SWITCH HUB MODULE (SHM) TROUBLESHOOTING PROCESS

ISSUE: Battery drain due to bus not staying asleep. Bus electrical system goes to sleep after 60 seconds but reactivates (wakes up) repeatedly thereby draining the batteries.

SUSPECT: The switch hub module (SHM) is suspected. Follow this troubleshooting procedure step by step to pinpoint the issue. Does the SHM really need replaced? This will help prevent a good part from being replaced which eventually results in a rejected warranty claim by the manufacturer.

NOTES: The bus takes 60 seconds to go to sleep assuming nothing is touched in the bus that would manually reactivate it (driver switch, brake pedal, ignition, etc.) Please do not skip a step. See Photo 1.
Never probe through an electrical wire with a tester. Always use the back of the terminal to avoid damage.

STEP 1: Verify that there are no active fault codes in LED panel in the dash. REFER TO Carolina Thomas Bus Buzz #20 for finding these. The bus provides answers to your questions. Just ask it.
Active → **Active Codes are found:** You must repair these first before proceeding. Then recheck if bus stays asleep after 60 seconds.

No Active → **No Active Codes Found in dash -** Then proceed with these instructions.

STEP 2: Open switch cabinet left of the driver. Lift the switch hub module up and unplug BOTH switch bank looms out of SHM. (Large white bundles of wires with connector into SHM.) See photo 2.

STEP 3: Wait 60 seconds. Does bus go to sleep (dash goes dark) and then wake back up on its own (dash LED's light back up assuming nothing was touched)? **YES or NO.** Proceed below. See Photo 1.

YES

Bus Wakes up on its own even with BOTH switch bank looms unplugged

W = Wakes up

NOTE: We will test SHM for power and ground conditions.

STEP W1: SHM P8 and P9 - Test 12-volt power wires (RED) for full battery voltage (12.4 volts with fully charged battery). P8 has two 12 volt power wires to check and P9 has one.

If 12.4 volts min. go to STEP W2. If no voltage go to W2A → **W2a: If no voltage go to fuse block**

STEP W2: Test P9 ground voltage with digital multimeter to make sure ground voltage is .2 volts or below. DO NOT probe wires. Test by going into back of connector. See photo 8. Call Carolina Thomas if you do not know how to voltage test a ground.

Fuse block is in the same switch cabinet and the fuses are labeled SHM. They are 30 Amp fuses. Replace as needed. Recheck system. See photo7.

If ground voltage is higher than .2 volts go to STEP W3.

STEP W3: Check ground connection above driver in overhead cabinet and terminal pins in SHM connector. See photo 4.

STEP W4: Recheck system for proper operation.

If all 12V power sources RED (3 total) on P8 and P9 and the ground (1 on P9) are found to be good go to STEP W5:

STEP W5: Call Carolina Thomas and we will ship you a known good SHM for you to test. We are keeping several of these on hand now so that we can avoid rejected warranty claims for a misdiagnosis.

NO

Bus stays Asleep with BOTH switch bank looms unplugged

A = Asleep

STEP A1: Plug one bank loom back in.

STEP A2: Wait 60 seconds. If Bus wakes up your problem is in that bank of driver switches. We must troubleshoot that bank of switches now.

STEP A3: Unplug one driver switch in that bank at a time. Each time you remove a switch you must wait 60 seconds to determine if the bus is going to sleep and waking back up. If the bus stays asleep after removing this switch you have found the problem. Verify the connector pins, and if good, the switch is bad. Replace and recheck system. If bus sleeps and wakes up that switch or plug is the issue. When each switch is removed you should verify terminals in switch and harness are not damaged and are in the correct position. See photos 3 and 5.

STEP A4: If all switches are good perform a wiggle test on that banks harness after the bus goes to sleep. You need to test the soldered splice joints (black heatshrink) in that harness. When wiggling this areas the bus will wake up if a

NOTE: If Switch Bank A checks out OK then you must unplug it and plug in Bank B and start over on STEP A1 to check this bank. Testing procedure is the same as stated above.