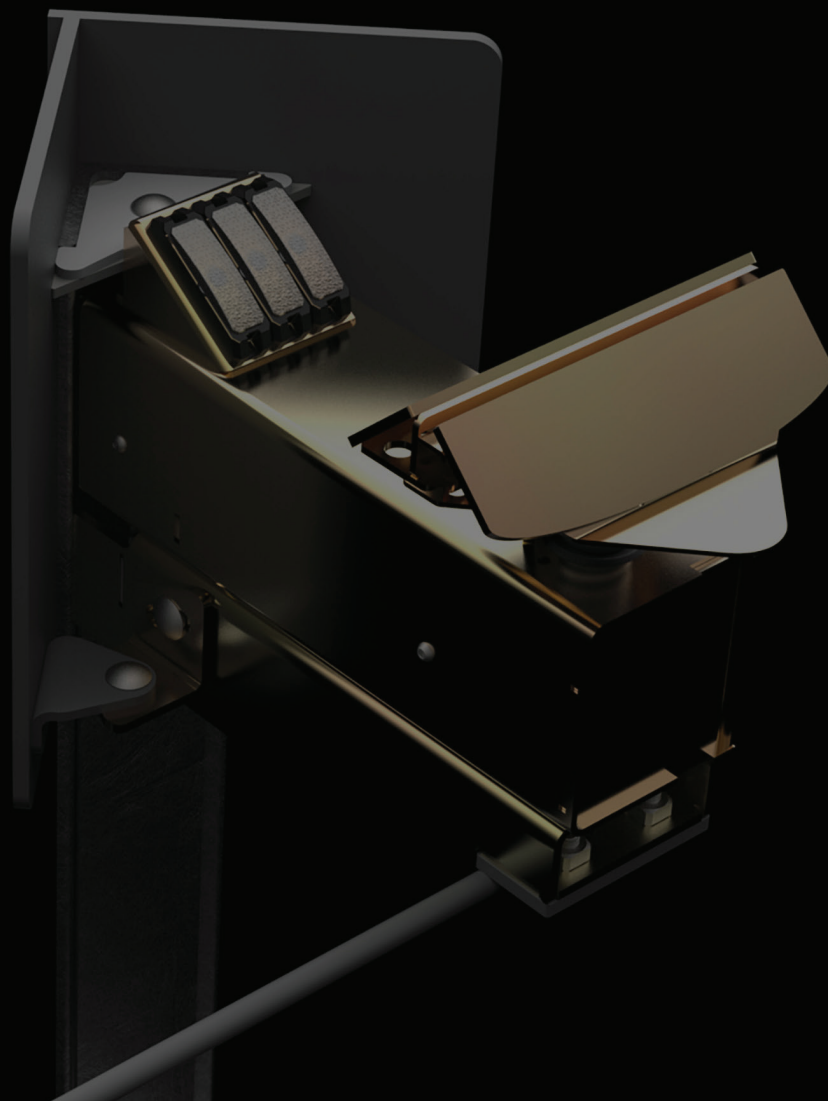


C O M M A N D B R I D G E R TM



spireOSTM

O P E R A T I O N / M A I N T E N A N C E M A N U A L



1 800 761 1231

COMMAND BRIDGE[™]



OPERATIONS/MAINTENANCE MANUAL

Version 2.3 | Spire Ranges © 2026



1 800 761 1231

Our customers are the heroes who make our world, countries, and communities safer. At Spire, we create exceptional shooting range systems that prepare them for when duty calls.

OUR MISSION?

**EVERY HERO COMES
HOME SAFE.**



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COMMAND BRIDGER INTRODUCTION

The Command Bridger is a stationary, ground mounted, turning target system that is ideal for any range's customized training programs and courses of fire. Air-powered actuators quickly and quietly turn targets 90°. Targets can be controlled individually, or synchronized with a Spire master control touch screen and/or wireless remote. The Bridger system is all-weather rated and proven durable, making it an ideal target system for all types of facilities and organizations, including law enforcement, military, government, commercial and indoor/outdoor ranges.

MASTER CONTROL CONSOLE OVERVIEW

The Master Control Console allows a range master to manually control drills for an individual position or for all of the positions simultaneously on the range. As an option, a phone app allows for the rangemaster to control the system from the firing line. Additionally, an optional wireless remote allows for the range master to control the system from the firing line.

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.

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.

All products provided and installed by Spire Ranges are warranted against defects in material or workmanship under normal use and service, subject to limitations detailed below. Warranty period begins at the conclusion of the original installation or upon first shots fired (whichever occurs first).

This warranty applies to the original installation only. This warranty does not cover damages caused by improper installation, misuse, or lack of proper maintenance. This warranty does not cover damages caused by alterations or repairs made by anyone who is not pre-authorized in writing by Spire Ranges to modify, alter, repair, or otherwise handle in any way the product.

Spire Ranges reserves the right to determine if any part is defective and to repair or replace parts as it elects. This warranty does not cover shipping costs of defective parts from the owner's site. Return shipping to the site is covered by Spire Ranges during the warranty period. This warranty covers on site labor, travel expenses and accommodations if applicable.

Damage of Spire Ranges equipment resulting in utilizing armor piercing (AP) ammunition or tracer rounds will not be covered under warranty. In addition, high velocity rounds (both ball and frangible) traveling at speeds more than 3000 fps may result in wear, dimpling and pocking of the 1/4" AR500 ballistic shields and target clamps depending on the angle of impact. Such wear, dimpling, and pocking under these conditions is not covered under warranty.

BALLISTIC RATINGS

Ammunition specs listed below are examples of energy and velocity only. Note, any use of Armor Piercing (AP), Steel Core, or Tracer Rounds will void the warranty.

PLATE RATING	MUNITIONS TYPE	MAX ENERGY	MAX VELOCITY
1/4" AR500	Pistol	1175 ft-lbs	1485 fps
3/8" AR500	Pistol/Rifle	3600 ft-lbs	3300 fps
TYP. AMMO	BULLET WEIGHT	MAX ENERGY	MAX VELOCITY
.22 LR	40 gr HP	140 ft-lbs	1400 fps
9MM LUGER	124 gr FMJ	460 ft-lbs	1293 fps
.357 MAG	158 gr JSP	663 ft-lbs	1375 fps
.44 MAG	240 gr SWC	1175 ft-lbs	1485 fps
5.56X45MM NATO	55 gr FMJ	1402 ft-lbs	3388 fps
7.62X51MM NATO	150 gr FMJ	3048 ft-lbs	3025 fps
.308 WIN	150 gr SPTZ	2800 ft-lbs	2900 fps
30-06	180 gr SPTZ	3360 ft-lbs	2900 fps
300 WM	190 gr BTHP	3548 ft-lbs	2900 fps

Spire Ranges products can handle .50 BMG in moderation; however, due to the large amounts of energy exerted from the round, the following applies:

Repeatedly using .50 BMG will shorten the life expectancy of the product and may void warranty.

Repeated impacts of .50 BMG fired in the same location of the product can cause damage in as few as 50 rounds.

Any armor piercing (AP) rounds, particularly those from .50 BMG will void any warranty.

LIMITATION OF LIABILITY

Neither Spire Ranges, nor any company affiliated with it, makes any warranties, representations or promise as to the performance or quality of the product other than what is specified in the original agreement between Spire Ranges and the range Owner. The liability of Spire Ranges to the Owner for damages arising out of the manufacture, sale, delivery, use of resale of this product shall be limited to and shall not exceed the cost of repair or replacement of defective parts. Spire Ranges shall not be liable for loss of use, inconvenience or any other incidental, indirect or consequential damages.

No representative of Spire Ranges has the authority to make any representation or promise on behalf of Spire Ranges or to alter or modify the terms or limitations of warranties in any way.

MASTER CONTROLS:

NAVIGATION

Start by touching anywhere

Welcome to spireOS™



TOUCH TO
START >>



Manual Operation Screen
page 18

Treadwell Operation
(optional)



FURY
OPERATION



COURSES
OF FIRE



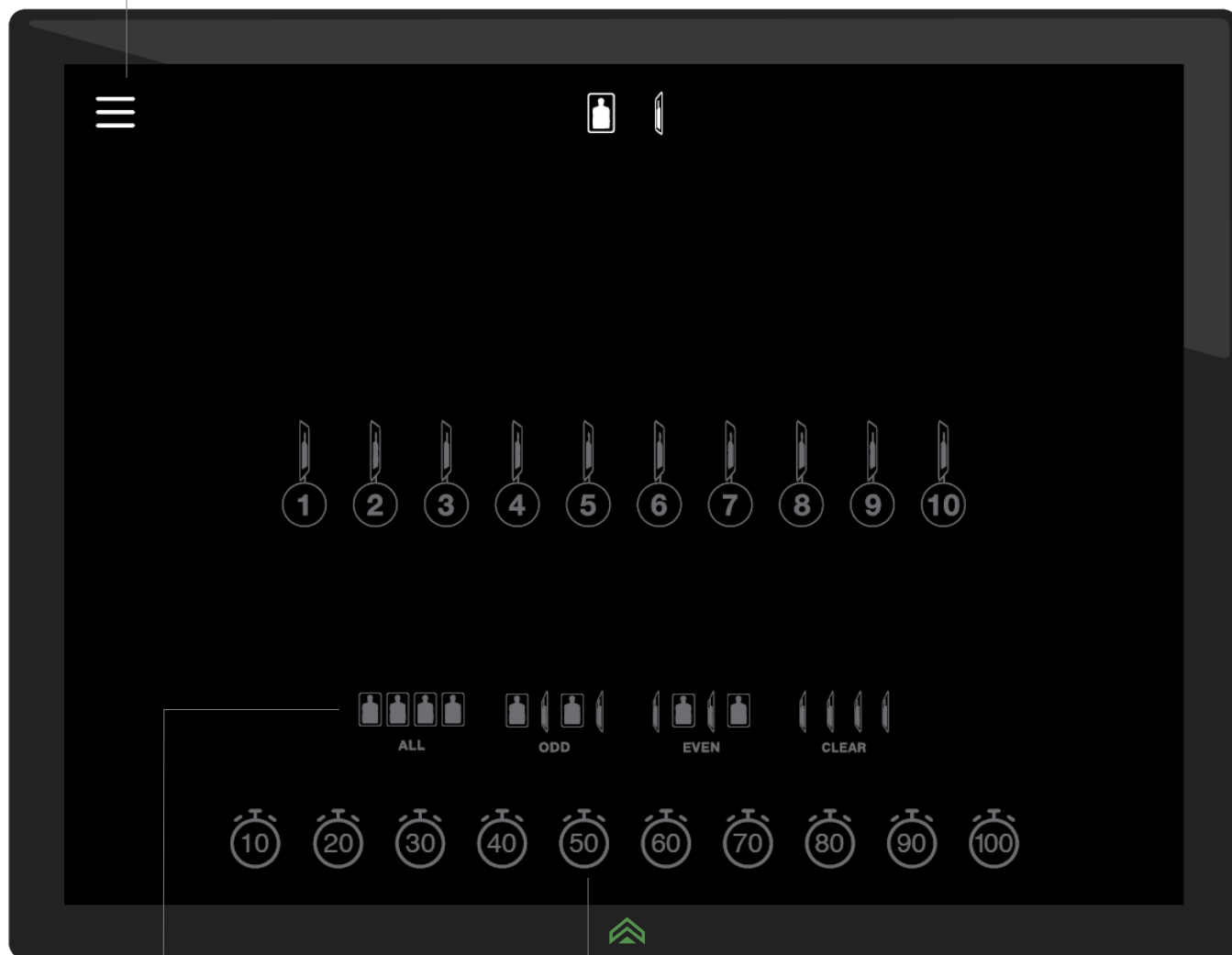
TREADWELL
OPERATION



Courses of Fire Menu
page 21

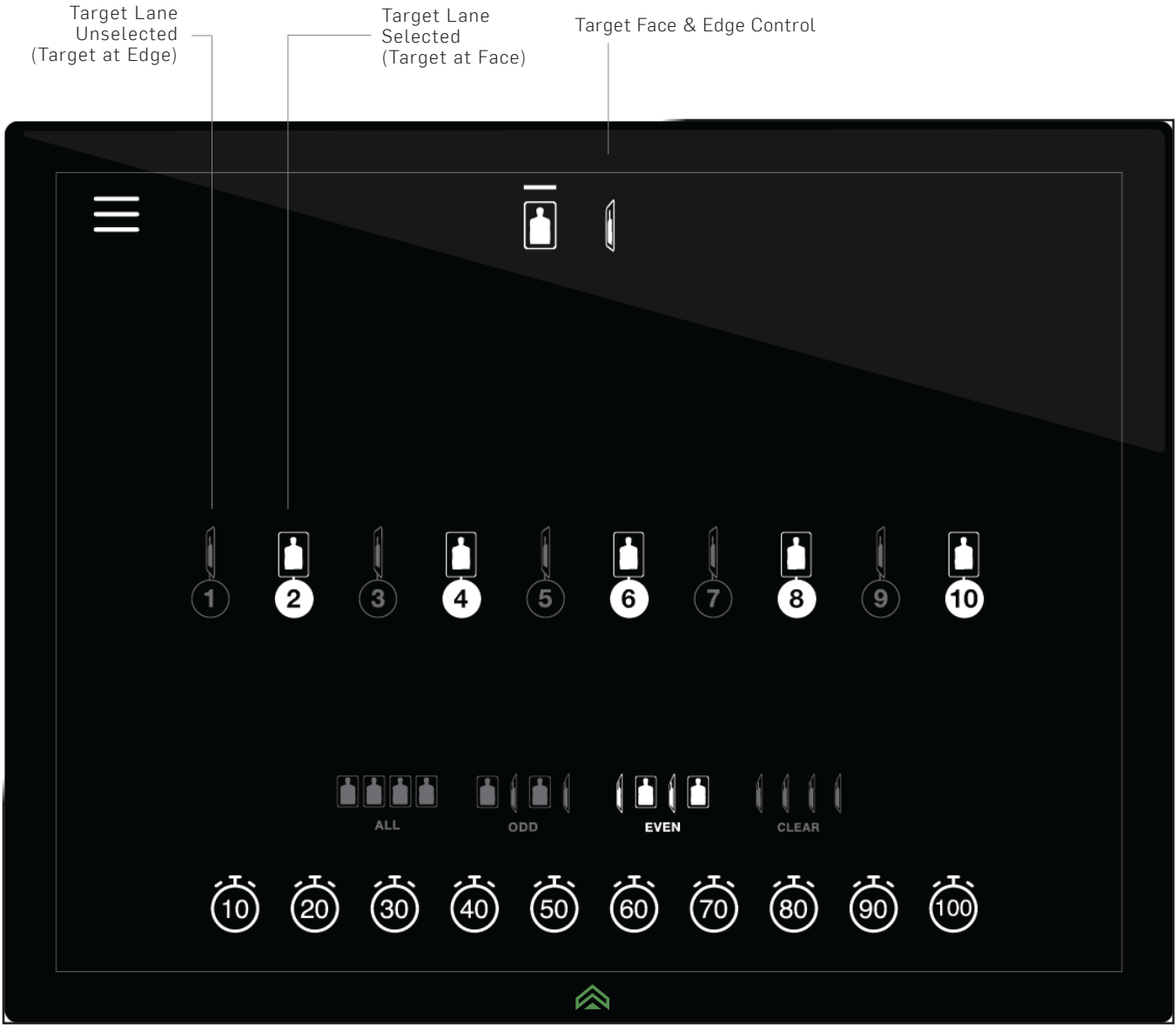
MANUAL SESSION

Back to
Main Menu
page 15



Multilane Quick Selection:
All, Odd, Even, or Clear

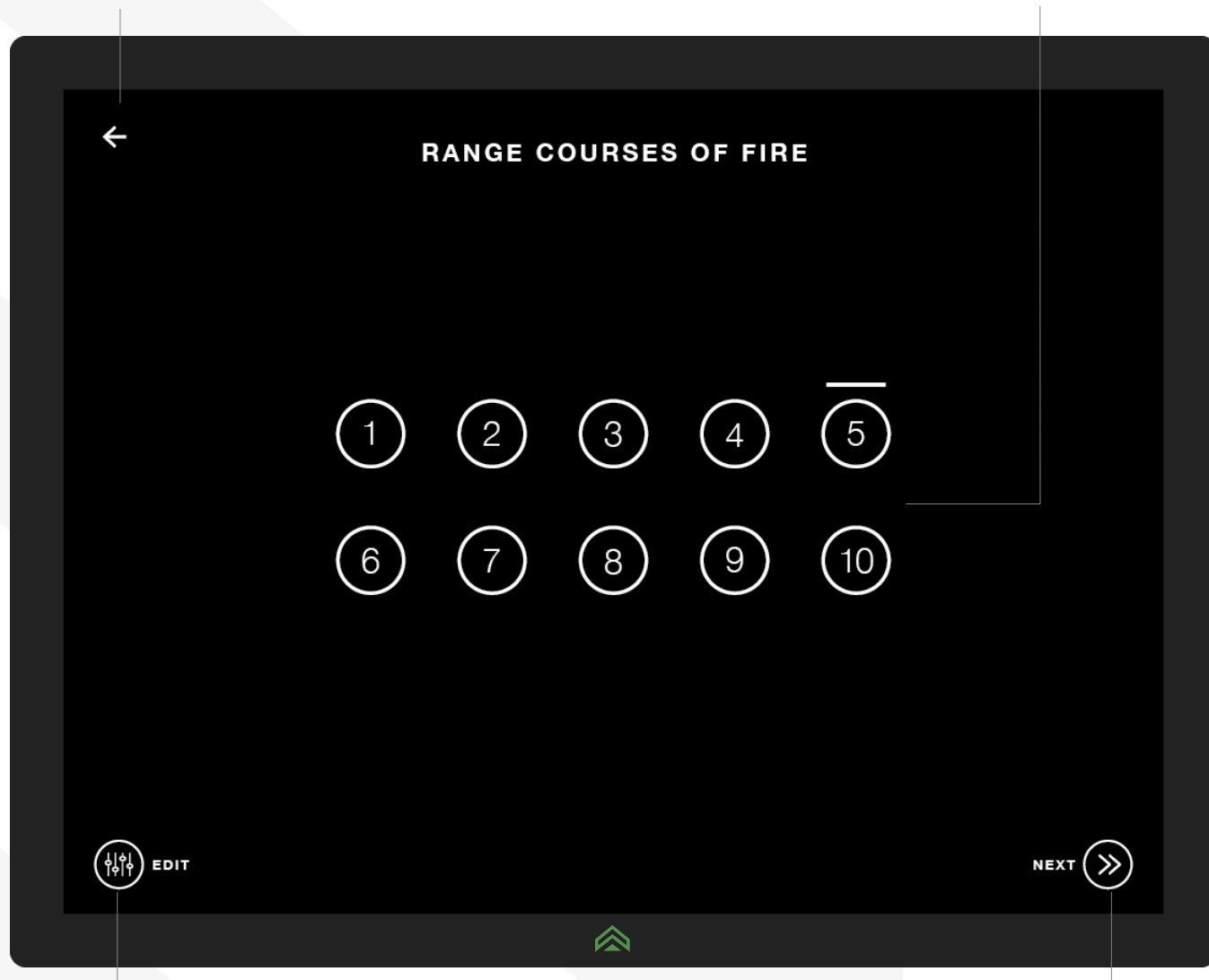
10 Preset Times
*[Indicator will tick down and turn
grey upon countdown completion.]*



COURSE OF FIRE SESSION

Back to Main Menu
page 15

10 Courses of Fire set
by the Range Master
[Course 5 is selected]



Edit Selected Course of Fire
page 22

Navigation to Target Selection
for selected course of fire
page 23

Back to Courses
of Fire Menu
page 21

Increase or decrease the number of
active stages for the course of fire

ⓧ

COURSE FIVE [EDIT]

OF STAGES — 13 +

COURSE STAGES
EXPOSURE TIME
[seconds]

1 - 10

11 - 20

60 60 60 60 60 60 60 60 60 60

60 60 60 — — — — — — —

SAVE

↑↑

Active Times

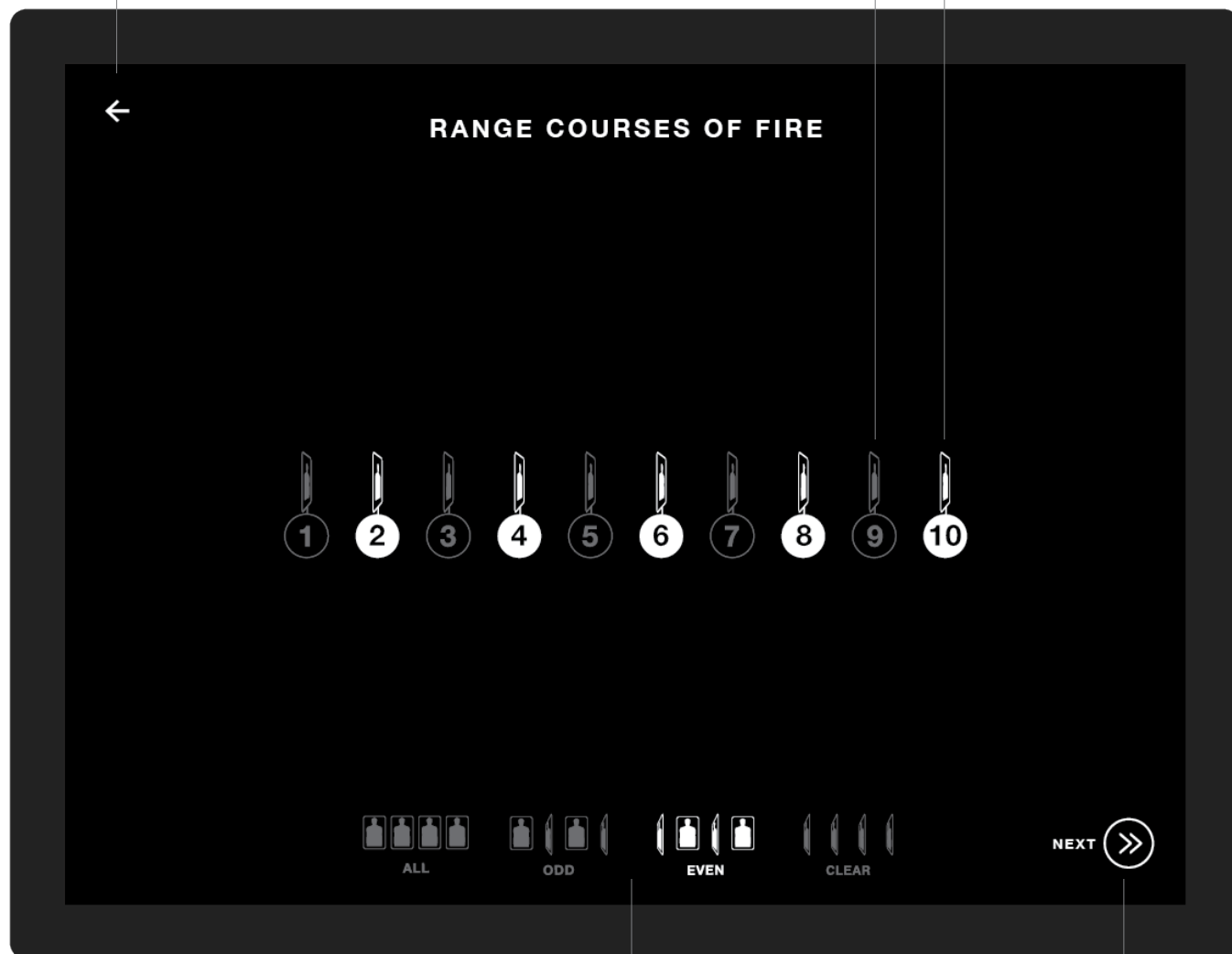
Inactive Times

Save & Return to
Courses of Fire Menu
page 21

Back to Courses
of Fire Menu
page 21

Target Lane
Not Selected

Target Lane
Selected



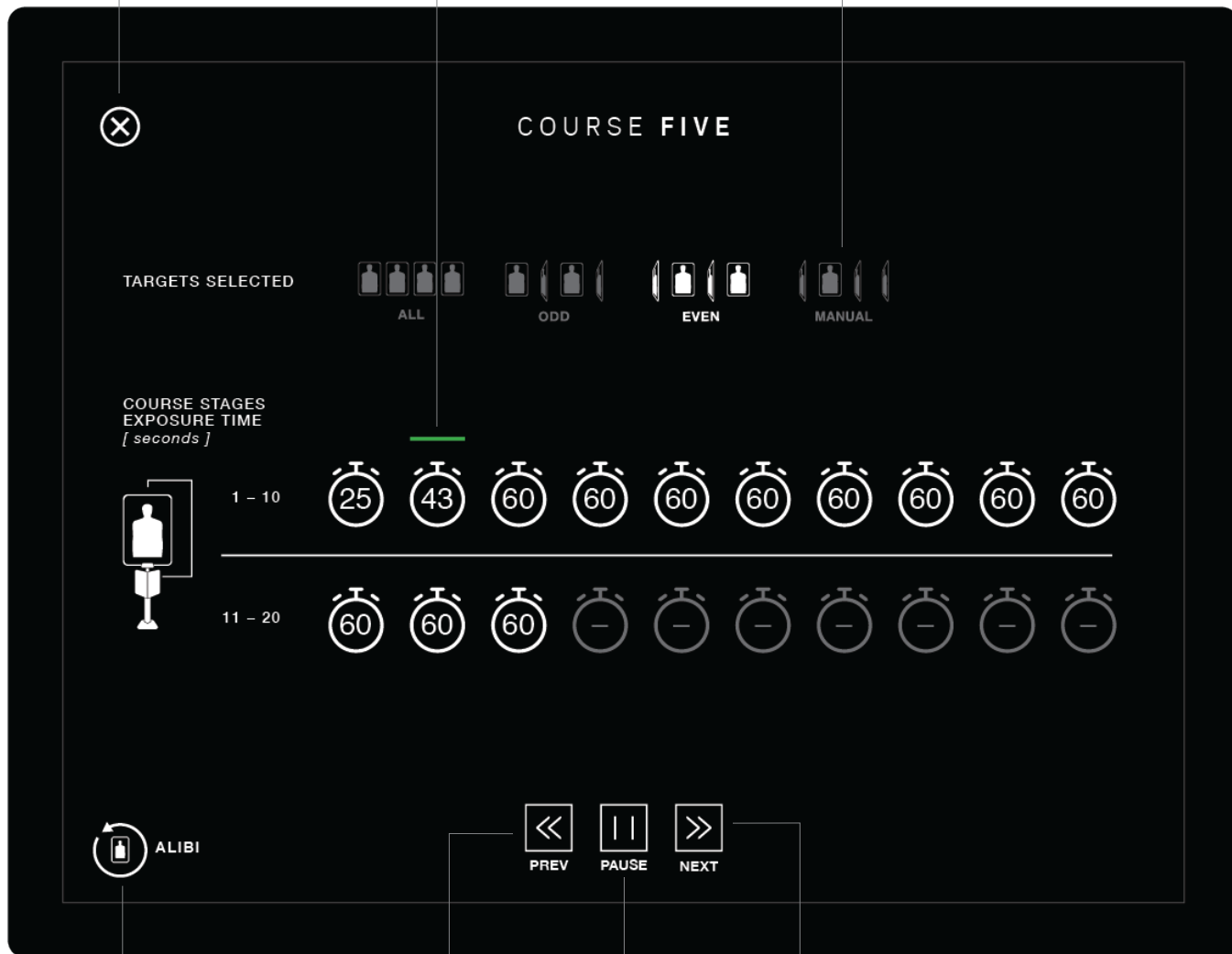
Multilane Quick Selection: All,
Odd, Even, or Clear
[Even targets are selected.]

Navigation to
Course In Play
page 24

Back to Courses
of Fire Menu
page 21

Current Stage
[Stage 2 is indicated.]

Selected Targets Indicators
[Even group is indicated.]



Alibi Screen
page 25

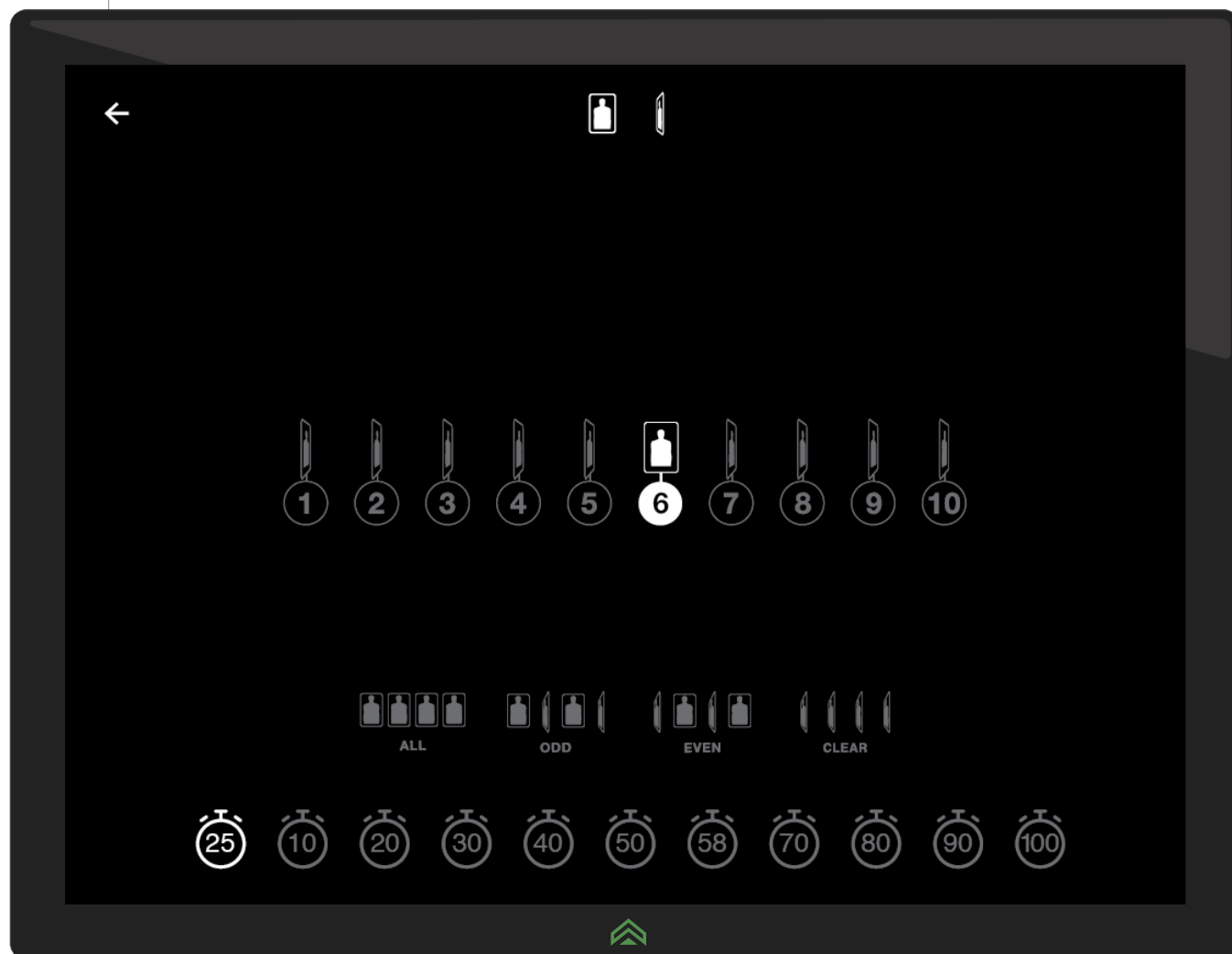
Previous
Stage

Pause/Start
Stage

Next
Stage

Back to In Play

page 24



Time is automatically loaded
from the last stage completed.

MOBILE CONTROLS:

- [1] Download cMT Viewer App for the device.

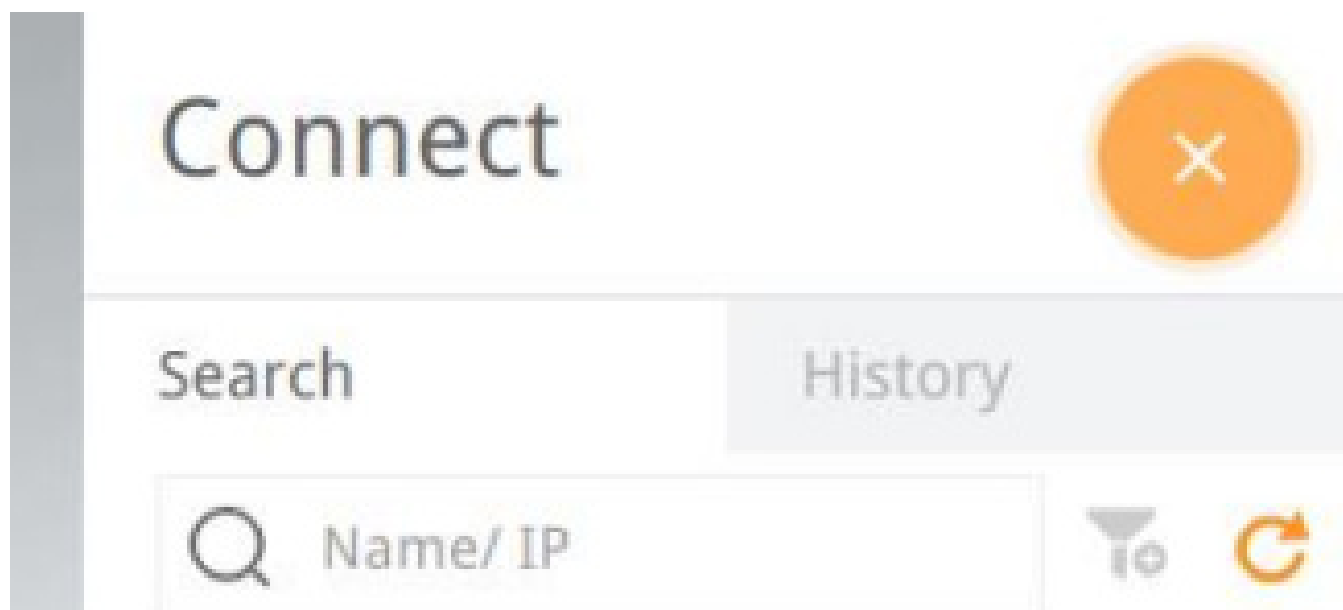


Windows

- [2] Connect to the range WiFi.
- WiFi: RangeAccess
 - Password: spireranges

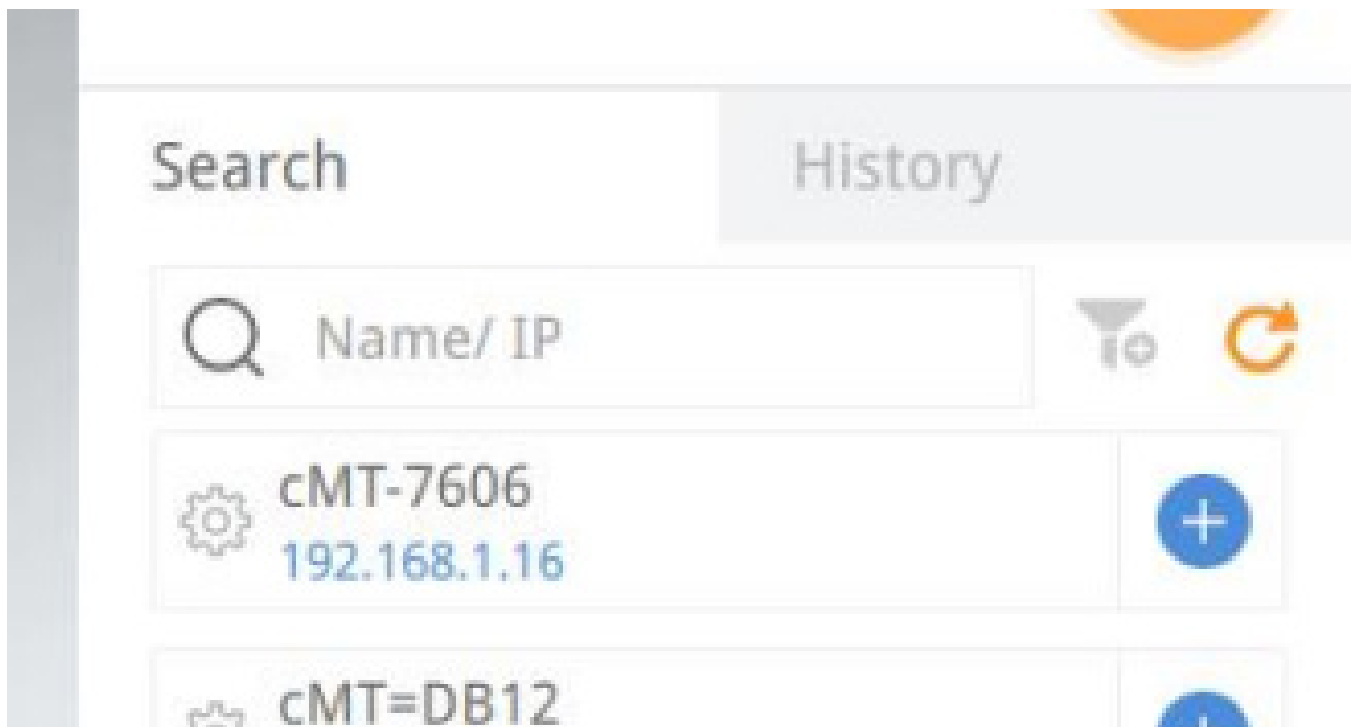
- [3] Open cMT Viewer.

- [4] Press the orange "+" at the top of the screen.



[5] The program should appear. Generally it will have the address of 192.168.1.61. Press the "+" button to add the program. Password is 111111 (six 1's).

- If the program does not appear automatically, try pressing the orange reload button.
- If it still does not appear, try typing 192.168.1.61 into the Name/IP field.
- **Note:** Generally the IP address for your range will be 192.168.1.61 as mentioned above. But, some ranges are unique and will have a different address. This is especially common when there are multiple bays in your range and each bay has a different master control. In that case, try the following addresses:
 - Bay 1: 192.168.1.61
 - Bay 2: 192.168.1.62
 - Bay 3: 192.168.1.63
 - etc.
- If those do not work, contact Spire.
- **Note:** If the Master Control screen is not working, then the app will generally not work either. Generally the app gets its program from the master screen.



[6] The Operations Screen should load if everything is working correctly.

BRIDGER COMPONENTS:

CODE	DESCRIPTION	PRT #	QTY
1	FURY/BRIDGER STAND - WELDMENT	FBW-7400-203	1
2	***FURY/BRIDGER BALLISTIC SHIELD - WELDMENT	FBW-7400-204	1
3	***FURY/BRIDGER TARGET HOOP ASSEMBLY - WELDMENT	FBW-7400-205 (STANDARD) FRK-7073-900 (FOAM BACKER)	1
4	BRIDGER HOGAN HOUSE ASSEMBLY	BRA-7072-100	1
4.01	FURY/BRIDGER HOGAN HOUSE - WELDMENT (STANDARD)	FBW-7400-200-ZN	1
4.02	FURY/BRIDGER HOUSING SIDE COVER (STANDARD)	FBP-7072-004-ZN	1
4.03	***FURY/BRIDGER TURNING CLAMP - WELDMENT (STANDARD)	FBW-7400-201	1
4.04	***FURY/BRIDGER CLAMP FLOATING JAW - WELDMENT	FBW-7400-202	1
4.05	1" X 1-3/8" X 1-5/8" FLANGE SLEEVE-BRNZ	HFB-100138-163	2
4.06	1-3/8" X 1.60 X 2" COIL SPRING	HSP-138160-200	1
4.07	1" X 1-1/2" X 5/8" SOLID LOCK COLLAR	HLC-100150-063	1
4.08	BRIDGER CRANK ARM	BRW-7210-250-ZN	1
4.09	1/4" X 1-1/2" UNDERSIZED MACHINE KEY-SS	HMK-250UB-150-SS	1
4.10	5/16"-18 NYLOCK NUT-ZN	HLN-31318-005-ZN	5
4.11	1/4"-20 X 3/8" CUP SET SCREW-SS	HSS-25020-38-SS	4
4.12	5/16"-18 X 1-1/4" HEX HEAD BOLT-ZINC	HHB-31318-125-ZN	1
4.13	1" BORE SPLIT FLANGE BEARING	HBR-SFL205-016	2

** Indicates recommended replacement parts. (See page 46 for more information)

*** Indicated parts that are consumables and are not covered under the warranty agreement. In addition, any misuse, lack of maintenance, and/or modifications made to any Spire products will void all warranties.

CODE	DESCRIPTION	PRT #	QTY
4.14	5/16"-18 X 3/4" CARRIAGE BOLT-SS	HCB-31318-075-SS	4
4.15	1/4"-20 X 5/8" BUTTON HEAD SCREW-SS	HBH-25020-063-SS	4
4.16	1/2"-13 X 1" HEX BOLT-ZN	HHB-50013-100-ZN	2
4.17	.500 X 1.06 X .07 FLAT WASHER-ZN	HWS-500106-070-ZN	2
4.18	BRIDGER CYLINDER BULKHEAD PLATE	BRP-7210-241	1
4.19	1/4"-20 X 1" HEX HEAD BOLT-ZINC	HHB-25020-100-ZN	2
4.20	1/4" ID X 1/2" OD X 3/8" SPACER - ALUMINUM	HSW-250500-375-AL	2
4.21	BRIDGER BULKHEAD CLEVIS PLATE	BRP-7210-242	1
4.22	1/4"-20 THIN NYLOCK NUT-ZN	HLN-25020-001-ZN	2
4.23	1/4" X 1" CLEVIS PIN	CVP-25000-100	1
4.24	3/32" X 1/2" COTTER PIN	CTR-00094-500	1
4.25	#06-32 X 1/4" PAN HEAD SCREW-SS	HPH-0632-025-SS	2
4.26	CYLINDER/VALVE MANIFOLD THERMISTOR	THERM-40D	1
4.27	BRIDGER CONTROL & HEATER HARNESS	BRE-M125W-HTR	1
4.28	CYLINDER/VALVE MANIFOLD ASSEMBLY	BRA-7210-150-C	1
4.29	1/4" X 1/4" STRAIGHT BULKHEAD UNION	PBU-250250-UNS	1
4.30	1/4" OD X 5/32" ID POLYURETHANE AIR TUBING	PAH-250G	1

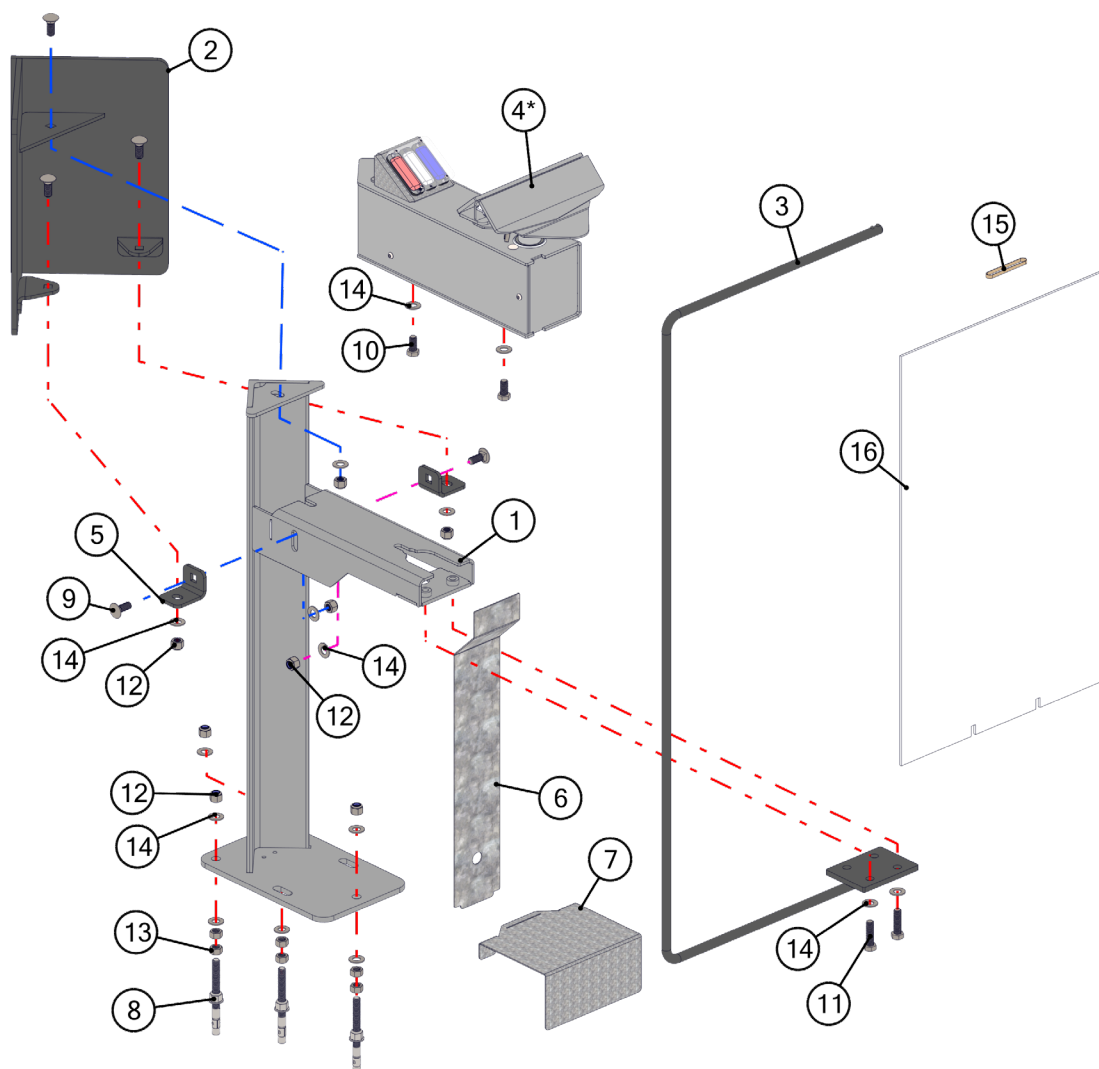
** Indicates recommended replacement parts. (See page 46 for more information)

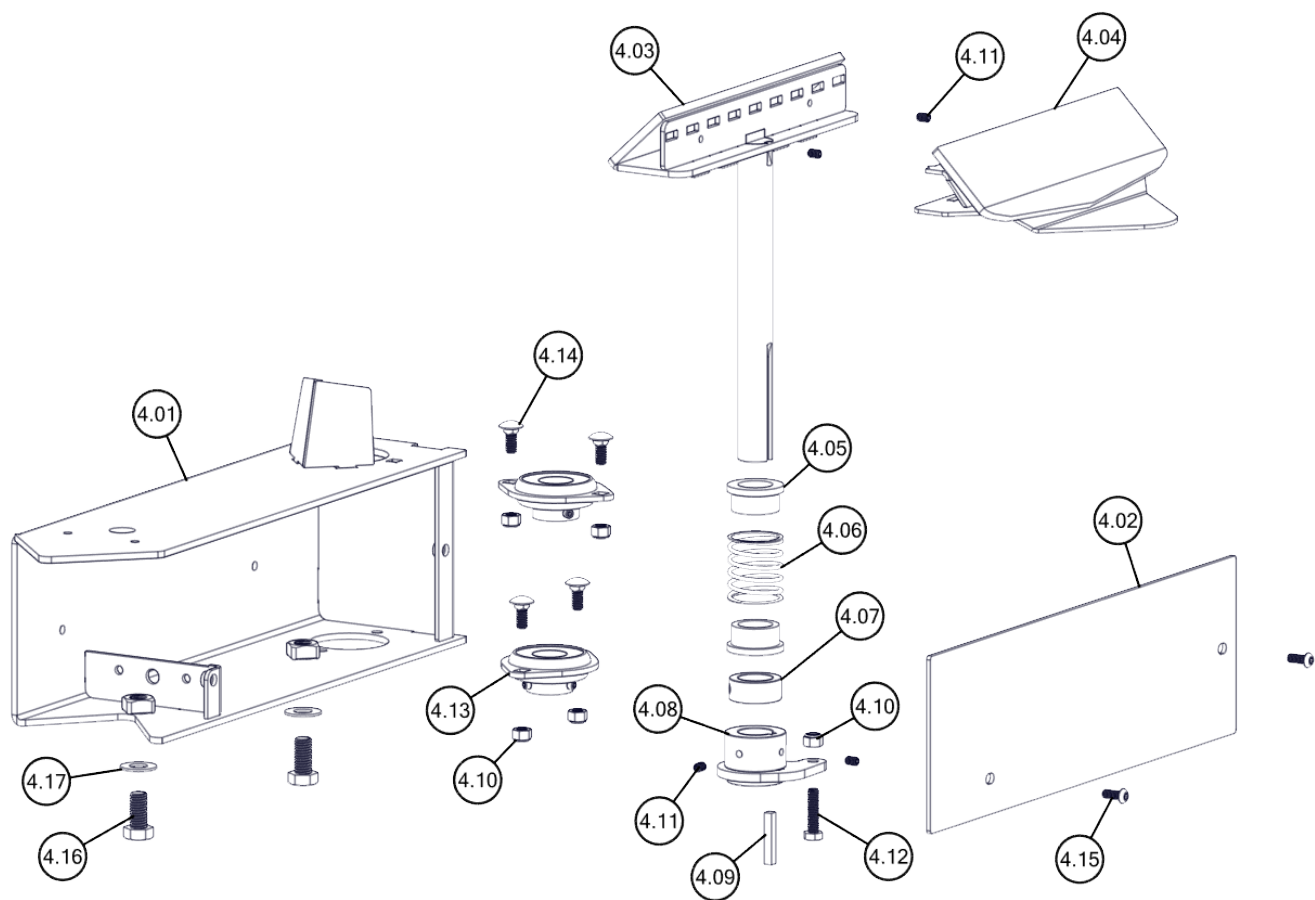
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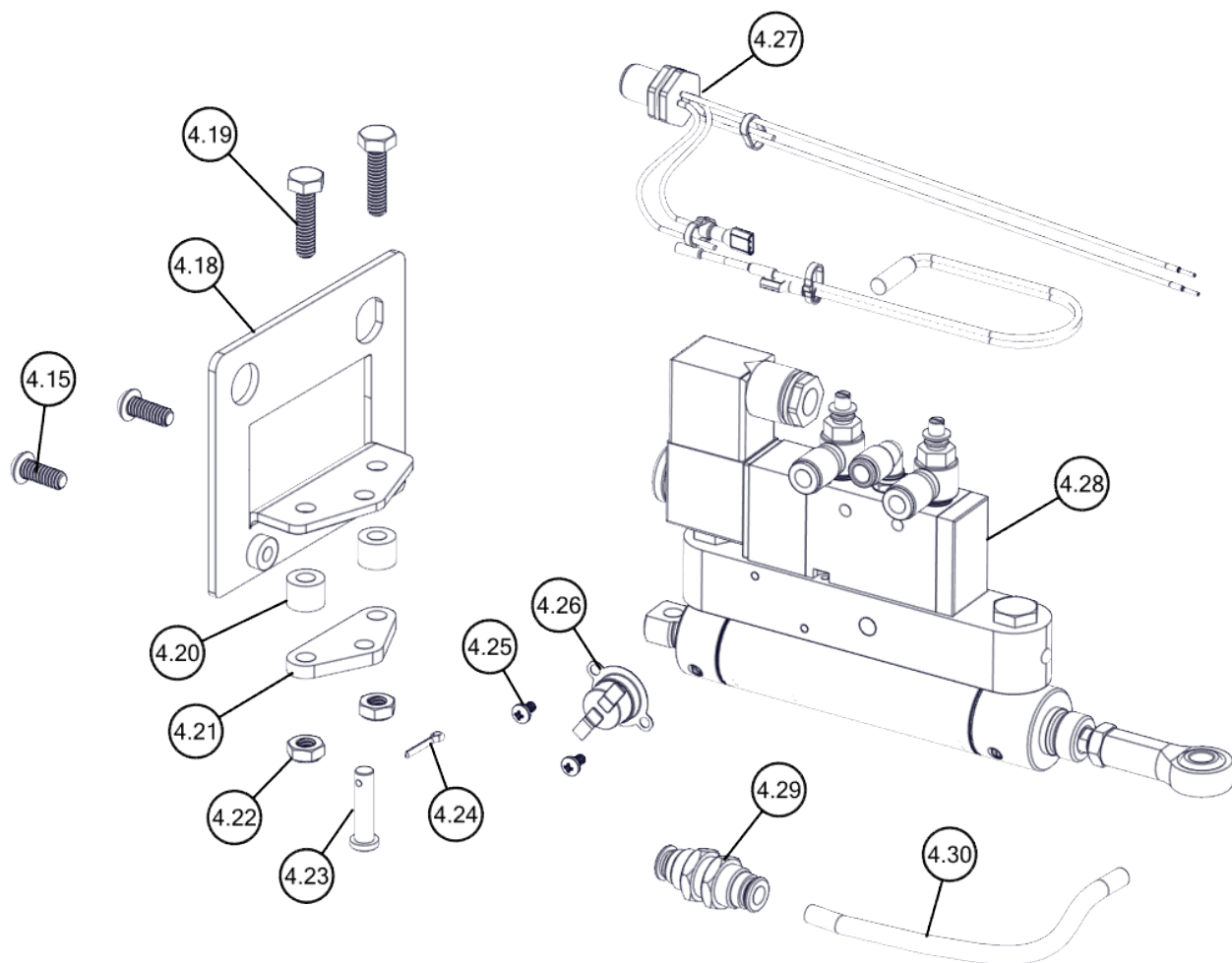
CODE	DESCRIPTION	PRT #	QTY
5	FURY BALLISTIC SHEILD MOUNTING BRKT	FBP-7072-605	2
6	FURY STAND LEG COVER	FBP-7472-507 (4" RACEWAY) FBP-7471-507 (2" RACEWAY)	1
7	FURY RACEWAY STAND CAP	FBP-7472-508 (4" RACEWAY) FBP-7471-508 (2" RACEWAY)	1
8	1/2"-13 X 5-1/2" CONCRETE WEDGE ANCHOR	HAC-50013-550-ZN	3
9	1/2"-13 X 1-1/4" CARRIAGE BOLT-ZN	HCB-60013-125-ZN	5
10	1/2"-13 X 1" HEX BOLT-ZN	HHB-50013-100-ZN	2
11	1/2"-13 X 1-3/4" HEX BOLT-ZN	HHB-50013-175-ZN	2
12	1/2"-13 NYLOCK NUT-ZN	HLN-50013-005-ZN	8
13	1/2"-13 STANDARD NUT-ZN	HSN-50013-005-ZN	6
14	.500 X 1.06 X .07 FLAT WASHER-ZN	HWS-500106-070-ZN	15
15	***#64 RUBBER BAND-TAN	RBB-35025-064	1
16	***CORRUGATED CARDBOARD TARGET	TGT-001	1

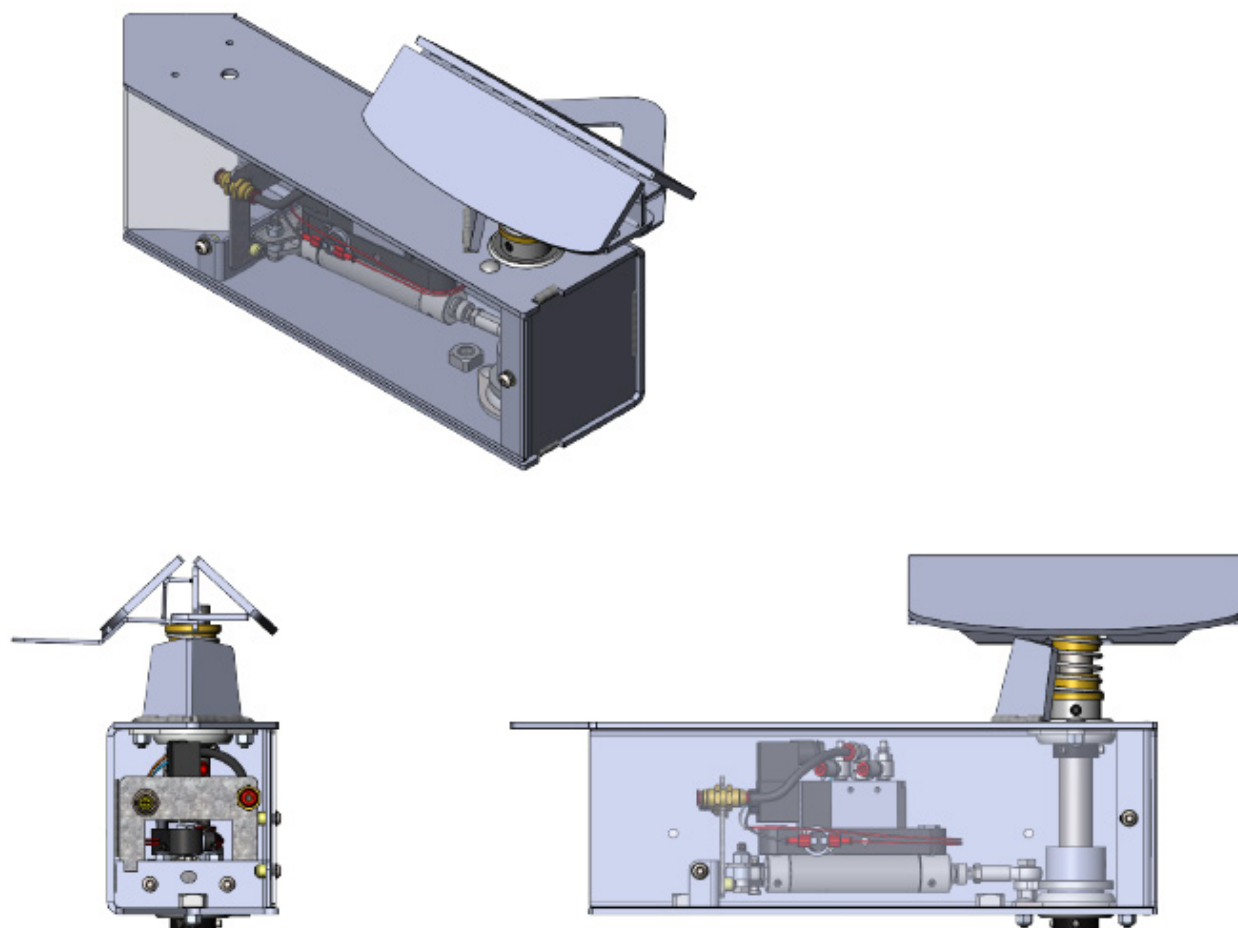
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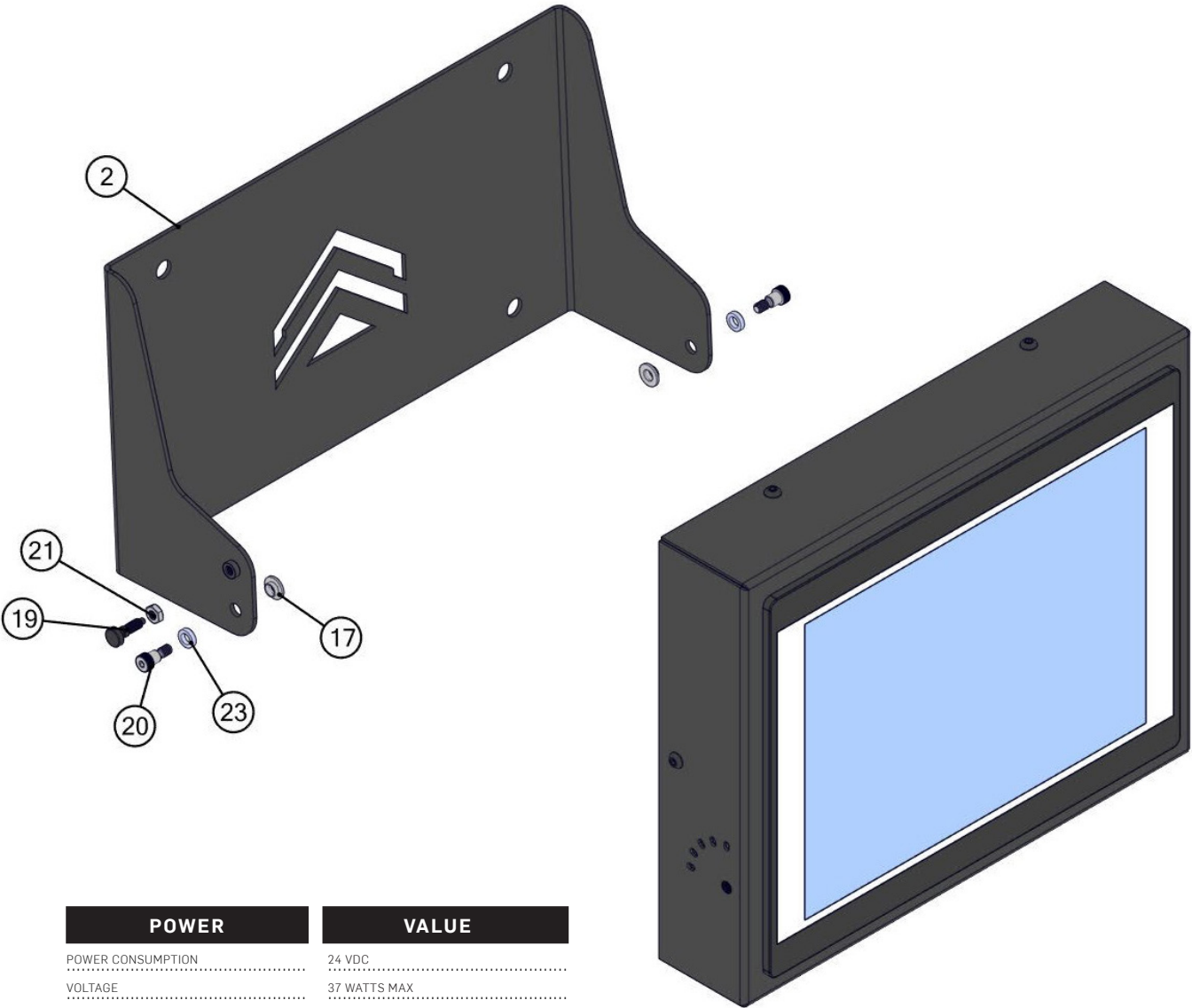




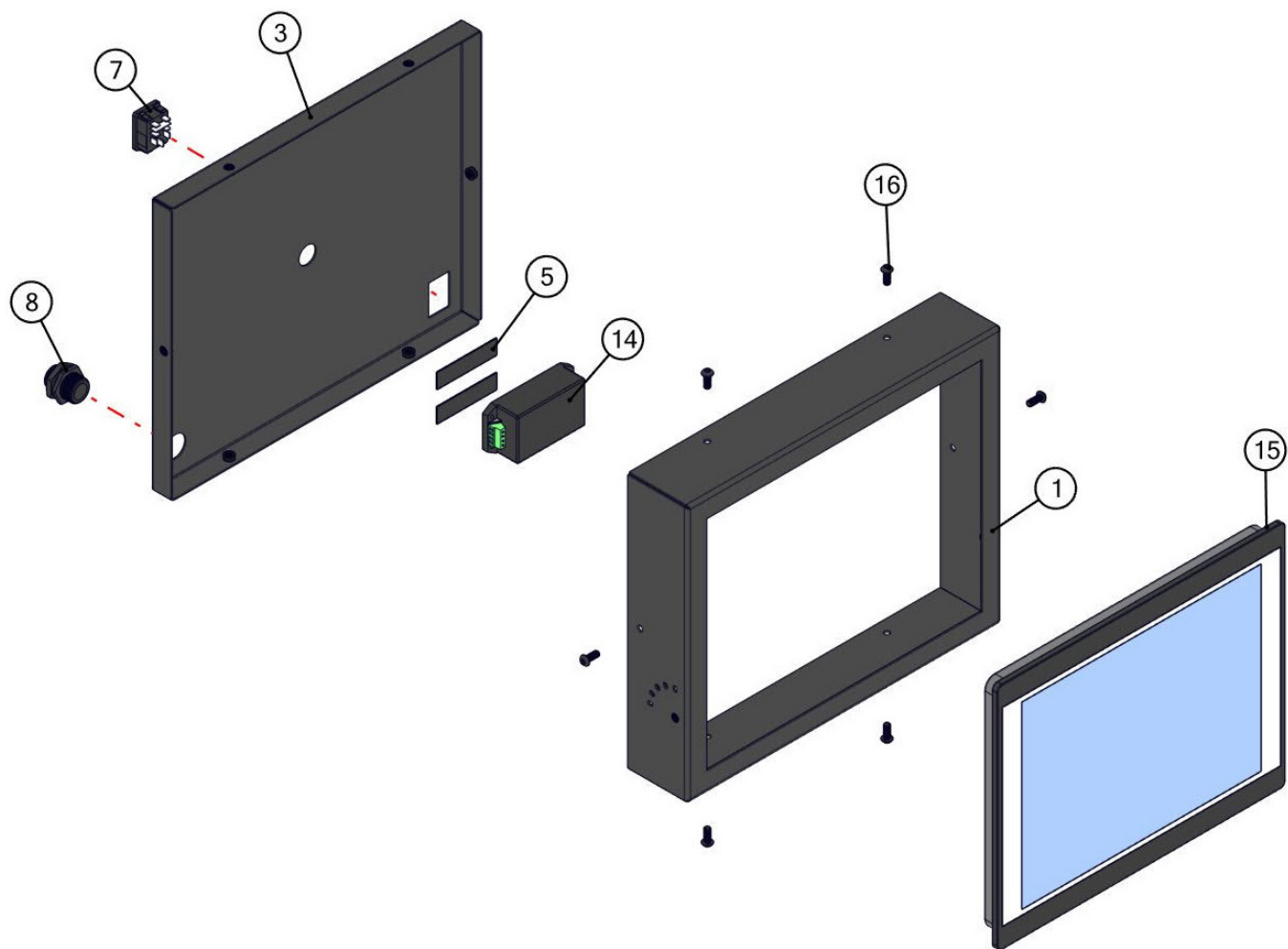
CODE	DESCRIPTION	PRT #	QTY
1	15" HMI HOUSING	CTP-7915-201	1
2	15" HMI MOUNTING PLATE	CTP-7915-203	1
3	15" HMI HOUSING BACK PLATE	CTP-7915-212	1
5	DOUBLE SIDED TAPE	DST-75003-300	2
7	POWER SWITCH	ELE-2032-030	1
8	RJ45 COUPLER	ELE-31C6-RJ45	1
14	24V POWER SUPPLY	ELE-6024-120	1
15	15" HMI	ELE-65150-CBK	1
16	1/4"-20X5/8" BUTTOH HEAD BLACK OXIDE	HBH-25020-063-BK	6
17	.313 x .620 x .060 INSUL WASHER-NY	HIW-313620-060-NY	2
19	1/4"-20X1/2" RETURN SPRING PLUNGER	HRS-25020-050	1
20	.313 x .313 x .250-20 SHSB	HSB-313313-25020	2
21	1/4"-20 JAM NUT- SS	HSN-25020-0014-SS	1
23	.340 x .740 x .060 WASHER-NY	HWS-317500-125-NY	2

** Indicates recommended replacement parts. (See page 46 for more information)

*** Indicated parts that are consumables and are not covered under the warranty agreement. In addition, any misuse, lack of maintenance, and/or modifications made to any Spire products will void all warranties.



POWER	VALUE
POWER CONSUMPTION	24 VDC
VOLTAGE	37 WATTS MAX
TEMPERATURE RATINGS	VALUE
OPERATING	0-55°C (32-131°F)
STORAGE	-25-75°C (-13-167°F)



MAINTENANCE:

ROUTINE MAINTENANCE

TIME TABLE	PROCEDURE
Weekly	1. Check each set screw to ensure they have remained tight. If they are loose, remove set screw and add a drop of low strength thread locker (purple) before re-tightening. 2. Lightly twist clamp with carrier turned on to ensure there is no movement or slip of the clamp to the shaft.
Monthly	1. Check all the screws and bolts on the hogan house and the mounting assembly have remained tight. If any are loose, add blue Loctite and hand tighten. 2. Inspect raceways for evidence of rodents. If rodents have entered the system, plug any holes that they may be using to gain access. 3. Activate targets and visually inspect valve up close. Check for leaks and if the target is moving too quickly/slowly. 4. Check the compressor oil level. 5. Cycle compressor power to actuate the purge valve on the bottom of the air compressor and make sure it cycles. 6. Check water catch on filter lube regulator. 7. Check oil level. 8. Ensure system is set to 50 psi. 9. Check filter on filter lube regulator to ensure dryer operation.
Yearly	1. Check for air leaks and tighten anything needing attention. 2. Drain and replace oil in air compressor. 3. Remove and replace air filter.

TOOLS

LIST OF TOOLS

- 3/16" Wrench
- 5/64" Allen Wrench
- 1/8" Allen Wrench
- 5/32" Allen Wrench
- 2mm Allen Wrench
- 4mm Allen Wrench
- 7/16" Socket
- 1/2" Socket
- 3/4" Socket
- Socket Wrench
- Low Strength Purple Thread Locker
- Medium Strength Blue Thread Locker
- Mini Flathead Screwdriver
- #2 Phillips Screwdriver
- Multimeter

RECOMMENDED REPLACEMENT PARTS

DESCRIPTION	PRT #	QTY
CLAMP	FBK-7400-906	1
1/4" OD X 5/32" ID POLYURETHANE AIR TUBING	PAH-250G	1
BRIDGER CONTROL & HEATER HARNESS	BRE-M125W-HTR	1
CYLINDER/VALVE MANIFOLD THERMISTOR	THERM-40D	1
CYLINDER/VALVE MANIFOLD ASSEMBLY	BRA-7210-150-C	1
1/4" X 1/4" STRAIGHT BULKHEAD UNION	PBU-250250-UNS	2
HARDWARE REPLACEMENT KIT (Below items are included in kit)	BRIDGER-HARDWARE-KIT	1
CLAMP BEARING SET SCREWS	HSS-25020-38-SS	10
CLAMP KEY	HMK-250UB-150-SS	1
BUTTON HEADS	HBH-25020-063-SS	15

*** Indicates parts that will need to be programmed for a specific lane. It is recommended for them to be purchased and to remain on Spire shelves where they can be programmed to a specific lane as needed.

SERVICE PLANS:

OVERVIEW

At the core of Spire Ranges is our commitment to keep our installed equipment in each range running at its optimum performance. To maintain that standard, below is a list of the different service package levels available to our clients. We look forward to providing your range with a quote that is unique to your range.

LEVEL	TRIPS PER YEAR	PARTS DISCOUNT
Bronze	1	0%
Silver	2	5%
Gold	4	10%

SERVICES OFFERED WITH EACH SITE VISIT:

- Provided Refresher Training
- Software Update/Reconfiguration
- Test all Motors, Valves, Cylinders, Lights, & Proximity Switches
- Target Clamp Inspection/Adjustment
- Check/Secure Electrical Connections
- Verify Proper Voltages
- Verify Controller(s) (HMIs/Computer) Functionality
- Assess Cable Tension & Adjust
- Assess Track Health & Tighten/Replace any Loose/Missing Hardware
- Verify Proper Charging of Targets
- Stall/Bench Inspection
- Trap Inspection
- Overall Range Health Inspection

TROUBLESHOOTING:

Given below are possible causes and solutions for system problems. Within this section, you will find sequential steps that can be used to help troubleshoot a problem. If a problem persists after following these troubleshooting guidelines, please contact the Spire support team.

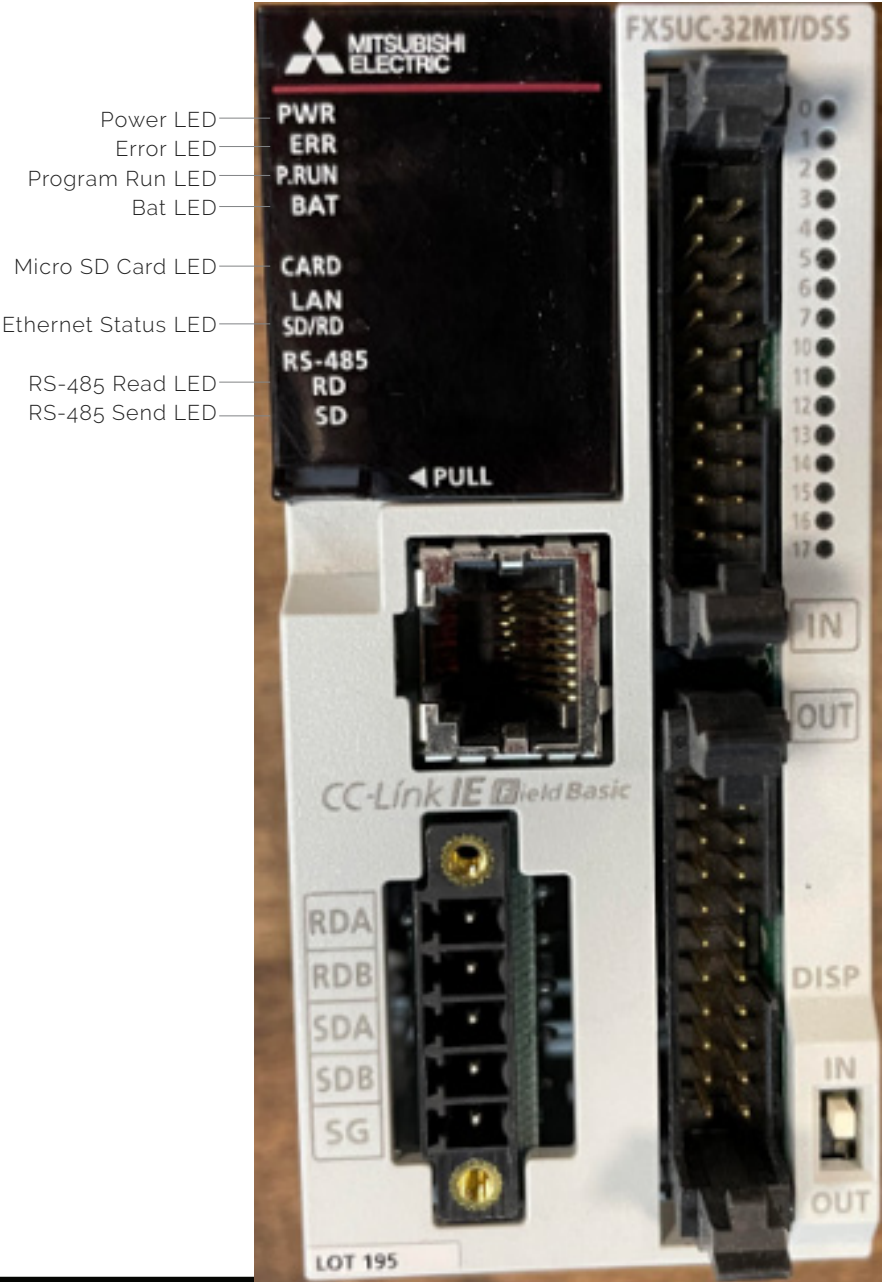
1.0 HMI TOUCH SCREENS (MASTER & LOCAL)

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
1.1 Dark Blank Screen	(1) Screen is in sleep mode	(1) Touch the screen to bring HMI out of sleep mode.
	(2) No power supplied to HMI	(1) Check the power supply connection. (2) If the 15" master, check the fuse on the back of the screen. (3) Check circuit breaker to see if tripped. (4) If problem persists, contact Spire for technical support.
1.2 Single Nonresponsive Button on Screen	(1) HMI screen error	(1) Check power supply to PLC. If PLC has power, cycle power to PLC. (2) If there is no indicator light for power to the PLC, check circuit breaker to see if tripped.
	(2) HMI calibration needed	(1) Power cycle the screen and (2) immediately touch the screen during startup. (3) Follow the on-screen prompts to calibrate.
	(3) HMI / PLC fault	(1) Contact Spire for technical support.
1.3 Entire HMI Touch Screen Nonresponsive	(1) HMI error	(1) Cycle power to HMI.
	(2) HMI / PLC fault	(2) Cycle power to the PLC.
1.4 Communication error	(1) Ethernet (RJ45) cable unplugged or damaged	(1) Check all RJ45 connections in control panel. (2) Check RJ45 connection to screen. (3) Follow cable to ensure they are not smashed or damaged.

2.0 BRIDGER TARGET UNITS

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
2.1 Nonresponsive targets (not moving)	(1) Power failure	(1) Check main panel for a breaker that has tripped. (2) Cycle main breaker for the targetry system for 30 seconds before reapplying power to the system. (3) Contact Spire for technical support.
	(2) Obstruction in drive system	(1) Power off the system. (2) Turn the target manually by hand to see if it turns. (3) If it doesn't turn, check the backside of the downrigger for obstruction. (4) Remove obstruction if one is present.
	(3) System error	(1) Cycle main breaker for the targetry system for 30 seconds before reapplying power to the system. (2) Contact Spire for technical support.
	(4) Fast/slow target actuation	(1) Make adjustments to the needle valve on the electric valve assembly for either facing or edging the target depending on which of the two needle valves are adjusted to turn faster or slow it down. (2) If the valve is leaking, assess where the leak is coming from and fix the leak or replace the valve assembly with a replacement from Spire Ranges.

NANOTECH FURY/TREADWELL/BRIDGER PLC LED STATUS



PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
6.0 No Green PWR (Power) Light	(1) Bad power cable connection/damaged cable	(1) Inspect the PLC power cable (red/black/green cable coming out of the bottom of the PLC) for damage. (2) Ensure that the PSU in the control box has power and that no breakers are flipped.
	(2) Bad PLC	(1) Contact Spire for a replacement PLC.
6.1 Steady/Flashing Orange ERR (Error) Light	(1) Communications with targets were lost	(1) Generally this is simply an alarm that there was a problem. If the targets are functioning correctly, then ignore the ERR light. This light will turn on every time the power off button on the HMI is used. (2) Check the cable connections on the affected target turner motors.
6.2 No Green P.RUN (Program Run) Light	(1) Program not running (switch in center Stop position)	(1) Move the switch under the black cover to the Reset position and hold for 5 seconds. Then move it back to Run position. (2) Ensure the switch is not in the center Stop position.
6.3 Flashing Green P.RUN (Program Run)	(1) Program paused/stopped (switch in center Stop position)	(1) See 6.2.
6.4 No Green LAN SD/RD (Ethernet Status) Light	(1) Bad/damaged ethernet cable	(1) Replace ethernet cable.
	(2) Bad/damaged ethernet switch	(1) Swap PLC ethernet cable to another port on the switch.
	(3) Bad PLC	(1) Contact Spire for a replacement PLC.

GLOSSARY:

TERM	DEFINITION
Calibration	Adjusting the various parts of the system precisely for their particular function.
Consumable Components	Products that are expected to wear out and that get used up throughout the lifetime of the product (will need to be replaced on a regular basis).
Course (of Fire)	The programmed set of actions for each shooting target.
Edge	The side of the shooting target (not face or back).
Error / Warning / Alarm	A minor problem with the system, but the system will still run.
Exposure Times	The amount of time the face (not the edge) will be positioned toward the shooter.
Fault	A major problem with the system. The system will not run.
HMI	A human-machine interface, which is a feature of any device that enables humans to engage and interact with machines. Common examples include touchscreens and keyboards.
Loctite	A brand of adhesives that is used to prevent loosening of metal fasteners caused by vibrations.
PLC	A programmable logic controller, which is a computer control system, that controls other devices based on various information available to it.
Range Master	The person in charge of any given session.
Stage	A step in the Course (of Fire).

SYMBOL	DEFINITION
	Power (On/Off).
	Ethernet LED. Will light steady when an active Ethernet connection is made and flash when there is activity.
	Signal Strength.
	Caution.
	Risk of Electrical Shock.
	Risk of Hot Surface.
	Grounding Point/Terminal.



THE PINNACLE OF SHOOTING RANGES™