

## PRODUCT INFORMATION BULLETIN

**DATE ISSUED**

**08/12/2011**

**PIB #**

**020**

**TOTAL VISION MICROTETER  
INSTRUCTIONS**

**YEAR / BRAND / TYPE / MODEL #**

**This information is intended to provide useful information for obtaining and operating the new Total Vision Microtester.**

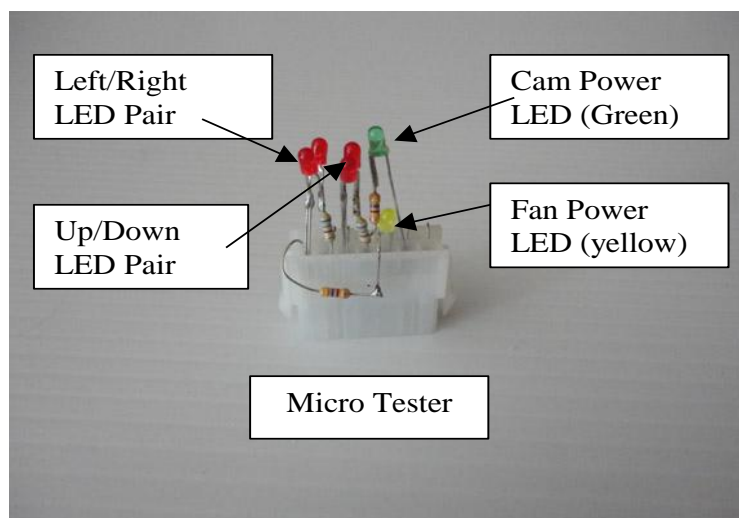
### PRODUCT INFORMATION

**A new test tool is available for the Total Vision Remote Camera system.**

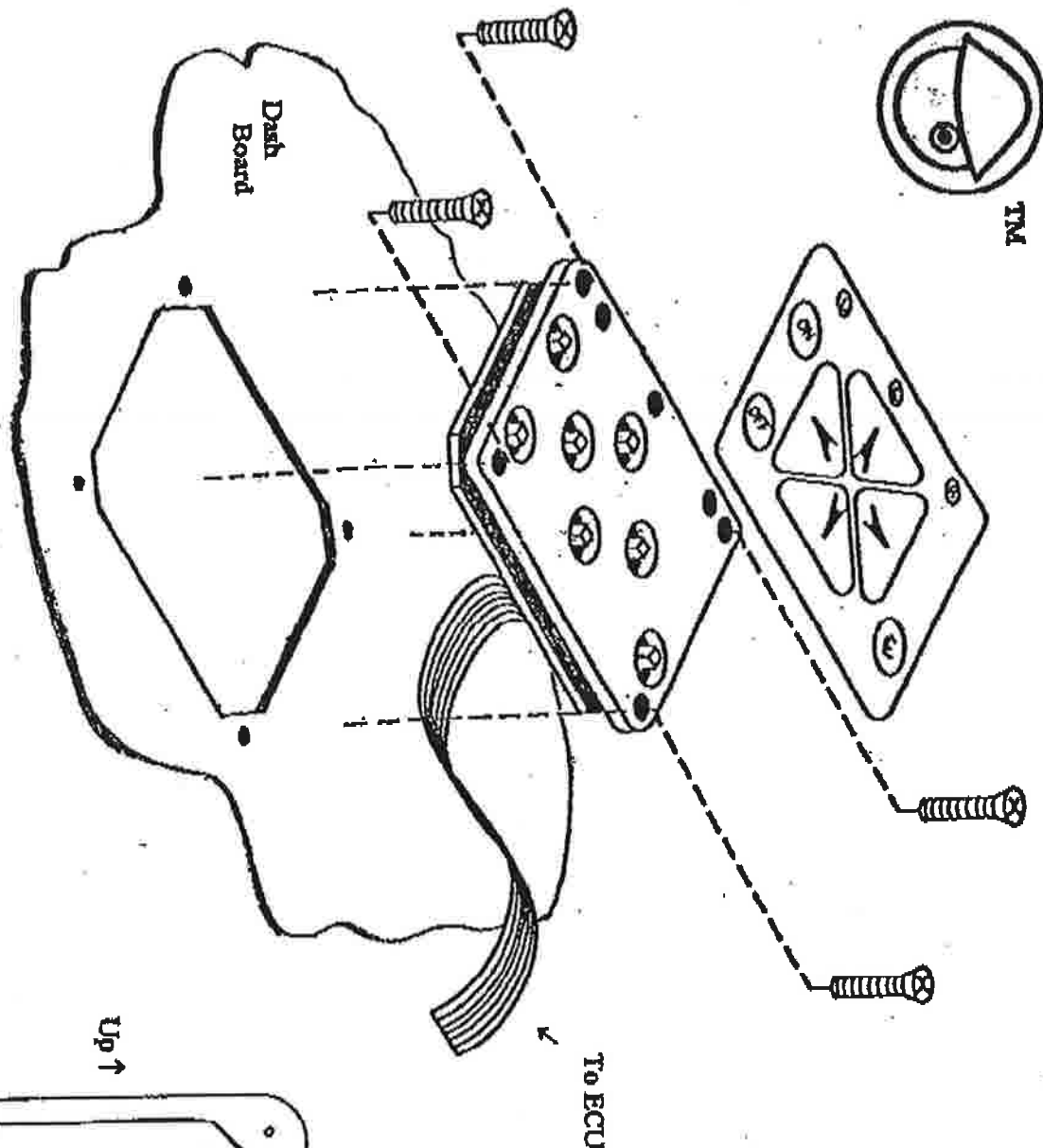
**This Total Vision Microtester test tool will help save your technicians diagnostic time and eliminate a costly error on misdiagnosing a component failure. The tool is designed to check all functions of the "Total Vision Remote Camera" with easy to follow instructions (see attachment).**

**Total Vision has offered this test tool at the low cost of \$14.00. The tool can be purchased by contacting the Newmar Parts Department. The Newmar part number is:**

**Microtester Test Tool Tot Vis.....Part # 101651A.....Cost \$ 14.00**

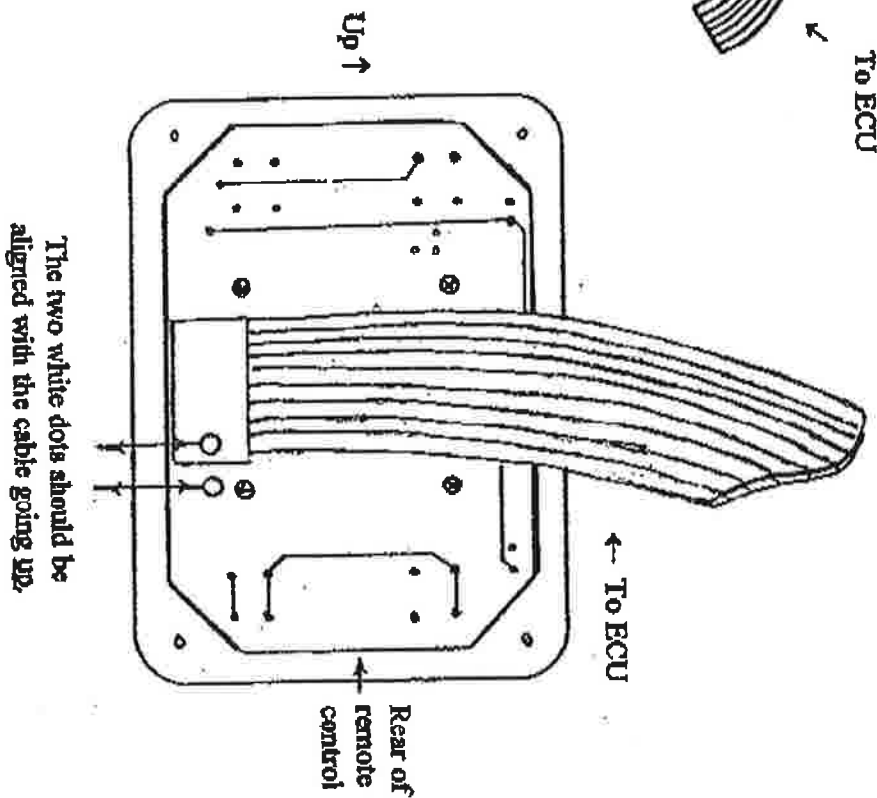


**Total Vision Microtester Test Tool**



## Total Vision® RV Remote Installation

**Illustration #2**



# Wiring Illustration #3 6-pin Harness Wiring for Pan & Tilt Cameras

REV. 6-02-09

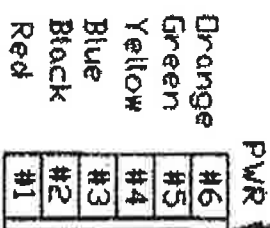
Note: Wire and connect 6-pin wires as illustrated below. Pins one and two are mandatory, the rest are optional.

Goes to 'POWER' Header on Switcher Board

## Main 6-Pin Harness #1

- Orange - To monitor power lead.
- Green - To monitor ground.
- Yellow - To dash or running light circuit.
- Blue - To back-up light circuit.
- Black - To system ground.
- Red - To switched +12v power.

Looking into wire end of header as it is plugged onto ECU  
 Ridge-locks on headers



Note - Red wire must be fused  
 or warranty is void.



## **TOTAL VISION<sup>®</sup> Troubleshooting and Repair Guide for Pan & Tilt Systems**

Rev 7-21-11

The first suggestion after checking for obvious problems listed on step one through three, is to call us and tell us what you are experiencing. We may have encountered the problem before and can hopefully tell you how to repair it with a minimal amount of time and effort. Our first commitment is to quality and service.

We are here it make your job as easy as possible.

- 1 Step one is to check the obvious. Are all fuses good and securely in place, are all connections made securely, is the key on and the system turned on? Is the lens cover of the camera removed?
- 2 Next, is any LED lit on the remote? If not, verify +12 volts at pin 1 (red wire) of 'POWER' 6-pin harness and proper ground at pin 2 of 'POWER' 6-pin harness (see Wiring Illustration #3). Check for proper orientation of 14- pin dip cable that connects ECU to remote (align the white dots, or see Remote Illustration #2). If either end is plugged in backwards the result will be nothing: no power, no lights, nothing.
- 3 Check for lit LED power light on monitor (does not apply to separately powered monitors). If not, verify +12 volts at pin 6 of 'POWER' 6-pin harness, and verify proper grounding at pin-5 of 'POWER' 6-pin harness (see Wiring Illustration #3).

### **Micro System Tester**

Note; Think of this little tester as a miniature camera assembly used to test the ECU functions and cable functions.

Photo #1 on the next page shows the Micro System Tester.

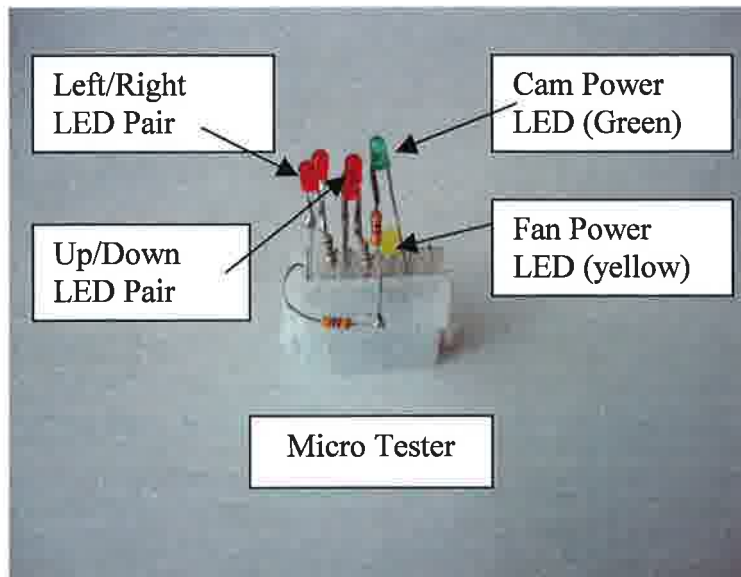


Photo #1

Start by removing the main cable from the 14-pin CAM A header (TB2 on previous models) on the ECU and plugging the 12 inch tester harness' into the ECU at the CAM A/TB2 header. Plug the Micro Tester into the end of the tester harness. With the ignition system turned on, to test the ECU functions;

1. Push and hold the 'Rear View/Fan' button and then push the 'On' button and release. Caution: If this sequence is not observed the tester will not work. If you get no response from any of the LED lights on the tester when you push the buttons you must turn off the main power supply and repeat Step 1.
2. Push the "left" button and verify that one of the 'Left/Right' LED pair lights up on the tester. Push the 'right' button and verify that the other LED in the 'Left/Right' LED pair lights up. Repeat for up and down functions. Camera power LED (green) should be lit at all times. Press and hold 'Rear View/Fan' button for more that one second and release, fan power LED (red on right) should light up. Repeat press and hold for one second, release, fan LED will turn off.
3. To test centering functions; push the main ('Hitch/CL') centering button momentarily, one LED from each red LED pair will light for one second and turn off. Push the 'RearView/Fan' button momentarily, one LED from each red LED pair will light for one second and turn off.
4. If any of the ECU functions don't work, unplug the remote control ribbon cable at the board and, using a spare ribbon and keypad found in the Dealer Startup Kit, replace the ribbon and keypad and try steps 1 through 3 again. If any of the missing functions now show good, replace the ribbon and keypad.
5. Remove the tester harness from the CAM A/TB2 header and install it on the CAM B/TB2 header and repeat steps 1 – 3 for testing the secondary trailer pan and tilt circuits (when equipped).

#### **To test the main coach cable;**

Plug the coach harness onto the CAM A/TB2 header. Go to the rear of the coach and

remove the end cap and unplug the coach harness. Remove the globe and the four camera mounting screws and remove and unplug the camera assembly. Plug the camera Micro Tester into the coach harness and repeat steps 1 – 3 of the Micro Tester procedure on page 2.

**To test the coach cable coax;** With the Micro Tester plugged into the camera end of the coach harness, unplug the RCA connector from the monitor. To test the coax, using a VOM, put your tester leads on the shield and center conductor of the coax RCA at the monitor end. There is a 75 ohm resistor in the tester, that combined with normal resistance in the coax will give you a reading of approximately 78 to 82 ohms, give or take an ohm. An open reading means the cable has been severed, any reading other than 75 to 85 ohms usually indicates that the cable has been smashed or screwed-through and is shorting internally.

To further help in troubleshooting, below is a description of the functions of the 6-pin power connector and primary 14-pin camera harness, marked Cam A or TB2 pins on the ECU. Remove the ECU box from its mounting position and remove the cover. Put the meter negative probe on the main ground terminal, pin 2. With the ignition in the on position and the unit turned on at the remote, you should observe the following conditions listed below, at each of the 20 pins, listed in descending order, top to bottom on the ECU, with a description of what each wire does.

### **Board Designation**

### **Function**

#### **Power/TB1**

Pin 1 Red	+12v (approx)	Positive battery connection; this wire must be switched and fused, 3A.
Pin 2 Black	Ground	Chassis Ground. All grounds in system (including monitor ground) should be grounded at the same physical location to avoid ground loops.
Pin 3 Blue	+12 (in reverse only)	Auto Reverse – Turns on the system when vehicle is put in reverse.
Pin 4 Yellow	6-12v (varies)	Headlight/dash light circuit – Dims the 3 LEDs for night driving when the parking or headlights are on.
Pin 5 Black	Monitor Return	Negative Monitor ground.
Pin 6 Orange	+12v (approx.)	Monitor – Sends +12 VDC to monitor when system is on (unless monitor is already powered independently, usually the case with OEM's).

Page 3

**Board Designation**  
**Cam A/TB2**

**Function**

These pin numbers are for ECU connector only.

Pin 1. Blue	12v (approx)	Blue – Camera + 12v.
Pin 2. Black	Ground	System ground.
Pin 3. White	0 volts	Pot A Return.
Pin 4. Gray	3 to 9v (varies)	Horizontal Pot A.
Pin 5. Tan	3 to 9v (varies)	Vertical Pot A.
Pin 6. Pink	5.1 volts	Optic switch A.
Pin 7. Blank		
Pin 8. Blank		
Pin 9. Brown	*0 to 3.3v	To vertical servoA.
Pin 10. Red	*0 to 3.3v	To vertical servoA.
Pin 11. Orange	*0 to 3.3v	To horizontal servo A.
Pin 12. Yellow	*0 to 3.3v	To horizontal servo A.
Pin 13. Green	0 volts	Fan ground.
Pin 14. Violet	12 volts	Fan +12, if activated.

\* Depends on whether the servos are moving or not.

**SYMPTOM**

**CORRECTIVE ACTION**

TV monitor picture shrinks in size.	Indicates a low battery voltage. Start vehicle/charge battery.
Reversed picture.	Facing the camera, when you point to the right, the monitor should show you pointing to the right. If not, operate the “mirror image” function on the monitor.
Nothing works but main term block connected	Check 14 pin ribbon cable between main and remote boards for bent pins. Cable should extend toward center of remote and outwards from the ECU brain. In either case, align the white dots.
Monitor shows horizontal lines that vary with engine speed.	Try re-routing wires away from the source of interference. This could be ignition or inverter wires.
Camera cannot see all the way (or too far), left, right, up or down.	Check for obstructions in back of pan and tilt assembly. Reprogram the stops. See Programming Instructions.

Everything is connected and checks out but no picture.

Sometimes means the lens cap is still on the camera. Test coax, see 'Video Cable Test', page 3. Possible bad camera. Is green LED lit during testing with Micro System Tester?

LED's do not dim when parking lights are turned on.

Check connection of yellow wire in TB1 6-pin harness to parking light circuit.

No auto-reverse on.

Check connection of blue wire in TB1 6-pin harness to back-up light circuit.

Centering doesn't work properly

Check pink and tan wires in 14 pin connector at camera and on ECU for proper connection.

Should you require further assistance please call Technical Support at: (520) 623-0790. Thanks, and have a good day.