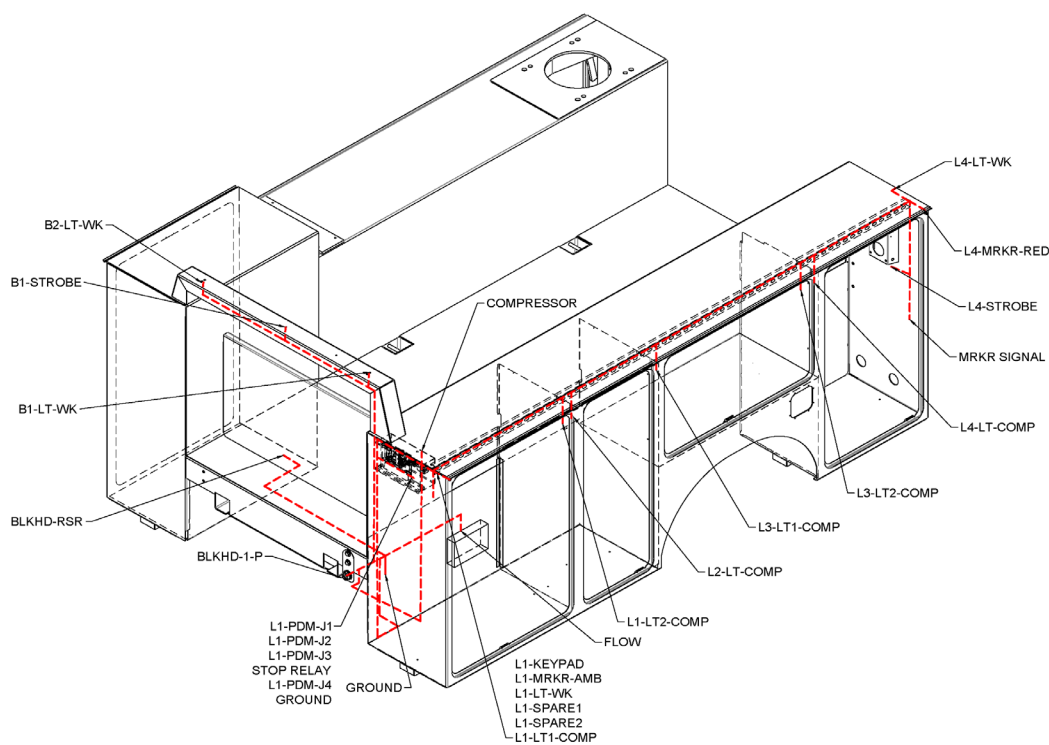
The information contained in the manual is in effect at the time of this printing. Auto Crane Company reserves the right to update this material without notice or obligation.

NOTICE

Titan Connect is not compatible with manual transmission. Automatic transmission is required for functionality.

Installing Left Body Harness

INSTALLING LEFT SIDE HARNESS (P/N: 475300351-11' BODIES, 475301372-14' BODIES)



1. Mount bulkhead connector **"BLKHD-1-P"** to the mounting bracket. Attach mounting bracket to body as shown in the figure below using hardware from body supports that were included with the body.

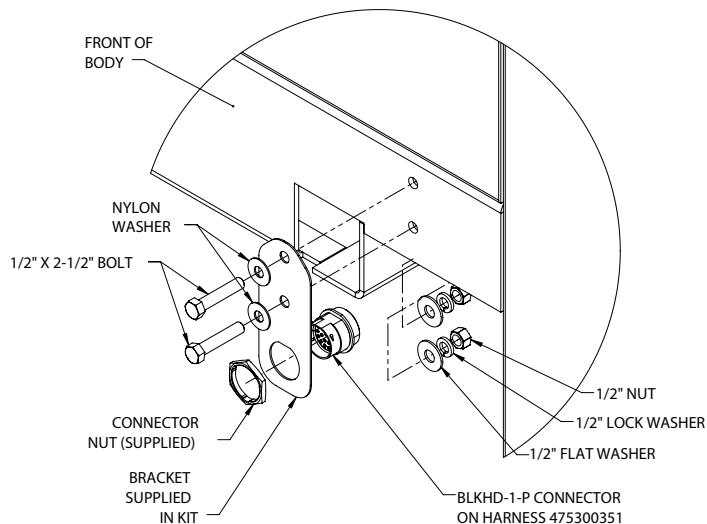


Figure 1 - Bulkhead Mounting

2. Route bulkhead connector **"BLKHD-RSR"** through frame to the right side front compartment (passenger's side front) and attach to hole in compartment using supplied bulkhead nut.

Installing Left Body Harness

3. Plug the connector **"FLOW"** to the compressor/crane diverter valve (if applicable).

NOTICE

Diverter valve needs to be configured where the compressor is active when coil is energized.

4. Attach ground cable **"GROUND"** to chassis frame using 3/8" hardware.
5. Plug the 5-pin connector **"COMPRESSOR"** to compressor. If compressor is not an AC-40, one of the adapters listed below can be used.

PART NUMBER	DESCRIPTION
475300049	ADAPTER KIT, VMAC COMPRESSOR TITAN CONNECT
475300367	ADAPTER HARNESS, COMPRESSOR, RS45, RS85-L, RC40-L, TITAN CONNECT
475300379	ADAPTER HARNESS, VANAIR COMPRESSOR, TITAN CONNECT
755501013	ADAPTER HARNESS, COMPRESSOR, RC40, RS85, TITAN CONNECT
755501015	ADAPTER, RS80 COMPRESSOR, TITAN CONNECT

Table 1 - Compressor Adapters

6. Run harness section that includes the connectors **"B1-STROBE"**, **"B1-LT-WK"**, and **"B2LT-WK"** to light bar for flood lights and central mounted strobe light (if applicable). If the body does not have a light bar, tie this section up in the body frame area.
7. Plug the 2-pin connector **"B1-LT-WK"** into flood light mounted on left side of lightbar (if applicable).
8. Plug the 2-pin connector **"B2-LT-WK"** into flood light mounted on right side of lightbar (if applicable).
9. Using the 4-pin connector housing, wedge, and pins supplied with harness, attach the receptacle to your strobe light. Plug the connector **"B1-STROBE"** into strobe light. Pin configuration is shown in the table below.

Pin	Function	Wire Color
1	Strobe Power	Red
2	Blank	
3	Strobe Sync Wire (if appl)	White
4	Ground	Black

Table 2 - Strobe Connector Pinout

10. Route remaining harness through the hole located in the front left side compartment (driver's side front). Install pre-attached grommet into hole of body.

Installing Left Body Harness

11. Bolt the PDM and relay (required only for Ford) to the mounting bracket found in the top left corner of the front left side compartment. Reference the figure below for installation.

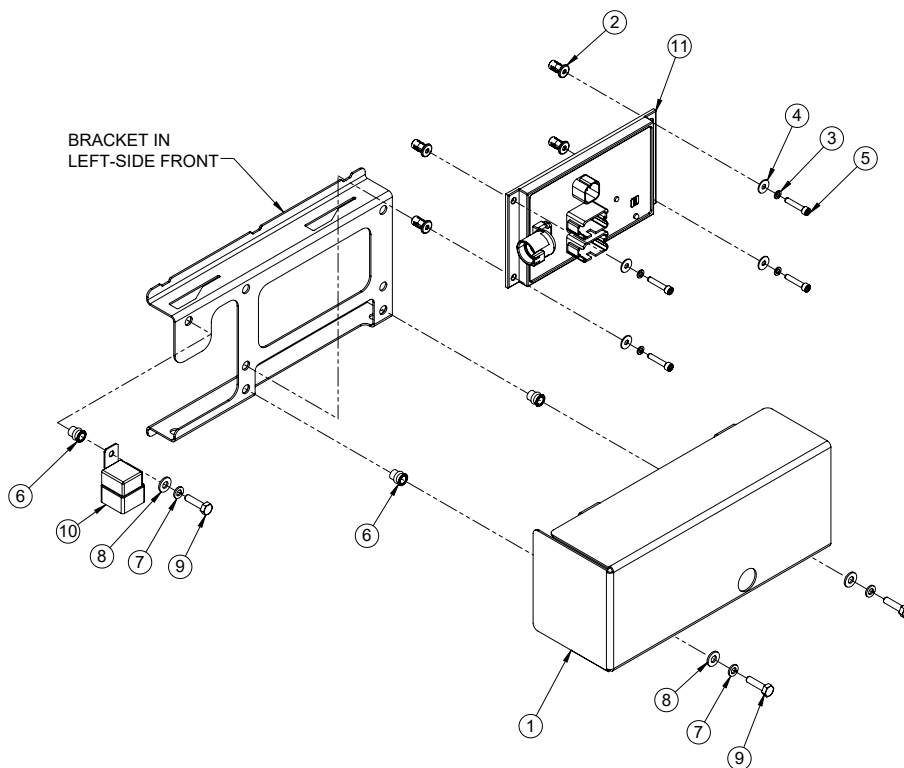


Figure 2 - PDM Mounting

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	475300345	PDM JACKET, TITAN CONNECT
2	4	366823462	RIVET, #10-24 JACKNUT
3	4	019800000	WASHER SP LK #10
4	4	020000000	WASHER FL #10 ZP
5	4	460094000	SCREW, SOC HD, #10-24 X 1"L, ZPL
6	3	736272000	NUTSERT 1/4-20UNC X .027-.165 GRIP
7	3	020200000	WASHER SP LK 1/4
8	3	020400000	WASHER FL SAE 1/4
9	3	005604000	SCREW HX HD 1/4-20UNC X 1 LG
10	1	320355000	RELAY, BOSCH
11	1	475300337	PDM, TITAN CONNECT

Installing Left Body Harness

12. Plug the connectors labeled **"L1-PDM-J1"**, **"L1-PDM-J2"**, **"L1-PDM-J3"**, and **"L1-PDM-J4"** into PDM. The connectors are keyed in such a way to prevent connecting the harness incorrectly to the PDM.
13. Attach grounding wire labeled **"GROUND"** to the PDM bracket using a 1/4" bolt and nut used to hold on the stop relay.
14. Route remaining cable over the top of the PDM into the channel. A 1/4" nutsert is located on top of the PDM bracket to capture wire harness using a P-clamp (if needed).
15. If keypad and/or LCD is installed in left-side front compartment, plug the connector **"L1-KEYPAD"** into back of keypad. If installing a LCD screen, the adapter supplied with the LCD screen would be required.
16. Plug the connector **"L1-MRKR-AMB"** into the amber marker light located in the front corner of the left-side front compartment. The amber marker light would have been supplied in the body ship kit.
17. If a flood light is mounted on the front left corner of body, plug the connector **"L1-LT-WK"** into the flood light. The flood light wiring will need to be routed through a drilled hole on top of side pack and sealed from water intrusion, preferably by a cord grip.
18. Plug the connector **"L1-LT1-COMP"** into interior compartment light strip located on the left side wall of compartment (if applicable).
19. Two additional spare outputs **"L1-SPARE1"** and **"L1-SPARE2"** are available as well. These can be used for additional functionality. The white wire is the signal wire. The black wire is a ground wire. Lengthen and route wire as needed for the function. **"L1-SPARE1"** is available in two locations, near the **"L1-MRKR-AMB"** extension and near the **"BLKHD-RSR"** connection.

NOTICE

The max amps for the spare outputs is 20 amps. If a run longer than 2ft is required, then 15 amps max. DO NOT USE PVC JACKETED WIRES.

20. Route remaining wire through channel located at the top of the compartment to other side of front compartment.
21. Plug the connector **"L1-LT2-COMP"** into interior compartment light strip located on the right side wall of compartment (if applicable).
22. Continue running remaining harness through channel into mid compartment.

NOTICE

14' bodies have one more compartment. This will introduce two more compartment light connections. Further numbering will vary slightly to match the equipment in subsequent compartments.

23. Plug the connector **"L2-LT-COMP"** into interior compartment light strip located on the left side wall of mid compartment (if applicable).
24. Continue running remaining harness through channel into horizontal compartment.
25. Plug the connector **"L3-LT1-COMP"** into interior compartment light strip located on the left side wall of horizontal compartment (if applicable).
26. Continue running remaining harness through channel to other side of horizontal compartment.
27. Plug the connector **"L3-LT2-COMP"** into interior compartment light strip located on the right side wall of compartment (if applicable).
28. Continue running remaining harness through channel into rear compartment.
29. Plug the connector **"L4-LT-COMP"** into interior compartment light strip located on the left side wall of compartment (if applicable).
30. Continue running remaining harness through channel to other side of rear compartment.

Installing Left Body Harness

31. If a flood light is mounted on the rear left corner of body, plug the connector "L4-LT-WK" into the flood light. The flood light wiring will need to be routed through a drilled hole on top or back of side pack and sealed from water intrusion preferably by a cord grip.

NOTICE

The flood lights are wired for front/back configuration. If a left/right configuration is preferred, remove white wire from Duestch connector using a removal tool and seal end. Crimp new socket terminal to red wire and insert it into empty cavity on housing until it clicks into place.

32. Plug the connector "L4-MRKR-RED" into the red marker light located in the rear corner of the left-side rear compartment. The red marker light would have been supplied in the body ship kit.
33. Using the 4-pin connector housing, wedge, and pins supplied with harness, attach the receptacle to your strobe light. Plug the connector "L4-STROBE" into strobe light. Pin configuration is shown in the table below.

Pin	Function	Wire Color
1	Strobe Power	Red
2	Blank	
3	Strobe Sync Wire (if appl)	White
4	Ground	Black

Table 3 - Strobe Connector Pinout

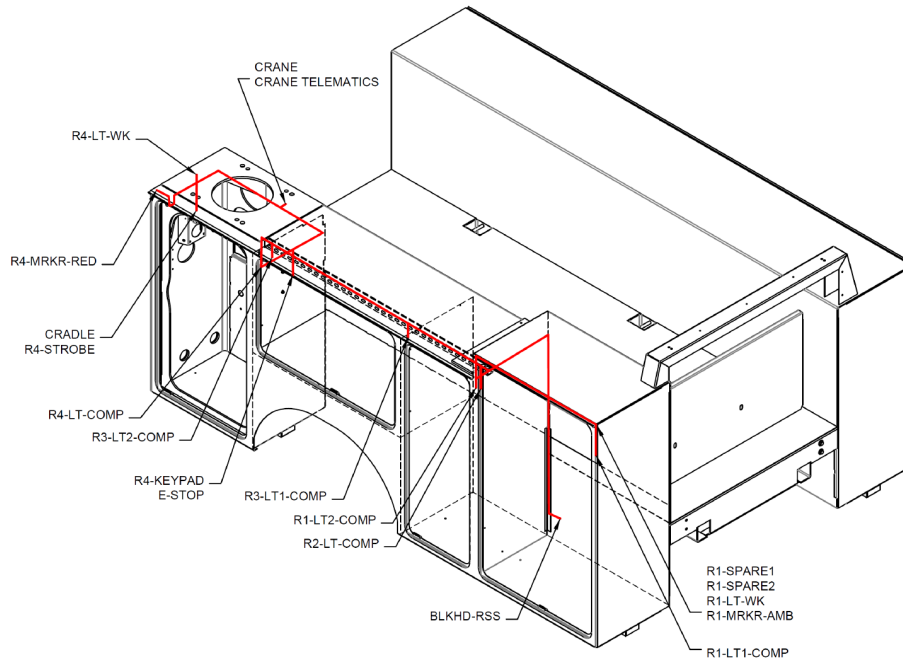
34. Connector "MRKR SIGNAL" will be connected to the rear harness. Keep loose and connect when the rear harness is installed. Details are located in section 5.
35. Zip-tie the wiring in channel to secure it into place. Reference picture below.



Figure 3 - Secure Channel Wiring

Installing Right Body Harness

INSTALLING RIGHT SIDE HARNESS (P/N:475300352-11' BODIES, 475301373-14' BODIES)



1. Connect "**BLKHD-RSS**" to the connector "**BLKHD-RSR**" on harness 475300351 or 475301372. This connection is located in the front right side compartment near the bottom.
2. Run harness along back left corner of compartment. Route through P-Clamp once the harness is at the same height as the channel used for the harness routing.
3. Run harness along left side wall to harness routing channel.
4. Route harness section, which includes connectors "**R1-LT1-COMP**", "**R1-MRKR-AMB**", and "**R1-LT-WK**" through channel towards front of body for standard height compartments. Run connectors along top front edge of body behind gas shock brackets for tall compartments. Reference picture below for tall compartment routing.



Figure 4 - Tall Compartment Wiring

Installing Right Body Harness

5. Plug the connector **"R1-LT1-COMP"** into interior compartment light strip located on the right side wall of compartment (if applicable).
6. Plug the connector **"R1-MRKR-AMB"** into the amber marker light located in the front corner of the right-side front compartment. The amber marker light would have been supplied in the body ship kit.
7. If a flood light is mounted on the front right corner of body, plug the connector **"R1-LT-WK"** into the flood light. The flood light wiring will need to be routed through a drilled hole on top of side pack and sealed from water intrusion preferably by a cord grip.

NOTICE

The flood lights are wired for front/back configuration. If a left/right configuration is preferred, remove red wire from Duestch connector using a removal tool and seal end. Crimp new socket terminal to white wire and insert it into empty cavity on housing until it clicks into place.

8. One additional spare output **"R1-SPARE1"** is available as well. This can be used for additional functionality. The white wire is the signal wire. The black wire is a ground wire. Lengthen and route wire as needed for the function. 14' bodies have another spare output **"R2-SPARE2"** that can be utilized in the same manner.

NOTICE

The max amps for the spare outputs is 20 amps. If a run longer than 2ft is required, then 15 amps max. DO NOT USE PVC JACKETED WIRES.

9. Plug the connector **"R1-LT2-COMP"** into interior compartment light strip located on the left side wall of compartment (if applicable).
10. Route remaining wire through channel located at the top of the compartment to the mid compartment.

NOTICE

14' bodies have one more compartment. This will introduce two more compartment light connections. Further numbering will vary slightly to match the equipment in subsequent compartments.

11. Plug the connector **"R2-LT-COMP"** into interior compartment light strip located on the right side wall of mid compartment (if applicable).
12. Continue running remaining harness through channel into horizontal compartment.
13. Plug the connector **"R3-LT1-COMP"** into interior compartment light strip located on the right side wall of horizontal compartment (if applicable).
14. Continue running remaining harness through channel to other side of horizontal compartment.
15. Plug the connector **"R3-LT2-COMP"** into interior compartment light strip located on the left side wall of compartment (if applicable).
16. Mount keypad/E-stop bracket into rear compartment. Reference Figure 5 for installation.

Installing Right Body Harness

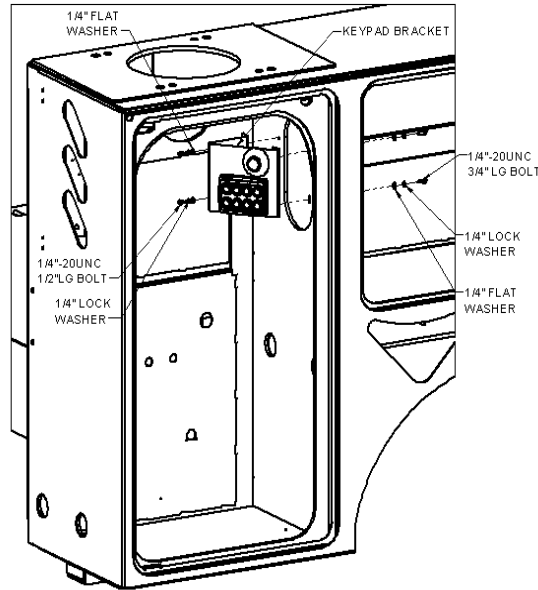


Figure 5 - Rear Compartment Keypad Mounting

17. Continue running remaining harness through channel into rear compartment.
18. Plug the connector **"R4-LT-COMP"** into interior compartment light strip located on the left side wall of compartment (if applicable).
19. Continue running remaining harness towards the back of the rear cranebox compartment.
20. Plug the connector **"R4-KEYPAD"** into keypad located on the keypad/Estop bracket.
21. Attach the black and white wires on the **"E-STOP"** branch to the E-stop. **Note: It does not matter which terminal goes to which wire.**
22. Run remaining harness along back wall of the crane box. Use P-clamps as required to support harness.
23. Plug the connector **"CRANE TELEMATICS"** wire into the 3-pin connector coming from the bottom of the crane.

NOTICE

The crane must be equipped with telematics and enabled to operate correctly with Titan Connect.

24. Using the 4-pin connector housing, wedge, and pins supplied with the harness, attach the receptacle to the bare wires coming from the crane. Pin configuration is shown in the table below.

Pin	Function	Wire Color
1	Boom Tip Lights (if equipped)	Green/Black
2	Blank	
3	Crane Power	Red
4	Ground	Black

Table 4 - Crane Connector Pinout

Installing Right Body Harness

25. Plug the connector mentioned in previous step into the connector "CRANE".
26. Using the 4-pin connector housing, wedge, and pins supplied with harness, attach the receptacle to your strobe light (if applicable). Plug the connector "R4-STROBE" into strobe light. Pin configuration is shown in the table below.

Pin	Function	Wire Color
1	Strobe Power	Red
2	Blank	
3	Strobe Sync Wire (if appl)	White
4	Ground	Black

Table 5 - Strobe Connector Pinout

27. If a flood light is mounted on the rear right back of body, plug the connector "R4-LT-WK" into the flood light. The flood light wiring will need to be routed through a drilled hole on top of side pack and sealed from water intrusion preferably by a cord grip.
28. Attach wires "CRADLE" to the cradle located on the light cover. Reference figure below to wiring details.



DO NOT ALLOW RED AND BLACK WIRES FROM CRADLE CONNECTION TO TOUCH. Trim and seal cradle wires if cradle is not installed. Serious damage or injury could result from wires shorting out.

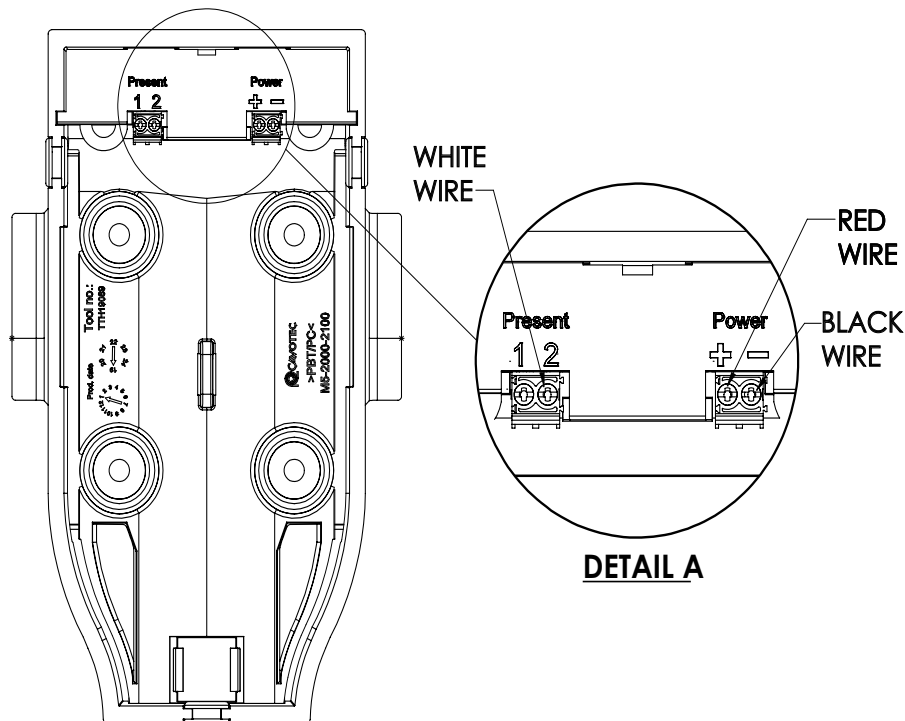
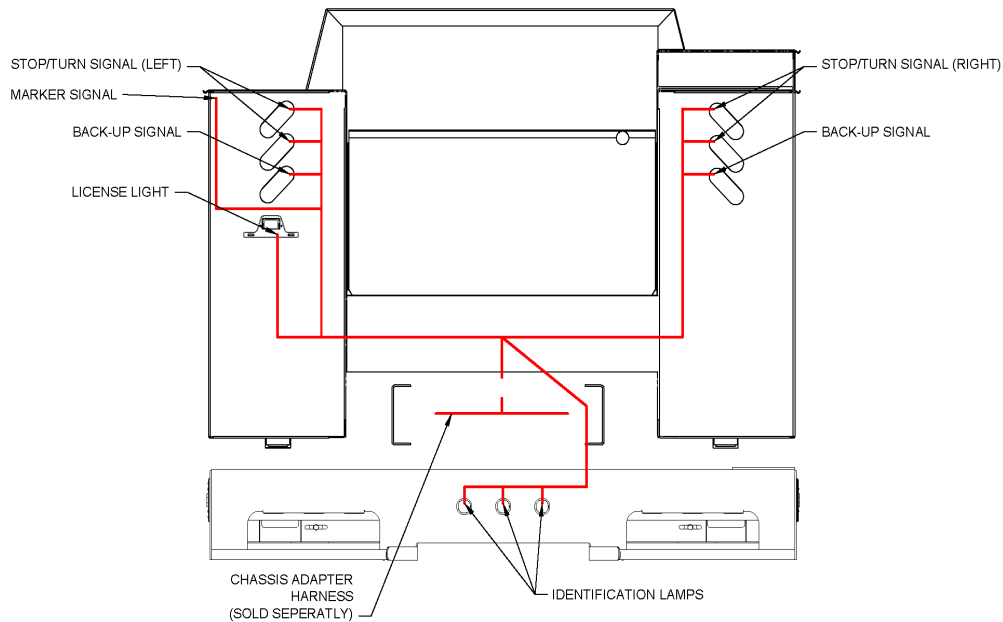


Figure 6 - Cradle Connections

29. Plug the connector "R4-MRKR-RED" into the red marker light located in the rear corner of the right-side rear compartment. The red marker light would have been supplied in the bodyship kit.

Installing Rear Body Harness



1. Route right section of harness (section of harness with three amphenol connectors with green wires) through hole in right rear compartment up to grommet on harness and install grommet into hole.
2. Plug the Stop/Tail/Turn Signal connectors (green, brown, & white wires) into red oval lights found in body ship kit.
3. Plug the Back-up Signal connector (blue & white wires) into clear oval light found in body ship kit.
4. Attach resistor to holes located on the angled surface of light cover using the #4 hardware supplied.
5. Route left section of harness (section of harness with three amphenol connectors with yellow wires) through hole in left rear compartment up to grommet on harness and install grommet into hole.
6. Plug the Stop/Tail/Turn Signal connectors (yellow, brown, & white wires) into red oval lights found in body ship kit.
7. Plug the Back-up Signal connector (blue & white wires) into clear oval light found in body ship kit.
8. Attach resistor to holes located on the angled surface of light cover using the #4 hardware supplied.
9. Plug the marker signal plug (2-pin connector with only one brown wire) into harness P/N: 475300351 or 475301372 connector **"MRKR SIGNAL"**.
10. Using the 2-pin connector housing, wedge, and pins supplied with the harness, attach the receptacle to the bare wires coming from the taillight. Plug the connector to license plate. Pin configuration is shown in the table below.

Pin	Function	Wire Color
1	Tail Light Signal	Brown
2	Ground	White

Table 6 - License Plate Connector Pinout

Installing Rear Body Harness

- Route identification lamp harness section (harness section with (3) two prong connectors) under bumper and connect to the identification lamps.

Note: The identification lamps may be located under bumper on certain bodies.

- There are two options to attach rear harness to chassis.

Option 1: Purchase a chassis adapter harness from Auto Crane for that specific chassis model. This connector will plug into S/T/T light connectors located on the chassis, then plug into the 6-pin connector located on the rear adapter harness. Reference table below for part numbers.

P/N	Description
475300355	HARNESS, TAIL LIGHT FORD
475300357	HARNESS, TAIL LIGHT CHEVY
475301380	ADAPTER HARNESS, 5 PORT CONNECTOR, TAIL LIGHT PACCAR
475301355	ADAPTER HARNESS, TAIL LIGHT FREIGHTLINER
475300366	ADAPTER HARNESS, TAIL LIGHT MACK
475301357	ADAPTER HARNESS, TAIL LIGHT, INTERNATIONAL (MV SERIES)
475301358	ADAPTER HARNESS, TAIL LIGHT, FORD CLASS 6-7

Table 7 - Rear Chassis Connector

Option 2: Use the supplied 6-pin pigtail mating connector and splice into the appropriate wires from the chassis. The wire functions for the 6-pin connector on harness are defined in the table below. Reference appropriate body builders book for chassis wiring details.

NOTICE

For all splicing, use high quality tap connector (example: posi-tap).

Pin	Function	Wire Color
1	Stop/Tail/Turn Right	Green
2	Ground	White
3	Stop/Tail/Turn Left	Yellow
4	Back-up Signal	Blue
5	Tail Light Signal	Brown
6	Blank	

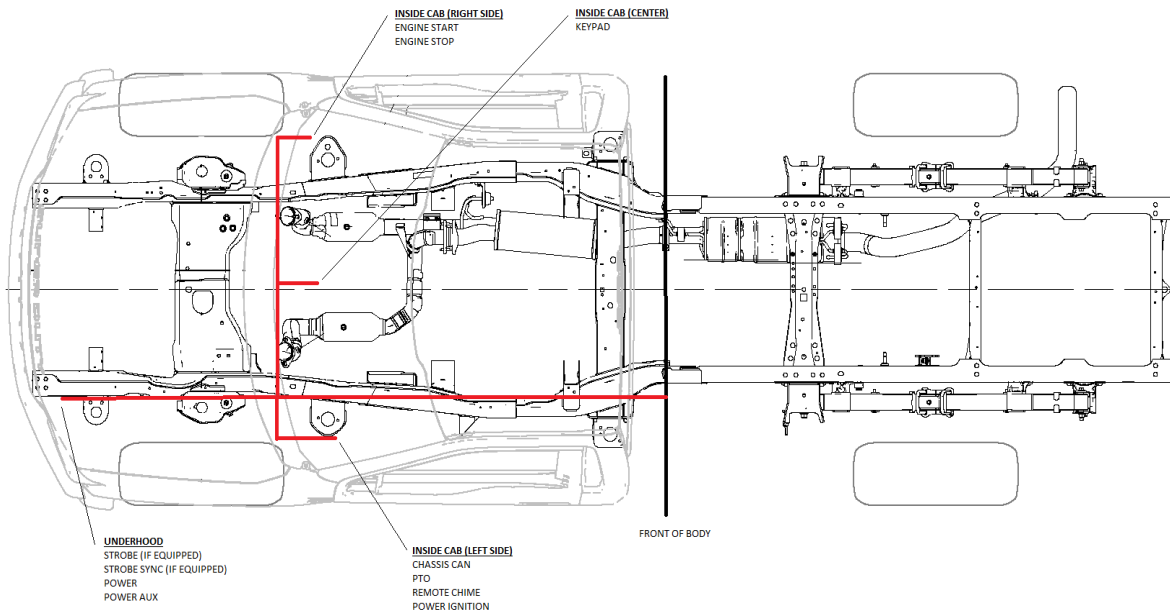
Table 8 - Rear Chassis Connector Pinout

- Connect additional blue wire from chassis specific harness from option 1 or the mating connector pigtail from option 2 to back-up alarm (if required). If back-up alarm was supplied with the chassis, you can skip this step.
- If the Titan Connect Power On Demand was selected. Install one decal (P/N: 475300363) on the crane box door near the stability chart. Install the remaining decal under the hood in a conspicuous area.

Installing Chassis Harness (Ford)

NOTICE

This section only applies to Ford Chassis.
Reference other sections based on your chassis.



NOTICE

For installations on Ford chassis not equipped with the Ford UIS, please contact Auto Crane customer support.

POWER TAKE-OFF (Location: inside cab, left-side, under dashboard)

1. Install PTO harness per PTO manufacturer's instructions except the switch.
2. Cut the wire coming from the Ford circuit "PTO1" or circuit number "CE912" before switch. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-switch side of wire.
3. Cut the wire going to Ford circuit "PTO RLY" or circuit number "CE326" at harness relay. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-relay side of wire.
4. Cut the wire going to solenoid from the PTO harness relay. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-relay side of wire.
5. Cut the wire going to the pressure switch at the PTO switch. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-switch side of wire.
6. Insert pins into housing supplied with harness per the table below. Insert wedge after all pins are installed.

Installing Chassis Harness (Ford)

Pin	Function	Muncie Wire Color	Chelsea Wire Color	Cut Location	Connects To
1	PTO Ready	Blue/White	Blue/White	PTO Relay	PTO RLY
2	PTO Enable	Yellow/Green	Yellow	PTO Switch	PTO1
3	PTO Pressure	Green	Black	PTO Switch	PTO Pressure Switch
4	PTO	Orange	Red	PTO Relay	PTO Solenoid
5	Blank				
6	Blank				

Table 9 - PTO Connector Pinout

- Once complete, the PTO manufacturer's switch and relay can be removed. Reference schematic below for more details to PTO operation.

CAUTION Trim and seal any loose wires. Serious damage or injury could result from wires shorting out.

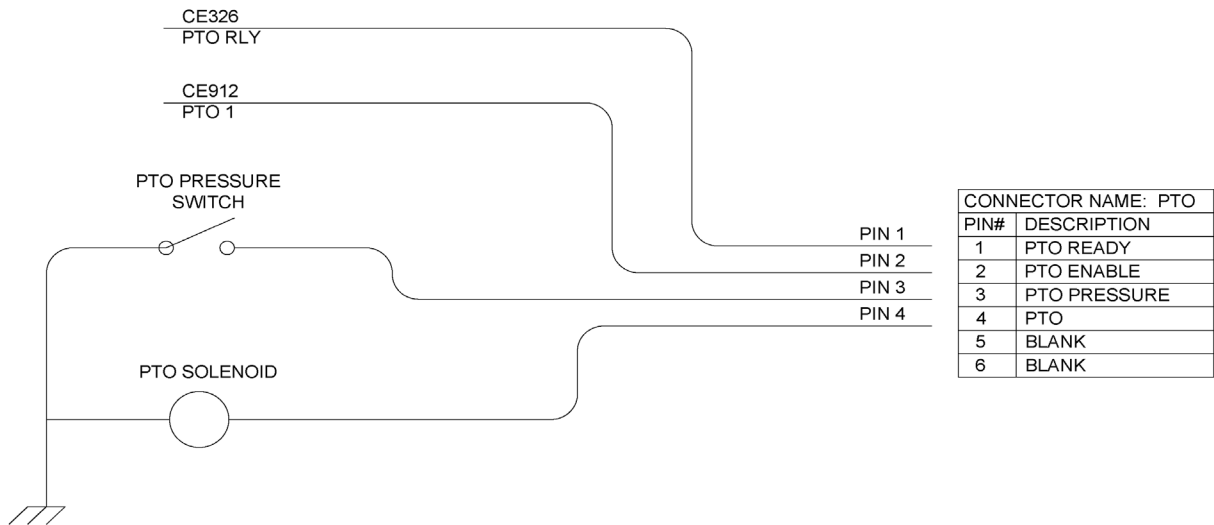


Figure 7 - PTO Activation Circuit

- Route the section of chassis harness (P/N: 475300353) with connector labeled "PTO" through the chassis firewall into cab and plug into housing defined in Figure 7.

Installing Chassis Harness (Ford)

ENGINE START/STOP (Location: inside cab, right-side, passenger A pillar)

1. Route the section of harness (P/N: 475300353) with Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground through the chassis firewall into cab near the passenger A pillar.
2. Remove kick panel of the passenger A pillar to access the Body Control Module (BCM). See Figure 8.



Figure 8 - View of Body Control Module (BCM)



Figure 9 - J6 Connector

3. Pull the sheath back a couple of inches from connector J6 to reveal wires. See Figure 9.
4. Remove the connector cover from J6 to trace the blue/white wire on pin 4 beyond the cover.
5. Use high quality tap connector (example: posi-tap) to splice the **"ENGINE START"** wire to the blue/white wire on connector C2280F pin 4 of the BCM.
6. Trace the white/orange wire on pin 3 of C2280 beyond the cover.
7. Attach one side of the white/orange wire to the **"ENGINE STOP IN"** wire.
8. Attach other side of the white/orange wire to the **"ENGINE STOP OUT"** wire.
9. Plug the connector C2280F back into J6 on BCM.
10. Attach relay (P/N: 320355000) to control panel (Reference Figure 2 in section 3 of this manual).
11. Plug the connector **"STOP RELAY"** into relay.

Installing Chassis Harness (Ford)

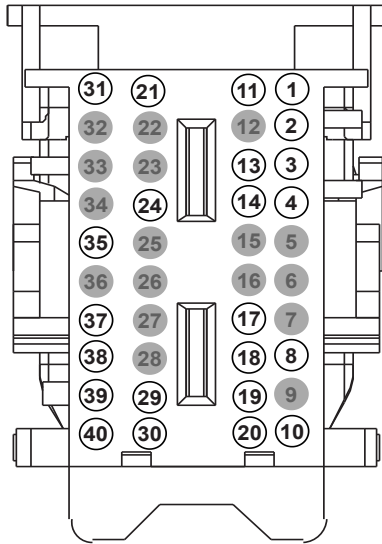


Figure 10 - View of C2280F

CAN CONNECTIONS (Location: inside cab, right-side, behind glove compartment)

1. Route **"CHASSIS CAN"** wires into cab through firewall to UIS module located on the passenger's side, behind glove compartment.
2. Disconnect both the black 20-way and blue 6-way connectors to ensure no power is being delivered to module.
3. On the black 20-way connector, locate the J1939 wired circuits 3 and 4.
4. Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN HIGH"** yellow wire into circuit 3; the green/blue CAN Positive wire.
5. Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN LOW"** green wire into circuit 4; the gray/blue CAN Negative wire.
6. Reconnect the Black 20-way, and Blue 6-way to the UIS module.



Figure 11 - View of UIS box

Installing Chassis Harness (Ford)

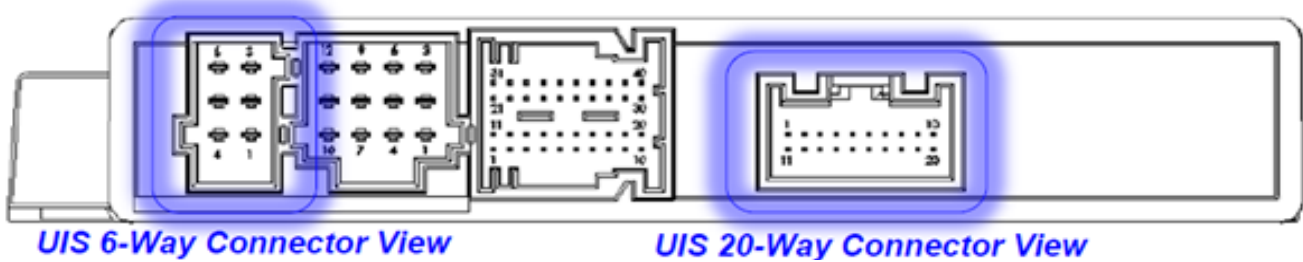


Figure 12 - View of UIS ports

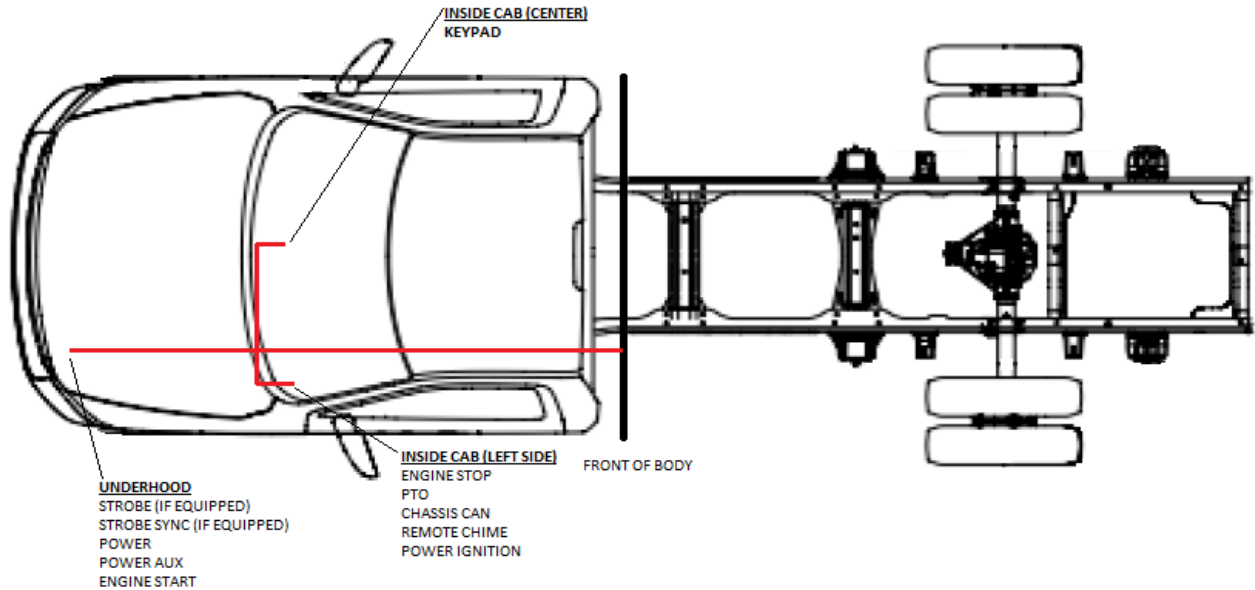
OTHER CONNECTIONS

1. Plug the connector **"BLKHD-1-S"** to connector **"BLKHD-1-P"** on the body harness (P/N: 473300351 or 475301372).
2. Run harness section with the wires **"Engine Start"**, **"Strobe"**, and **"Strobe Sync"** under hood. **Note: The "ENGINE START" wire on this harness section is not used.**
3. Connect **"STROBE"** wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
4. Connect **"STROBE SYNC"** wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
5. Connect **"REMOTE CHIME"** wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
6. Connect **"GROUND"** wire to a ground located in the cab.
7. If a keypad or LCD screen is located in the cab, route the **"C-KEYPAD"** through the firewall into cab and plug into back of keypad. If a LCD screen, use adapter supplied with screen.
8. Route the power cables **"POWER"** and **"POWER AUX"** under hood and attach to chassis battery's positive post.
9. Connect **"POWER IGNITION"** wire to last upfitter switch (AUX 6). Switch must be wired directly to the battery. Under the hood in the passenger side fuse block, move the 5A fuse from position 4B to position 4A.

NOTICE

During PDM programming, select Ford 2023 Update for 2023 and newer chassis. For chassis older than 2023, select Ford Update. See the Programming section for further instructions.

Installing Chassis Harness (Ram)



POWER TAKE-OFF (Location: inside cab, left-side, under dashboard)

1. Install the PTO harness per PTO manufacturer's instructions.
2. Crimp pin supplied with harness on pink wire from the Port Upfitter Connector "D1" (BLK male connector to WHT female connector) located under dash near park brake bracket and steering column. Reference Figure 13 for connector location.



Figure 13 - "D" Upfitter Connector Location & Upfitter Harness

3. Crimp pin supplied with harness to Violet/Tan wire coming from pin 5 on Ram supplied gray connector located to the right of the VSIM. Reference Figure 15 for VSIM location.
4. Insert pins into housing supplied with harness per the table below. Insert wedge after all pins are installed.

Installing Chassis Harness (Ram)

Pin	Function	Wire Color	Chassis Location	Connects To
1	Blank			
2	PTO Enable	Pink	Pin 3 D Connector	PTO1
3	PTO Pressure	Violet/Tan	Pin 5 Gray	PTO Pressure Switch
4	Blank			
5	Blank			
6	Blank			

Table 10 - PTO Connector Pinout

5. Route the section of chassis harness (P/N: 475300353) with connector labeled **"PTO"** through the chassis firewall into cab and plug into housing defined in Table 10.
6. In the green harness, the gray/orange wire must be grounded to black wire (pin 16) on brown VSIM connector for High Idle on PTO.

Dash Settings and Configurations:

1. Enable PARK BRAKE, AUTO RESUME, REMOTE PTO, REMOTE IGNITION and REMOTE START.
2. Change Preset 1 based upon manufacturer's recommended specifications.
3. Change PTO Drive type to AUX DRIVE.

ENGINE START/STOP (Location: under hood/inside cab, left-side, under dashboard)

1. Route the section of harness (P/N: 475300353) with wires Engine Start, Strobe, and Strobe Sync under hood.
2. Locate dark green/gray wire located under the main fusebox in front of the driver side battery. Reference Figure 14 for location. **Note: The wire will have yellow tape on the end.**



Figure 14 - Ram Engine Start/Stop Wire Location

Installing Chassis Harness (Ram)

3. Splice the wire in step 2 to the **"ENGINE START"** wire.
4. Using the EVIC cluster enable remote ignition. Reference Ram body builder book for more details.
5. Route the section of harness (P/N: 475300353) with Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground into cab through firewall.
6. Splice **"ENGINE STOP IN"** wire to light green/dark blue wire coming from pin 9 on green VSIM connector located in upfitter kit. Reference Figure 15 for VSIM location.
7. Insert jumper (P/N: 475300359) into **"STOP RELAY"** connector located near PDM in driver side front compartment. The jumper will go from pin 85 to pin 30. Reference Figure 16 for jumper pin locations.

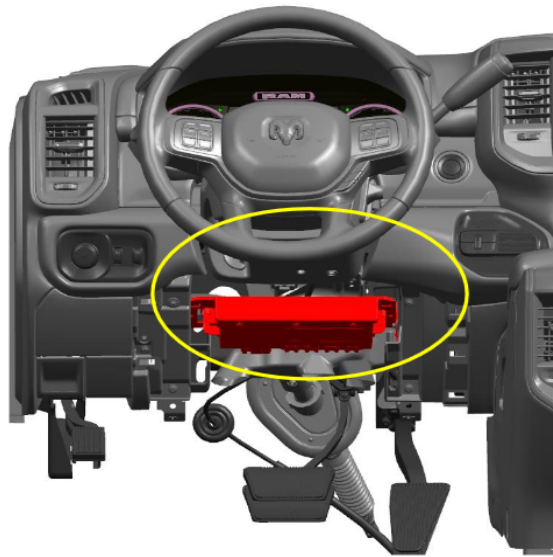


Figure 15 - VSIM Location

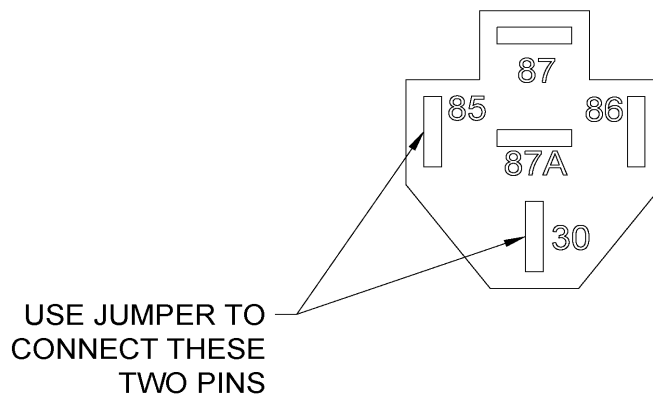


Figure 16 - Jumper Location

Installing Chassis Harness (Ram)

CAN CONNECTIONS (Location: inside cab, left-side, under dashboard)

1. Route the section of chassis harness (P/N: 475300353) with Chassis CAN High and Chassis CAN Low through the firewall into cab under dash on driver side.
2. Splice "**CHASSIS CAN HIGH**" yellow wire to the brown/dark blue wire coming from pin 10 on gray VSIM connector located in upfitter kit. Reference Figure 15 for VSIM location. Splice "**CHASSIS CAN LOW**" green wire to the brown/light blue wire coming from pin 11 on gray VSIM connector located in upfitter kit. Reference Figure 15 for VSIM location.

OTHER CONNECTIONS

1. Plug the connector "**BLKHD-1-S**" to connector "**BLKHD-1-P**" on the body harness (P/N: 473300351 or 475301372).
2. Connect "**STROBE**" wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
3. Connect "**STROBE SYNC**" wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
4. Connect "**REMOTE CHIME**" wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
5. Connect "**GROUND**" wire to a ground located in the cab.
6. If a keypad or LCD screen is located in the cab, route the "**C-KEYPAD**" through the firewall into cab and plug into "**PLUG B**" in back of keypad. If a LCD screen, use adapter (P/N: 475300358) supplied with screen.
7. Route the power cables "**POWER**" and "**POWER AUX**" under hood and attach to chassis battery's positive post.
8. Connect "**POWER IGNITION**" wire to pink/yellow wire coming from pin 13 on black VSIM connector. Reference Figure 15 for location.

NOTICE

This connection has a max amp draw of 0.5 amps. If additional amps are required, an alternate location is the pink/orange wire on pin 6 coming from grey upfitter port located under dash near steering column.

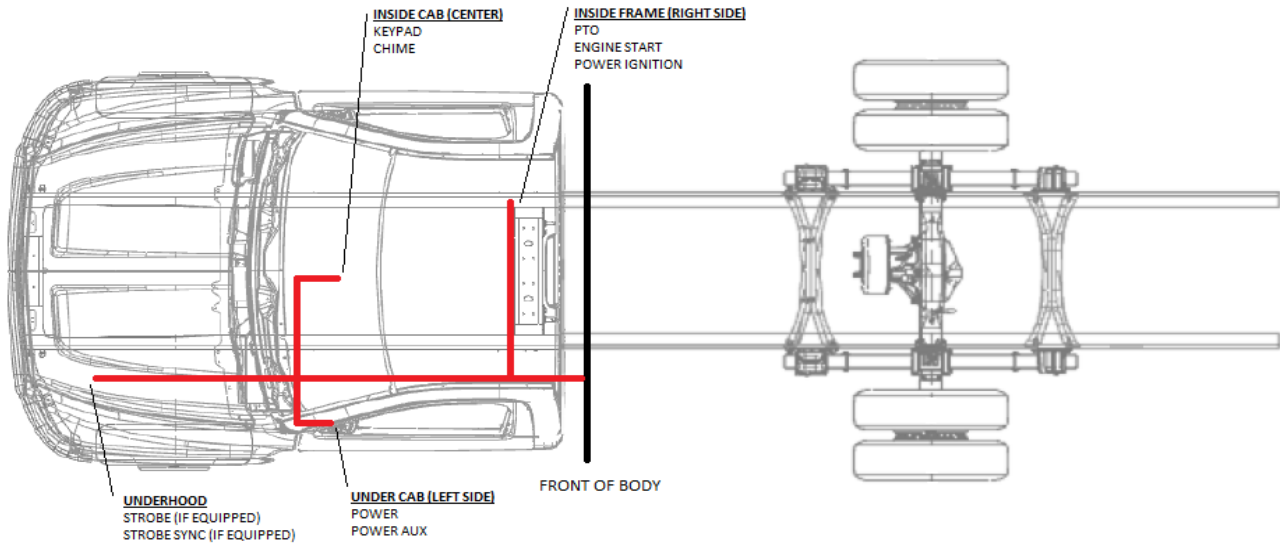
NOTICE

Check to ensure that the chassis software is set to "REMOTE" PTO mode. For high idle to work properly, red wire on the green RAM harness is grounded.

NOTICE

During PDM programming, select RAM Update. See the programming section for further instructions.

Installing Chassis Harness (Chevy)



POWER TAKE-OFF (Location: Inside right side frame under cab)

1. Install PTO harness per PTO manufacturer's instructions.
2. Route the "PTO" connector to Chevy PTO connector located near the passenger side frame rail under cab. Reference Figure 17 for location.

NOTICE

This connector will have a preinstalled cap with a jumper going from Pin A to Pin J. When removed the vehicle will no longer start until the installation is complete.



Figure 17 - Chevy PTO Connector Location

Installing Chassis Harness (Chevy)

3. Cut jumper wire between pins "A" and "J" on PTO harness supplied by PTO manufacturer. Crimp "PTO ENABLE" wire and "ENGINE STOP OUT" wire (P/N: 475300353) to wire coming from pin "A". Reference Figure 18 for pin location in connector.
4. Crimp "ENGINE STOP IN" wire to (P/N: 475300353) to wire coming from pin "J".
5. Cut wires coming from pin B and pin H on PTO harness supplied by PTO manufacturer. Crimp from Pin "B" to "PTO READY" pin supplied with harness (P/N: 475300353). Crimp from Pin "H" to "PTO READY LO" pin supplied with harness (P/N: 475300353). Reference Figure 18 for pin location on connector.
6. Splice a wire into pin G on PTO harness supplied by PTO manufacturer. Crimp pin 3 ("PTO PRESSURE") wire supplied with harness (P/N: 475300353) to this wire. Reference Figure 18 for pin location on connector.
7. Cut wire coming from PTO solenoid on PTO harness supplied by PTO manufacturer. Connect wire to pin 4 ("PTO") on PTO connector. Reference Figure 19 for pin location on connector. For Chelsea PTOs, do not cut connection between relay pin 87 and pressure switch.
8. Insert pins into housing supplied with harness per the table below. Insert wedge after all pins are installed.
9. For Muncie PTOs only. Use high quality tap connector (example: posi-tap) to splice together blue wire from PTO harness on relay and yellow wire from pin R on Muncie harness.

Pin	Function	Muncie Wire Color	Chelsea Wire Color	Chassis Location
1	PTO Ready	Orange	Brown	X191 Pin B
2	PTO Enable	Blue	Black	X191 Pin A
3	PTO Pressure	Green	Yellow	X191 Pin G
4	PTO	Red	White	PTO Solenoid
5	PTO Ready Lo	White	Purple	X191 Pin H
6	Blank			

Table 11 - PTO Connector Pinout

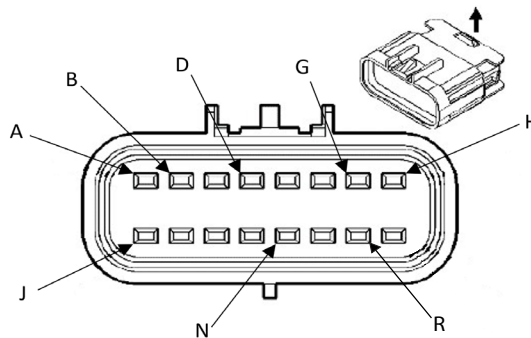


Figure 18 - Chevy PTO Connector Pinout Detail

10. Plug the "PTO" connector into housing referenced in step 7.
11. Once complete, the PTO manufacturer's relay can be removed. Be sure to reconnect the wires that were previously connected via the individual relay pins. Reference schematic below for more details to PTO operation.



Trim and seal any loose wires. Serious damage or injury could result from wires shorting out.

Installing Chassis Harness (Chevy)

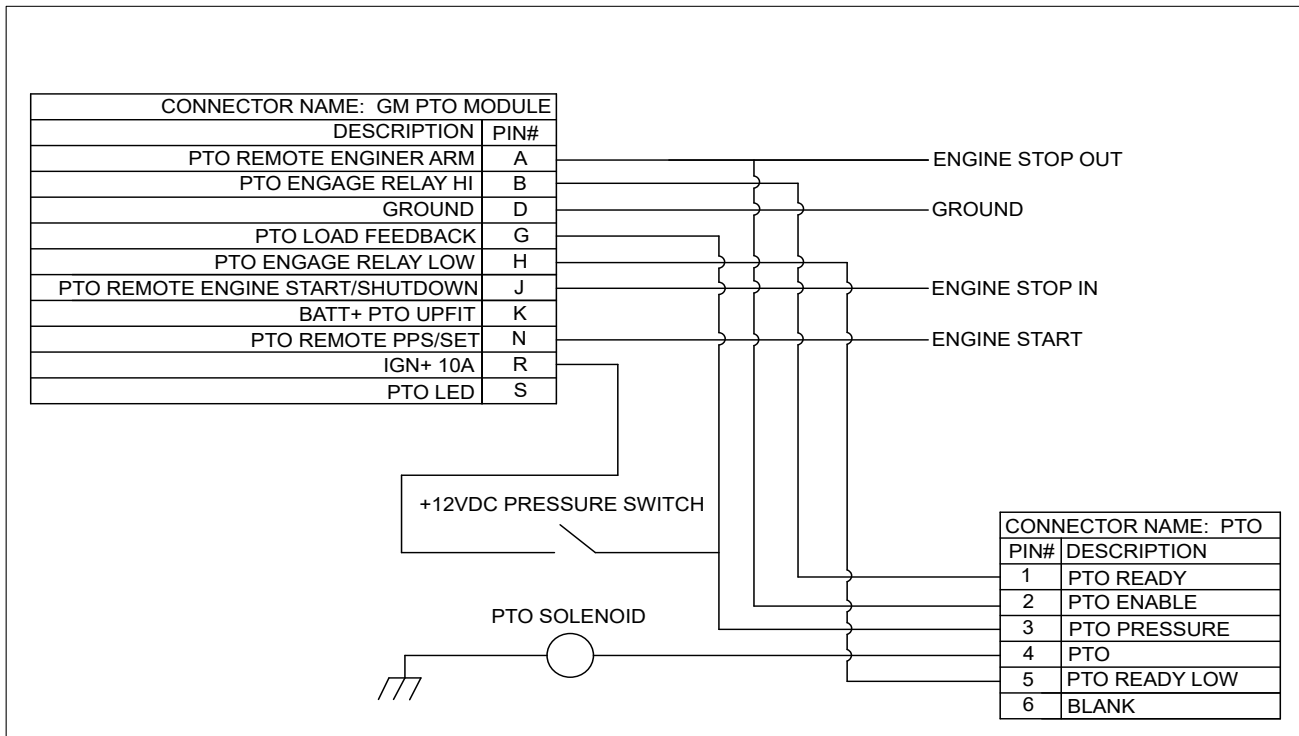


Figure 19 - Chevy Wiring Schematic

ENGINE START/STOP (Location: Inside right side frame under cab)

1. Route the harness section which includes the Engine Start, Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground to PTO connector.

NOTICE

The "Remote Chime" wire will need to be separately ran into the cab interior.

2. Insert pin with pigtail (P/N: 475300362) into pin "N" cavity of PTO housing of the Chevy PTO connector.
3. Splice the pigtail wire in step 2 with the "ENGINE START" wire.
4. Insert relay (P/N: 320355000) into "STOP RELAY" connector located near PDM in driver side front compartment.

OTHER CONNECTIONS

1. Plug the connector "BLKHD-1-S" to connector "BLKHD-1-P" on the body harness (P/N: 473300351 or 475301372).
2. Connect "STROBE" wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
3. Connect "STROBE SYNC" wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
4. Connect "REMOTE CHIME" wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.

Installing Chassis Harness (Chevy)

5. Splice **"GROUND"** wire into pin **"D"** from GM PTO Module Connector.
6. If a keypad or LCD screen is located in the cab, route the **"C-KEYPAD"** through the firewall into cab and plug into back of keypad. If a LCD screen, use adapter supplied with screen.
7. Route the power cables **"POWER"** and **"POWER AUX"** under driver side door and attach to chassis battery's positive post.
8. Connect **"POWER IGNITION"** wire to AUX 1 upfitter switch. Move fuse #5 to #18 position make AUX 1 upfitter switch powered directly from the battery.

HIGH IDLE PROGRAMMING

(Use software from ACDELCO.TDS.COM to program this chassis)

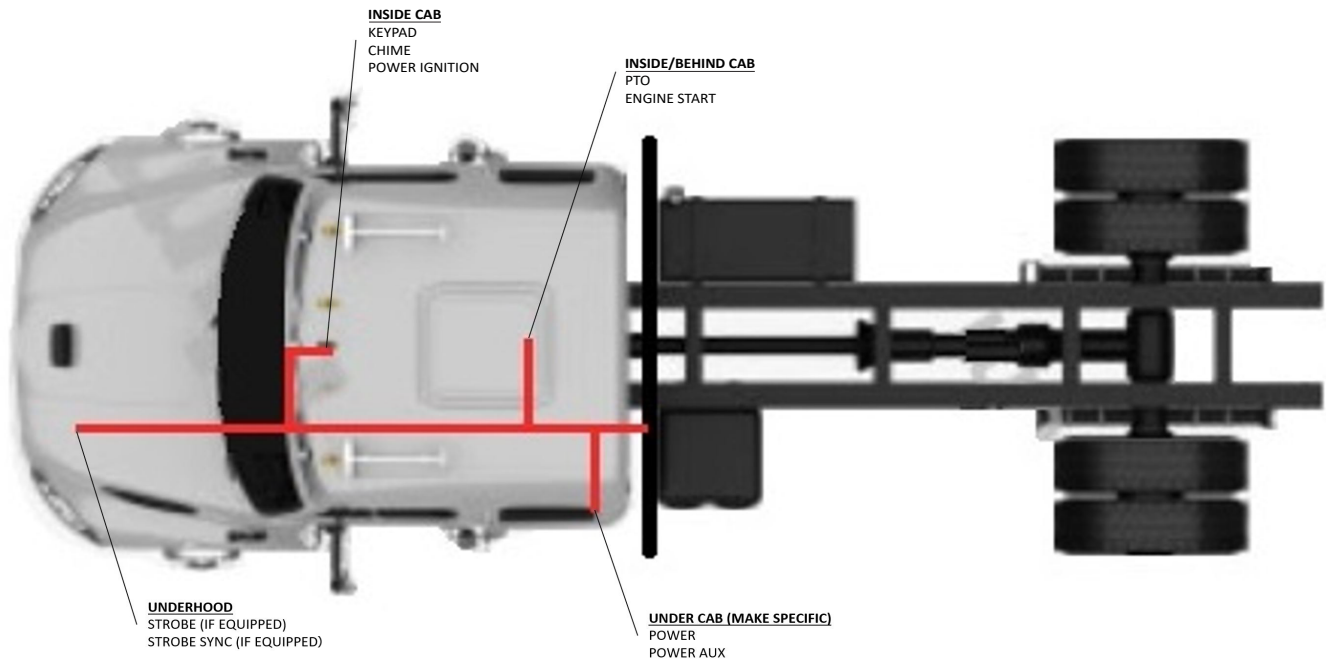
1. Ignition key must be in the RUN position without the engine running before programming.
2. Connect the truck to the GDS2 software using the USB link adapter. (Check to make sure correct chassis package is showing in bottom left of screen. If not, click **"MANAGE DIAGNOSTIC PACKAGES"** and select the appropriate package)
3. Click the **"DIAGNOSTIC"** icon.
4. Select the appropriate adapter and click **"CONTINUE"**.
5. Click **"MODULE DIAGNOSTICS"** and select the **"POWER TAKE-OFF CONTROL MODULE (K44)"**.
6. Click **"CONFIGURATION/RESET FUNCTIONS"**.
7. Click **"PTO OPERATION MODE"**.
8. Click the down arrow in the **"NEW VALUE"** section.
9. In the **"NEW VALUE"** drop-down list, click **"VEHICLE STATIONARY, PRESET PTO SPEED"**.
10. Click **"SAVE CHANGES"**.
11. Select **"WRITE OPTIONS"**.
12. Click **"CONTINUE"**.
13. Select from the **"NEW VALUE"** drop down menu **"PTO REMOTE MODE SWITCH"**. Select **"SAVE CHANGES"**, **"WRITE OPTIONS"**, then **"CONTINUE"** after all parameters have been set.
14. Modify any remaining parameters at this point then click **"CONTINUE"**.
15. Type in **RPM*** to the **"FOR ENGINE SPEED DURING PTO STANDBY"** values.
16. For PTO Remote Mode Switch Type, be sure Latching is selected. The GDS software changes the setting from Latching to Momentary without notice. The setting must be changed back to Latching every time after reviewing or making changes to the settings.
17. **"SAVE"** settings and review at this point.

RPM* is based upon PTO.

NOTICE

During PDM programming, select GM Update. See the Programming section for further instructions.

Installing Chassis Harness (Freightliner)



ENGINE CONNECTIONS

1. This installation uses Freightliner's Powertrain TEM Interface Connector (PTIC). The PTIC is typically behind the driver's seat, either inside or behind the cab. Refer to Figure 20. For chassis predating this connector, contact Technical Support for install instructions and programming.
2. Route the section of harness (P/N: 475300353) with Remote Chime, Power Ignition, and Ground through the chassis firewall into cab near the passenger A pillar.
3. Access the ignition switch under the dash left side. Splice "**POWER IGNITION**" wire to the wire coming from pin ACC on the ignition switch.
4. Connect "**REMOTE CHIME**" wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
5. On wiring harness (P/N: 475300351 or 475301372) in Left Side Front compartment, plug the connector "**STOP RELAY**" into relay (P/N: 320355000).
6. Route the section of harness (P/N: 475300353) with Engine Stop In and Engine Stop Out to the PTIC, behind the driver seat either inside or outside the cab
7. Connect both "**ENGINE START**" and "**ENGINE STOP IN**" to PTIC pin 45. Refer to Figure 21 for reference.
8. "**ENGINE STOP OUT**" is not used for this application. Cover the end of the wire and stow it securely.
9. At the "**STOP RELAY**" in the Left Side Front Compartment, use the included jumper to connect pin 85 to pin 30.



CAUTION

For this application, if "ENGINE STOP OUT" makes contact with ground, the truck may start/stop. Ensure the circuit is properly isolated.

Installing Chassis Harness (Freightliner)



Figure 20 - PTIC

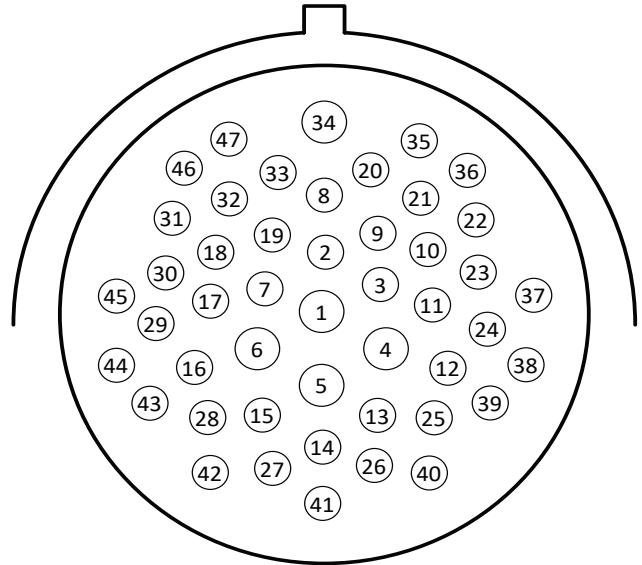


Figure 21 - PTIC Pinout

CAN CONNECTIONS (Location: behind driver seat, inside/behind cab)

1. Route the **"CHASSIS CAN"** wires to the PTIC.
2. Connect **"CHASSIS CAN LOW"** green wire to the PTIC pin 8. Refer to Figure 21 for PTIC pinout.
3. Connect **"CHASSIS CAN HIGH"** yellow wire to the PTIC pin 9.

STROBE CONNECTIONS

1. Route the section **"STROBE"** on harness (P/N: 475300353) under hood.
2. Connect **"STROBE"** wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
3. Connect **"STROBE SYNC"** wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.

KEYPAD CONNECTIONS

1. If a keypad or LCD screen is located in the cab, route the **"C-KEYPAD"** through the firewall into cab and plug into back of keypad.
2. If a LCD screen, use adapter (P/N: 475300358) supplied with screen, plugging into **"PLUG B"**.

Installing Chassis Harness (Freightliner)

PTO CONNECTIONS

1. Install PTO harness per PTO manufacturer's instructions.
2. Route the "PTO" connector to area for PTO connections. This is either under dash or under cab.
3. Remove "PTO" Deutsch connector from harness and prepare wires 1 through 5 for the connections to follow.
4. Splice "PTO-PRESS" (GREEN) wire to PTO pressure switch wire.
5. Splice "PTO" (Orange) to PTO engage wire (typically red).
6. Route the remaining wires to the PTIC.
7. Connect "PTO ENABLE" (YELLOW/GREEN) to PTIC pin 33.
8. Also, on "PTO ENABLE" (YELLOW/GREEN), splice in a wire and run it to pin 85 of a Bosch relay.
9. On the same relay, connect "PTO READY" (BLUE/WHITE) to relay pin 30.
10. Connect relay pins 86 and 87 to ground. Pin 87A is not used in this application.
11. Connect "PTO READY LOW SIDE" (WHITE) to PTIC pin 15. This connection will control high idle.
12. Connect PTIC pin 47 to ground. This is a required interlock for the chassis to use Remote Start and Stop (RSS).
13. On the PDM Gray connector, move wire from pin 8 to pin 5.

NOTICE

To engage the RSS system, while the engine is running, toggle the REMT START switch on the dash. If successful, the dash will say Remote Start Stop Enabled and the switch will illuminate. If unsuccessful, the dash will display a checklist of interlocks. The unchecked interlocks will need to be resolved. PTIC pin 47 is listed as Custom Interlock in this checklist. Refer to Figure 22 and 23.



Figure 22 - REMT START Switch

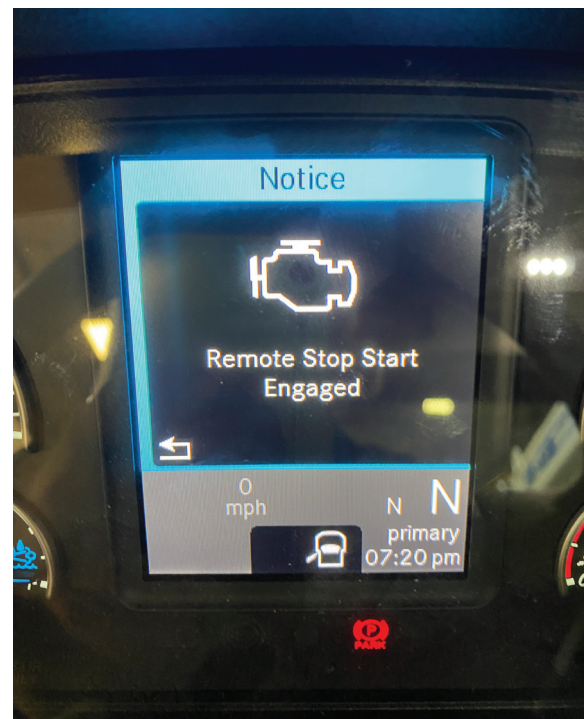


Figure 23 - Remote Start Stop Engaged Screen

Installing Chassis Harness (Freightliner)

POWER CONNECTIONS

1. Route the power cables **"POWER"** and **"POWER AUX"** under driver side of cab and attach to chassis battery's positive post.
2. Plug the connector **"BLKHD-1-S"** to connector **"BLKHD-1-P"** on the body harness (P/N: 473300351 or 475301372).

HIGH IDLE PROGRAMMING (For CUMMINS Engines only)

1. Use **"POWER SPEC"** software for programming the settings on the chassis.
2. Click on **"CONNECT"** to update to current application.
3. Click on **"DIRECT ENGINE EDIT"**.
4. Click on **"EDIT PRESET SETTING"** and go to **"ASSET UTILIZATION"**.
5. Change **"PTO SET ENGINE SPEED"** to **RPM***.
6. Change **"PTO RESUME ENGINE SPEED"** to **RPM***.
7. Change **"PTO ADDITIONAL SPEED SWITCH"** to **RPM***.
8. Change **"PTO ENGINE SPEED RAMP RATE"** to **RPM***.
9. Change **"PTO ENGINE REMOTE"** to **"ENABLE"** if not already enabled.
10. Change **"REMOTE PTO NUMBER OF SPEED SETTING"** to a value of 1.
11. Change **"REMOTE PTO SPEED SETTING ONE"** to **RPM***.
12. Click **"SAVE"**.
13. At this time enter the identification of the truck.
14. Click **"SAVE"** then click **"TRANSFER"**.
15. When changes have been successful click **"OK"**.
- 16. RPM*** is based on PTO % and pump size.

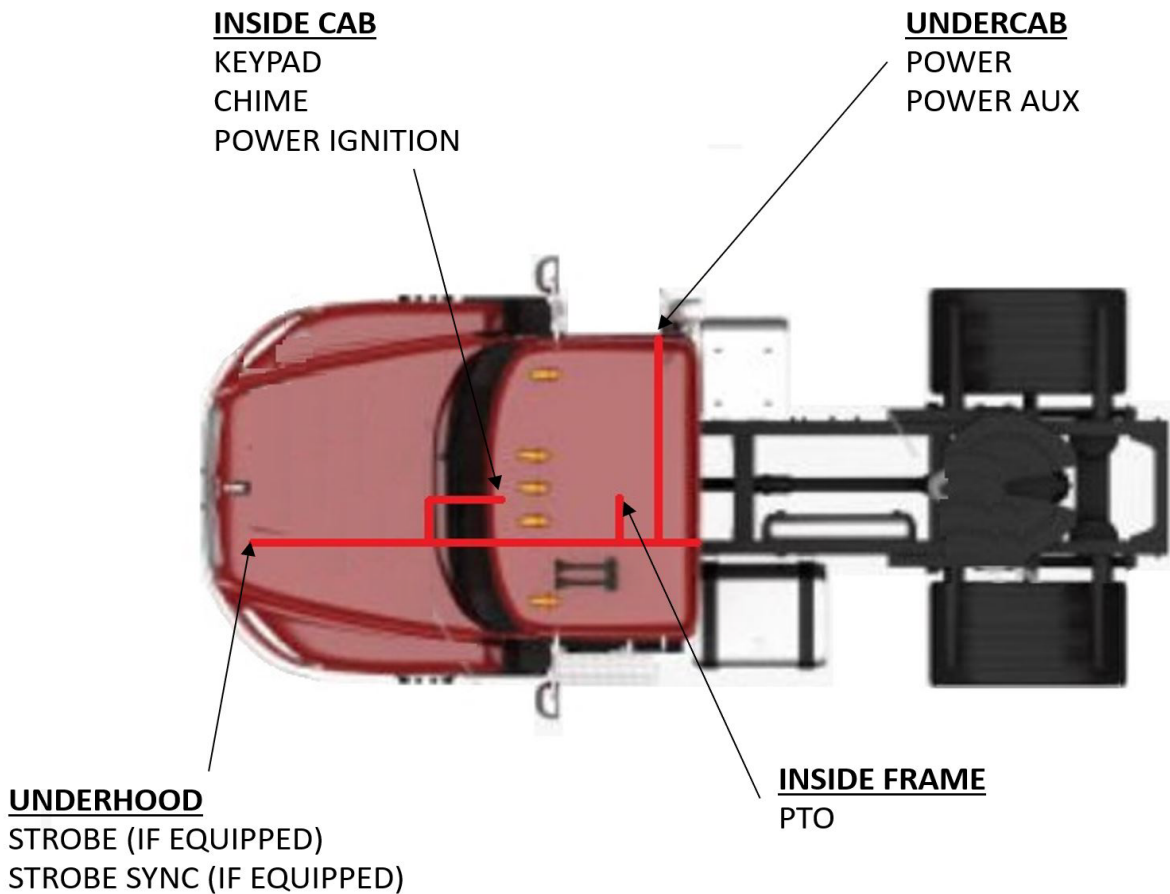
HIGH IDLE FOR DETROIT ENGINES

1. Use CPC4 box behind passenger dash and use pin 9 to tie in PTO-READY-L (A pig-tail will need to be added).

NOTICE

During PDM programming, select Freightliner 2024 Update. See the Programming section for further instructions.

Installing Chassis Harness (Mack)



ENGINE CONNECTIONS

1. Note: Chassis will not start until full installation is complete. If chassis is required to be moved before installation is complete, place a jumper wire from pin 8 to pin 14 on bulkhead connection of chassis harness (P/N: 475300353).
2. Route the section of harness (P/N: 475300353) with Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground through the chassis firewall into cab near the passenger A pillar.
3. Access the ignition switch under the steering wheel. Splice **"POWER IGNITION"** wire to the wire coming from pin ACC on the ignition switch.
4. Further down from the previous splice, cut the wire from pin IGN and connect to the **"ENGINE STOP IN"** wire on the switch side.
5. Attach other side of the wire from pin IGN to the **"ENGINE STOP OUT"** wire on the truck side.
6. Use high quality tap connector (example: posi-tap) to splice the **"ENGINE START"** wire to the pin ST wire coming from the ignition switch.
7. Connect **"REMOTE CHIME"** wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
8. On wiring harness (P/N: 475300351 or 475301372) in Left Side Front compartment, plug the connector **"STOP RELAY"** into relay (P/N: 320355000).

Installing Chassis Harness (Mack)

CAN CONNECTIONS (Location: inside cab, left-side, under dashboard)

1. Route the section **"CHASSIS CAN"** on harness (P/N: 475300353) through the firewall into cab under dash on driver side.
2. For 9-pin Diagnostic Connector: Splice **"CHASSIS CAN HIGH"** yellow wire to the wire coming from pin F on green connector located under left side of dash. Splice **"CHASSIS CAN LOW"** green wire to the wire coming from pin G on green connector located under left side of dash. Reference Figure 24 for pin locations.

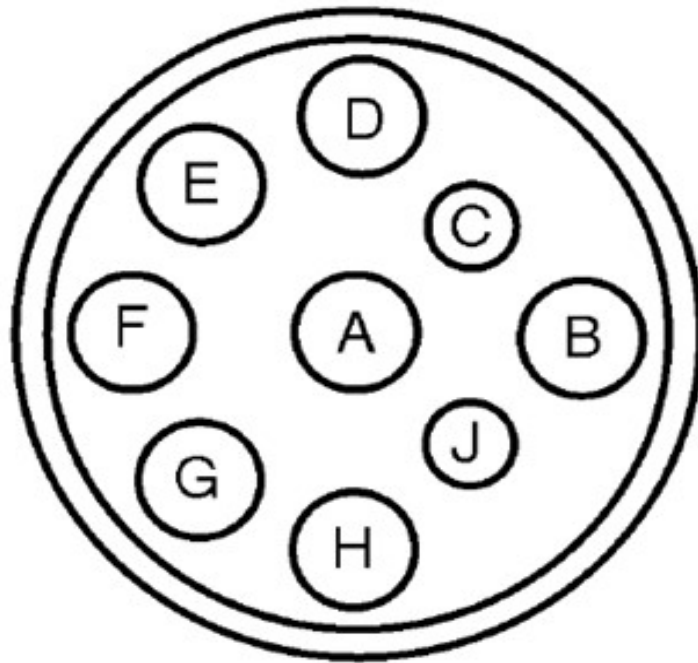


Figure 24 - OBD pin detail

STROBE CONNECTIONS

1. Route the section **"STROBE"** on harness (P/N: 475300353) under hood.
2. Connect **"STROBE"** wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
3. Connect **"STROBE SYNC"** wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
4. **"ENGINE START"** not to be used for this application.

KEYPAD CONNECTIONS

1. If a keypad or LCD screen is located in the cab, route the **"C-KEYPAD"** through the firewall into cab and plug into **"PLUG B"** in back of keypad.
2. If an LCD screen, use adapter (P/N: 475300358) supplied with screen.

Installing Chassis Harness (Mack)

PTO CONNECTIONS

1. Install PTO harness per PTO manufacturer's instructions.
2. Route the **"PTO"** connector to area for PTO connections. This is either under dash or under cab.
3. Remove **"PTO"** Deutsch connector from harness and prepare wires 1 through 5 for the connections to follow.
4. Splice **"PTO-READY"** (BLUE/WHITE) wire to TCM output wire signalling transmission is ready to engage PTO solenoid. This is TCM pin 50 on 1000/2000 Allison Transmission; pin 30 for 3000/4000.
5. Splice **"PTO-EN"** (YELLOW/GREEN) wire to TCM pin 43 wire that is to start engagement sequence.
6. Splice **"PTO-PRESS"** (GREEN) wire to PTO pressure switch wire.
7. Splice **"PTO"** (Orange) to PTO engage wire (typically red).
8. Splice **"PTO-READY-L"** (WHITE) wire to HIGH IDLE wire input. For a black Cummins engine use pin 5 on the EIC. For a Cummins red engine use pin 1 on the EIC. If there is no EIC, use pin 94-J2 of the ECU. Cummins part 2892507 can assist with this connection.
9. On PDM Gray connector, move wire from pin 8 to pin 5.

POWER CONNECTIONS

1. Route the power cables **"POWER"** and **"POWER AUX"** under passenger side of cab and attach to chassis battery's positive post.
2. Plug the connector **"BLKHD-1-S"** to connector **"BLKHD-1-P"** on the body harness (P/N: 473300351 or 475301372).
3. Connect **"GROUND"** wire to a ground located in the cab.

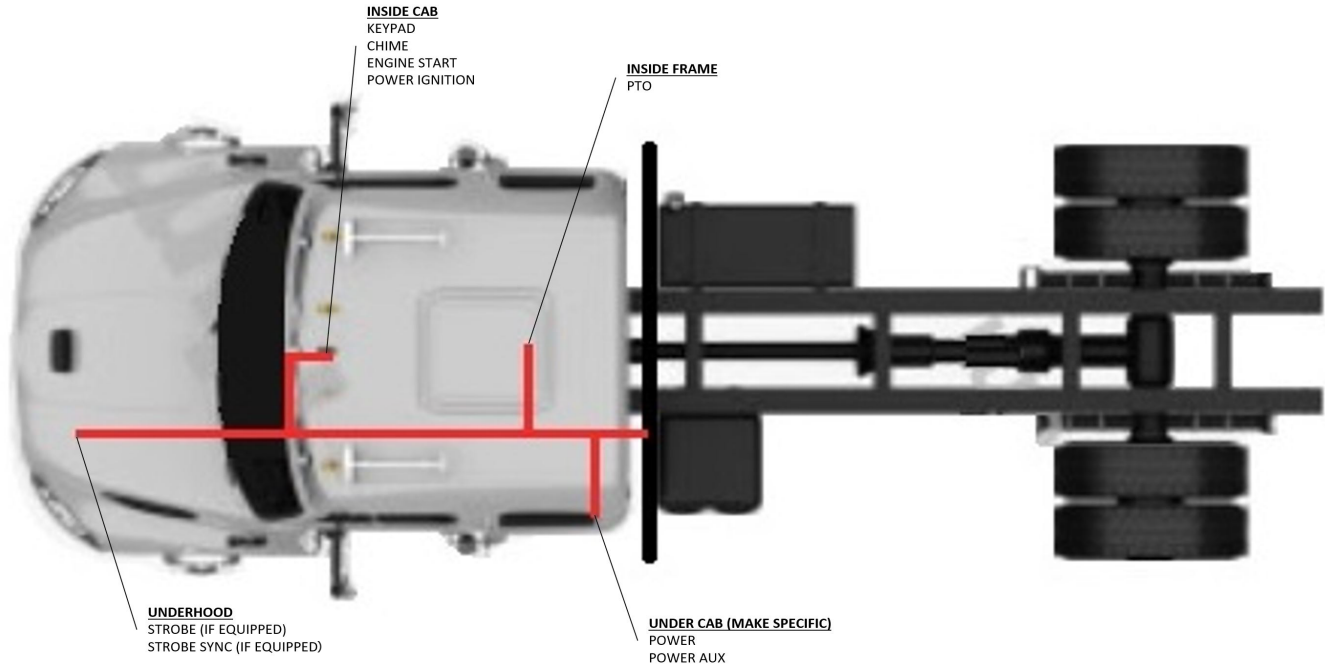
HIGH IDLE PROGRAMMING (For CUMMINS Engines only)

1. Use **"POWER SPEC"** software for programming the settings on the chassis.
2. Click on **"CONNECT"** to update to current application.
3. Click on **"DIRECT ENGINE EDIT"**.
4. Click on **"EDIT PRESET SETTING"** and go to **"ASSET UTILIZATION"**.
5. Change **"PTO SET ENGINE SPEED"** to **RPM***.
6. Change **"PTO RESUME ENGINE SPEED"** to **RPM***.
7. Change **"PTO ADDITIONAL SPEED SWITCH"** to **RPM***.
8. Change **"PTO ENGINE SPEED RAMP RATE"** to **RPM***.
9. Change **"PTO ENGINE REMOTE"** to **"ENABLE"** if not already enabled.
10. Change **"REMOTE PTO NUMBER OF SPEED SETTING"** to a value of 1.
11. Change **"REMOTE PTO SPEED SETTING ONE"** to **RPM***.
12. Click **"SAVE"**.
13. At this time enter the identification of the truck.
14. Click **"SAVE"** then click **"TRANSFER"**.
15. When changes have been successful click **"OK"**.
16. **RPM*** is based on PTO % and pump size.

NOTICE

During PDM programming, select Mack Update. See the Programming section for further instructions.

Installing Chassis Harness (PACCAR)



ENGINE CONNECTIONS

1. Note: Chassis will not start until full installation is complete. If chassis is required to be moved before installation is complete, place a jumper wire from pin 8 to pin 14 on bulkhead connection of chassis harness (P/N: 475300353).
2. Route the section of harness (P/N: 475300353) with Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground through the chassis firewall into cab near the passenger A pillar.
3. Access the ignition switch under the steering wheel. Splice **"POWER IGNITION"** wire to the wire coming from pin ACC on the ignition switch.
4. Further down from the previous splice, cut the wire from pin IGN and connect to the **"ENGINE STOP IN"** wire on the switch side.
5. Attach other side of the wire from pin IGN to the **"ENGINE STOP OUT"** wire on the truck side.
6. Use high quality tap connector (example: posi-tap) to splice the **"ENGINE START"** wire to the pin ST wire coming from the ignition switch.
7. Connect **"REMOTE CHIME"** wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
8. On wiring harness (P/N: 475300351 or 475301372) in Left Side Front compartment, plug the connector **"STOP RELAY"** into relay (P/N: 320355000).

Installing Chassis Harness (PACCAR)

CAN CONNECTIONS (Location: inside cab, left-side, under dashboard)

1. Route the **"CHASSIS CAN"** wires into cab through firewall to center of cab under dash.
2. Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN LOW"** green wire into GREEN wire coming from pin D on OBD-II.
3. Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN HIGH"** yellow wire into YELLOW wire coming from pin C on OBD-II.



Figure 25 - CAN Connection Wires

STROBE CONNECTIONS

1. Route the section **"STROBE"** on harness (P/N: 475300353) under hood.
2. Connect **"STROBE"** wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
3. Connect **"STROBE SYNC"** wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
4. **"ENGINE START"** not to be used for this application.

KEYPAD CONNECTIONS

1. If a keypad or LCD screen is located in the cab, route the **"C-KEYPAD"** through the firewall into cab and plug into back of keypad.
2. If an LCD screen, use adapter (P/N: 475300358) supplied with screen, plugging into **"PLUG B"**.

Installing Chassis Harness (PACCAR)

PTO CONNECTIONS

1. Install PTO harness per PTO manufacturer's instructions.
2. Route the **"PTO"** connector to area for PTO connections. This is either under dash or under cab.
3. Remove **"PTO"** Deutsch connector from harness and prepare wires 1 through 5 for the connections to follow.
4. Splice **"PTO-READY"** (BLUE/WHITE) wire to TCM output wire signaling transmission is ready to engage PTO solenoid. This is TCM pin 150 on 1000/2000 Allison Transmission; pin 130 for 3000/4000. The TCM is located on a cross member under the back of the cab.
5. Splice **"PTO-EN"** (YELLOW/GREEN) wire to TCM pin 143 wire that is to start engagement sequence.
6. Splice **"PTO-PRESS"** (GREEN) wire to PTO pressure switch wire.
7. Splice **"PTO"** (Orange) to PTO engage wire (typically red).
8. Splice **"PTO-READY-L"** (WHITE) wire to HIGH IDLE wire input. For a black Cummins engine use pin 5 on the EIC. For a Cummins red engine use pin 1 on the EIC. If there is no EIC, use pin 94-J2 of the ECU. Cummins part 2892507 can assist with this connection.
9. On PDM Gray connector, move wire from pin 8 to pin 5.

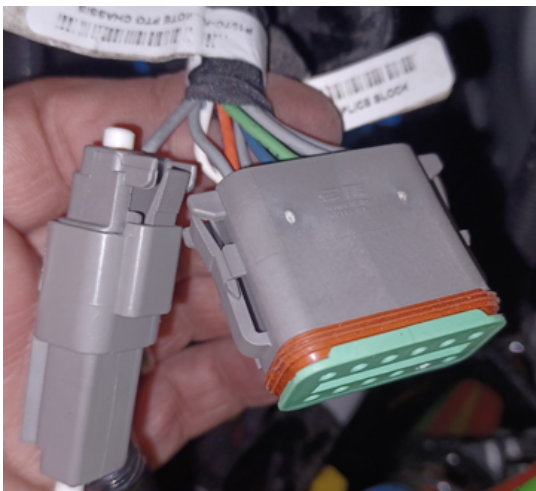


Figure 26 - High Idle Wire Connection



Figure 27 - View Of TCM

POWER CONNECTIONS

1. Route the power cables **"POWER"** and **"POWER AUX"** under driver side of cab and attach to chassis battery's positive post.
2. Plug the connector **"BLKHD-1-S"** to connector **"BLKHD-1-P"** on the body harness (P/N: 473300351 or 475301372).

Installing Chassis Harness (PACCAR)

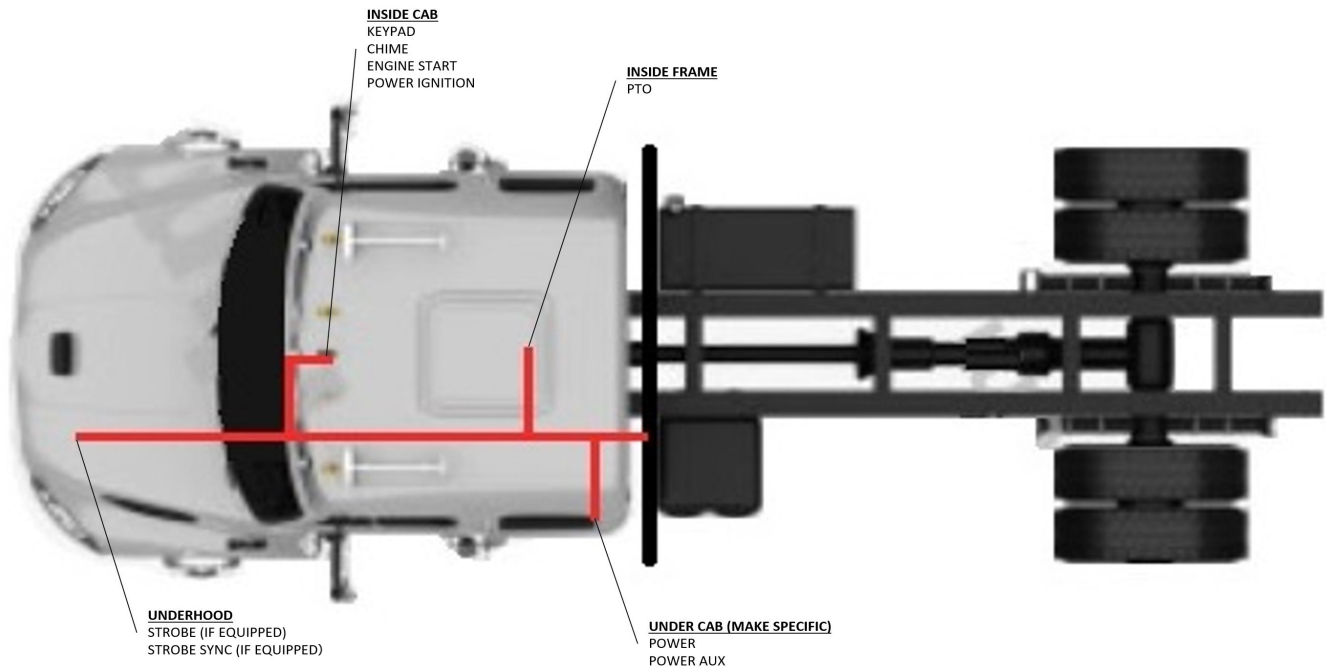
HIGH IDLE PROGRAMMING (For CUMMINS Engines only)

1. Use **"POWER SPEC"** software for programming the settings on the chassis.
2. Click on **"CONNECT"** to update to current application.
3. Click on **"DIRECT ENGINE EDIT"**.
4. Click on **"EDIT PRESET SETTING"** and go to **"ASSET UTILIZATION"**.
5. Change **"PTO SET ENGINE SPEED"** to **RPM***.
6. Change **"PTO RESUME ENGINE SPEED"** to **RPM***.
7. Change **"PTO ADDITIONAL SPEED SWITCH"** to **RPM***.
8. Change **"PTO ENGINE SPEED RAMP RATE"** to **RPM***.
9. Change **"PTO ENGINE REMOTE"** to **"ENABLE"** if not already enabled.
10. Change **"REMOTE PTO NUMBER OF SPEED SETTING"** to a value of 1.
11. Change **"REMOTE PTO SPEED SETTING ONE"** to **RPM***.
12. Click **"SAVE"**.
13. At this time enter the identification of the truck.
14. Click **"SAVE"** then click **"TRANSFER"**.
15. When changes have been successful click **"OK"**.
16. **RPM*** is based on PTO % and pump size.

NOTICE

During PDM programming, select PACCAR/INT.MV Update. See the Programming section for further instructions.

Installing Chassis Harness (International MV)



ENGINE CONNECTIONS

1. Note: Chassis will not start until full installation is complete. If chassis is required to be moved before installation is complete, place a jumper wire from pin 8 to pin 14 on bulkhead connection of chassis harness (P/N: 475300353).
2. Route the section of harness (P/N: 475300353) with Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground through the chassis firewall into cab near the passenger A pillar.
3. Access the ignition switch under the steering wheel. Splice **"POWER IGNITION"** wire to the wire coming from pin ACC on the ignition switch.
4. Further down from the previous splice, cut the wire from pin IGN and connect to the **"ENGINE STOP IN"** wire on the switch side.
5. Attach other side of the wire from pin IGN to the **"ENGINE STOP OUT"** wire on the truck side.

Installing Chassis Harness (International MV)

- Use high quality tap connector (example: posi-tap) to splice the **"ENGINE START"** wire to the pin T wire coming from the J6 connector of the BCM. This is located behind the driver side kick panel under the steering column.

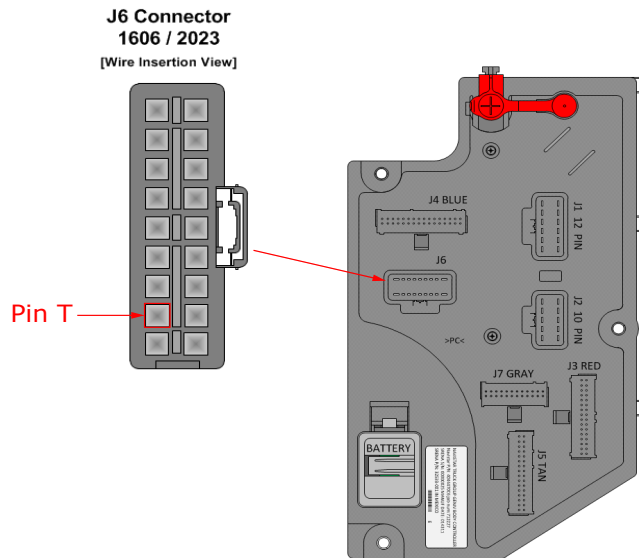


Figure 28 - View Of BCM

- Connect **"REMOTE CHIME"** wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
- On wiring harness (P/N: 475300351 or 475301372) in Left Side Front compartment, plug the connector **"STOP RELAY"** into relay (P/N: 320355000).

CAN CONNECTIONS (Location: inside cab, left-side, under dashboard)

- Route the **"CHASSIS CAN"** wires into cab through firewall to center of cab under dash.
- Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN LOW"** green wire into GREEN wire coming from pin D on OBD-II.
- Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN HIGH"** yellow wire into YELLOW wire coming from pin C on OBD-II.



Figure 29 - CAN Connection Wires

Installing Chassis Harness (International MV)

STROBE CONNECTIONS

1. Route the section "**STROBE**" on harness (P/N: 475300353) under hood.
2. Connect "**STROBE**" wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
3. Connect "**STROBE SYNC**" wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
4. "**ENGINE START**" not to be used for this application.

KEYPAD CONNECTIONS

1. If a keypad or LCD screen is located in the cab, route the "**C-KEYPAD**" through the firewall into cab and plug into back of keypad.
2. If an LCD screen, use adapter (P/N: 475300358) supplied with screen, plugging into "**PLUG B**".

PTO CONNECTIONS

1. Install PTO harness per PTO manufacturer's instructions.
2. Route the "**PTO**" connector to area for PTO connections. This is either under dash or under cab.
3. Remove "**PTO**" Deutsch connector from harness and prepare wires 1 through 5 for the connections to follow.
4. Splice "**PTO-READY**" (BLUE/WHITE) wire to TCM output wire signaling transmission is ready to engage PTO solenoid. This is TCM pin 150 on 1000/2000 Allison Transmission; pin 130 for 3000/4000. The TCM is located on a cross member under the back of the cab.
5. Splice "**PTO-EN**" (YELLOW/GREEN) wire to TCM pin 143 wire that is to start engagement sequence.
6. Splice "**PTO-PRESS**" (GREEN) wire to PTO pressure switch wire.
7. Splice "**PTO**" (Orange) to PTO engage wire (typically red).
8. Splice "**PTO-READY-L**" (WHITE) wire to HIGH IDLE wire input. For a black Cummins engine use pin 5 on the EIC. For a Cummins red engine use pin 1 on the EIC. If there is no EIC, use pin 94-J2 of the ECU. Cummins part 2892507 can assist with this connection.
9. On PDM Gray connector, move wire from pin 8 to pin 5.

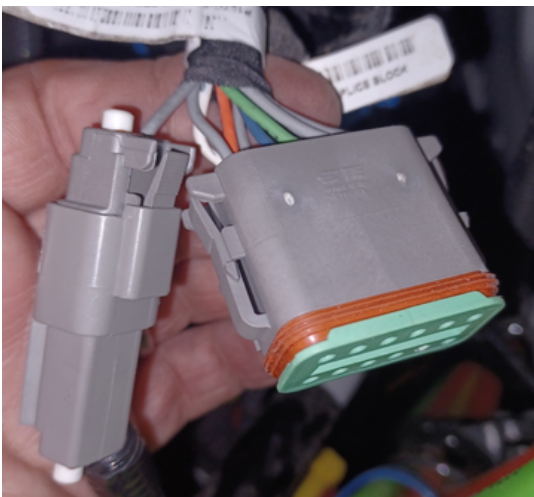


Figure 30 - High Idle Wire Connection



Figure 31 - View Of TCM

Installing Chassis Harness (International MV)

NOTICE

A Titan Connect software update can correct a common PTO communication problem. Contact customer support for latest software.

POWER CONNECTIONS

1. Route the power cables **"POWER"** and **"POWER AUX"** under driver side of cab and attach to chassis battery's positive post.
2. Plug the connector **"BLKHD-1-S"** to connector **"BLKHD-1-P"** on the body harness (P/N: 473300351 or 475301372).

HIGH IDLE PROGRAMMING (For CUMMINS Engines only)

1. Use **"POWER SPEC"** software for programming the settings on the chassis.
2. Click on **"CONNECT"** to update to current application.
3. Click on **"DIRECT ENGINE EDIT"**.
4. Click on **"EDIT PRESET SETTING"** and go to **"ASSET UTILIZATION"**.
5. Change **"PTO SET ENGINE SPEED"** to **RPM***.
6. Change **"PTO RESUME ENGINE SPEED"** to **RPM***.
7. Change **"PTO ADDITIONAL SPEED SWITCH"** to **RPM***.
8. Change **"PTO ENGINE SPEED RAMP RATE"** to **RPM***.
9. Change **"PTO ENGINE REMOTE"** to **"ENABLE"** if not already enabled.
10. Change **"REMOTE PTO NUMBER OF SPEED SETTING"** to a value of 1.
11. Change **"REMOTE PTO SPEED SETTING ONE"** to **RPM***.
12. Click **"SAVE"**.
13. At this time enter the identification of the truck.
14. Click **"SAVE"** then click **"TRANSFER"**.
15. When changes have been successful click **"OK"**.
16. **RPM*** is based on PTO % and pump size.

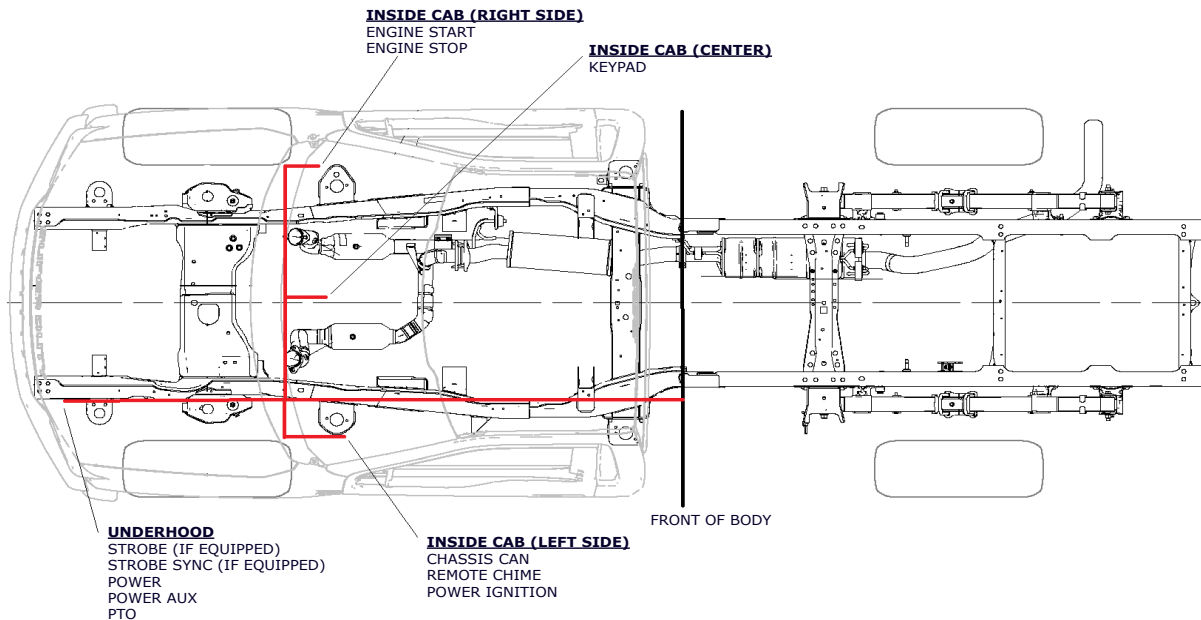
NOTICE

During PDM programming, select **PACCAR/INT.MV Update**. See the **Programming section** for further instructions.

Installing Chassis Harness (Ford F750)

NOTICE

This section only applies to Ford F750 Chassis. Reference other sections based on your chassis.



POWER TAKE-OFF (Location: under hood, left-side)

1. Install PTO harness per PTO manufacturer’s instructions except the switch.
2. Cut the wire coming from the Ford circuit “PTO REQ1” or circuit number “CE912” before switch. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-switch side of wire.
3. Cut the wire going to Ford circuit “PTO RELAY” or circuit number “CE326” at harness relay. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-relay side of wire.
4. Cut the wire going to solenoid from the PTO harness relay. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-relay side of wire.
5. Cut the wire going to the pressure switch at the PTO switch. Reference table below for wire color. Using one of the pins supplied with harness, crimp pin to the wire on the non-switch side of wire.
6. Insert pins into housing supplied with harness per the table below. Insert wedge after all pins are installed.

Pin	Function	Muncie Wire Color	Chelsea Wire Color	Cut Location	Connects To
1	PTO Ready	Blue/White	Blue/White	PTO Relay	PTO RELAY
2	PTO Enable	Yellow/Green	Yellow	PTO Switch	PTO REQ1
3	PTO Pressure	Green	Black	PTO Switch	PTO Pressure Switch
4	PTO	Orange	Red	PTO Relay	PTO Solenoid
5	Blank				
6	Blank				

Table 12 - PTO Connector Pinout

Installing Chassis Harness (Ford F750)

- Once complete, the PTO manufacturer's switch and relay can be removed. Reference schematic below for more details to PTO operation.



Trim and seal any loose wires. Serious damage or injury could result from wires shorting out.

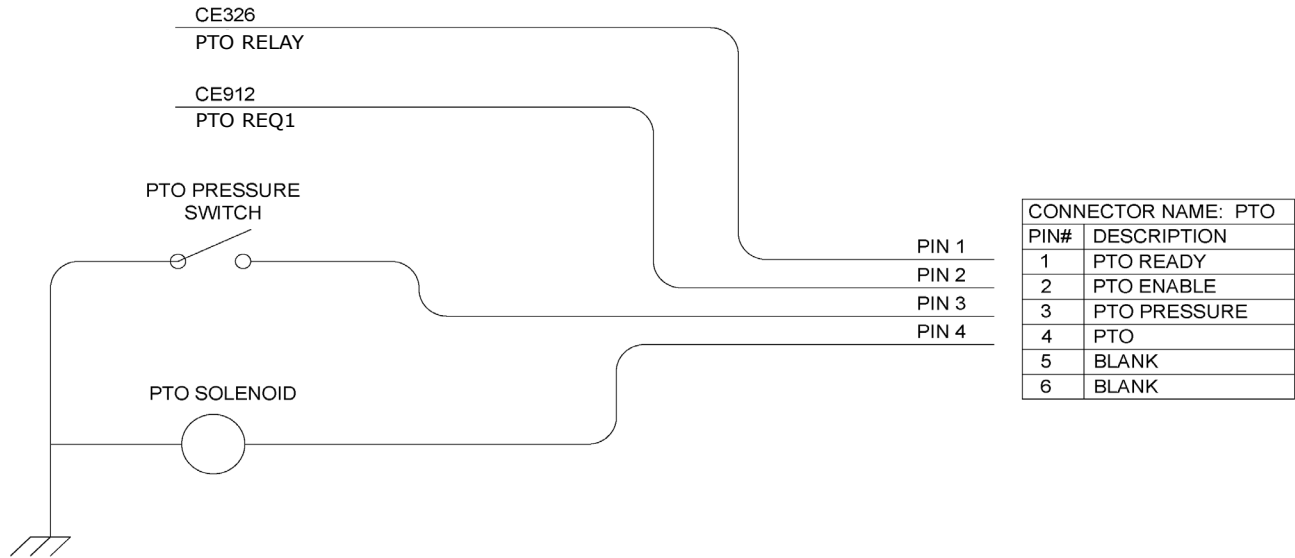


Figure 32 - PTO Activation Circuit

- Route the section of chassis harness (P/N: 475300353) with connector labeled "PTO" to location under hood and plug into housing defined in Figure 32.



Figure 33 - PTO Connector Location

Installing Chassis Harness (Ford F750)

ENGINE START/STOP (Location: inside cab, right-side, passenger A pillar)

1. Route the section of harness (P/N: 475300353) with Engine Stop In, Engine Stop Out, Remote Chime, Power Ignition, and Ground through the chassis firewall into cab near the passenger A pillar.
2. Remove kick panel of the passenger A pillar to access the Body Control Module (BCM).
3. Pull the sheath back a couple of inches from connector J1 to reveal wires.
4. Remove the connector cover from J1 to trace the wire on pin 14 beyond the cover in the circled area shown in Figure 36.
5. Use high quality tap connector (example: posi-tap) to splice the **"ENGINE START"** wire to the wire on connector C2280A pin 14 of the BCM.
6. Trace the wire on pin 12 of C2280 beyond the cover in the circled area as shown in Figure 36 and cut the wire.
7. Attach one side of the wire to the **"ENGINE STOP IN"** wire.
8. Attach other side of the wire to the **"ENGINE STOP OUT"** wire.
9. Plug the connector C2280A back into J1 on BCM.
10. Attach relay (P/N: 320355000) to control panel. Reference Figure 2 in this manual.
11. Plug the connector **"STOP RELAY"** into relay.

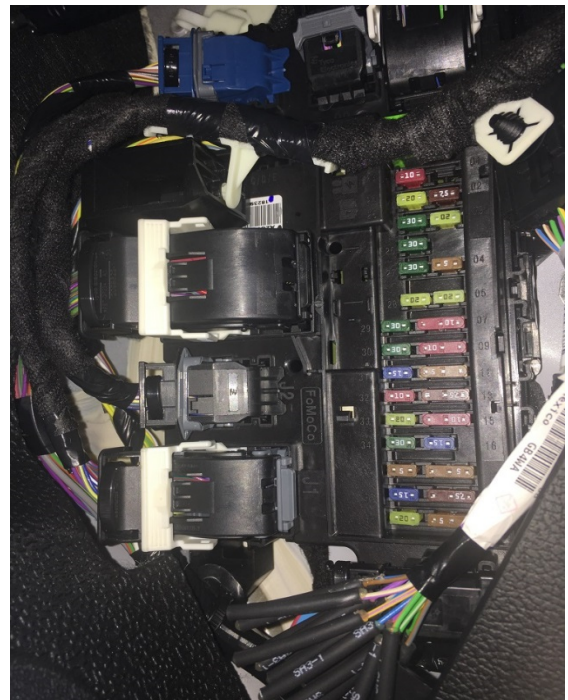
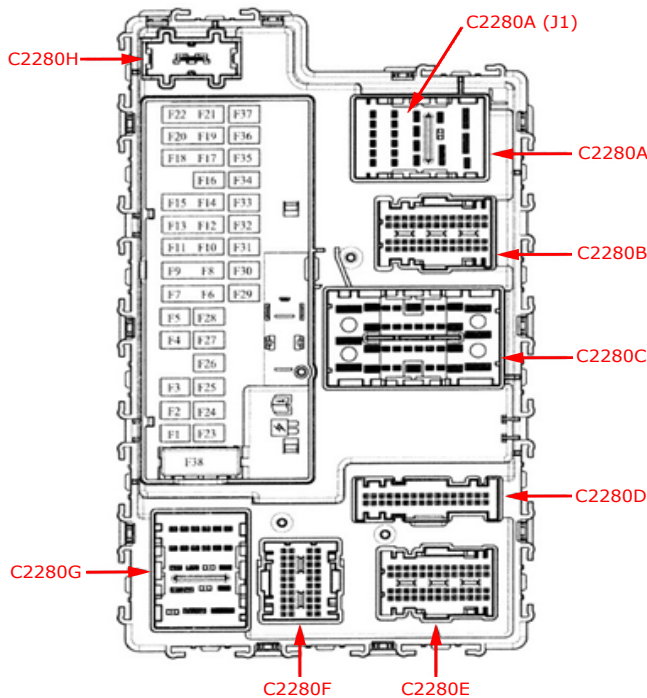


Figure 34 - Views of Body Control Module (BCM)

Installing Chassis Harness (Ford F750)

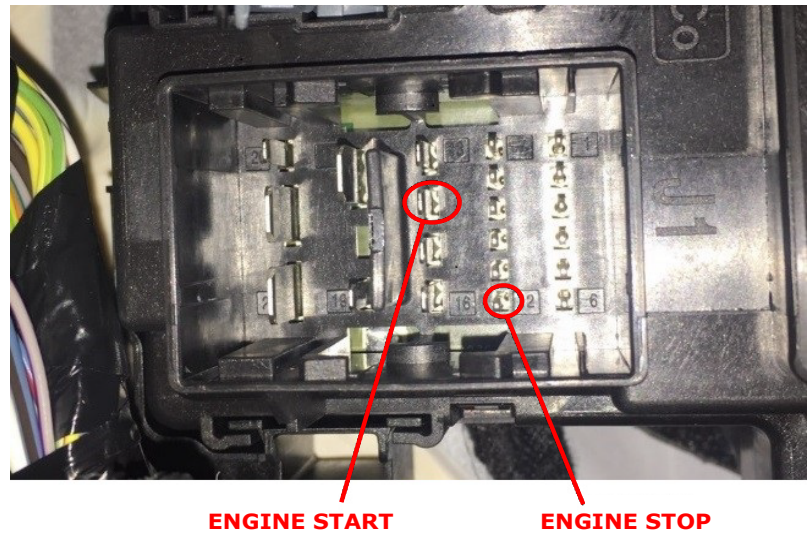
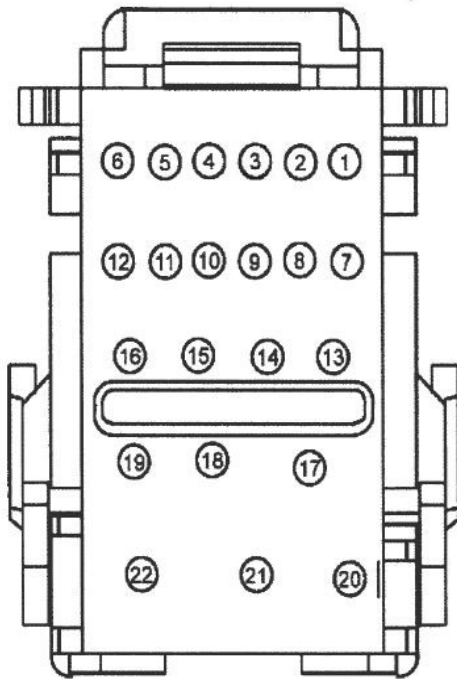


Figure 35 - Views of Connector

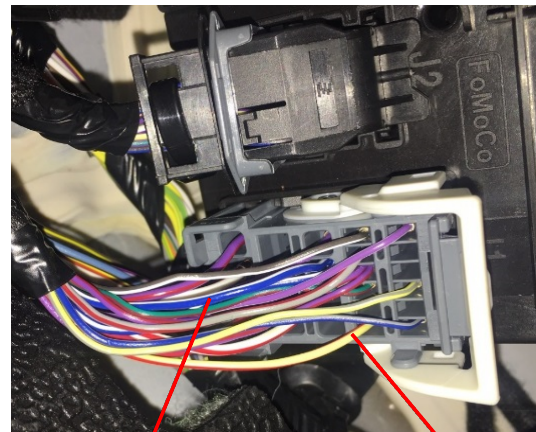
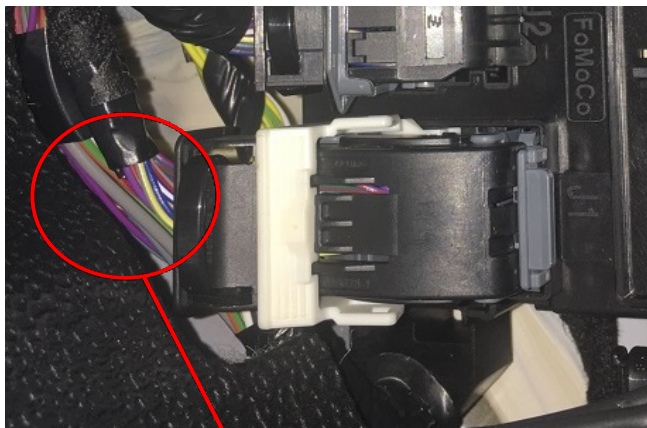


Figure 36 - Views of Splice Wires and Location

Installing Chassis Harness (Ford F750)

CAN CONNECTIONS (Location: inside cab, left-side, under dashboard)

1. Route **"CHASSIS CAN"** wires into cab through firewall to OBD connector located on the driver's side under dash.
2. Remove J1 Connector from the back of OBD connection point. Reference Figure 37 for view of connector.
3. Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN LOW"** green wire into white wire coming from pin 19.
4. Use high quality tap connector (example: posi-tap) to splice **"CHASSIS CAN HIGH"** yellow wire into blue wire coming from pin 20.
5. Reattach J1 connector back to the OBD connection point.



Figure 37 - OBD Connector Location

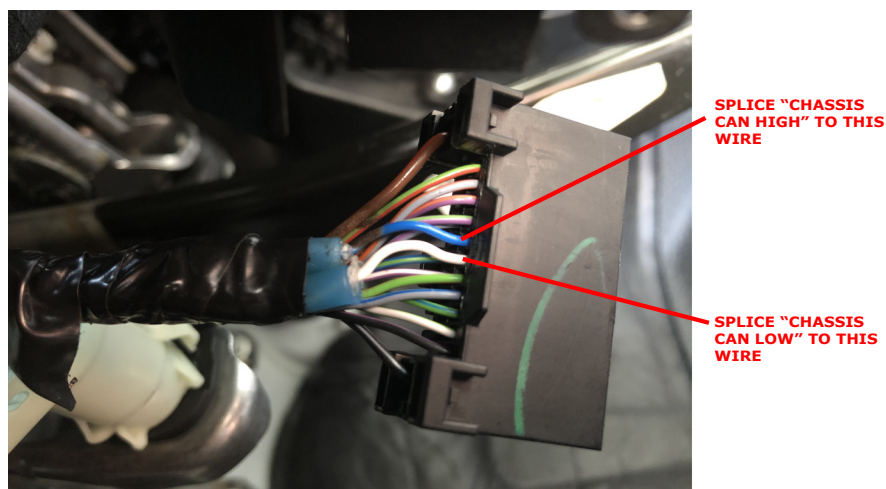


Figure 38 - CAN Splice Wires and Location

Installing Chassis Harness (Ford F750)

OTHER CONNECTIONS

1. Plug the connector **"BLKHD-1-S"** to connector **"BLKHD-1-P"** on the body harness (P/N: 473300351 or 475301372).
2. Run harness section with the wires **"Engine Start"**, **"Strobe"**, and **"Strobe Sync"** under hood. **Note: The "ENGINE START" wire on this harness section is not used.**
3. Connect **"STROBE"** wire to the strobe located on front of cab (if applicable). Reference strobe manufacturer's instructions for installation.
4. Connect **"STROBE SYNC"** wire to the strobe to synchronize strobes (if applicable). Reference strobe manufacturer's instructions for installation.
5. Connect **"REMOTE CHIME"** wire to the positive post of chime supplied with the remote cradle kit. Chime will need to be grounded as well. Chime is generally mounted under dash in the cab.
6. Connect **"GROUND"** wire to a ground located in the cab.
7. If a keypad or LCD screen is located in the cab, route the **"C-KEYPAD"** through the firewall into cab and plug into back of keypad. If a LCD screen, use adapter supplied with screen.
8. Route the power cables **"POWER"** and **"POWER AUX"** under hood and attach to chassis battery's positive post.
9. Connect **"POWER IGNITION"** wire to Upfitter Switch 1 found in the customer access circuit harness under the driver's side dash. Wire tag UPFIT RLY 1.

NOTICE

During PDM programming, select Ford Update. Do not select Ford 2023 Update. See the Programming section for further instructions.

Programming

NOTICE

To change parameters of the Titan Connect system, a dealer service kit is required. The kit includes a 5" LCD Screen, a programming cable, and a keypad/LCD adapter harness. The kit part number is 475300361.

Connecting Service Tool

1. Plug the LCD screen adapter into any keypad connector. The keypad connectors are located in the following locations: right side front compartment near the PDM, crane box compartment, inside cab near center of dashboard.
2. Plug the LCD screen into the adapter. Use Port B for the adapter connector. Use Port A for the programming cable.

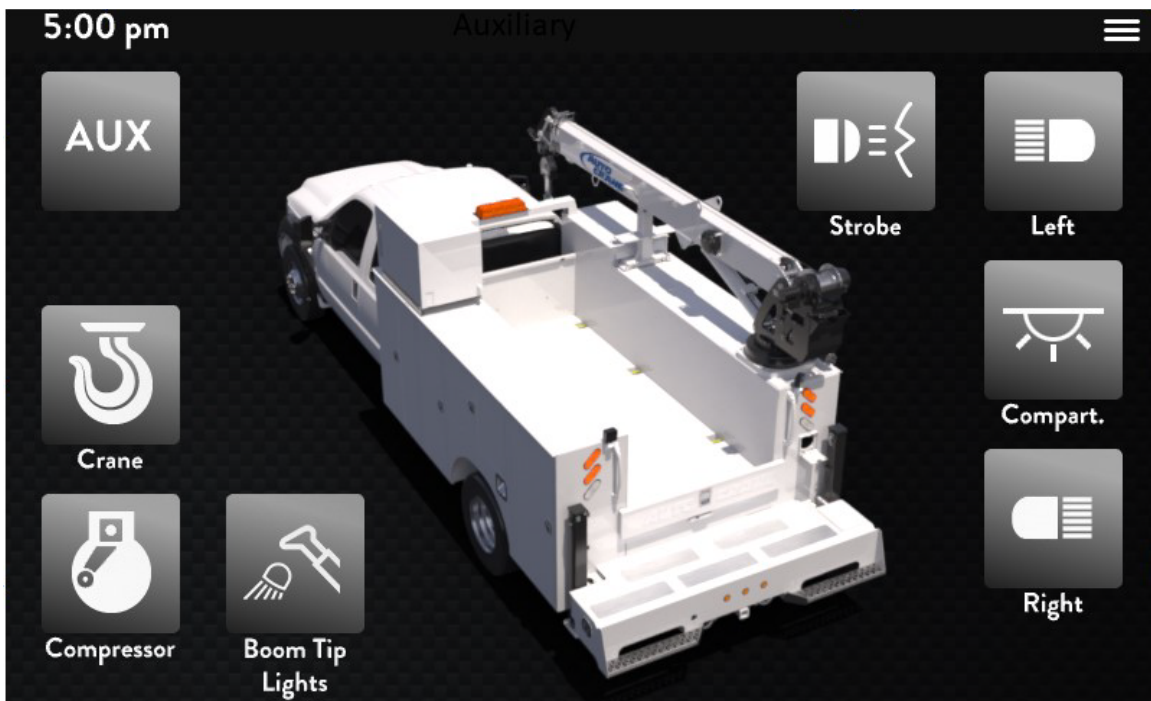


Figure 39 - Main Screen View

Initial Set-Up

1. On the main screen, select the three bars found in the upper right corner. This will bring up the Settings menu. Reference Figure 39.
2. Select General under the Settings menu. Once in the General menu, scroll to the bottom and select the Restricted Settings option. This will bring up a number keypad to enter the dealer code for access to the program parameters. Enter 9442, or 9191 if made before October 2021.
3. Once the access code has been entered, the correct chassis software for the Titan Connect system will need to be uploaded to the PDM. Reference Figures 40 through 44 which show the screen navigation for uploading the chassis software with descriptions. See individual chassis sections for which Make Update to install.

Programming

- Once the chassis software has been set, additional programmable parameters can be viewed and set. A full list of screen navigation can be seen in Tables 13 through 18. **NOTE: Once finished, make sure to exit "Restricted Settings" by retyping access code.**

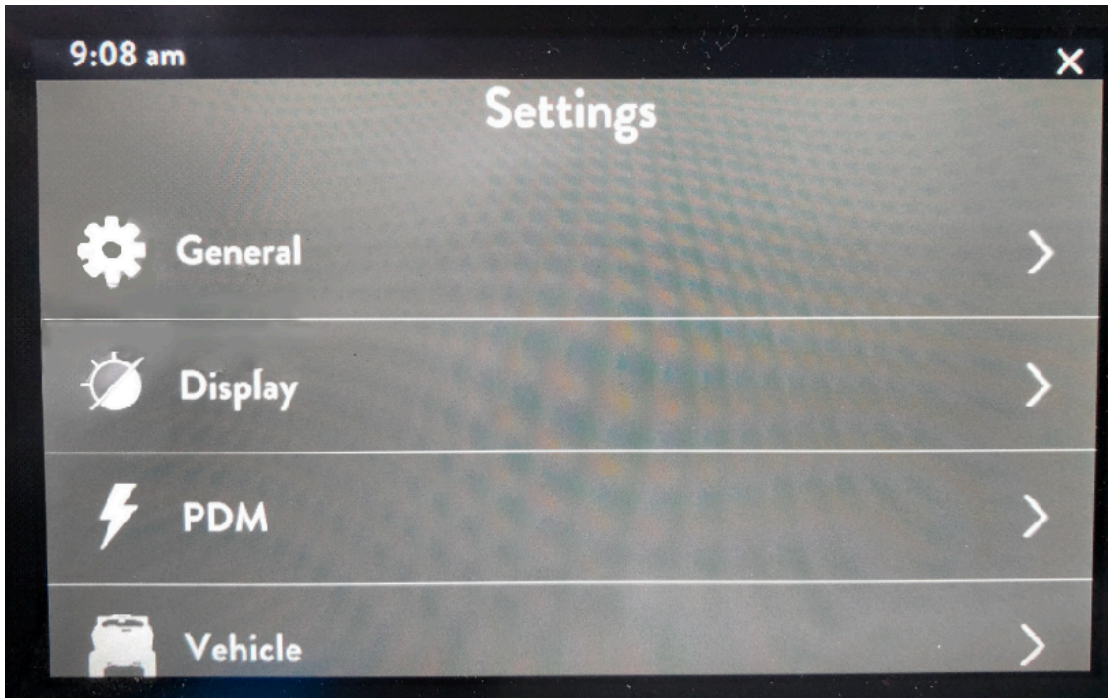


Figure 40 - Setting Screen

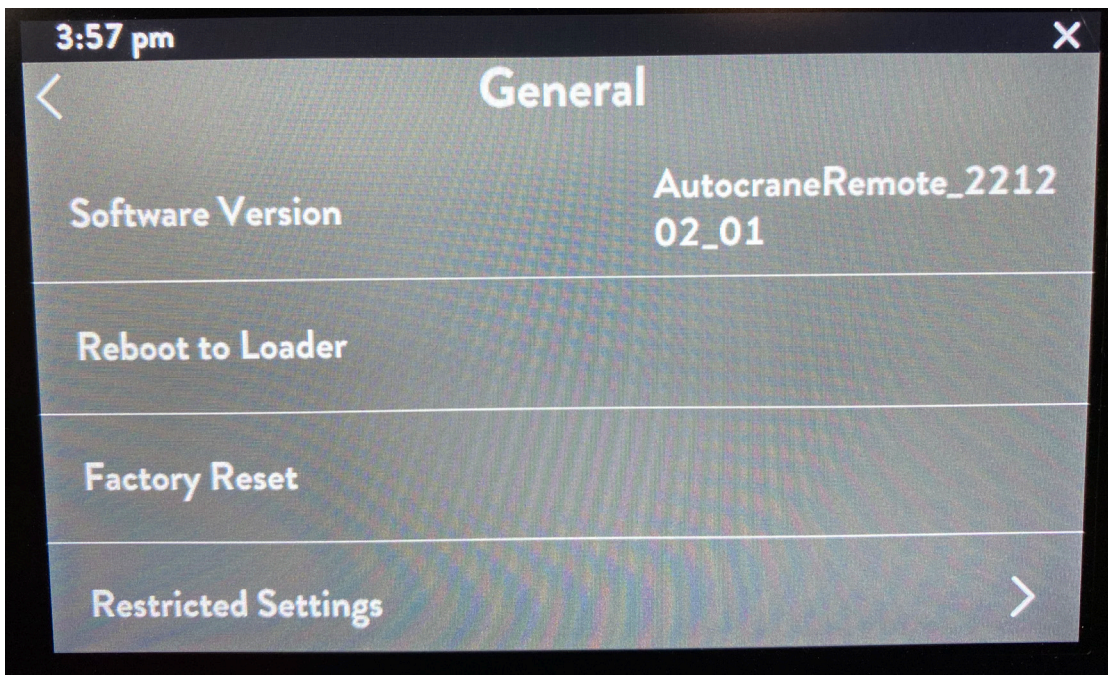


Figure 41 - Restricted Settings

Programming

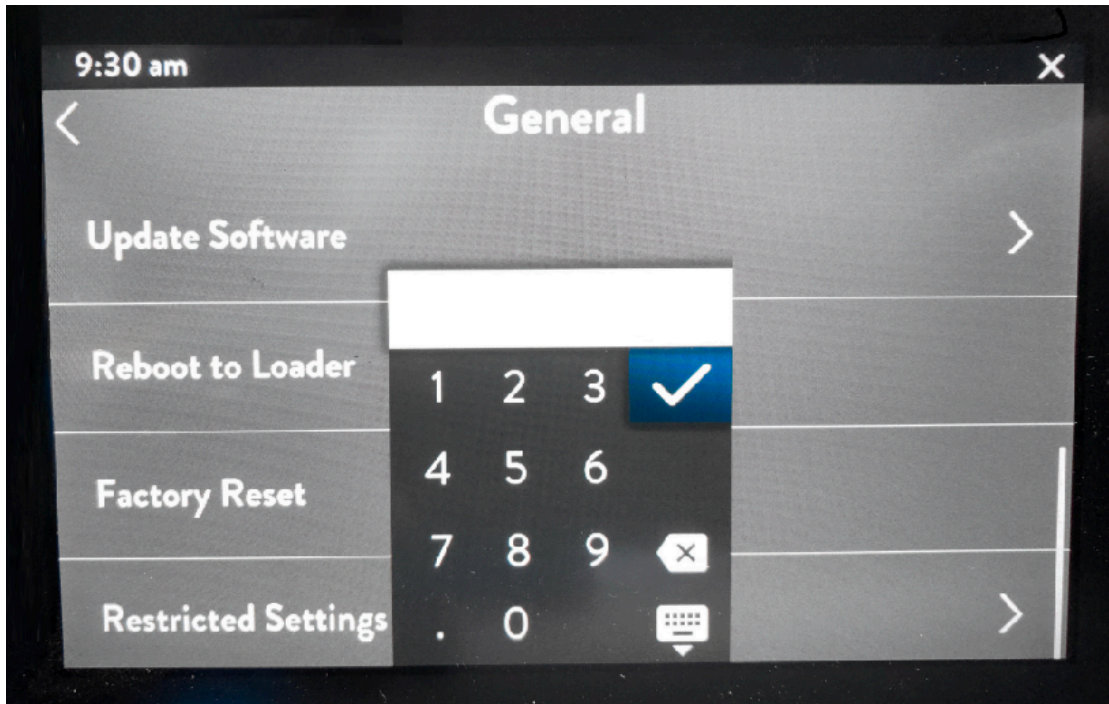


Figure 42 - Restricted Access Screen

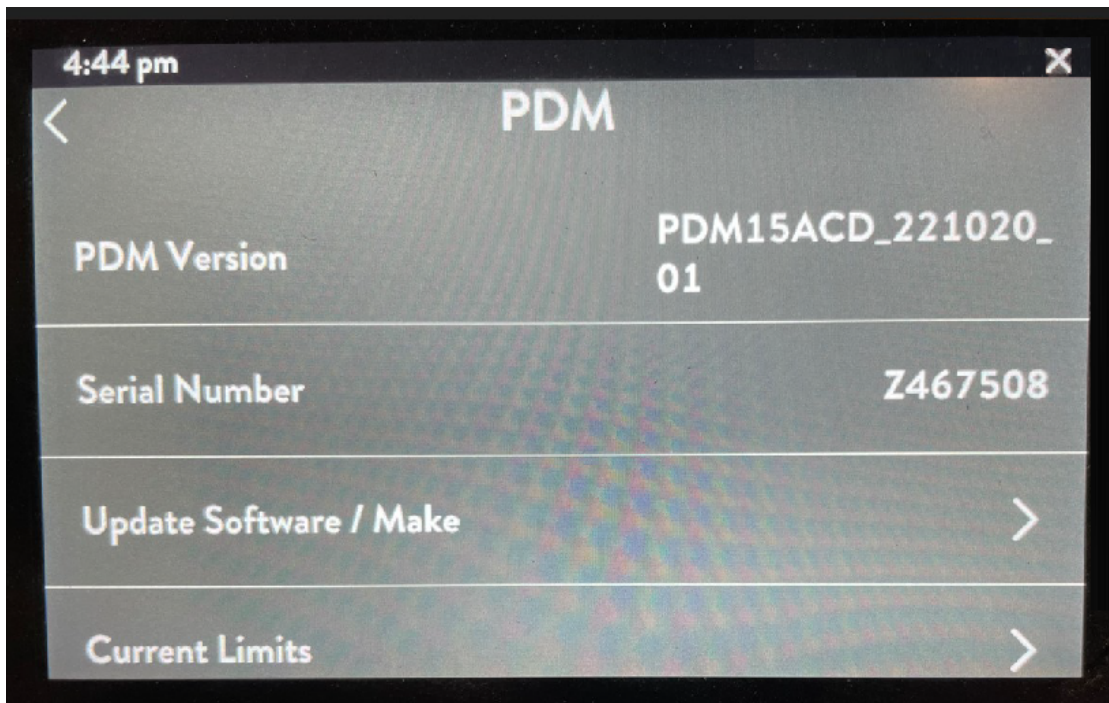


Figure 43 - PDM Settings

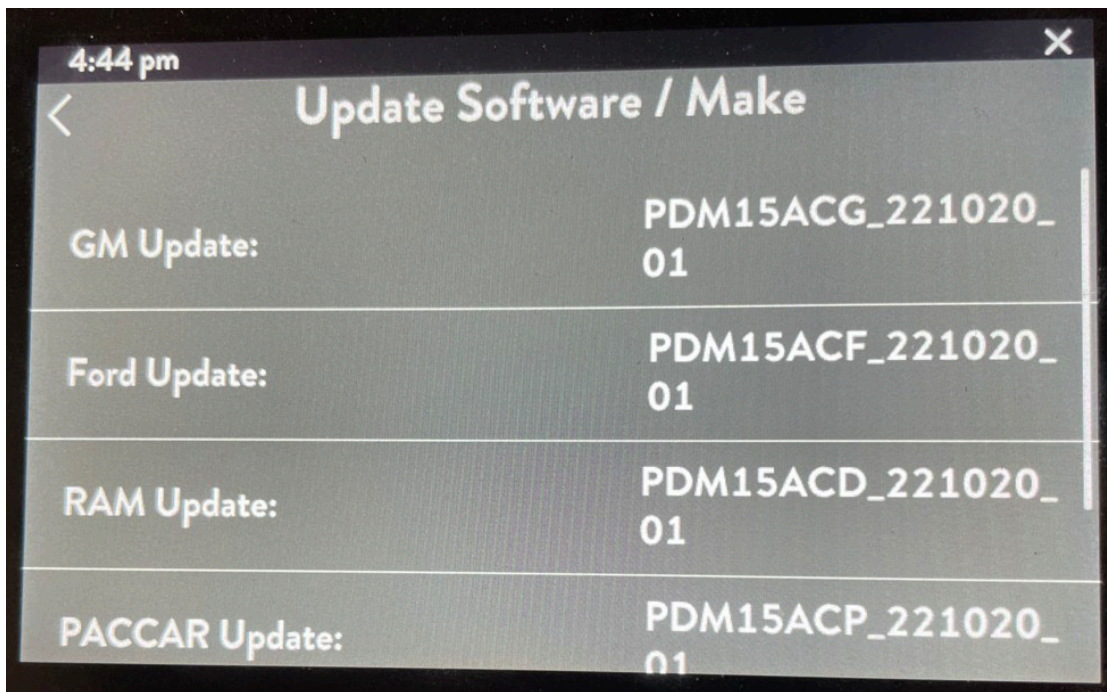


Figure 44 - Chassis Software Upload

Label	Description
General	Goes to the General menu. Reference table 14
Display	Goes to the Display menu. Reference table 15
PDM	Goes to the PDM menu. Reference table 16
Vehicle	Goes to the Vehicle menu. Reference table 17

Table 13 - Settings Menu

Label	Description
Units	US Customary or Metric
Language	English Only
Clock	Goes to the clock menu. Reference table 18
Software Version	Gives current software version loaded to LCD screen information
Reboot to Loader	Updates software using a USB stick and the programming cable supplied with Dealer service kit. Contact Auto Crane for software update procedures.
Factory Reset	Takes Titan Connect system back to original settings
Debug	Used for debugging software
Restricted Settings	For user level code input

Table 14 - General Menu

Programming

Label	Description
Brightness	Press minus button to decrease screen brightness. Press plus to increase screen brightness. (0 to 99)

Table 15 - Display Menu

Label	Description
PDM Version	Displays Software version loaded on PDM
Serial Number	Displays Unique Serial Number for PDM
Update Software/Make	For loading chassis specific portion of software
Current Limits	Change output current limits (amps)
Event Log	Selections to view, export or clear logs

Table 16 - PDM Menu

Label	Description
Power On Demand	Displays whether Power On Demand is Enabled/Disabled
Outrigger Stowage Time	Time after crane function deactivated before PTO disables (in seconds)
Hour Meters	Display hour meters for multiple outputs
Crane Timeout	Time of crane inactivity before vehicle PTO disengages (in seconds)
Compressor Type	Select compressor type: Piston or Rotary
Compressor Timeout	Time of compressor inactivity before vehicle PTO disengages (in seconds)
Ignition Activation Time (RAM)	Length of time for engine start sequence
Idle Timeout	Time of engine idle before vehicle engine turns off (in minutes)
Work Lights Position	Select configuration of Left/Right or Front/Rear

Table 17 - Vehicle Menu

Label	Description
Use GPS Time	Uses the time from the GPS signal
Set Hour	Type in the current hour
Set Minute	Type in the current minute
12 Hour Time	Changes between 12hr or 24 hr mode
Set Day	Type in the current day
Set Month	Type in the current month
Set Year	Type in the current year

Table 18 - Clock Menu

Updating LCD Software

1. Plug the LCD adapter into any keypad connection point. If LCD screen is already installed, skip to step 3.
2. Plug the adapter into port B of the LCD screen.
3. Plug the programming cable into port A of the LCD screen. Then connect the flash drive holding the software update.
4. Once the home screen is visible, select the three bars found in the upper right corner. This will bring up the Settings menu.
5. Select General, then scroll to the bottom and select Reboot to Loader.
6. The screen will flash and reach a screen prompting to select a file. Use the up and down arrows to select the update file.
7. Confirm with the green button, then the orange button.
8. The LCD screen will install the update. The process takes a little over two minutes and will progress through multiple loading bars. Once complete the LCD screen will reboot and reach the home screen.
9. Select the three bars in the upper right corner.
10. Select General, and then scroll down to Software Version.
11. Confirm the version code listed is the same as the update file.
12. Once the LCD is confirmed to be updated, the updated chassis specific software can be uploaded to the PDM. See Initial Set-Up and the chassis specific instructions for details.

NOTICE

Contact Auto Crane customer support for software updates. Updates occur every few months. Check your software version in the General menu (see Table 14). For example, 221020_01 translates to October 20th, 2022, release 01.

NOTICE

Not all flash drives are compatible. Typically, older flash drives work better. FAT32 formatting is require. If the LCD screen freezes on a black screen, the flash drive is not compatible.

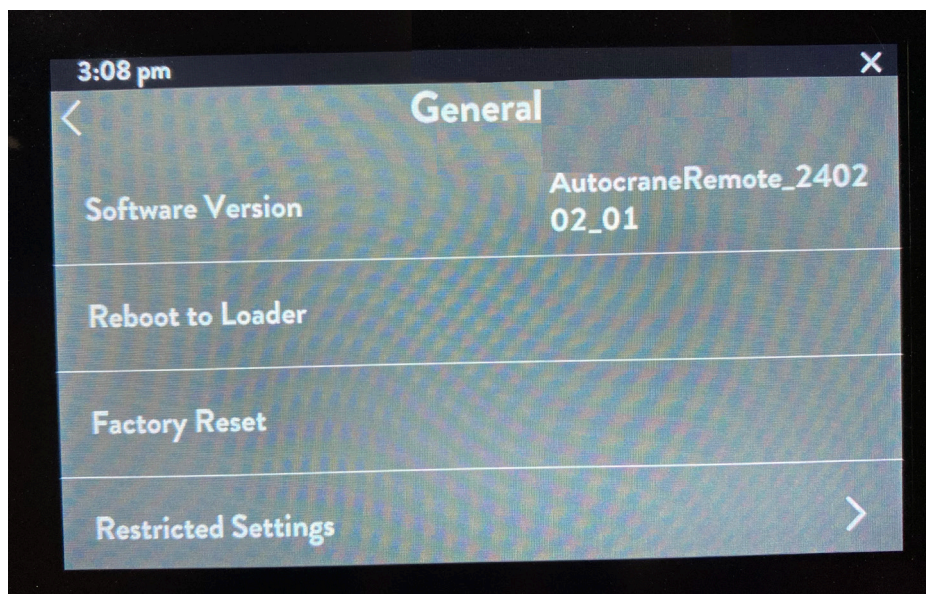


Figure 45 - Reboot to Loader / Software Version

Programming

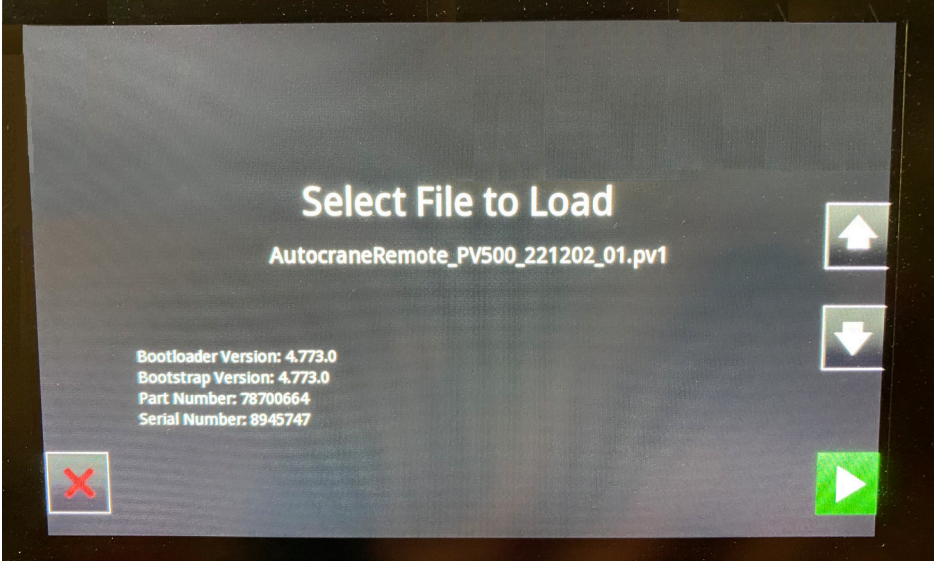


Figure 46 - Prompt Screen

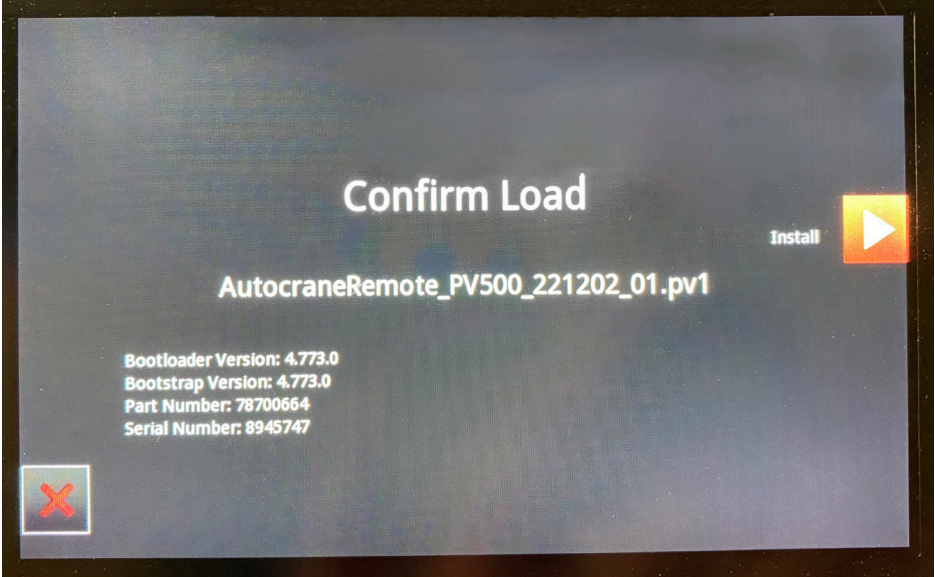


Figure 47 - Confirm Screen

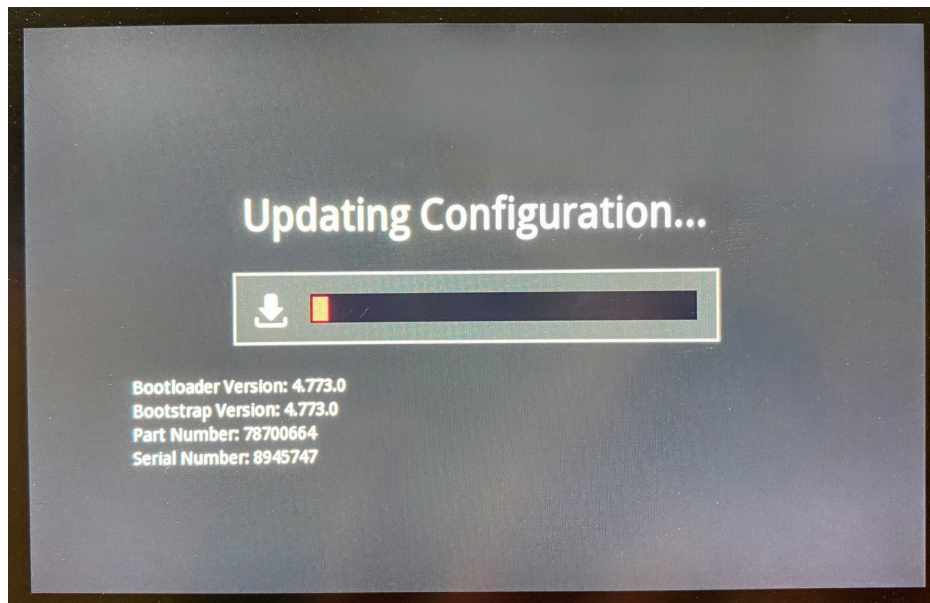


Figure 48 - Loading Screen

Event Logs

1. Plug the LCD adapter into any keypad connection point. If LCD screen is already installed, skip to step 3.
2. Plug the adapter into port B of the LCD screen.
3. Plug the programming cable into port A of the LCD screen. Then connect the flash drive.
4. Once the home screen is visible, select the three bars found in the upper right corner. This will bring up the Settings Menu.
5. Select General, then scroll to the bottom and select the Restricted Settings options.
6. Once the keypad is visible, enter 9442 (or 9191 if made before October 2021). Entering the code will return you to the Settings main menu.
7. Select the PDM menu, then navigate to Event Log.
8. Before running a scenario, select Clear Log.
9. Run your scenario.
10. After running scenario, select View Log or Export Log from the Event Log menu.
11. The Event Log file is in CSV file format. This can be viewed in Excel or other spreadsheet applications.

NOTICE

Not all flash drives are compatible. Typically, older flash drives work better. FAT32 formatting is required. If the LCD screen freezes on a black screen, the flash drive is not compatible.

Programming

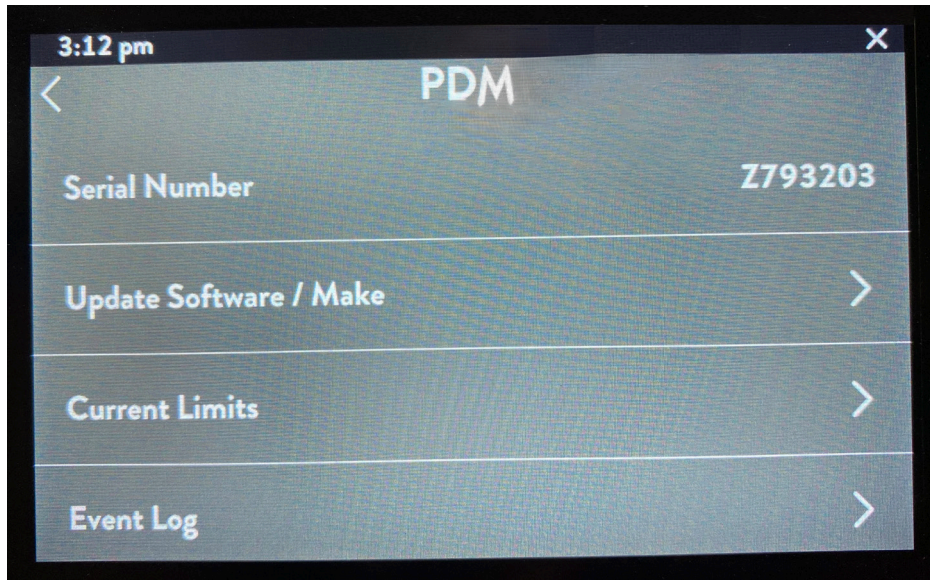


Figure 49 - Event Log

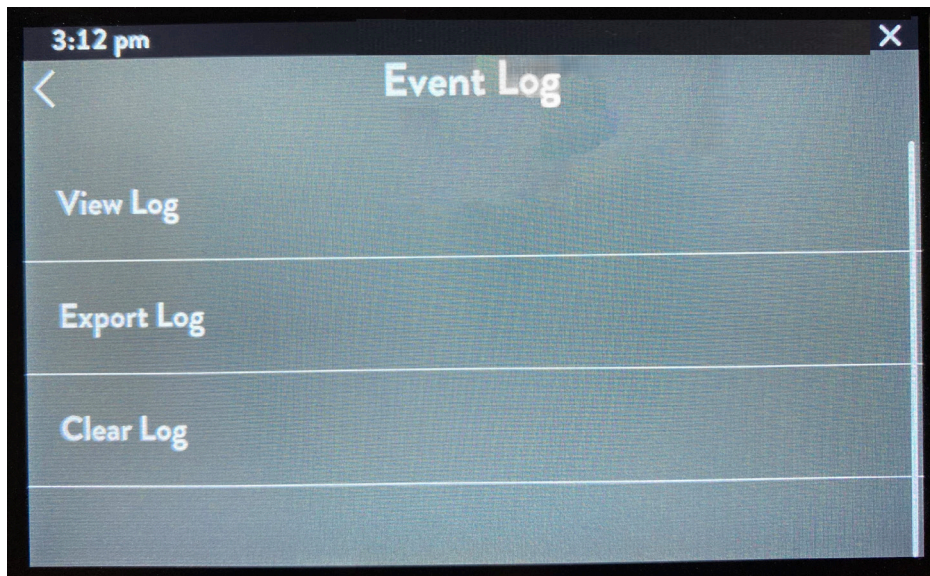


Figure 50 - Event Log Menu

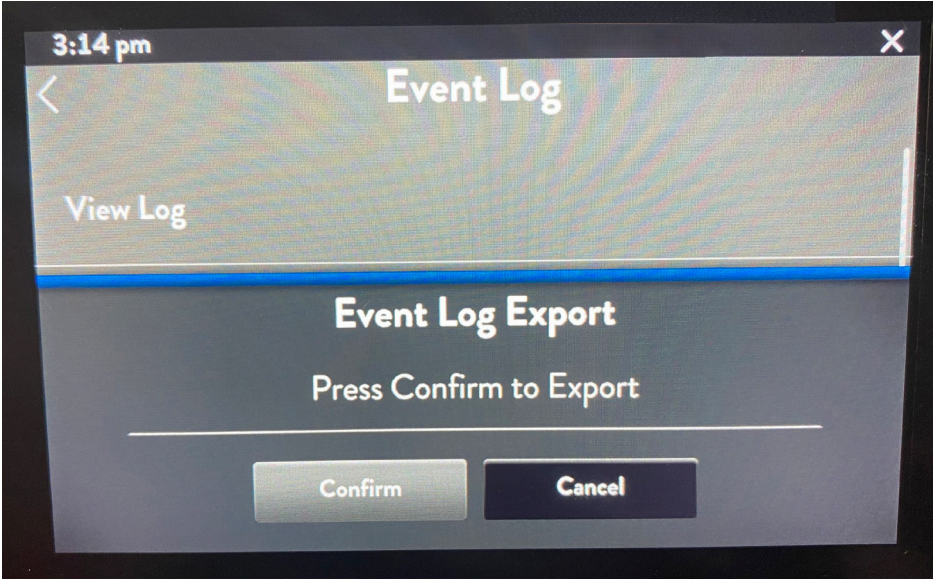


Figure 51 - Event Log Export

Service Part Diagrams

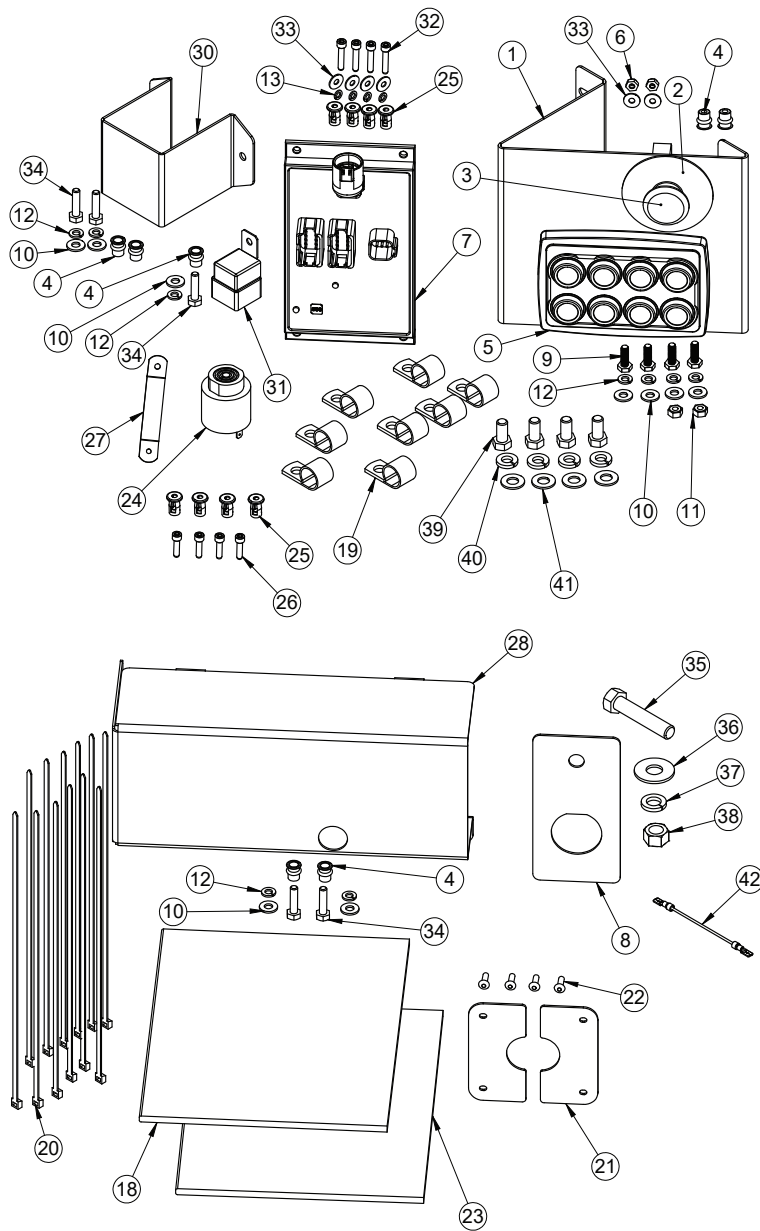


Figure 52 - Titan Connect Kit (475300350)

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	475300332	BRACKET, KEYPAD MOUNTING (REMOVABLE)
2	1	475300336	DECAL, E-STOP
3	1	475300335	SWITCH, E-STOP MUSHROOM (RED)
4	7	736272000	NUTSERT 1/4-20UNC X .027-.165 GRIP
5	1	475300313	KEYPAD, 8 BUTTON, TITAN CONNECT

Service Part Diagrams

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
6	2	015800000	NUT HX NYLK #10-32UNF GR3 ZP
7	1	475300337	PDM, TITAN CONNECT
8	1	475300312	BRACKET, BULKHEAD CONNECTOR
9	4	005500000	SCREW HX HD 1/4UNC X 3/4 GR5
10	9	020400000	WASHER FL SAE 1/4
11	2	015900000	NUT HX 1/4-20UNC SS
12	9	020200000	WASHER SP LK 1/4
13	4	019800000	WASHER SP LK #10
14	1	475300351	HARNESS, LEFT SIDE TITAN CONNECT
15	1	475300352	HARNESS, RIGHT SIDE TITAN CONNECT
16	1	475300353	HARNESS, CHASSIS FRONT TITAN CONNECT
17	1	475300354	HARNESS, S/T/T TITAN CONNECT
18	1	475300399	MANUAL, INSTALLATION TITAN CONNECT
19	8	480024000	MOUNT PENDANT CABLE RETAINER
20	12	634401000	TIE, CABLE-MEDIUM
21	2	752222200	PANEL HALF, HARNESS GROMMET COVER
22	4	754028000	RIVET POP 3/16 DIA X 1/4 - 3/8 GRIP SS
23	1	475300389	OPERATIONS MANUAL, TITAN CONNECT
24	1	739171106	CHIME, 12VDC 65-75dB, SCREW
25	8	366823462	RIVET, #10-24 JACKNUT
26	4	460094001	SCREW, SOC HD, #10-24 X 3/4"L, ZPL
27	1	366823463	WRENCH, #10 JACKNUT FRICTION
28	1	475300345	PDM JACKET, TITAN CONNECT
29	2	752222100	PANEL BLANK, HARNESS OPENING
30	1	475300375	CONNECTOR PROTECTOR, TITAN CONNECT
31	1	320355000	RELAY, BOSCH
32	4	460094000	SCREW, SOC HD, #10-24 X 1"L, ZPL
33	6	020000000	WASHER FL #10 ZP
34	5	005604000	SCREW HX HD 1/4-20UNC X 1 LG
35	1	011609000	SCREW 1/2 X 2 1/2NC GR5
36	1	021600000	WASHER FL 1/2
37	1	021500000	WASHER, SP LK 1/2
38	1	017701000	NUT HX 1/2-13UNC
39	4	008400000	SCREW HX HD 3/8-16UNC X 3/4 LG GR 5
40	4	021100000	WASHER SP LK 3/8
41	4	021200000	WASHER FL 3/8
42	1	475300359	JUMPER, ENG STOP RELAY

Service Part Diagrams

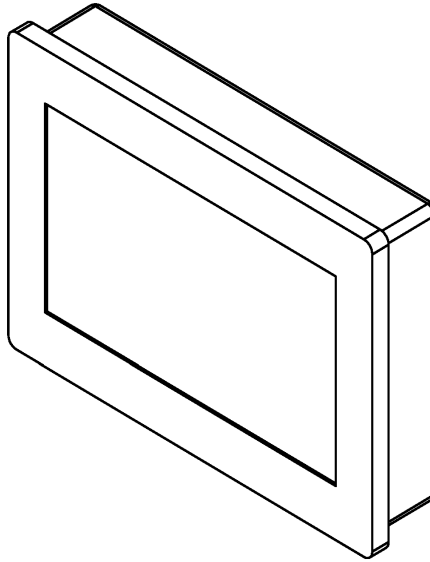
Part Number	Description
475300351	HARNESS, LEFT SIDE TITAN CONNECT
475300352	HARNESS, RIGHT SIDE TITAN CONNECT
475300353	HARNESS, CHASSIS FRONT TITAN CONNECT
475300354	HARNESS, S/T/T TITAN CONNECT
475300312	BRACKET, BULKHEAD CONNECTOR
480024000	P-CLAMP
634401000	TIE, CABLE-MEDIUM
475301372	HARNESS, LEFT SIDE TITAN CONNECT 14'
475301373	HARNESS, RIGHT SIDE TITAN CONNECT 14'

Table 19 - Harness Components



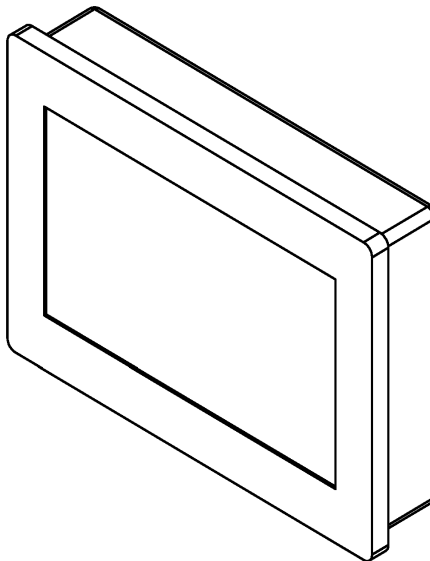
**Figure 53 - Decal, Automatic Start/Stop
Auto Crane Part Number - 475300363**

P/N: 475300338 - LCD SCREEN KIT



Item No	Qty	Part Number	Description
1	1	475300358	ADAPTER, KEYPAD/SCREEN
2	1	475300314	DISPLAY, 5" TOUCHSCREEN, TITAN CONNECT
3	1	475300315	ASSY, RAM MOUNT, DOUBLE SOCKET ARM

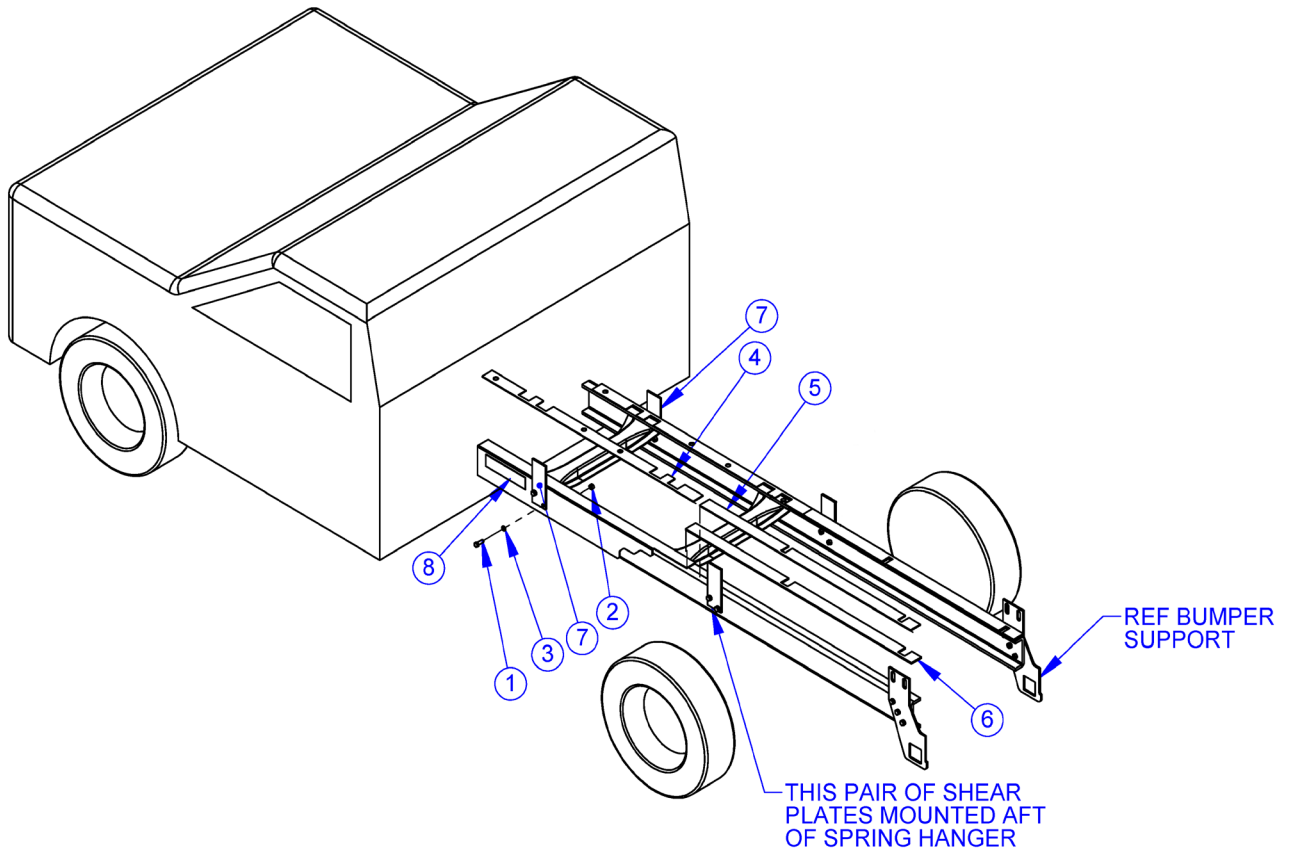
P/N: 475300361 - DEALER SERVICE KIT



Item No	Qty	Part Number	Description
1	1	475300358	ADAPTER, KEYPAD/SCREEN
2	1	475300314	DISPLAY, 5" TOUCHSCREEN, TITAN CONNECT
3	1	475300339	CABLE, PROGRAMMING TITAN CONNECT

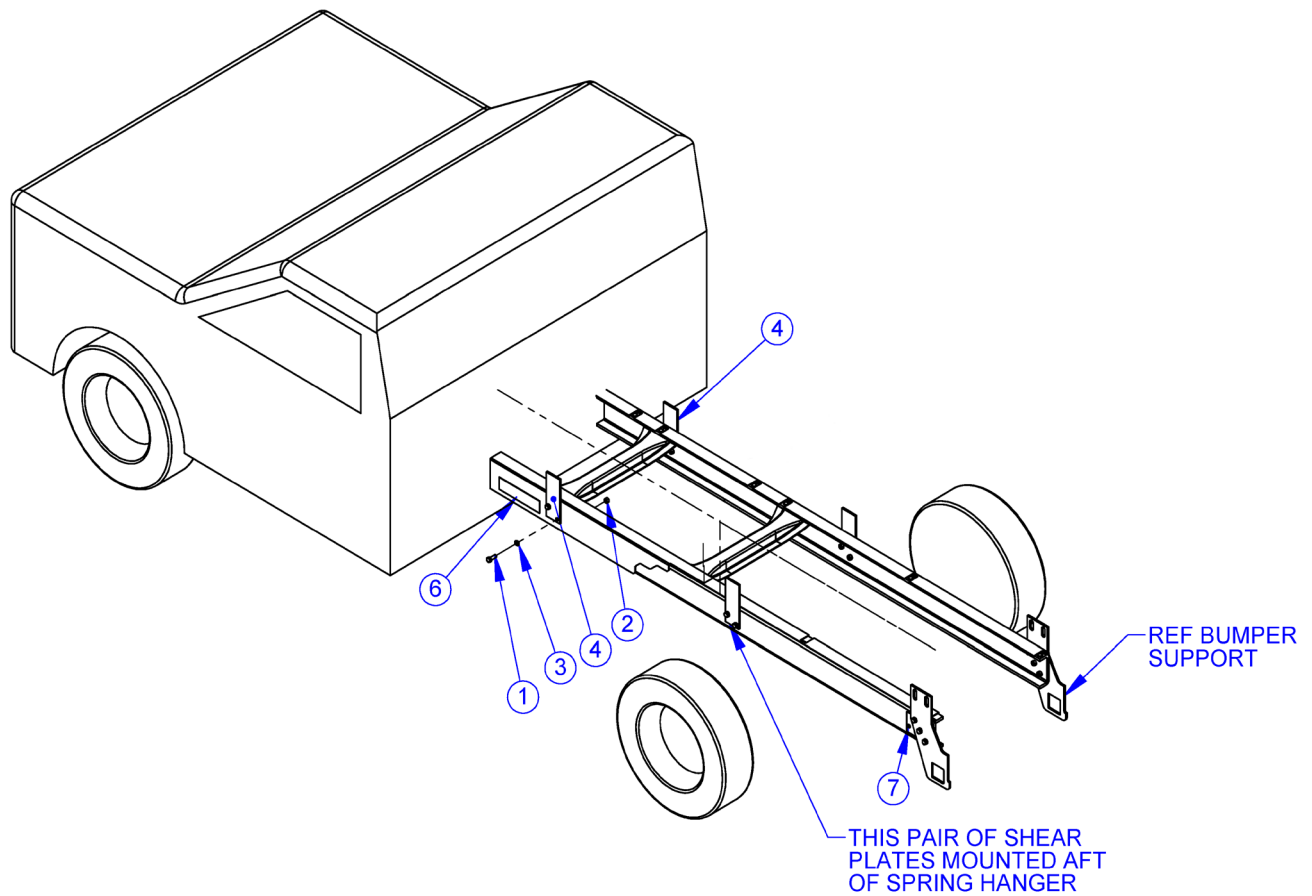
Accessories

P/N: 560579001 - FORD CHASSIS TITAN CONNECT KIT



Item No	Qty	Part Number	Description
1	14	12198000	SCREW HX HD 5/8-11UNC X 1 3/4 LG GR 8
2	14	18301000	NUT HX 5/8 NCCP
3	14	23800000	WASHER SP LK 5/8
4	2	560520000	FRAME SPACER #1
5	2	560521000	FRAME SPACER #2
6	2	560522000	FRAME SPACER #3
7	4	560578000	PLATE 3/8 X 4 X 11 LG
8	6	760006001	SHIM, 12 INCH
9	1	475300355	HARNESS, TAIL LIGHT FORD
10	1	320355000	RELAY, BOSCH
11	2	560578001	SPACER, 2-1/2 X 3-1/2 X 3/8"

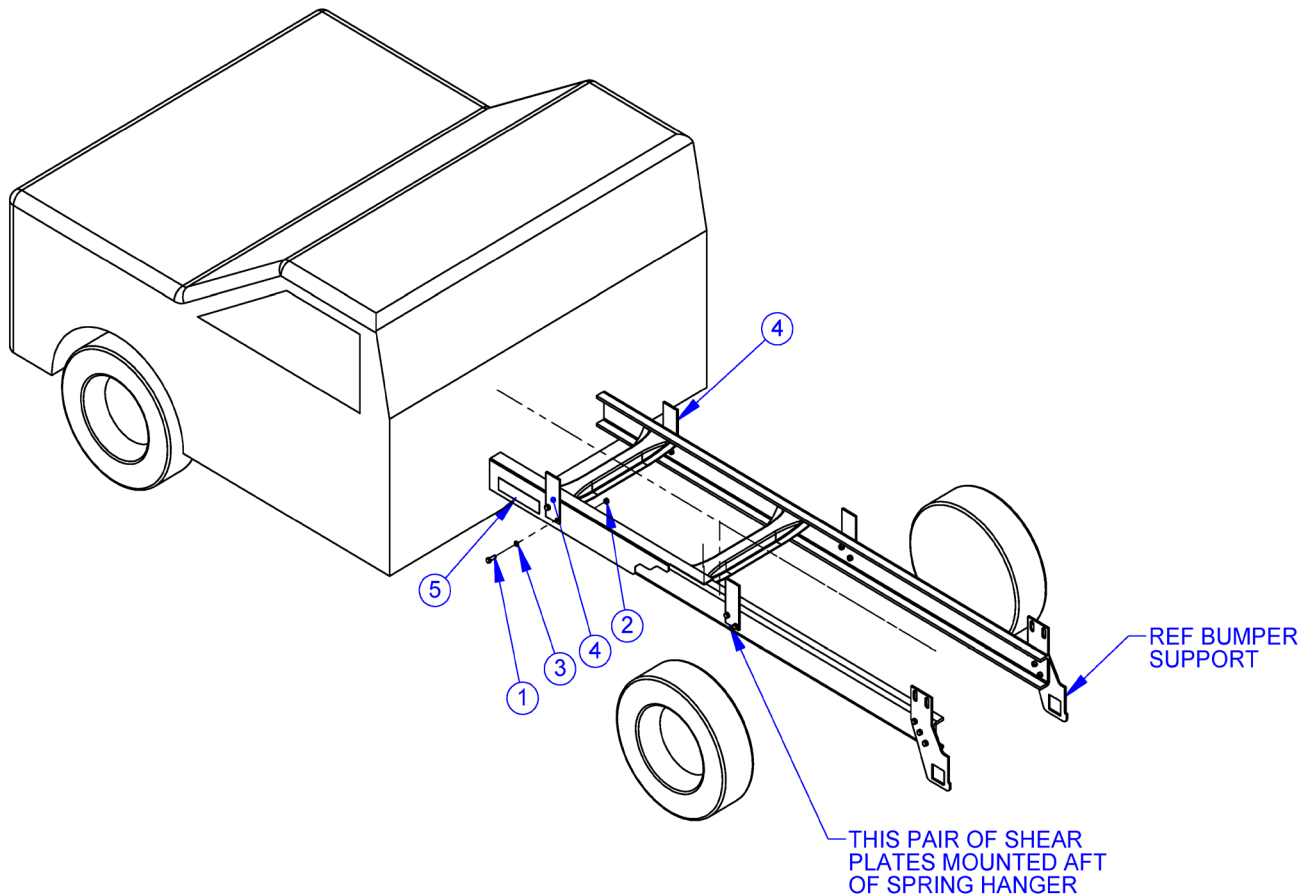
P/N: 560579101 - RAM CHASSIS TITAN CONNECT KIT



Item No	Qty	Part Number	Description
1	14	12198000	SCREW HX HD 5/8-11UNC X 1 3/4 LG GR 8
2	14	18301000	NUT HX 5/8 NCCP
3	14	23800000	WASHER SP LK 5/8
4	4	560578000	PLATE 3/8 X 4 X 11 LG
5	2	725065100	FRAME CHASSIS SPACER (RAM)
6	6	760006001	SHIM, 12 INCH
7	6	760006002	SHIM, RAM
8	1	475300359	JUMPER, ENG STOP RELAY
9	1	475300356	HARNESS, TAIL LIGHT RAM

Accessories

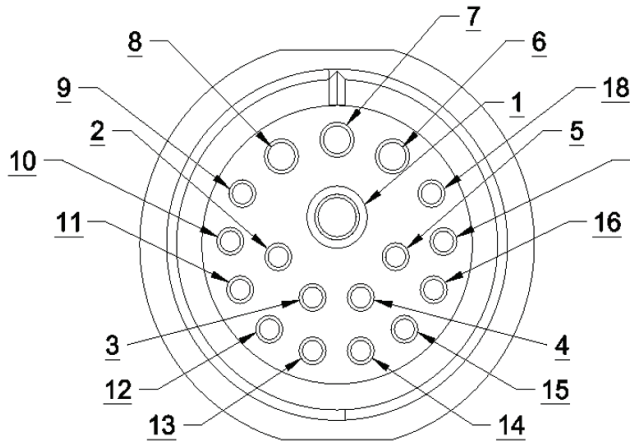
P/N: 560579201 - CHEVY/INTERNATIONAL CHASSIS TITAN CONNECT KIT



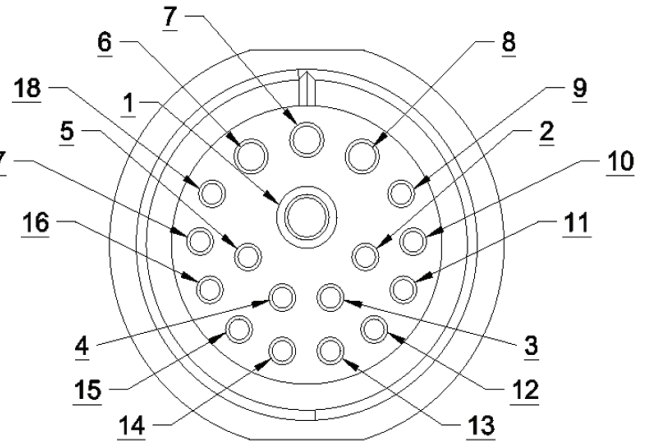
Item No	Qty	Part Number	Description
1	14	12198000	SCREW HX HD 5/8-11UNC X 1 3/4 LG GR 8
2	14	18301000	NUT HX 5/8 NCCP
3	14	23800000	WASHER SP LK 5/8
4	4	560578000	PLATE 3/8 X 4 X 11 LG
5	6	760006001	SHIM, 12 INCH
6	1	475300357	HARNESS, TAIL LIGHT CHEVY
7	1	475300362	WIRE, CHEVY/INTL FAST IDLE
8	1	475300376	WIRE, UPFITTER SWITCH, GM/INTERNATIONAL
9	1	476300377	HARNESS CONNECTOR, UPFITTER SWITCH GM/INTERNATIONAL

Pinouts

Note: For pinouts that appear in multiple places, the leading characters identify their location on the body. These characters will appear as Xs in the below pinouts.



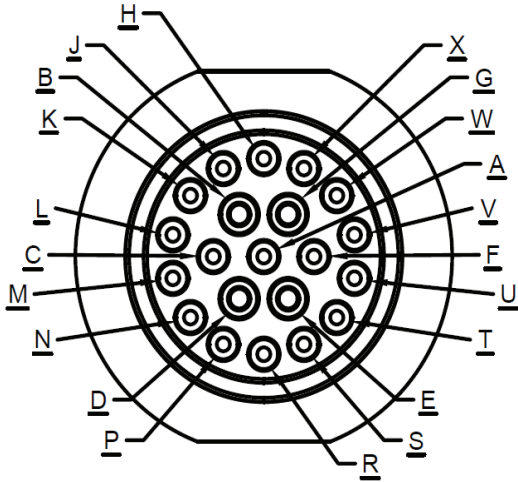
BACK OF CONNECTOR BLKHD-1-P



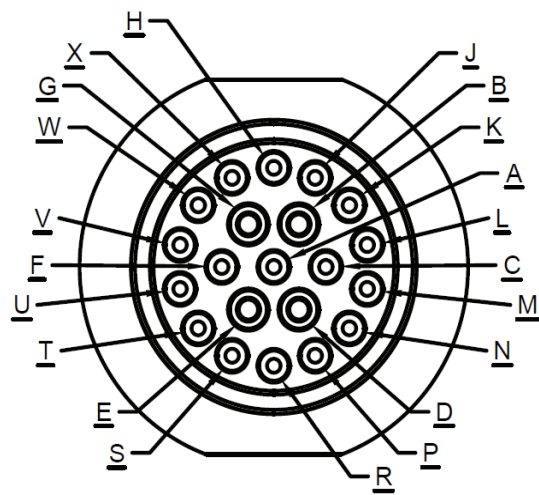
BACK OF CONNECTOR BLKHD-1-S

CONNECTOR NAME: BLKHD-1-P/BLKHD-1-S				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	POWER	PWR	RED	6
2	PTO	PTO	ORANGE	18
3	PTO READY	PTO-READY	BLUE/WHT	18
4	PTO ENABLE	PTO-EN	YEL/GRN	18
5	PTO PRESSURE	PTO-PRESS	GREEN	18
6	POWER AUXILIARY	PWR-AUX	RED	10
7	ENGINE START	ENG-START	WHITE	18
8	ENGINE STOP IN	ENG-STOP-I	WHITE	18
9	REMOTE CHIME	CHIME	WHITE	18
10	CHASSIS CAN HIGH	CAN2-HI	YELLOW	20
11	CHASSIS CAN LOW	CAN2-LO	GREEN	20
12	STROBE	STROBE	RED	16
13	POWER IGNITION	PWR-IGN	WHITE	18
14	ENGINE STOP OUT	ENG-STOP-O	WHITE	18
15	PTO READY LOW SIDE	PTO-READY-L	WHITE	18
16	STROBE SYNC	STROBE-SYNC	WHITE	18
17	BODY CAN HIGH	CAN1-HI	YELLOW	20
18	BODY CAN LOW	CAN1-LOW	GREEN	20

Pinouts

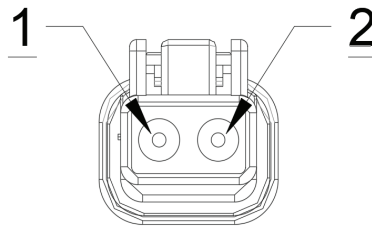


BACK OF CONNECTOR BLKHD-RSR



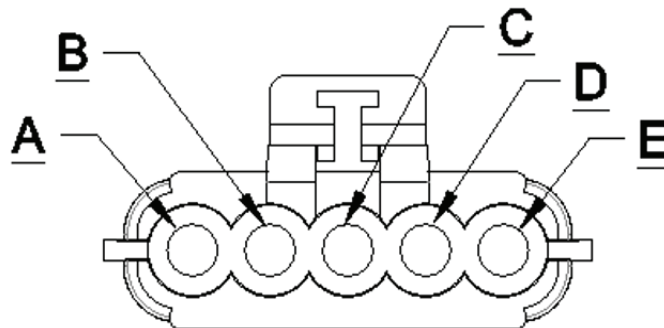
BACK OF CONNECTOR BLKHD-RSS

CONNECTOR NAME: BLKHD-RSR/BLKHD-RSS				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
A	WORKLIGHT RS REAR	LT-WK-RH-R	WHITE	16
B	COMPARTMENT LIGHTS2	LT-COMP2	RED	14
C	MARKER LIGHT	LT-MKR	BROWN	18
D	GROUND	GND	BLACK	10
E	STROBE SYNC	STROBE-SYNC	WHITE	18
F	CAVITY PLUG			
G	POWER AUXILIARY	PWR-AUX	RED	18
H	WORKLIGHT LS FRONT	LT-WK-LH-F	RED	16
J	BOOM TIP LIGHTS	LT-CRANE	GRN/BLK	18
K	OUTRIGGER STOW	OR-STOW	WHITE	18
L	REMOTE CRADLE	CRADLE	WHITE	18
M	E-STOP	E-STOP	WHITE	16
N	BODY CAN HIGH	CAN1-HI	YELLOW	20
P	BODY CAN LOW	CAN1-LO	GREEN	20
R	SPARE OUT 1	SPARE1	WHITE	18
S	CRANE	CRANE	RED	16
T	POWER IGNITION	PWR-IGN	WHITE	18
U	STROBE	STROBE	RED	16
V	BOOM STOW	BOOM-STOW	WHITE	20
W	CAVITY PLUG			
X	CAVITY PLUG			



BACK OF CONNECTOR FLOW

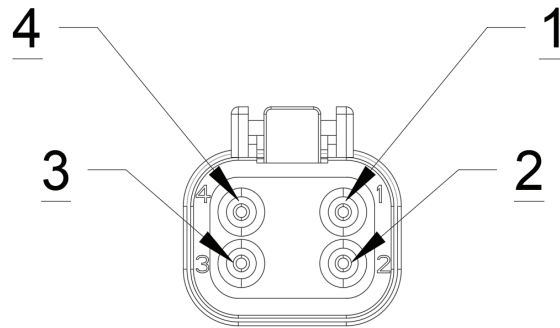
CONNECTOR NAME: FLOW				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	FLOW DIVERTER	FLOW	RED	18
2	GROUND	GND	BLACK	18



BACK OF CONNECTOR COMPRESSOR

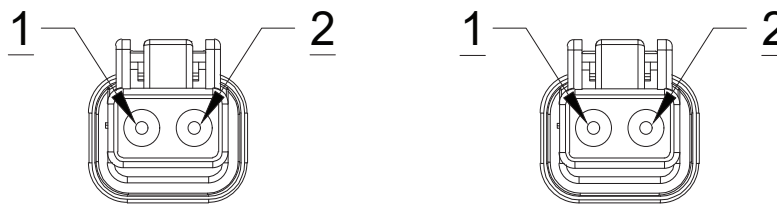
CONNECTOR NAME: COMPRESSOR				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
A	POWER AUXILIARY	PWR-AUX	RED	10
B	CAVITY PLUG			
C	COMPRESSOR	COMP	LIGHT BLUE	14
D	COMP. DEMAND	COMP-DMND	YELLOW	14
E	GROUND	GND	BLACK	10

Pinouts



BACK OF CONNECTOR XX-STROBE

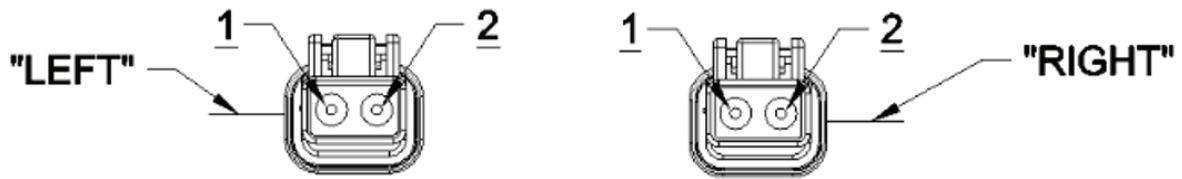
CONNECTOR NAME: XX-STROBE				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	STROBE	STROBE	RED	16
2	CAVITY PLUG			
3	STROBE SYNC	STROBE-SYNC	WHITE	18
4	GROUND	GND	BLACK	16



BACK OF CONNECTOR XX-LT-WK

CONNECTOR NAME: XX-LT-WK				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	WORKLIGHT LS FRONT	LT-WK-LH-F	RED	18
2	GROUND	GND	BLACK	18

CONNECTOR NAME: XX-LT-WK				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	WORKLIGHT RS REAR	LT-WK-RH-R	WHITE	18
2	GROUND	GND	BLACK	18

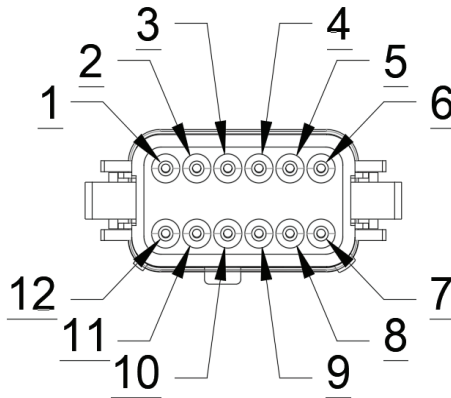


**BACK OF CONNECTOR XX-LT-WK
(CONFIGURABLE FOR FRONT/REAR OR LEFT/RIGHT)**

CONNECTOR NAME: XX-LT-WK				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	WORKLIGHT LS FRONT	LT-WK-LH-F	RED	18
2	GROUND	GND	BLACK	18
BLUNT	WORKLIGHT RS REAR	LT-WK-RH-R	WHITE	18

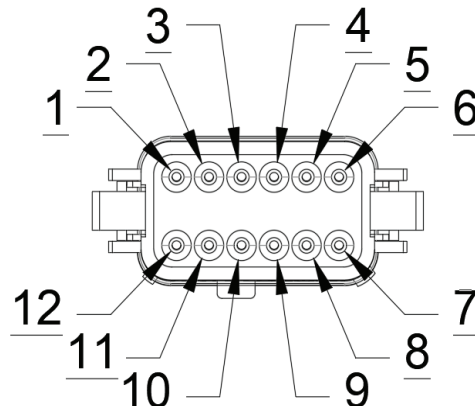
CONNECTOR NAME: XX-LT-WK				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	WORKLIGHT RS REAR	LT-WK-RH-R	WHITE	18
2	GROUND	GND	BLACK	18
BLUNT	WORKLIGHT LS FRONT	LT-WK-LH-F	RED	18

Pinouts



BACK OF CONNECTOR L1-PDM-J1 (GRAY)

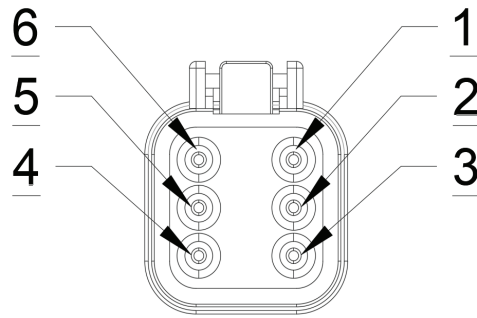
CONNECTOR NAME: L1-PDM-J1					
PIN #	DESCRIPTION	PDM I/O	CIRCUIT	COLOR	AWG
1	ENGINE START	LC OUTPUT 1	ENG-START	WHITE	18
2	PTO ENABLE	LC OUTPUT 2	PTO-EN	YEL/GRN	18
3	PTO	LC OUTPUT 3	PTO	ORANGE	18
4	ENGINE STOP	LC OUTPUT 4	ENG-STOP	WHITE	18
5	CAVITY PLUG	LC OUTPUT 5			
6	PTO READY	TRI-STATE INPUT 1	PTO-READY	BLU/WHT	18
7	PTO PRESSURE	TRI-STATE INPUT 2	PTO-PRESS	GREEN	18
8	PTO READY LOW SIDE	TRI-STATE INPUT 3	PTO-READY-L	WHITE	18
9	CAVITY PLUG	TRI-STATE INPUT 4			
10	CHASSIS CAN LOW	CAN 2 L	CAN2-LO	GREEN	20
11	CHASSIS CAN HIGH	CAN 2 H	CAN2-HI	YELLOW	20
12	GROUND	GROUND	GND	BLACK	14



BACK OF CONNECTOR L1-PDM-J2 (BLACK)

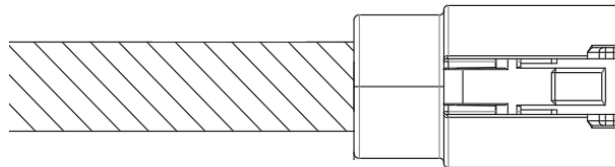
CONNECTOR NAME: L1-PDM-J2					
PIN #	DESCRIPTION	PDM I/O	CIRCUIT	COLOR	AWG
1	CRANE	HC OUTPUT 1	CRANE	RED	16
2	REMOTE CHIME	LC OUTPUT 7	CHIME	WHITE	18
3	BOOM TIP LIGHTS	OD1	LT-CRANE	GRN/BLK	18
4	STROBE	HC OUTPUT 2	STROBE	RED	16
5	REMOTE CRADLE	TRI-STATE INPUT 5	CRADLE	WHITE	18
6	COMPARTMENT LIGHTS	HC OUTPUT 5	LT-COMP	RED	14
7	COMPRESSOR	HC OUTPUT 6	COMP	LT BLUE	14
8	FLOW DIVERTER	LC OUTPUT 6	FLOW	RED	18
9	COMP. DEMAND	TRI-STATE FB PROT	COMP-DMND	YELLOW	14
10	WORKLIGHT LS FRONT	HC OUTPUT 3	LT-WK-LH-F	RED	16
11	E-STOP	TRI-STATE INPUT 6	E-STOP	WHITE	16
12	WORLIGHT RS REAR	HC OUTPUT 4	LT-WK-RH-R	WHITE	16

Pinouts



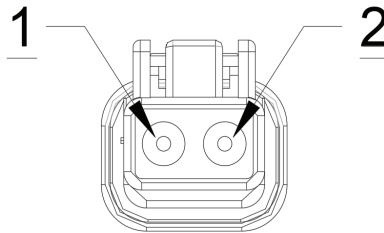
BACK OF CONNECTOR L1-PDM-J3

CONNECTOR NAME: L1-PDM-J3					
PIN #	DESCRIPTION	PDM I/O	CIRCUIT	COLOR	AWG
1	BODY CAN LOW	CAN 1 L	CAN1-LO	GREEN	20
2	BODY CAN HIGH	CAN 1 H	CAN1-HI	YELLOW	20
3	BOOM STOW	TRI-STATE INPUT 8	BOOM-STOW	WHITE	20
4	OUTRIGGER STOW	TRI-STATE INPUT 7	OR-STOW	WHITE	18
5	SPARE OUT 1	HC OUTPUT 7	SPARE1	WHITE	18
6	COMPARTMENT LIGHTS2	HC OUTPUT 5	LT-COMP2	RED	14



CONNECTOR L1-PDM-J4

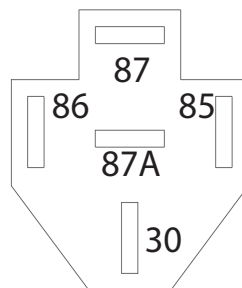
CONNECTOR NAME: L1-PDM-J4				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	POWER	PWR	RED	6



BACK OF CONNECTOR XX-LT-COMP

CONNECTOR NAME: XX-LT-COMP				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	COMPARTMENT LIGHTS	LT-COMP	RED	14
2	GROUND	GND	BLACK	18

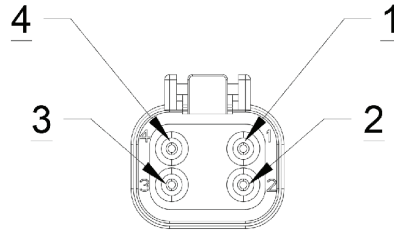
CONNECTOR NAME: XX-LT-COMP				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	COMPARTMENT LIGHTS	LT-COMP2	RED	14
2	GROUND	GND	BLACK	18



BACK OF CONNECTOR STOP RELAY

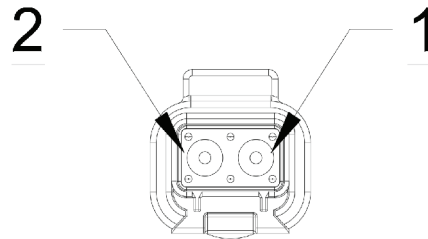
CONNECTOR NAME: STOP RELAY				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
85	ENGINE STOP	ENG-STOP	WHITE	18
86	GROUND	GND	BLACK	18
30	ENGINE STOP IN	ENG-STOP-I	WHITE	18
87A	ENGINE STOP OUT	ENG-STOP-O	WHITE	18

Pinouts



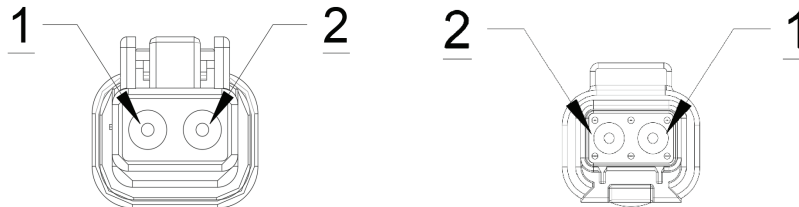
BACK OF CONNECTOR XX-KEYPAD

CONNECTOR NAME: XX-KEYPAD				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	POWER IGNITION	PWR-IGN	WHITE	18
2	GROUND	GND	BLACK	18
3	BODY CAN HIGH	CAN1-HI	YELLOW	20
4	BODY CAN LOW	CAN1-LO	GREEN	20



BACK OF CONNECTOR XX-MRKR-AMB

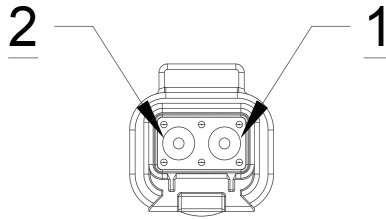
CONNECTOR NAME: XX-MRKR-AMB				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	MARKER LIGHT	LT-MRKR	BROWN	18
2	GROUND	GND	BLACK	18



MRKR SIGNAL

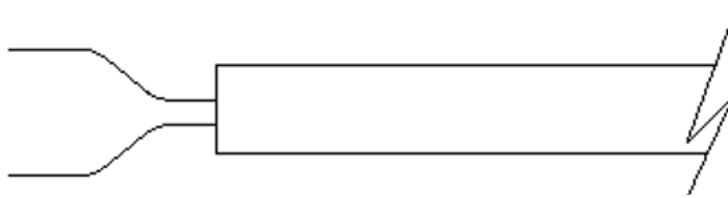
CONNECTOR NAME: MRKR SIGNAL				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	MARKER LIGHT	LT-MRKR	BROWN	16
2	CAVITY PLUG			

CONNECTOR NAME: MRKR SIGNAL				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	MARKER LIGHT	LT-MRKR	BROWN	16
2	CAVITY PLUG			



BACK OF CONNECTOR XX-MRKR-RED

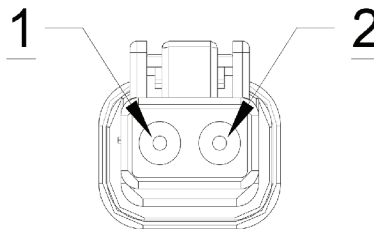
CONNECTOR NAME: XX-MRKR-RED				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	MARKER LIGHT	LT-MRKR	BROWN	18
2	GROUND	GND	BLACK	18



X-SPARE1

CONNECTOR NAME: X-SPARE1				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
BLUNT	SPARE OUT 1	SPARE1	WHITE	18
BLUNT	GROUND	GND	BLACK	18

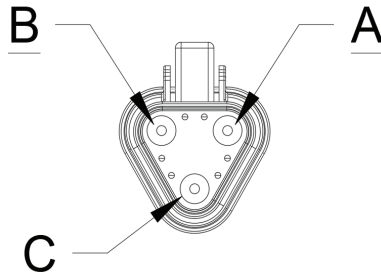
NOTE: BOOM STOW for future use



BACK OF CONNECTOR BOOM STOW

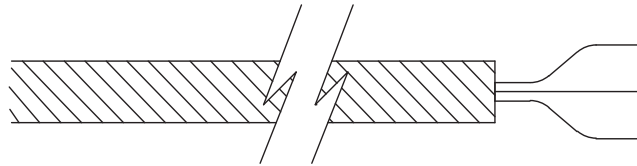
CONNECTOR NAME: BOOM STOW				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	POWER IGNITION	PWR-IGN	WHITE	20
2	BOOM STOW	BOOM-STOW	WHITE	20

Pinouts



BACK OF CONNECTOR CRANE TELEMATICS

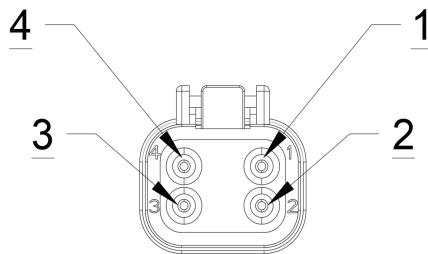
CONNECTOR NAME: CRANE TELEMATICS				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
A	BODY CAN HIGH	CAN1-HI	YELLOW	20
B	BODY CAN LOW	CAN1-LO	GREEN	20
C	CAVITY PLUG			



CRADLE

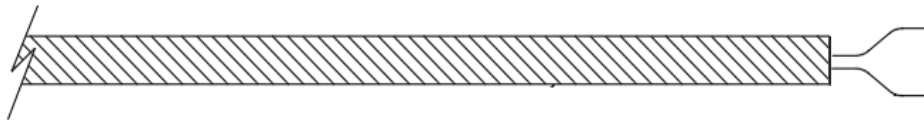
CONNECTOR NAME: CRADLE				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
TIN	REMOTE CRADLE	CRADLE	WHITE	18
TIN	POWER AUXILIARY	PWR-AUX	RED	18
TIN	GROUND	GND	BLACK	18

NOTE: Outrigger Stow for future use



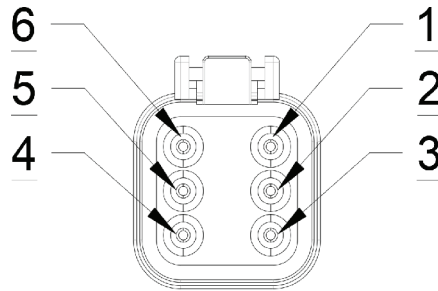
BACK OF CONNECTOR CRANE

CONNECTOR NAME: CRANE				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	BOOM TIP LIGHTS	LT-CRANE	GRN/BLK	18
2	OUTRIGGER STOW	OR-STOW	WHITE	18
3	CRANE	CRANE	RED	16
4	GROUND	GND	BLACK	14



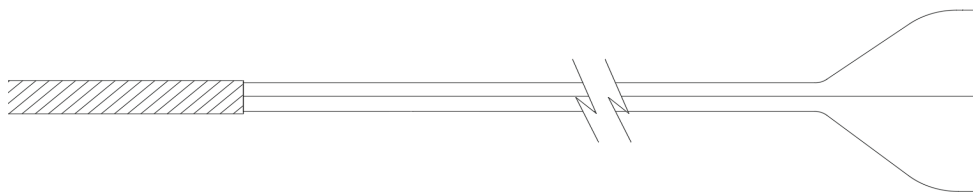
E-STOP

CONNECTOR NAME: E-STOP				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
TIN	E-STOP	E-STOP	WHITE	18
TIN	GROUND	GND	BLACK	18



BACK OF CONNECTOR PTO

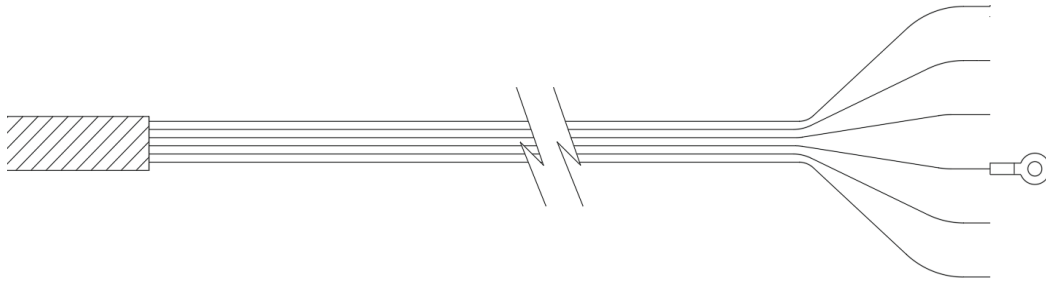
CONNECTOR NAME: PTO				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	PTO READY	PTO-READY	BLUE/WHT	18
2	PTO ENABLE	PTO-EN	YEL/GRN	18
3	PTO PRESSURE	PTO-PRESS	GREEN	18
4	PTO	PTO	ORANGE	18
5	PTO READY LOW SIDE	PTO-READY-L	WHITE	18
6	CAVITY PLUG			



STROBE WIRES

CONNECTOR NAME: STROBE WIRES				
END	DESCRIPTION	CIRCUIT	COLOR	AWG
BLUNT	ENGINE START	ENG-START	WHITE	18
BLUNT	STROBE	STROBE	RED	16
BLUNT	STROBE SYNC	STROBE-SYNC	WHITE	18

Pinouts



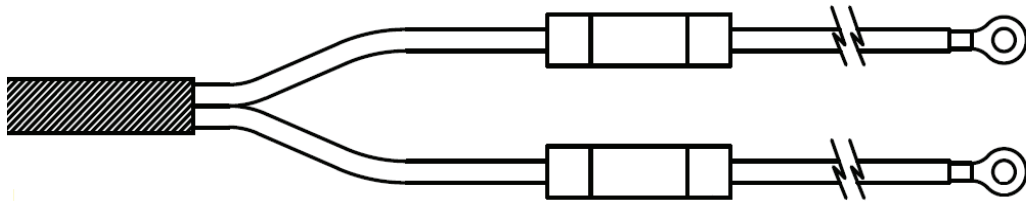
START/STOP WIRES

CONNECTOR NAME: START/STOP WIRES				
END	DESCRIPTION	CIRCUIT	COLOR	AWG
BLUNT	ENGINE START	ENG-START	WHITE	18
BLUNT	ENGINE STOP IN	ENG-STOP-I	WHITE	18
BLUNT	ENGINE STOP OUT	ENG-STOP-O	WHITE	18
BLUNT	REMOTE CHIME	CHIME	WHITE	18
BLUNT	POWER IGNITION	PWR-IGN	WHITE	18
5/16" EYELET	GROUND	GND	BLACK	18



CHASSIS CAN

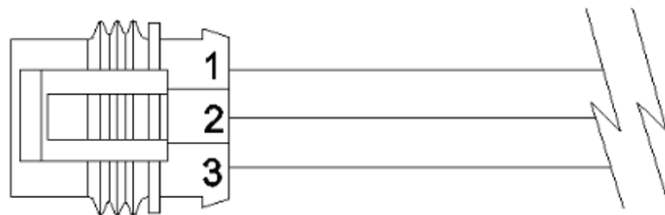
CONNECTOR NAME: CHASSIS CAN				
END	DESCRIPTION	CIRCUIT	COLOR	AWG
BLUNT	CHASSIS CAN HIGH	CAN2-HI	YELLOW	20
BLUNT	CHASSIS CAN LOW	CAN2-LO	GREEN	20



BATTERY CONNECTORS

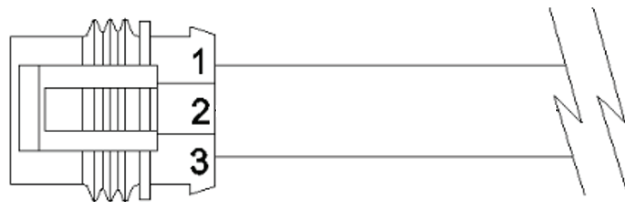
CONNECTOR NAME: POWER				
END	DESCRIPTION	CIRCUIT	COLOR	AWG
3/8" EYELET	POWER	PWR	RED	6

CONNECTOR NAME: POWER AUX				
END	DESCRIPTION	CIRCUIT	COLOR	AWG
3/8" EYELET	POWER AUXILIARY	PWR-AUX	RED	10



LEFT BRAKE/TURN SIGNAL

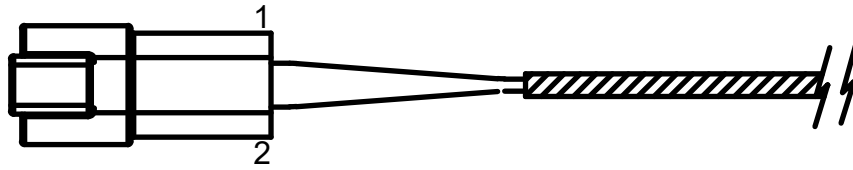
CONNECTOR NAME: LEFT BRAKE/TURN SIGNAL				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	GROUND	GND	WHITE	16
2	TAIL LIGHT SIGNAL	TAIL LIGHT SIGNAL	BROWN	16
3	STOP/TURN SIGNAL LEFT	STOP/TURN SIGNAL LEFT	YELLOW	16



LEFT BACK-UP SIGNAL

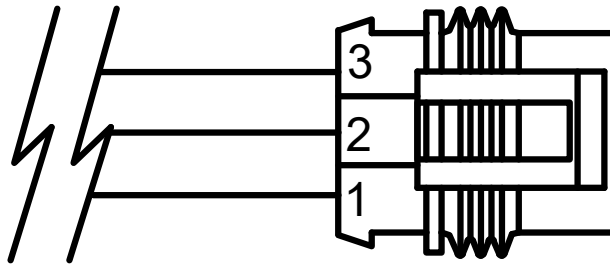
CONNECTOR NAME: LEFT BACK-UP SIGNAL				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	GROUND	GND	WHITE	16
2				
3	BACK-UP SIGNAL	BACK-UP SIGNAL	BLUE	16

Pinouts



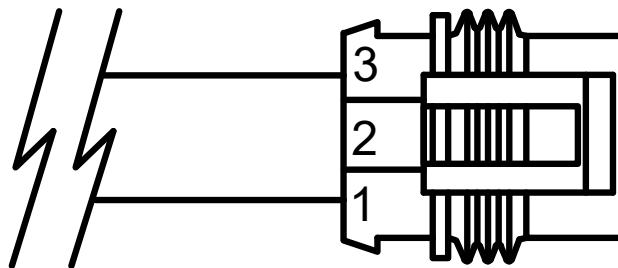
LICENSE LIGHT

CONNECTOR NAME: LICENSE LIGHT				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	TAIL LIGHT SIGNAL	TAIL LIGHT SIGNAL	BROWN	16
2	GROUND	GND	WHITE	16



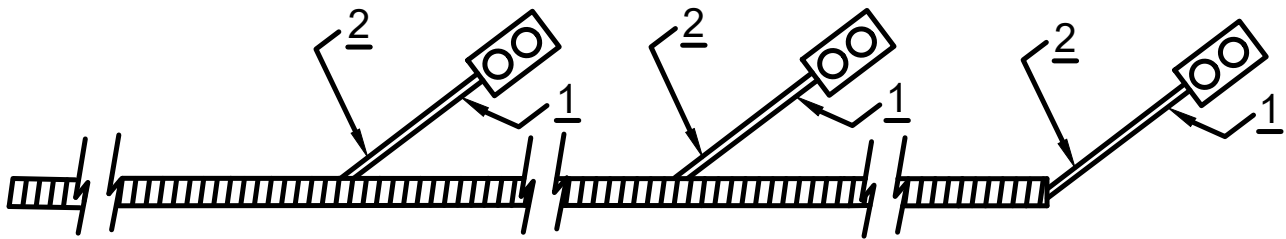
RIGHT BRAKE/TURN SIGNAL

CONNECTOR NAME: RIGHT BRAKE/TURN SIGNAL				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	GROUND	GND	WHITE	16
2	TAIL LIGHT SIGNAL	TAIL LIGHT SIGNAL	BROWN	16
3	STOP/TURN SIGNAL RIGHT	STOP/TURN SIGNAL RIGHT	GREEN	16



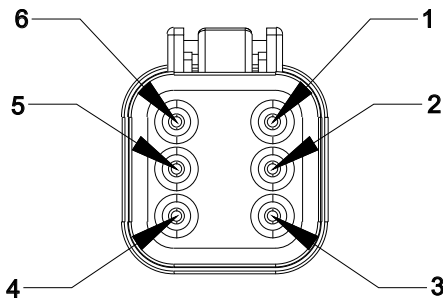
RIGHT BACK-UP SIGNAL

CONNECTOR NAME: RIGHT BACK-UP SIGNAL				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	GROUND	GND	WHITE	16
2				
3	BACK-UP SIGNAL	BACK-UP SIGNAL	BLUE	16

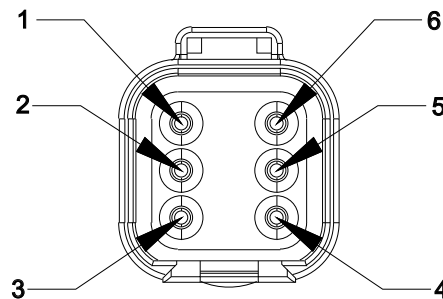


INDICATOR LAMP

CONNECTOR NAME: INDICATOR LAMP				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	GROUND	GND	WHITE	16
2	TAIL LIGHT SIGNAL	TAIL LIGHT SIGNAL	BLACK	16



DT06-6S



DT04-6P

CHASSIS S/T/T CONNECTOR

CONNECTOR NAME: CHASSIS S/T/T CONNECTOR				
PIN #	DESCRIPTION	CIRCUIT	COLOR	AWG
1	STOP/TURN SIGNAL RIGHT	STOP/TURN SIGNAL RIGHT	GREEN	16
2	GROUND	GND	WHITE	16
3	STOP/TURN SIGNAL LEFT	STOP/TURN SIGNAL LEFT	YELLOW	16
4	BACK UP SIGNAL	BACK-UP SIGNAL	BLUE	16
5	TAIL LIGHT SIGNAL	TAIL LIGHT SIGNAL	BROWN	16
6	CAVITY PLUG			

Warranty

LIMITED WARRANTY 2 YEAR PARTS AND LABOR

Auto Crane will warranty to the consumer for a period of (2) years parts and labor from the date of purchase. Each new Auto Crane unit they sell will be free under normal use and service from defects in material and workmanship. Date of purchase will be honored as the date indicated on the Bill of Sale, which must accompany the Warranty Registration and be on file with Auto Crane. Absent a valid Warranty Registration and appropriate documentation, the original date of manufacture, as indicated by the serial number on the product, will be used to determine the effective date of the 2 year warranty.

The obligation of Auto Crane under this warranty is limited to the replacement or repair of parts that appear to the manufacturer after review and/or inspection to be defective and paid flat rate labor for replacing defective parts. This warranty does not obligate Auto Crane to bear the travel time charges in connection with the replacement or repair of defective parts. Responsibility for customer's claims arising from misapplication, abuse, misuse or alteration of equipment or parts lies with the distributor or user and no warranty obligation is assumed in these circumstances by Auto Crane.

Auto Crane will in no event be liable for any consequential damages or contingent liabilities arising out of the failure of any Auto Crane Product or parts to operate properly.

Auto Crane makes no warranty in respect to component accessories, it being subject to the warranties of their respective manufacturers.

If field service, at the request of the distributor, is rendered and fault is found not to be with Auto Crane's product, the distributor shall pay the time and expense of the field representative.

Claims for service labor or other expenses that have incurred by the buyer without approval or authorization or Auto Crane will not be accepted.

When applying for warranty, claims may be handled by contacting your nearest authorized Auto Crane Distributor. All claims are to be filed in writing on an Auto Crane Warranty Claim Form.

AUTO CRANE COMPANY IS UNDER NO OBLIGATION TO EXTEND THIS WARRANTY TO ANY CUSTOMER FOR WHICH AN AUTO CRANE DELIVERY REPORT FORM HAS NOT BEEN COMPLETED AND ON FILE WITH AUTO CRANE COMPANY

Limited Warranty 2 Years

Effective September 2, 2003

5 YEAR LIMITED BODY WARRANTY

COVERED PRODUCTS:

- * Auto Crane Service Bodies- no rust-thru guarantee to the first owner/user of record for five (5) years from the date of purchase.
- * Door Hinges-Guarantee the hinges will not fail to operate or come off the product, to the first owner/user of record for five (5) years from the date of purchase.

ELIGIBILITY:

- * Product(s) warranted must be properly maintained and serviced.
- * The selling distributor must file for the first owner/user the application for warranty by completing the delivery report form enclosed in the Owner's Manual within 30 days of the product purchase date. The complete delivery report form must be forwarded to Auto Crane Company. The warranty agreement issued is not transferable.

EXCLUSIONS:

- * Warranty applies to the Auto Crane bodies only and excludes all options, modifications and alterations.
- * Paint required following repairs or replacement of parts under warranty after the first year from the date of delivery.
- * Product(s) that have been misused or damaged, inclusive of, but not limited to, accidents.
- * Absent a completed and valid delivery report form, the original date of manufacture will be used as the effective date for the limited warranty.

SPECIFIC NON-RUST-THRUWARRANTY EXCLUSIONS:

- * Product(s) that have been used to carry corrosive materials, where such materials result in rust-thru conditions.
- * Product(s) purchased by the first owner/user in prime paint condition.
- * Consequential damages including, but not limited to, transportation costs, lost profit and loss of income, as a result of a vehicle being out of service.
- * Product(s) purchased and used outside the U.S.A. or Canada.

APPLYING FOR WARRANTY:

- * Claims may be handled by contacting your nearest authorized Auto Crane Distributor. All claims are to be filed in writing on an Auto Crane Warranty Claim Form.
- * The Auto Crane Company reserves the sole right to inspect item(s) claimed for warranty and decide the best way to handle any and all claims, including the replacement or repair of the warranted part.
- * Should the warranted product rust thru, the hinges fail to operate or come off the product, Auto Crane will pay the cost of parts and flat rate labor to repair or replace as necessary the defective component.

NOTE: Paint following repair or replacement of a part is exclusive under warranty after the first year from date of delivery.

- * DEFECTS FROM MANUFACTURINGWORKMANSHIP AND/OR MATERIAL NOT SPECIFIED ABOVE WILL BE SUBJECT TO WARRANTY INCLUSIVE OF MATERIALS AND LABOR TO THE FIRST OWNER/USER OF RECORD FOR TWO (2) YEARS FROM THE DATE OF DELIVERY. Exclusions, as well as methods of applying for warranty remain the same as stated in the limited five (5) year warranty covered above.

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LIMITED WARRANTY

1 YEAR PURCHASED REPLACEMENT PARTS

Auto Crane will warranty to the consumer for a period of (1) year from the date that a new Auto Crane replacement part was purchased from an authorized Auto Crane distributor. Each new Auto Crane part they sell will be free under normal use and service from defects in material and workmanship. Date of purchase will be honored as the date indicated on the Bill of Sale to the consumer.

The obligation of Auto Crane under this warranty does not apply to parts replaced under the limited warranty for a new Auto Crane product. The warranty for parts replaced under the limited warranty of a new Auto Crane product expires when the warranty for that product expires.

The obligation of Auto Crane under this warranty is limited to the replacement or repair of purchased replacement parts that appear to the manufacturer to be defective after review of documentation (Auto Crane Warranty Claim Form, photos, data etc.) provided by the Auto Crane distributor and/or inspection of parts returned to Auto Crane. This warranty does not obligate Auto Crane to bear labor costs to replace the defective parts or travel time charges in connection with the replacement or repair of defective parts. Responsibility for customer's claims arising from misapplication, abuse, misuse or alteration of equipment or parts lies with the distributor or user and no warranty obligation is assumed in these circumstances by Auto Crane.

Auto Crane will in no event be liable for any consequential damages or contingent liabilities arising out of the failure of any Auto Crane product or parts to operate properly

Auto Crane makes no warranty in respect to parts for component accessories, it being subject to the warranties of their respective manufacturers.

If field service, at the request of the distributor, is rendered and fault is found not to be with Auto Crane's product, the distributor shall pay the time and expense of the field representative.

Claims for service labor or other expenses that have incurred by the buyer without approval or authorization or Auto Crane will not be accepted

When applying for warranty claims may be handled by contacting your nearest authorized Auto Crane **Distributor. All claims are to be filed in writing on an Auto Crane Warranty Claim Form.**

