

National Fleet Tracking

"The Eyes of the Road"



NFT-4550 Installation Manual



NFT-4550 Tracker | Revision Date 1-29-13

Table of Contents

Before Installing	3
Tools Needed For Installation.....	3
GPS Fundamentals	4
Checking the Contents of the Box	4
Installing and Mounting the GPS Unit.....	5
Cable Interface.....	5
12 VDC Power Connection	7
Ground Connection.....	7
Switched 12 Volt Connection	7
Starter Disable/Enable Connections	7
Activating the NFT-4550 Unit	8
Troubleshooting Chart	10

BEFORE INSTALLING

Prior to the installation process, thoroughly review and adhere to the following items.

- Installation Manual
- Use only a Digital or Analog Volt Meter - DO NOT USE TEST LIGHT!
- Check for possible installation locations for the GPS unit prior to permanent installation.
- ALWAYS LOOK BEFORE DRILLING. Make sure that the installation process does not cause damage to any vehicle hose, electrical loom, or to any part of the vehicle.
- Make note of the unit serial number prior to installation.
- Prior to working on any part of the dashboard (instrument cluster, center console, glove box, etc.), remove the negative and positive terminal from the battery to deactivate the sensors for the airbags. Refer to the Owner's Manual and to a Shop Manual for the vehicle for specific instructions in the temporary deactivation process.
- DO NOT place objects, including communication equipment, in the area over the airbag or near the airbag deployment area.
- Refer to the vehicle Owners Manual and to a Shop Manual for specific information related to the electrical wiring, interior disassembly, and any other mechanical aspects of the vehicle.

TOOLS NEEDED FOR INSTALLATION

- Metric and standard socket set
- Screwdriver set
- Side cutters, wire cutters
- Wire strippers
- Pliers
- Terminal crimpers
- Digital Multimeter
- Electrical tape
- Flashlight

Warning: It is highly recommended that a Digital Multimeter be used when probing electrical systems in the vehicle to prevent damage to factory components.

GPS FUNDAMENTALS

There is a minimum of 24 operational GPS satellites at all times. The satellites, operated by the U.S. Air Force, orbit the earth every 12 hours. Each GPS satellite transmits data that indicates its location and the current time. All GPS satellites synchronize operations so that these repeating signals are transmitted at the same instant. The signals, moving at the speed of light, arrive at a GPS receiver at slightly different times due to the varying distances of satellites. The distance to the GPS satellites can be determined by calculating the amount of time it takes for their signals to reach the receiver. When the receiver determines the distance to at least four GPS satellites, it can triangulate and calculate its position in three dimensions.

To ensure the GPS unit receives enough satellite signals at acceptable signal strength, it must be mounted so that it has a clear view of the sky. In hidden locations, such as under the dash, a clear view can be challenging. In these locations, it is important to keep any metal interference as far away as possible from the top portion of the GPS unit so that the most accurate position can be calculated.

While GPS data collection has improved in ease and speed, some obstacles remain. Solid or dense objects can block GPS signals. Wet trees with heavy branches and leaves can mask or attenuate GPS signals. Mountains and buildings can block satellite transmission. Multipath signals can corrupt GPS data. Multipath is a reflected signal from nearby objects. The resulting propagation delay can affect measurement accuracy. GPS electronics advancements have reduced the multipath threat but GPS field operators and users should be aware of obvious multipath environments.

CHECKING THE CONTENTS OF THE BOX

The contents of the box containing the NFT-4550 are shown below:

Model	Contents
NFT-4550	<ol style="list-style-type: none">1. NFT-4550 Unit2. Cable Harness with Fuse3. Relay

INSTALLING AND MOUNTING THE GPS UNIT

The best location for a stealth installation is beneath the top of the dash behind, above or next to the instrument cluster. The GPS and GSM antennas are internally located within the GPS unit. The unit must be mounted with the label facing the sky. The GPS antenna is located under this label. The GPS unit will work best if it has a clear view of the sky and as much of the horizon as possible with no metal between it and the sky. Any metallic objects between the GPS unit and the satellites will degrade the signal and reduce the overall performance. Try to keep the device at least 12 inches away from audio devices such as vehicle radio and speakers.

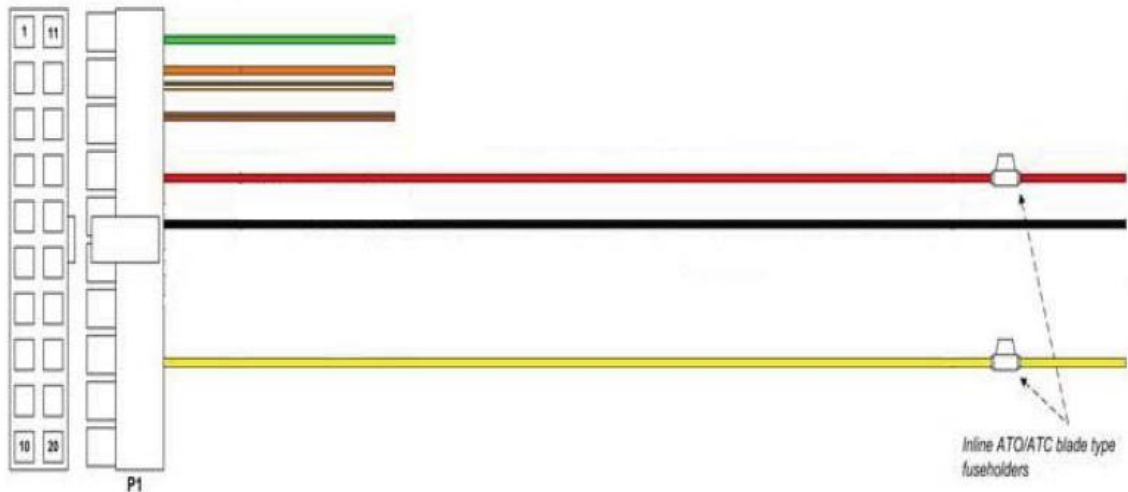
WARNING *The body of the car or any other metal structure can affect the accuracy of the GPS signals and prevent normal operation. Location of the GPS unit is critical to the operation.*

The GPS unit can be installed in any type of vehicle. The unit should be mounted so it will not be exposed to damage from people or objects. The GPS unit has tie strap grips, use nylon tie straps to firmly mount the GPS unit.

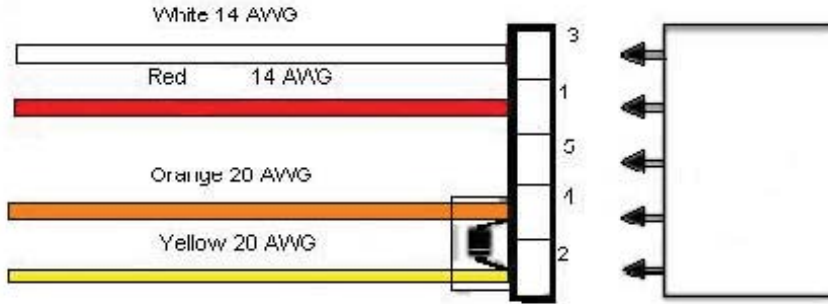
CABLE INTERFACE

There is only one harness option for the NFT-4500. The main Harness is separate from the relay harness to give install flexibility. Diagrams of the Cables are shown below:

Main Harness



Relay Harness



NFT-4550 Main Harness			NFT-4550 Relay Harness		
Pin	Function	Main Harness	Pin	Function	Relay Socket
1	NC		1 (30)	To starter wire	Red
2	Starter Disable	Orange	2 (85)	Ignition	Yelow
3	Not Used	Brown	3 (87a)	To starter wire	White
4	NC		4 (86)	Neg. Output	Orange
5	NC		5 (87)	NC	
6	NC				
7	NC				
8	Ignition	Yellow			
9	NC				
10	NC				
11	Not Used	Light Green			
12	Input 1	Brown/White			
13	NC				
14	Primary Power	Red			
15	Ground	Black			
16	NC				
17	NC				
18	NC				
19	NC				
20	NC				

Main Harness Connections in Detail

RED (+) Constant 12volt Input

Locate the Red wire found on the 20-pin connector supplied with the GPS unit. The red wire must be connected to a constant 12-volt source from the vehicle to power the GPS unit. It's important that the 12 volt power source maintains 12 volts at all times.

BLACK (-) Chassis Ground Input

Locate the Black wire found on the 20-pin connector supplied with the GPS unit. The black wire must be connected to a solid chassis ground uninhibited by paint or plastics. It is important that you do not use any floating grounds from the vehicles electrical system. Always connect the ground directly to the chassis body and secure with a factory bolt or aftermarket screw insuring wire to metal connection.

YELLOW (+) Ignition Input

Locate the yellow wire found on the 20-pin connector supplied with GPS unit. The yellow wire must be connected to a true ignition 12-volt source from the vehicle. This connection is used to monitor the engines on/off state. It's important that the switched 12-volt source is (0) zero when the engine is off and switched 12 volts with the engine cranking and running. **WARNING: Yellow wire must be connected for the GPS receiver to work properly!**

Orange (-) Starter Disable Output

This output will connect directly to the orange wire on the starter relay harness. Locate the orange wire found on the 20-pin connector supplied with the GPS unit. This output will only be triggered when a command is sent to disable the starter.

BROWN/WHITE (-) Input

This alarm input requires a rest at 12v switch to ground constant trigger 15 seconds long (no pulse). Locate the brown/white wire found on the 20-pin connector supplied with the GPS unit. The brown/white wire should be connected to a constant trigger circuit, such as siren output. **NOTE:** Yellow wire must see 12v on and off before testing for the first time.

Starter Disable Relay Harness

Red (14 AWG) Labeled as Pin 1 in the relay diagram. Connect to either side of the cut vehicle starter wire.

White (14 AWG) Labeled as Pin 3 in the relay diagram. Connect to either side of the cut vehicle starter wire.

Yellow (20 AWG) Labeled as pin 2 in the relay diagram connects to true ignition (Hot while run and crank). **Note:** same connection as yellow on the main unit harness.

Orange (20 AWG) Labeled as Pin 4 in the relay diagram connects to the orange wire on the main unit harness.

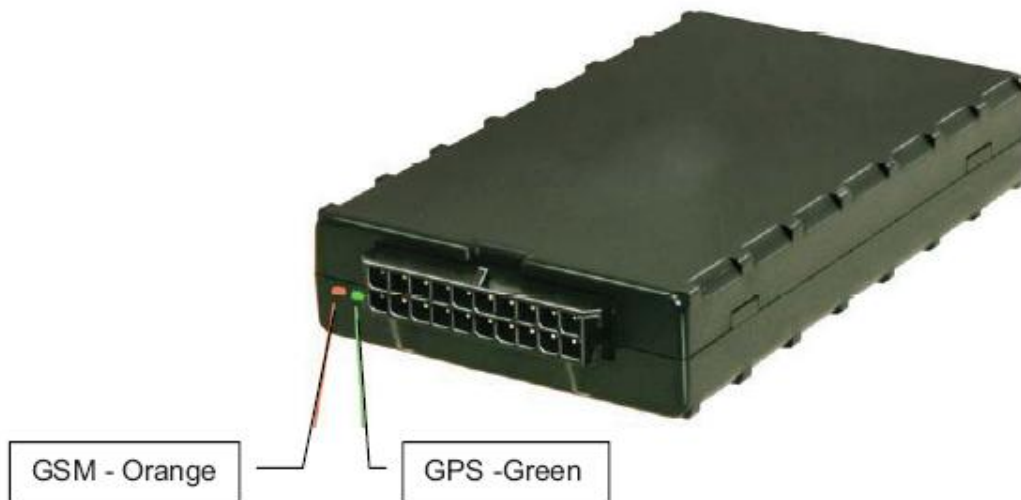
Activating the NFT-4550 Unit

Prior to the initial powering of the unit, move the vehicle outside, so that the GPS receiver can receive signals from the GPS satellites.

Upon initial power up of the NFT-4550 the LEDs start flashing on the front side of the unit to determine if the unit is powered on. If the LED is not flashing after 60sec, check the power connections. The statuses of the LED's are below.

Status LED Definitions

Orange LED Status GSM/GPRS Cellular Communications	Green LED Status GPS Communications
Blinking – Tracker on, searching for wireless signal	Blinking – GPS on, searching for satellite signal
Patterned Blinking – Signal acquired, unit trying to establish connection to the communication server	
Solid – 2-way communication link with the communication server established	Solid – GPS lock established



Activating the NFT-4550 Unit (cont)

After the unit has been powered for 5 to 15 minutes, the unit will send in a "power-up" message.

While waiting for the power-up message, collect the following information before calling in (855-438-4771 option 2) for activating the unit:

- Account ID
- Vehicle Name
- Device IMEI number

Please verify with tech support that the device has been activated and is working properly before putting the unit back in service.

If you have installed the Starter Disable function please call in to test the function before putting the vehicle back in service.

TROUBLESHOOTING CHART

Symptom	Cause
Unit Does Not Power-up	<p>Power is not connected to the unit. With a Digital Volt Meter, measure the voltage at the input to the unit. A positive voltage should be measured on the + terminal of the unit when measuring between the + terminal and the - terminal or chassis ground. This voltage should also measure 12 VDC. Correct the wiring to assure the correct polarity and the correct voltage level. Check fuse.</p> <p>Bad Ground connection. Make sure the ground is connected directly to metal with no paint or residue. Use a Digital Multimeter to test continuity to ground to ensure good connection.</p>
Unit Does Not Find Cellular Service	<p>The unit is not receiving the local cellular system. The main cause of this is poor signal strength due to shielding or coverage. Make sure the GSM (Orange) light is solid, move the unit outside the building and or outside of vehicle if necessary and re-apply power to the unit. Move vehicle to acquire better signal if necessary. Contact tech support if problem persists.</p>
Unit Does Not Receive a GPS Signal	<p>The GPS receiver is unable to lock into the satellites or receive signal. Make sure GPS (Green) light is solid if not, make sure that the unit's label is facing skyward and that there is no metal between it and the sky including but not limited to the roof of the vehicle and any dash bracing. If it is, the move the vehicle outside of or away from any building/garage to allow the internal GPS antenna in the unit to have a clear view of the sky. You may need to power the unit outside of the vehicle as some vehicles may have metallic or leaded windshields. Contact tech support if problem persists.</p>