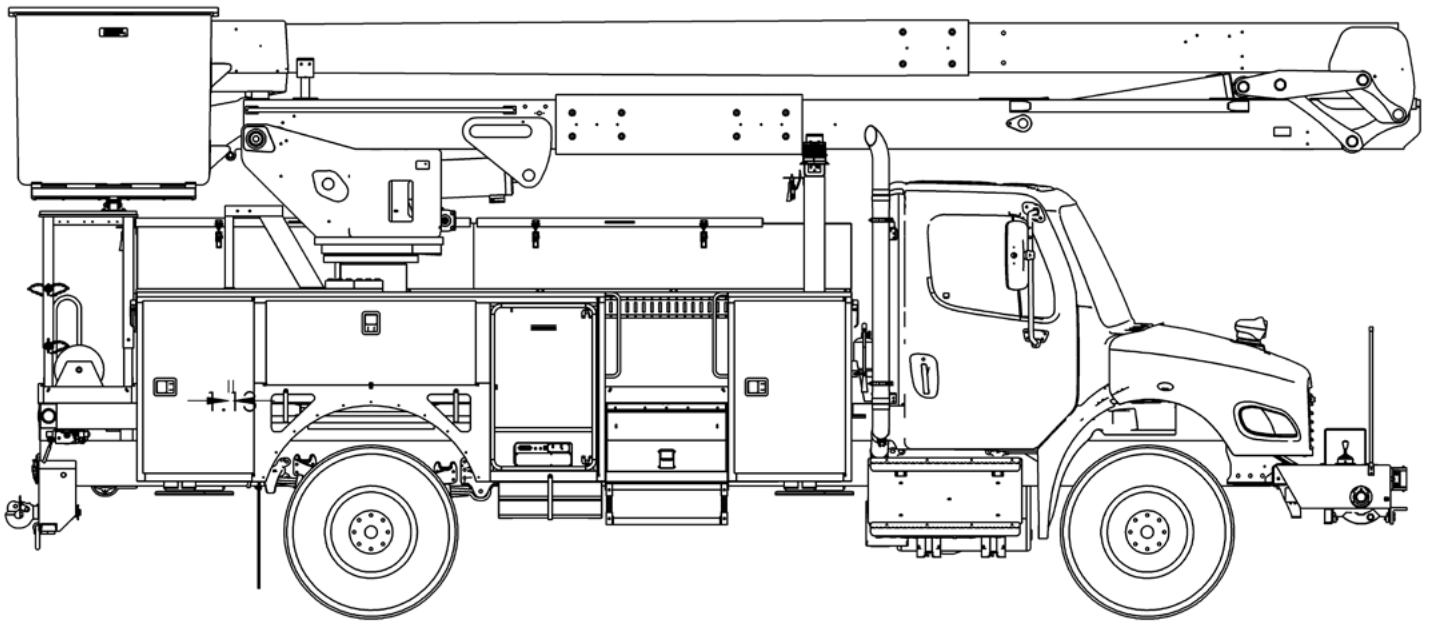




TECH TIPS

TROUBLESHOOTING THROTTLE ISSUES

NO. 191



SERVICE CALL:
TROUBLESHOOTING THROTTLE
ISSUES



MODEL(S):
ALL TEREX UTILITIES INSTALLED
MODELS USING IFM, COMBO AND
CANVIEW 4 CONTROLLERS



TOOLS NEEDED:
SIMPLE HAND TOOLS

INTERNATIONAL CHASSIS USING
DIAMOND LOGIC

TEREX UTILITIES TECHNICAL SUPPORT TEAM

PHONE: 1-844-TEREX4U (1-844-837-3948) | EMAIL: 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

If the chassis is an international chassis using remote power modules, troubleshooting can be assisted using the International DLB (Diamond Logic Builder) software.

Before beginning this Tech Tip, it is recommended to read the following:

- **Tech Tip #39 - Identifying a Terex Chassis Controller**
- **Tech Tip #41 - Troubleshooting the First Generation Terex Chassis Controller**
- **Tech Tip #42 - Troubleshooting the Second Generation Terex Chassis Controller**
- **Tech Tip #68 - Loss of Communication Between the Transmitter and Receiver**
- **Tech Tip #87 - Troubleshooting J1939 Connector**
- **Tech Tip #102 - PTO Light is Flashing**
- **Tech Tip #114 - Troubleshooting Communication Issues on a Radio-Controlled Digger Derrick**
- **Tech Tip #133 - PTO Button will not Respond**
- **Tech Tip #193 - Setting Cummins ECM**

BEFORE TROUBLESHOOTING

- Have the electrical schematic ready, either on a computer or printed off
- Have a general understanding of the schematic
- Know what circuits use ground signals and which use 5V or 12V
- Have a general understanding of the controller
- Use a test light with an incandescent bulb instead of an LED for accuracy
- Ignore the 4-5 volts seen on ground inputs, only a good ground signal getting to the controller is required
- Know how to get to diagnostic screen on Gen1, Gen2 and Canview 4 controllers.

If you have any questions or need assistance, contract Terex Technical Support at 1-844-837-3948 or by emailing utilities.service@terex.com.

Scenario 1

No throttles including bump up throttle. Confirm that the PTO pressure switch is sending a ground signal back to the controller. **Refer to Tech Tip #102** for troubleshooting.

If the truck has been to a dealership and had the ECM flashed or replaced, then our settings did not transfer with the updated configuration. Contact Terex Technical Support at 1-844-837-3948 or by emailing utilities.service@terex.com for assistance in setting the ECM parameters. **Refer to Tech Tip #193** for setting the Cummins ECM.

If PTO operation is affected, it may indicate an issue with the CAN wiring. Verify that the Y connector is still connected to the diagnostic 9 pin plug.

Verify that Engine is running on the diagnostic page.

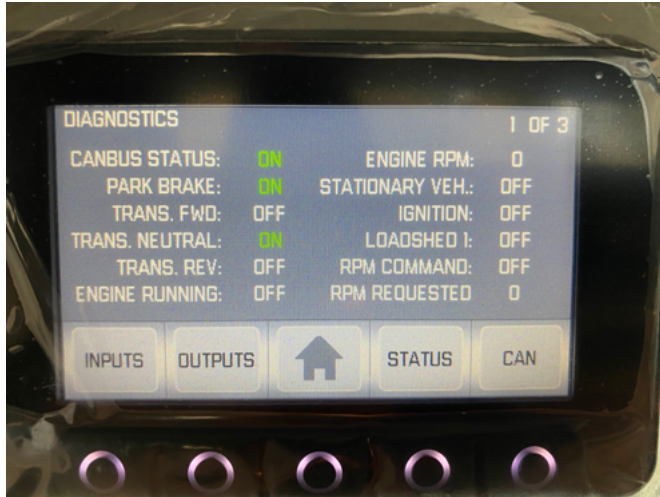


FIGURE 1 - Engine Not Running



FIGURE 2 - Engine Running

Scenario 2

Truck will **bump up** in throttle, but two-speed will not function.

STEP 1

Confirm that the PTO light is solid. It will either be a single red LED or the icon on screen will be green. Blinking or yellow indicates there is no feedback signal from the PTO. **Refer to Tech Tip #102** for troubleshooting.



Scenerio 2 (Continued)

STEP 2

To confirm the controller is receiving the input, use a jumper wire going from the ground lug at the bottom of the controller to the two-speed input. Reference the wiring schematic to confirm the input used.

Before jumping the connection, confirm that there is a 0/Off on the two-speed input on the diagnostic screen. When the connection is jumped, the input should change from a 0/OFF to 1/ON. If the input doesn't change, then jumper other inputs to confirm that their status will change. If others inputs change status on the diagnostic screen, then the input is bad. If the status does not change for any inputs, then start troubleshooting the CAN connections.

Figure 5, 6, 7, and 8

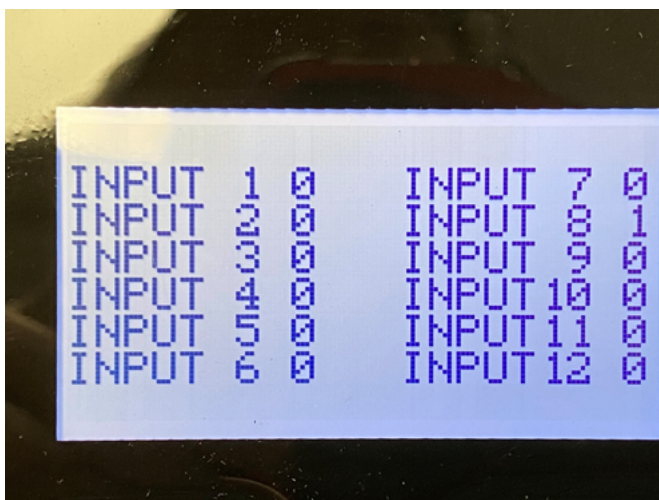


FIGURE 5 - Input OFF

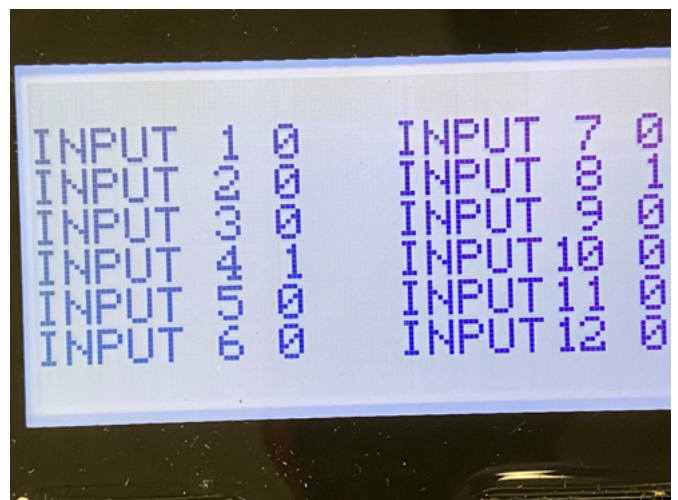


FIGURE 6 - Input ON

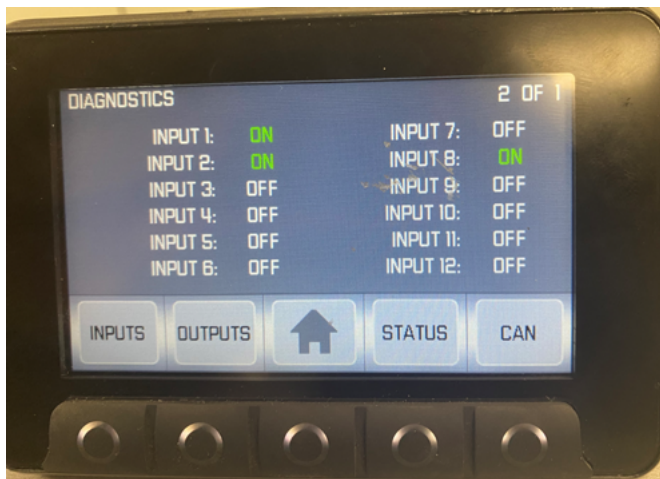


FIGURE 7 - Input OFF

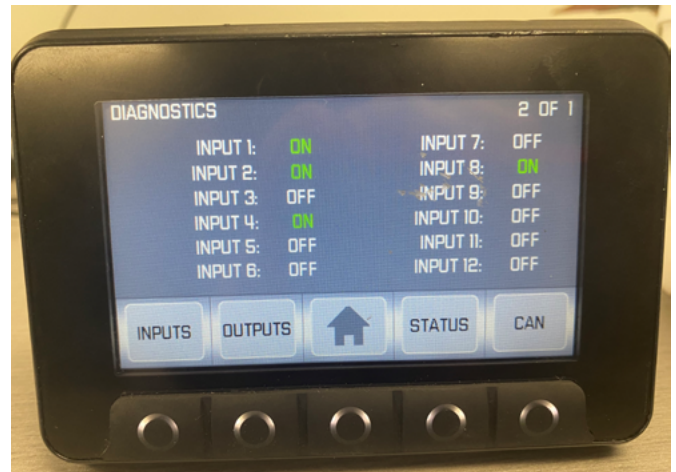


FIGURE 8 - Input ON

STEP 3

Confirm that the remote foot throttle is not in a stuck position, making it seem like the unit is on Preset 1.

This can be confirmed by checking the 5V signal return to the controller or customer access plug. (This connection is shown on the unit specific electrical schematic).

This can also be verified on the Canview 4 screen by going into the status screen in Diagnostics and confirming the throttle being requested.

STEP 4

Confirm that the CAN network is seeing 60 ohms across the yellow and green wire on the Y Connector. If there is too much variance in the OHMs the PTO will engage but the throttles typically may not work. **Refer to Tech Tip #87** for troubleshooting

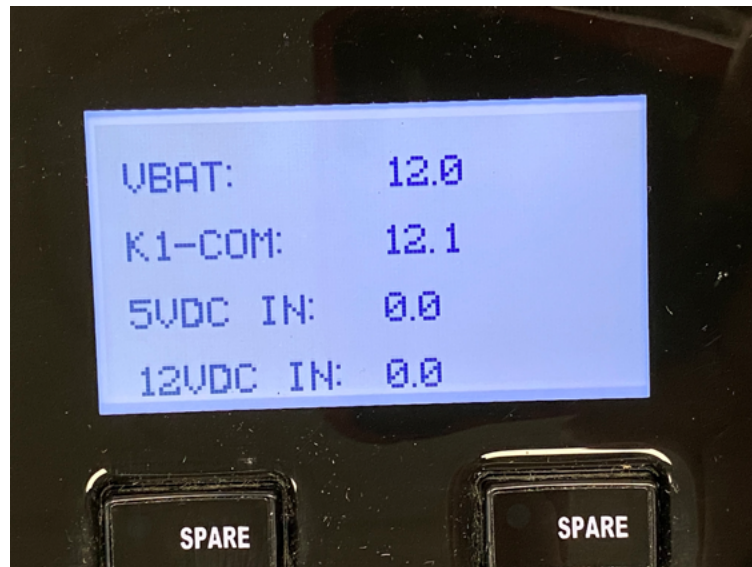


FIGURE 9 - 5VDC input is zero - no feedback signal to the controller

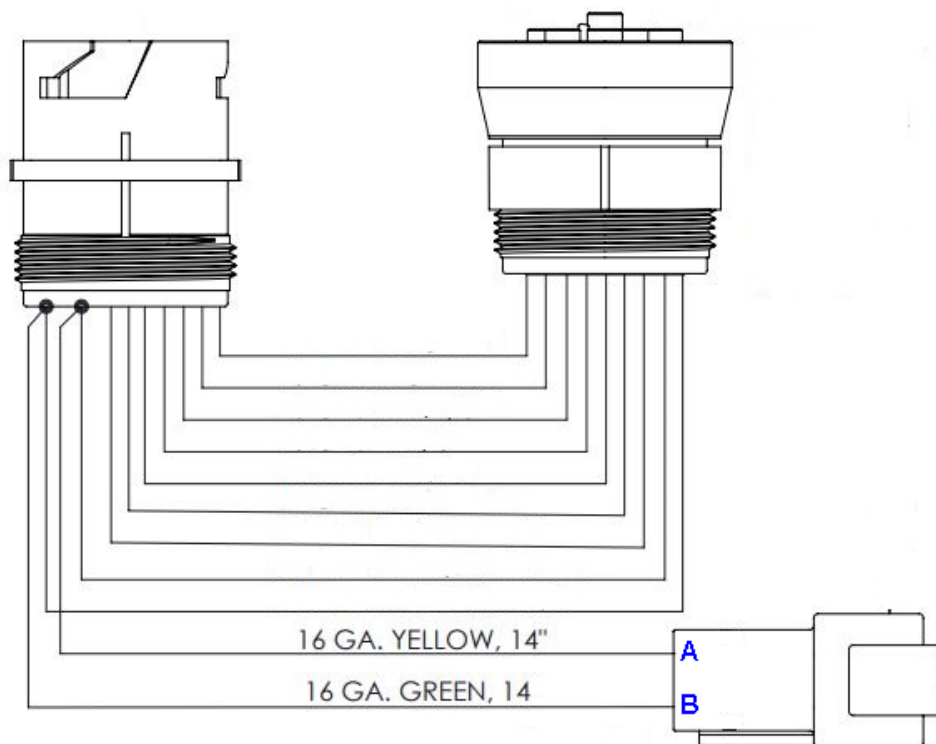


FIGURE 10

Scenario 3

Remote throttle on the Digger Derrick works, but not the two-speed.

STEP 1

Confirm that the controller is receiving the input for two-speed.

STEP 2

Verify if the remote throttle is not active. This can be done by sending voltage back to the controller on the 5V input or a remote throttle enable input. The rheostat can also be disconnected to confirm as well.

STEP 3

Confirm that the settings in the ECM are set up correctly. Contact Terex Technical Support at 1-844-837-3948 or by emailing utilities.service@terex.com for the ECM parameters.

Scenario 4

Remote throttle and two-speed do not work on a Digger Derrick with radio controls.

STEP 1

Check to see if the radio switch is set to radio mode and not manual. In **Figure 10** the switch is set to Manual making the radio inactive.



FIGURE 11 - Manual Mode Selected

Scenerio 5

Remote throttle will not reach maximum RPM.

STEP 1

Check throttle settings in the ECM or chassis controller to confirm the settings have not been changed.

STEP 2

Check the set screws on the linkage to make sure they are tight on the rheostat. If they are loose the linkage will move and not the rheostat. **Figure 12**

STEP 3

Remove the rheostat from the mount and linkage and turn it by hand. If the maximum throttle cannot be reached, confirm the 5V input and check the voltage on the return signal. If there is not at least 3.9V on the return, replace the rheostat.



FIGURE 12 - Set Screws

Scenario 6

Ramp up and down on Digger Derrick radio does not function.

STEP 1

Confirm that the remote throttle and two-speed are working correctly.

STEP 2

Confirm that the transmitter is syncing to the receiver. Reference **Tech Tip #68** and **Tech Tip #114** for syncing issues.

STEP 3

Confirm that when the radio is synced, we are seeing a radio enable input on the chassis controller. This will be a 12V input. Consult the unit specific electrical schematic to determine the correct input.

If the controller is not seeing the input, determine where the voltage is being lost in the circuit. This could be at the junction box on the turntable, through the collector rings, junction block in the pedestal or in between the tower and controller.

STEP 4

Toggle the RPM + and RPM - on the transmitter. Confirm that 12V inputs are seen on the controller. Verify the exact input on the electrical schematic. If the input is not seen on the controller, determine where in the circuit the voltage is being lost. This could be at the junction box on the turntable, through the collector rings, junction block in the pedestal or the issue in between the tower and controller.



APPENDIX: A

Glossary

2-Speed

A latched elevated RPM of the truck, a momentary activation of the 2-speed input will change the truck RPM from Preset 1 to Preset 2. The truck engine must be running and the park brake set for 2-speed to become active.

2-speed will reset with:

- 3-speed input active
- Engine not running
- Remove foot pedal active
- PTO output not active

3-Speed

A latched elevated RPM of the truck, a momentary activation of the 3-speed input will change the truck RPM from Preset 1 to Preset 3. The truck engine must be running and the park brake set for 3-speed to become active.

3-speed will reset with:

- 2-speed input active
- Engine not running
- Remove foot pedal active
- PTO output not active

Remote Throttle

On diggers with the remote pedal selected, operation of the pedal will control the truck RPM proportionally between Preset 1 and max RPM, by the percentage of the pedal position.

Non-diggers with pedal selected, operation of the pedal will elevate the truck RPM to Preset 3 when the pedal is active and return to preset 1 when the pedal is released

If equipped with a CAN based foot pedal, the pedal must be on the control CAN network.

Bump-up Throttle (Preset 1)

The initial increase in truck RPM when the PTO is engaged. Can be affected if the controller does not see a PTO feedback signal. RPM will raise to around 800 RPM.



FOR FURTHER ASSISTANCE,
CONTACT THE TEREX UTILITIES TECHNICAL SUPPORT TEAM
PHONE: **1-844-TEREX4U (1-844-837-3948)** | EMAIL: **UTILITIES.SERVICE@TEREX.COM**
