

ET205

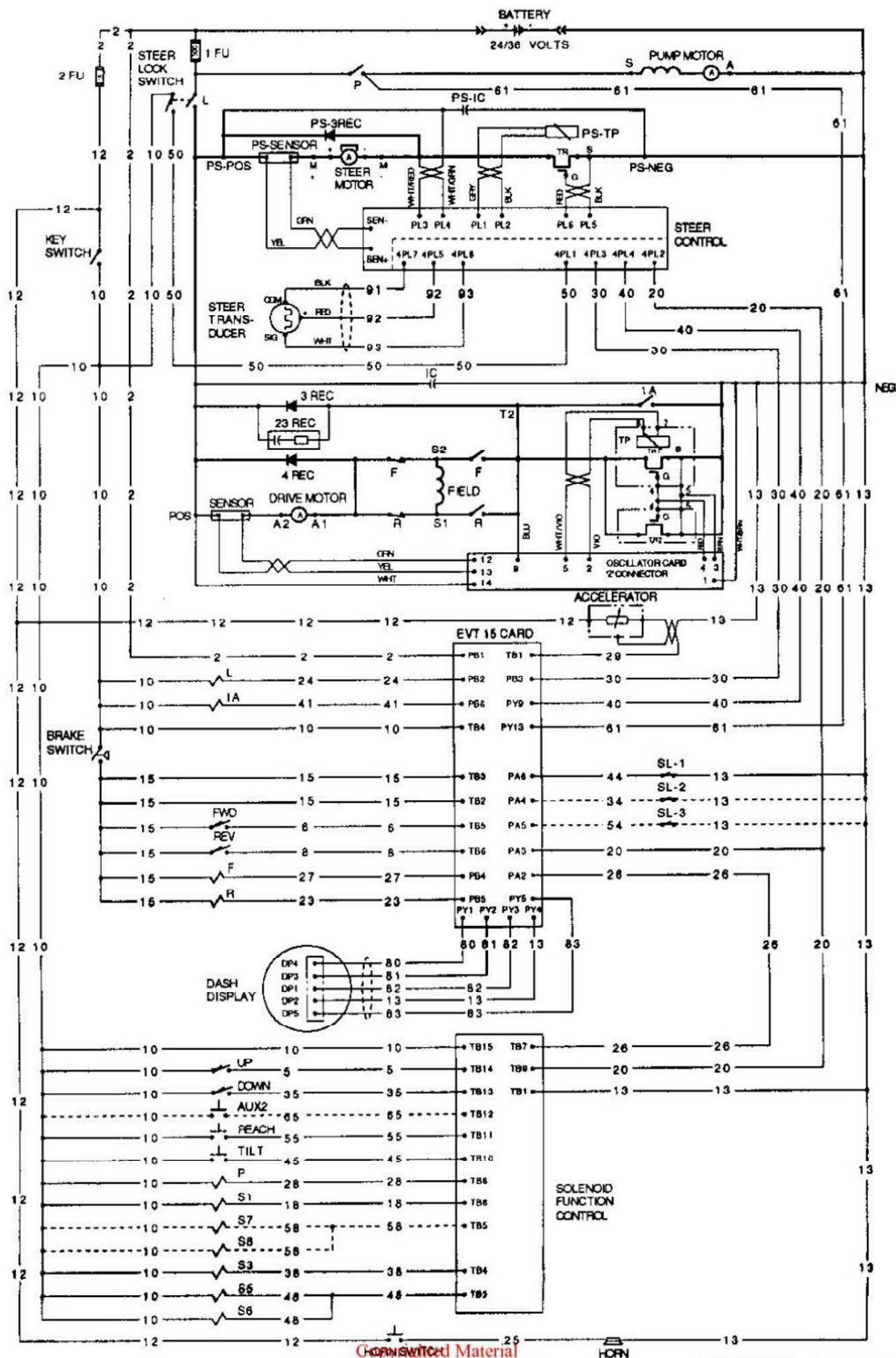
Troubleshooting the EV T15 Control



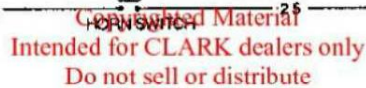
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OPERATIONAL SEQUENCE #2b

Connect the Battery (Continued)

E. Battery Positive will be applied to the accelerator through wire #2, control fuse 2FU and wire #12 on trucks equipped with solid state transducer accelerator.

Note: Trucks equipped with potentiometer will not have battery positive connection.

F. The Negative circuit to the accelerator will be completed through wire #13 to the control panel NEG cable terminal.

G. The accelerator will supply an output voltage corresponding to the handle position through wire #29 to terminal TB-1 of the EV-T15 control card.

H. The horn is operated by pushing the horn button which will supply battery voltage to the horn through wire #25, and negative through wire #13.

J. Battery Positive is supplied through wire #2, control fuse 2FU and wire #12 to the key switch.

Voltages Present:

- A. Battery positive
- B. Battery negative
- C. Battery positive
- D. Battery voltage across 1C capacitors
- E. Battery positive
- F. Battery negative
- G. Approximately 3.7 Volts with handle in neutral
- H. Battery positive on wire #25
- J. Battery positive on wire #12

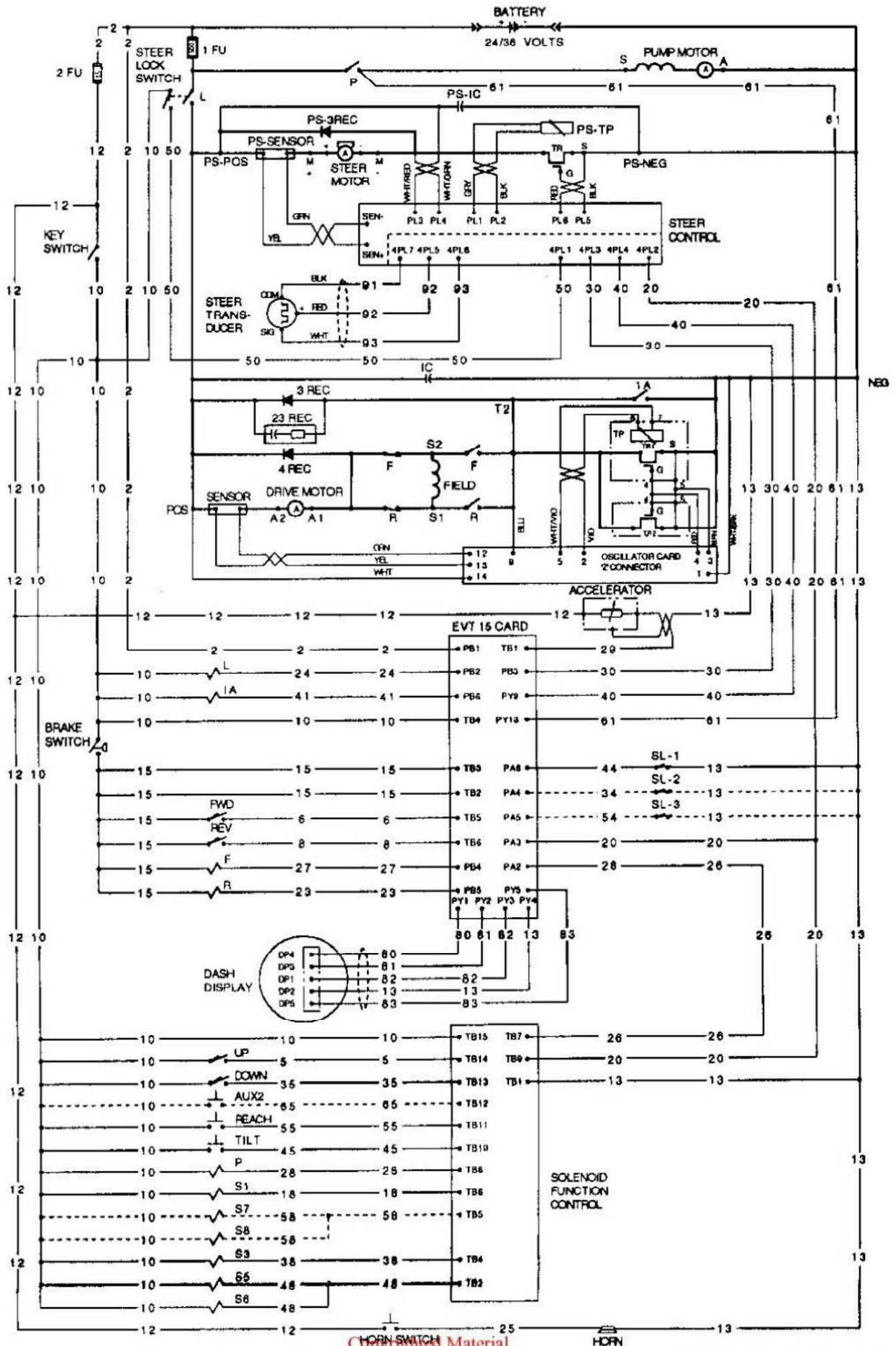
OPERATIONAL SEQUENCE #3a

Close the Key Switch

- A. Closing the Key Switch will supply battery positive to terminal TB-4 of the EV-T15 control card, Line and 1A contactor coils, terminal TB-15 of the Solenoid Control, all hydraulic function switches, Brake Switch, Pump Contactor coil and all solenoid coils and the Steer Lock Switch through the #10 wires. The card will check the battery volts at this time to see if it corresponds with the voltage setting within the card.
- B. The negative circuit to the solenoid control will be completed through wire #13 at terminal TB-1 of the Solenoid Control card.
- C. If the 1C capacitors are fully charged, the EV-T15 control card will complete the circuit from wire #24 at terminal PB-2 to battery negative. This will energize the line contactor coil in turn closing the line contactor power tips.
- D. The closing of the line contactor power tips will release (close) the steer lock switch.
- E. The closure of the steer lock switch will supply battery positive through wire #50 to terminal 4PL1 of the EV-T5PS steer control.
- F. The negative circuit to the steer control will be completed through the internal black wire connected to the PS-NEG terminal.
- G. The EV-T5PS control card will supply a positive voltage through wire #92 from terminal 4PL5 to the steer transducer's red wire. The negative circuit for the steer transducer is completed through its black wire and wire #91 to terminal 4PL7 of the EV-T5PS steer control.

Voltages Present:

- A. Battery positive on all #10 wires.
- B. Battery negative.
- C. Approximately 11 volts across the coil.
- D. Battery positive.
- E. Battery positive.
- F. Battery negative.
- G. Approximately 15 volts.



OPERATIONAL SEQUENCE #3b

Close the Key Switch (Continued)

H. The EV-T15 control card checks the battery condition by checking the battery volts between terminal PB-1 and battery negative. If the battery is not discharged, the card will supply a voltage signal from terminal PA-2 through wire #26 to terminal TB-7 of the Solenoid Control.

Note: Status Code -15 or -16 will be displayed if the battery voltage is less than or higher than the preprogrammed battery voltage setting, function #15.

J. The closure of the line contactor power tips will keep the 1C capacitors charged to battery volts.

K. The EV-T15 control card will monitor the capacitor charge on the white wire at terminal PZ-14.

Note: Status Code -50 will be displayed if the capacitor voltage does not remain above 85% battery volts after the line contactor closes.

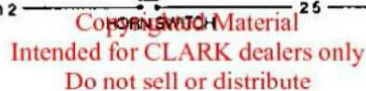
L. The EV-T15 control card will send data signals on wires #80, #81, #82, #83 and #13 to the dash display to light all the display segments as a visual check for the operator. If all the segments are working, 8888 will be displayed for about 1 second.

M. After the 1 second segment check, the EV-T15 control card will sense the absence of battery voltage at terminal TB-2 indicating that the brake switch is not closed. It will send a signal to the dash display to show a -01 Status code representing an open brake switch.

Note: If the truck hours exceed the preprogrammed maintenance reminder hours, a Status Code -99 will be displayed for about 1 second between the 8888 display and the -01 display.

Voltages Present:

- H. Approximately 10 volts.
- J. Battery volts across the 1C capacitors.
- K. Battery positive.
- L. NA
- M. NA at dash display, approximately 2/3 battery volts at terminal TB-2.



OPERATIONAL SEQUENCE #4a

Steering Function

A. Rotating the Steer Tiller turns the Steer Transducer, generating a pulsed signal. This signal is sent to the EV-T5PS steer control card through the transducer's white wire and wire #93 to terminal 4PL6.

B. The EV-T5PS card then supplies a gate voltage to the transistor through the internal red wire turning the transistor 'ON'.

C. Current flows from the battery, through the line contactor, current sensor, steer motor armature, transistor and back to battery negative.

D. Current will also flow from PS-1C capacitor through the current sensor, steer motor armature, transistor and back to battery negative. The amount of current flowing out of the capacitor will depend on the percent ON-Time of the EV-T5PS control.

E. The current flowing through the steer motor armature interacts with the magnetic flux of the permanent magnets in the motor causing the armature to rotate.

F. When the gate voltage to the transistor is removed, the transistor turns 'OFF'.

G. Because the battery and capacitor no longer have a circuit through the steer motor, the current stops. This induces a collapsing magnetic field in the armature coils resulting in a voltage surge. This voltage, opposite to battery voltage, is applied to the PS-3REC.

H. This voltage forces current through the PS-3REC, PS-sensor and the armature. This current, called Flyback Current, continues to drive the Steer Motor Armature during the transistor's OFF-Time.

Voltages Present:

Too quick to measure.

NOTE: If the Brake Switch is open (operator not standing on the brake pedal) and no signal is received from the Steer Transducer or Solenoid Control, the Steer Motor will not start.