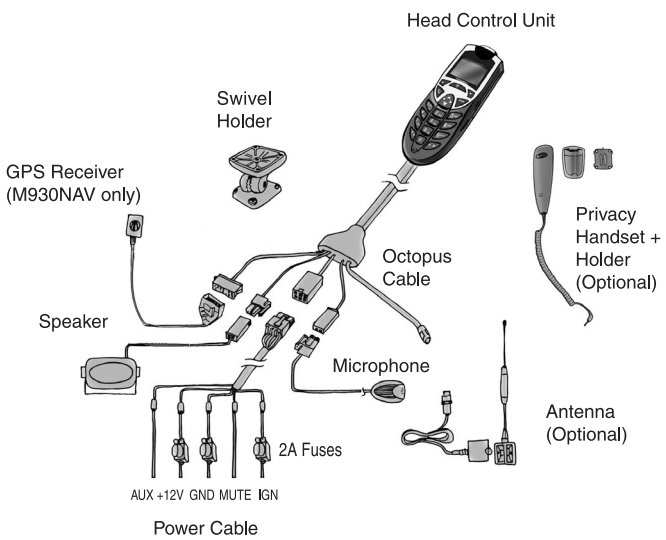
M900, M930, M930NAV Installation Guide

Product Parts



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Head Control Unit

When installing the car phone avoid positioning the head control unit where it may disrupt the proper operation of the vehicle and/or its components, such as car stereo, air bags, cubbyhole, glove compartment, ashtray, lighter, gear stick, hand brake, etc.

Attach the car phone to a stable surface, in a position that is safe and convenient for the driver to use.

Special warning: Do not position the head control unit in front of the air bag or where it may impair air bag performance. Verify that the control unit does not face the sun or source of humidity, such as air conditioner vents.

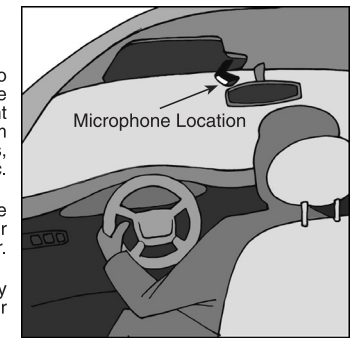
When the phone is powered off insert the SIM its into socket at the right side of the phone.

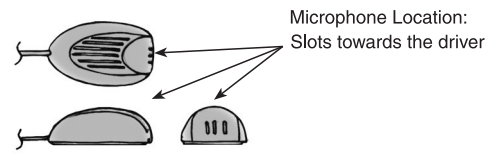
Microphone

Install the microphone at a distance of no more than 30 cm (12 inch) away from the driver's mouth, ideally on the upper right hand side of the sun visor and away from any noise source such as windscreens, window, fan/air conditioner, car stereo etc.

Make sure the microphone is at a distance of at least 1.5m (4.9 ft) from the speaker and is not directed towards the speaker.

Make sure that the microphone is correctly positioned. See picture below for microphone position.





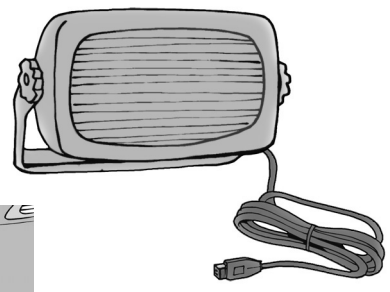
Do not thread the microphone cable close to antenna cable, to avoid audio interference.

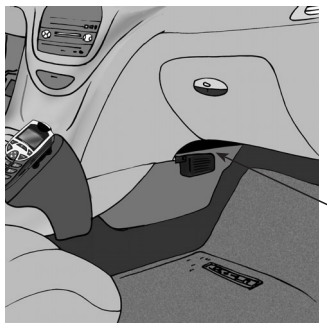
Plug the microphone cable into the compatible connection in the octopus cable.

Important: Make sure that the microphone cable does not interfere with the steering wheel or the pedals of the vehicle.

Attention! The speaker and microphone should be pointed towards **opposite directions** to avoid echo.

Speaker





Install the speaker on the side of the central console, ideally alongside the legs of the passenger sitting beside the driver, as far as possible from the microphone.

Thread the speaker cable under the carpet along the floor of the vehicle.

Plug the speaker cable into the compatible connection in the octopus cable.

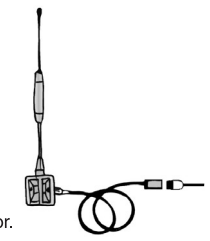
Verify that the cable does not interfere with the proper operation of the vehicle and/or its components.

Do not conceal the speaker behind any obstacle such as dashboard, glove compartment, carpet or any other barrier which will result in poor audio quality.

Attention! The speaker and microphone (which is fitted on the sun visor above the driver) should be pointed towards **opposite directions** to avoid echo. Speaker slots should be pointed towards passenger door.

RF Antenna

Various RF antenna models can be installed for the Motorola in-vehicle product line. The antenna type (glass, roof mount, marine or RV antenna types) should best match the customer's application.



Electrical Requirements
Motorola mandates that the antenna meet the following specifications:
VSWR <= 2:1
Gain: 3dBi @ 806-960MHz
2dBi @ 1850-1990MHz

Antenna Connector:
- North American models use SMA Male antenna connector.
- European models use FME antenna connector.
- The required connector in other regions depends on the specific model and may be either FME or SMA Male.

Material and Environmental Information
The mechanical configuration should meet outdoor conditions with appropriate temperature range for customer applications.

Motorola recommends the following characteristics:
- RF Cable: RG58U, PVC coated/polyethylene dialectic cable;
- Operating temperature: -30˚C to +85˚C;
- Heat and UV stabilized;
- Flammability UL94V0;
- For on-glass antenna, use adhesive pad with temperature range of -40˚C to +90˚C and bond not affected by moisture.

Motorola recommends the following antenna suppliers:
PCTEL Antenna Specialists, www.antenna.com.
For 850/1900MHz on-glass antenna with SMA male connector use P/N APDM928S.
Panorama Antennas, www.panorama-antennas.com.
For 900/1800MHz on-glass antenna with FME connector use P/N GDE-5F
For 900/1800MHZ on-glass antenna with SMA Male connector, use P/N GDE-5S.

Antenna Installation

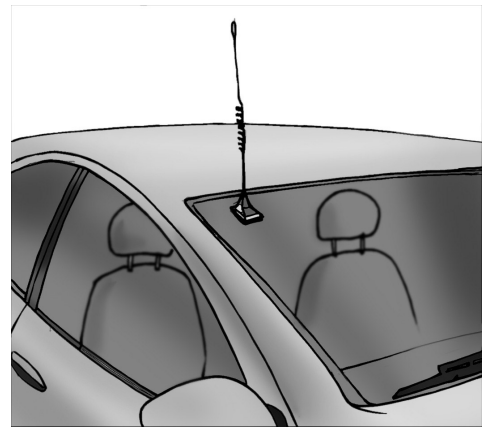
Attention! Ensure the antenna is located at least 20 cm away from driver and passengers.

Attention! To avoid audio interference, do not thread the antenna cable close to the microphone cable.

Use original antenna plug and clamping tools only. Test antenna and cable performance using a VSWR meter.

The preferred position for on-glass antenna is either on the upper right side or upper left side of the windshield, opposite from the driver's seat. Should another cellular device already be installed in the vehicle, the antennas should be located at a distance of at least 30cm (1 foot) from the other.

Note: Certain car models include a 'heat reflective' front windshield and therefore it is necessary to glue the antenna on the side or on the rear windshield only.



Cable connections

Power

Connect the **RED** wire to a positive (+) 12V pole for steady power supply. Ensure the use of a 2A/250V fuse.

Ground

Connect the **BLACK** wire to a negative pole (-) in the vehicle body. Ensure the use of a 2A/250V fuse.

Ignition

Connect the **GREEN** wire to car IGN voltage and check the appropriate voltage using a voltmeter. This connection switches the phone on when turning the ignition on and it switches the phone off when turning the ignition off. Ensure the use of a 2A/250V fuse.

Entertainment Mute

To mute the stereo system when receiving or dialing a call, connect the ORANGE wire to the car stereo system entertainment mute connection.

*Ent. Mute is an optional feature.
* The entertainment mute functionality depends on its support by the car stereo system.

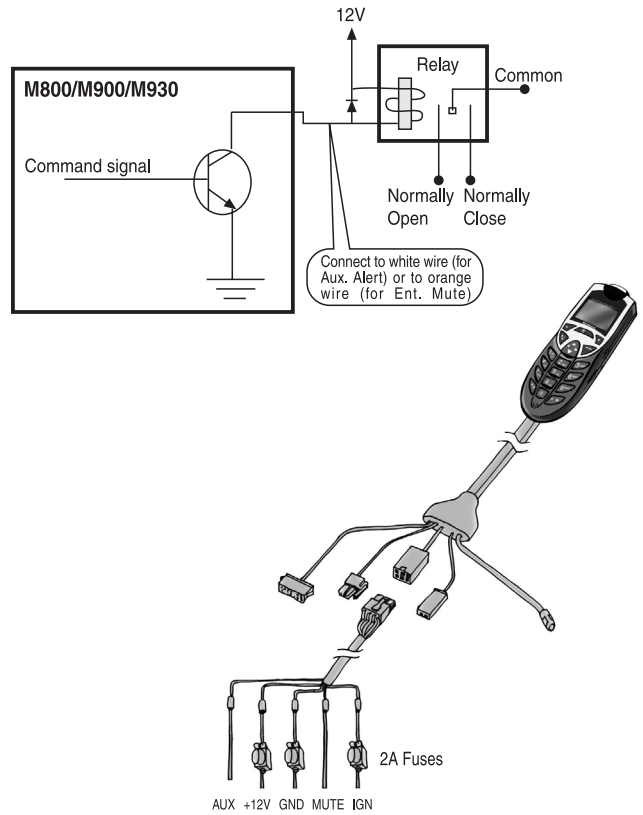
Auxiliary alert

Connect the **WHITE** wire to the car's horn and/or to the car's light connection to turn on the lights and/or to activate the horn when receiving a call.

*Aux. Alert is an optional feature.
*Certain M800 models have a 3-wires connection, without Auxiliary alert and entertainment mute wires.

Cable connections (cont'd)

Entertainment Mute & Auxiliary Alert - open collector connections



Heavy vehicles with 24v

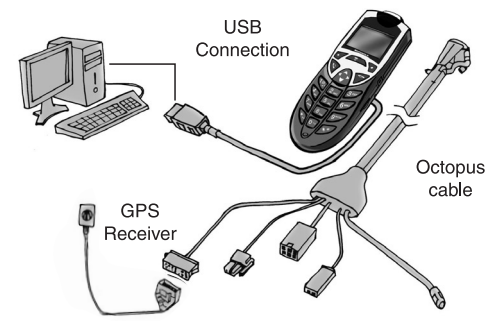
When installing the mobile car phone in trucks or in any other heavy vehicle with 24 volt battery, connect the RED wire via 24VDC to 12VDC (50W) voltage converter.

The Ignition line (GREEN) in M900 & M930 can be connected directly to the truck ignition switch (24V).

Data connection

The mini USB connection enables using the car phone as a modem or to synchronize data with an external computer using Motorola PhoneTools (MPT) software.

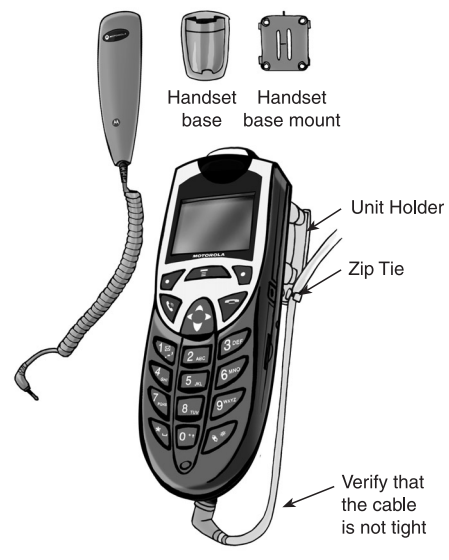
The USB also enables authorized technicians to maintain the car phone for technical service purposes (software programming).



Connections summary

Wire color	Function	Connect to...	Ensure...
RED	To supply steady (+) power source.	12V steady power. An additional fuse is supplied that must be connected to the positive (+) pole.	The use of a 2A/250V fuse.
BLACK	To supply steady (-) power source.	Vehicle body	That the contact point is only connected to the vehicle body.
GREEN	To switch the phone on when the car ignition is turned on, and off when the car ignition is turned off.	IGN voltage	The appropriate voltage using voltmeter. Ensure the use of a 2A/250V fuse.
ORANGE	To mute the car stereo system when receiving or dialing a call.	Car stereo system Entertainment Mute connection (optional)	That the connection between the car phone and car stereo system is done by an authorized installer only. Sink should be up to 150mA"
WHITE	To operate car lights/horn to indicate incoming call.	Car lights/horn connections (optional)	That the connection between the car phone and the car lights/horn is done by an authorized installer only. Sink should be up to 150mA"

Privacy Handset



Mount the privacy handset using the plastic base and connect the handset jack to the socket at the bottom of the main control unit.

Attach the privacy handset cable to the head control unit's holder using a zip tie.

GPS Installation

The placement of the GPS receiver, including aesthetic concealment of the cable, is important for navigation performance.

Instructions:

1. Locate the best installation spot for the GPS accessory. The GPS should be positioned in a place with the best "line of sight" to the sky in order to receive proper GPS satellite reception:
   - A typical installation is generally performed on the dashboard, underneath the windshield.
   - If your vehicle is designed with a 'Heat Reflective' or 'Comfort' windscreen, it is recommended that the accessory be installed elsewhere in the vehicle such as the rear windscreen, so that better GPS results can be generated.
2. Clean the surface of the installation location using alcohol.
3. Peel off the cover paper from the adhesive on the back of the GPS accessory, press the unit against the dashboard surface and hold in place for approximately 20 seconds.
4. For increased safety, it is recommended to connect the GPS cable under the dashboard with a zip tie. Route the GPS cable neatly towards the phone head unit. Make sure it does not interfere with the airbag or control levers.
5. With the phone switched off, connect the GPS cable to the 14 pin connector of the octopus cable.
6. Following installation, with the car positioned in an outdoor environment, launch the navigation application to verify satellite reception.