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T-21B

Track-Mounted Running Man System

OPERATIONS AND MAINTENANCE GUIDE



Read and fully understand the contents of this manual before using the T-21B.

WARNINGS

- **Failure to follow the instructions in this manual may result in bodily harm** to yourself or others.
- **Turn the power OFF when not in use.**
- **The T-21B is not 100% waterproof or weatherproof.** Prolonged exposure to the elements may result in damage to the unit, and any needed repairs may not be covered under warranty.
- **Ensure all personnel and obstructions are clear of the target at all times** when in use.

Assembly and Installation

When unboxing the target, ensure all components are included as listed on the bill of materials.

The following parts are NOT supplied by ATS:

- I-beam track and hardware;
- Track supports;
- 12 V battery (automotive or marine grade;)
- 9 V battery (if using a wireless transmitter.)

TIP: Save all original packaging, in the event your unit needs to be shipped back to ATS for servicing or warranty repairs.

Follow the figures on the next pages as you proceed through assembly.

- 1. Prepare the I-beam track.** See Figure 2 for detailed instructions.
- 2. Mount the target carriage.**
 - From one end, slide the target carriage onto the rail. The face printing should be in the normal upright direction, facing the shooter.
 - Tip the carriage assembly slightly to place the top wheel on the track.
 - Tip the carriage back to level while guiding the lower wheel onto the lower rail.
 - Gently slide the carriage onto the track as you align the other wheels onto the track.
- 3. Ensure the wheels are aligned.**
 - Lift the carriage up from both ends, one at a time. Each end should have approximately 1/32" of vertical clearance.
 - If there is more clearance than 1/32", or if the carriage binds or drags while moving, adjust the lower wheels' vertical position by loosening the axle nuts.
 - Adjust the wheels one at a time.
- 4. Mount the motor and controller assembly.** See Figure 3 for detailed instructions.

- Normal mounting is with the bracket located at the left end of the track when looking at it from the front/firing line.
- The motor and idler pulleys will be located immediately beyond the end of the rail.
- Tighten the rail clamping bracket bolt only enough to keep the assembly firmly attached to the track. Do not overtighten; this could distort the clamp.

5. Mount the drive cord idler assembly. See Figure 4 for detailed instructions.

- This should be located at the opposite end from the motor/controller assembly.
- Position the drive cord idler approximately 4 - 6" in from the end of the track. This will allow for tightening of the drive cord.

6. Attach the proximity limit switches. These are used to stop the carriage before the end of the track. See Figure 5 for detailed instructions.

- Mount the switches on the center flat area of the beam, centered approximately 0 - 2' away from the two end assemblies. The sensor tip should face the carriage as it passes in front.
- Position the carriage in front of the sensor and position the limit assembly so there is approximately a 1/8 - 1/4" gap between the sensor and carriage.

TIPS

- These assemblies have magnetic bases to hold them in position. You do not need to do any additional fastening work.
- The limit switches will interrupt the motor drive power as the front edge of the carriage passes the sensor. This will prevent the carriage from slamming into the motor drive or idler.
- A small LED located on the back of the sensor will indicate when power is applied properly to these sensors. On new units, it will turn off as the carriage passes in front of the sensor. Units manufactured before March 2001 will have the light turn *on* as the carriage passes in front.
- If the sensor is positioned too close to the I-beam flange, the light will not come on and the target will not move.

7. String the drive cord. See Figure 6 for detailed instructions.

- Slide the carriage to the idler end.
- Tie one end of the cord to one of the two S-hooks. Attach the S-hook to the hole on the back of the carriage closest to the idler assembly.
- String the cord around the idler pulley, to the motor end, through the motor assembly pulleys, and back to the carriage.
- Attach this end of the cord to the other S-hook and hook it onto the tension spring. Attach the other end of the tension spring to the remaining hole on the carriage back plate.

TIP: Once the cord is tied to the S-hooks, you can unhook them easily to disassemble the unit if you are moving it. Leave the cord attached to the S-hooks for reuse.

Should you ever lengthen the track, you will need to completely replace the drive cord. **DO NOT** attempt to splice an additional cord.

8. Tighten the drive cord. Reposition the idler assembly toward the end of the rail. The proper tension is accomplished when the tension springs stretch roughly 1 - 1 ½”.

9. Attach the proximity sensor cable to the motor controller assembly.

10. Prepare the transmitter.

If you are using the Assembly Remote Pendant Control, connect it to the motor controller assembly now.

If you are using a wireless transmitter, install a 9 V battery and connect the antenna.

11. Connect the input power leads to a 12 V car/marine battery, or, optionally, to an AC/DC converter. If properly connected, a green light on the motor controller will turn on. If connected in reverse, the red light will turn on. If neither light turns on, check the cable connections or the power source itself.

12. Test the proximity sensors. Position the carriage in front of either sensor. Using either transmitter, try to drive the carriage toward the end to which it is nearer.

If the carriage does not move, repeat the same test on the other end of the track. If the second test is successful, the system is ready for use.

If either test fails, check the connector, the path of the drive cord, and the sensor's position (should be 1/8 - 1/4" from the metal surface of the carriage.)

Operating the T-21B

Before proceeding to use the target, perform the following pre-checks.

- Ensure the target batteries are fully charged.
- If using a wireless transmitter, ensure its batteries are also fully charged.
- Ensure that there are no visual signs of damage to the target.

WARNING: Ensure all personnel and obstructions are clear of the target unit at all times!

Preparing the Target for Training

Connect the battery or turn on the power supply. The green light on the motor controller should turn on.

Wired Transmitter Control

Hold the toggle switch in either direction to move the target carriage. Release the switch and it will return to the center **OFF** position.

Wireless Transmitter Control

Hold the **CONTROL 1** or **CONTROL 2** switch in either direction to move a carriage. Release either switch and it will return to the center **OFF** position.

With a wireless transmitter, you can also adjust the speed at which a carriage moves using either of the two **SPEED** knobs. Turning the knob clockwise will increase speed, and vice versa.

After Training

Once your session is finished and fire has ceased, perform the following post-checks:

- If using a 12 V battery, disconnect it from the input leads. Check the battery level with a voltmeter and charge if necessary.
- If using a power supply, turn the power switch OFF.
- Ensure that there are no visual signs of damage to the system or transmitter.

Maintenance

Changing Radio Channel on the Wireless Transmitter

The transmitter is designed to allow operation of 16 separate T-21B units on a single site. Each transmitter can control up to two T-21B systems.

Each device and transmitter is assigned a unique channel ID at the factory. You can manually configure the channel at which the unit transmits.

1. Remove the battery from the transmitter and unscrew the antenna.
2. Remove the antenna nut (secured by a lockwasher.)
3. Remove the six Phillips head screws from the back cover.
4. Gently separate the front and back portions of the enclosure.
5. Set the S1 and S2 rotary switches to the desired channels.
 - a. The S1 switch sets the channel for the CONTROL 1 switch.
 - b. The S2 switch sets the channel for the CONTROL 2 switch.
6. Reassemble the enclosure, reattach the antenna, and reinstall the battery.

Changing Radio Channel on a Motor Controller Assembly

Just as you can change the radio channel at which a transmitter sends commands, you can change the channel at which a T-21B will receive those commands.

1. Disconnect power from the system, either by disconnecting the battery or turning the power supply OFF.
2. Remove the four large Phillips head screws from the front cover. Gently remove the front cover from the enclosure. You will see a printed circuit board.
3. On the board, set the CHANNEL/S1 rotary switch to a unique channel.
4. If the carriage is on the rear rail of a dual T-21B system, install the jumper on J6 position 2. This will reverse movement direction.

5. Reattach the front cover and reconnect power.

T-21B-PS-12DC Power Supply

The power supply connects to 120 VAC line power. It is housed in a 3-R rainproof enclosure and provides 12 V of DC power to the T-21B.

Mounting. There are four holes on the rear of the enclosure, used to mount the power supply. To access the mounting holes, remove the front cover by removing the two screws along its bottom edge. The cover was designed for a snug fit; it may be necessary to use a screwdriver (inserted through a cover hole) to force it down.

WARNING: *Electronic circuitry is attached to the inside of the cover. Take care not to damage the circuitry.*

Connecting to the T-21B. Connect the T-21B input clips to the terminals on the side of the power supply. Plug the power cord into any 120 VAC outlet.

TIPS

- Once the power supply is connected, you can turn the T-21B on or off by using the power switch at the bottom of the enclosure.
- The power supply cover acts as a heat sink. It is normal for the front cover to become warm during operation of the unit.

Battery Information

Most T-21B installations run on a 12 V automotive/marine battery.

If you need to store the battery for an extended period of time, ensure it is fully charged. Use a 12 VDC charger/maintainer with a current rating of 2A or less. Do not overcharge; this will shorten battery life. However, if you are using a maintainer, you can leave it connected until you next use the target.

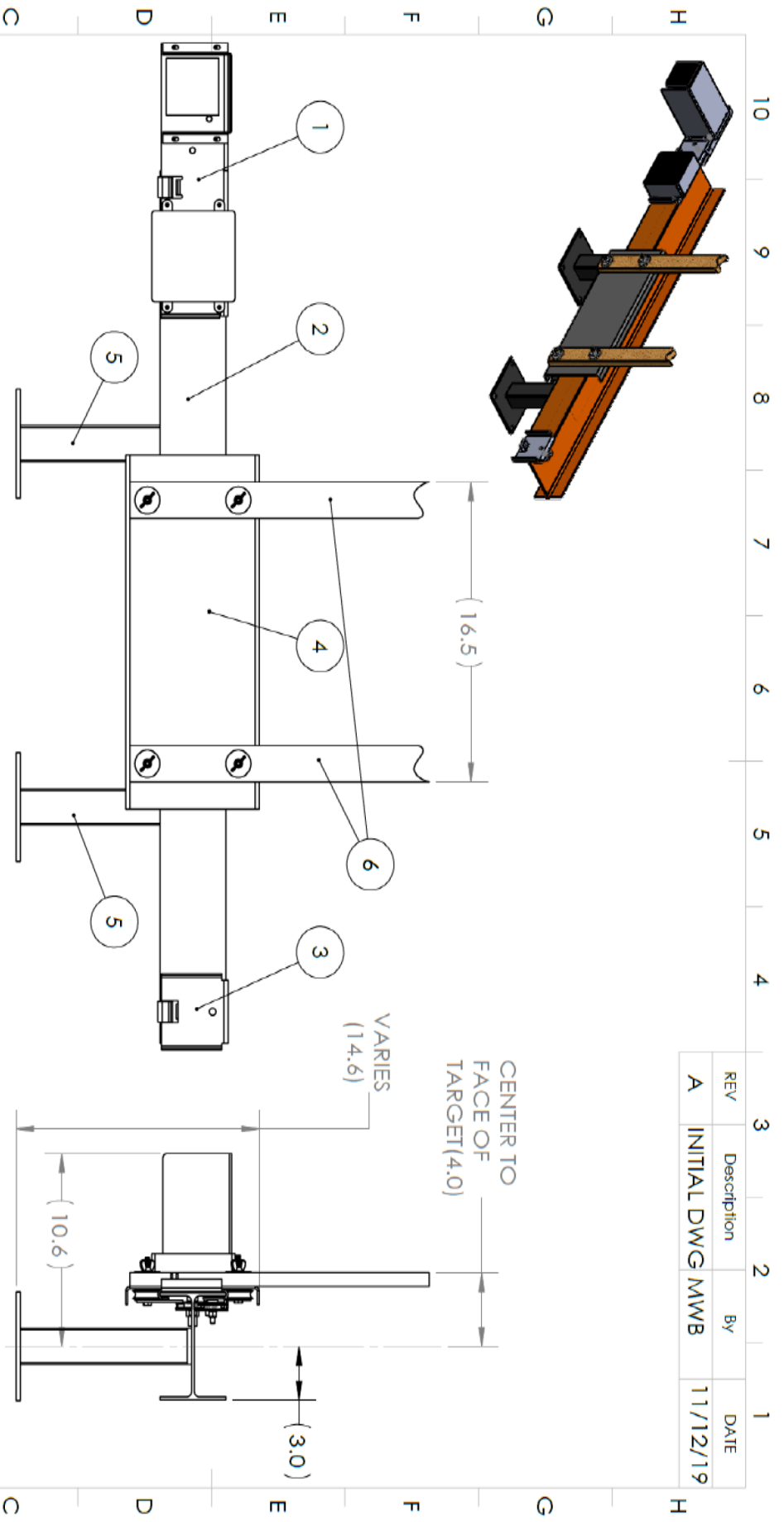
Periodic Maintenance

The PT-51 is designed to be a service-free device. There are no scheduled service items or serviceable points within the column. If desired, you can apply a small amount of lubricant or

WD-40 to the latch mechanism. It is always good practice to wipe away any excess oil/grease to prevent dust and dirt buildup.

T-21B Specifications

Operating power	12 volts DC 0 - 4.5 amps normal, 16+ amps at reversal/startup
Speed range	0 - 9 feet/second
Standard track length	20 - 50' (100' drive cord is standard supply)
Remote pendant control	300' standard cable
Movement and safety features	<ul style="list-style-type: none">• Directional reversal without stopping• Input power reversal hookup protection/indication• Electrical protection against target carrier running into ends of track
Carriage width	18 ¾"
Beam size (user-supplied)	W 6 x 9.0 (see figure 1)
Beam supports (user-supplied)	See figure 2
Wireless transmitter range (optional)	150 yds line-of-sight



REV	Description	By	DATE
A	INITIAL DWG	MWB	11/12/19

ITEM	DESCRIPTION	NOTE
1	DRIVE CONTROLLER	CAN BE MOUNTED ON EITHER OR BOTH SIDES OF BEAM TRACK
2	W6X9 BEAM TRACK	SOLD SEPARATELY
3	IDLER	
4	CARRIAGE	2 MAX PER SIDE
5	STAND	SOLD SEPARATELY
6	1"X2" WOOD SLAT	CUSTOMER SUPPLIED

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<p>TOL: X = ± .125 .XX = ± .015 .XXX = ± .005</p>	<p>SIZE: A</p>	<p>DWG. NO. 2002XX</p>	<p>REV: A</p>
<p>SCALE: 1:8</p>	<p>DATE: 11/4/19</p>	<p>DRAWN BY: MWB</p>	<p>SHEET: 1:1</p>

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