SCFGPA Target System Help Manual-V1.3

This manual is work-in-progress. It contains additional information not found in the CR-2TL Operations Manual. Corrections and additions would be appreciated.
Items marked in RED are precautions or corrections to the CR-2TL Manual.

Contents

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1. Preventive Maintenance

1-Inspect Shooting Booths (*each month*)
Inspect each booth for broken, worn or bent parts and weakened areas.
Inspect each target carrier and track above the booth for damage, missing nuts, bolts and for casings that may have landed there.

2-Inspect Cables (*each month*)
Inspect the **aircraft cables** for signs of fraying or damage. The cable lies on the top of the track and on the lower right hand side flange of the track (the I beam).

3-Inspect Tracks (*each month*)
Check the **target track** to clear any debris from the **top** of the track and the sides of the track. Wipe off top of track if needed. Run all targets to 75 feet and look and listen for unusual sounds, vibrations, etc. The Carrier should not sound like a train coming down the track. Check that the bottom joints of the track are level. When the target carrier moves down the track, there should be little up/down or side to side movement. Compare with other lanes with issues any different from the ones without issues. It is important that the bottom of the track is level at each joint. This reduces wear on the Target Carrier wheels and reduces noise and rocking motion as the target carrier moves down range and back.

4-Inspect Bus Bars (*each month*)
Check the Bus Bar and the insulator between the track and the Bus Bar for damage. Check Bus Bar screws if damaged or missing. Check if aircraft cable is frayed and might touch the Bus Bar. Make sure that the joints on the copper bus bar are flat between the 2 pieces. Check if any of the screws holding the bus bar on to the track protrude through the bus bar and stick out from the bus bar. Check for bent bus bars.

5-Clean Tracks and Bus Bars (*each January and June*)
Make sure all targets are at home position before cleaning. Turn power off then use D-Lead cleaner on the Tracks. Use alcohol on the Bus Bars. Make sure everything dries. After cleaning, turn power back on. Run the target carrier out and check that the lights work and the target turns.

6-Check Spring Tension (*each January and June*)
Check spring tension of the aircraft cable that it is at the correct length, adjust if necessary. See Section **3.4 Adjusting aircraft cable spring tension** (See additional instructions on Page 21 of the Caliber Target Manual).

2. Troubleshooting

2.1 Troubleshooting Table

The Caliber Target System performs ***two separate functions*** or sub-systems:

1. ***Moving the target carrier up and down the range***
2. ***Turning the target and turning on the lights***

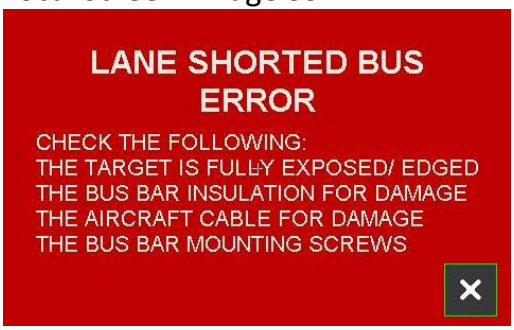
In most cases, a problem with one sub-system should not affect the other.

Note: The first 4 symptoms describe popups that would appear on the local Screen. If you don't see a popup, it was probably cleared by someone but the problem may still exist.

Symptom	Possible cause	Section
Target does not turn, carrier lights will not go on. Target may not be fully faced or edged.	Damaged Bus Bar insulator or Bus screws. Frayed aircraft cable shorting to the Bus Bar. Dirt buildup on the Bus. Short inside the Target Carrier. Other stuff.	2.2 Bus Short Error (popup)
The Carrier has stalled on the dead stop at the drive unit	Home switch problem	2.3 Lane Home Switch Error (popup)
The target carrier cannot reach the position it was commanded to go to	Damaged track Frayed aircraft cable Bad encoder	2.4 Local Travel Error (popup)
Master Control lost contact with one of the Lanes	Unplugged or bad Cat6 cable	2.5 Communications Error (Master Screen only) (popup)
Target will not turn but carrier moves and lights go on.	Fault inside the Turning/Lights Assembly or inside the Drive Unit	2.6 Swapping Turning/Lights Assembly
Target does not respond to move commands	Motor VFD in error Bad Drive Motor Aircraft cable bad	2.7 Resetting the Drive Unit
Targets become unresponsive from the Master Control Screen.	Master Control CPU error	2.9 Resetting the Master CPU
Targets become unresponsive from action shooting.	Uncompleted Drills	2.9 Resetting Drills hang-ups
Problems with lights and strobes	Dirty bus bar. User error	2.10 Lights and strobes

2.2 Bus Short Error

Local Screen – Page 59



Master Screen – Page 59

Back of Drive Unit

The Bus Short error will appear when the bus bar becomes in direct contact with the track or with some other conductive object.

The Bus Short LED (under the fuse) will come on and the Lane Shorted Bus Error popup will appear.

The Bus Short LED is not shown in the CR-2TL Target Manual.

Note: If the Bus Short LED is NOT on, clear the Popup. If the target moves and lights work, log the event as an intermittent short. If the Bus Short LED is still ON, go to **Step 1.**

Step 1

I the target is stuck at some odd angle, go to **Step 5,** otherwise:

- Visually inspect the bus bar insulation for signs of damage
- Visually inspect the bus bar nylon washers and screws for signs of damage
- Visually inspect the aircraft cable for signs of fraying
- Visually inspect the target carrier for signs of damage
- Visually inspect the gap between bus bars for dirt

If the fault is not found and the LED is still on go to **Step 2**

2.2 Bus Short Error, continued

Step 2
Determine if the short is on the Track or in the Carrier. Place a 24" piece of electrical tape over the bus bar and push the target carrier onto the electrical tape. If the LED is still on, the issue is on the track, **Go to Step 3**. If the Bus Short LED is off, the issue is in the Target Carrier, **Go to Step 4.**

Step 3 (from page 59)
1. Remove the electrical tape and switch the power off to the drive unit.

2. Go to the nearest bus bar joint at the middle of the track length and remove the brass insert. Make sure the bus bar on the drive side is not touching the other bus bar or the track.

3. Switch on the drive unit. If the bus short LED, is still on, the issue is from the drive unit to the center of the track length.

4. If the bus short LED is off, the issue is from the center of the track length to the trap end pulley.

5. Re-connect the bus bar. If the issue is closer to the drive unit, move from the center of the track length towards the drive unit removing the brass insert at each joint until the bus short is found.

6. If the issue is from the center of the track length to the trap end pulley move from the center of the track length towards the trap end pulley removing the brass insert at each joint until the bus short is found. Typically most bus shorts are located towards the trap end pulley.

Important notice about the copper Bus Bar mounting screws:
Only tighten the bus bar screws by hand using an Allen key and do not use impact or torque drill as these can strip the thread in the copper. Tighten the screws until the flange of the nylon shoulder washer just begins to compress under the head of the screw.

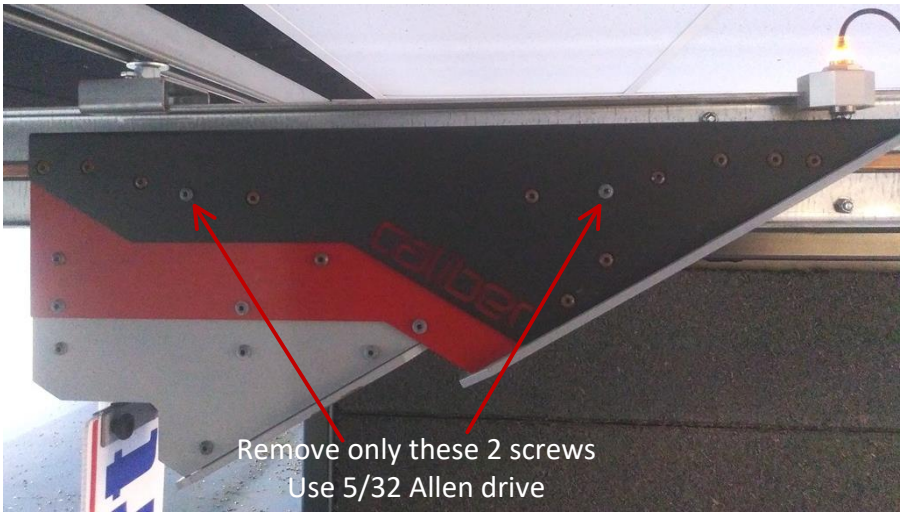
2.2 Bus Short Error, continued

Step 4

Troubleshooting inside the Carrier.

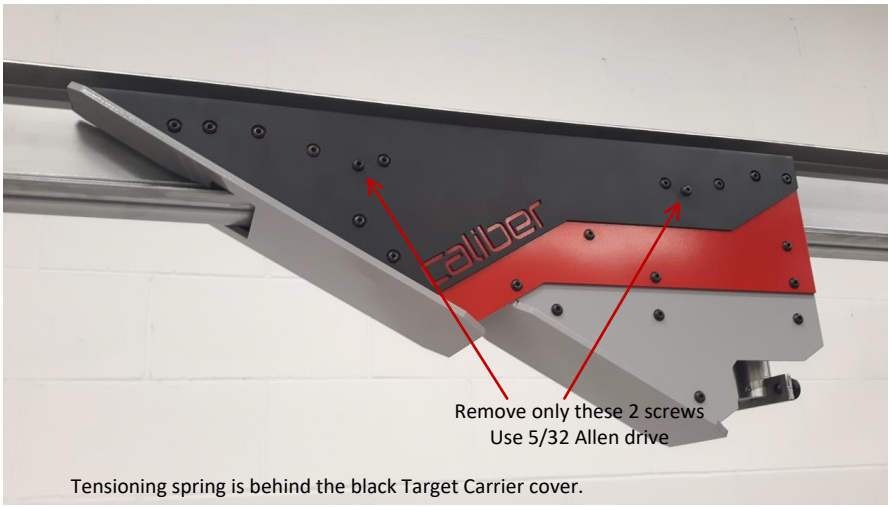
1. Remove the electrical tape and switch the power off to the drive unit.

2. Remove left side of the Target Carrier.



Check for damage to the power pick-ups. Check for a trapped case that may be shorting the carrier to the Bus. You may need to stick your hand inside and feel for a loose case.

3. Remove right side of the Target Carrier.



Make sure the aircraft cable is not damaged and the “tail” wrapped around the ratchet is clear of the Bus Bar screws.

4. If the short was found, Test the carrier for movement and its lights. If the short still exists, continue.

5. Remove the Ballistic plate (see xx for instructions) and unplug the Blue and White wires. If the short LED is off, the problem is with the turning/lights board. If the short LED is still on, call Support.

2.2 Bus Short Error, continued

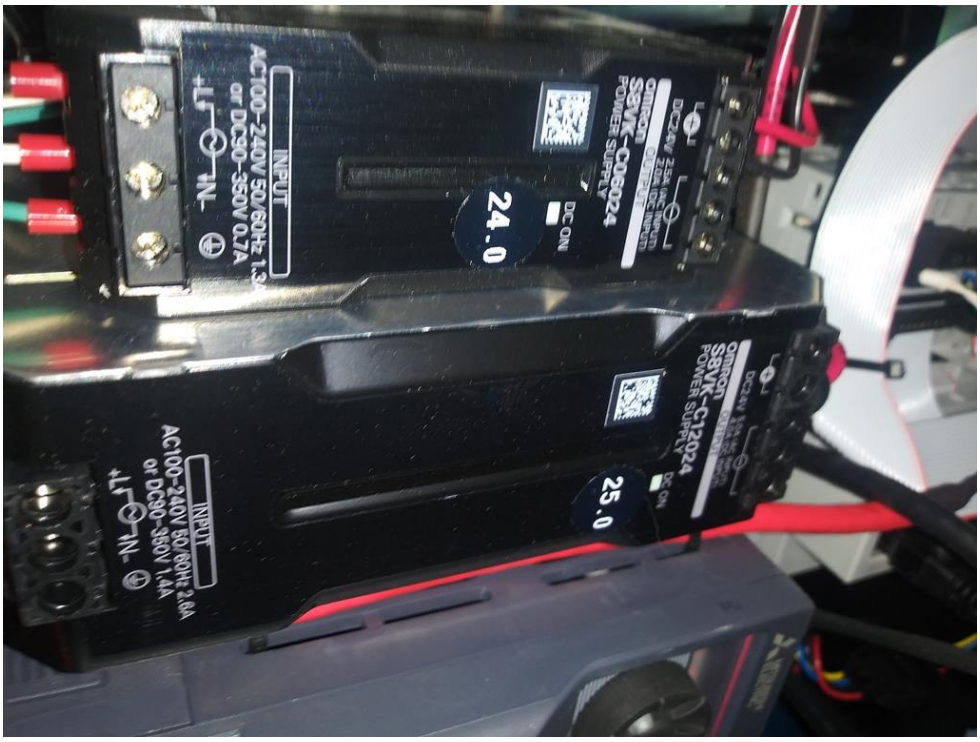
Step 5 <u>The target is stuck at some odd angle</u>

Note: Often when a bus short happens the target will be at some odd angle. If the short was intermittent, like a dirty spot on a bus bar, then facing the target will clear the short LED. The case is when the target does not edge frequently. When it does edge then when it faces, a bus short error often pops up and the LED comes on. The faced target may be slightly edged (barely noticeable).

1. Manually turn the target so it faces exactly. If the Short LED is still on, go back to **Step 1.** If the Short LED is off but the target continues to misbehave check the voltage on the larger of the 2 power supplies, it should be set to 25VDC. If it is not set to 25VDC there is a small potentiometer below the sticker with the voltage on. Turn it CW to increase the voltage to no more then 25.2vdc.

2. If you are still having an issue, make sure the wires connected to the bus bar and track are tight.

3. If the issue persists, Caliber Support may ask you to tweak the voltage or talk you through the setup on changing the speed of the turning motor from the local control screen.



There are two 24V power supplies. The bigger one was set to 25V.
The 25.0 sticker on the bigger power supply may have been rubbed off.

2.3 Lane Home Switch Error

Local Screen – Page 57

Master Screen – Page 57

The lane home switch error is displayed if the target carrier has entered its ramp down deceleration when commanded to come home, and has stalled on the dead stop at the drive unit.

Corrective action

1. Visually inspect the home switch for signs of damage. Move the target carrier beneath the home switch and check if the light on the home switch illuminates.

2. If the home switch is illuminated when the target carrier is below the home switch, gently rock the target carrier from side to side. The home switch LED should stay illuminated. If it does not, move the home switch down closer to the target carrier.

3. If the home switch does not illuminate, place a metallic object (knife) near the home switch. If the LED does not go on, check the wiring back to the Drive Unit PCB for damage.

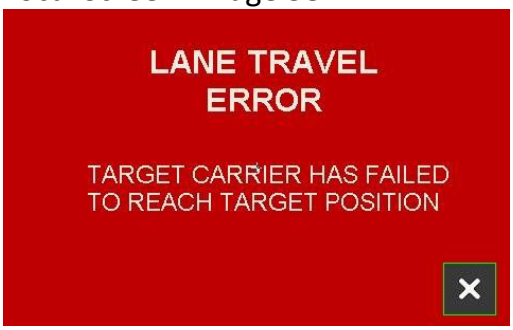
The carrier can be manually pushed forward or pulled back by hand.

The home sensor will activate through the entire width (about 18”) of the carrier.

The top of the carrier is metal and the sensor triggers when it detects metal.

2.4 Lane Travel Error

Local Screen – Page 58



Master Screen – Page 58

The lane travel error is displayed if the target carrier cannot reach the position it was commanded to go to.

Corrective action

1. Visually inspect the track where the target carrier has stopped. The track could be damaged. If the track is damaged, un-bolt the piece of track that is damaged and flip it 180° or replace that part of the track.

2. Try to move the target carrier by hand. If it doesn't move freely check the target carrier wheels for signs of damage.

3. If the track is not damaged check the aircraft cable at both ends, the trap end pulley and at the motor pulley. Sometimes the aircraft cable will fray and get jammed. Replace the aircraft cable. See **Section 3.3 Replacing aircraft cables**

4. Check the encoder is counting correctly. To check this, send the lane with the issue out and the good lane next to it out to the same distance. Check that the "Actual Distances" are the same or within 0.1ft. If the actual distance is zero or some large or unusual number, replace the encoder.

2.5 Communications Error (Master Screen only)

The lane communication error will appear if one of the lanes loses power for whatever reason.

Check that the lane being indicated is switched on and that the CAT6 cables are plugged in fully.

2.6 Swapping Turning/Lights Assembly

Step 1

Fully face the target carrier manually. The Bus Short LED shout go off. If it's still on then go back to Section 2.2. Otherwise, test by turning target CW and CCW a few times. If the red LED does not go back on, stop at this point. If the problem keeps coming back go to Step 2.

Step 2

Swap the turning/light assembly with a good target carrier. This is the lower gray assembly. There are 6 button head screws (3 each side) that hold the assembly on to the target carrier. As you remove the last screw be careful, as there is a 2 wire quick release connector that needs to be removed before you can fully remove the assembly.

If the issue stays with the lane it is probably a PCB issue. Please take a picture of the 2 PCBs located at the back of the drive unit. Try to zoom in as close as possible.

If the issue stays with the turning assembly, remove the turning assembly from the target carrier. When the assembly is on the bench remove the 6 button head screws (3 each side) that hold the ballistic front plate

Step 3

Remove the ballistic front plate and check the PCB for sign of damage. If ok remove the turning assembly from the target carrier and place it on the bench. Remove the target holder pinch plates then remove the remaining cover. Inspect the assembly more carefully for any signs of damage.

2.7 Resetting the Drive Unit

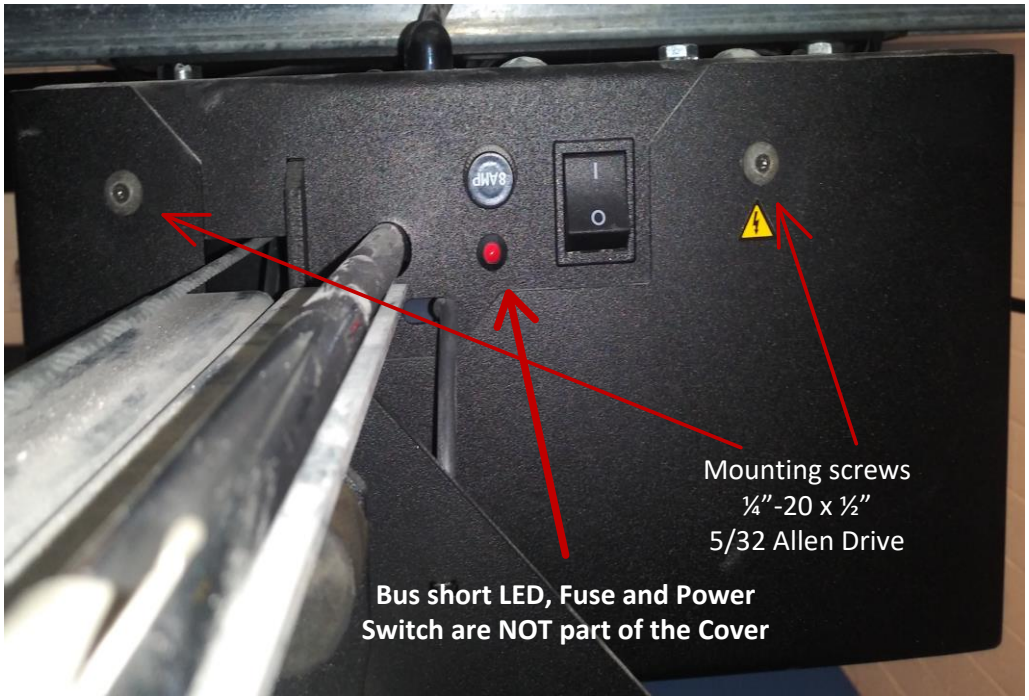
You may need to do a reset if the targets misbehave or are unresponsive.

Power Reset

Power Reset is used if the targets are not responding to move commands. However the Target carrier may respond to Edge commands. The likely cause of this problem may have been due to a power surge or a power failure.

Note: Before doing the Power Reset, remove the Drive cover and make a note of the VFD error code displayed on the LED readout. Then power down the drive unit for 30 seconds, reinstall the Drive cover than turn the power back on.

This picture is different in the CR-2TL Target Manual



Important:

Two people should perform this task. The Drive cover is a little heavy and might fall off and drop as soon as you remove the second screw. Each person should use a separate step ladder.

2.8 Resetting the Master CPU error

If targets become unresponsive, check for the presence of the CPU error.
If error, check if any Ethernet cables have been disconnected. You will need to clear the error. See the square error LED on red on the R04ENCPU module (picture below).

To remove the error, power off the Master Control Panel by resetting the fuse. Wait till all the lights have gone out then switch the panel ON again.

If the error is still on the CPU you will have to reset the CPU. To do this pull the tab marked "Pull" on the CPU module. This will lift the smoked cover up.
Beneath the cover is a 3 position switch. The switch moves horizontally and should be over to the right.

Move the switch all the way to the left and hold it till the lights on the CPU go out. Release the switch and it will move to the center position. When the CPU has been reset the lights will come back on. Move the switch from the center position all the way to the right. The switch will stay in this position. The "error" light on the CPU should now be out.

The error light on the CC-Link module will still be on. The "error" light on the CC-Link module is normal. The system has been designed to control up to 40 lanes. Because the network cannot see all 40 lanes it will throw up an error. This error is ignored by the CPU.

Master Control Unit showing red ERROR LED on the R04ENCPU Module

2.9 Resetting Drills hang-ups

If strange things start to happen, targets are unresponsive, targets go to the wrong position, they start to turn without being commanded, the lane or lanes need to be reset.

This can happen if the power has gone off or if someone has not stopped a mode (DRILLS, RANDOM, or SCENNARIOS) and just returned the target to the "Home" position, the system will try and complete the mode. It is also possible that the lane has been left during a drill and it is trying to complete the drill before trying to do the next move.

The Drills error can be cleared from the LOCAL screen or the MASTER screen.

To reset the system on the Local lane screen, go to the "MAINT" screen and press and hold the "MASTER DRILL RESET" button for 2-5 seconds. See Page 36 for more information.

To reset the system on the Master control Auto screen, select all the target lanes, then press and hold the "STOP" button (there are 3 of them) for 2-5 seconds on each mode on the "AUTO CONTROL" screen.

3. Repairing and replacing parts

3.1 Replacing bus bars

See **Bus Bar Installation** on Page 13 in the CR-2TL Manual

Bus Bar Installation
The bus bar is mounted to the center of the track. An insulator separates the bus bar from the track. The bus bar and insulator are supplied in 6ft lengths, with a 3ft length mounted to the track start section and a custom length may have to be cut for the end section of track. The bus bar must have electrical continuity along the whole length of the track. At each bus bar joint a brass insert must be placed behind the bus bar and against the insulator. The bus bar joints should be at the same position as the track joint opposite to the bus bar. Insulated nylon washers are inserted into the center holes of the track from the right hand side. The bus bar and insulator are mounted to the left hand side of the track using 6 x 10-32 x ½" screws.

DO NOT USE POWER TOOLS to screw the screws in to the bus bar as it could strip the treads in the copper bus bar.

The bus bar should be mounted to the track while it is being assembled on the ground, with the "in fill" pieces mounted when the track is together in the air.

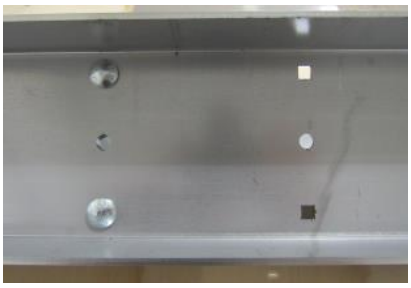
There is no torque setting on tightening the bus bar screws. Only tighten the bus bar screws by hand using an Allen key and do not use impact or torque drill as these can strip the thread in the copper. Tighten the screws until the flange of the nylon shoulder washer begins to compress slightly under the head of the screw.

3.2 Replacing track sections

See **Track Installation** on Page 13 in the CR-2TL Manual

Track Installation

Each track section is symmetrical so there is no up or down side. If there is any damage to the bottom of the track, the track can be removed and rotated 180°. There are various track length end sections (starting at 1ft and incrementing in 1ft lengths), 3ft start section and 6ft start sections. The left starting section of the track is 6ft long, the right starting section is 3ft long. The remaining standard sections are 6ft long. The sections are overlapped 3ft to provide a rigid track system. The track has square bolt holes and is assembled using
¼”- 20 x 5/8” carriage bolts.

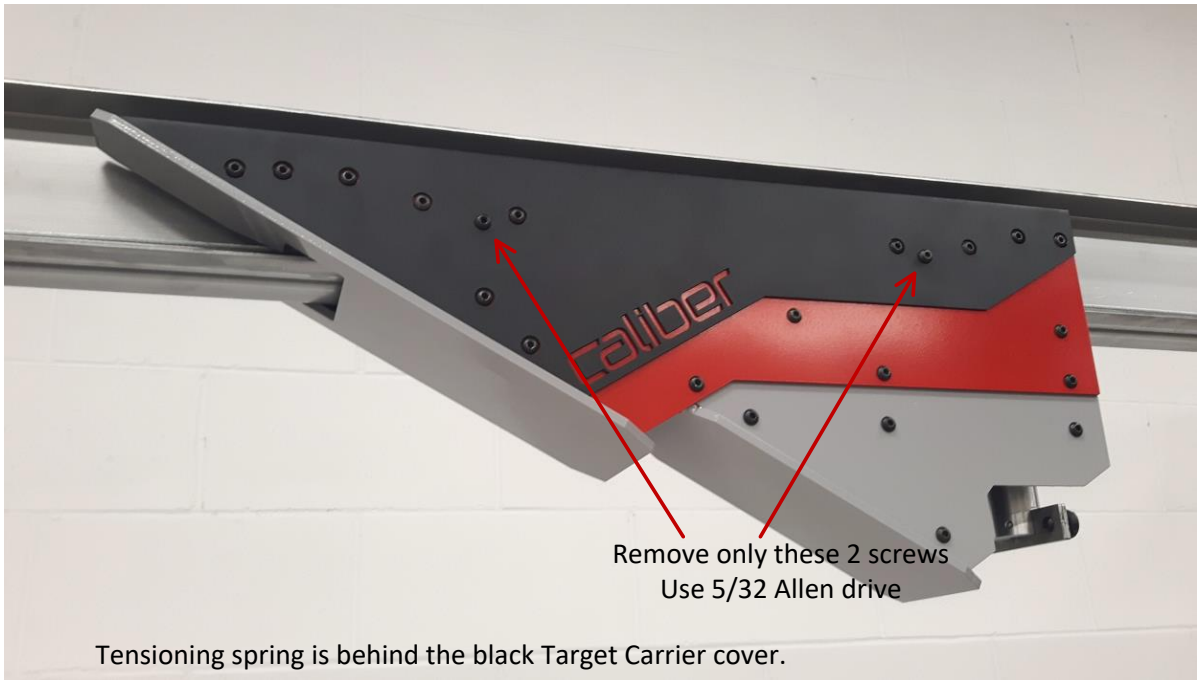


This makes assembling the track easier as only one 7/16” wrench or socket is required. The carriage bolts are inserted from the Right Hand Side of the track, with the nuts fastening on the Left Hand Side of the track. The typical method of assembling the track is to assemble 6 pieces of track together on a work table, to make a 21ft section. This makes hanging the track easier to work with.

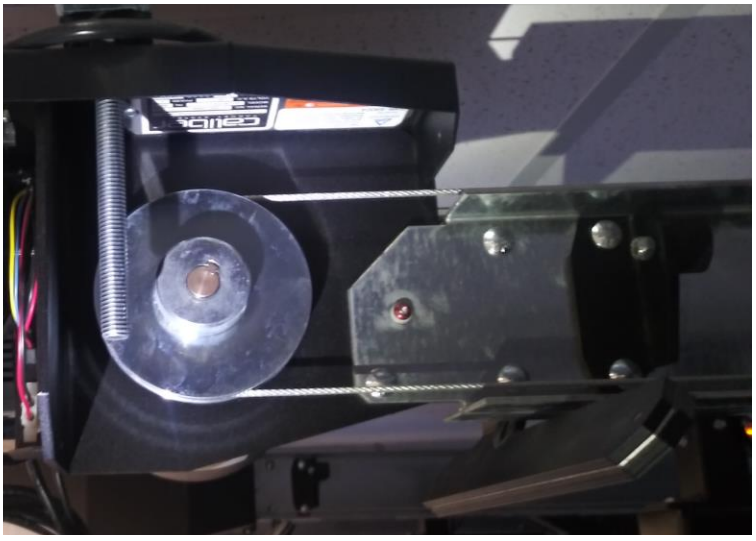
Start Section 6’ Sections off-set every 3’ to make 21’ section

3.3 Replacing aircraft cables

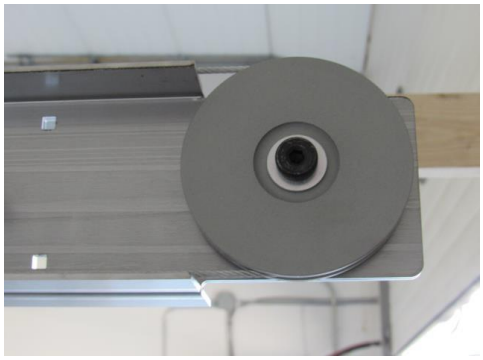
Before proceeding, study these 2 pages in this section and the installation of the **Aircraft Cable** on Pages 20-21 in the CR-2TL Manual.



Tensioning spring is behind the black Target Carrier cover.



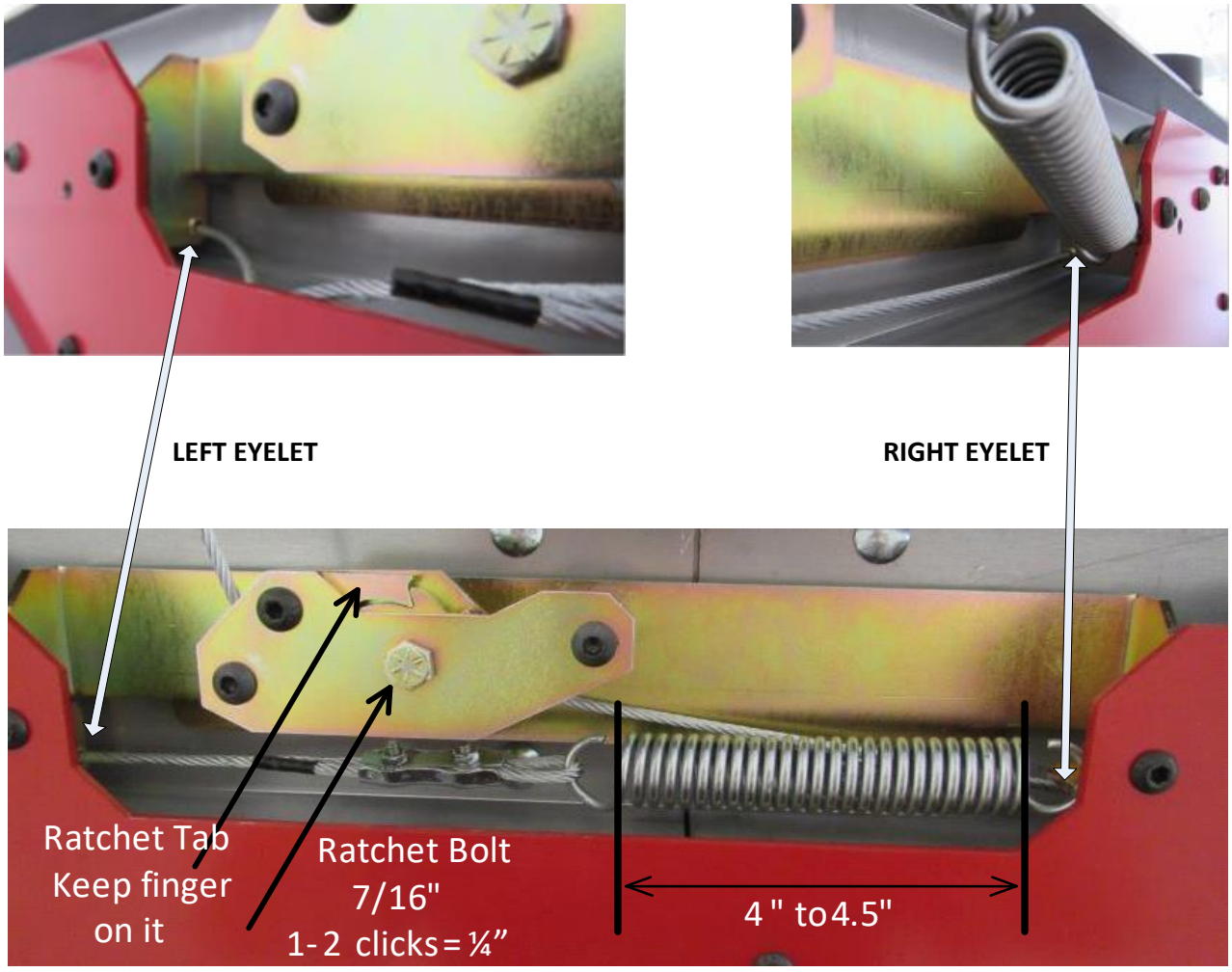
Cable pulley, mounted on the motor inside the Drive Unit.



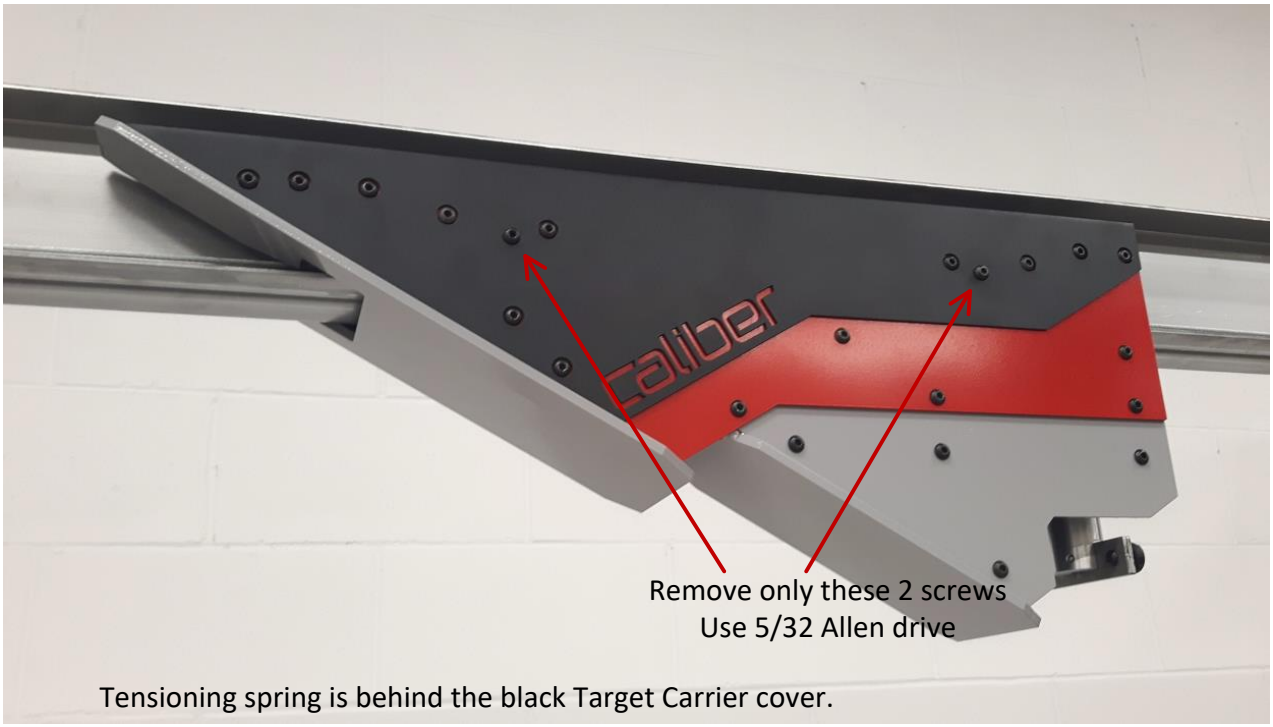
Trap end pulley.

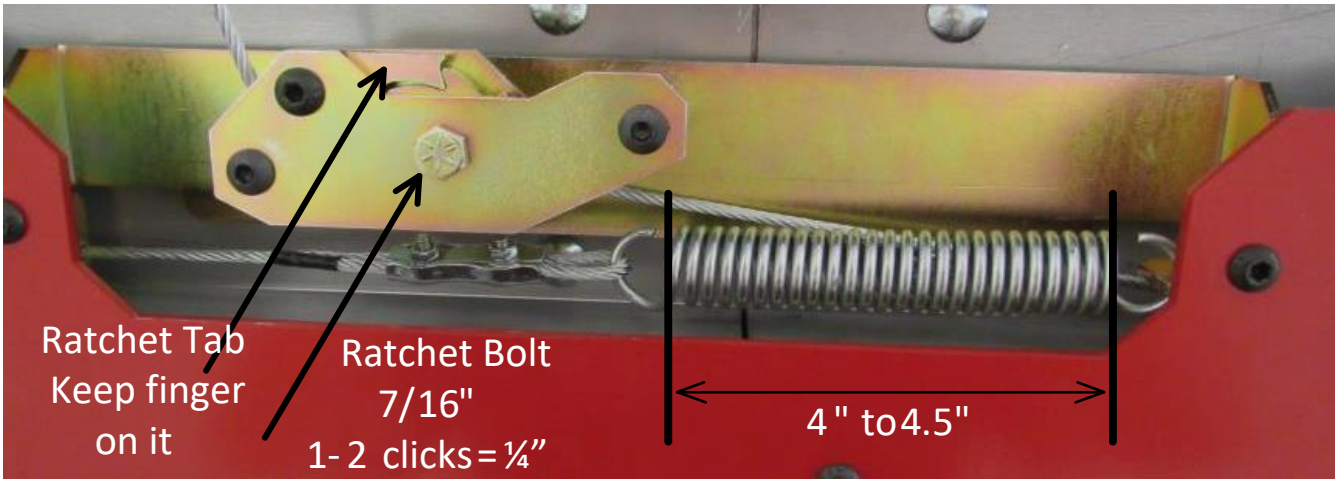
The cable lies on the top and on the lower right hand side flange of the track.

3.3 Replacing aircraft cables, continued



3.4 Adjusting aircraft cable spring tension





You may work on the carrier from the firing line or move it out to inside the range under better lighting conditions. Turn power off on the DRIVE UNIT.

Using a 7/16” wrench or socket turn the ratchet bolt clockwise to start stretching the tensioning spring. Important, apply pressure to the ratchet tab when tightening the ratchet to keep the cable from un-winding from the ratchet.

Each ratchet tooth equals about a 1/4” of spring stretch. Adjust spring to 4-1/4”.

4. Hardware and Electronics

4.1 Voltages

Voltages are measured at the Bus Bar.
There are 2 voltage pickups (for redundancy) riding the copper bus bar.
Caliber swaps polarity to change from white light to strobe and to turn target CW/CCW.
+12vdc white carrier lights, can read with meter.
-12vdc strobe lights other than white strobe, can read with meter but have to catch the – sign.
+24vdc for turning target one way, cannot read with ordinary meter, pulse too fast.
-24vdc for turning target the other way, cannot read with ordinary meter, pulse too fast.
-3vdc used for bus short sensing, on when at home or carrier light off, can read with meter.

4.2 Cables

Master Control Screen CAT6 cable pinout pairs 12, 36, 45, 78
Master Control Screen DC cable jack: 2.1mm ID, 5.5mm OD
Aircraft Cable 1/8" with a 7x19 construction galvanized aircraft cable, 150’ long

4.3 Drive Control Unit

AC Power:

- The 10 Drive Units plug into overhead receptacles in pairs.
- Their 5 Circuit Breakers are in the Ready Room.
- They are numbered 33, 35, 37, 39, and 41 for Drive Units 1-2, 3-4, 5-6, 7-8, 9-10.

Drive Unit components

- AC Motor (for driving cable)
- VFD Mitsubishi D700 to operate the motor
- Ethernet Module FX5-CCLIEF (Intelligent device station)
- CPU Module FX5UC
- 24VDC 5.0A PS Omron s8vk-c12024 (PS adjusted to 25vdc)
- 24VDC 2.5A PS Omron s8vk-c06024
- Cable Pulley (2 ea)
- Cable 1/8" with a 7x19 construction galvanized aircraft cable, 75’ long.

Miscellaneous

- Home sensor mounted over the carrier when carrier is home
- AC power switch (back of Drive Unit)
- AC Fuse, 8A (back of Drive Unit)
- LED Bus short indicator (back of Drive Unit, below the fuse)

Drive Unit hardware

- Hood mounting screws ¼-20 x ½” Use 5/32 Allen drive wrench

4.4 Master Control Unit

AC Power

The Master Control Unit AC is powered from CB #31

Master Control Unit

CPU Module R04ENCPU

Ethernet Module CC-Link IE J71EN71

24VDC 5.0A PS Omron s8vk-c12024 for the Master Control Screen

5VDC 6.5A PS Mitsubishi R61P for the Ethernet Module and the CPU.\

4.5 Target Carrier

Target Carrier access

Right side of Carrier cover screws (2 ea.) Size ¼-28 x ½. Use 5/32 Allen wrench to access the cable tensioning spring. Ratchet bolt wrench size 7/16". Wrench is used for turning ratchet to stretch the tensioning spring of the aircraft cable.

Left side of Carrier cover screws (2 ea.) Size ¼-28 x ½. Use 5/32 Allen wrench to access to the Bus Bar voltage pickups

Turning/Lights Assembly components

Lights: 6 LED's, 4 white, 1 red, 1 blue

Motor/cam

Printed circuit Board PE070

Other Target Carrier components

Tensioning ratchet assembly

Bus power pickups (phosphor bronze, 2 each for redundancy, left side of carrier)

Wheels (2 rubber wheels riding left bottom flange of I beam about 5" dia)

4.6 Target Carrier Tracks

Target Carrier Track 14.5 lbs per 6 foot section

Each track section is symmetrical so there is no up or down side.

If there is any damage the bottom of the track, the track can be removed and rotated 180°.

Tracks are 2 U shaped rails bolter back-to-back to form an I beam.

Rails are .125" thick each forming a .25" thick I beam spine.

4.7 Shooting Booths

Shooting booth is 43.5" wide. Bench is 16 deep, 42 wide and 37.5 high.

Booth lights: 2 rows. Each has 4 round LED's and 2 square LED's. The 4 round LED's are white.

The 2 squares on the left are blue, the 2 squares on the right are red.

Left row: b w w w w b Right row: r w w w w r

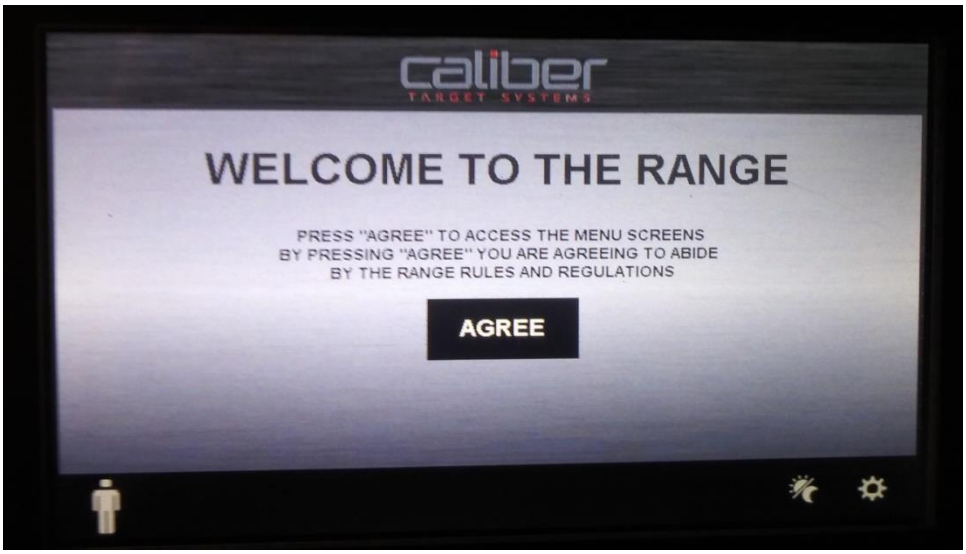
4.8 Spares

Bus Bar	Have	Size/Type	Comment
Bus Bar, copper	10	6’ x 1/2” x 5/32”	10-32 threads
Bus Bar Spacer, plastic insulator	10	6’ x 5/8” x 1/16”	
Bus Bar joint brass insert strips	6	6” x 1/2” x 1/64”	Bridges two Bus Bars
Aircraft Cable			
Aircraft Cable Clamp for 1/8” cable (double clamp)	1	1.3” x 0.3” Stainless steel	With two 10-32 screws Use 9/16 nut driver (spin tight)
Aircraft Cable Tensioning Spring	1	3/4” dia x 3” long	Should adjust to 4” – 4.5”
Aircraft Cable	need 200 feet	1/8” galvanized 7x19 construction	No have
Screws and Bolts			
Bus Bar screws	many	10-32 x 1/2"	Use 1/8” Allen wrench
Nylon T-type (flanged) washers	many		For insulating Bus Bar screws from the Track
Drive Control Unit hood & other	100	1/4 -20 x 1/2	Use 5/32” Allen wrench
Target Carrier and other	100	1/4 -24 x 1/2	Use 5/32” Allen wrench
Track (I beam) bolts	many		
Electronics			
Target Carrier PE070 PCB	1	Approx. 3” x 6”	Inside Turning/Lights Assembly
Fuses			
Drive Control main power	need 1/ lane	8 AMP 3AG Slow-blow Size 0.25” x 1.25”	On back of Drive Control Unit in fuse holder Not have
Drive Control Retrieval Main Control PCB	need 1/ lane	3 AMP 8AG Slow-blow Size 0.25” x 1.0”	Inside Drive Control Unit on circuit board Not have
Drive Control Retrieval TL PCB	need 1/ lane	4 AMP 8AG Slow-blow Size 0.25” x 1.0”	Inside Drive Control Unit on circuit board Not have

5. Local Control Screens

Note: Actual screenshots of SCFGPA Local Screens. There are discrepancies in screen names and missing screen descriptions in the CR-2TL Operator Manual.

5.1 Startup Screen – Page 29



The Startup screen is displayed when the system is powered on.

Bottom left ICON is the help button. The bottom ICON on the center right is the Screen Brightness button. It has 2 levels of brightness: high and low.

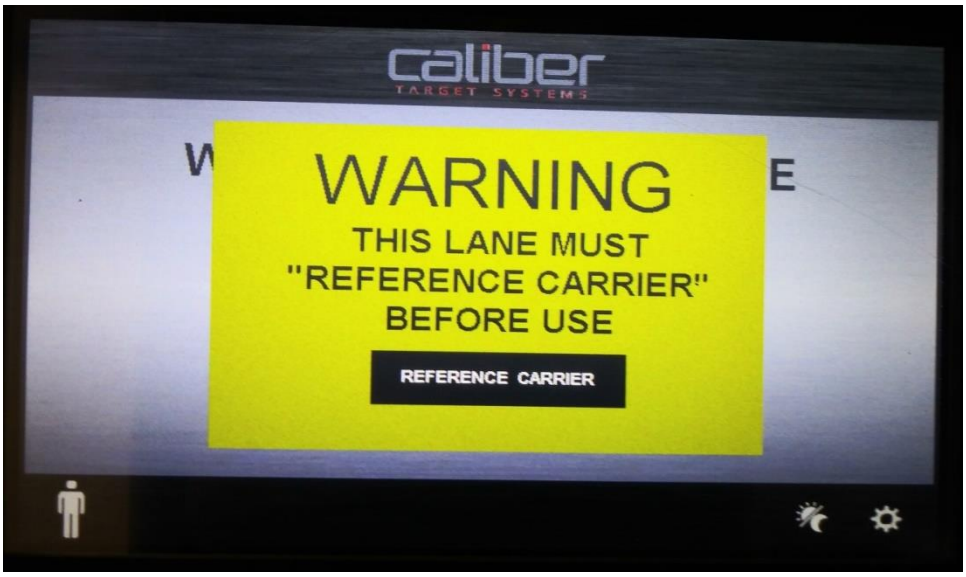
The gear button brings up the Maintenance Screen.

Pressing the help button will cause the caliber sign (front of Drive Unit) to flash red.

If a Master Screen is used, an “ASSISTANCE REQUIRED” popup will appear.

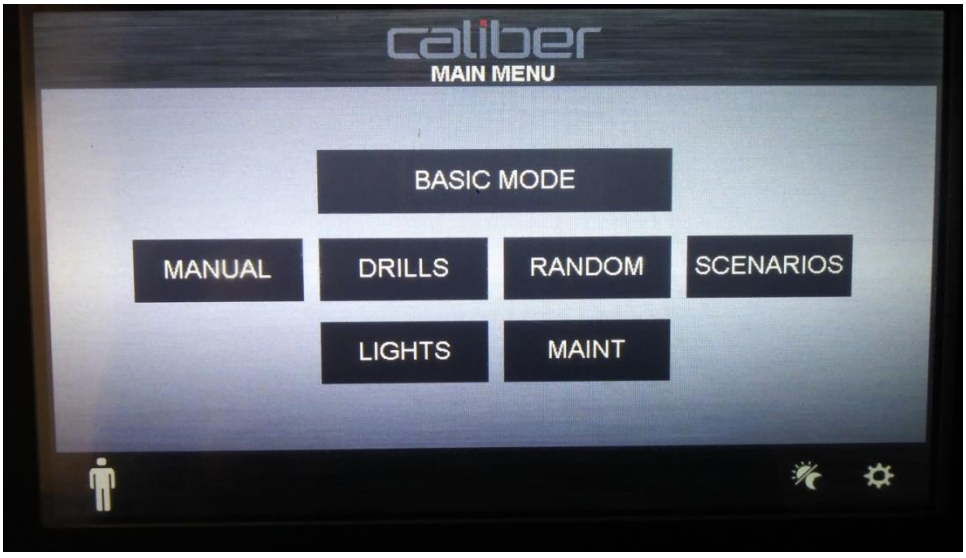
Pressing the help button again will cause the flashing sign to go out. Clearing the popup at the Master Screen will not turn off the flashing caliber sign.

5.1a Reference Carrier button – Page 26



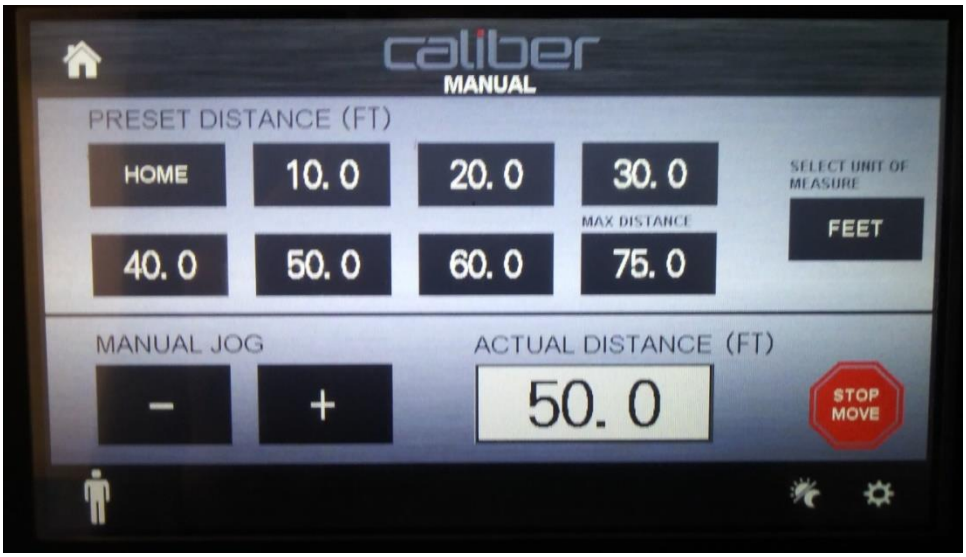
If drive unit was powered off then you may need to reference if target was left not at home. A reference popup will be displayed. If not then go to Maint (gear button) and press the CARRIER button. The target will slowly come home

5.2 MAIN MENU – Page 30 in the CR-2TL Manual



User has access to these 7 screens as shown on the MAIN MENU screen.
There is an additional screen in the MAINT via the SETUP button and requires a password.

5.3 BASIC MODE- Page 31



The “House” button (if displayed) brings you back to the MAIN MENU

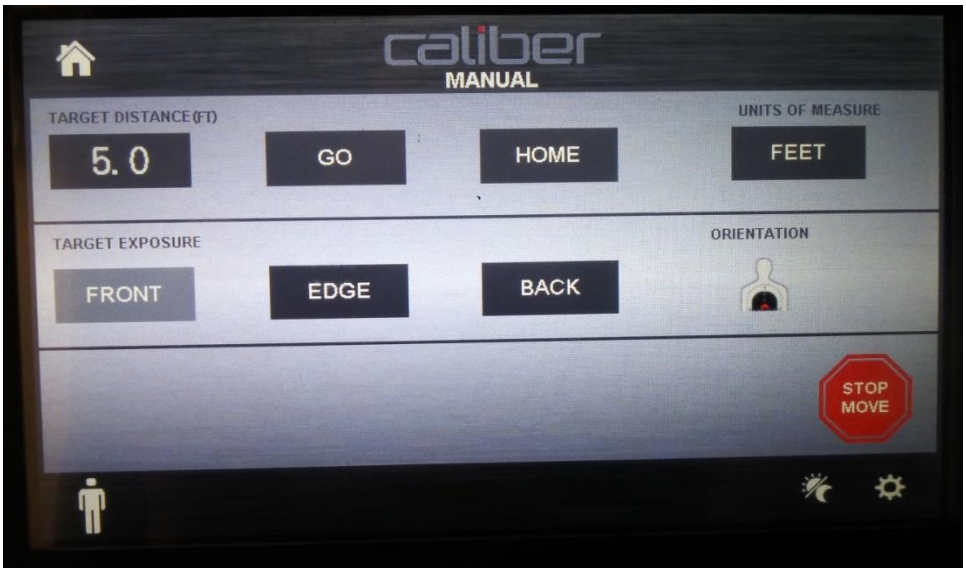
Preset distances

Targets go out with front facing

5.4 MANUAL

This screen is also named MANUAL.

Its picture and description are not in the CR-2TL Manual



User set distance via a popup

Has edging button

Targets go out with front facing

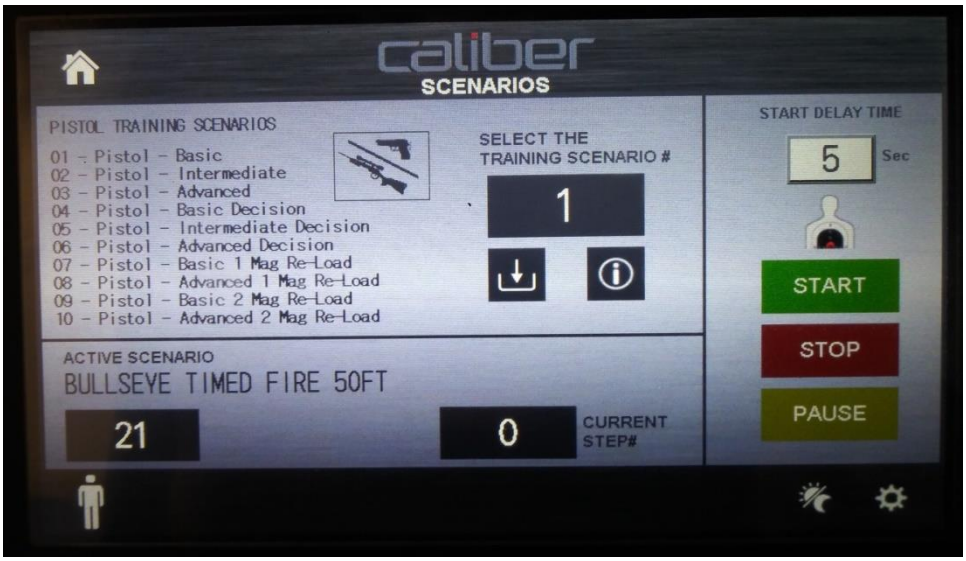
5.5 DRILLS – Page 32

Select duration target faces you and repeat cycles

Target goes out in edged position

5.6 RANDOM – Page 33

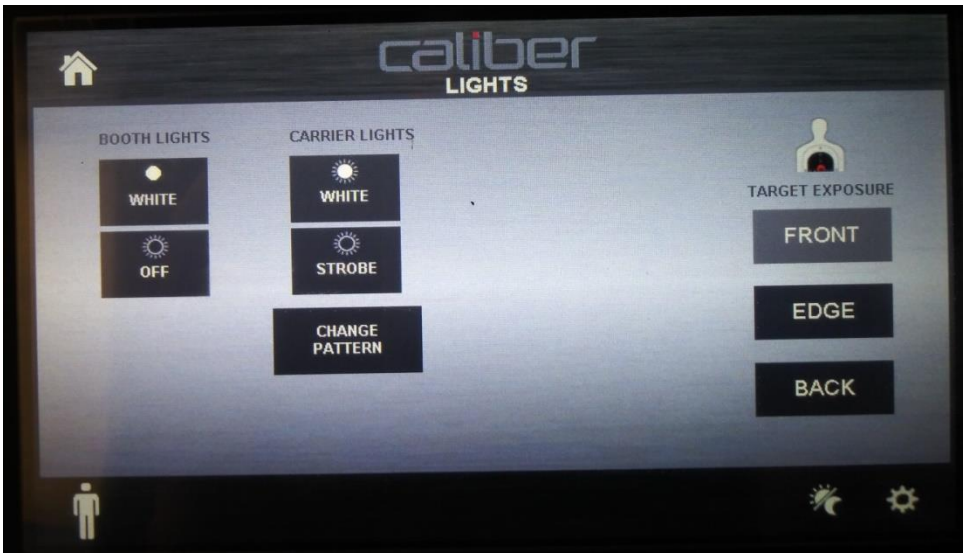
5.7 SCENARIOS – Page 34



Preprogrammed training moves 10 pistol and 10 rifles

Target goes out in edged position

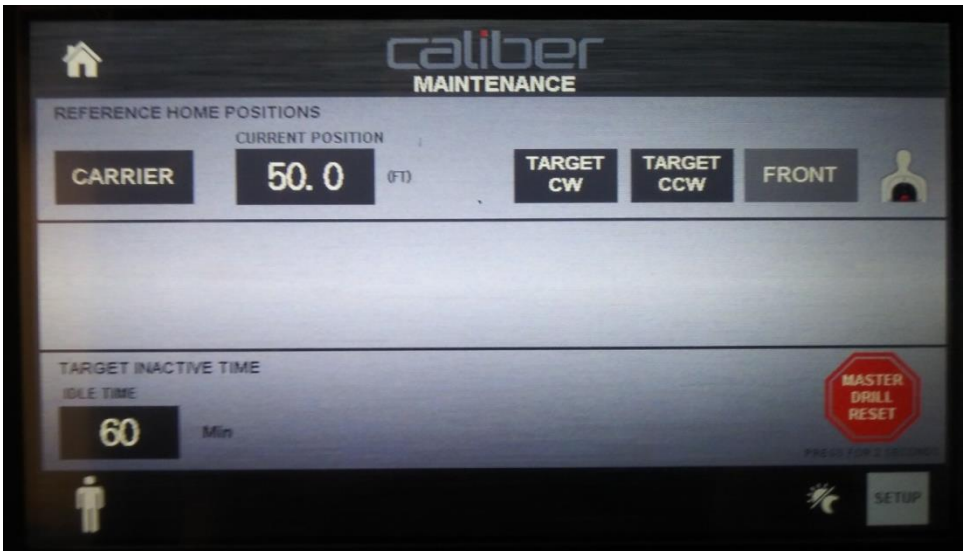
5.8 LIGHTS – Page 35



Screen Lights:

Carrier Lights:

5.9 MAINT – Page 36



Normalizes target position if disrupted

Carrier button brings target slowly home

Master Drill Reset button

Inactivity timer is set to 1 hour

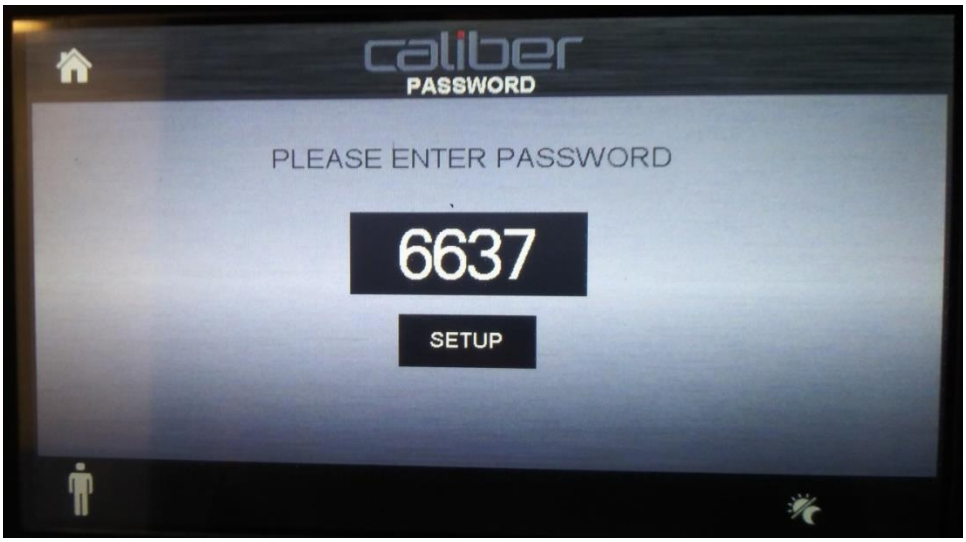
SETUP (bottom right button)

To enter lane setup Press SETUP

To enter the password press the numeric display, a popup keypad will appear enter your password and press enter. If the password is correct the “Home” icon will appear. Press the SETUP button.

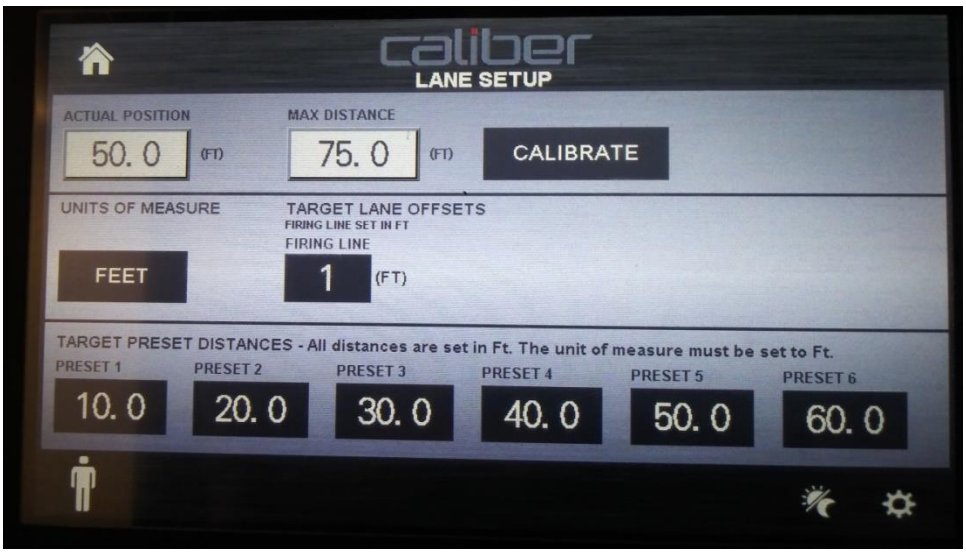
5.9 MAINT – Page 36, continued

Then password



5.9a LANE SETUP - Page 26-28

In the CR-2TL Manual, the screen is named RANGE (requires password)



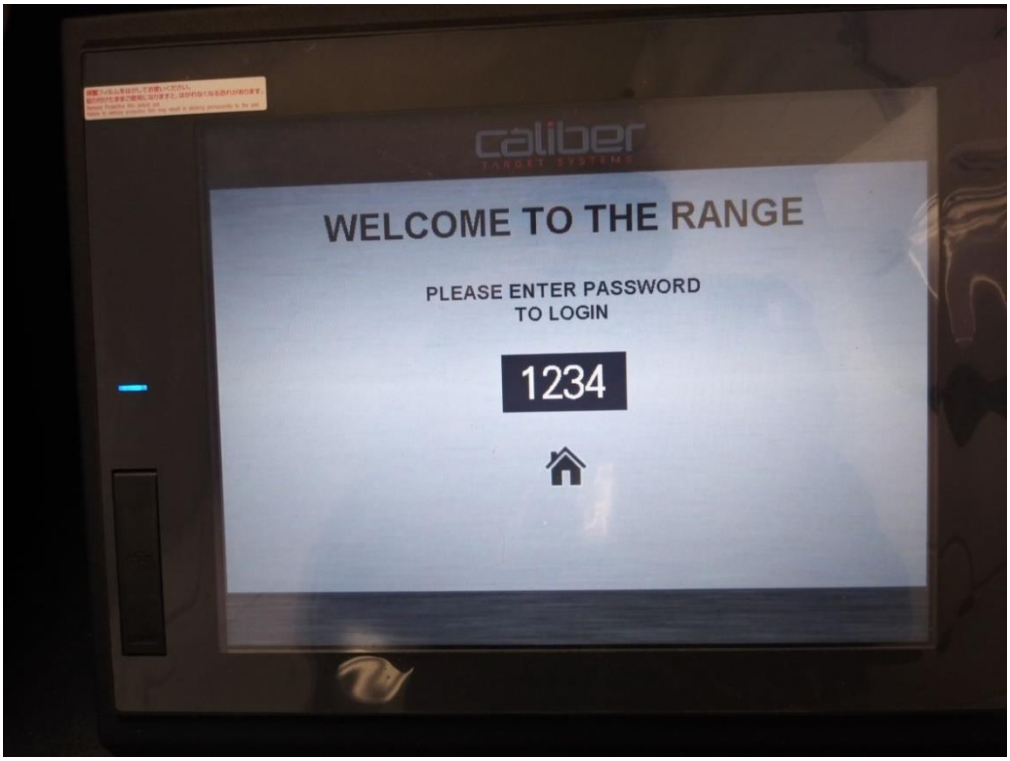
Set “PRESET 1” in Lanes 1 and 10 to 20 feet. Set the rest as shown here.

DO not change. This is to avoid hitting the walls.

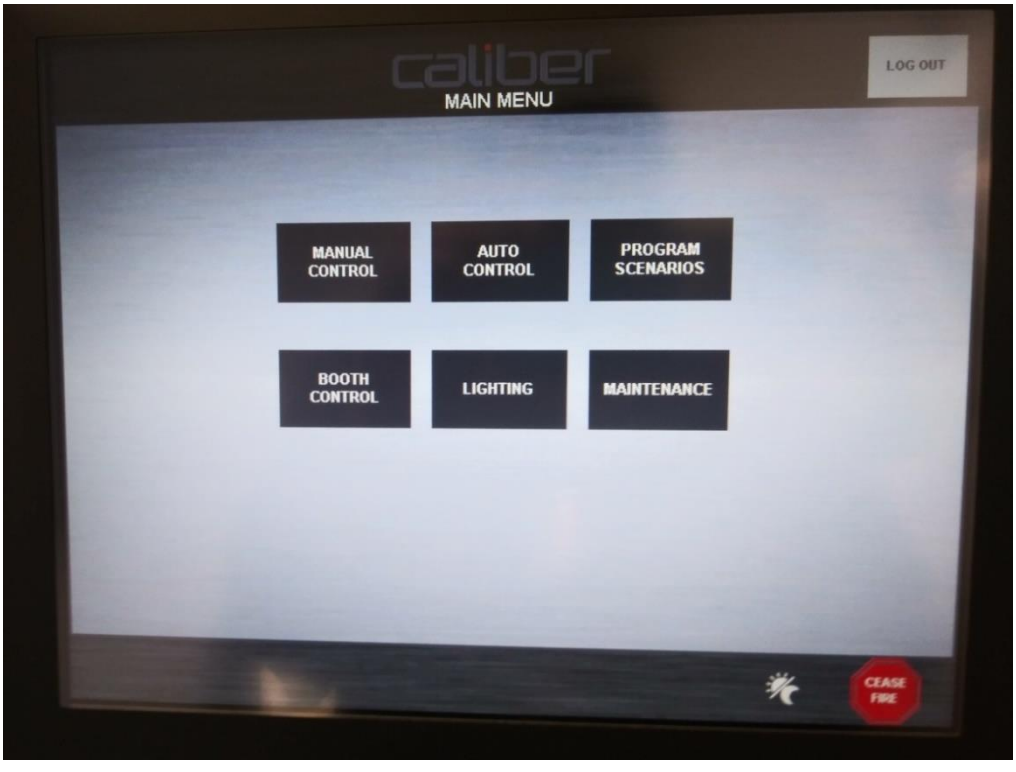
6. Master Control Screens

Note: Actual screen shots of SCFGPA Master Screen. The CR-2TL Manual references all 40 possible Lanes but the user instructions are correct.

6.1 Login Screen – Page 39

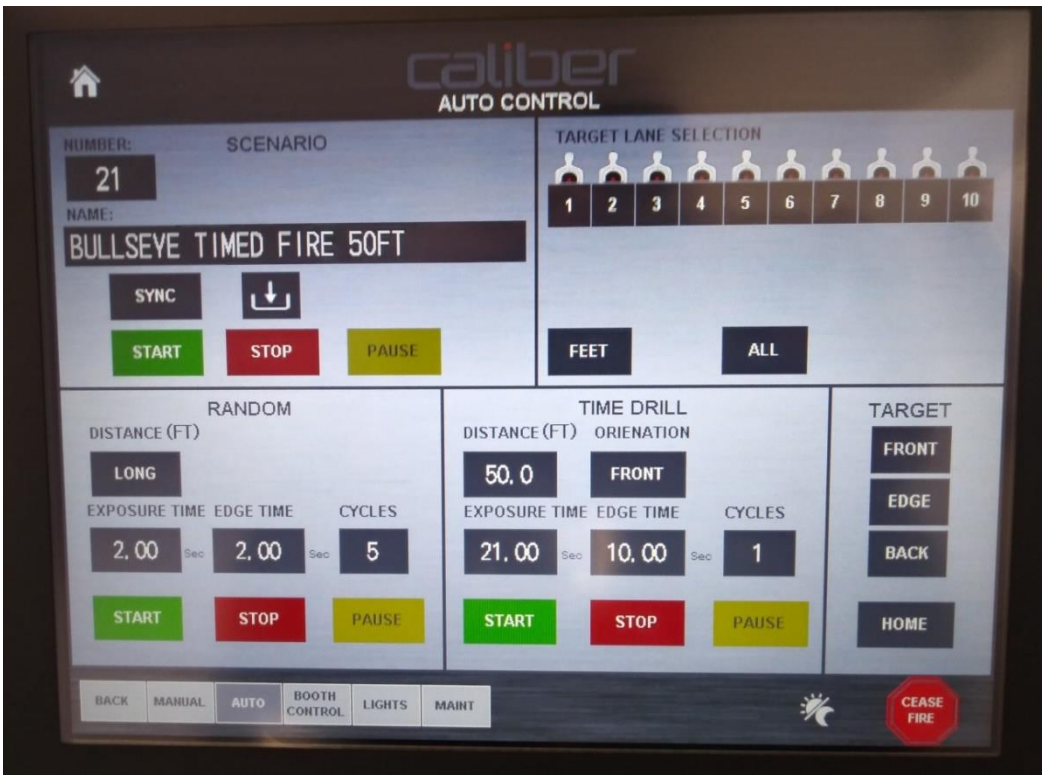


6.2 Main Menu – Page 40

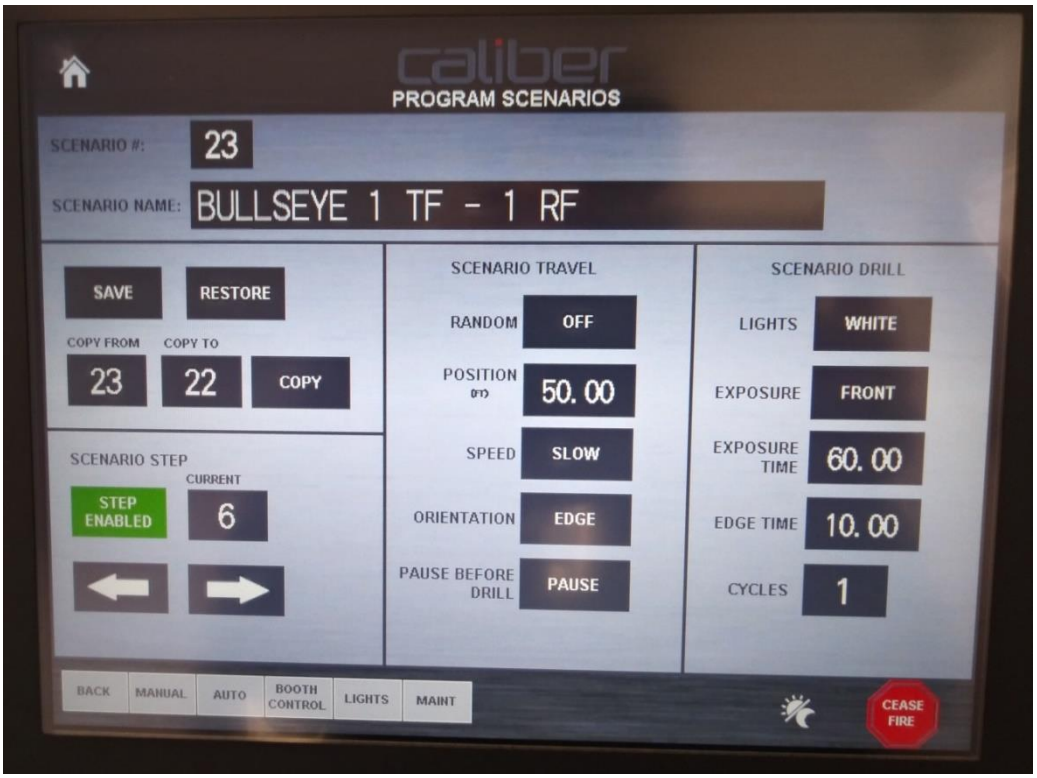


6.3 Manual Screen – Page 41

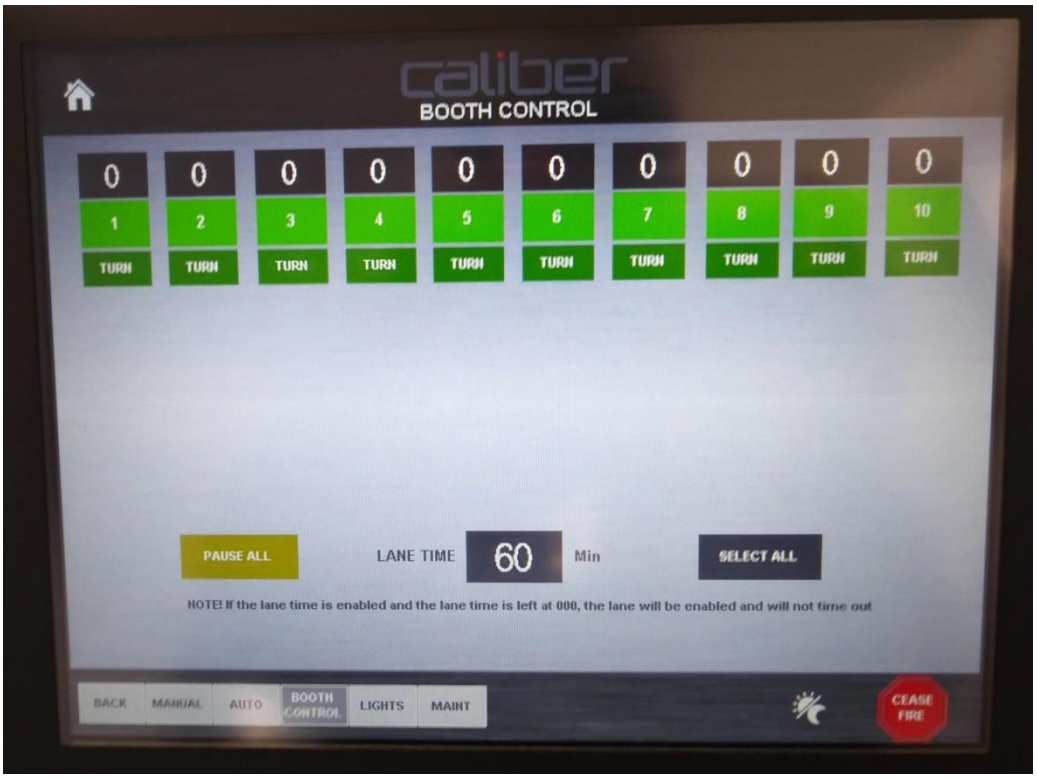
6.4 Auto Control Screen – Page 43



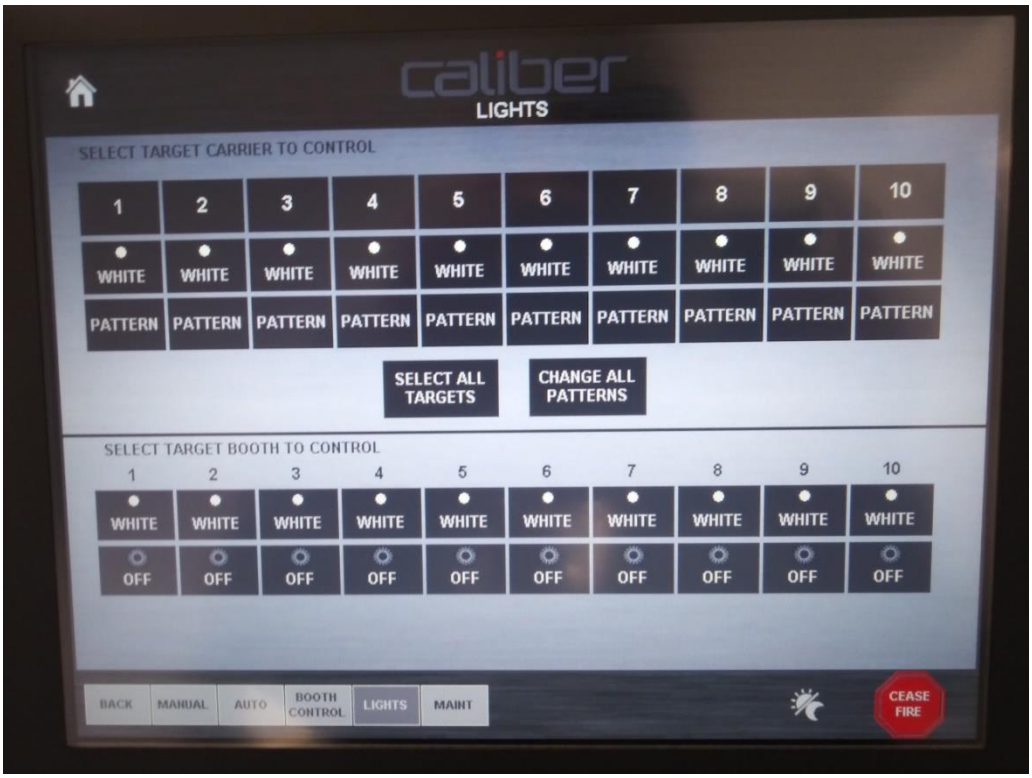
6.5 Program Scenarios Screen – Page 45



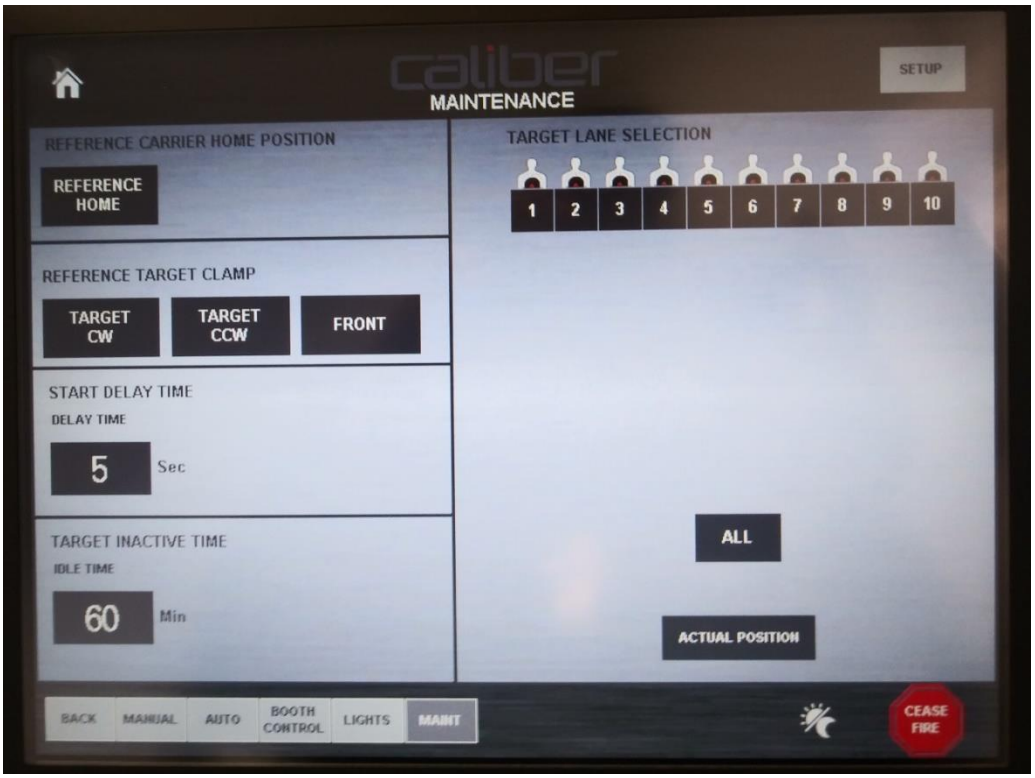
6.6 Booth Control – Page 48



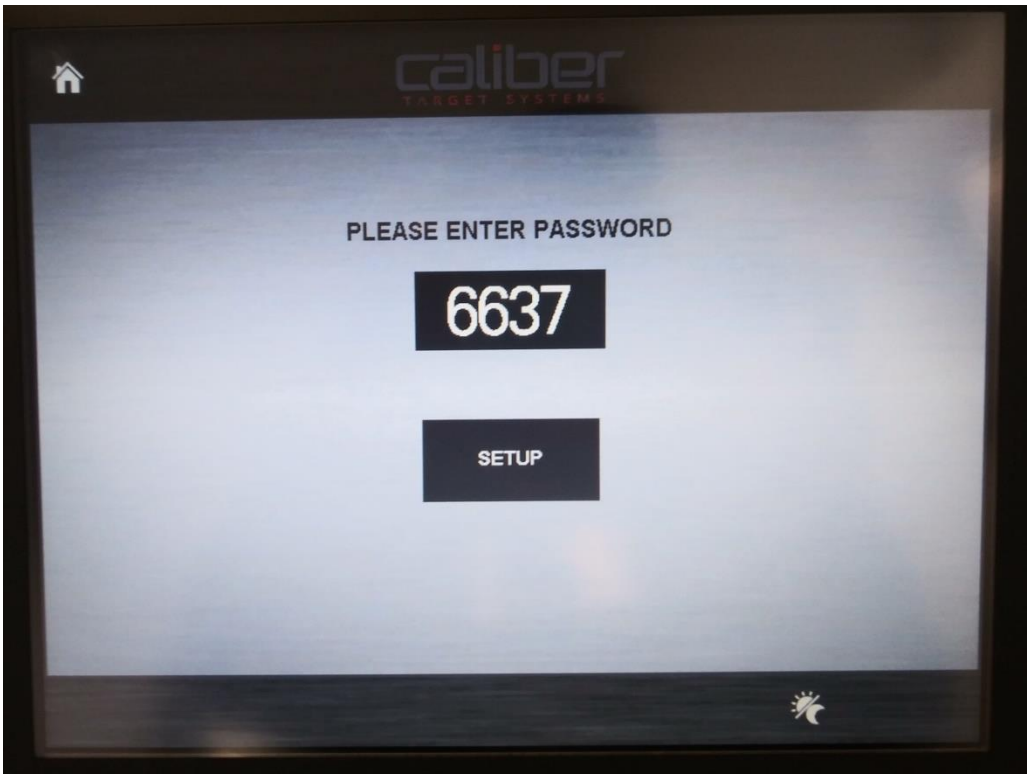
6.7 Light Screen – Page 50



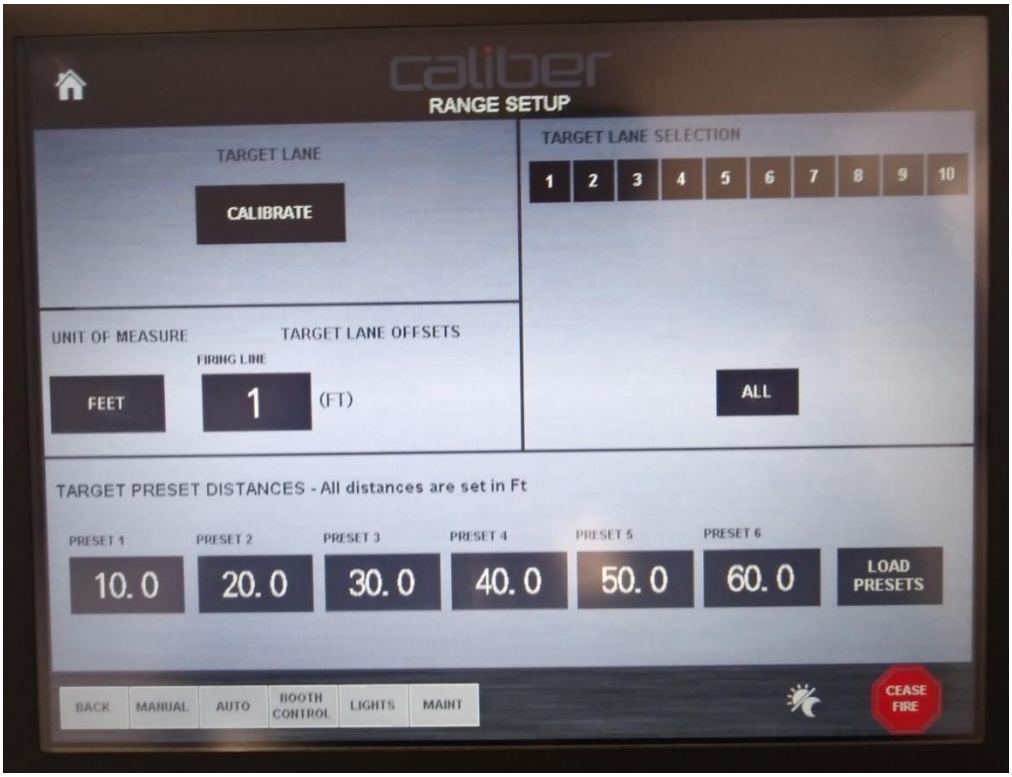
6.8 Maintenance Screen – Page 51



6.8a Password Screen – Page 52



6.8b Range Setup Screen – Page 53



7. Warnings Popups

7.1 Cease Fire

If the lane is controlled by a Master Control, the Master Control can issue a “cease fire”. This popup will disable all the target control push buttons. The lane user cannot move the target carrier. Cease fire button is located on lower right corner of the Master Screen.

When activated, this popup will appear on all active screens, and all targets, active or not, will turn edgewise.

7.2 Assistance Required

When the lane user presses the assistance button on the local booth control screen, the assistance required window will appear and stay active until the assistance button is pressed again on the local control screen.

When activated, the window will indicate which lane has placed the call for assistance. If more than one lane has activated the assistance call they will be displayed as the other lanes are cleared.

7.3 Referencing the Target Carrier

This popup will appear when the Carrier was NOT at home when the power was shut down. If the lane drive unit has been powered down and then back up, a message will appear telling the user to “Reference Carrier” or Home the target carrier. By pressing the “Reference Carrier” button the target carrier will return to the home switch position.

After pressing the push button on the popup screen, the target carrier will move slowly and stop under the “Home switch”, the popup window will disappear. The target carrier will not move until the target lane has been “Referenced”.
If the target carrier is already below the home switch the target carrier will not move, and the popup window will not appear.

7.4 Warning Invalid Distance

Typically this error pops up when the user attempted to set the target distance that is past the maximum distance of the range.

8-Schematics