# TL103043

# UNIVERSAL WIRING GUIDELINE TRCM2 - J1939

22oct20jh

## TABLE OF CONTENTS

## SECTION 1 CONTROL KITS

### 1.1 TIK10106 Universal Automatic Foot Control for Hydraulic Brakes (for Telma models AF50-90 and AD61-30)

| PART NUMBER | DESCRIPTION | QUANTITY |
|---|---|---|
| TIB01017 | RELAY BOX BRACKET | 2 |
| TID15004 | HYDRAULIC BRAKE HARNESS WITH RELAY BOX | 1 |
| TID31004b | ROTARY SWITCH HARNESS | 1 |
| TIF01063 | HEX BOLT ¼-28UNF x1 | 2 |
| TIF01067 | M4-0.7 x 20mm DIN 933 Class 8.8 Zinc Cap Screw | 1 |
| TIF01068 | M4 DIN 137 Zinc Wave Washer | 1 |
| TIF05000 | LOCK WASHER ¼ SPLIT PEDAL CLAMP | 2 |
| TIF05004 | NUT ¼-28UNF G8 (USED FOR PEDAL CLAMP) | 2 |
| TIF05010 | LOCKWASHER 5/16" RELAY BOX MOUNTING | 4 |
| TIF05011 | NUT 5/16" RELAY BOX MOUNTING | 4 |
| TIF05012 | HEX BOLT 5/16-18UNCx1 ¼" RELAY BOX BRACKET | 4 |
| TIF05013 | HEX BOLT ½-13UNCx1 ¼" RELAY BOX BRACKET | 2 |
| TIF05014 | LOCK WASHER ½" RELAY BOX BRACKET | 2 |
| TIG11010 | TELMA LIGHT BAR DISPLAY | 1 |
| TIG31069 | Telma Control Module (TRCM2) | 1 |
| TIG31066 | Rotary Foot Switch | 1 |
| TIB01040 | Rotary foot switch bracket | 1 |
| TIF01067 | M4-0.7 x 20mm DIN 933 Class 8.8 Zinc Cap Screw | 1 |
| TIF01068 | M4 DIN 137 Zinc Wave Washer | 1 |

**IMPORTANT**

**TIK10106 contains a universal foot switch mounting bracket. It may be necessary to modify the bracket for your application.**

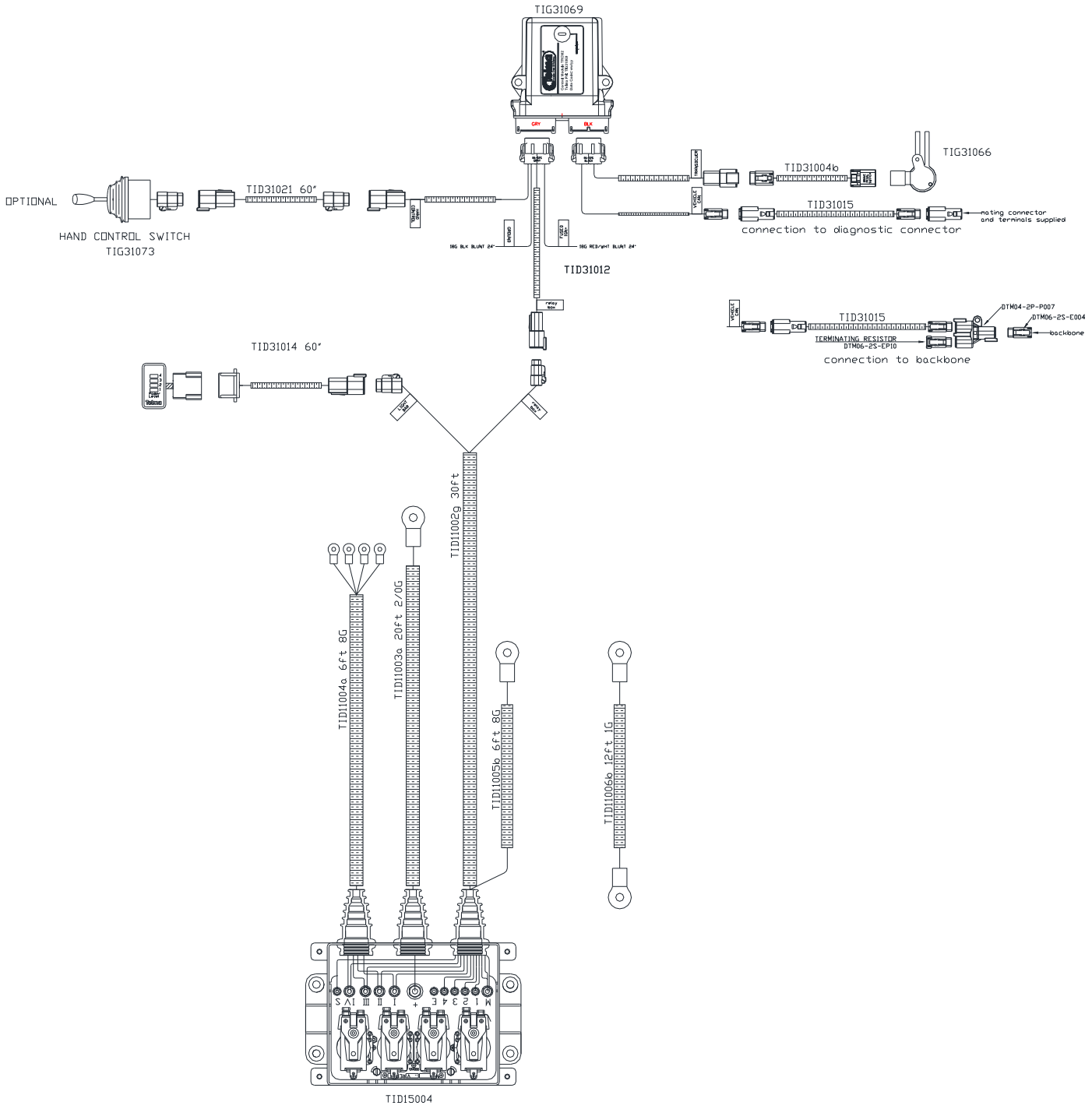
### 1.2 TIK10107 Universal Automatic Foot Control for Air Brakes

| PART NUMBER | DESCRIPTION | QUANTITY |
|---|---|---|
| TIB01017 | RELAY BOX BRACKET | 2 |
| TID11001 | AIR BRAKE HARNESS WITH RELAY BOX | 1 |
| TIF05010 | LOCKWASHER 5/16" RELAY BOX MOUNTING | 4 |
| TIF05011 | NUT 5/16" RELAY BOX MOUNTING | 4 |
| TIF05012 | HEX BOLT 5/16-18UNCx1 ¼" RELAY BOX BRACKET | 4 |
| TIF05013 | HEX BOLT ½-13UNCx1 ¼" RELAY BOX BRACKET | 2 |
| TIF05014 | LOCK WASHER ½" RELAY BOX BRACKET | 2 |
| TIG11010 | TELMA LIGHT BAR DISPLAY | 1 |
| TIG31069 | TELMA CONTROL MODULE (TRCM2) | 1 |
| TIG31065 | MLH PRESSURE TRANSDUCER | 1 |

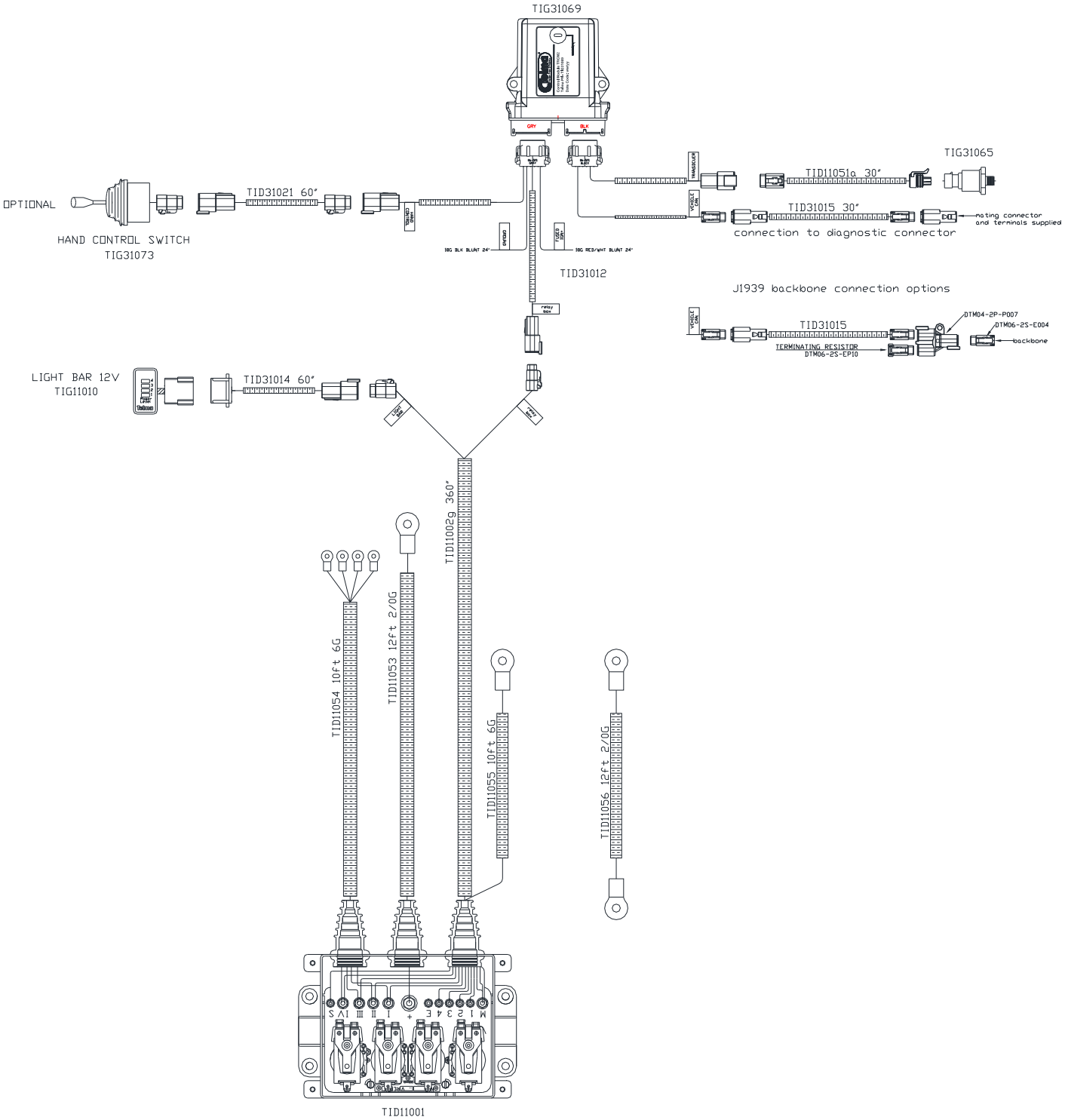
**NOTE:** If a hand control will be added to foot control for combined or (dual) control, order hand control switch TIG31073 and hand control harness TID31021.

## SECTION 2 KIT COMPONENTS

### 2.1 Harness Components for hydraulic brake applications (included in TIK10106)

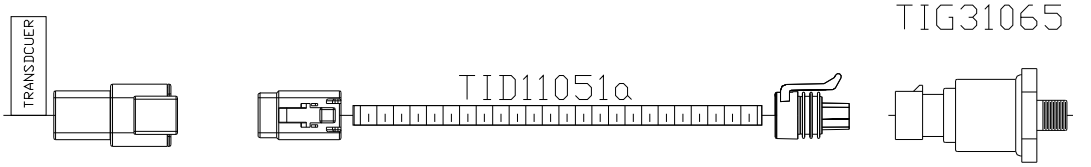


## 2.2 Harness Components for air brake applications (included in TIK10107)



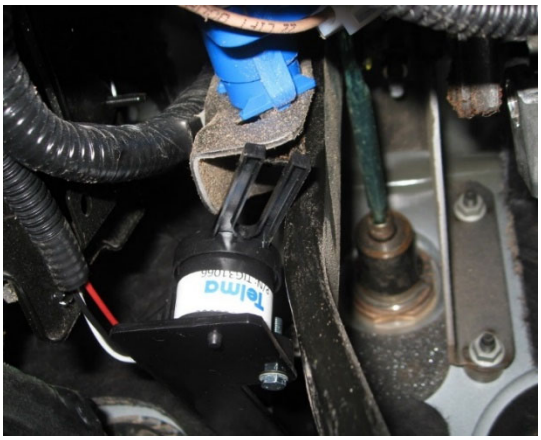
## 2.3 Transducer TIG31065 and Harness TID11051a (air brake foot control only)

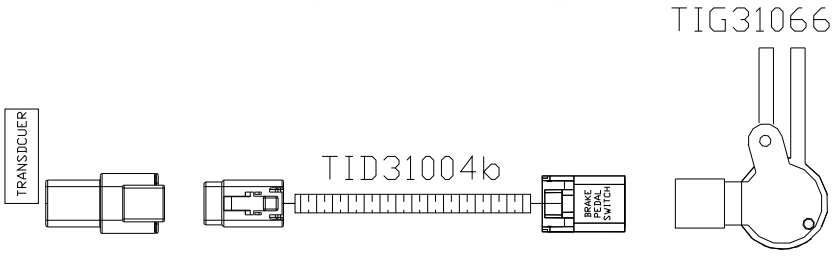
Connect air pressure transducer to the primary delivery port of brake pedal valve. Connect harness TID11051a into the transducer TIG31065 and into the TRCM harness plug labeled transducer.




## 2.4 Telma Rotary Foot Switch TIG31066, bracket TIB01040 and harness TID31004b (hydraulic brake foot control only)

Mount the rotary switch using the bracket provided so that the arm of the switch is spring loaded against the back of the brake pedal. The bracket included in the kit may need to be modified to work properly with your application. Make sure there is still some slight play when the brake pedal is in the highest position to avoid switch damage. Connect harness TID31004b into the rotary foot switch TIG31066 and into the TRCM harness plug labeled transducer.

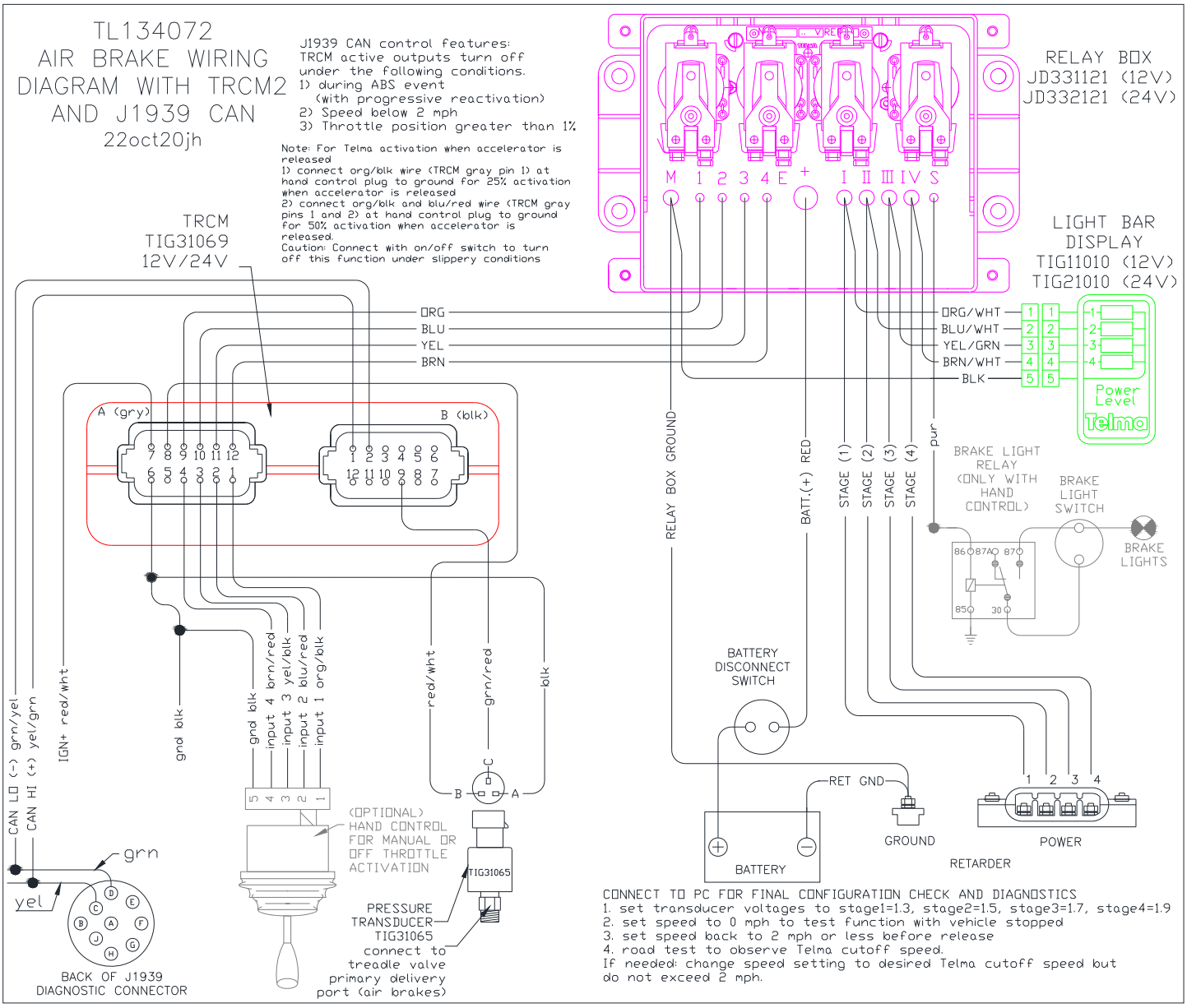





**IMPORTANT** **TIK10106 contains a universal foot switch mounting bracket. It may be necessary to modify the bracket for your application.**

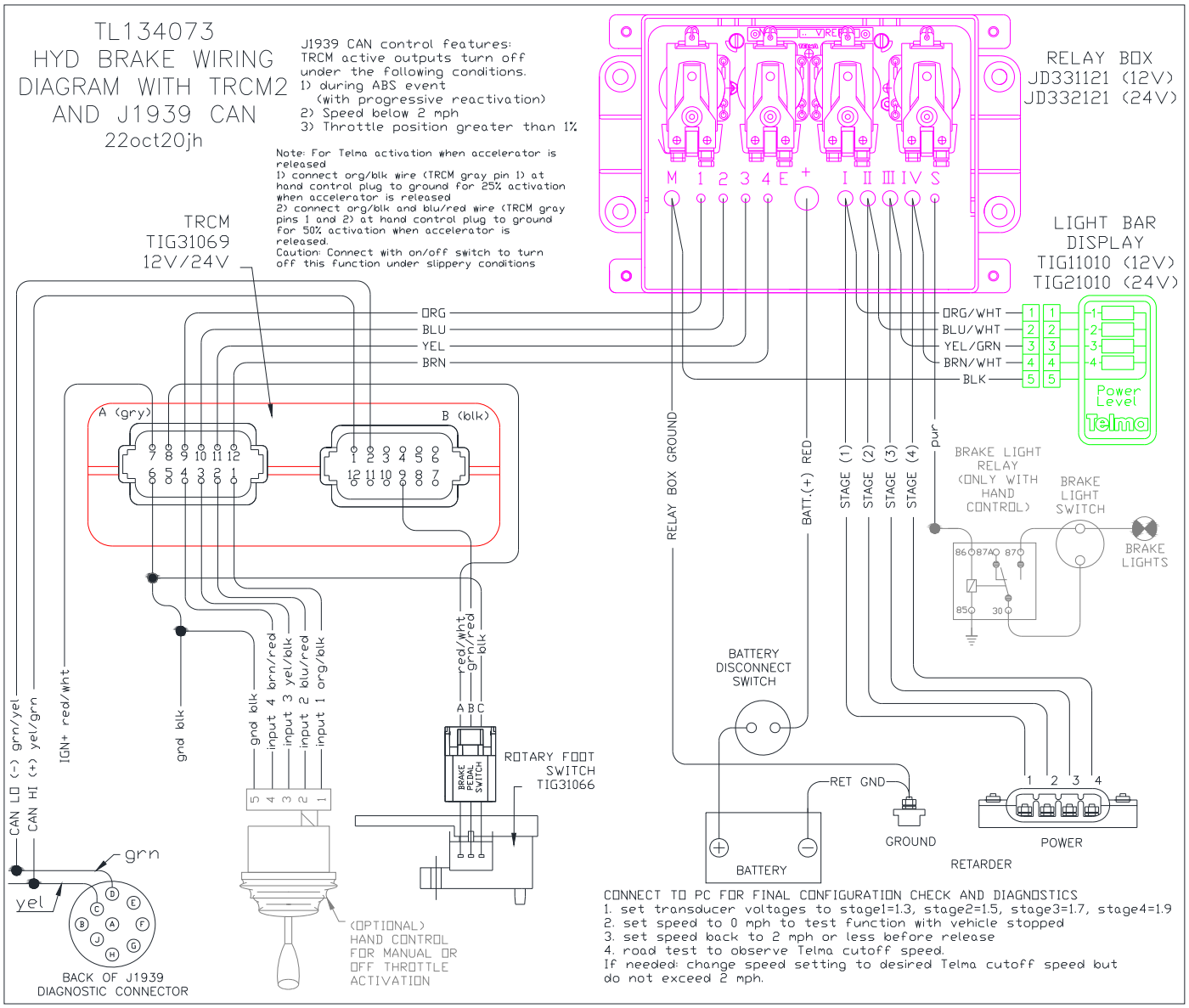
## SECTION 3 WIRING DIAGRAMS

### 3.1 Hydraulic Brake Foot Control Wiring Diagram




Note: for older vehicles without J1939 refer to wiring diagrams on telmausa.com

## 3.2 Air brake Foot Control Wiring Diagram




Note: for older vehicles without J1939 refer to wiring diagrams on telmausa.com

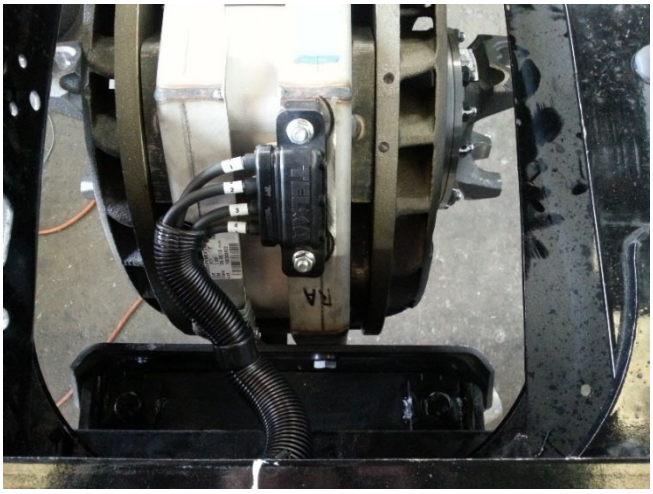
## SECTION 4 COMPONENT INSTALLATION AND CONNECTIONS

### 4.1. Relay Box Installation

Mount the relay box on the outside of the frame rail or on the inside of the frame rail using the brackets TIB01017. Position the box between the retarder and the batteries. The relay box must be mounted in a vertical position with the wiring exiting from the bottom and the harnesses should be secured with a drip loop. Placement should allow easy access to remove the cover of the box for servicing. If installing on a bare chassis, make sure that placement will not interfere with access after body is installed (e.g. outside of frame rail behind compartment). Do not install below water outlets (fire trucks), near heat sources (exhaust), or in wheel wells (road contamination). Make sure the cables reach the batteries and retarder before mounting the box.

### 4.2. Retarder Wiring Connections

Route the power harness along the frame rail to the Telma power connection block and the ground wiring along the frame rail to the Telma ground terminal.



The connecting block is marked 1,2,3,4 for the four stages of the Telma. Connect the four 6G wires labeled 1,2,3,4 to the appropriate terminals of the connecting block. Connect the 5th 6G relay box ground wire and the 2/0G main retarder ground cable to the Telma ground post. Never allow wiring to pass across the rotors where heat from the rotors will damage the wiring. For axial (chassis mount) retarders clamp the harness to the retarder bracket. Use a rubber coated metal cable clamp. For a focal (differential mount) retarder use harness bracket kit TIK00106. Refer to service bulletins TL115005 (TIK00106) for proper harness routing and securing. Make sure there is enough length after the clamp to allow for movement of the axle.

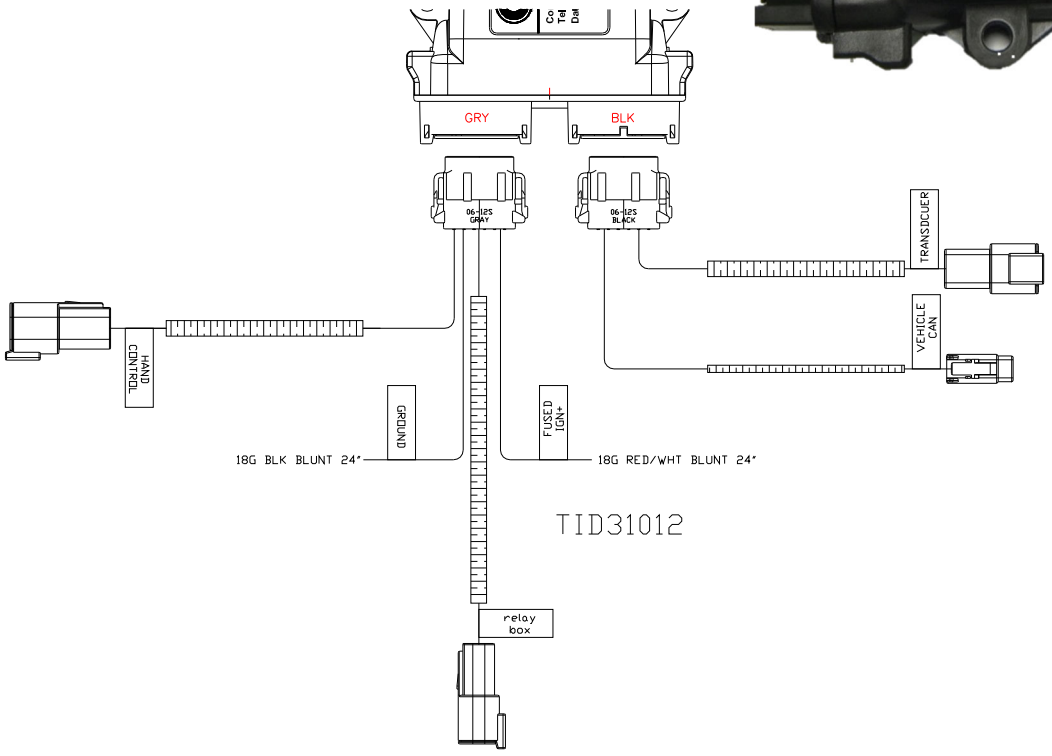
## 4.3. Battery Wiring Connections

Route the battery power cable from the relay box along the inside of the frame rail to the positive side of the battery pack. If practical it is preferable to connect to a remote battery pack positive connection stud or the starter terminal instead of directly to the positive terminal of the battery, which can be a point of corrosion. Remote mounting also reduces the amount of cables connected to the battery terminal. The positive cable can also be connected to the chassis side of the battery disconnect switch if the switch is rated for the amperage needed for the retarder + vehicle loads. Refer to service bulletin TIL35027 for more details about connecting to the battery disconnect switch.

Route the retarder ground cable from the retarder ground point to the negative side of the battery pack. As with the positive cable it is preferable to connect to a remote battery pack negative connection point or to the starter ground terminal instead of directly to the negative terminal of the battery. The ground cable may be connected to the chassis frame only if the main battery pack ground is connected to the chassis frame with at least a 2/0 cable.

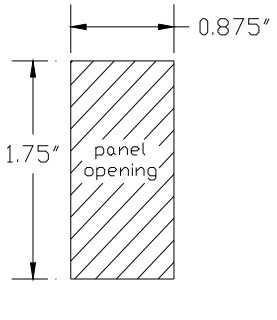
## 4.4. Telma Control Module (TRCM2) and cab harness Installation

Plug the TRCM harness TID31012 into the TRCM2. Find a suitable place in the cab to mount the TRCM and harness assembly that is out of the way yet accessible for connection of the usb cable for configuration and diagnostics. Secure the TRCM using fasteners in the mounting holes. Do not secure with wire ties or leave unsecured. Make sure the vehicle wiring connections of the cab harness reaches the connections in the cab for ignition “+”, ground, and the J1939 connection location. Refer to TRCM2 User Guide TL133012 for configuration and diagnostics.

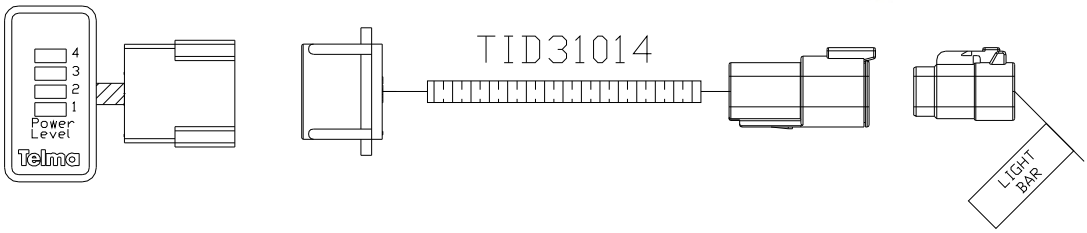



## 4.5. Light Bar Display

Find an empty switch blank in the dash to mount the light bar display if available. The display is designed to fit the full size euro-look switch blank. If there is no blank available a rectangular hole will need to be cut as shown below. The display should be easily visible to the driver when installed. Plug the Light Bar harness into the Light Bar Display and route the other end to where the relay box harness will come in under the dash.

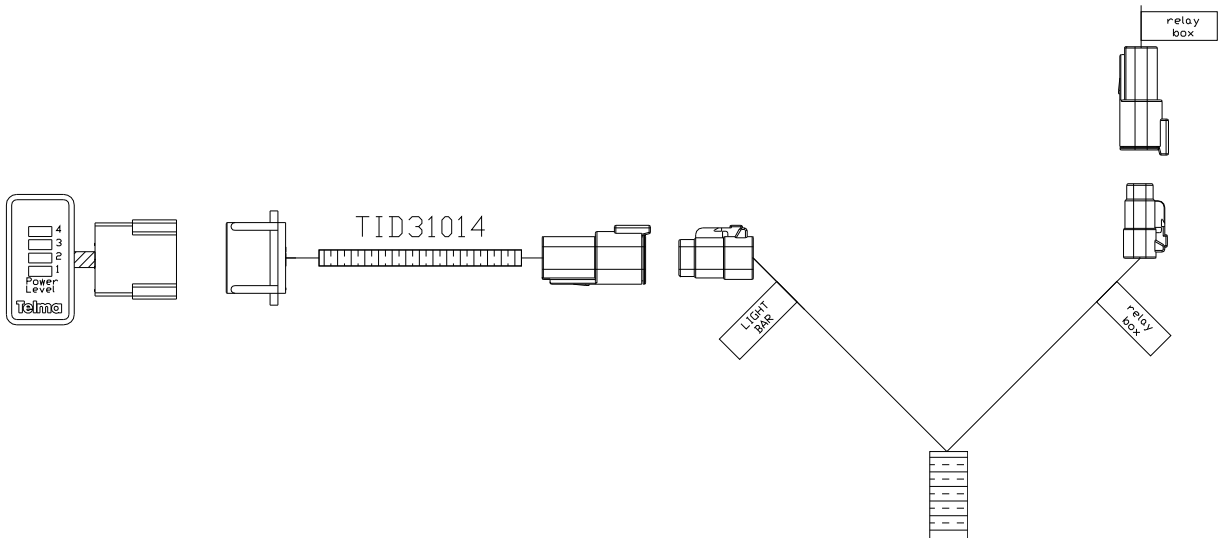



PANEL

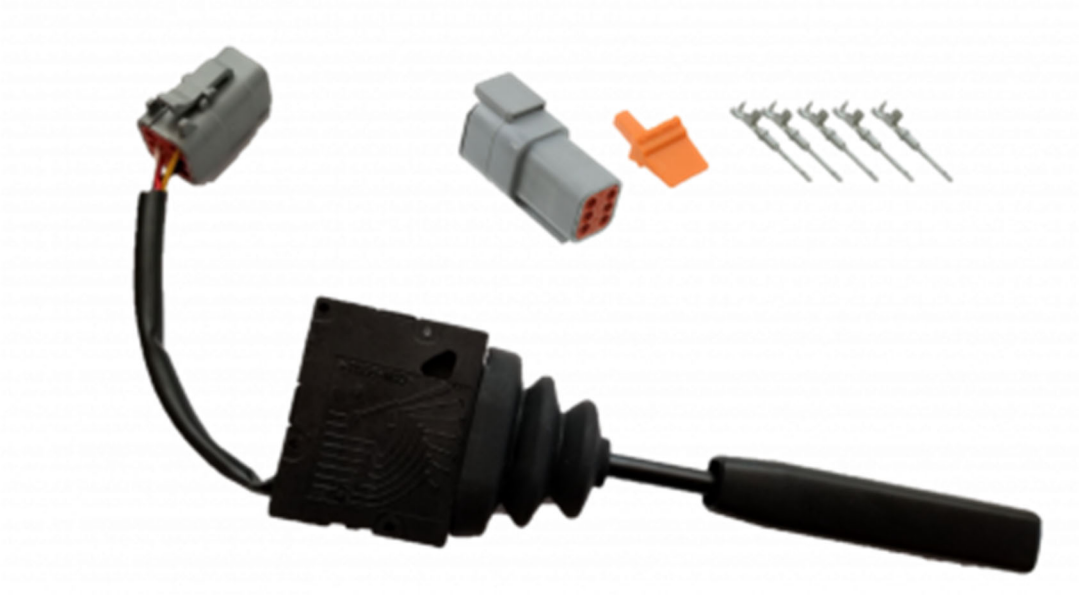

## 4.6. Relay Box AND Light Bar Control Harness

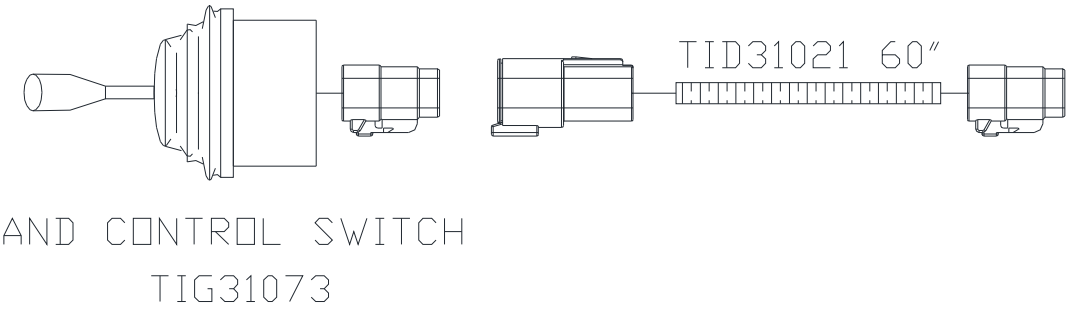
Route the relay box control harness TID11002g from the relay box along the inside of the frame rail and into the cab (through an existing hole if possible). Inside the cab, connect the plug labeled “Light Bar” to the Light Bar harness and the connect the plug labeled “Relay Box” to the TRCM harness plug labeled “Relay Box”. If the harness is shortened it will be necessary to install new wire terminals (included in the kit).



## 4.7. Hand Control (Optional)

If a hand control will be added to foot control for combined or (dual) control, order hand control switch TIG31073 and hand control harness TID31021. Find a suitable place to mount the switch in the dash so that it is accessible to the driver. Plug one end of the hand control harness TID31021 into the hand control plug and the other end into the plug in the TRCM harness marked hand control.






HAND CONTROL SWITCH
TIG31073

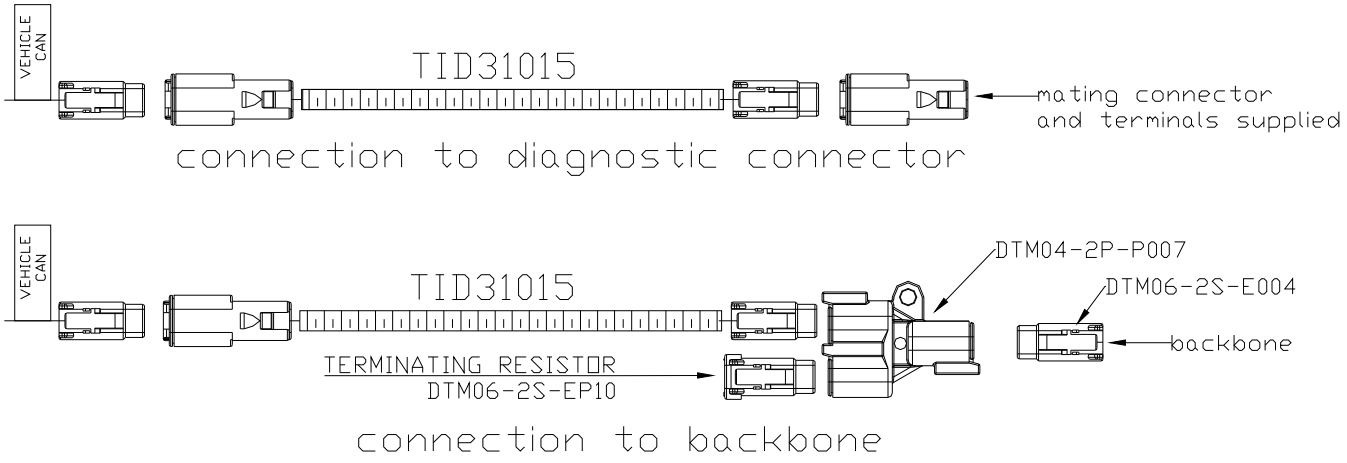
## 4.8. Vehicle Wiring Connections (ign+, ground, and J1939 connections)

Connect the following wires of the TRCM cab harness to the vehicle

- Telma red/wht wire to a fused ignition source.
- Telma blk wire to a good chassis ground point
- Telma grn/yel wire to the J1939 diagnostic connector CAN LO grn wire (position D*)
- Telma yel/grn wire to the J1939 diagnostic connector CAN HI yel wire (position C*)

* Check wiring diagram for your vehicle. Some Peterbilt vehicles do not use C and D for J1939.

CAN connection harness TID31015 is provided for connection to J1939. Connect one end of the harness into the TRCM harness plug labeled Vehicle CAN. A mating connector and terminals are supplied to make the connection to the vehicle J1939 connection. The universal place to connect is to the wires at the J1939 diagnostic connector. In some cases the vehicle manufacturer may recommend to connect at the J1939 backbone. In this case a terminating resistor and tee are required. To connect to the backbone the tee and other parts below can be purchased from Deutsch or we offer TID31022 which can be used for vehicles with a Deutsch back bone connector or TID31023 for vehicles with Delphi backbone connector (Freightliner S2C and Navistar).




## SECTION 5 RECOMMENDED TOOLS

- Common mechanics hand tools
- Wiring terminal crimping pliers for non insulated terminals
- Windows computer port running Windows XP or newer.
- usb-a to usb-c cable