

WHELEN[®]

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Installation Guide:
FastTrax™ System
Model(s) FTR3, FTR4

Warnings to Installers

Whelen's emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen's written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that they can operate the system without taking their eyes off the roadway. Emergency warning devices can require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to insure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. **PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.**

Warnings to Users

Whelen's emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen's audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.

Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.**
- **Any holes, either created or utilized by this product, should be made both air- and watertight using a sealant recommended by your vehicle manufacturer.**
- **Failure to use specified installation parts and/or hardware will void the product warranty.**
- **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr the holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro®, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**
- **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post (this does not include products that use cigar power cords).**
- **If this product uses a remote device for activation or control, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.**
- **Do not attempt to activate or control this device in a hazardous driving situation.**
- **This product contains either strobe light(s), halogen light(s), high-intensity LEDs or a combination of these lights. Do not stare directly into these lights. Momentary blindness and/or eye damage could result.**
- **Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration. Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

Mounting The Power Supply...

While the ISP8HS Strobe/Halogen power supply will be mounted in the vehicle's trunk, the installation technician should keep the following recommendations in mind:

- A) The unit should be mounted on a metal surface to aid heat dissipation. Be sure that this surface is not one that either generates or is exposed to excessive heat during normal operation of the vehicle.
- B) Do not select a location where the power supply will be exposed to potential damage from any unsecured or loose equipment in the vehicle.
- C) Be sure the area selected will not allow the ISP8HS to be exposed to water!
- D) When routing the wires, it is important to choose a path that will keep these wires away from excessive heat and from any vehicle equipment that could compromise the integrity of the wires (ex. trunk lids, door jams, etc.).

Using appropriately sized wires, connect the power supply to the battery using the wiring diagram on page 7 as a guide. Be sure to include the specified size fuse, keeping in mind that there should not be more than two feet of wire between the fuse block and the positive battery terminal.

WARNING: All customer supplied wires, that connect to the positive (+) terminal of the battery, must be sized to supply at least 125% of the maximum operating current, and fused "at the battery" to carry the load!

CAUTION: As it will be necessary to drill holes into the mounting surface, the installer **MUST** be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins!

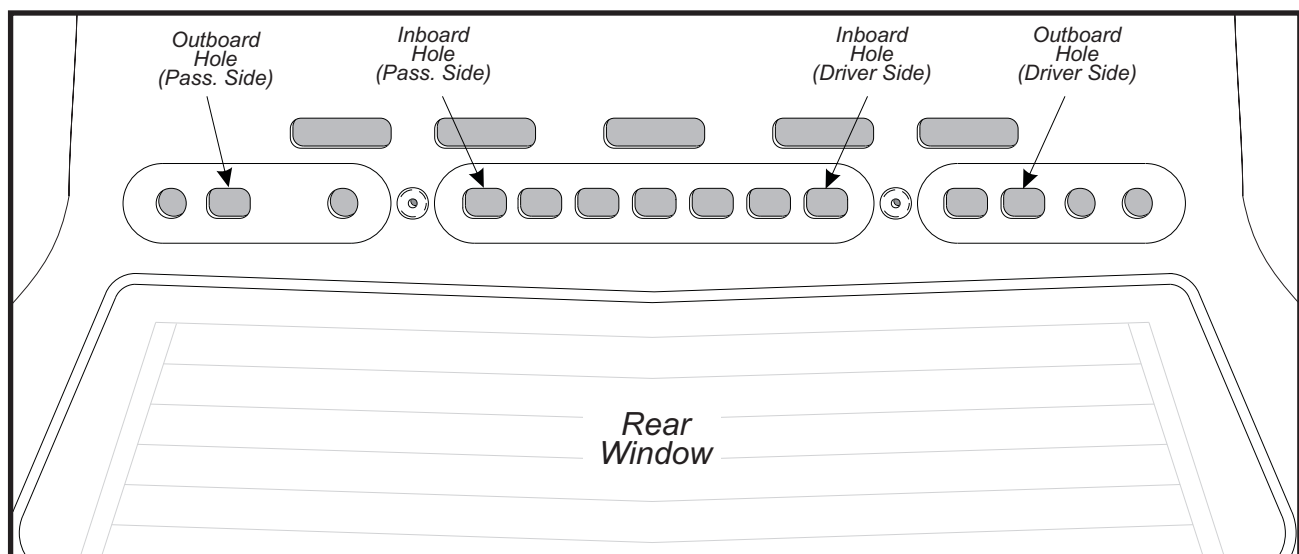
Using the hardware provided, secure the power supply to its mounting surface.

Vehicle preparation...

1. Remove the rear seat back, C-pillar covers and headliner from the vehicle.
2. With the headliner removed, locate the roof support cross-brace just ahead of the rear window.

Fig. 1

*Underside View of Roof
(with Headliner Removed)*

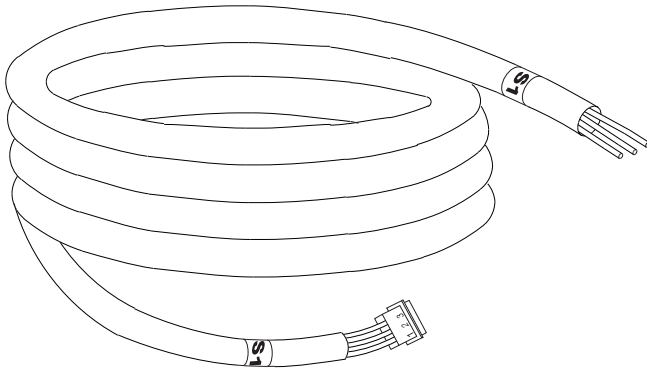


3. Locate the brace openings specified in the above illustration. Through the center of these openings, drill a 1/8" hole up through the roof of the vehicle.

4. From outside the vehicle, locate the holes drilled in the previous step. Using a 1" hole saw, position the pilot bit into these holes and drill four, 1" openings through the roof.
5. De-burr these holes and install grommets (included).

Cable preparation and routing...

Fig. 2

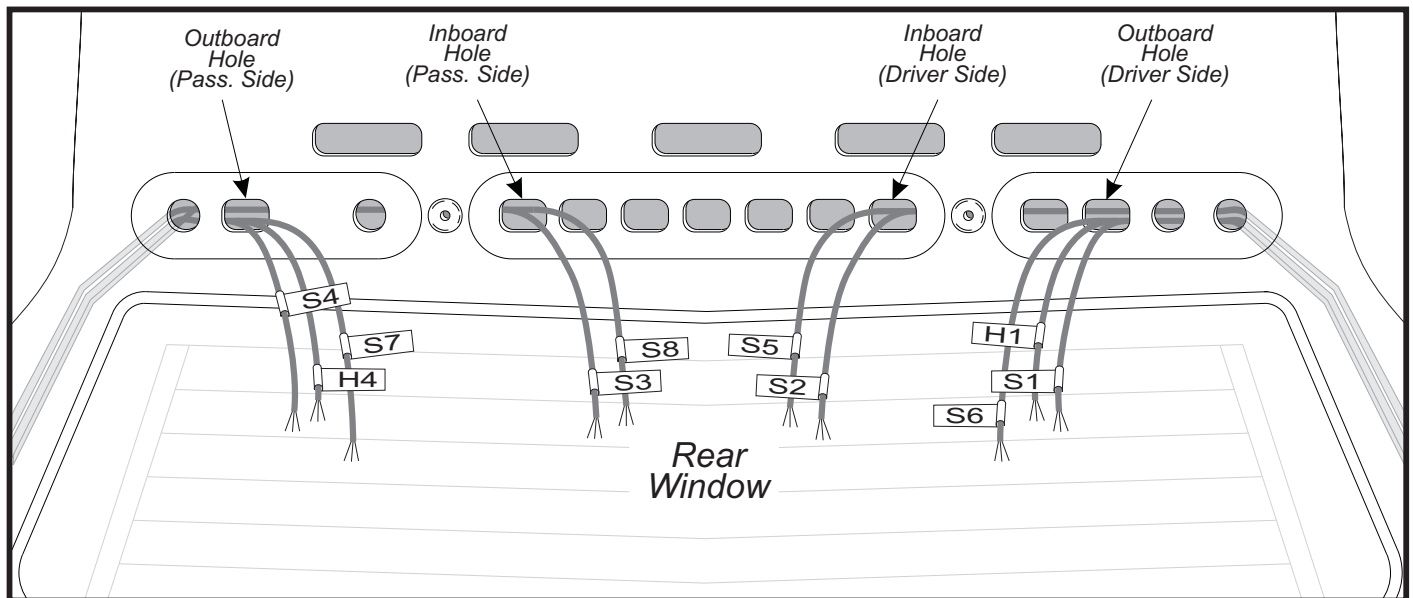


Before the lighthouse cables can be routed through the vehicle, they must first be prepared. Tag the cables to be used for the strobe lighthoods (3-conductor) with the "S" tags and the cables to be used for the halogen lighthoods (2-conductor) with the "H" tags. This will insure that the lighthoods are connected to their proper power supply port. A lighthouse's identity is determined by what power supply port they are to be connected to.

Note: Before the cables are routed, the installer may wish to apply a light coating of silicone spray to the cable's outer jacket. This will allow the cables to be routed more easily.

The following section demonstrates how these cables should be routed. For example, locate the strobe cable tagged "S1". This cable (like all of the cables) has one end with pinned terminals on the wires and one end with socket terminals on the wires. Insert the pinned end of the "S1" cable through the roof support cross-brace opening shown below. In this case, it is the opening below the driver side outboard hole drilled previously. Feed this cable through the brace and down through the C-pillar until it enters the trunk area of the vehicle. Continue to feed the cable through this pathway and into the trunk until approximately 18" remain outside of the cross-brace. Repeat this for the remaining cables, using the following illustration as a guide.

*Underside View of Roof
with Headliner Removed
(Wiring for Model FTR4 Shown)*



Feed the remaining 18" cable lengths through their respective, grommets openings in the roof and apply RTV to the grommet hole to water-proof these openings.

Insert the cable wires into their plug connectors as follows:

Strobe Cable

Pin #1 - **RED**
Pin #2 - **BLACK**
Pin #3 - **WHITE**

Halogen Cable

Pin #1 - **WHITE**
Pin #2 - **NO CONNECTION**
Pin #3 - **BLACK**

The Fast-Trax housing mounting surface will now be prepared.

Surface Preparation

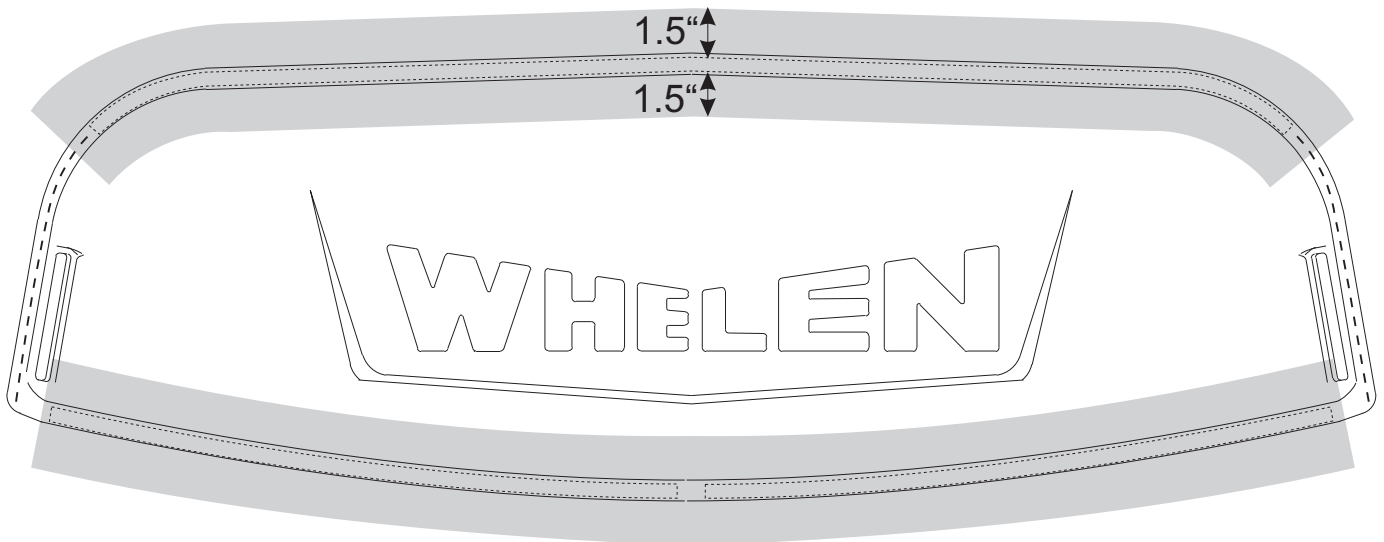
IMPORTANT NOTICE!!!

The Fast-Trax system housing is secured to the vehicle using 3M™ VHB™ double-sided tape. This tape offers superior bond strength that allows the Fast-Trax™ to be exposed to inclement weather with no adhesion loss. However, the key to successful bonding lies in proper preparation of the mounting surface. The following section will outline the recommended procedure for mounting surface preparation. Your Fast-Trax™ system includes the 3M™ recommended preparation solution. **DO NOT USE ANY OTHER SOLUTIONS TO PREPARE THE MOUNTING SURFACE!** By following these procedures, your Fast-Trax™ installation will produce a successful bond with lasting adhesion. The outer surface of the vehicle must be at least 65°F before proceeding!

1. **Without** removing the protective backing from the mounting tape, position the Fast-Trax housing onto its mounting surface. The housing is properly positioned when it is centered on the vehicle roof with a 1/8" space between the leading edge of the housing and the windshield gasket.
2. Any part of the vehicle that will be in contact with the adhesive tape PLUS an additional inch and a half (1½) wide area on either side of the tape will have to be prepared. This area is called the bonding surface. Remove the Fast-Trax housing from the vehicle.

Fig. 4

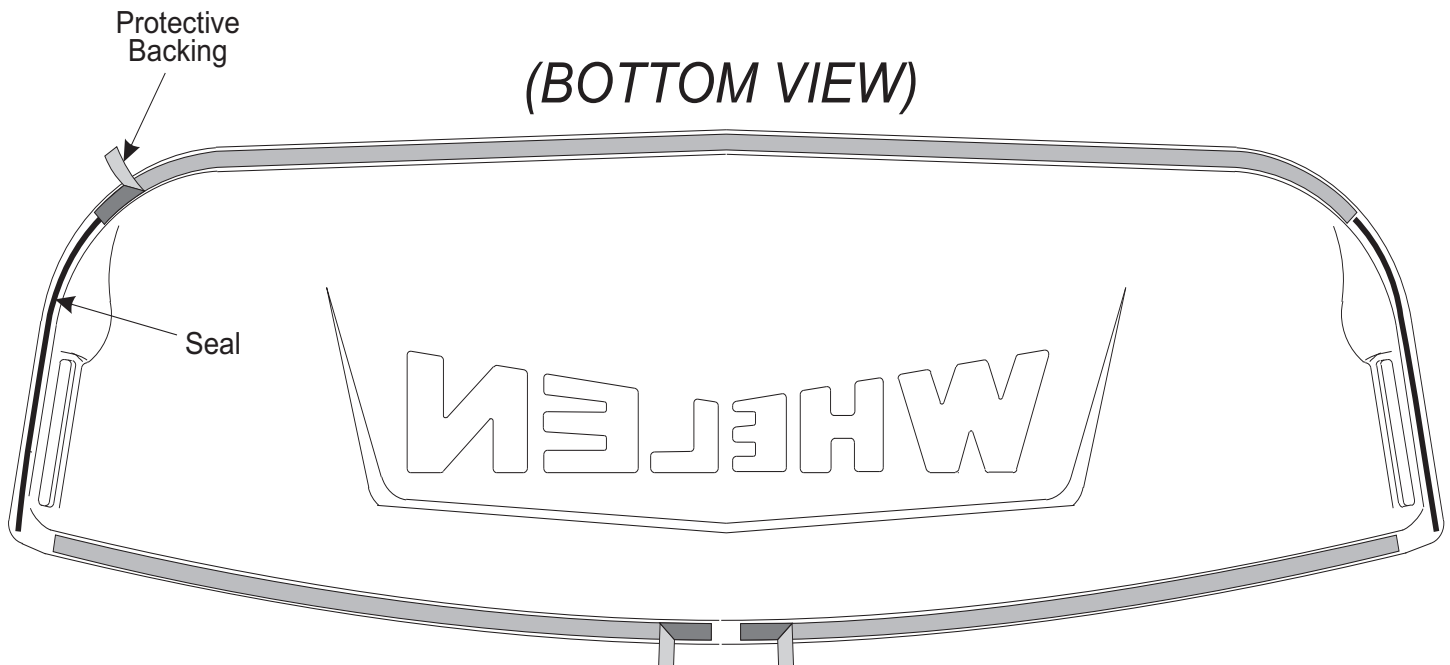
Area surrounding the tape to be primed



3. The bonding surface must be completely clean and dry. Using a clean lint-free cloth, clean the bonding surface with an automotive wax and grease remover (ex:Prepsol®). Allow to dry thoroughly.
4. Shake the “3M Keel Primer” applicator (included) well before using. Following the instructions attached to the applicator, apply a thin uniform coating to the bonding surface using the minimum amount that will fully coat the surface. Allow the primer to dry thoroughly. This is usually accomplished in 5 minutes at room temperature. Be sure the primed surface remains free from contaminants.
5. Return the housing to the vehicle and connect the strobe/halogen cables to their respective lightheads. Remember that the cables must be connected correctly or the system will not function properly.
6. Locate the ends of the adhesive tape strips indicated below. Peel approximately an inch of the protective backing away from the tape. Now fold the backing so that it sticks out from under the Fast-Trax housing.
7. Carefully pull the protective backing tabs out from under the Fast-Trax housing. Make sure that the housing’s position is not disturbed during this process.
8. With all of the protective backing strips removed, press down firmly along the edges of the housing to promote adhesion.

WARNING!The vehicle should not be driven for a minimum of 24 hours after installation. The adhesive used in this procedure must remain at 65°F (minimum) for 24 hours after installation. Caution should be used if the vehicle must be driven between 24 and 72 hours after installation. The adhesive should be fully bonded after 72 hours.

Fig. 5



Mounting the Fast-Trax Control Head...

1. Locate a suitable mounting location for the control head. Be sure that the control head fits properly and does not interfere with any dashboard components.

WARNING! If the vehicle is equipped with air bags, do not mount the control head within the "air bag deployment zone(s)" indicated in the vehicle owner's manual. Failure to heed this warning could impair the air bag's ability to function properly which could, in the event of deployment, result in serious injury or death!

2. Position the control head on the proposed mounting location. Using a pencil or other suitable tool, scribe the mounting surface where the holes are to be drilled.

CAUTION! As mounting the control head will require drilling, it is absolutely necessary to make sure that no vehicle components could be damaged by the mounting process. Check both sides of the mounting surface before starting and if damage is possible, select a different mounting location.

3. Drill the 2 mounting screw holes.
4. Position the control head onto the mounting surface. Using the provided sheet metal screws, secure the control head to the mounting surface.
5. Route the 9-conductor control harness and the modular Diagnostix cable from the control head to the power supply. These cables may be plugged into the control head, but do not plug them into the power supply at this time.
6. Locate the AMP 9-conductor pin housing. Cut and remove the locking tabs from this housing (see illustration).
7. Using the wire chart in Fig 6, insert the pinned wires on the control harness into their proper location in the pin housing.
8. Plug this cable into its port on the power supply.

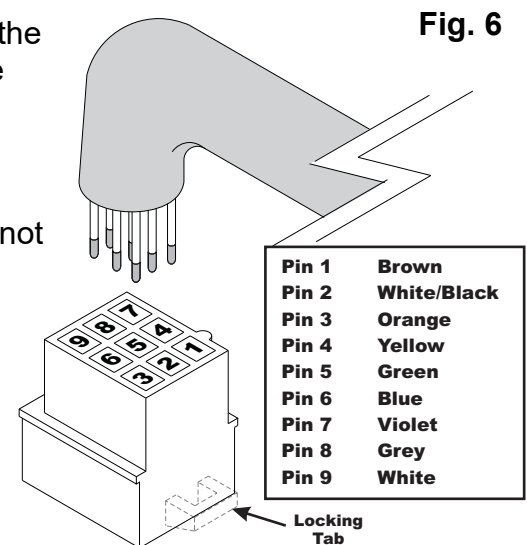


Fig. 6

Outer Lens Removal and Installation....

1. Locate the center mounting tab on the top section of the clear outer lens.
2. Using a small flat-blade screwdriver, gently pry this tab down and out of the housing. **Be careful not to damage this lens' gasket.**
3. Alternating from one side to the other and working outwards, repeat this procedure for the remaining upper tabs.
4. When all the upper tabs are free from the housing, the lens can be pulled outwards and upwards for removal.
5. Installation begins by inserting the outermost tabs on the bottom of the lens into their respective slots. **Make absolutely sure that the lens is centered in the housing before proceeding.**
6. Alternating from one side to the other and working inwards, repeat this procedure for the remaining tabs.
7. Insert the outermost upper tabs into their slots and alternating from one side to the other and working inwards, repeat this procedure for the remaining tabs. **Do not allow the gasket to be pinched or distorted during installation.**

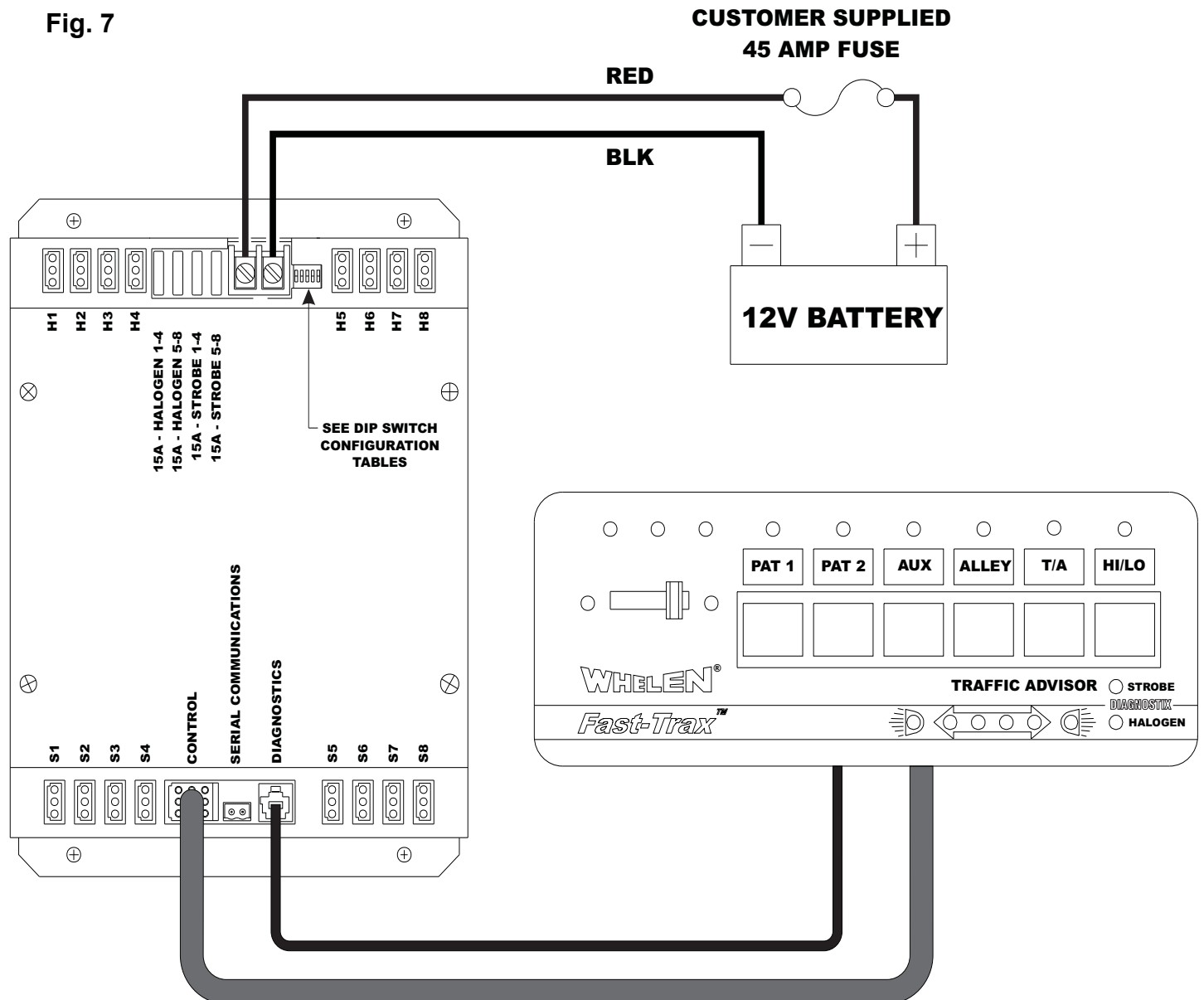
A Note On Painting the Fast-Trax Housing...

If painting or re-painting your Fast-Trax housing, it is important to keep in mind the following information:

- Do not apply paint or primer to any of the black-colored area immediately adjacent to the clear outer lens!
- Do not apply paint or primer to the underside of the housing.
- Make sure that all surfaces to be painted have been primed using primer that is suitable for ABS plastic.
- Be sure to include the leading edges (material thickness) in your painting surfaces.

IMPORTANT: The outer surfaces of this product may be cleaned with mild soap and water. Use of any other chemicals may void product warranty. Do not use a pressure washer.

Fig. 7



Model FTR3

Push-Button 1 Control Table
Model FRS01620 Only

Push-Button 1	Effect
OFF	None
ON	Strobes S2 + S3 On

Push-Buttons 2&3 Control Table

Push-Button 2	Push-Button 3	Flash Pattern
OFF	OFF	Comet Flash (Default)
ON	OFF	Double Flash
OFF	ON	Rapid Rate
ON	ON	Action Flash

Push-Button 4 Control Table

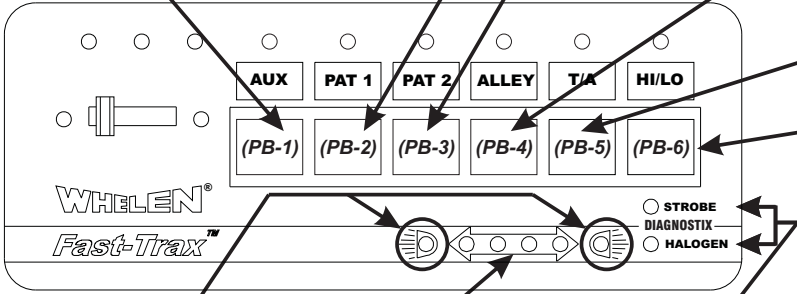
Push-Button 4	Effect
1st PUSH	Driver Side Alley
2nd PUSH	Pass. Side Alley
3rd PUSH	Both

Push and hold for off

Push-Button 5 Control Table

Push-Button 5	Traffic Advisor Pattern
1st Push	Sweep Left
2nd Push	Sweep Right
3rd Push	Split
4th Push	Flash

Push and hold for off



Push-Button 6 Control Table

Push-Button 6	Effect
PUSH #1	Hi Power Mode
PUSH #2	Lo Power Mode

Alley Light LED Indicators

Traffic Advisor LED Indicators

Diagnostix LED Indicators

Slide Switch Table
Model FTR3
(In Default Dip Switch Positions)

	Strobes S1 + S4	Strobes S2 + S3	Strobes S5 + S8	Strobes S6 + S7	Halogens H1 + H4	Halogens H2 + H3
Off	X	X	X	X	X	X
Position 1	ON	X	X	X	X	X
Position 2	ON	X	X	X	X	ON
Position 3	ON	ON	ON	ON	ON	ON

NOTE: "X" = OFF

Model FTR4

Push-Buttons 2&3 Control Table

Push-Button 2	Push-Button 3	Flash Pattern
OFF	OFF	Comet Flash (Default)
ON	OFF	Double Flash
OFF	ON	Rapid Rate
ON	ON	Action Flash

Push-Button 4 Control Table

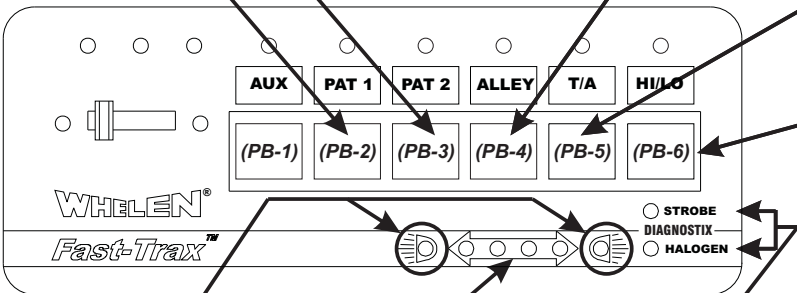
Push-Button 4	Effect
1st PUSH	Driver Side Alley
2nd PUSH	Pass. Side Alley
3rd PUSH	Both

Push and hold for off

Push-Button 5 Control Table

Push-Button 5	Traffic Advisor Pattern
1st Push	Sweep Left
2nd Push	Sweep Right
3rd Push	Split
4th Push	Flash

Push and hold for off



Push-Button 6 Control Table

Push-Button 6	Effect
PUSH #1	Hi Power Mode
PUSH #2	Lo Power Mode

Alley Light LED Indicators

Traffic Advisor LED Indicators

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Slide Switch Table
(In Default Dip Switch Positions)

	Strobes S1 + S4	Strobes S2 + S3	Strobes S5 + S8	Strobes S6 + S7	Halogens H1 + H4
Off	X	X	X	X	X
Position 1	ON	X	X	X	X
Position 2	ON	ON	X	X	X
Position 3	ON	ON	ON	ON	ON

NOTE: "X" = OFF

Dip Switch Functionality...

Dip Switches			Dip Switch Setting for Fast-Trax model:
1	2	3	
<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Off (default)	FTR4
<input checked="" type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	FTR3

Dip Switch 4	Dip Switch Setting for Lighthouse Pair Control:
<input type="checkbox"/> Off (default)	Pairs flash Alternately
<input checked="" type="checkbox"/> On	Pairs flash Simultaneously

Dip Switch 5	Dip Switch Setting for Communication Control (not used):
<input type="checkbox"/> Off (default)	Parallel
<input checked="" type="checkbox"/> On	Serial

Specification Tables...

STROBE SPECIFICATIONS

INPUT VOLTAGE ----- 12.8 VDC \pm 20%
 INPUT CURRENT
 2 STROBES----- 4.5 AMPS (TYP)
 4 STROBES----- 9 AMPS (TYP)
 6 STROBES----- 13.5 AMPS (TYP)
 8 STROBES----- 18 AMPS (TYP)
 INPUT POWER----- 230 WATTS (TYP)
 ANODE VOLTAGE ----- 450 VDC (MAX)
 TRIG. VOLTAGE----- 150 VDC (MIN)
 ENERGY PER FLASH--- 7.9 / 3.8 / 3.8 / 3.8
 FLASHRATE----- 140 CFPM
 OUTPUT POWER----- 22.5 WATTS (TYP)
 (PER OUTLET)

HALOGEN SPECIFICATIONS

INPUT VOLTAGE----- 12.8 VDC \pm 20%
 INPUT CURRENT
 2 LAMPS ----- 4.5 AMPS (TYP)
 4 LAMPS ----- 9 AMPS (TYP)
 6 LAMPS ----- 13.5 AMPS (TYP)
 8 LAMPS ----- 18 AMPS (TYP)
 INPUT POWER ----- 230 WATTS (TYP)
 OUTPUT VOLTAGE ----- INPUT VOLTAGE - 1V
 ON TIME----- 125 mS (TYP)
 OFF TIME ----- 125 mS (TYP)
 FLASHRATE ----- 120 DFPM \pm 5%
 OUTPUT POWER ----- 50 WATTS (MAX)
 (PER OUTLET)

Fig. 8

Model FTR4

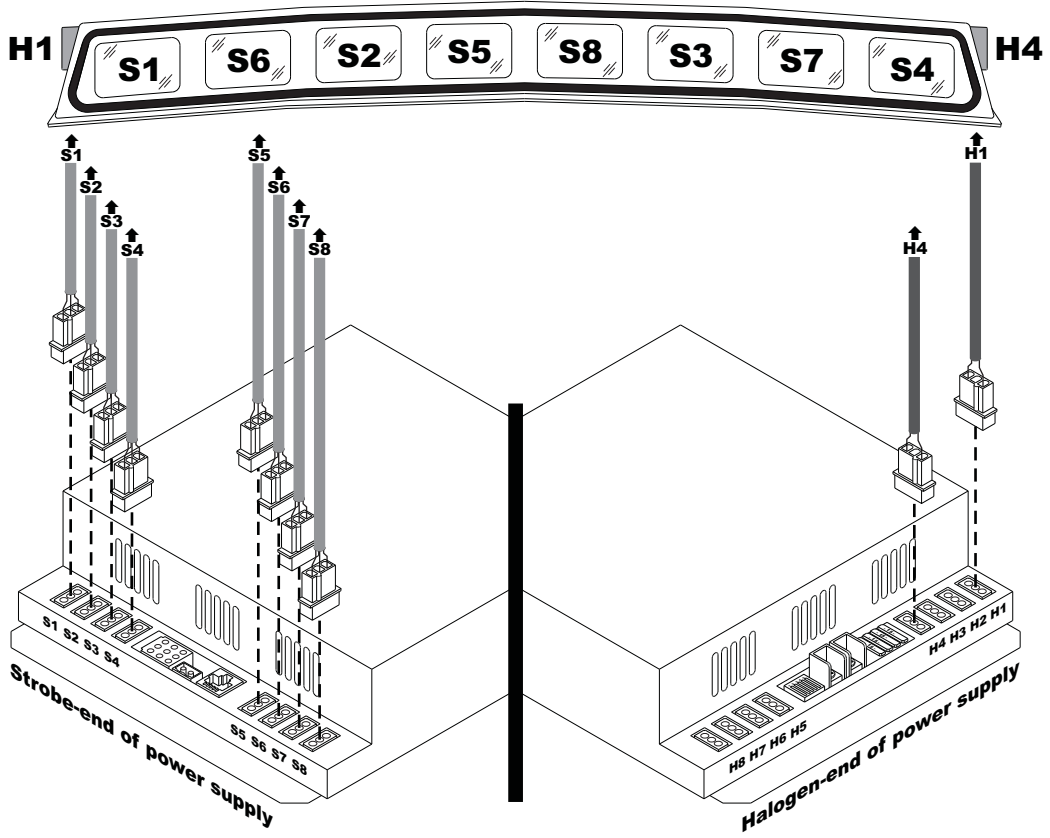
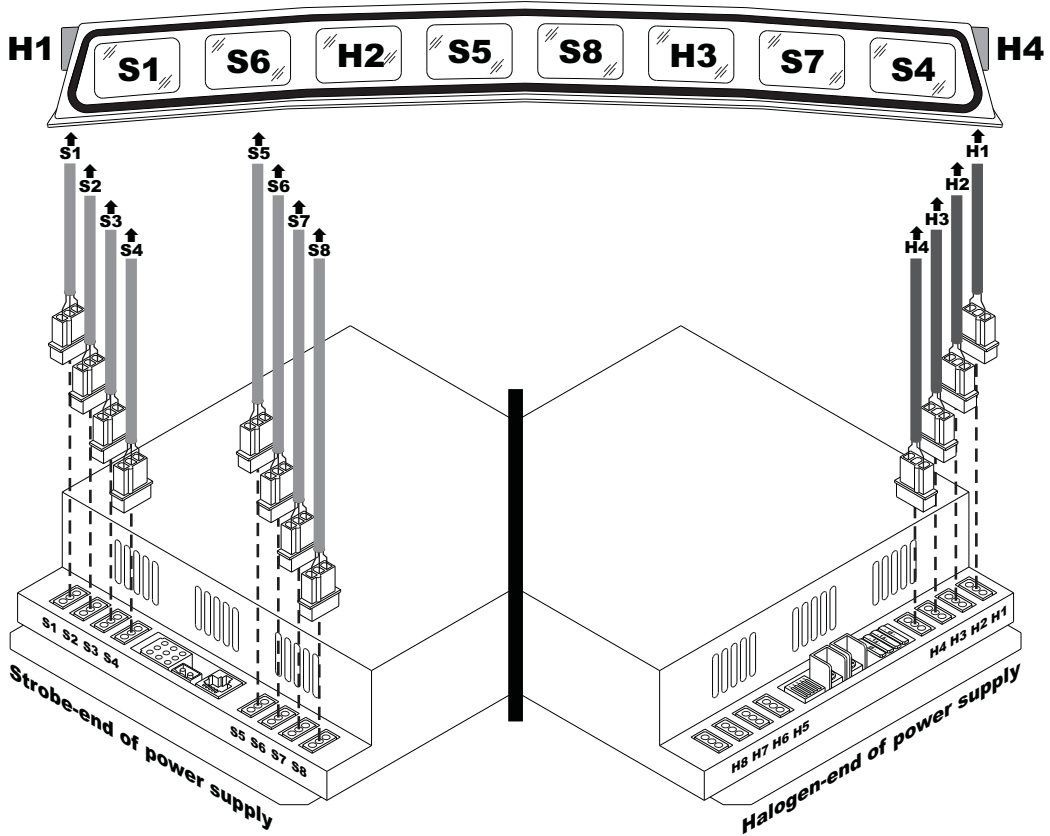


Fig. 9

Model FTR3



S2

S3

01	32	66-0110008-00	ISOPROPYL ALCOHOL (CLEANER)
1	31	46-0746118-00	CONNECTOR ASSEMBLY
1	30	01-0662934-00	FAST-TRAX CONTROL HEAD
1	29	02-0241185-25	CABLE ASSY, 8 POS TELEPHONE -25'
1	28	46-0746116-00	CONTROL INPT CONNECTOR ASSY
1	27	01-0683216-00	ELECTRONIC ASSY, MODEL 1SPRHS
1	26	10-0742600-02	LABEL, CABLE I.D.
10	25	01-0415532-00	KIT, CABLE INSTALLATION (3 POS.)
2	24	66-0716725-00	*3M #84 PRIMER APPLICATOR
A/R	23	68-1183071-5S	LENS, RED W/SEAL
A/R	22	68-1183071-4S	LENS, GREEN W/SEAL
8	21	68-1183071-2S	LENS, BLUE W/SEAL
A/R	20	68-1183071-1S	LENS, AMBER W/SEAL
8	19	02-0362824-00	ASSY, REFLECTOR 4S SERIES
10	18	46-0742172-15	ASSY, CABLE 3/C AUTO EXTENSION 15'
18	17		RIVET, 502"
8	16		#6-32 X 3/8" PPHMS SS
8	15		#6 INTERNAL TOOTH LOCKWASHER
4	14	07-242541-000	BRACKET, ALLEY LIGHT MOUNTING
2	13	02-0342291-01	REFLECTOR ASSY, SINGLE (12V-27H)
4	12	38-0315811-01	SPACER, FOAM 1 1/8"lg. (PSA ONE SIDE)
2	11	68-1161022-30	LENS, OPTIC-CLEAR
36	10		#6 X 1" PPHMS
36	9	13-062240-16J	#6 FASTEX SCREW GROMMET
2	8	02-0342585-00	ASSY, HOUSING (POLISHED W/SEAL)
A/R	7	66-0416678-00	TAPE, VHB DOUBLE STICK BLACK
1	6	11-483128-001	HOUSING, REAR SPOILER (PAINTED)
6	5	07-242538-001	BRACKET, DOUBLE STROBE MOUNT
2	4	07-242539-001	BRACKET, END STROBE MOUNT
4	3	21-11263204-0	GROMMET, 1"
1	2	68-3183129-30	LENS, CLEAR
1	1	38-0516695-00	SEAL, LENS 133"
-	-	01-0683142-00	ASSY, REAR SPOILER (98 CROWN VIC)
QTY.	ITEM	PART NUMBER	DESCRIPTION

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Fast-Trax
Model FTR4
'98 CROWN VIC

WARNING: DO NOT INSTALL HALOGEN BULBS EXCEEDING 27 WATTS.

