

TI-SERIES TRIM TAB POSITION INDICATOR

INSTALLATION AND OPERATING INSTRUCTIONS

REVISED 02/24/04

Cutout: All Lectrotab round indicators require a 2" or 2 1/16" round hole in the panel

Application: TI-8: Use with Lectrotab model A or B, 8 second stroke time actuators

TI-4: Use with Lectrotab model C or D, 4 second stroke time actuators

ELECTRICAL CONNECTIONS

TWO CONDUCTOR CABLE

Connect the two conductor cable's BLACK wire to the engine battery negative. Connect the RED wire to the engine ignition switch so that the gauge is powered up when the ignition is turned on. Engine battery voltage can be from 10 to 30 VDC. When the indicator is ON, the battery drain will be about 8MA. The indicator is reverse polarity protected.

FOUR CONDUCTOR CABLE

The four conductor cable (W4-20-G), which may be lengthened or shortened as necessary, terminates in a plug which mates with a receptacle at the control switch. If this receptacle has been provided, plug the indicator plug into it and the installation is complete. If there is no receptacle, available at the control switch, refer to the following paragraphs:

CONNECTING THE FOUR CONDUCTOR CABLE WHEN THERE IS NO RECEPTICAL PROVIDED AT THE CONTROL SWITCH

To prevent erratic operation of the tab position indicator, the TI-8 and TI-4 Trim Tab Position Indicators must have a voltage spike suppression device installed electrically in parallel with each actuator.

All Lectrotab actuators manufactured during and after March of 2002 include such suppression devices. Actuators manufactured earlier do not have suppression devices installed so such devices must be installed when the indicator is installed. It is also

desirable to have a receptacle to accept the indicator plug. To facilitate this, each indicator sold for retrofit or for field installation is offered with an optional wiring adaptor, model TI-AT for actuators manufactured prior to March 2002 which provides the indicator receptacle and suppression devices or model TI-A for all actuators after March 2002 which provides the indicator receptacle.

INSTALLING THE TI-A ADAPTOR

Looking at the rear of the Lectrotab dual control switch assembly with the Lectrotab logo at the top, mark and remove the (4) wires which go to the two actuators. On one end of the adaptor, there will be (4) wires which have dual push-on terminals crimped onto them. Onto the (4) terminals from which you removed the actuator wires, push on the adaptor wires from left to right, RED, BLACK, WHITE and GREEN. Now, connect the actuator wires to the open spade on each of the dual push-on terminals so that the actuator wires are reconnected electrically to where they were originally. Connect the TI-A plug into the receptacle provided at the end of the indicator. Indicator installation is now complete.

PRODUCT OVERVIEW

The Lectrotab trim tab position indicator is an electronic instrument in a 2" round case, featuring two, independent, 9 segment, vertical LED displays, side by side, one for the port tab and one for the starboard tab. When all eight segments of either display are lit, the indication is that the associated tab is fully down. As the tab comes up, the segments extinguish sequentially until the tab is fully up, at which point all segments are extinguished except for the upper one, which will blink. As either tab is lowered, the segments will illuminate sequentially to indicate the tab's position.

HOW IT WORKS

The TI series trim tab indicator is simply a timer which sequentially displays or extinguishes nine LED's during the same time it takes the Lectrotab trim tab actuator to lower or raise a tab. This approach requires no indicator device within the tab actuator which eliminates the cost and the well known unreliability of the traditional "feedback transducer" approach. The TI-8 matches the transit time of the Lectrotab 8 second actuator and the TI-4 is for the 4 second actuator.

OPERATION

When the engine ignition or gauge switch is turned on, the Lectrotab indicator will momentarily flash all nine segments of both displays and then show steady blinking of the upper segment of each display. This is the "tab up" indication and will always be displayed when the indicator is first turned on, regardless of the position of the tabs.

Remember, the Lectrotab indicator does not receive a signal directly from the tab actuators so before considering the indicator to initially represent the position of the tabs, both tabs must be fully UP. It is highly recommended that trim tabs always be fully retracted before turning the engine(s) off. If this is done, the retracted tabs and the “retracted” indicator will always be synchronized when the boat is started for subsequent use. However, if you are not sure the tabs are fully up when you turn on the indicator, press both tab switches for “tabs up” for 10 seconds to be sure. ***This initial “indicator-tab” synchronization is ESSENTIAL.***

The tabs and the indicator are synchronized whenever the switches are held long enough for the tabs and indicator to reach the fully retracted or fully extended position. Holding the tab switches on until after the indicator and / or the tabs are fully retracted or fully extended is the recommended procedure to accomplish synchronization. The indicator display automatically dims at night.

OF INTEREST

The Lectrotab indicator is highly reliable because the traditionally troublesome feedback transducer inside the actuator is not used. The downside of using the “time” approach instead of positive feedback, is mid range accuracy, which can drift off with repeated mid range adjustments (30 or more). However, tab synchronization, as noted above, restores 100% accuracy.

The Lectrotab indicator will not be accurate if used with single pump hydraulic trim tab systems because the rate at which these tabs move is not linear and therefore will not match the linear movement of the Lectrotab indicator. The Lectrotab indicator also will not be accurate if used with any of the other electromechanical trim tab systems because none that we know of operate at full tab deflection rates of 4 or 8 seconds. Indicators manufactured prior to May 2003 will not dim if used with other than Lectrotab control switches.

OPERATION

1. Turn on the ignition to energize the indicator.
2. Confirm a “tabs up” indication; ie, upper LED blinking.
3. Press the control switches for “tabs up” for 10 seconds to synchronize the gauge and the tabs.
4. ***ENJOY!***

LECTROTAB

HINTS

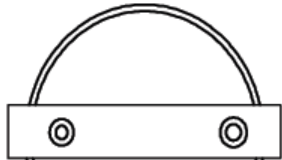
The back of the indicator is solvent welded in place and is pretty strong but take care not to tighten the bracket nuts more than is necessary for a snug fit.

Remember that this tab position indicator is an electronic timer, set to match the transit time of the 4 or 8 second stroke time Lectrotab actuators and is not suitable for other types or brands of tab systems. Also note that repeated tab adjustments in mid range will diminish the accuracy of the indicator but full extension or full retraction will reset the indicator to zero error.

QUESTIONS?

Call Toll-Free: 888-LECTROTAB (532-8768)

Back of TI-8 or TI-4 Indicator



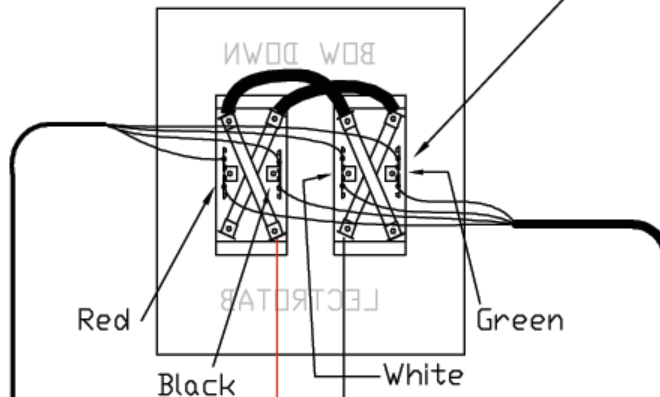
2 conductor cable

Red (+) connect to "ON" side of ignition

Black (-) connect to negative 12/24 vdc

TI-A ADAPTOR

REAR VIEW OF MODEL SAB-S OR SAF-S SWITCH ASSEMBLY.



Side by side connectors x4

Red

Black

Green

White

Installation Instructions for TI-8 or TI-4 Indicator using the TI-A Adaptor

1. Turn Trim Tab Power Off.
2. Provide a 2" diameter hole in which to install the Indicator. Do not overtighten the bracket nuts.
3. Connect the two conductor cable from the indicator, Black to ground and Red to the "ON" side of the ignition or gauge switch, 12 or 24 VDC.
4. Remove the (4) actuator power leads from the center tabs of the two control switches. Mark these leads so they can be put back on the same tabs. Onto these (4) control switch tabs, looking at the back of the switches, left to right, Red, Black, White, Green, connect the (4) TI-A push-on connectors onto the (4) switch terminals from which the actuator power leads were removed.
5. Onto the extra spade now provided, reconnect the (4) actuator power leads.
6. Plug the Adaptor plug into the Indicator socket.

4 conductor interconnect wire to actuator terminal strip or 2 pairs of Actuator power leads.

RED (+) (-) BLACK

HOOK THESE 2 WIRES TO THE DC POWER PANEL
CIRCUIT BREAKER OR FUSE, 12 or 24 VDC

ACTUATOR MODELS "A" & "C" - 12VDC 20A BREAKER OR FUSE
ACTUATOR MODELS "B" & "D" - 24VDC 10A BREAKER OR FUSE

Schematic:

Installation of TI-8 or TI-4 Indicator
with TI-A Adaptor

DRAWING NO.
TI-A LWS

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|---------------|------------------|-----------------------|--|--|
| SCALE: N.T.S | | TI-A Wiring Schematic | | |
| DRAWN BY: ENM | APPROVED BY: LJC | | | |

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8790 PARK CENTRAL DR. RICHMOND, VA. 23227