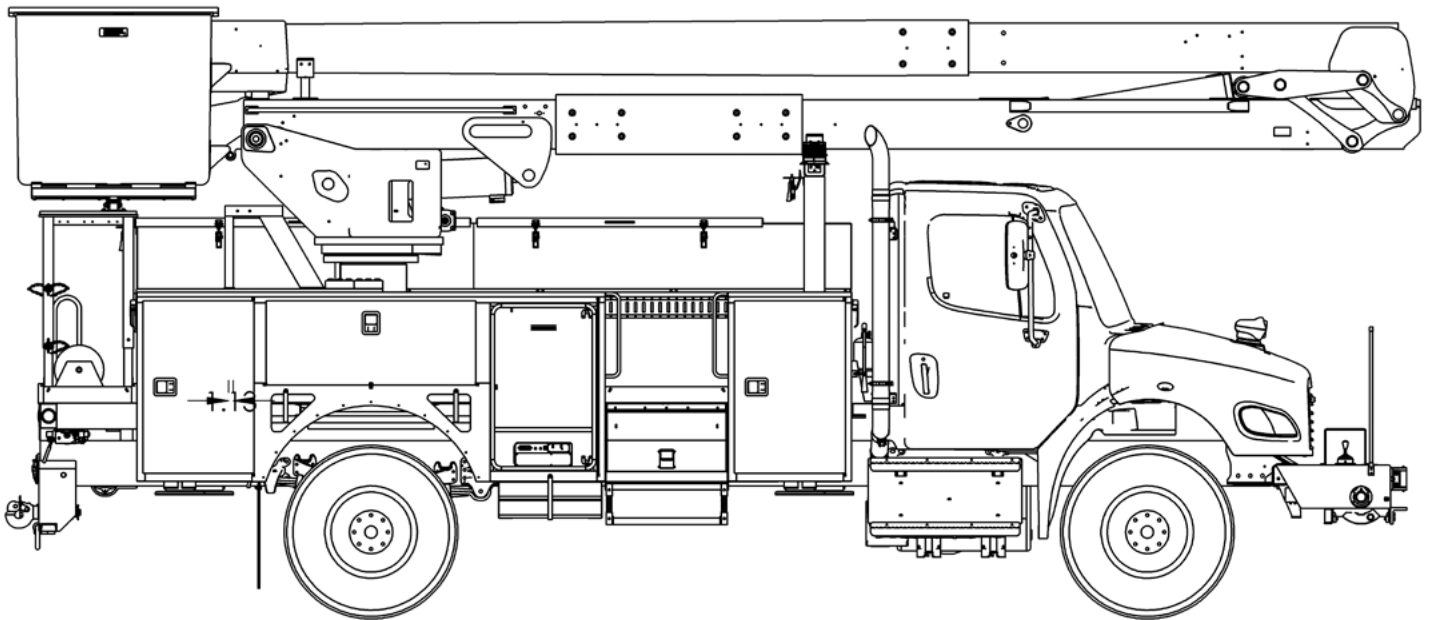




# TECH TIPS

TROUBLESHOOTING THE 2ND GEN TEREX CHASSIS CONTROLLER

NO. 42



**SERVICE CALL:**  
TROUBLESHOOTING THE 2ND GEN  
TEREX CHASSIS CONTROLLER



**MODEL(S):**  
ALL TEREX UNITS EQUIPPED WITH  
THE 2ND GEN CONTROLLER  
"COMBO CONTROLLER"



**TOOLS NEEDED:**  
BASIC HAND TOOLS  
DIGITAL MULTIMETER  
INCANDESCENT TEST LIGHT  
CHASSIS CONTROLLER MANUAL  
ELECTRICAL SCHEMATIC

TEREX UTILITIES TECHNICAL SUPPORT TEAM

PHONE: 1-844-TEREX4U (1-844-837-3948) | EMAIL: [UTILITIES.SERVICE@TEREX.COM](mailto:UTILITIES.SERVICE@TEREX.COM)



## **DANGER**

Failure to obey the instructions and safety rules in the appropriate Operator's Manual and Service Manual for your machine will result in death or serious injury.

Many of the hazards identified in the Operator's Manual are also safety hazards when maintenance and repair procedures are performed.

## **DO NOT PERFORM MAINTENANCE UNLESS:**

- ✓ You are trained and qualified to perform maintenance on this machine.
- ✓ You read, understand and obey:
  - manufacturer's instructions and safety rules
  - employer's safety rules and worksite regulations
  - applicable governmental regulations
- ✓ You have the appropriate tools, lifting equipment and a suitable workshop.

The information contained in this Tech Tip is a supplement to the Service Manual. Consult the appropriate Service Manual of your machine for safety rules and hazards.



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## INTRODUCTION

Chassis Controller Manual: can be found with Unit Maintenance Manual or in the kitsheet portion of the CD supplied with unit.

### Unit Specific Electrical Schematic

- A copy of the unit specific Electrical Schematic is provided with the final paperwork when the unit is shipped
- Contact your authorized Terex Utilities Branch or Dealer for replacement schematics

Reference Tech-tip #39 to determine which chassis controller is installed on your unit.

**Note:** Some circuits are controlled electronically and not with a relay which can cause a Digital multi-meter to detect and display the 'floating voltages' present, even though there is not enough current to activate a function.

To prevent these false readings, a test light is recommended for troubleshooting.



## STEP 1

Locate the Terex Chassis Control Panel manual for your unit. This is an appendix to the unit Operators Manual.

## STEP 2

Locate the electrical schematic specific for your unit. This can be found inside the cover of the controller panel, on units manufactured on or after 11/1/2015, along with a flash drive with the programming files for the unit specific controller.

For units produced before this date, contact your local Terex Utilities Service Center, email: [utilities.service@terex.com](mailto:utilities.service@terex.com), or call (844) 837-3948.





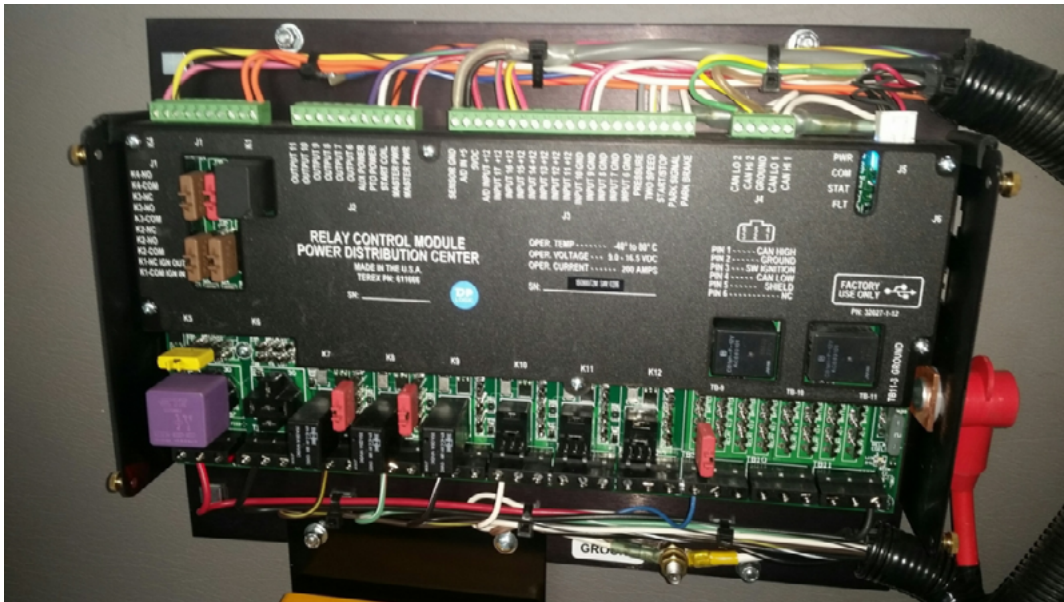
## STEP 3

Verify proper ground and power is at the panel.

- Verify 12V power by checking the voltage at the large stud on the right hand side of panel. This can also be done by checking if the blue PWR LED is illuminated in upper right hand corner.
- Verify Ground connections at ground stud.



Never power up the controller without having the ground connected.



## STEP 4

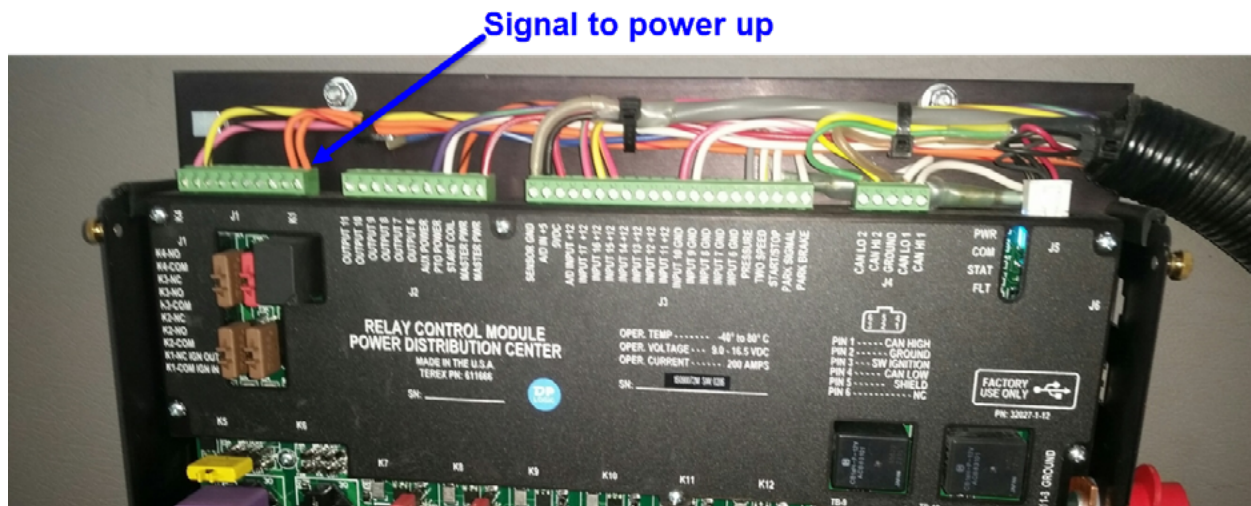
If there is no power at the panel, check the main circuit breaker to see if it has tripped. This is located near the chassis battery and is the first component in the circuit to the controller after the battery. Reset the circuit breaker if needed.

## STEP 5

Engage the Park Brake and turn the ignition key to the ON position (Do not start the chassis engine). When troubleshooting, be aware that LED's on the panel will power down to conserve battery power. This is preset in the programming of the unit.

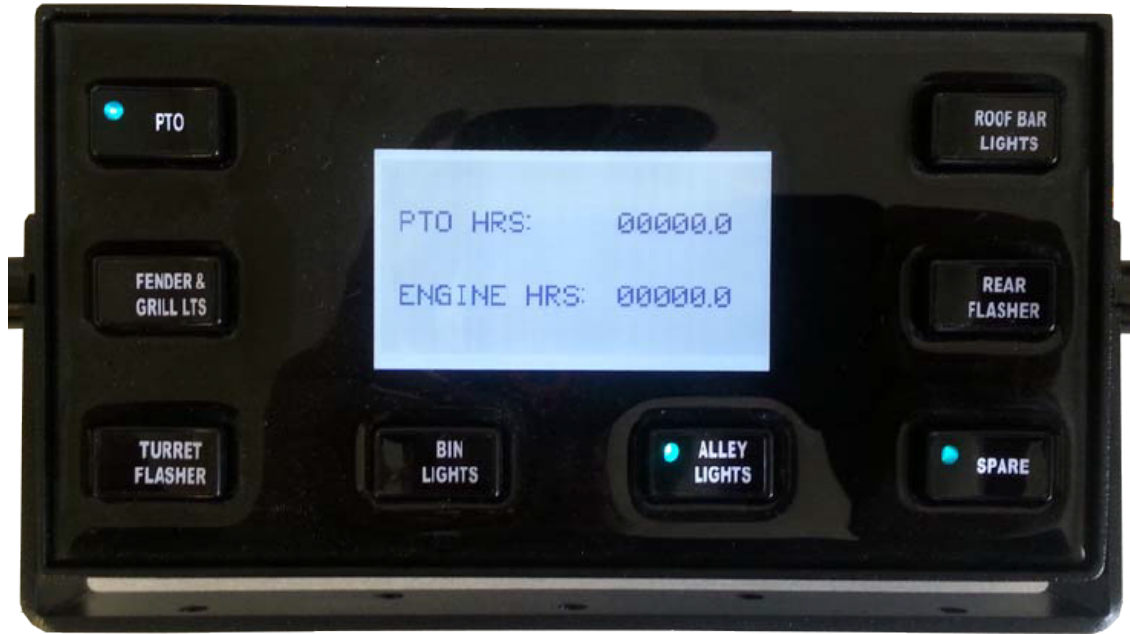
## STEP 6

The panel gets its signal to power up when the chassis ignition is turned on. This input is at connector J1, in the upper left hand corner of the panel, the orange wire at the far right hand terminal.



## STEP 7

The display on the switch panel should be showing Engine Hours and/or PTO Hours depending on the features enabled in the system.



## STEP 8

Alternating bars indicated that power is being supplied to the display, but there is no communication with the controller.





## STEP 8 (CONTINUED)

If there is no communication with the controller, check the cables, connections between the display and the controller, and the controller and chassis connection points.

Most chassis are connected using the Data Link Connector (DLC) or On Board Diagnostics port (OBD) located by the steering column.

The Black DLC connector in **FIGURE 7** is for a pre-2016 chassis.

The Green OBD connector can be found on post 2016 chassis. **FIGURE 8**



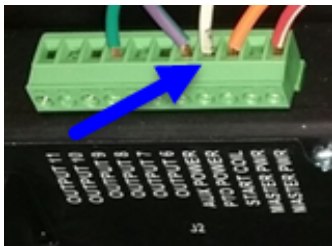
**FIGURE 7**



**FIGURE 8**

## STEP 9

Verify that the parking brake has been set and the transmission is in neutral, and then turn on the PTO/Master switch. The controller will turn on power at J2-4, which is also labeled “PTO Power”. This is a white/red wire.



## ON-BOARD DIAGNOSTICS

As with the first generation Chassis Controller, on-board diagnostics can be done using the display panel. Push and hold buttons 7 and 8 simultaneously until the diagnostic screen appears. **FIGURE 10 and 11**

**Note:** You will need to push and hold buttons 7 and 8 each time to advance to the next screen.



**FIGURE 10**



**FIGURE 11**

Depending on where the unit was built, the 7 button will show the previous screen and the 8 button will show the next instead of pushing and hold both buttons to view the next screen. If pushing and holding buttons 7 and 8 does not advance the display to the next screen, try pushing button 8 by itself instead.

Note: The diagnostic screen may time out after a certain period and will require pushing and holding buttons 7 and 8 again to view.

On standard controllers there is no “previous screen” option and both buttons must be pressed and held to advance to the next screen.

On screens with 6 buttons, push and hold buttons 5 and 6 to open the diagnostic screen. Push and hold buttons 5 and 6 to advance to the next screen.

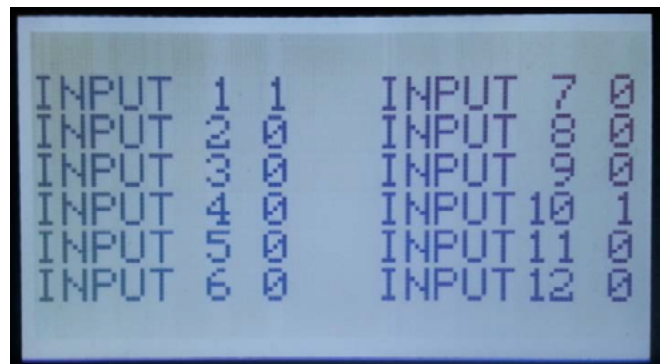


Reference the input and output legends in the **appendix** for the following example.

Note: The inputs and outputs listed in the appendix are for reference only; consult your unit specific electrical schematic for the inputs and outputs on your specific unit.

The inputs can be found on screens 1 and 2 and the outputs on screens 3 and 4 on the diagnostics screen.

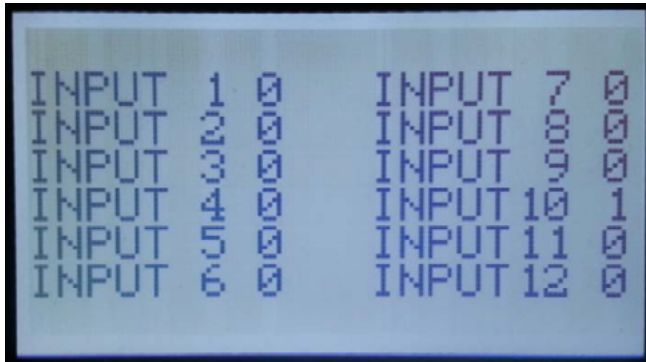
If the park brake is engaged, INPUT 1 should have a value of 1, meaning “On”. In the example below, INPUT 1 has a value of 1, meaning that the input is “On”.



In this example, INPUT 10 is also 1, or “On”, indicating: Boom Out Of Stow.

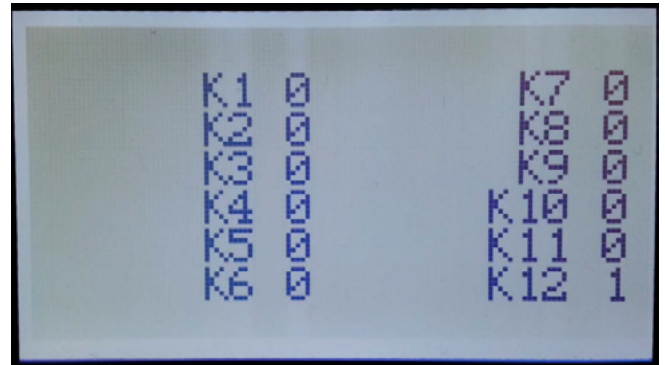
With the engine running and the PTO engaged, the Pressure Switch closes. This would be shown by INPUT 5 with a value of 1. If this signal is not received, INPUT 5 would be 0, and the LED indicator in the PTO switch on the display panel would be flashing.

Note: PTO switch on the display panel will flash if the engine is not running and the PTO is selected to engage.



## RELAYS

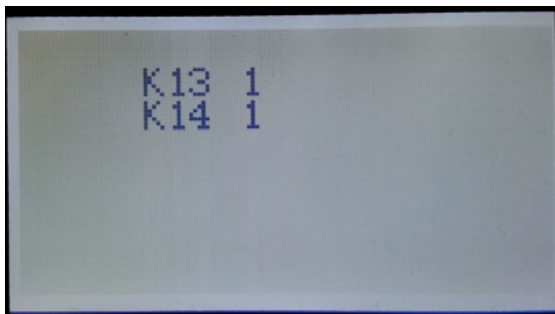
Screen 4 and 5 will show a 0 or 1 if the corresponding relay (K1-K14) is Off (0) or triggered to be On (1).



**FIGURE 15 - Screen 4**



**FIGURE 16 - Screen 5**



**FIGURE 17 - Screen 6**

The last screen shows voltages at the controller panel. **FIGURE 17**

VBAT is the voltage at the main power stud  
K1-COM is the ignition voltage at the orange wire referenced in Step 6

The 5VDC IN will be the voltage coming from a remote throttle sensor, such as the variable foot throttle on a digger/derrick

- Foot pedal released-should read 0VDC
- Foot pedal depressed-should read up to 5VDC

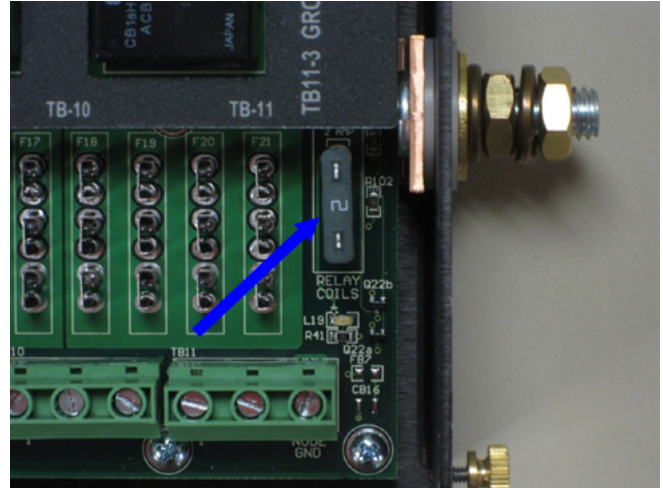
12VDC IN would be an optional 12 volt analog input



## LED TROUBLESHOOTING

This controller has a few more LED's that can be used for troubleshooting.

With the cover off the controller, there is a 2 amp fuse that supplies power for the various relay coils that are installed on the panel. Next to it is an LED that indicates that power is available to switch a relay, and that this fuse is good. If the fuse is removed or blown, the light at L19 will show red. Make sure the ground wire at "NODE GND" is secured.

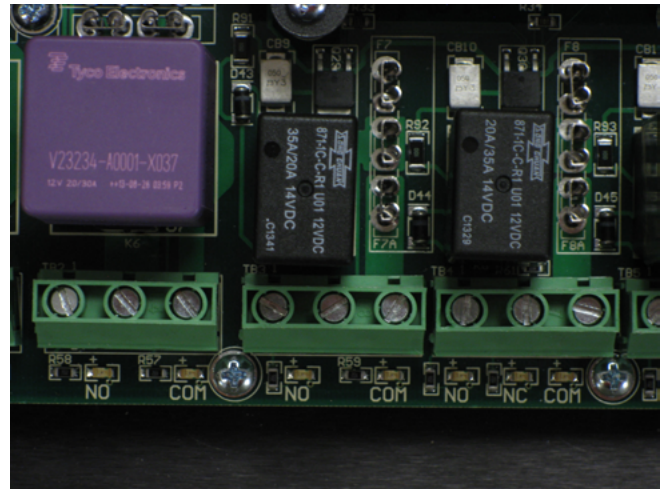


Do not change this or any other fuse with one of a different rating.

Below the output terminals along the bottom, there are LED's that will indicate if power is at the COM terminal of the relay. When the relay is activated, you should see the NO (normally open) or NC (normally closed) LED light up as the appropriate function is activated.

## CONCLUSION

Continue troubleshooting the circuit in question using the drawing for your unit and the Chassis Controller Manual.



# APPENDIX: A

OUTPUT	FUNCTION	WIRE COLOR	PIN	CONNECTOR
OUT01	MASTER POWER	RED/WHT	01	J2
OUT02	MASTER POWER	NA	02	J2
OUT03	STARTER	ORG/BLK	03	J2
OUT04	PTO SOLENOID	WHT/RED	04	J2
OUT05	AUX POWER	NA	05	J2
OUT06	NA	NA	06	J2
OUT07	NA	NA	07	J2
OUT08	NA	NA	08	J2
OUT09	NA	NA	09	J2
OUT10	SPARE #3	NA	10	J2
OUT11	NA	NA	11	J2
K1 COM	IGNITION IN	ORG	01	J1
K1 NC	IGNITION OUT	ORG/RED	02	J1
K2 COM	NA	NA	03	J1
K2 NO	NA	NA	04	J1
K2 NC	NA	NA	05	J1
K3 COM	NA	NA	06	J1
K3 NO	NA	NA	07	J1
K3 NC	NA	NA	08	J1
K4 COM	ALLISON TCM PIN 03	YEL/BLK	09	J1
K4 NO	ALLISON TCM PIN 17	PNK/BLK	10	J1
K5	UNIT POWER	12 RED #1	01	RELAY OUTS
K6	NA	12 BLK	01	RELAY OUTS
K7	WORK LIGHTS	14 BLK	01	RELAY OUTS
K8	STROBE LIGHTS	BRN/YEL	01	RELAY OUTS
K9	COMPARTMENT LIGHTS	GRN/WHT	01	RELAY OUTS
K10	GROUND LIGHTS	GRY/BRN	01	RELAY OUTS
K11	SPARE #1	GRN/BLK	01	RELAY OUTS
K12	SPARE #2	BLU/RED	01	RELAY OUTS

## OUTPUTS

INPUT	FUNCTION	WIRE COLOR	PIN	CONNECTOR	SIGNAL
IN01	PARK BRAKE	WHT/ORG	01	J3	GROUND
IN02	NA	NA	02	J3	GROUND
IN03	STOP/START	WHT/BLU	03	J3	GROUND
IN04	TWO SPEED	WHT/YEL	04	J3	GROUND
IN05	PTO PRESSURE SWITCH	GRY/RED	05	J3	GROUND
IN06	NA	NA	06	J3	GROUND
IN07	WINCH OVERRIDE	YEL/BRN	07	J3	GROUND
IN08	NA	NA	08	J3	GROUND
IN09	OUTRIGGER SAG (INPUT)	WHT/PNK	09	J3	GROUND
IN10	BOOM OUT OF STOW	PNK/WHT	10	J3	GROUND
IN11	NA	NA	11	J3	+12V
IN12	NA	NA	12	J3	+12V
IN13	NA	NA	13	J3	+12V
IN14	NA	NA	14	J3	+12V
IN15	NA	NA	15	J3	+12V
IN16	NA	NA	16	J3	+12V
IN17	NA	NA	17	J3	+12V
IN18	NA	NA	18	J3	ANALOGUE 12V
IN19	REMOTE THROTTLE 5V	RED	19	J3	5V OUT
IN20	REM THROTTLE SENSOR IN	BLK	20	J3	ANALOGUE 5V
IN21	REM THROTTLE SENSOR GND	WHT	21	J3	SENSOR GND

## INPUTS



FOR FURTHER ASSISTANCE,  
CONTACT THE TEREX UTILITIES TECHNICAL SUPPORT TEAM  
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