

# Installation Manual

## **Warning and Safety Information**

### **FCC Information**

This device complies with FCC Rules Part 15 Operation and is subject to the following two conditions:

- (1) This device may not cause harmful interference and
- (2) This device must accept any interference that may be received, including interference that may cause undesired operation.

**NOTE:** The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

### **Important Notice**

It is unlawful in most states for a person to drive a motor vehicle which is equipped with a television viewer or screen that is located in the motor vehicle at any point forward of the back of the driver's seat, or that is visible, directly or indirectly, to the driver while operating the vehicle. In the interest of safety, this device should never be installed or operated where its video content will be visible, directly or indirectly, by the operator of the motor vehicle.

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## Technical Information

The *FLO TV* service operates on UHF channel 55 (720 MHz) and is multicast from terrestrial towers. Coverage will vary and reception is dependent upon the FLO TV module in your vehicle being within range of the towers. Coverage area can be viewed on the FLO TV web site ([www.flotv.com](http://www.flotv.com)).

The FLO (Forward Link Only) TV service is transmitted over the *FLO TV* network and received by the FLO TV module in your vehicle. Along with the television program material, data is transmitted for the program guide and is updated on a regular basis. If you are out of the coverage area the program guide will be updated when the vehicle returns to the coverage area.

## **Safety Precautions**

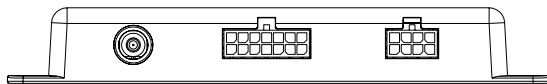
Installation of the FLO TV product requires careful planning and preparation. Be extremely careful of the airbags in vehicles and not to have any FLO TV component or wire harness interfere with them. Keep wiring away from any air bag wiring (usually identified by yellow connectors and yellow wire jackets). Damage to air bag wiring can result in personal injury to vehicle occupants.

When connecting power and ground in a vehicle, insure that the ACC wire is fused at the point where it is connected to the vehicle ACC wiring. Failure to do so can result in damage to the vehicle if a short circuit develops between the vehicle connection point and the FLO TV product.

Do not install any FLO TV component (e.g. wired remote control) where it may obstruct the driver's view through the windshield, or any of the vehicle's indicator displays.

## FLO TV Kit Contents

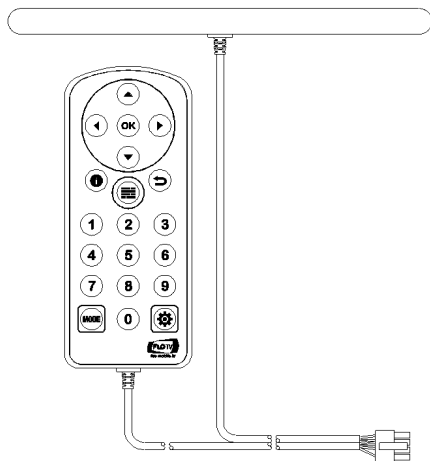
The following items are included with your purchase of the FLO TV kit.



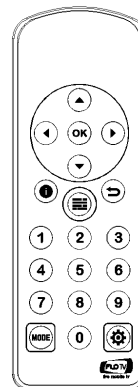
FLO TV Module



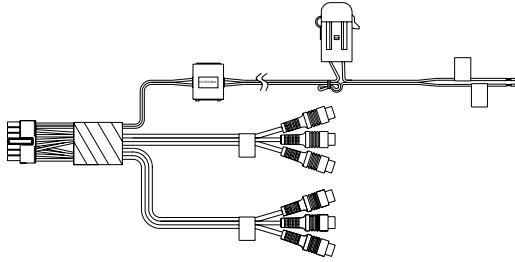
FLO TV Antenna



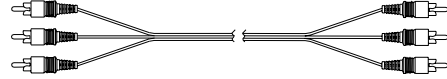
Wired Remote Control with Antenna



Wireless RF Remote Control



Main Wire Harness

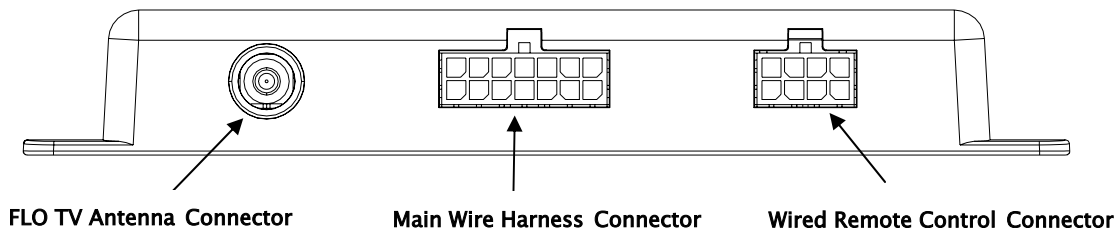


RCA Male to Male Harness

**NOTE:** The FLO TV kit also includes an antenna tail, antenna tape pad, owner's manual, this installation manual, and a hardware kit that includes four wire ties.

## Connectors and Controls

The illustration below details the FLO TV Module connectors for quick reference.



<b>FLO TV Module Connectors</b>	
FLO TV Antenna Connector	Antenna connection for the FLO TV antenna
Main Wire Harness Connector	14 Pin connector which provides input power to the FLO TV Module along with Audio and Video Input and Output.
Wired Remote Control Connector	8 Pin connector for the connection of the Wired Remote Control.

## Vehicle Preparation

1. Read the manuals to become familiar with the electrical requirements and connections of the FLO TV kit.
2. Prepare the vehicle by removing any interior trim necessary to gain access to the vehicle's wiring as well as areas where the interconnecting wire harnesses will be located.
3. Locate an accessory power source (+12VDC present when the ignition key is in the accessory or run positions. 0VDC should be present when the ignition key is in the OFF position), and a good ground location. Generally, these wires can be located at the ignition switch or fuse box.

**NOTE:** Ensure that the fuse on the wire harness remains intact during the installation and is connected directly to the accessory power source. Removal of the fuse may result in vehicle wiring damage.

4. Run the wire harnesses throughout the vehicle as required. (Examples of suggested wiring configurations are detailed on the following pages.)
5. Be sure that all wiring is protected from sharp edges and is routed in such a manner that it will not be pinched when fully installed.
6. Be sure to leave enough slack in the wiring at each component to allow for sufficient working room.



## Wiring Diagrams

An overview of the FLO TV kit wiring diagram for connection to a Factory Vehicle Entertainment System (VES) is shown in Figure 1 below.

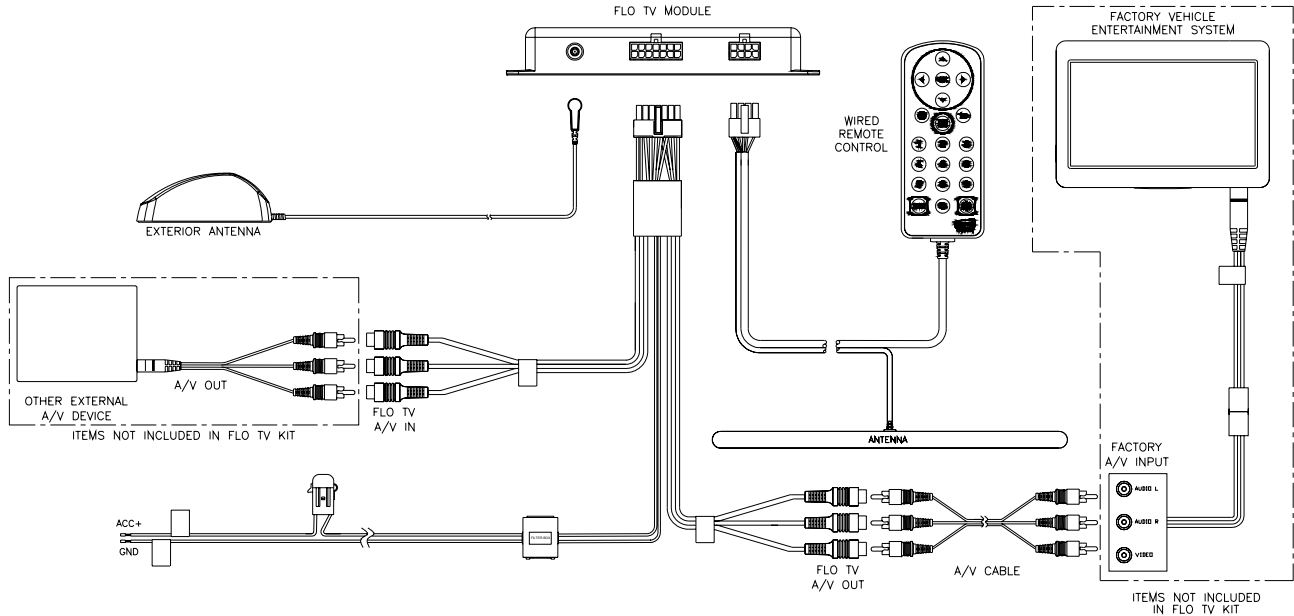


Figure 1 - FLO TV Wiring Diagram with Factory VES & A/V Input

To connect the FLO TV kit to a Factory Vehicle Entertainment System (VES), via the connectors between the Factory VES and A/V input, follow the diagram shown in Figure 2. This installation is possible if mating connectors between the Factory VES and Factory A/V input are available.

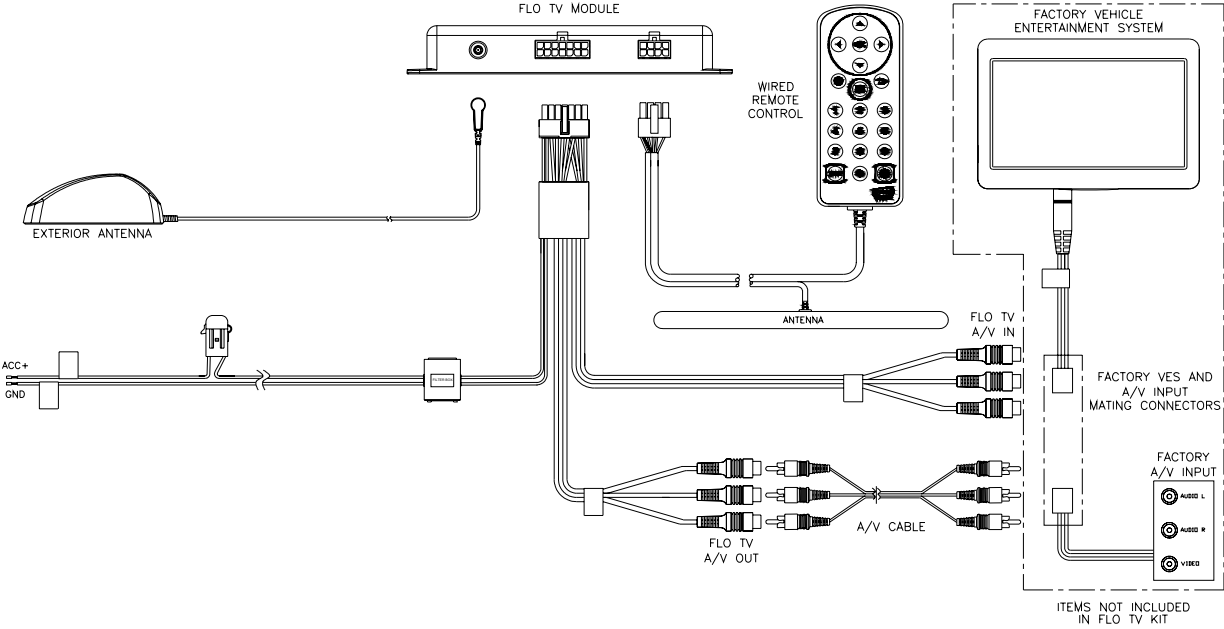


Figure 2 - FLO TV Wiring Diagram with Mating Connector Input

An overview of the FLO TV kit wiring diagram for connection to an aftermarket Vehicle Entertainment System (VES) is shown in Figure 3 below.

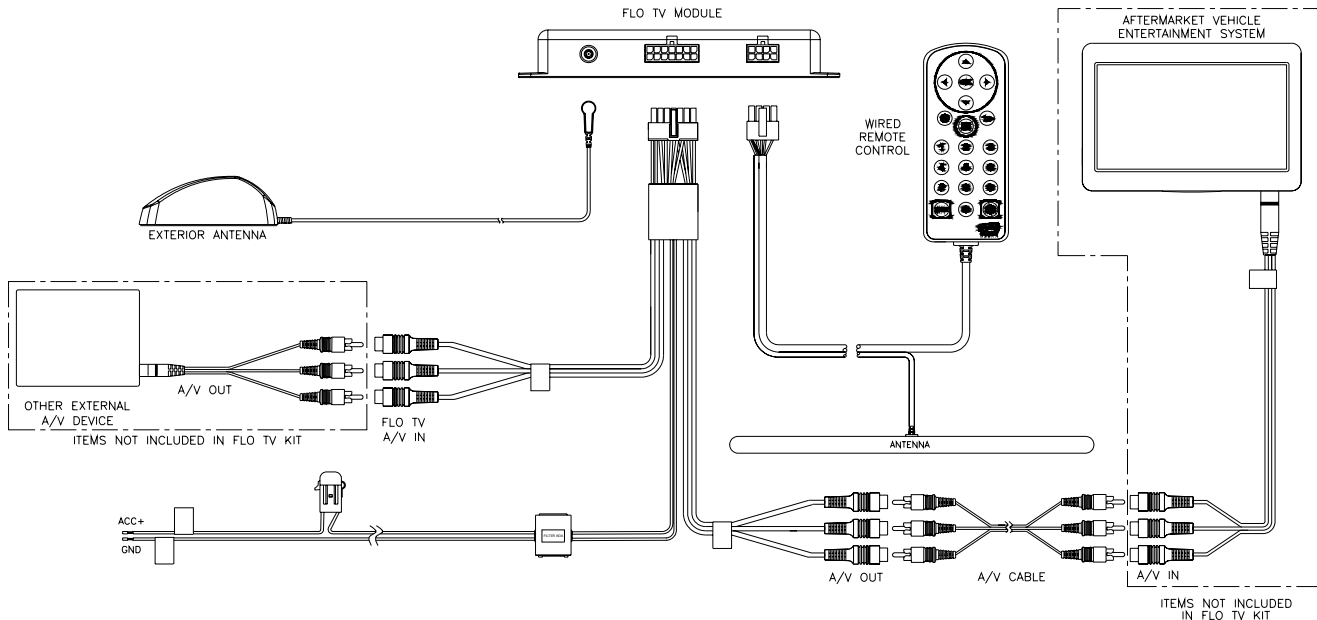


Figure 3 - FLO TV Wiring Diagram with Aftermarket VES

## **FLO TV Module Installation**

Choose a mounting location for the FLO TV Module which is convenient, such as under a seat, under or behind the dashboard, or in the trunk, etc. The location should be one where the FLO TV Module will not get damaged or kicked and where the wiring can be easily hidden. The FLO TV Module should not be located where it will be in direct sunshine. The FLO TV Module has four mounting holes for securing the FLO TV Module to the vehicle by use of the included wire ties or by other means. If screws are used to mount the FLO TV Module, do not over tighten as the plastic case may be damaged.

## **FLO TV Antenna Installation**

The FLO TV Antenna incorporates a magnet, which is designed to hold the antenna in place on the exterior of the vehicle, and allows for a semi-permanent antenna installation. The FLO TV kit also includes a double sided adhesive tape pad, which is recommended to be affixed to the bottom of the FLO TV Antenna for a permanent antenna installation.

## Mounting the FLO TV Antenna on the Vehicle

Mounting options for the FLO TV Antenna will vary depending upon the vehicle. These instructions are meant to be a guide. The following steps detail the recommended permanent installation of the FLO TV Antenna utilizing the antenna magnet and double sided adhesive tape pad.

1. The antenna needs to be mounted on the exterior of the vehicle's roof for optimal performance.
2. Select an appropriate mounting position for the FLO TV antenna. The antenna should be mounted where no obstructions will block the antenna from receiving the FLO TV signal. The antenna requires an unobstructed area of 4 inches by 4 inches. Roof racks, roof cargo containers, another antenna, etc., may obstruct the antenna and cause undesired system operations. If the vehicle has a potential obstruction, mount the FLO TV Antenna at least 4 inches away from the potential obstruction (but no closer than 4 inches from the roof edge). (See Figure 4, FLO TV Antenna Placement)

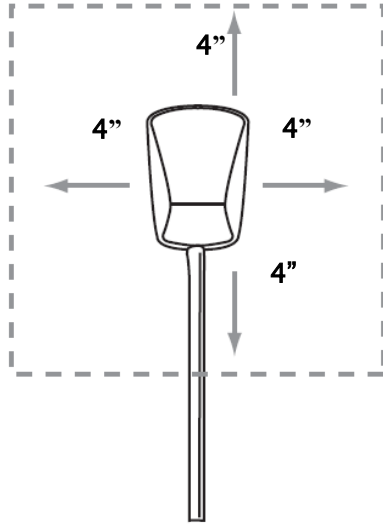


Figure 4 - FLO TV Antenna Placement

3. Remove the plastic liner from one side of the adhesive backing on the tape pad.
4. Use the four circular cutouts, on the tape pad, for alignment to the four rubber feet on the bottom of the FLO TV Antenna. Ensure that the tape pad is completely adhered to the bottom of the FLO TV Antenna.
5. Starting at the strain relief on the FLO TV Antenna, attach the antenna tail to the FLO TV Antenna. Press the antenna cable into the wire track in the antenna tail. (See Figure 5, FLO TV Antenna Tail Installation)

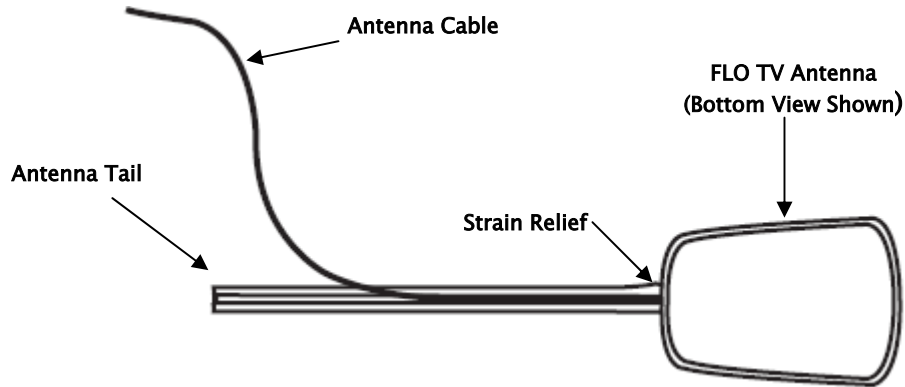


Figure 5 - FLO TV Antenna Tail Installation

6. Clean the surface area of the vehicle where the FLO TV Antenna and antenna tail will be installed. Ensure that the vehicle surface is clean and clear of any dirt or debris.
7. Remove the plastic liner from the adhesive backing on the bottom of the FLO TV Antenna. Remove the two plastic liners from the adhesive backings on the antenna tail.
8. Place the FLO TV Antenna and antenna tail on the vehicle roof. The double sided tape and magnet will secure the antenna and antenna tail in the desired location. (See Figure 6, FLO TV Antenna Final Installation)

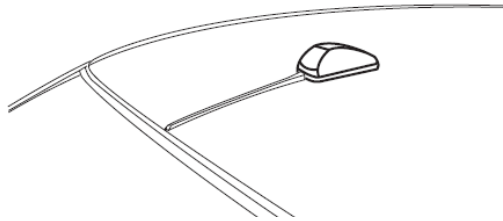


Figure 6 - FLO TV Antenna Final Installation

9. Verify that the installation location of the FLO TV Antenna and antenna tail are correct. Firmly press the FLO TV Antenna and antenna tail down for approximately one minute to ensure complete tape adhesion. Allow a 72 hour period for the adhesive tape to cure completely, avoid car washes during this period.



## Routing the Antenna Cable

When the antenna has been mounted on the vehicle, the antenna harness can be routed to the FLO TV Module.

1. Route the antenna cable from the antenna mounting position to the interior of the vehicle, working the cable under the rear window molding. (See Figure 7, Routing the Antenna Cable)
2. At the lowest point of the rear window, route the cable into the trunk, taking advantage of the existing cable conduits. Route the antenna harness from the trunk to the passenger compartment and then to the FLO TV Module Antenna connector.
3. In SUV's, Minivans, etc., route the cable into the vehicle under the rubber molding of the hatch door or rear tailgate, and then under the interior trim.
4. Avoid exposing the cable in the driver and passenger areas where it could become entangled in feet or other objects.
5. Plug the antenna cable plug into the FLO TV Antenna connector on the FLO TV Module. The antenna plug will snap onto the connector when it is fully seated on the antenna connector.

**NOTE:** The exact routing of the antenna cable may vary depending upon where the FLO TV Module will be installed. Avoid interfering with side curtain airbag locations on the front and back pillars and above doors.

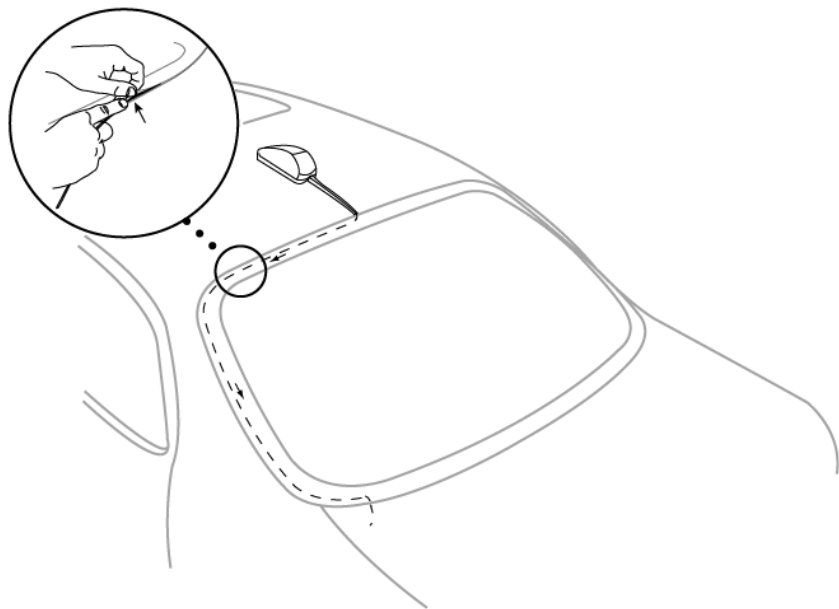


Figure 7 - Routing the Antenna Cable

## **Wired Remote Control Installation**

The wired remote control should be installed in the front seating area of the vehicle, where it can be easily accessed, but not positioned where it could distract the driver or obstruct the driver's view. It should also not be located where the wired remote control or its harness could interfere with the operation of the airbags in the vehicle. It is recommended that the wired remote control is installed in the vehicle's center console or glove box and the attached antenna installed on the windshield, two inches below the top edge of the glass. The antenna should not obstruct the driver's view (see figure 8)

The wired remote control is intended for use in the event that the wireless remote control is lost or if the batteries are dead. The wired remote can also be used to change channels from the front passenger compartment for front seat listening of FLO TV content.

1. With the desired installation location of the wired remote control chosen, route the wire harness to the FLO TV Module installation location.
2. Route the antenna to the windshield, following the A pillar and tucking the wire into the headliner. Locate the antenna 2 inches below the top of the windshield (see figure 8), remove the adhesive backing and press the antenna to the windshield.
3. Connect the 8 pin connector on the remote control to the 8 pin connector on the FLO TV Module.

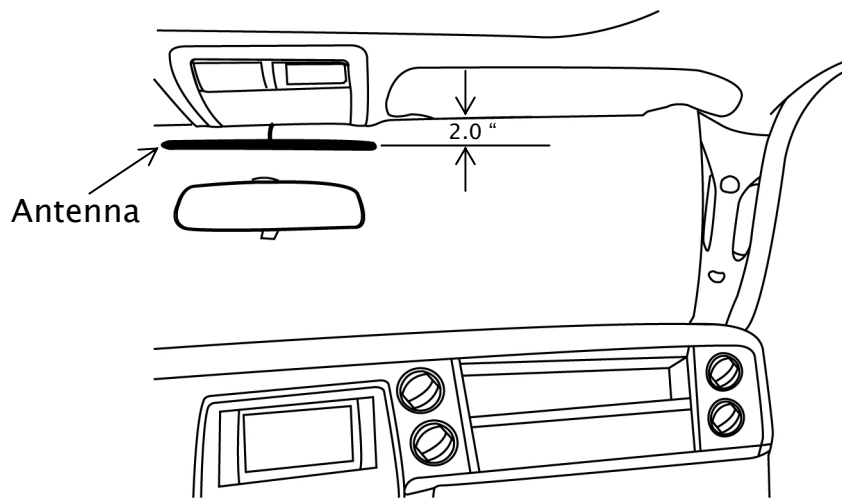


Figure 8 - Remote antenna placement

## Input Power Connection

The main harness for the FLO TV Module contains a filter box for the 12V ACC line connection. The main harness also has an in-line fuse for the ACC connection.

1. Connect the ACC input wire to an ignition switch input power line or a switched accessory power line. The ACC input wire is indicated by the harness jacket color red and the “ACC” flag on the wire.
2. Connect the Ground input wire to a vehicle ground line. The Ground input wire is indicated by the harness jacket color black and the “GND” flag on the wire.
3. Ensure that the ACC line is not connected to battery power as this will drain the vehicle battery. Test the ACC line to validate that the line goes to 0 volts when the vehicle is shut off.
4. Route the input power leads to the FLO TV Module installation location.
5. Connect the 14 pin Main Harness Connector to the 14 pin connector on the FLO TV Module.

## Audio & Video Output Cable

### To connect FLO TV to a Factory VES via the Factory A/V Input:

The Audio/Video Output connectors on the Main Harness provide the audio and video output from the FLO TV Module, which must be connected to the vehicle's factory VES. Refer to Figure 1, herein, for an overview of the wiring diagram.

1. Locate the factory VES Audio/Video Input jacks. Refer to the vehicle owner's manual for the detailed location of the Audio/Video Input jacks. See Figure 1 for reference.
2. For a clean installation, optional right angle RCA Connectors can be used (available from Radio Shack, Catalog Number 274-915, quantity 3 needed or similar).
3. Connect the optional right angle Audio/Video jacks to one end of the RCA Male to Male Harness. Connect the right angle Audio/Video jacks to the factory VES A/V Input jacks. (See Figures 9 and 10 below for examples of the FLO TV A/V Output connections to the Factory A/V Input or Factory VES A/V Input)

Optional right angle RCA Connectors

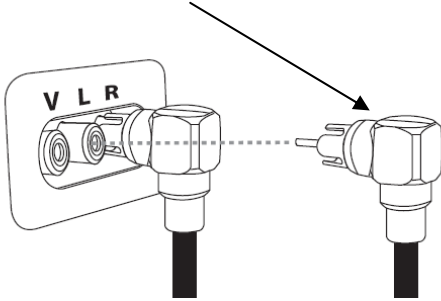


Figure 9

Connecting to Factory A/V Input  
(Satellite Location)

Optional right angle RCA Connectors

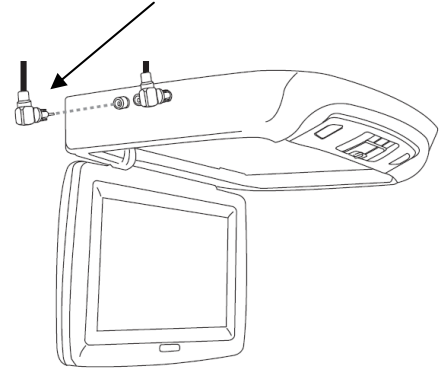


Figure 10

Connecting Factory VES A/V Input  
(Monitor Location)

4. Route the RCA Male to Male Harness from the VES Audio/Video Input jack location to the FLO TV Module installation location.
5. Connect the RCA Male to Male Harness to the Audio and Video Outputs on the FLO TV Module Main Harness.

### **To connect FLO TV to a Factory VES via Hardwired Integration:**

If mating connectors are available for the connectors between the Factory VES and the Factory A/V Input, as indicated in Figure 2, the FLO TV A/V Input and Output can be connected there. This allows the end user to maintain the use of the Factory A/V Input.

1. Locate the connectors between the Factory VES and the Factory A/V Input and verify if mating connectors are available.
2. Connect the RCA Male to Male Harness to the FLO TV A/V Output connectors on the Main Harness. Route the RCA Male to Male Harness to the Factory VES mating connector location.
3. Connect the RCA Male to Male Harness to the Factory VES mating connector as required.
4. Connect the FLO TV A/V Input to the Factory A/V Input mating connector as required.

### **To connect FLO TV to an aftermarket installed VES:**

The Audio/Video Output connectors on the Main Harness provide the audio and video output from the FLO TV Module, which must be connected to the vehicle's aftermarket VES. Refer to Figure 3, herein, for an overview of the wiring diagram.

1. Locate the aftermarket VES Audio/Video Input jacks.
2. Connect one end of the RCA Male to Male Harness to the Audio and Video Outputs on the FLO TV Module Main Harness.










3. Route the RCA Male to Male Harness from the FLO TV Module installation location to the Audio Video Input location of the aftermarket VES.
4. Connect the other end of the RCA Male to Male Harness to the Audio and Video Inputs of the aftermarket VES.

### **Audio & Video Input Connectors**

The main wire harness contains RCA Audio/Video Input connectors. Another A/V source can be connected to this input. The FLO TV Module has an audio/video multiplexer (MUX) that switches the A/V output between the *FLO TV* service and the A/V input to allow for more system flexibility. The MODE button on the remote control is used to switch between FLO TV and auxiliary input.

## Quick Operations Guide

1. Turn the vehicle ignition key to the ON position. Turn on your Vehicle Entertainment System (VES) and select the source input to which the *FLO TV* service is connected. (Note: Watching the *FLO TV* service for an extended period of time with the engine OFF will run down the vehicle's battery.)
2. The VES screen will show the FLO TV splash screen and then the FLO TV preview channel.
3. If you are not subscribed, subscribe to the *FLO TV* service by calling 888-99-FLOTV or by going on line to [www.flotv.com](http://www.flotv.com). The Device ID and Authorization Code of the FLO TV module are required for subscription. Press the  (Settings) key on the remote to access the Settings Menu. Press the ▼ (down arrow) key to highlight Subscription Information and press the  (OK) key on the remote. Your Device ID and Authorization Code will be displayed on the VES screen.
4. Once subscribed to FLO TV, press the  (Guide) key on the remote to access the FLO TV Channel Guide.
5. Press the ▲ (up arrow) or ▼ (down arrow) key on the remote to change channels.
6. The arrow keys on the remote allow for navigation through the Channel Guide.
7. Press the  (OK) key on the remote to select a desired channel/show from the Channel Guide.
8. Press the  (Information) key on the remote to display the program information related to the current program.

9. Press the  (Settings) key on the remote to access the FLO TV user settings menu (e.g. Parental Control, etc.).
10. The  (Mode) key on the remote allows the user to switch between the *FLO TV* service and an auxiliary A/V source if one is connected.
11. Visit [www.flotv.com](http://www.flotv.com) for more info.

### **Technical Assistance**

For Technical Assistance, please call (800) 225-6074.

## Troubleshooting Guide

<b>Problem</b>	<b>Root Cause</b>	<b>Solution</b>
FLO Module does not power on	The in-line fuse on the main harness may be blown.	Check for a bad fuse.
	The main harness is not properly connected.	Verify that the main harness is properly connected to the FLO Module.
	Input power leads are not properly connected.	Verify that the input power leads are properly connected to 12V ACC and Ground.
No Antenna is displayed	Antenna is not connected	Verify that the antenna connector is connected to the FLO Module.
No Antenna is displayed	Antenna Wire is broken	Verify that the antenna wire is not broken.
Acquiring Signal is displayed	FLO TV Signal is not being received.	The FLO TV Antenna is obstructed or the vehicle is out of the coverage area.
Poor or No Audio	RCA Audio Wires are not connected	Verify that the RCA Audio wires are properly connected to the main harness Audio Outputs.

## Troubleshooting Guide (Cont)

<b>Problem</b>	<b>Root Cause</b>	<b>Solution</b>
Poor or No Audio	RCA Audio Wires are not connected	Verify that the RCA Audio wires are properly connected to the Audio Inputs on the vehicle's rear seat entertainment system.
Poor or No Video	RCA Video Wires are not connected	Verify that the RCA Video wire is properly connected to the main harness Video Output.
	RCA Video Wires are not connected	Verify that the RCA Video wire is properly connected to the Video Input on the vehicle's rear seat entertainment system.
	FLO TV Output not selected	Press the MODE button on the wired or wireless remote control to provide FLO TV to the vehicle's rear seat entertainment system.
	Vehicle's Rear Seat Entertainment System Video Input not selected	Change the source inputs on the vehicle's rear seat entertainment system until the FLO TV signal is displayed.

## Troubleshooting Guide (Cont)

<b>Problem</b>	<b>Root Cause</b>	<b>Solution</b>
Wired Remote Control does not work	Wired Remote Control not Connected	Verify that the Wired Remote Control connector is connected to the FLO Module.
Wireless Remote Control does not work	Batteries installed incorrectly	Verify that the two AAA batteries are installed properly per the polarity markings.
	Batteries are dead.	Replace the two AAA batteries.





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