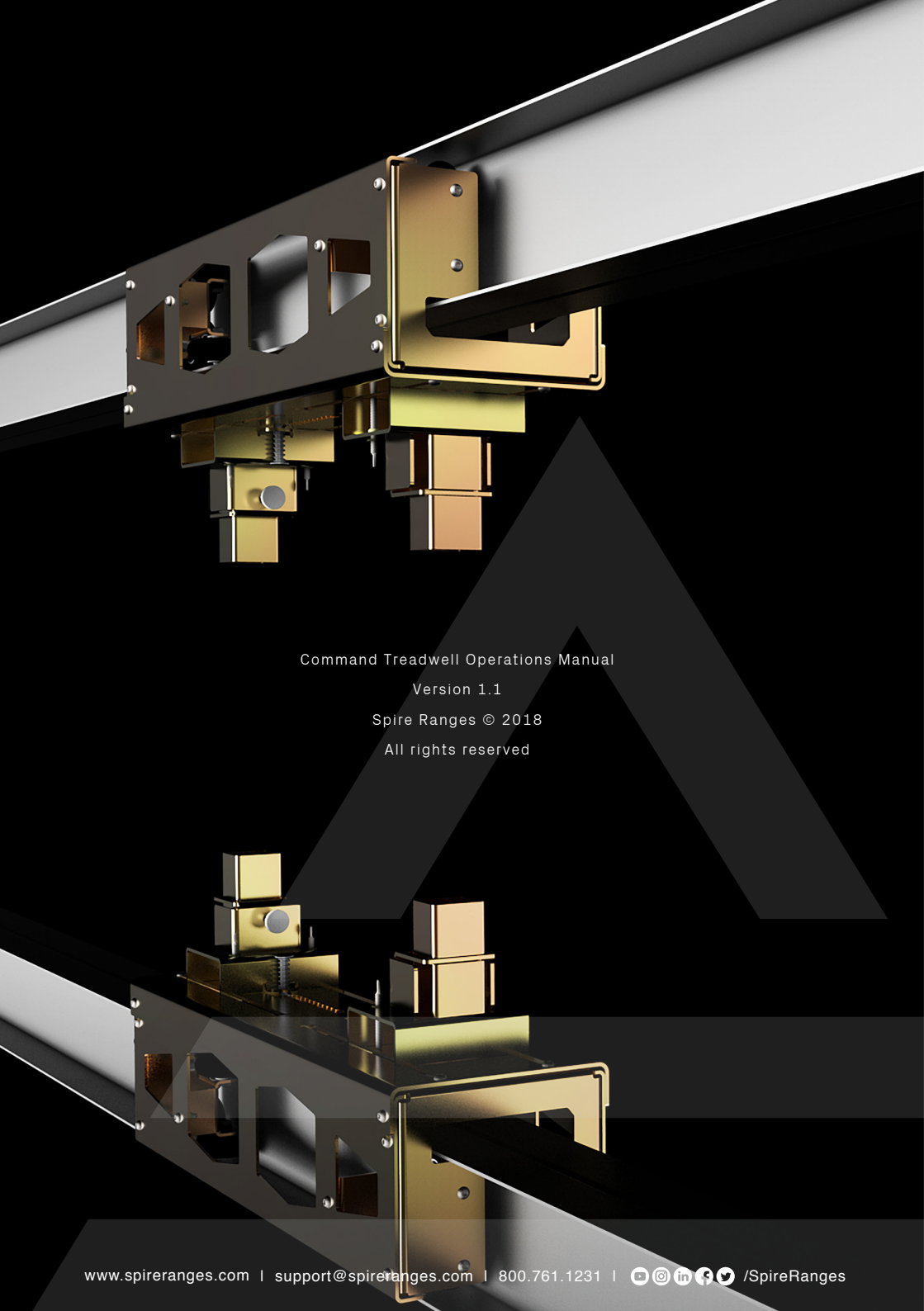


COMMAND **TREADWELL**

OPERATIONS MANUAL



Command Treadwell Operations Manual

Version 1.1

Spire Ranges © 2018

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1.1 | COMMAND TREADWELL INTRODUCTION

The Command Treadwell is a lateral moving target system that is ideal for any range's customized training programs and courses of fire. The Treadwell can be ground-mounted or configured overhead.

Treadwell target units can be controlled individually and dually, and even synchronized with another Spire target system.

The Treadwell is all-weather rated and proven durable for both indoor and outdoor ranges, making it an ideal target system for all types of facilities and organizations, including law enforcement, military, government, and commercial.

1.2 | HMI CONTROL CONSOLES OVERVIEW

The Treadwell can have an independent control console, or it can be integrated within the SpireOS of another Spire target system. The Treadwell can run by itself as its own live fire training session or simultaneously with another Spire target system.

1.3 | IMPORTANT SAFETY INFORMATION



Maintenance and use must adhere to the guidelines in this manual. Improper use of any of the equipment can result in poor performance, product damage and even serious physical injury. Properly trained personnel should only operate the equipment within the range. For technical, mechanical and electrical maintenance, it is recommended that a trained professional be consulted. Protective headwear, eyewear and gloves should always be worn when performing any maintenance. Danger risks include, but are not limited to, electric shock, head injuries, limb or body crushing, and eye trauma.

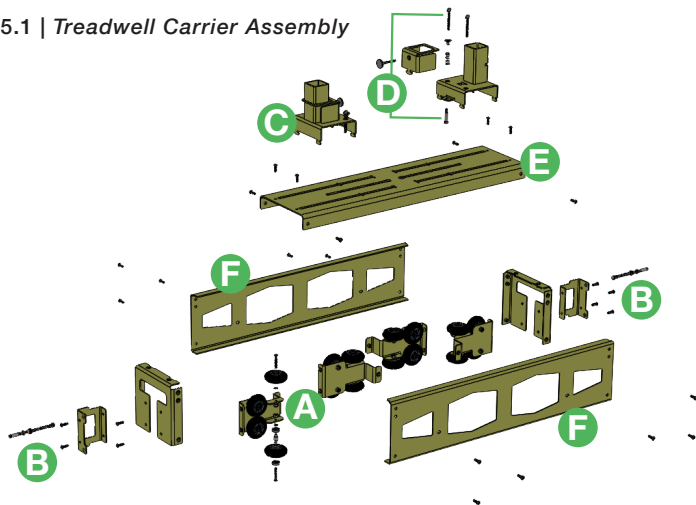
1.4 | WARRANTY OF EQUIPMENT

Refer to agreement documents for specific warranty details for your range. Consumables, negligence and improper use of equipment (including firing armor-piercing rounds or calibers not approved for your range's ballistic rating) are excluded from all warranties.

1.5 | SYSTEM COMPONENTS

1.5.1 | Treadwell Carrier Assembly

FIGURE 1.5.1 | *Treadwell Carrier Assembly*



CODE	DESCRIPTION	CODE	DESCRIPTION
A	Carrier Wheel Assembly	D	Position Lock Assembly
B	Aircraft Cable Clamps	E	Carrier Cap Channel
C	Wood Clamp Assembly	F	Side Channels

Technical Specifications

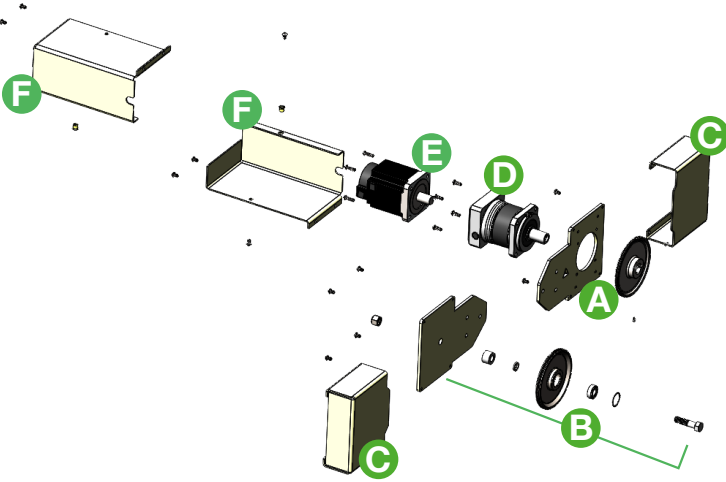
PHYSICAL DIMENSIONS	VALUE
Length × Width × Height	30¼ × 8¼ × 12⅞ in (768.35 × 209.55 × 327 mm)
Length with Brackets	36¼ (920.75 mm)
Weight	44 lb (19.96 kg)
TEMPERATURE RATINGS	VALUE
Operating	-40–85° C (-40–185° F)
Storage	-40–85° C (-40–185° F)

“ Excellence is about execution. For you, that requires a reliable range that facilitates exceptional training. For us, that means getting the job done right—the first time. ”

– SPIRE TEAM PILLARS

1.5.2 | Treadwell Motor Drive Assembly

FIGURE 1.5.2 | Treadwell Motor Drive Assembly



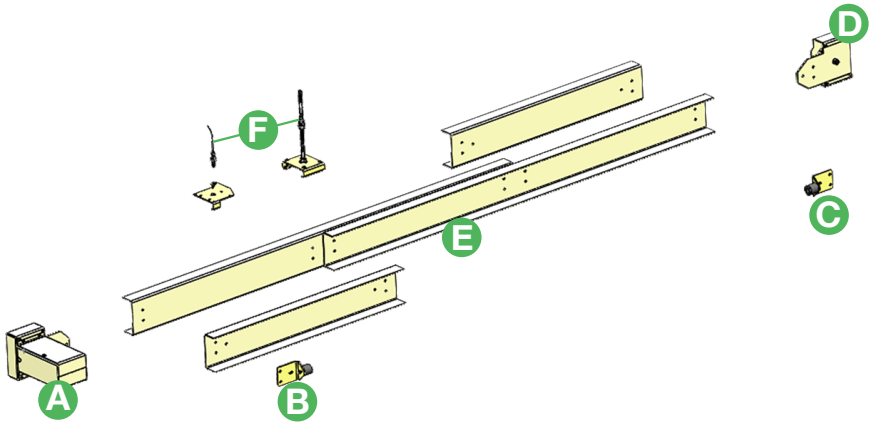
CODE	DESCRIPTION	CODE	DESCRIPTION
A	Drive Pulley Assembly	D	Gear Reducer
B	Return Pulley Assembly	E	Drive Motor
C	Pulley Covers	F	Drive Motor Covers

Technical Specifications

PHYSICAL DIMENSIONS	VALUE
Length × Width × Height	12 × 7 × 10 in (304.8 × 190.5 × 254 mm)
POWER	VALUE
Voltage	208–240 VAC Single Phase
Unit AMP	5.8 AMP
Supply AMP	15 AMP
TEMPERATURE RATINGS	VALUE
Operating	–10–55° C (14–131° F)
Storage	–20–65° C (–4–149° F)
CIRCUIT PROTECTION	VALUE
Inside Power Supply Cabinet	15 AMP

1.5.3 | Carrier Track

FIGURE 1.5.3 | Carrier Track



CODE	DESCRIPTION
A	Motor Drive Assembly
B	Home End Stop Assembly
C	Far End Stop Assembly

CODE	DESCRIPTION
D	Return Pulley Assembly
E	C-Channel 5 1/2 x 36 in & 5 1/2 x 72
F	Proximity Sensors

Technical Specifications

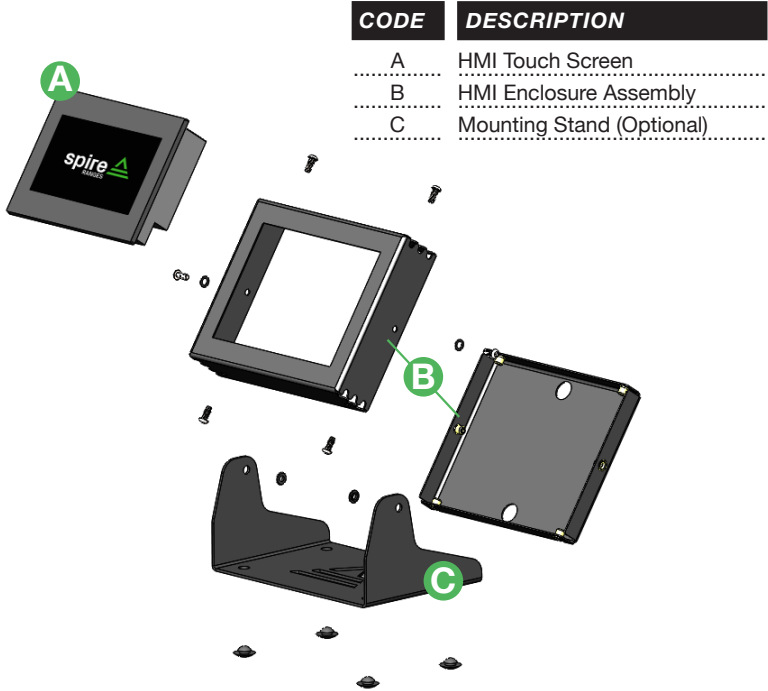
PHYSICAL DIMENSIONS	VALUE
Track Length x Width x Height	5 1/2 x 2 1/4 x 36 or 72 in per track section (139.7 x 57.15 x 914.4 or 1828.8 mm)
Width at Widest [Motor Drive Assembly]	12 in (304.8 mm)
Height at Highest [Motor Drive Assembly]	7 in (177.8 mm)
Weight	11.69 or 23.38 lb per linear foot (5.3 or 10.6 kg)

“From the precision engineering to the site-specific designed installation, we aim to deliver innovative and practical ranges that prepare professionals for when their life depends on their training.”

– SPIRE TEAM PILLARS

1.5.4 | Independent HMI Control Touch Screen

FIGURE 1.5.4 | Independent HMI Screen



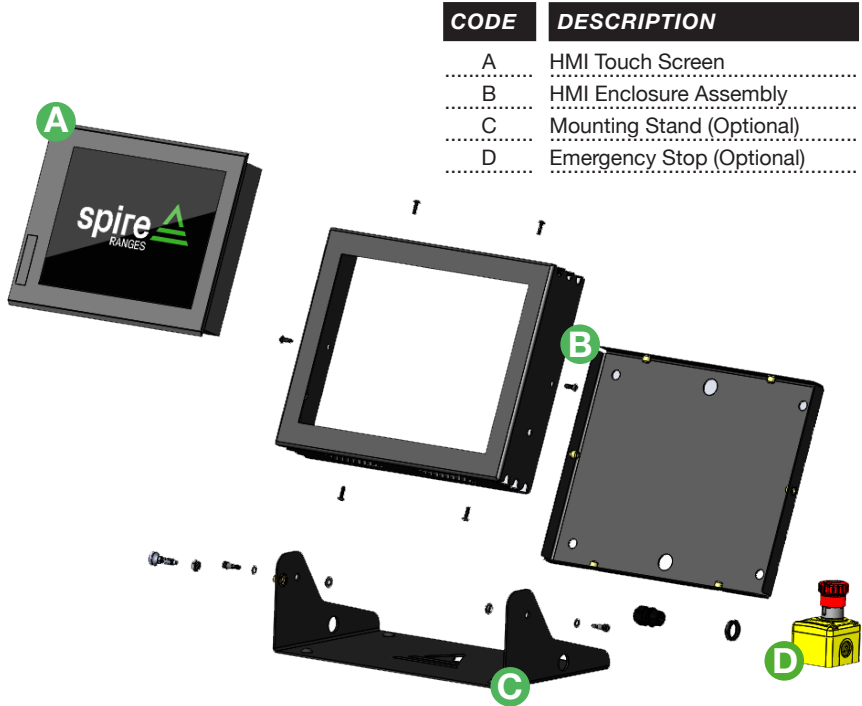
CODE	DESCRIPTION
A	HMI Touch Screen
B	HMI Enclosure Assembly
C	Mounting Stand (Optional)

Technical Specifications

PHYSICAL DIMENSIONS	VALUE
Length × Width × Height	10 ¹ / ₅ × 7 ³ / ₄ × 6 in (259.08 × 196.85 × 152.4 mm)
Weight	7.2 lb (3.3 kg)
POWER	VALUE
Power Consumption	24 VDC
Voltage	6 Watts Max
TEMPERATURE RATINGS	VALUE
Operating	-10–55° C (14–131° F)
Storage	-20–55° C (-4–131° F)

1.5.5 | Integrated HMI Control Touch Screen

FIGURE 1.5.5 | *Integrated HMI Screen*



CODE	DESCRIPTION
A	HMI Touch Screen
B	HMI Enclosure Assembly
C	Mounting Stand (Optional)
D	Emergency Stop (Optional)

Technical Specifications

PHYSICAL DIMENSIONS	VALUE
Length × Width × Height	12½ × 9¾ × 2 in (316 × 246 × 52 mm)
Weight	5.3 lb (2.4 kg)
POWER	VALUE
Power Consumption	24 VDC
Voltage	37 Watts Max
TEMPERATURE RATINGS	VALUE
Operating	-10–55° C (14–131° F)
Storage	-25–75° C (-13–167° F)

2 | PRODUCT OPERATIONS

2.1 | INTEGRATED CONTROL TOUCH SCREEN





Follow these guidelines to operate the Treadwell integrated within SpireOS for another Spire target system. This operation manual will provide guidelines and figures as a reference for operating the Treadwell, whether operating the Treadwell by itself or simultaneously with your other Spire target system. Reference operation guidelines and figures within each section.

2.1.1 | INTEGRATED OPERATION SCREEN

The Operation Screen is the main operational screen for live fire training sessions. From this screen, a rangemaster can select lateral moving targets—individually, dually, or simultaneously with other target units—to run live fire training courses.

2.1.1.a | Target Selection (Single & Dual Treadwells)

From the Operation Screen, a rangemaster can select lateral moving targets for live fire training. To select either a single lateral moving target or dual operation of two lateral moving targets, follow the steps below and reference Figure 2.1.1.a and 2.1.1.a (2) on page 10.

1. From the Operation Screen, to select desired lateral moving target(s) for a live fire training session, tap  *Select Targets* or  *Current Target Selection* to navigate to the Target Selection Screen. Reference  and  in Figure 2.1.1.a and 2.1.1.a (2) on page 10.
2. Reference section 2.1.2 on page 15 for the layout of the Target Selection Screen and how to finalize selection of desired lateral moving target(s).

2.1.1.b | Target Selection (Other Target Units)

If other target units are integrated within your SpireOS, reference your other Spire product operations manual for instructions on selecting those targets for a live fire training.

FIGURE 2.1.1.a | *Integrated Operation Screen (Single Treadwell)*



FIGURE 2.1.1.a (2) | *Integrated Operation Screen (Dual Treadwells)*



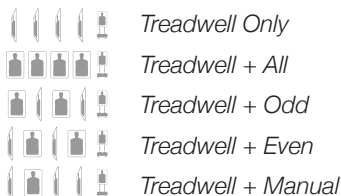
2.1.1.c | Current Target Selection (Single & Dual)

Current Target Selection indicates the target selection currently selected, whether *Treadwell Only* or with other target units. Reference icon guides to Current Target Selection below and ❶ in Figures 2.1.1.c and 2.1.1.c (2) on page 12.

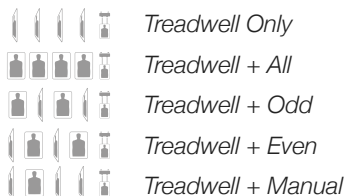
SINGLE TREADWELL

The following guide to Current Target Selection is for single implementation:

Ground Configuration



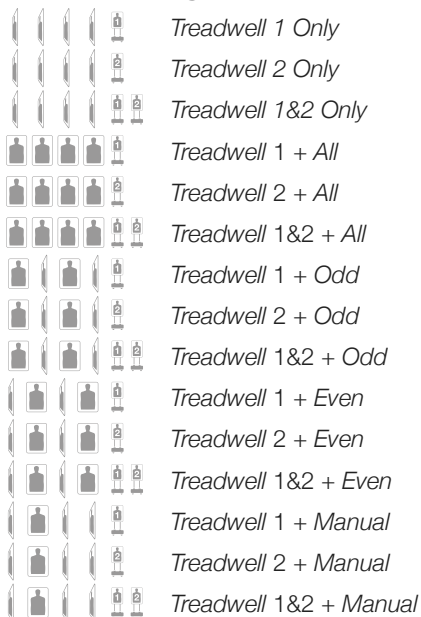
Overhead Configuration



DUAL TREADWELLS

If two lateral moving targets are implemented within your range, they can be selected separately or together (dually). The following guide to Current Target Selection is for dual implementation:

Ground Configuration



Overhead Configuration

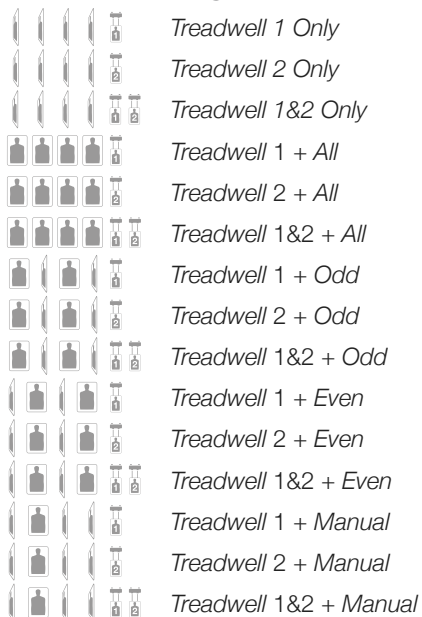


FIGURE 2.1.1.c | Current Target Selection (Single Treadwell)









FIGURE 2.1.1.c (2) | Current Target Selection (Dual Treadwells)



2.1.1.d | Operating Single & Dual Treadwells

After selecting your lateral moving target(s), reference the steps below and Figure 2.1.1.d on page 14 for how to run lateral moving targets. For how to select targets, reference section 2.1.1.a on page 9 and then 2.1.2 on page 15.

1. Select the speed of lateral moving target(s) by tapping one of the four preset speed modes. The selected speed button will change to green to indicate its selection. Reference  in Figure 2.1.1.d on page 14.
2. Once a speed has been selected, tap one of the  directional arrows for the Treadwell to start moving. The directional arrows can be used to manually change the direction of lateral moving targets. Reference  in Figure 2.1.1.d on page 14.
3. To pause the Treadwell, tap the green  target icon. The target icon will change from green to yellow to indicate that the lateral moving target is paused and not moving. To begin again, tap one of the  directional arrows. Reference  in Figure 2.1.1.d on page 14.

2.1.1.e | Guide to Operation Screen Controls

The following is a guide to control buttons found on the Operation Screen.



Current State indicates Treadwell(s) are currently selected and running. Reference **1** in Figure 2.1.1.e on page 14.



Current State indicates Treadwell(s) are currently selected, but paused. Reference **2** in Figure 2.1.1.e on page 14.



Current State indicates Treadwell(s) are currently unselected.



Walk,



Jog,



Run and



Random indicate the selected speed of the lateral moving target(s). These buttons change to green to indicate selection. Reference **3**, **4**, **5** and **6** in Figure 2.1.1.e on page 14.

2.1.1.f | Operating Other Target Units

If other target units are integrated within your SpireOS, reference your other Spire product operations manual for instructions on target operation.

FIGURE 2.1.1.d | Operating Treadwells (Single & Dual)





FIGURE 2.1.1.e | Guide to Operation Screen Controls



2.1.2 | TARGET SELECTION SCREEN

The Target Selection Screen is where a rangemaster manually selects lateral moving target units for a live fire training session. Once a selection has been made, the target icon button will change to green to highlight that it's selected to run. Reference steps below and Figure 2.1.2.a below.

2.1.2.a | Selecting Treadwell Targets

1. Select by tapping  desired lateral moving target(s) for a live fire training session; selected target(s) will change to green to indicate selection. To unselect, tap target icon again. Reference  in Figure 2.1.2.a below.

 Green indicates the target position is selected.  Red indicates the target position is unselected.


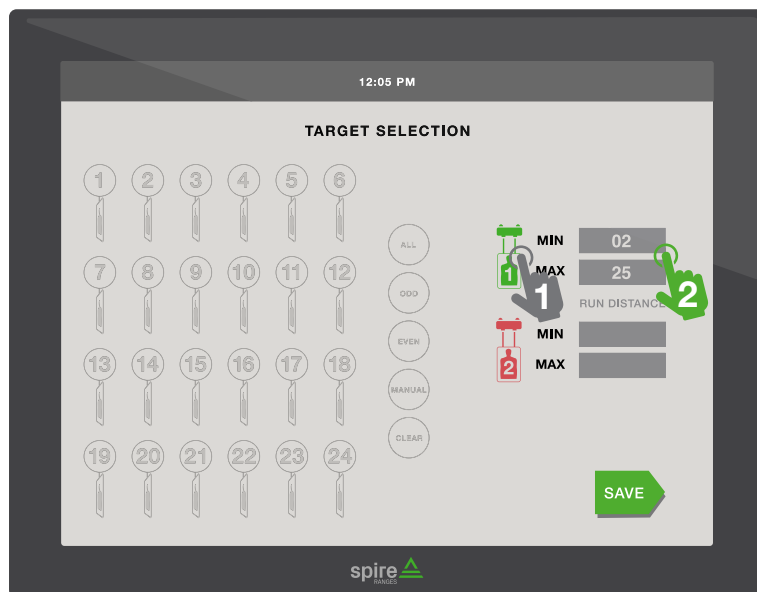
2. After selecting your lateral moving target(s), tap *Min / Max Run Distances*. Reference  in Figure 2.1.2.a below.
2. The Numeric Input Keypad Screen will appear to enter the desired distance value for the Treadwell(s) to run the length of the target line. Reference section 2.1.3 on page 16 for instructions on the layout of the Numeric Input Keypad Screen.








FIGURE 2.1.2.a | *Target Selection Screen (Selecting Treadwells)*



2.1.3 | NUMERIC KEYPAD INPUT SCREEN

The popup Numeric Input Screen is used to enter the Min / Max Run Distances for the Treadwell targets to run the length of the target line for a live fire training session.

2.1.3.a | Entering Desired Value

1. Enter the desired value by tapping the numbers from the Numeric Input Keypad. Reference  in Figure 2.1.3.a below.
2. Once the desired value has been entered, tap  *Enter* to save and return to the previous screen. Reference  in Figure 2.1.3.a below.
3. If a value was entered incorrectly, tap  *Delete* to delete the most recent value entered or  *Clear* to clear the entire value entered. Reference  and  in Figure 2.1.3.a below.



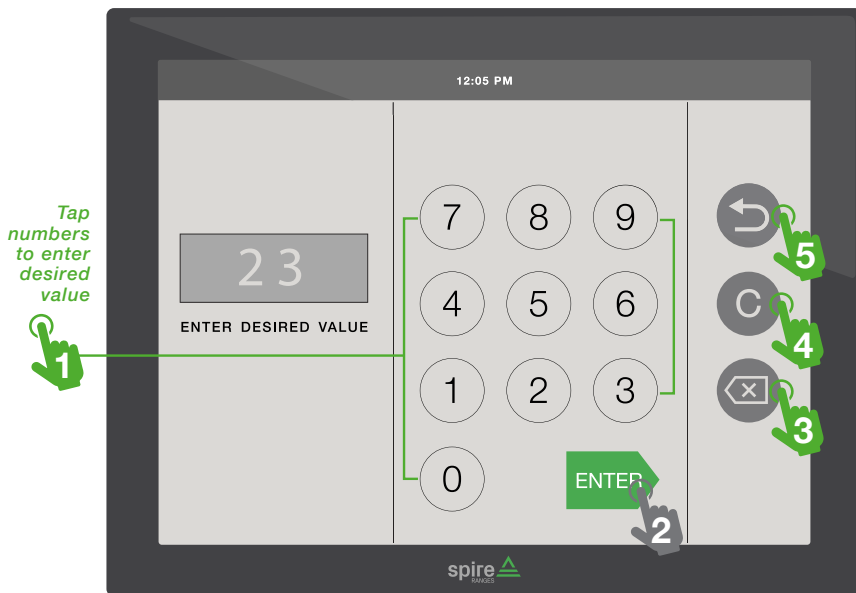
To cancel entering a value at any time and return to the previous screen, select  *Return*. Reference  in Figure 2.1.3.a below.

FIGURE 2.1.3.a | *Numeric Keypad Input Screen*



2.2 | INDEPENDENT CONTROL TOUCH SCREEN

Follow these guidelines to operate the Treadwell on its own touch screen control. This operation manual will provide guidelines and figures as a reference for operating the Treadwell, whether operating the Treadwell by itself or simultaneously with your other Spire target system. Reference operation guidelines and figures within each section.

2.2.1 | WELCOME SCREEN (Navigating to Menu)

A Welcome Screen with SpireOS logo greets you when the HMI is initially powered on. To access the Menu Screen, reference the following steps and Figure 2.2.1 below.




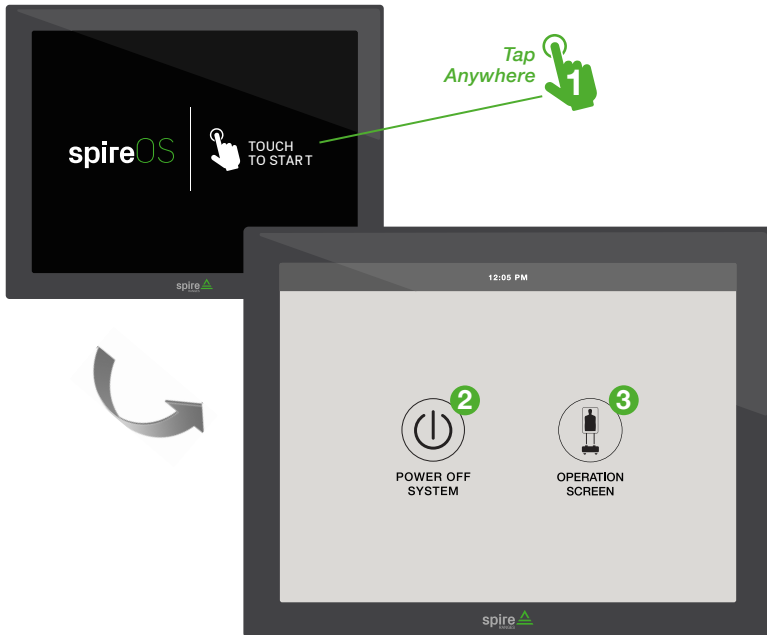
1. Access the Menu Screen from the Welcome Screen by tapping anywhere on the screen. Reference  in Figure 2.2.1 below for the Welcome Screen.
2. From the Menu Screen, you can access the Operation Screen and power off the keypad. Reference  and  in Figure 2.2.1 below.

FIGURE 2.2.1 | Independent Control Console Welcome Screen (Navigating to Menu Screen)



2.2.2 | MENU SCREEN

The Menu Screen allows the rangemaster to select the Operation Screen and to power off the keypad.

2.2.2.a | Navigating the Menu Screen





1. Select  *Operation Screen* to navigate to the Operation Screen to begin a live fire training session. Reference  in Figure 2.2.2.a below.
2. To power off the keypad, select  *Power Off*. Reference  in Figure 2.2.2.a below.



FIGURE 2.2.2.a | Navigating the Menu Screen



2.2.3 | INDEPENDENT OPERATION SCREEN

The Operation Screen is the main operational screen for live fire training sessions. From this screen, a rangemaster can operate lateral moving targets—individually or dually.

2.2.3.a | Selecting Treadwell Targets


1. Select by tapping the  desired lateral moving target(s) for a live fire training session; selected target(s) will change from red to green to indicate selection. To unselect, tap target icon(s) again. Reference  in Figures 2.2.3.a and Figure 2.2.3.b on page 20.



Green indicates the target position is selected.



Red indicates the target position is unselected.

2. After selecting your lateral moving target(s), tap *Min / Max Run Distances*. Reference  in Figures 2.2.3.a and 2.2.3.b on page 20.
2. The Numeric Input Keypad Screen will open to enter the desired distance value for the Treadwell(s) to run the length of the target line. Reference section 2.1.3 on page 16 for instructions on navigating the Numeric Input Keypad Screen.

2.2.3.b | Operating Single & Dual Treadwells

After selecting your lateral moving target(s), reference the steps below and Figures 2.2.3.a and 2.2.3.b on page 20 for how to operate selected lateral moving targets—individually or dually.







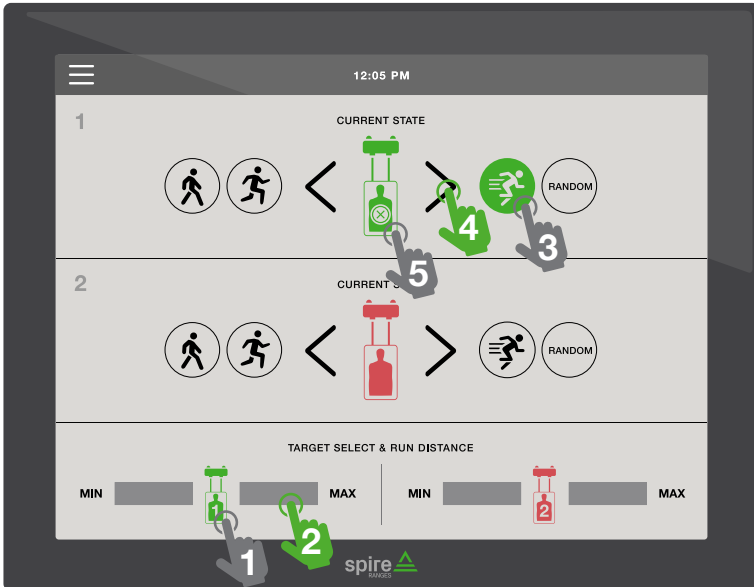
1. Select the speed for a lateral moving target by tapping one of the four preset speed buttons. The selected speed mode will change to green to indicate its selection. Reference  in Figures 2.2.3.a and 2.2.3.b on page 20.
2. Once a speed has been selected, tap one of the  directional arrows for the Treadwell to start moving. The directional arrows can be used to manually change the direction of lateral moving targets. Reference  in Figures 2.2.3.a and 2.2.3.b on page 20.
3. To pause the Treadwell, tap the green  *Current State* target icon. The target icon will change from green to yellow to indicate that the lateral moving target is paused and not moving. To begin again, tap one of the  directional arrows. Reference  in Figures 2.2.3.a and 2.2.3.b on page 20.

FIGURE 2.2.3.a | *Selecting Treadwell Targets*



FIGURE 2.2.3.b | *Operating Single & Dual Treadwells*



2.2.3.c | Guide to Operation Screen Controls

The following is a guide to control buttons found on the Operation Screen.



Current State indicates Treadwell(s) are currently selected and running. Reference **1** in Figures 2.2.3.c and 2.2.3.c-d on page 22.



Current State indicates Treadwell(s) are currently selected, but paused.



Current State indicates Treadwell(s) are currently unselected. Reference **2** in Figure 2.2.3.c-d on page 22.



Walk,



Jog,



Run and



Random indicate the selected

speed of the lateral moving target(s). These buttons change to green to indicate selection. Reference **3**, **4**, **5** and **6** in Figure 2.2.3.c and **7**, **8**, **9** and **10** in Figure 2.2.3.c-d on page 22.



Directional Arrows start lateral moving targets, and also manually change their direction. Reference **11** in Figures 2.2.3.c and 2.2.3.c-d on page 22.



Target Select & Run Distance indicates Treadwell(s) are currently selected to run. Reference **12** in Figures 2.2.3.c and 2.2.3.c-d on page 22.



Target Select & Run Distance indicates Treadwell(s) are currently unselected. Reference **13** in Figure 2.2.3.c-d on page 22.

MIN



reflects the minimum distance length for the Treadwell(s) to run laterally along the target line, if the Treadwell(s) are selected. Reference **14** in Figures 2.2.3.c and 2.2.3.c-d on page 22.

MAX



reflects the maximum distance length for the Treadwell(s) to run laterally along the target line, if the Treadwell(s) are selected. Reference **15** in Figures 2.2.3.c and 2.2.3.c-d on page 22.

2.2.3.d | Accessing Menu Screen from Op Screen


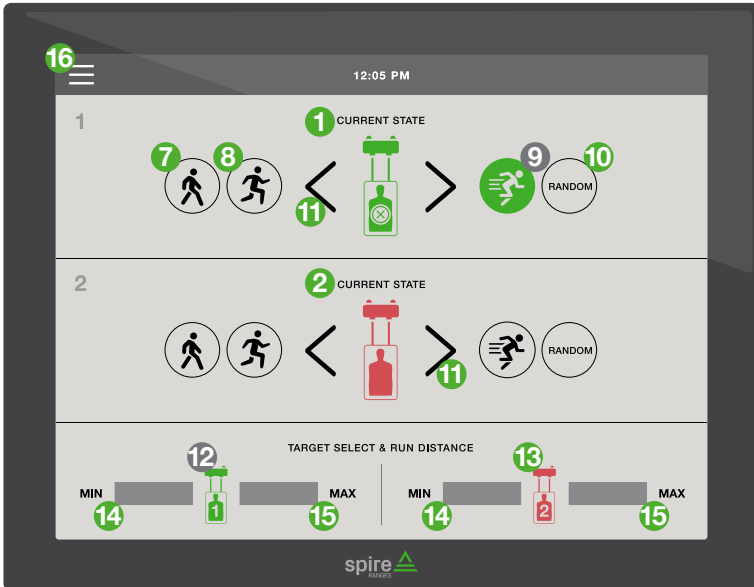
1. Select  to navigate to the Menu Screen. Reference **16** in Figures 2.2.3.c and 2.2.3.c-d on page 22. From the Menu Screen, you can access the Operation Screen and power off the keypad. See section 2.2.2 on page 18 to reference the Menu Screen's layout.

FIGURE 2.2.3.c | Guide to Operation Screen Controls (Single)



FIGURE 2.2.3.c-d | Guide to Operation Screen Controls (Dual)



2.4 | TARGET CARRIER UNIT

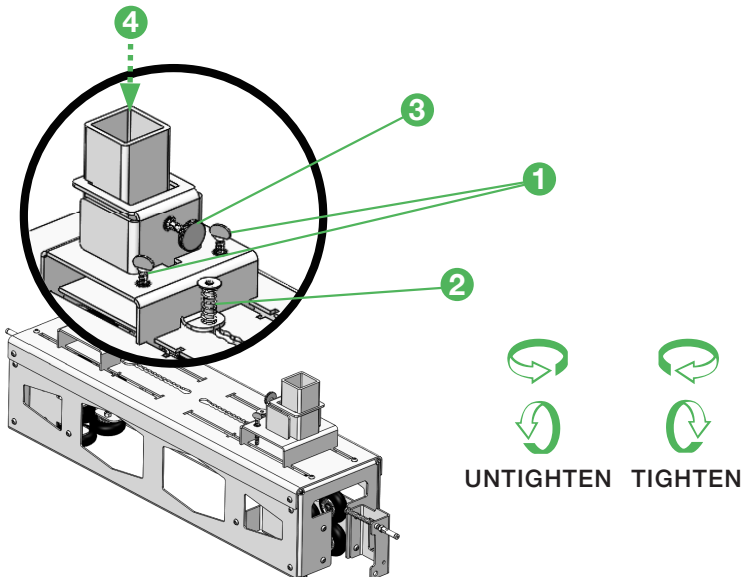
Reference steps and figures for adjusting and attaching a carrier unit's target braces, along with instructions on attaching aircraft cable to a carrier.

2.4.1 | ADJUSTING & ATTACHING TARGET BRACES

The target clamp holds the wood target braces. Target backers are attached to the target braces, and targets are then attached to target backers.

1. To adjust the target width, loosen thumb screws, then push down on lock slides. Reference **1** for thumbscrews and **2** for lock slides in Figure 2.4.1 below.
2. To clamp wood target braces, start by untightening the clamp thumbscrews at the left and right of the carrier. Reference **3** in Figure 2.4.1 below.
3. Remove old target braces (if necessary), and insert new target braces into the wood slots. Reference **4** in Figure 2.4.1 below. Note that the dotted arrow indicates the direction in which to insert the target braces into the carrier unit's clamp slot.
4. Tighten the clamp once again. Reference **3** in Figure 2.4.1 below.

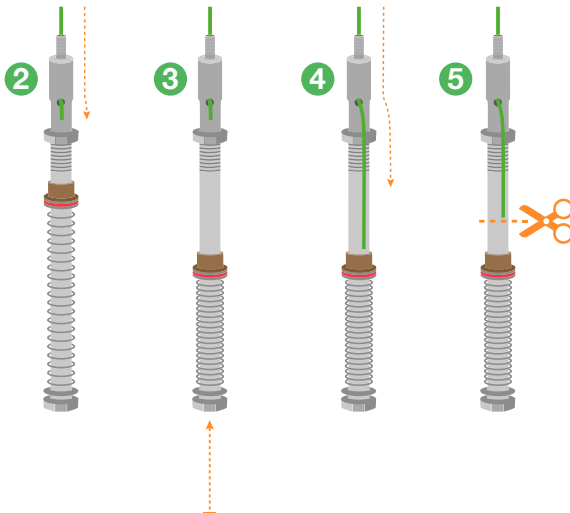
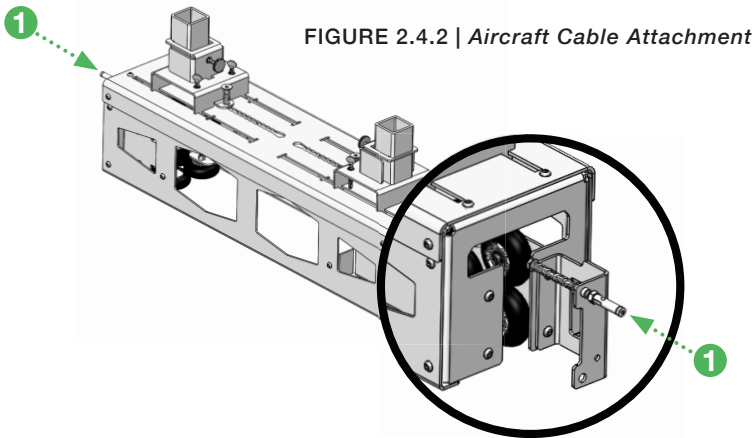
FIGURE 2.4.1 | Adjusting & Attaching Target Braces



2.4.2 | ATTACHING AIRCRAFT CABLE TO CARRIER

Occasionally the aircraft cable will need to be replaced. Reference section 3.3 on page 28 for suggested preventive maintenance schedules. See guidelines and Figure 2.4.2 below for steps on how to replace the aircraft cable.

1. Run the cable over the pulleys and through the center of any bracketing, bringing the cable to both ends. Reference ① in Figure 2.4.2 below.
2. Thread the cable through the opening of each clamp and out the top hole. Reference ② in Figure 2.4.2 below.
3. Tension the cable by compressing the spring bolt fully and pull the cable taut. Reference ③ and ④ in Figure 2.4.2 below.
4. Cut off excess cable, leaving approximately one inch of the cable extending from each clamp to prevent unravelling. Reference ⑤ in Figure 2.4.2 below.



3 | TROUBLESHOOTING

Given below are possible causes and solutions for system problems. Within the Possible Causes and Solutions sections, you will find sequential steps that can help troubleshoot a problem. If a problem persists after following these troubleshooting guidelines, please immediately contact the Spire technical team for additional support.

3.1 | HMI TOUCH SCREEN & DRIVE UNIT

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
3.1.1 Dark Blank Touch Screen	(1) Screen is in sleep mode.	Touch the screen to bring HMI out of sleep mode.
	(2) No power supplied to HMI.	(1) Check for power supply connection. (2) If power supply is connected properly, check circuit breaker to see if breaker tripped. (3) If problem persists, contact Spire for technical support: 800-761-1231.
3.1.2 Nonresponsive Screen Function	(1) HMI screen error.	(1) Navigate to the Menu Screen (see section 2.2.2 on pg. 18 for an independent keypad; if integrated within another Spire system, refer to other Spire operation manual). (2) Select <i>Power Off</i> to reset HMI Touch Screen. (3) If problem is still not resolved, check power supply to PLC. If PLC has power, cycle power to PLC. (4) If there is no indicator light for power to the PLC, check circuit breaker to see if it is tripped.
3.1.3 Nonresponsive HMI Touch Screen	(2) HMI / PLC fault.	Contact Spire for technical support: 800-761-1231.
	(1) HMI error.	(1) Cycle power to HMI. (2) Cycle power to the PLC.
3.1.4 Drive Unit Has Power but Is Non-responsive	(2) HMI / PLC fault.	Contact Spire for technical support: 800-761-1231.
	(1) Motor error.	Cycle system for 30 seconds.
	(2) Drive fault.	Contact Spire for technical support: 800-761-1231.

3.2 | TREADWELL CARRIER UNIT

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
3.2.1 Nonresponsive Carrier Unit	(1) Drive system error.	Turn the drive system off for 30 seconds to manually reset.
	(2) Aircraft cable fault. Reference 2.4.2 on page 24 for steps on how to attach a new cable to the carrier unit.	(1) Inspect aircraft cable for a break or tear. (2) Inspect both pulleys to ensure that the aircraft cable is riding properly on the pulleys. (3) Verify that the cable tension is snug. (4) Replace as necessary.
	(3) Debris obstruction.	Shut system off to the drive unit in the breaker room. Manually push the carrier to make sure it can move. If it cannot move, there is an obstruction. Remove obstruction and manually return carrier to home position.
	4) Drive fault.	Contact Spire for technical support: 800-761-1231.
	(5) Carrier unit fault.	Contact Spire for technical support: 800-761-1231.
3.2.2 Carrier Unit Fails to Decelerate, Hitting Home End-Stop with Excessive Force	(1) Proximity sensor error. Reference F in Figure 1.5.3 on page 6 to locate proximity sensors.	(1) Test proximity sensors by sending the carrier unit down-range. Place a steel-based tool just below the proximity sensor. Verify that the proximity sensor light flashes on and that the carrier unit stops appropriately. (2) Inspect spacing between carrier unit and proximity sensor switch; spacing should not exceed 1/8in (4mm).
	(2) Proximity sensor fault.	If light does not illuminate, but there is power to the unit, contact Spire for technical support: 800-761-1231.
3.2.3 Carrier Unit Fails to Decelerate, Hitting Far End-Stop with Excessive Force	1) Programming issue.	The Max Distance programming needs to be adjusted according to the range's specs. Contact Spire for technical support: 800-761-1231.

Cont. on next pg ...

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
3.2.3 (Continued) Carrier Unit Fails to Decelerate, Hitting Far End-Stop with Excessive Force	(2) Drive unit error.	Contact Spire for technical support: 800-761-1231.
3.2.4 (a) Abnormal and/or Excessive Noise from Carrier, or (b) Carrier Unit Stops Abruptly or Prematurely	(1) Debris is on the track. (2) Track is damaged.	Remove any debris. (1) Inspect the top and bottom of the track's flanges for damage. (2) Use hand tools (e.g., C-clamp, vise grips, adjustable wrench, etc.) as necessary to remove damage to the track. (3) Replace damaged sections of track as necessary. <i>Please note that the top surface of the bottom track flanges is the critical surface area to maintain as smooth as possible.</i>
3.2.5 Target Braces Fall Out of Clamp	(3) Carriage wheels are worn or damaged. Reference A in Figure 1.5.1 on page 4 to locate the carrier wheel assembly. (1) Target braces are too thin / wrong size.	(1) Inspect wheels to assess wear or damage; replace if necessary. (2) Ensure that all bolts are tightened to 12 foot-pounds of torque. Ensure that the target braces are the right size. The ideal brace size is 1 1/2in (38mm) × 1 1/2in (38mm).
3.2.6 Target Braces Are Too Narrow or Wide for Target Backer	(2) Clamp screw fell out or is too loose (1) Target brace clamps are too narrowly or widely positioned.	Ensure that clamp screw is tightened properly. Adjust the width of the target brace clamps to position wood nearest to the outside edge of the target. Reference step (1) in section 2.4.1 and Figure 2.4.1 on page 23.

3.3 | SYSTEM PREVENTIVE MAINTENANCE

It is recommended that the following inspections and preventive maintenance be performed quarterly to ensure maximum longevity of your range's target system.

UNIT	PREVENTIVE MAINTENANCE
Aircraft Cable	Inspect aircraft cable to make sure it's not fraying and that the tension is snug. Replace as necessary. Reference aircraft cable attachment steps in section 2.4.2 on page 24.
Carrier Unit Track	<p>(1) Inspect the top of the track to ensure that no debris is jammed in it, or wedged between the track hanger and the track. Remove debris as necessary.</p> <p>(2) Inspect under the proximity sensor switch bracket and make sure that no debris is jammed in it. Remove debris as necessary.</p> <p>(3) Inspect the top and bottom of the track for damage. Smooth out damage with hand tools as necessary. See Troubleshooting 3.2.2 (2) on page 27 for more information.</p>
Carrier Unit Wheels	Shut power off to the drive unit. Manually move the carrier to check how smoothly it moves down the track. Return the carrier to the home position and turn the drive unit back on. Replace wheels as necessary. Reference A in Figure 1.5.1 on page 4 for the location of the carrier's wheel assembly.
System Usage	If the range is used on a daily basis, the system can remain on. If the range is not used for more than a week, it is recommended that the system be shut down, and then restarted when in operation. Reference section 2.2.2 on page 18 for the Power Off button in the Menu Screen for Treadwells with an independent control console. If other target units are integrated within your SpireOS, reference your other Spire product operations manual for instructions on target operation.

“ At Spire, we love what we do, and we take pride in our work knowing that our customers are the everyday heroes that make our communities safer. ”

– SPIRE TEAM PILLARS





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