Trouble-Shooting

STEP I - Establish communication between the remote and the TIU

A. Power up both the DCS Remote and the TIU by turning on a transformer hooked to the fixed input 1 channel and pressing the S5 On/Off button on the remote.

B. Press the READ button on the remote.

1. If the remote says FOUND TIU ADDRESS # WITH # AIU BOXES CONNECTED that means that your remote is communicating with the TIU - Proceed to STEP II.

2. If the remote says TIU ADDRESS # NOT FOUND that means that your remote is not communicating with the TIU - keep following this step.

a. Power up the TIU and count the number of times the red LED blinks, this number is the actual address of the TIU. Compare that number to the TIU address that the remote did not find.

1. If the numbers do not match then you must add the correct TIU address in to the remote and delete any unused TIU addresses that may be in the remote already. After you're finished, power up the TIU and the remote and press the READ button again.

· *If the remote finds the TIU then proceed to STEP II.*

2. If the numbers match but the remote still will not find the TIU that means you most likely have a loose RF Module in either the remote or the TIU. Open up both and make sure that the RF Modules are pushed all the way in to their respective sockets. After you finished power up the TIU and remote and press the READ button again.

a. If the remote finds the TIU proceed to STEP II.

b. If the remote still does not find the TIU that means that you most likely have a bad RF module in one or the other. If available use a known good DCS system to check which RF module is bad and order the correct RF module from us.

3. If the red LED does not light at all then check for a blown fuse in the TIU.

4. If the red LED in the TIU comes on but does not blink at all that usually means that the software was not loaded correctly in the TIU, try re-loading the software.

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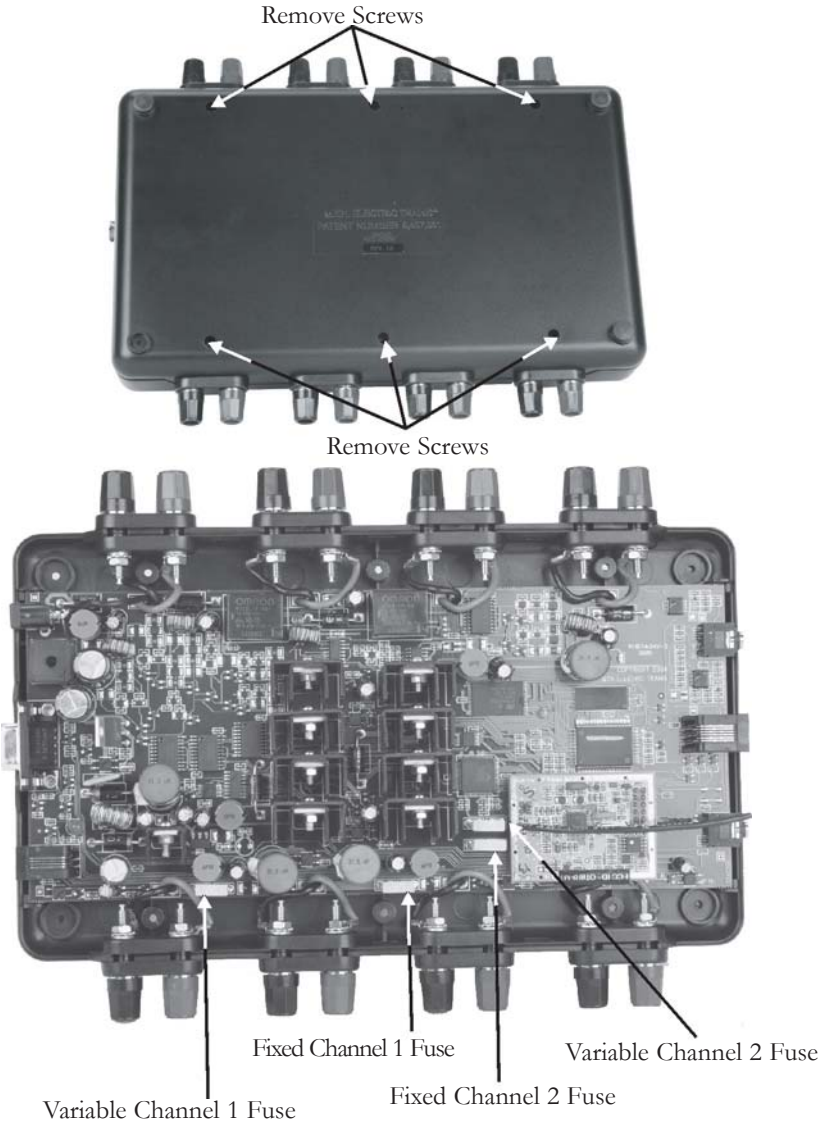
Each channel of the TIU is equipped with an internal fuse. Therefore, if there is no voltage on the output of the TIU channel when voltage is supplied to the input, open the TIU and check the internal fuse. The fuse is a yellow, 20AMP, automotive type fuse. These are available at local automotive stores and also from MTH. The MTH part number is BB-0000030.



Trouble-Shooting

STEP II - Establish communication between the TIU and a PS2 Engine

A. Place one PS2 equipped engine on a track hooked to the Fixed 1 output of the TIU.

B. Power up the transformer that is hooked to the Fixed input 1 of the TIU.

C. Press the READ button. - *If the remote does not find the TIU go back to STEP I*

D. Try to add the PS2 engine in to the remote by pressing the MENU button, then selecting System, then Engine Setup, Add Engine, Add MTH Engine.

1. If the engine adds in to the remote that means that channel seems to be working properly - do a track signal test to make sure.

2. If the engine does not add in to the remote:

a. Make sure that the engine is not already in the remotes engine list. If the engine is already in the remote then select the engine from the list and start it up - if the engine starts up that means that channel on the TIU seems to be working ok - do a track signal test to make sure.

b. Make sure there is in fact power on the track by placing a lighted car on the track by the engine or checking any lighted lock-ons that may be hooked to that particular track.
-If there is no power to the track then check the wiring from the out put of the TIU to the track. If that looks ok then you may open the TIU and check for either a blown fuse in the TIU or a loose wire connecting the PCB to one of the input/output terminals.

c. Make sure that the DCS signal is turned on to that track by pressing the Menu button, then selecting System, then DCS Setup, then press the S3 soft key it will say AON above it on the LCD. Try to add the engine again. If the engine adds in to the remote that means that channel is now working properly - do a track signal test to make sure.

d. Rule out the layout/wiring as being the problem. You can do that by hooking up just a test track to the output of the channel and placing one PS2 equipped engine on it. Power everything back up and try to add the engine again.

1. If the engine adds on the test track that means the problem most likely lies in the layout/wiring. Do a track signal test while the engine is on the test track - you should have no less than a 10.

2. If the engine does not add on the test track or you have a poor track signal strength then it is recommended to return the TIU for repair.

E. Test all other channels on the TIU to be sure they can communicate with a PS2 engine. Be sure to power up either Fixed 1 or AUX power when using Fixed 2, VAR 1, or VAR 2. If you can not get any voltage out of one or both of the variable channels then proceed to STEP III.

Trouble-Shooting

STEP III - Ensure that the Variable voltage channels are working correctly

A. Hook up a track to the output of VAR 1 making sure you have either a lighted lock-on or a lit passenger car on the track.

B. Power up the TIU using either Fixed input 1 or AUX power.

C. Connect a MTH recommended transformer to the input side of VAR 1 and raise the throttle to MAX.

D. Using the DCS remote press the TR button and make sure there are variable tracks added in to the remote. They should come up as TIU # VAR 1 and TIU # VAR 2.
· If no tracks come up in the remote or the tracks that do come up are named something different and you don't know which TIU and VAR channel they may be linked to then you must *add the correct tracks in to the remote. (ie. if when you press the TR button the tracks come up with names of top and bottom and your not sure if top is VAR 1 or VAR 2). *See the owner's manual for directions on how to do this.

E. Select TIU # VAR 1 from the list - you should now have a screen that says VOLTS: 0.0. Using the thumb wheel scroll the voltage up to 10V - check to see if there is in fact voltage on the track by looking at the lighted lock-on or the lit passenger car on the track.
-If there is voltage on the track try scrolling the voltage up and down a couple times making sure the light in the lock-on/passenger car gets dimmer and brighter. If it does that means everything seems to be working ok on VAR 1 - proceed to checking the VAR 2 channel.

F. Make sure the tracks added in to the track menu are for the correct TIU (ie. if your TIU is on address 3 and the tracks come up TIU 1 VAR 1 and TIU 1 VAR 2 they will not work).
- If the tracks are pointing to an incorrect TIU address delete them and add in the correct tracks.

G. Open the TIU and check for a blown fuse and/or a loose wire connecting the PCB to the input/output terminals.

1. If there is in fact a blown fuse or a loose wire then correct the problem and try again.
2. If there are no fuses or the fuses are ok and the wires connecting the PCB to the input/output terminals are all intact then you most likely have a component problem in the TIU.

H. If none of the above measures correct the problem then it would be best to send the DCS system in for repair.

Trouble-Shooting

STEP IV - Operating Issues while running a Lash-up

A. Whenever an operating problem occurs when running a lash-up, check the TIU and Remote code revisions. The code revision in the TIU and Remote must match. Power up the remote by pressing the S5 On/Off button on the remote. Record the Remote code Version ## displayed in the LCD screen as the remote powers up.

B. Power up the TIU by turning on a transformer hooked to the fixed input 1 channel or AUX power. Using the Remote, select Menu, System, TIU Set-up, TIU Version to display the TIU code revision. Compare the Remote and TIU code version, they must match. If they do not or there is a later version, go to M.T.H's website and download new code. See DCS Dealer Loader Instruction on the PS2 section of the M.T.H's Website by selecting the PS2 icon on the lower section of the homepage.

Trouble-Shooting

C

Although DCS has been designed and engineered for ease of use, you may have some questions during initial operation. The following table should answer most questions. If your problem cannot be resolved with this table, please visit www.protosound2.com for further suggestions or contact M.T.H. for assistance.

CONTROL PROBLEMS

No/Low Smoke Output	Remedy
Possible Cause: Smoke is turned off	Enable Smoke (keypad #1)
Possible Cause: Smoke unit is low on fluid	Add smoke fluid to smoke unit
Possible Cause: Smoke Volume is set to Low in the Control Menu	Set smoke volume to higher setting in Control Menu
Engine Won't Exceed Requested Speed	**Remedy**
Possible Cause: Max Speed is set too low in the Control Menu	Set Max Speed to the maximum speed you want the engine to run
Engine Stops/Starts Too Rapidly	**Remedy**
Possible Cause: ACC/DEC Rate set to a high value in the Control Menu	Reduce the value of the ACC/DEC Rate in the Control Menu
Engine Will Not Change Direction	**Remedy**
Possible Cause: Engine is set to F/F or R/R in the Control Menu	Set Direction Control to F/R in the Control Menu
Possible Cause: Direction Lock is enabled for the engine	Disable Direction Lock for that engine (located in the that engine's softkeys)
Possible Cause: Engine has Lash-Up settings	Issue Feature Reset
Possible Cause: Throttle has been increased prior to engine coming to a complete stop	Wait for engine to come to a complete stop before moving the throttle

Trouble-Shooting

ERROR MESSAGES

Check Track	Remedy
Possible Cause: Engine Not On Track	Remove power, place engine on track, reapply power
Possible Cause: Dirty track, intermittent track connections	Clean track, check connections, verify wiring
Possible Cause: Multiple engines on track with same address	Place one of the engines on the track and change it's address.
Possible Cause: No DCS signal on track	Check wiring and verify TIU is powered
Possible Cause: In "ALL" mode, all engines in active list not on track	Place all active engines on track or press "READ" to update active engine list
Possible Cause: Controlling switches or accessories in an AIU that is not connected to the TIU	Reconnect AIU(s)
No Engine To Add	**Remedy**
Possible Cause: Engine already exists in remote	Press the "READ" button to activate and run the engine
Out Of Range	**Remedy**
Possible Cause: Remote is too far from TIU	Move remote closer to TIU
Possible Cause: No power to TIU	Connect power supply to auxiliary or fixed #1 input of TIU (verify red LED is lit)
Possible Cause: Low batteries in remote	Install new batteries
Possible Cause: RF Interference (900 MHz phone, etc.)	Turn off other RF devices that may cause interference or plug in phone handset cord to remote and TIU.
TIU Address "X" Not Found	**Remedy**
Possible Cause: No power to TIU	Connect power supply to auxiliary or fixed #1 input of TIU (verify red LED is lit)
Possible Cause: Invalid TIU address in remote	Delete all unused TIU addresses via the TIU Setup selection in the SYSTEM menu
No Power Out put	
Possible Cause: blown fuse	Replace fuse refer to page 133 for instructions

Trouble-Shooting

TMCC PROBLEMS

Cannot Control TMCC Engine	Remedy
Possible Cause: Incorrect TMCC address entered during engine setup	Enter correct TMCC address by following the Edit TMCC Engine Address instructions
Possible Cause: Incorrect TMCC TIU address entered during engine setup	Delete TMCC engine and re-add entering correct TMCC TIU address
Possible Cause: Command base signal wire not connected to TIU	Connect TMCC base signal wire to TIU output
Possible Cause: TMCC Command Base not connected to TIU serial port	Connect MTH TIU Connector Cable (part #50-1018) from TIU serial port to TMCC command base
Possible Cause: TMCC base has no power	Ensure power is applied to TMCC command base

TRACK PROBLEMS

Remote Falsely Shows Power On Track	Remedy
Possible Cause: No input power to selected track	Apply 22VAC to corresponding TIU input
Possible Cause: Wrong track selected	Select a track that has 22VAC applied to it
Actual Track Voltage Incorrect	**Remedy**
Possible Cause: Less than 22VAC is being applied to the TIU input	Apply 22VAC to corresponding TIU input
Possible Cause: 50 Hz is selected from the System Menu	Select 60Hz for operation in the United States
Can't Communicate With Var. Track	**Remedy**
Possible Cause: DCS signal is disabled	Enable DCS signal in the System Menu
Voltage Control Limited To <22 Volts	**Remedy**
Possible Cause: Minimum or Maximum track voltage settings has been changed (MTV softkey)	Set Minimum/Maximum track voltage to desired Start volts and desired Max Volts setting using the MTV softkey

LASH-UP PROBLEMS

Loco Not Shown In Creation List	Remedy
Possible Cause: Engine is in the Inactive list	Activate engine
Lash-up Doesn't Appear In Active List	**Remedy**
Possible Cause: Name not given to Lash-Up	Re-create Lash-Up and enter name for Lash-Up to complete creation process
Loco Behaves Incorrectly In Lash-up	**Remedy**
Possible Cause: Engine has been started-up and run as an independent engine	Inactivate then re-activate the Lash-Up to send lash-up defaults to all engines in selected Lash-up
Loco Retains Settings When Run Alone	**Remedy**
Possible Cause: Engine has not been sent the Start-Up command	Press Start-Up (keypad #6) for that engine. this will send a feature reset to that engine

QUICK START PROBLEMS

Remote Will Not Power Up	Remedy
Possible Cause: No batteries installed or batteries are dead	Install 4 new, fresh "AAA" alkaline batteries
Loco Starts As Soon As Power Is On	**Remedy**
Possible Cause: Wires from TIU to track are reversed	Wire from the red post on the TIU output to the red post on the track lock-on (center rail) and from the black post on the TIU output to the black post on the track lock-on (outer rail)
Possible Cause: TIU is not powered on	Connect power supply to auxillary or Fixed #1 input of TIU (verifty Red LED is lit)
DCS Signal is turned off	Refer to DCS Set up in Chapter 6
Odd Softkeys Appear in LCD Screen	**Remedy**
Possible Cause: Remote was Out of RF Range during engine add process	Delete engine from remote, move within RF range of the TIU and re-add engine

Trouble-Shooting

SOUND PROBLEMS	
Inaudible Individual Sounds	**Remedy**
Possible Cause: Individual Volumes in Sound Menu are turned down	Check independent volume levels for Bell or Horn or Engine Sounds or Accent Sounds in the Sound Menu
No Sounds From Engine	**Remedy**
Possible Cause: Master Volume Turned Down	Increase Master volume
Possible Cause: Individual Volumes Turned down in Sound Menu	Increase individual sounds volumes in Sound Menu
Possible Cause: Engine Sounds (keypad #4) activated	Press Eng Snd (keypad #4) so LCD displays Engine Sounds = On
Possible Cause: Protocast enabled	Press Protocast (keypad #8) so LCD displays Protocast = Off
Possible Cause: Engine has Lash-Up settings	Select Feature Rest form Advanced Menu
Possible Cause: Proto-Dispatch enabled	Press and release Mic button
Possible Cause: Doppler is active	Press Doppler button (keypad #0) so (D) on LCD disappears
Possible Cause: Engine is shut-down	Ensure engine is stopped and press the Start-Up button (keypad #3)
Possible Cause: Track Signal is running	Turn Track Signal Off in System Menu
No Chuffing Sounds	**Remedy**
Possible Cause: Chuff Rate Set too high in Sounds Menu	Set Chuff Rate to lower number of chuffs/revolution
No Brake Sounds	**Remedy**
Possible Cause: Brake sounds turned off	Turn Brake sounds on in the Sound Menu
No Cab Chatter Sounds	**Remedy**
Possible Cause: Cab Chatter sounds turned off	Turn on Cab Chatter sounds
Labor/Drift Chuff Not Automatic	**Remedy**
Possible Cause: Proto-Chuff set to Off	Set Proto-Chuff to Auto

Trouble-Shooting

SOUND PROBLEMS	
Poor Proto-Cast Sound Quality	**Remedy**
Possible Cause: Dirty Track	Clean track
Possible Cause: Audio Input Volume too high	Reduce input audio volume
Possible Cause: Audio Source connected to incorrect TIU input	Connect CD Players, Cassette players, etc to Proto-Cast (Audio) jack and connect microphones to the Proto-Dispatch (Mic) jack
Possible Cause: Inadequate DCS signal	Verify the track is clean and wired correctly per the DCS manual
Possible Cause: Too many commands present on track	Avoid sending excessive commands when Protocast is active
No Clickity Clack Sounds	**Remedy**
Possible Cause: Clickety-Clack sounds turned off	Turn On Clickity Clack sounds
Possible Cause: Engine not running faster than 30sMPH for 30 seconds at the same speed	Increase engine speed to greater than 30sMPH

Trouble-Shooting

SWITCH & ACCESSORY PROBLEMS	
Cannot Activate Switch/Accessory	**Remedy**
Possible Cause: Accessory or switch is not wired correctly	Wire the switch or accessory per the AIU manual
Possible Cause: No power to switch or accessory	Ensure power is getting to the switches or accessories
Possible Cause: AIU is not connected to TIU	Connect AIU to TIU using cable supplied with AIU
Possible Cause: Switch or accessory is not added to the remote	Add switch or accessory to the remote
Switch Fires In Opposite Direction	**Remedy**
Possible Cause: Wires revered at AIU or at switch	Wire the switch to the AIU per the AIU manual
Switch Does Not Operate In Route	**Remedy**
Possible Cause: Switch is not added to selected route	Add the switch to the selected route
Accessory Does Not Operate In Scene	**Remedy**
Possible Cause: Accessory is not added to selected scene	Add the accessory to the selected scene
Activation Of Scene/Route Overload	**Remedy**
Possible Cause: Insufficient power for simultaneous activation of multiple devices	Reduce the number of devices connected to the power supply or provide adequate power for operation of route or scene