

# INSTALLATION INSTRUCTIONS

## MOUNTING WINCH ON A FLAT SURFACE

1. Four  $\frac{9}{16}$ " diameter holes are provided for mounting the unit. The fastener type and size required will vary according to the type of mounting surface but must be adequate to safely sustain all loads imposed by the backstop.

## MOUNTING WINCH TO A PIPE (SEE FIG. 1)

1. Use the two pipe clamps supplied to secure the winch to a standard 3" (3 1/2" O.D.) standard pipe. The use of clamps for a standard 3 1/2" (4" O.D.) pipe can be provided upon request at the time of order. The pipe clamps will line up with the two pairs of mounting holes on the front flange of the winch.
2. The winch may be mounted with the rope port(s) up, down or sideways because there are no lubricant levels to be concerned with or oil to drip. Two rope ports are provided and either one may be used to bring the rope out to suit your installation arrangement. Using the provided 1/2" lock nuts, securely fasten the winch to the pipe.
3. Drill two, 9/32" holes in the pipe, using frame holes in winch as guides. Thread in self-tapping screws (provided) to lock against rotation. If this is not done correctly, the winch can rotate on the pipe under load.

### PLEASE NOTE:

*Do not over tighten U-bolts; over tightening can cause deflection and weakening of the frame – creating an unsafe situation and voiding warranty.*

## WINCH WIRING (SEE WIRING DIAGRAM PG. 2)

1. Two 7/8" diameter knock-outs are provided, one on each side of the winch, to accept 1/2" conduit connectors and provide wire access to the electrical compartment at the bottom of the winch case.
2. Remove the two screws securing the lower cover, slide the cover out from its locating tabs and withdraw it.
3. The wiring diagram is on the inside surface of the cover. Field connections are made directly to the terminal block provided. We recommend using a minimum of 12-gauge conductor wire as a power supply line to the winch. All circuit breakers must be dedicated. Check voltage drops under load (The limit switches are located in the same compartment).

**Do not use long extension cords to power the winch. Use a minimum of 12/3 gauge maximum 100 ft while initially connecting the winch during installation period. Running the winch under degraded voltage conditions will result in overheating, low power and damage to the capacitors.**

### PLEASE NOTE:

*The winch limit switches are pre-wired at the factory. Do not test run the winch with the limit switches bypassed as this may cause over-travel of the limit mechanism and result in damage to the winch.*

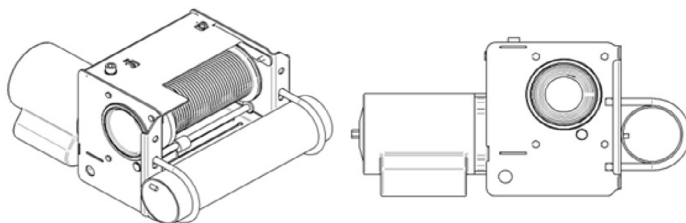


Figure 1

## CAUTION

1. As with any lifting device, the installation shall be made only by persons suitably experienced and qualified for work on hoisting equipment, in accordance with local requirements.
2. The electrical supply and connection to the winch shall be made in accordance with local electrical code and by qualified personnel.
3. The instructions address the areas of proper mounting, rope installation, wiring and limit switch adjustment, but they are not intended to cover every aspect of installation of your hoisting system, not to replace the need for normal good care, workmanship and proper practices on part of the installer.

Installation Instructions Continued >

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## WIRE ROPE INSTALLATION (SEE FIG. 2)

The winch is designed for standard 1/4" diameter 7 x 19 aircraft cable. The rope passes through a hole in the drum and is prevented from pulling out by doubling the end back on itself and securing with a standard rope clamp.

1. Manually turn the motor shaft with a 1/2" wrench to bring the wire rope mounting hole in winch drum to an easily accessible position.
2. Pass the wire rope from outside the winch in through the rope port and then through the hole in the drum into the center of the hollow drum. Pass enough cable through to allow pulling of the free end.
3. Double the cable end back on itself and install the supplied cable clamp. Tighten clamp nuts using a 1/2" wrench - progressively alternating sides until clamp is fully secured.
4. Pull the rope back through the hole to bring the clamp back tight to the hole inside the drum.
5. Running the winch in the "up" direction will begin winding the wire rope onto the drum. Run the winch so that a total of 3 revolutions of cable wound on the drum. These revolutions are considered "dead wraps"- this length of wire rope must remain on the drum at all times.

**(Use extreme caution and keep hands and clothing away from moving parts).**

6. **A)** The cable can now be reeved over directional pulleys and down to the mast as per the backstop manufacturer's recommendations. At the starting side of the drum, the rope must exit perpendicular to the winch (0° fleet angle) as it travels to the head pulley (see Fig. 2)

**B)** If no head pulley is installed in the system and the winch is used as a direct pull; the fleet angle MUST be as close to 0° as possible when the backstop is in the fully raised position.

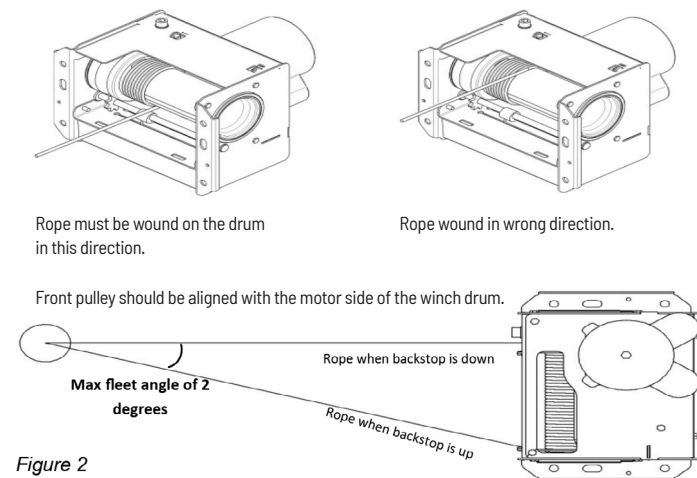


Figure 2

## PLEASE NOTE:

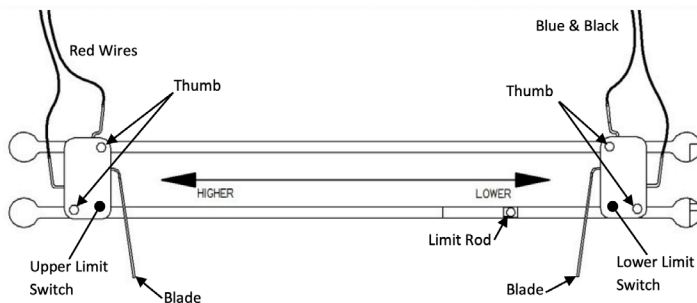
Put only three "dead wraps" on the drum at the start of the lift. Excessive dead wraps use space on the grooved drum-forcing the rope onto a second layer when it is not needed.

## LIMIT SWITCH ADJUSTMENT

1. Run the winch in the "up" direction to raise the backstop to the desired (fully raised) position and stop it in this position. Turn off the power to the winch at the breaker and remove the electrical compartment cover. (2 hex screws)
2. Loosen the two thumb nuts holding the upper limit switch.
3. Slide the upper limit switch across until the blade contacts the limit rod, then slide it a little further until an audible click is heard as the switch opens. Tighten the thumb nuts. **Do not over tighten thumb nuts as this may crack the limit switches.** The top limit is now set.
4. Temporarily reinstall the cover and run the backstop down to the desired lower stop position. Set the lower limit switch the same way.
5. Run the backstop up and down again to ensure that the limit positions are set correctly. Note: The wire rope should not be under a slack condition when the backstop is in the lower position.
6. Make a final check to make sure that all fasteners are tight and the rope is tracking properly in the drum grooves before putting the winch into use.

## PLEASE NOTE:

One upper and one lower travel limit switch is provided. Proper adjustment is simple and quick with the following procedure. Always shut power off from the winch when working inside the electrical compartment. The cover has been designed for quick removal to simplify limit switch adjustment.



Installation Instructions Continued >

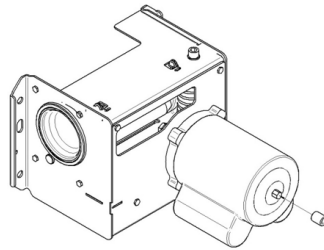
# INSTALLATION INSTRUCTIONS

## EMERGENCY LOWERING OF BACKSTOP IN CASE OF POWER FAILURE

If the winch is not able to be used because of a power failure, etc., it is possible to turn the winch manually to lower the backstop. The winch motor comes standard with a 1/2" hex on the end of the shaft at the back of the motor. Use a 1/2" socket and cordless drill or hand tools over the hex shaft. Turning the shaft clockwise will slowly lower the backstop.

### PLEASE NOTE:

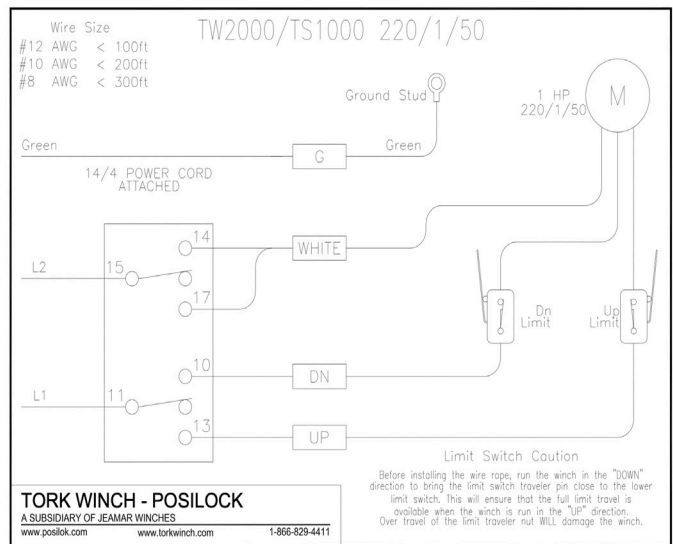
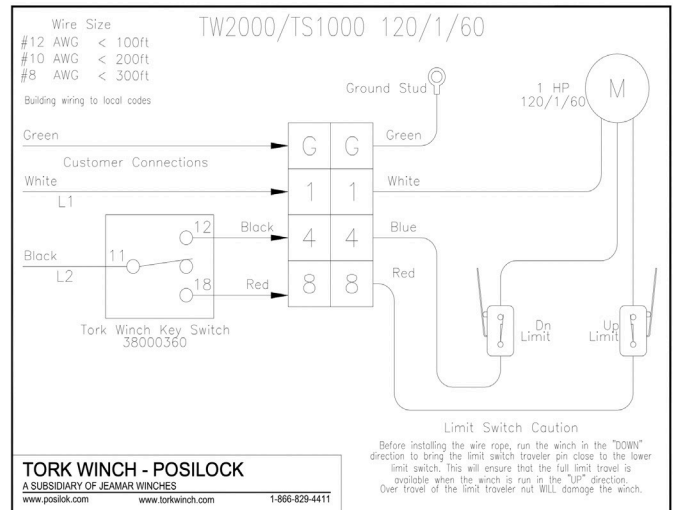
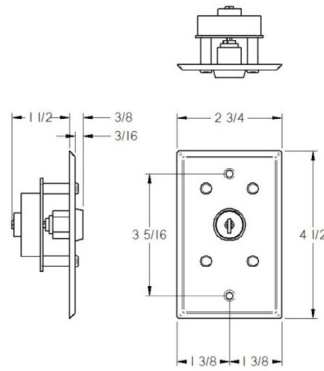
The limit switches will not stop this winch if operated manually through motor shaft. Take care not to drive the winch past the lower limit switch as this will damage the limit switch and require repair.



- Sizes of wall masonry boxes required for single and ganged key switches. All boxes 2" (w) x 3 3/4" (h) x 2 1/2" (d).

- This figure outlines the dimensions of the single gang key switch. (Part #K-SK13710)

- Note: For 220V models, a DPDT key switch is required. (Part #39000420)



## TW 2000 DETAILS AND DIMENSIONS

If you encounter any difficulties installing or servicing your TW 2000 Backstop Winch, contact your dealer or call Tork Winch directly at: **1-866-829-4411**

