



WT7000 Locator Series

Guide for Installations using the WT0150 Easy Install Cable

© Copyright 2013 Webtech Wireless Inc. All rights reserved.

No part of this publication, or any software included with it, may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, including photocopying, electronic, mechanical, recording or otherwise, without the prior written permission of WebTech Wireless.

This document contains the proprietary and confidential information of WebTech Wireless, and the disclosure of its contents to any third party is strictly prohibited, without the prior written consent of WebTech Wireless.

WebTech Wireless provides this document "AS IS," without warranty of any kind, expressed or implied, including, but not limited to, the implied warranty of merchantability or fitness for a particular purpose. WebTech Wireless may make changes or improvements in the equipment, software, or specifications described in this document at any time and without notice.

This document may contain technical inaccuracies or typographical errors. WebTech Wireless disclaims all responsibility for any labor, materials, or costs incurred by any person or party as a result of their using or relying on the content of this document. WebTech Wireless and its affiliated companies shall in no event be liable for any damages (including, but not limited to, consequential, indirect or incidental, special damages or loss of profits, use or data) arising out of or in connection with this document or its use, even if such damages were foreseeable or WebTech Wireless has been informed of their potential occurrence.

WebTech Wireless™, Quadrant™, and WebTech Locator Series™ are the trademarks of WebTech Wireless. All other trademarks referenced in this document are the property of their respective owners, and used by WebTech Wireless under license.

WT7000 Series Locators use FreeRTOS. Source for this component is available on request.

Updated versions of this manual are available on the customer portal at www.webtechwireless.com.

Version: 2.0, March 2013

Contents

Section 1		
	Introduction.....	1
	Vehicle Requirements.....	1
	Audience.....	1
	Tool and Material Requirements.....	2
Section 2		
	Installing the WT7000 using the WT0150 Easy Install Cable.....	3
	Equipment Included.....	3
	Step-by-step Installation.....	4
Section 3		
	Troubleshooting	9
	Locator LED Troubleshooting Checkpoints.....	10
	Returning the Locator.....	11
Section 4		
	Contact Information	12

Section 1

Introduction

The WT7000 Locator enables you to capture location and diagnostic data from your fleet, which is accessible through the Quadrant Manager interface. The WT0150 Easy Install Cable makes installing the Locator fast and simple; just one connection, with no need for soldering or splicing into vehicle wiring.

Vehicle Requirements

The WT0150 Easy Install Cable included with the WT7000 Locator is configured for use primarily with large vehicles such as transport trucks and tractors. In order to connect the kit, your vehicle must have an exposed SAE-J1939 9-pin connector inside the cab. Furthermore, certain makes of vehicles are suited to different types of installations. Note that the lists below are not exhaustive; they are simply the vehicles we have examined.

Installations outside the dashboard

If you intend to install the Locator within the cab but not behind the dashboard:

- This method of installation will work for 2012-2013 Mack trucks, and most Volvo, International, Peterbilt, Kenworth, and some Freightliner trucks.
- This method of installation will not work for Freightliner Cascadia trucks. Instead, we recommend to have a mechanic mount the Locator behind kickpanel.

Installations behind the dashboard

If you intend to install the Locator behind the dashboard:

- This method of installation will work for 2012-2013 Mack trucks, and most Freightliner and International trucks.
- This method of installation will not work for Volvo, Kenworth, or Peterbilt trucks.

Audience

The installation procedure described within this document requires little specialized skill or knowledge, and involves only very limited risk to vehicle systems. If the Locator is not being installed behind the dashboard, it can be installed by the driver.

However, if the Locator will be installed behind the dashboard, it is recommended that the installation is performed by a mechanic or auto installation specialist to avoid damage to vehicle panels or wiring.

Tool and Material Requirements

The WT0150 Easy Install Cable makes installation simple, so only a few items are required. You'll need the following tools and materials:

- Multi-bit screwdriver to remove dashboard if installing behind dash.
- Cable ties for securing the WT0150 cable
- Self tapping screws, cable ties, or an adhesive mounting kit to mount the Locator and cable

Section 2

Installing the WT7000 using the WT0150 Easy Install Cable

The following describes the equipment that comes with a WT7000 Series Locator and provides step-by-step installation instructions. The WT7000E, WT7000H, and WT7000H+ Locators are provided with the same equipment and install in the same way.

Equipment Included

The WT7000 Series Locator with WT0150 Easy Install Cable kit contains:

- A mounting bracket
- A GSM stubby antenna
- A GPS antenna and cable
- A WT0150 Easy Install Cable



Figure 2-1 (1) WT7000 Series Locator with mounting bracket (2) GSM stubby antenna (3) WT0150 Easy Install Cable (4) GPS antenna and cable

Distinguishing the WT7000E, WT7000H, and WT7000H+

Before installing the Locator, be sure that you have the correct Locator model. The WT7000E, WT7000H, and WT7000H+ look very similar, but a sticker on the side of the Locator distinguishes the two models.

Find the black and white sticker on the left side of the Locator, beside the GSM (stubby) antenna connector. The sticker will state whether the Locator is a WT7000E, WT7000H, or WT7000H+.

Step-by-step Installation

Step 1. Locate the vehicle's SAE-J1939 9-pin connector

The Locator will be connected to the vehicle through the vehicle's diagnostic system using the WT0150 Easy Install Cable. The diagnostic system is accessed through the SAE-J1939 9-pin connector, which is typically located somewhere on or underneath the dashboard within one foot of the drivers' side door.



Figure 2-2 Vehicle SAE-J1939 9-Pin Connector

Step 2. Screw GSM antenna into connector on side of Locator

- Make sure that the stubby antenna is vertical and, if possible, is perpendicular to the locator. Also, make sure that it is securely connected to the Locator.
- Do not mount it within 24 inches of any radio frequency (RF) equipment, in-vehicle speakers, or associated wiring.
- To tighten it: finger tighten until snug, then use a 1/4" box end wrench to give it another 1/8 turn. If you are using a torque wrench, set the wrench to 96 inch-ounces.

Step 3. Connect the WT0150 Easy Install Cable to the Locator

Connect the WT0150 Easy Install Cable to the Locator using the DB15 port. Secure the cable by tightening the screws on the side of the connector.

Step 4. Mount external GPS antenna

1. Determine the best location for the GPS antenna.
 - The GPS antenna must face upwards to the sky.
 - The field of view should be at least 120 degrees. When determining the antenna's field of view, note that the GPS antenna can receive transmission through glass, fiberglass, and plastics, but not metal. Metallic paint and films may also block the signal, such as a front windscreen with metal heating film.
 - Both the antenna and antenna cable are weatherproof, so the GPS antenna may be mounted on the exterior of the vehicle. Mounting the antenna on the top of the cab is one of the best ways to ensure a clear sky view.

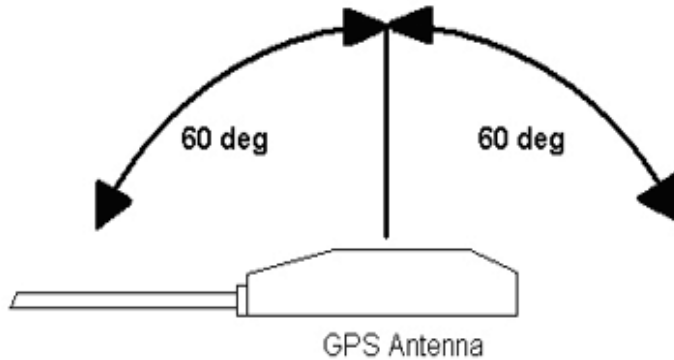


Figure 2-3 Minimum field of view for a GPS antenna

2. Secure the antenna to the chosen mounting area with an adhesive, (such as silicone), or consider using a through-hole mount antenna.
3. Secure antenna cables to the Locator using cable ties and mounts where applicable.

Step 5. Identify best place to mount Locator inside the vehicle

For the most part, you may install the Locator in any place where it is likely to be secure, dry, out of harm's way, and within the WT0150 cable's reach of the SAE-J1939 9-pin connector (roughly 180cm). The only other major concern is the stubby GSM antenna on the side of the Locator; in order for the GSM antenna to transmit efficiently it should be oriented vertically (pointing upwards or downwards). The GSM transmissions are much stronger than GPS transmissions, so it is not essential that the GSM antenna has a "sky view".

Some good locations for mounting the WT7000 are:

- Under or behind the dashboard
- Under or behind the steering column
- Under a parcel shelf.

It is important the Locator be mounted securely; a loose Locator could be damaged if it is left free to move, or become a projectile in the case of a hard stop. Also, remember that if you intend to mount the Locator behind the dashboard, it is recommended that a professional installer or mechanic perform the installation; you can damage the vehicle while removing and reinstalling interior panels if you do not know what you are doing.

Note that while the GSM antenna may be mounted on the side of the Locator, the GPS antenna's location is not restricted by the Locator's position. Take advantage of the GPS antenna's cable; that's what it's there for.

Step 6. Mount Locator in vehicle

The Locator may be fixed in place using any method you care to use, but note that it must be mounted securely. The recommended method is to secure the Locator using screws.

- Situate the Locator so that the risk of physically damaging it is minimized (e.g., put it under or behind the dashboard).
- If you're using screws, mount the Locator on the mounting bracket and secure the Locator to the bracket with the tie wraps provided. This ensures that the Locator can not be knocked off the bracket.



Don't do any drilling unless you know exactly what you are drilling into. For example, find out if there are any wires in the area that you are going to drill into.

- If you're using Velcro, make sure that the mounting surface is clean. Velcro installations must not be used for installation requiring the accelerometer.
- You may mount the Locator directly to the vehicle using tie wraps. If you use this method, be sure that you mount the Locator securely, preferably to the vehicle frame or something similarly solid.
- In non-covert installations, allow access to the Locator's connectors and try to place the Locator so that one of the LEDs is visible

Step 7. Install the WT0150 Easy Install Cable to the Vehicle SAE-J1939 9-pin Connector Port

How you connect the WT0150 cable depends on where the Locator is mounted: outside or behind the dashboard.

If the Locator is mounted outside the dashboard

You can simply plug the cable's T-connector into the existing SAE-J1939 connector with no loss of functionality. If you install the cable using this method, be sure that the cable does not interfere with the driver's movements.



Figure 2-4 Connecting a Locator mounted outside the dashboard

If the Locator is mounted behind the dashboard

The T-connector on the WT0150 Easy Install Cable is designed to mount in the place of the vehicle's SAEJ1939 9-pin connector. You will need to access the interior of the dashboard to perform this operation.

1. Unfasten the original equipment SAE-J1939 9-pin connector. Depending on your vehicle, it may be held in place using clips, screws, or a specialized bracket.
2. Plug the now-loose original equipment SAE-J1939 9-pin connector into the WT0150 Easy Install Cable's SAEJ1939 9-pin connector (the wide end of the T-connector). Turn the ring to lock the connection.
3. Mount the narrow side of the WT0150 Easy Install Cable T-connector where the original equipment SAEJ1939 9-pin connector used to be; the T-connector is compatible with most vehicle mounting systems. Ensure the exposed connector is securely mounted.



Figure 2-5 SEA-J1939 Connector

Step 8. Confirm WT0150 Easy Install Cable Operation, and secure cable

The WT0150 Easy Install Cable has three LEDs located on the top of the in-line box in the middle of the cable. Use these LEDs to confirm the cable is installed and functioning correctly.

1. Without your key in the ignition, confirm that the ENG ON led is off.
2. Put your key in the ignition and start the engine. After 10 seconds or so, the ENG ON led should turn on.
3. Turn off the ignition and take your key out of the ignition. After about one minute, the ENG ON led should turn off.
4. If the cable operates as expected, secure the cable with cable ties wherever possible. Secure the cable's in-line box using screws, if needed. Note you may need to see the LEDs in the future if issues arise, so mount the box accordingly.

Step 9. Visually confirm Locator operation with LEDs

The Locator has two LED indicators on it: one on the front, the other on the back. Both show the same information so either will allow you to confirm the Locator's operation.

1. Move the vehicle to a location where a GPS fix can be obtained with an unobstructed view to the sky.
2. Turn the ignition on.
3. Wait a minute, then check to see if the LED on the Locator is solid green. If it is, this confirms that the Locator is operating correctly and has a GPS fix.
4. If the LED is not solid green or you cannot see one of the two LEDs, contact Technical Support to help troubleshoot the installation.
 - For a complete listing of Locator LED definitions, see "Summary of Locator LED Definitions" on page 9.

Step 10. Perform Installation Test

This examines Locator records to make sure that it is properly sensing and transmitting data. There are two ways to perform it:

1. **Use the Installation Test Tool** if you have access to it to confirm that the Locator has been installed and configured correctly.
 - The Test Tool is part of the Quadrant Portal, so you must have access to the internet in order to use it.
 - For further instructions on how to use this tool, see the **Installation Test Tool User Guide**, which is available through the Quadrant Portal Customer Support Center.
2. **Call Technical Support** and have them walk you through the test procedure. For contact information, see page 12. Provide the following information to Technical Support
 - Locator serial number
 - Unique vehicle identifier (e.g. vehicle name)
 - Telemetry information about the activated inputs and outputs (where applicable).

Step 11. Close up panels and clean up installation area

1. After the installation check, close up and replace all the vehicle panels removed during installation.
2. Clean up the installation area and throw out any garbage.
3. Give any installation manuals or other paperwork included with the product to the customer.

Troubleshooting

If you are having any difficulties, use the following tables to resolve the problem. If the problem persists, contact Webtech Technical Support.

Summary of Locator LED Definitions

Locator LED	Meaning		
Off	The Locator is powered off		
	SIM	GSM	GPS
Solid Green	SIM OK	GSM	GPS Fix
Solid Red	SIM OK	GSM	No GPS Fix
Flashing Red	SIM OK	No GSM	No GPS fix
Flashing Green	SIM OK	No GSM	GPS fix
Flashing Orange and Red	No SIM	n/a	No GPS Fix
Flashing Orange and Green	No SIM	n/a	GPS Fix
One second flutter (red or green depending on GPS fix)	Message sent or received		

Table 3-1 Summary of WT7000 Locator LED Definitions

WT0150 LED	State	Description
For WT0150A and WT0150B Easy Install Cables		
CAN	ON	CANbus activity detected on the vehicle bus interface
	OFF	No CANbus activity detected
JBUS	ON	JBUS activity detected on the vehicle bus interface
	OFF	JBUS activity detected

Table 3-2 Summary of WT0150 Easy Install Cable LED Definitions

WT0150 LED	State	Description
ENG ON	ON	Engine detected as on.
	OFF	Engine detected as off.
For WT0150B Easy Install Cable only		
BT AUTH	ON	Bluetooth module authenticated with IOS device when paired. Not applicable for Android device interface.
	OFF	Bluetooth module not authenticated with IOS device.
BT STAT	flashing	For IOS devices, Bluetooth on and ready for pairing. For Android devices, Bluetooth is on and ready for pairing, or paired but not connected.
	solid	For IOS devices, Bluetooth is on and paired. For Android devices, Bluetooth is on, paired, and connected to the application.
	OFF	No power to Bluetooth module
BT CXN	ON	For IOS devices, this indicates a connection with the application. Not applicable for Android device interfaces.
	OFF	No connection

Table 3-2 Summary of WT0150 Easy Install Cable LED Definitions

Locator LED Troubleshooting Checkpoints

Based on the Locator’s LED status, use the following table to troubleshoot a basic installation.

Locator LED Status	Locator Status and Troubleshooting
LED has a solid GREEN light (i.e., the Locator is working correctly)	The Locator has both GPS and GSM network coverage. <ul style="list-style-type: none"> If messaging is activated, log on to the Quadrant Location Services Portal on the WebTech Wireless web site (www.webtechwireless.com). Poll the vehicle (or vehicles) that has the new Locator installed.
LED is flashing GREEN one second off and one second on	The device has GPS activation but no cell network. <ul style="list-style-type: none"> Make sure that the wireless antenna is properly attached to the device and that the vehicle is in an area with cell network coverage.
LED is flashing RED one second off and one second on	The Locator has neither a GPS fix nor GSM cell coverage. <ul style="list-style-type: none"> Make sure that the GPS antenna has a clear line of sight to the sky and that the vehicle is in an area that is within a GSM network.

Table 3-3 Locator LED troubleshooting checkpoints

Locator LED Status	Locator Status and Troubleshooting
LED has a solid RED light	The device has cell network activation but no GPS network visibility. <ul style="list-style-type: none"> • Ensure that the GPS antenna is properly connected to the device and has a clear view to the sky.
LED is flashing ORANGE and GREEN	There is a problem with the SIM. <ul style="list-style-type: none"> • Ensure the SIM card is correctly in place. Also make sure that the SIM is correctly enabled for the wireless network.
LED is flashing ORANGE and RED	There is a problem with the SIM and there is no GPS network visibility. <ul style="list-style-type: none"> • Make sure that the SIM card is correctly in place. • Check that the SIM is enabled for the wireless network. • Make sure that the GPS antenna is properly connected to the device and has a clear view of the sky

Table 3-3 **Locator LED troubleshooting checkpoints**

Returning the Locator

If you have a non-functional Locator, contact Technical Support. They will guide you through the process of returning it.

1. Secure the back plate in place with at least one screw prior to packaging the Locator for return shipment. Note that this differs from the way the Locator was shipped to you (in two halves).
2. Ideally, return the Locator in its original box. If the original box is not available, ensure that whatever packaging you use is robust enough to keep the Locator safe in transit.
3. Technical Support will provide an RMA number, which is critical for returning the Locator. Be sure to print the RMA number prominently on the return packaging. Locators returned without an RMA number cannot be processed as returns.

Section 4

Contact Information

If you have any questions, please contact WebTech Wireless Technical Support at:

North America and international

All subscribers have access to support Monday to Friday from 06:00 to 17:00 and Saturday 08:00 to 16:30 Pacific Time (UTC -8 and UTC Daylight Saving -7).

Email: support@webtechwireless.com

Phone: 1-866-945-4568 or 604-419-8163

Europe

European Technical Support personnel are available Monday to Friday, 09:00 to 17:00 Coordinated Universal Time (UTC or Greenwich Mean Time + 00:00 hour).

Email: supporteur@webtechwireless.com

Phone:

- In the UK: 0118 925 4966
- Rest of world: +44 (0) 118 925 4966

