FuelPoint® PLUS

Vehicle Installation And Programming Manual

POWERED BY

ORPAK

SAFETY CONSIDERATIONS

Read all warning notes and instructions carefully. They are included to help you installing the Product safely in the highly flammable environment of the fuel station. Disregarding these warning notes and instructions could result in serious injury or property damage. It is the installer responsibility to install, operate and maintain the equipment according to the instructions given in this manual, and to conform to all applicable codes, regulations and safety measures. Failure to do so could void all warranties associated with this equipment.

Remember that the fuel station environment is highly flammable and combustible. Therefore, make sure that actual installation is performed by experienced personnel, licensed to perform work in fuel station and at a flammable environment, according to the local regulations and relevant standards.

WARNING - EXPLOSION HAZARD

Use separate conduit for the intrinsically safe. Do not run any other wires or cables through this conduit, because this could create an explosion hazard.

Use standard test equipment only in the non- hazardous area of the fuel station, and approved test equipment for the hazardous areas.

In the installation and maintenance of the Product, comply with all applicable requirements of the National Fire Protection Association NFPA30 "Flammable and Combustible Liquids Code", NFPA 30A "Code for Motor Fuel Dispensing Facilities and Repair Garages", NFPA 70® "National Electric Code", federal, state and local codes and any other applicable safety codes and   regulations.

Do not perform metal work in a hazardous area. Sparks generated by drilling, tapping and other metal work operations could ignite fuel vapors and flammable liquids, resulting in death, serious personal injury, property loss and damage to you and other persons.

CAUTION - SHOCK HAZARD

Dangerous AC voltages that could cause death or serious personal injury are used to power the Product. Always disconnect power before starting any work. The Product has more than one power supply connection points. Disconnect all power before servicing.

WARNING - PASSING VEHICLES

When working in any open area of fuel station, beware of passing vehicles that could hit you. Block off the work area to protect yourself and other persons. Use safety cones or other signaling devices.

WARNING

Components substitutions could impair intrinsic safety.
Attaching unauthorized components or equipment will void your warranties.

CAUTION

PROPRIETY NOTICE

DISCLAIMER

FCC COMPLIANCE STATEMENT

FCC WARNING

This page is intentionally left blank.

Table of Contents

This page is intentionally left blank.

List of Figures

List of Tables

This page is intentionally left blank.

1 – Introduction

1.1 General

This manual is intended to assist the user in installing and programming FuelPoint® PLUS Vehicle Identification System (VIS). This manual includes a general and functional description of the vehicle units, their main components, and installation requirements. The installation guidelines in this manual are for qualified and authorized installers and/or technicians of all FuelPoint PLUS vehicle units and components. All types of vehicle ID and data units must be installed as described in this manual to ensure optimal system reliability and proper operation.

1.2 Solution Description

FuelPoint PLUS is a Vehicle Identification System (VIS) RFID fueling solution enabling fast refueling with no need for cash, card, or coupon payment - enhancing loyalty and allowing self-service refueling. FuelPoint PLUS ensures that fuel is being dispensed solely to the authorized vehicle whose account should be charged. Removing the nozzle and trying to fuel another vehicle immediately suspends RFID fueling activity.

The following describes the FuelPoint PLUS fueling process:
- Once a vehicle arrives at the station, the Vehicle Data Unit transmits the vehicle's data to the Wireless Gateway, including:
- Once a vehicle arrives at the station, the Vehicle Data Unit transmits the vehicle's data to the Wireless Gateway, including:
  - Odometer / mileage
  - Engine hours
- When a fueling nozzle is inserted into the authorized vehicle's fuel inlet, the Wireless Nozzle Reader unit reads encrypted data from the Vehicle Identification Unit's and sends it to the Wireless Gateway.
- The Wireless Gateway then combines both Vehicle ID and Data and sends it to the Station Controller. FuelPoint PLUS is designed for full integration with Gasboy's Controller as well as with other leading forecourt automation providers' POS/SC.
- The Station Controller sends a request to the Authorization Server, which returns approval, balance, and restrictions (if any).
- Once approved, the pump is opened. All of this happens within seconds and with no human intervention.
- The system monitors the entire fueling session. If the nozzle is removed, the pump is automatically stopped so that refueling continues only when the nozzle is put back into the same car.

1.3 System Architecture

Figure 1 displays a diagram of Gasboy's FuelPoint PLUS system architecture.

Figure 1: System Architecture

1.4 Solution Components

- **Vehicle Identification Units**: consist of a secure chip which includes encrypted identification and payment information, as well as a tamper-resistant mechanism.
- The following types of vehicle identification units are available:
  - **NanOPass**: Contains an RFID chip and antenna in one compact unit
  - **Fuel Ring**: A Vehicle ID device mostly installed in heavy vehicles with a variety of ring types to suit any vehicle.
- **Vehicle Data Units**: Compact units that connect to the vehicle's on-board computer and transmit encrypted data. The following types of data units are available:
  - **µDataPass**: Connects to the vehicle's on-board diagnostics OBD-II, and is designed for both light and commercial vehicles
  - **DataPass**: Connects to the vehicle bus and is designed for heavy vehicles including trucks
- **Wireless Gateway**: The Wireless Gateway Terminal covers the forecourt, securely forwarding data to the Station Controller, with its mesh topology, robust, and reliable network ensuring highest availability and strong resistance to interferences.
- **Wireless Nozzle Reader**: Reads FuelPoint PLUS's ID units using contactless technology and uploads the encrypted data over the wireless mesh network to the station's automation systems for refueling authorization.

1.5 Manual Structure

Section 1: Introduction
This section provides a general description of the system.

Section 2: Vehicle Identification Units
This section provides a description of the vehicle identification units as well as installation guidelines.

Section 3: Vehicle Data Units
This section provides a description of the vehicle data units as well as installation guidelines.

Section 4: Programming Vehicle Units
This section provides a description of the Wireless Programmer Units as well as installation guidelines.

Section 5: Troubleshooting
This section provides a description of possible issues related to the vehicle units, or to their communication with the FuelPoint PLUS system, as well as corrective actions.

1.6 References

Refer to *MDE-4851 FuelPoint PLUS Station Equipment Manual* for installation and setup of station-side equipment.

1.5 Documentation Conventions

This manual includes alerting comments inserted along the document, in order to draw the reader's attention to important issues. The comments are accompanied by symbols for ease of reference. The following comment types are used:

> ⚠ **WARNING**
>
> An operating procedure, practice, etc., that if not correctly followed, could result in injury or loss of life.

> **CAUTION**
>
> An operating procedure, practice, etc.', that if not strictly observed, could result in damage to, or destruction of equipment.

> This comment is of importance for emphasizing.

> This note is aimed for using the system in efficient way.

> More detailed technical/ functional information in regard relevant issue.

2 – Vehicle Identification Units

2.1 General

This section provides a description of the vehicle identification units as well as installation guidelines.

FuelPoint PLUS's Vehicle ID units consist of a secure chip, which includes high-level encrypted identification and payment information.

There are two kinds of vehicle ID units available:
- **NanOpass**: It is a passive vehicle identification tag featuring a Radio Frequency Identification (RFID) chip and an antenna in one compact unit.
- **Fuel Ring**: It is a passive vehicle identification tag, which consists of a circular antenna and an ID chip.

2.2 NanOpass

With its minute size and extreme ease of installation, the NanOpass has been designed for mass deployment as part of the FuelPoint PLUS vehicle identification and automatic refueling process solution. The tag is highly secure including a tamper-resistant feature which prevents unauthorized removal and disables the unit upon any attempt to remove it from the vehicle. NanOpass is compatible with all FuelPoint PLUS's Wireless Nozzle Reader units.
- The RFID tag data read by the Wireless Nozzle Reader is used for vehicle identification in the automatic refueling process.
- NanOpass is typically installed next to the fuel inlet.

Figure 2: NanOpass Unit

2.2.1 Technical Specifications

The following table details the technical specifications for the NanOpass:

Table 1: NanOpass Specifications

Parameter	Value
Physical	
Dimensions (H × W × D)	42 × 23 × 7.8 mm
Weight	8.1 gms
Ingress Protection	IP 67
Environmental	
Operating Temperature	-40° C to +80° C
Storage Temperature	-40° C to +85° C
Humidity	95% (non-condensation)

2.2.2 Installing NanOpass in Light Vehicles

The following sub-sections provide instructions for installing NanOpass in light vehicles.

2.2.2.1 Required Tools

To install NanOpass, you will need the following tools:
- A damp cloth
- 70% alcohol
- Installation kit
- Safety pin - comes with the NanOpass unit (optional) Drill (optional)

2.2.2.2 Installation Locations

Before installing the NanOpass, an optimal location should be chosen based on the shape of the vehicle's fuel compartment, according to the following guidelines.

Install the Unit
- On a flat surface, next to the fuel inlet. A minimum surrounding area of 25 mm is required for installation
- Perpendicular/orthogonal to the fuel inlet.
- Ensuring that the arrow points outwards of the vehicle
- At a location where it will not interfere with inserting the nozzle and the Nozzle Reader unit at a location where it will not interfere with closing the fuel compartment lid/inlet cap

    Note: If there isn't a suitable flat surface available for installation, you will have to install the unit vertically (see Figure 7 on page 8).

Figure 3 provides the recommended locations for installing the NanOpass.

Figure 3: Recommended Locations for Installing NanOpass
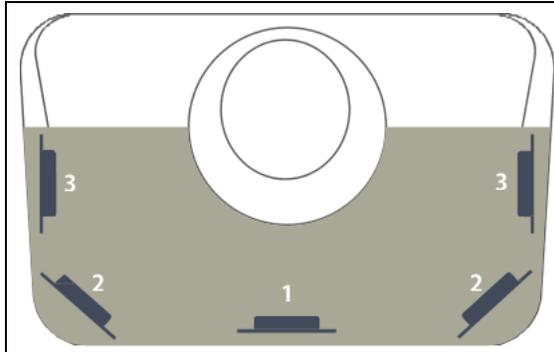
Try positioning the unit in the order above. The following are examples of these locations:
 • At the bottom of the fuel compartment

Figure 4: Position 1 - NanOpass Installed on the Bottom of the Fuel Compartment

 • At the side of the fuel compartment, in a corner

Figure 5: Position 2 - NanOpass Installed in a Corner at the Side of the Fuel Compartment

• At the side of the fuel compartment

Figure 6: Position 3 - NanOpass Installed at the Side of the Fuel Compartment

• If none of the above are possible, or the compartment is covered in rubber, install the unit behind the rubber gasket, perpendicular to the fuel filler hose

Figure 7: Position 4 - NanOpass Installed Behind the Rubber Gasket

2.2.2.3 DO's and DON'Ts for Positioning

DO's
Before performing the installation procedure, read the entire manual.

DONT's
• Install the unit on rubber.
• Install the unit on the fuel compartment lid, or any location where the lid or fuel nozzle could interfere with the NanOpass unit.
• Install the unit at a location where the fuel inlet is too curved. It may cause the NanOpass to bend.

2.2.2.4 Installation Procedure

Note: The installation must be carried out by a qualified and trained personnel.
To install NanOpass in light vehicles, proceed as follows:

1   Clean the fuel compartment with 70% alcohol.

Figure 8: Cleaning the Fuel Compartment

2   (Optional) Clean with sand paper.
     Note: In places with extremely low temperature, it is recommended to use the Accelerator
         Aerosol Hyloglue 50ml for the desired location of attaching the chip.

3   (Optional) For maximum protection, you may drill a 0.137" (3.5 mm) hole to insert the safety
     pin in (see Figure 9). If you choose not to drill a hole, proceed to step 5 on page 10.

Figure 9: Drilling a Hole for Safety Pin

4   Peel off the adhesive tape cover from the ID chip.

Figure 10: Peeling Off the Adhesive Tape Cover

5   Attach the chip to the compartment. Press and apply pressure for a few seconds to ensure that the sticker is attached well.

     Note: Ensure that you do not touch the adhesive surface, and that the NanOpass isn't bent. If using the safety Pin, align the hole in the sticker with the drilled hole.

Figure 11: Attaching the Chip

6   (Optional, only if step 3 was performed) Insert the safety pin in the drilled hole.

Figure 12: Inserting the Safety Pin

7 Apply Holdtite ST3294 glue. Ensure that the glue covers the border and the area surrounding it, at least 2 mm around its outer surface.

Figure 13: Applying Glue

8 Set the unit down on the glue. Hold and apply pressure for a minute. The glue takes an hour to set and up to 24 hours to completely dry.

Figure 14: Completing the Installation

9 To verify the success of the installation, you may repeat the test with the RFID Tester.

2.2.2.5 DO's and DONT's for Installation

DO's
- Read entire manual before installing.
- Prepare all the cars for installation before the glue is ready (since mixer dries after 30 seconds).
- Ensure that the glue mixer is open and mixed together.

DONT's
Break off the unit's wings.

Fuel Ring

The Fuel Ring is read by FuelPoint PLUS's Wireless Nozzle Reader using RFID contactless technology and provides high-level data encryption. There is a variety of Fuel Ring rings to suit any fuel inlet size - from light to heavy vehicles. Similar to the NanOpass, the Fuel Ring has a patented tamper resistant mechanism to eliminate risk of theft. Fuel Ring is compatible with all Gasboy nozzle readers.

- Fuel Ring includes a coil and an identification chip connected through a cable, so that the ID chip can be installed either in a concealed place inside a truck, or next to the fuel tank inlet in light vehicles.
- To achieve enhanced protection, it is recommended to install both the DataPass and the Fuel Ring together in the same vehicle.

Figure 15: Fuel Ring Unit

Note: The distance between the coil and the ID chip must not exceed 39.37 inches - 1m.
There are two types of installations for Fuel Ring as follows:
- Installing Fuel Ring in Light Vehicles
- Installing Fuel Ring in Heavy Vehicles

2.3.1 Fuel Ring Components

The Fuel Ring is comprised of two major parts:

- **ID Chip**: A one-time programmed identification chip housed in a casting package to protect the unit from mechanical damages.
- **Coil**: A uniquely designed coil made for FuelPoint PLUS vehicle installations.

Figure 16: Fuel Ring Components
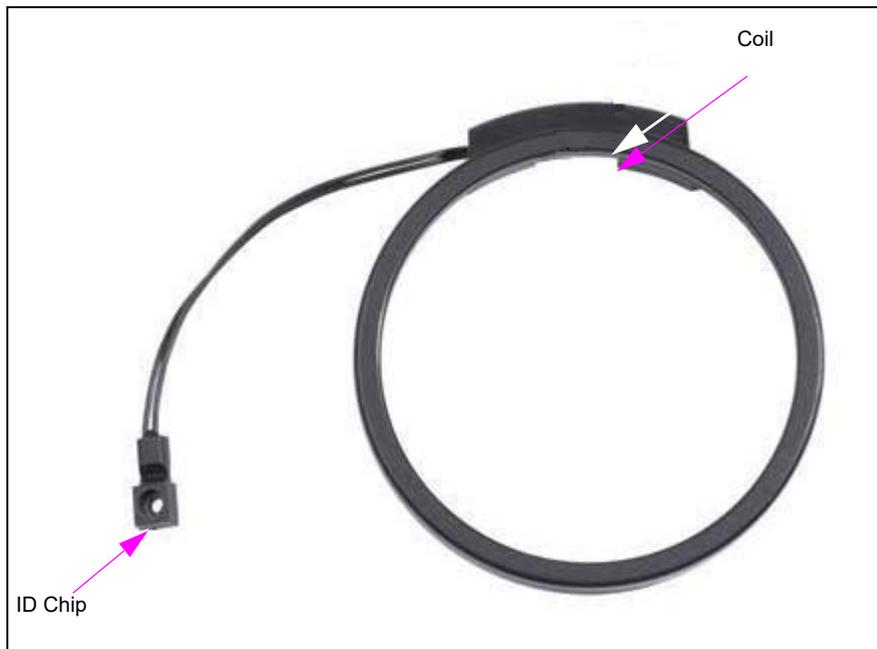
There are three types of Fuel Ring ID Chips available as follows:

- Flexible Identification Chip
- Plastic Identification Chip (designed for heavy vehicles)
- NanOpass Identification Chip (designed for heavy vehicles)

2.3.1.1 Fuel Ring Coils

To fit a wide range of fuel inlets for diverse vehicles, the following Fuel Ring coils are available:

- Shaped Coil
- Self-Installed Coil
- Molded Coil
- Thin Molded "U" Coil Robust Coil
- Thin Coil "U" Coil

Shaped Coil

Designed to maintain a distance from metal surfaces, the Shaped coil includes an ID Chip Connector and three support legs which can be easily glued (see Table 2). The Shaped Coil is intended for use in cases where an easy connection to the Fuel Ring ID Chip is required, mainly when the chip is close to the Nozzle Reader, for example, private vehicles.
The Shaped Coil is connected to the ID Chip by plugging the chip's connector to the coil's connector.

Figure 17: Fuel Ring Shaped Coil

Table 2: Fuel Ring Shaped Coils

Description	Part Number
Gbplus Wireless Tank Ring Shaped Ring 75 mm	M09678B005
Gbplus Wireless Tank Ring Shaped Ring 85-mm	M09678B006
Gbplus Wireless Tank Ring Self Install 95-mm	M09678B007
ID chip	M09678B020
Gbplus Tank Ring Only Shaped 75 mm	M09678B505
Gbplus Tank Ring Only Shaped 95 mm	M09678B507

Self-Installed Coil

The Self-Installed coil is rubber coated and includes an internal rubber ring designed for installation in heavy or light vehicles that have short fuel inlet necks (see Figure 18 and Table 3). The Self-Installed Coil is well-suited for heavy vehicles with short fuel inlet necks, or for vehicles where there is no way to fix the coil around the fuel neck. Additionally, it is intended to withstand harsh environments, such as: water, oil, dust, etc.

The Fuel Ring ID chip connector should be cut to connect it to the coil's wires.

Figure 18: Fuel Ring Self-Installed Coil

Table 3: Fuel Ring Self-Installed Coils

Description	Part Number
Gbplus Wireless Tank Ring Self Install 70 mm	M09678B001
Gbplus Wireless Tank Ring Self Install 105 mm	M09678B002
Gbplus Wireless Tank Ring Self Install 120 mm	M09678B003
Gbplus Wireless Tank Ring Self Install 130 mm	M09678B004
ID Chip	M09680B020
Gbplus Tank Ring Only Self Install 70 mm	M09678B501
Gbplus Tank Ring Only Self Install 105 mm	M09678B502
Gbplus Tank Ring Only Self Install 120 mm	M09678B503
Gbplus Tank Ring Only Self Install 130 mm	M09678B504

Molded Coil
The Molded coil is widely installed in vehicles and is approximately 7 mm thick (see Figure 19 and Table 4).
Additionally, the Molded coil can slightly change its shape and is durable in water, oil, etc.

Figure 19: Molded Coil

Table 4: Fuel Ring Molded Coils

Description	Part Number	Notes
Gbplus Wireless Tank Ring Molded Ring 55 mm	M09678B010	Cable length: 100cm
Gbplus Wireless Tank Ring Molded Ring 80 mm	M09678B011	
Gbplus Wireless Tank Ring Molded Ring 90 mm	M09678B012	
Gbplus Wireless Tank Ring Molded Ring 95 mm	M09678B013	
Gbplus Wireless Tank Ring Molded Ring 110 mm	M09678B014	
Gbplus Wireless Tank Ring Molded Ring 120 mm	M09678B015	For heavy vehicles
Gbplus Wireless Tank Ring Molded Ring 130 mm	M09678B016	For heavy vehicles
Gbplus Wireless Tank Ring Molded Ring 145 mm	M09678B017	For heavy vehicles
Gbplus Wireless Tank Ring Molded Ring 125 x 183 mm	M09678B018	
Gbplus Wireless Tank Ring Molded Ring 96 x 154 mm	M09678B019	
Gbplus Tank Ring Only Molded 55 mm	M09678B510	
Gbplus Tank Ring Only Molded 80 mm	M09678B511	
Gbplus Tank Ring Only Molded 90 mm	M09678B512	
Gbplus Tank Ring Only Molded 95 mm	M09678B513	
Gbplus Tank Ring Only Molded 110 mm	M09678B514	
Gbplus Tank Ring Only Molded 120 mm	M09678B515	
Gbplus Tank Ring Only Molded 130 mm	M09678B516	
Gbplus Tank Ring Only Molded 145 mm	M09678B517	

2.3.2 Technical Specifications
Table 5 details the technical specifications for Fuel Ring:

Table 5: Fuel Ring Specifications

Parameter	Value
Environmental	
Operating Temperature	-40° C to +80° C
Storage temperature	-40° C to +85° C
Humidity	95% (non-condensation)
Technology	
Low Frequency (125KHz) RFID chip ISO 18000-2:2004	

2.3.3 Installing Fuel Ring in Light Vehicles
The installation procedure for Fuel Ring in light vehicles includes installing the appropriate coil as well as the identification chip.
The following provides instructions for installing Fuel Ring in light vehicles. The following two techniques are available for installing the Fuel Ring coil unit:
   • Clamping the coil to the vehicle
   • Gluing the bottom of the coil to the vehicle

2.3.3.1 Preliminary Guidelines

Note: Warranty does not cover defects or damage caused by improper installation.
To prevent any possible hardships or issues during installation, verify that:

1 The coil in use is larger than the fuel tank inlet to optimize coil assembly.

2 The coil is kept away from any metal surfaces, maintaining an air gap of at least 5 mm.

3 The coil and ID chip have a distance of up to 150cm between them.

4 The bottom legs of the plastic molded coil faces the surface of the vehicle.

5 The installed coil will be placed as close as possible to the Wireless Nozzle Reader when the fueling nozzle is inserted into the inlet.

6 The unit is handled carefully without applying mechanical or physical pressure on the identification chip. Improper handling of the unit could damage the unit and cause malfunction.

7 The installation area complies according to an approved location.

8 The coil is installed so that it does not interfere with closing the fuel compartment lidinlet cap. To verify this, close the lid completely before performing the installation/gluing.

9 Fuel Ring should be installed when the fuel tank lid is closed.

2.3.3.2 Required Tools

To install Fuel Ring, you will need the following tools:

- A damp cloth
- 70% alcohol
- Cutter
- Crimping tool
- Pair of pliers
- A drilling machine approved for hazardous environments

2.3.3.3 Installation Procedure

⚠ **WARNING**

Before installing or handling equipment, carefully read all the warnings and precautions provided at the beginning of this manual.

To install Fuel Ring in Light Vehicles, proceed as follows:

1 Ensure that the fuel tank inlet cap is closed.

2 Use an optimal sized Fuel Ring which can easily be placed around the fuel compartment inlet and allows opening and closing the fuel compartment lid and inlet cap.

3 Choose an optimal and secure position for the ID chip. In cases where the installation is performed near the fuel tank inlet, it is preferable to choose either the upper part of the compartment or the sides, but not at the bottom, as the fuel nozzle may damage the ID chip when refueling. The surface must be flat for better gluing, and to ensure that the unit is not damaged by pressure applied during installation.

4 Slightly sand the area where the ID chip is to be glued, using a soft sandpaper (for example, #300). Pay attention not to damage the vehicle's paint.
Thoroughly clean the surface where the coil and ID chip will be placed, using a clean cloth and 70% alcohol.

Note: When installing the shaped coil, first connect the ID chip to the coil.

Installing the Plastic ID Chip

The ID chip is installed with glue, and with the option of using a special screw which is also included in the kit.

To install the Plastic ID Chip, proceed as follows:

1 In the designated area, drill a 0.094 inches (2.4 mm) diameter hole. Be careful not to drill through the fuel tank. Upon drilling completion, ensure to clean the area before applying the glue.

Figure 20: Preferred Position for the ID Chip
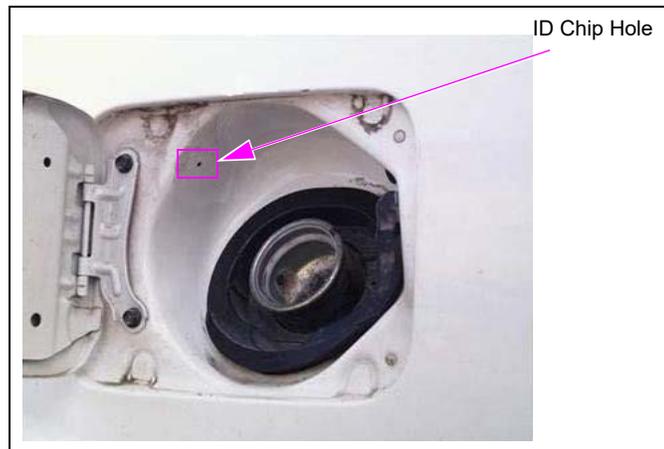
2 Insert the one-way special screw into the ID chip.

3 Apply instant glue to the back part of the ID chip.

4 Secure the screw to the position in the space prepared without applying too much pressure on the screw. Make sure to follow all the instructions to prevent malfunction.

5 Spray instant glue accelerator - Activator, pronto, 60 ml (3M) around the glued area.

After connecting the coil to the ID chip, seal the area of connection by applying dual component glue DP-805NS (3M), or neutral silicon on top of the connectors, such as Terostat939 or Holdtite HNCS. This prevents corrosion caused by humidity and accumulation of fluid in the installation area.

Installing the ID Chip inside the Trunk

To ensure maximum protection against theft and tampering, install the ID chip in a concealed place such as in the trunk. This procedure is also suggested for vehicles with plastic fuel compartment inlets.

To install the ID Chip inside the trunk, proceed as follows:

1 Using a drilling machine approved for hazardous environments, drill a 0.094 inches (2.5 mm) hole inside the trunk near the fuel inlet.

Figure 21: Drilling Inside the Trunk

2 Thoroughly clean the surface where the ID chip will be placed, using a clean cloth and 70% alcohol.

3 Apply instant glue to the back part of the ID chip.

4 Secure the screw to the position in the space prepared without applying excess pressure on the screw.

Figure 22: Securing the ID Chip

5   Spray instant glue accelerator - Activator, pronto, 60 ml (3M) around the glued area.

6   Drill a 0.236 inches (6 mm) hole inside the trunk near the fuel inlet and thread the ID chip wires through the hole.

7   Connect the ID chip to the coil's connector and seal the connector's area as described above.

Securing the Coil using Clamps
To secure the coil using clamps, proceed as follows:

1   Place two clamps on the coil.

2   Place the coil so that the coil's support legs are facing the metal surface and the cable extending from the coil faces the ID chip.

3   Using two self-drilled screws, secure the clamps. Be very careful not to drill the fuel tank itself.

Figure 23: Securing the Clamps

Securing the Coil Using Glue
To secure the coil using glue, proceed as follows:

1   Place two clamps on the coil.

2   Place the coil so that the coil's support legs are facing the metal surface and the cable extending from the coil faces the ID chip.

3   Using two self-drilled screws, secure the clamps. Be very careful not to drill the fuel tank itself.

Figure 24: Securing the Clamps

Securing the Coil Using Glue
To secure the coil using glue, proceed as follows:

1   Clean the surface to be glued.

2   Apply a few drops of Cyanoacrylate adhesive (Super Glue) to the bottom of the coil's support legs.

3   Place the coil so that the coil's support legs face the metal surface and the cable extending from the coil faces the ID chip.

4   Hold for several seconds.

5   While securing the coil, spray instant glue accelerator around the area.

6 To secure the unit against theft, apply acrylic dual-components (epoxy glue) to the upper and lower part of the chip only.

Figure 25: Gluing the ID Chips

Note: The installation guidelines detailed in this manual are general. In cases where there are specific guidelines for certain vehicle models, instructions should be fulfilled in addition to or instead of, the detailed guidelines in the relevant sections of this manual.

2.3.4 Installing Fuel Ring in Heavy Vehicles

To provide a solution for various fuel tank inlets in different truck models, the following options are available for installing the Fuel Ring coils:
  • Long Fuel Inlet Installation
  • Short Fuel Inlet Installation
  • "Self-Installed" Coil Installation

The following options are available for installing the Fuel Ring ID chips:
  • Installing NanOpass
  • Installing the chip with a security cover
  • Installing the chip without a security cover

The coil unit is placed around the fuel inlet. The coil should be installed using Gasboy's molded Fuel Ring clamps. These clamps are used to achieve the required distance from the fuel tank inlet and from the surface of the fuel tank for maximum performance.

2.3.4.1 Preliminary Guidelines

> ⚠ **WARNING**
>
> Before installing or handling equipment, carefully read all the warnings and precautions provided at the beginning of this manual.

Note: Warranty does not cover defects or damage caused by improper installation.

To prevent any possible issues during installation, verify that:

1 The coil used is larger than the fuel tank inlet's diameter by approximately 0.984 inches (25 mm).

2 The coil is assembled as close as possible to the fuel tank inlet's cap without interfering with opening and closing the fuel tank inlet cover.

3 In cases where the security cover is used, the identification chip should be positioned as close as possible to the fuel inlet as well as a side wall to prevent any movement that could damage the ID chip or wiring.

4 To prevent theft or tampering, the ID chip should be placed in a less accessible location.

5 The ID chip is not secured to the fuel tank. The Fuel Ring cable is long enough to allow the ID chip to be placed in a safe and hidden place inside the truck (distance of up to 100 cm between the coil and the ID chip is permitted).

6 The unit is handled and carefully while avoiding any physical or mechanical pressure on the chip. Improper handling could damage the unit and cause malfunction.

7 In long neck installations, an additional metal band is tied under the installed coil to prevent the coil from sliding down as well as to guarantee additional safety.

2.3.4.2 Required Tools
To install Fuel Ring, you will need the following tools:
- Cutter
- Crimping tool
- Pair of pliers
- Isolation tape
- 0.5 inches (13 mm) wrench key
- Soldering iron
- Soldering tin

2.3.4.3 Coil Installation
The three installation methods available for Fuel Ring's coil installation are detailed in the following sections.

Installing Long Fuel Inlet
This installation method is implemented in fuel tanks where the fuel tank inlet protrudes sufficiently from the fuel tank surface. It makes use of vertical positioning of the molded coil clamps.

To install the Long Fuel Inlet, proceed as follows:

1 Place an adequate number of clamps evenly around the coil (use three to five clamps per coil size). Ensure that the clamps are positioned vertically.

Figure 26: Positioning the Clamps

2 Remove the fuel inlet cover.

3 Tighten the clamps to the fuel tank inlet using the stainless-steel clamp band: insert the clamp band into the designated slots of the clamps. Fasten the metal band firmly to avoid future sliding of the Fuel Ring using the joint banding tool and cutter.

Note: Before tightening the metal band, raise the coil as much as possible to bring it close to the fuel inlet (less than 3 cm) and verify that the coil does not interfere with the opening and closing of the fuel tank inlet cover.

Figure 27: Tightening the Clamps
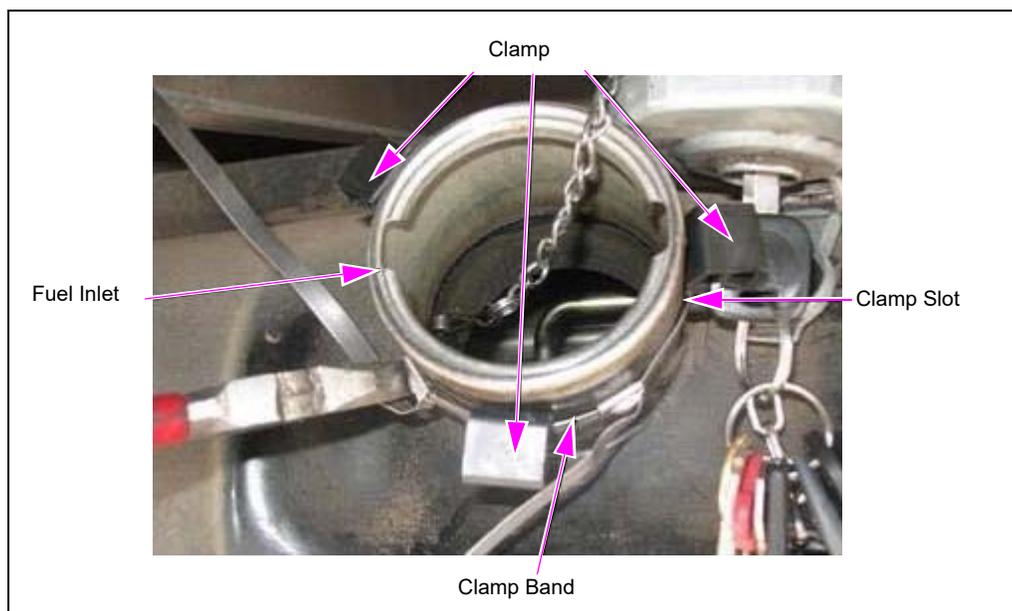
4 Lock and tighten it, and then cut the edges using the CV Joint Banding Tool and cutter.

5 Using a drilling machine or a pair of pliers, insert the provided conduit termination nipples at each side of the flexible conduit.

6 Thread the coil wire through the flexible conduit.

7 Verify that the cover can be properly closed upon completion of the installation. Then close the fuel inlet cover.

Figure 28: Completing Coil Installation in Long Neck Fuel Inlet

Installing Short Fuel Inlet
This installation is implemented in fuel tanks where the fuel tank inlet does not significantly protrude from the fuel tank surface. Thus, this installation is performed by positioning the molded coil clamps horizontally.
To install Short Fuel Inlet, proceed as follows:

1 Use an optimal sized Fuel Ring that can easily be placed around the fuel tank inlet and allows opening and closing the fuel tank inlet cover (use a coil larger than the fuel tank inlet diameter by approximately 35 mm).

2 Insert a metal wire into the designated slots in the molded clamps. Use an adequate number of clamps to firmly position the coil around the fuel tank inlet (use three to five clamps according to the size of the coil). Ensure to position the clamps horizontally.

Figure 29: Securing Clamps on the Short Neck Inlet
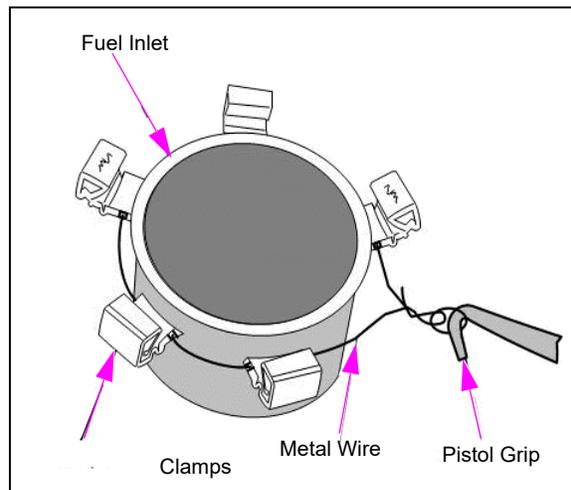
3 Using the pistol grip (or a pair of pliers), pull the metal wire and twist it until the molded coil clamps are firmly fastened to the truck's fuel tank inlet. Note that tightening the metal wire too strongly may tear the molded coil clamps or wire, while fastening it too weakly may cause the coil to slide.

Note: Before tightening the metal band, raise the coil as much as possible to bring it close to the fuel inlet (less than 30 mm), and verify that the coil does not interfere with opening and closing the fuel tank inlet cover.

4 After tightening the metal wire, cut the excess wire using a cutter.

5 Insert the coil into the molded clamps.

Figure 30: Completing Coil Installation in Short Neck Fuel Inlet

Installing "Self-Installed" Coil
This installation method is implemented in fuel tanks where the fuel tank inlet is very short or has no neck at all. The coil is equipped with a rubber membrane, which attaches the coil firmly to the fuel tank inlet using pressure.
To install "self-installed" coil, proceed as follows:

1 Use Fuel Ring of an optimal size which can be easily placed around the fuel tank inlet and allows the opening and closing of the fuel tank inlet cover (use a coil larger than the fuel tank inlet diameter by approximately 25 mm).
Note: Raise the coil as much as possible to bring it close to the fuel inlet (less than 30 mm), and verify that the coil does not interfere with opening and closing of the fuel tank inlet cover.

2 Install a metal band around the fuel tank inlet and underneath the coil to prevent the coil from sliding down.

3 Install the coil on the fuel tank inlet applying pressure.

Figure 31: Completing Coil Installation in Self-Installation

2.3.4.4 ID Chip Installation
The following installation method is used for the installation of Fuel Ring ID chip.

Installing the Identification Chip
To install the identification chip without a security cover, proceed as follows:

1 Close the fuel inlet cap.

2 Choose an optimal, secure, and flat position for installing the ID chip.

3 In the designated area, drill a 0.94 inches (2.4 mm) diameter hole. DO NOT drill through the fuel tank! When drilling is completed, clean the area before applying glue onto the surface.

4 When installing any coil other than the Shaped coil, connect the ID chip's wires to the coil wires after cutting the chip's connector by soldering them or using connection terminals (connector end. Wire ETC EC-2), or through any other suitable connection.

5 Verify that the ID chip is programmed with correct data using the Wireless Programmer Screw, the unidirectional screw through the ID chip in the space prepared. Carefully push the ID chip towards the vehicle's surface. Don't tighten the screw; verify that the chip has a certain amount of freedom and can slightly rotate.

6 Tighten the coil-ID chip wires to a fixed object, so as not to interfere with the refueling process.

> *Note:* *It is recommended to install according to the security cover installation described above to ensure the best removal protection of the ID Chip.*

This page is intentionally left blank.

3 – Vehicle Data Units

3.1 General

This section provides a description of the vehicle data units as well as installation guidelines.

FuelPoint PLUS's vehicle data units are compact transmitters which connect to the vehicle's on-board computer, receive data from the vehicle's CPU/Bus, and then accurately transmits the vehicle's information to the station's Wireless Gateway.

The different types of vehicle data units available are as follows:
- **μDataPass/μDataPass Plus**: A plug & play unit for light and commercial vehicles which connects directly to the OBD-II connector.
- **DataPass/DataPass Plus**: A unit designed for heavy vehicles which connects directly to the vehicle's Bus or to a J1939/J1708 Deutsch 9-pin connector using a specially designed harness.

The following table specifies the vehicle data supported by the vehicle data units:

Table 6: Supported Vehicle Data

Vehicle Data	DataPass/uDataPass	DataPass Plus/uDataPass Plus
Odometer	√	√
Main Engine Hour	√	√
Error Codes		√
Fuel Level		√
Fuel Consumed		√
Idle Time		√
Over Speeding		√
Over RPM		√
Aux #1 E.H.		√
Aux #2 E.H.		√
PTO		√
		√

The following table provides part numbers for the vehicle data units available:

Table 7: Types of Vehicle Data Units

Vehicle Data	Part Number
µDataPass	.M09693B002
µDataPass Plus	M09693B005
DataPass	M09693B004
Vehicle Module, Light Duty No Obd	M09693B001

Note: Available data may vary between various vehicle brands/models.

3.2 µDataPass

FuelPoint PLUS's µDataPass unit collects vehicle data, and wirelessly transmits it to Gasboy's Wireless Gateway while refueling, or when the vehicle passes by a Wireless Gateway installed at fleet facilities.

Figure 32: µDataPass Unit

3.2.1. Technical Specifications

The following table details the technical specifications for the µDataPass unit:

Table 8: µDataPass - Technical Specifications

	Parameter	Value
Physical	Height	22.1 mm
	Width	41.3 mm
	Depth	16.8 mm
	Weight	8 gms
	Connectors	OBD-II Compatible (male)

	Parameter	Value
Electricity	Voltage Input	**Normal Operation**: 12 VDC (Nominal) **Minimum**: 9VDC **Maximum**: 16 VDC
	Current Consumption (typical)	**Standby Mode**: up to 4mA **Active Mode**: up to 55mA
Environmental Conditions	Range of Temperature	**Operating**: -40to 70+ Degrees Celsius **Storage**: -40 to 85+ Degrees Celsius
Communication	Wireless Interfaces	Single IEEE802.15.4 wireless channel **Operating Frequency**: ISM 2.405 to 2.480 GHz (free global license frequency) **Advanced Encryption Standard**: AES128
	IEEE802.15.4	DSSS / FA - Direct Sequence Spread Spectrum with Frequency Agility **Channel Capacity**: 16 frequency channels / 5MHz channel spacing **Transmitter Power Output**: 2mW (3dbm) **Reception Sensitivity**: -101dbm
	Wireless Antenna	Built-in PCB Antenna
	Wired Interfaces	OBD-II- J2284/ ISO15765 (CANbus) **Data Rate**: 250Kbps/ 500Kbps OBD-II - ISO14230/ISO9141 (KLINE) **Data Rate**: 10400bps

The following table details the μDataPass Connector Pinout:

Table 9: μDataPass Pinout

Pin Number	Pin's Name	Description
4	VIN-	Supplied Voltage (-)
6	CAN H	CAN High
14	CAN L	CAN Low
16	VIN+	Supplied Voltage (+)

3.2.2 Installing μDataPass

The installation procedure for the μDataPass is very simple. However, since the μDataPass unit is a miniature device, it is recommended to fasten the unit to the vehicle using nylon thread or a similar fastener to prevent loss if removed from the OBD-II connector during vehicle servicing.

To install the µDataPass unit, proceed as follows:

1   Locate the standard On Board Diagnostics OBD-II connector.
*Note: This is usually hidden behind one of the panels below the steering wheel or near the
          pedals.*

2   Remove the panel covering the diagnostics connector.

Figure 33: Diagnostics Connector

3   Plug the µDataPass unit gently into the diagnostics connector while being careful not to bend
the µDataPass's pins.

Figure 34: Inserting the µDataPass

4 By pressing your finger, tighten the µDataPass into place.

Figure 35: Tightening the µDataPass

5 Re-assemble the board, which covers the diagnostic connector.

3.3 DataPass

The DataPass is installed in heavy vehicles using the provided DataPass harness. The harness is installed inside the driver cabin behind the dashboard, and connects to the vehicle's diagnostics plug rear wiring.

Figure 36: DataPass Harness
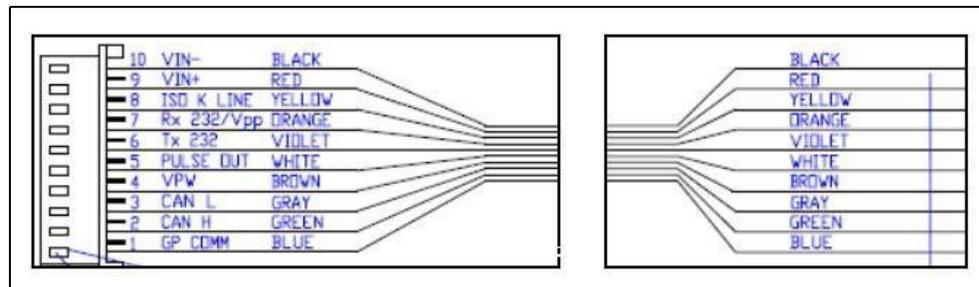
There are three types of installation for the DataPass unit as follows:

1 **Connecting the DataPass to the vehicle's bus,** which allows retrieving additional information from the vehicle computer.

2 **Connecting the DataPass in a contactless connection** using the DataPass Sense Probe.

3 **Connecting the DataPass to the odometer pulses output** either directly or via tachograph's pulses output.

Notes:1) This is usually hidden behind one of the panels below the steering wheel or near the pedals.
2) Use protection harness P/N 819107345 to prevent overloading the power line and meet the requirements of the applicable safety standards.
3) In cases where red and blue wires are shortened (engine hour output is not used), add the protection harness between this connection and the DataPass unit.

Figure 37: DataPass Unit

3.3.1 Technical Specifications

The following table details the technical specifications for the DataPass unit:

Table 10: DataPass -Technical Specifications

	Parameter	Value
Physical	Height	15 mm
	Width	70 mm
	Depth	21 mm
	Weight	45 gms
	Connectors	562810 Molex
Electricity	Voltage Input	**Normal Operation**: 12 VDC (Nominal) **Minimum**: 9 VDC **Maximum**: 16 VDC
	Current Consumption (typical)	**K-LINE Mode** Sleep Mode: 5mA Active Mode: 35mA
		CAN Mode Sleep Mode: 5mA Active Mode: 25mA
		J1708 Mode Sleep Mode: 5mA Active Mode: 25mA
Environmental Conditions	Range of Temperature	**Operating**: -40to 70+ Degrees Celsius **Storage**: -40 to 85+ Degrees Celsius
	Humidity	95% non-condensing

Parameter	Value
Communication	
Wireless Interfaces	Single IEEE 802.15.4 wireless channel **Operating Frequency**: ISM 2.405 to 2.480 GHz (free global license frequency) **Advanced Encryption Standard**: AES128
IEEE 802.15.4	DSSS / FA - Direct Sequence Spread Spectrum with Frequency Agility **Channel Capacity**:16 frequency channels / 5MHz channel spacing **Transmitter Power Output**: 2mW (3dbm) **Reception Sensitivity**: -101dbm
Wireless Antenna	Built-in PCB Antenna
Wired Interfaces	**CAN Bus** OBD-II - J2284 / ISO15765 **Data rate**: 250Kbps / 500 Kbps
	KLINE OBD-II - ISO14230 / ISO9141 **Data Rate**: 10400bps
	J1708/J1587 **Data Rate**: 9600bps

The following table details the DataPass Connector Pinout:

Table 11: DataPass Connector Pinout

Pin Number	Pin Name	Description
10	VIN-	Supplied Voltage (-)
9	VIN+	Supplied Voltage (+)
8	K LINE	Utilized for K- line protocol
7	Rx	Used for diagnostics
6	Tx	Used for diagnostics
5	ODO Pulses	Pulses representing vehicle's mileage; used when PLS interface is selected (through WP)
4	VPW	For future use
3	BUS L	For CAN bus protocol, connects to DataPass Sense Probe to receive vehicle's data in a contactless manner
2	BUS H	For CAN bus protocol, connects to DataPass Sense Probe to receive vehicle's data in a contactless manner
1	ENG HOUR*	Signal representing vehicle's engine hours; used when PLS interface is selected (via the WP)

3.3.2 Installing DataPass

3.3.2.1 Required Tools
To install DataPass unit, you will need the following tools:
- Star head Screwdriver (TORX)
- Flat head Screwdriver
- Philips head Screwdriver
- Cutter
- Isolating tape
- Soldering iron
- Soldering tin

3.3.2.2 Connecting the DataPass to the Vehicle Bus
Connections to the vehicle's bus are implemented via the BUS connector, which is usually hidden behind one of the dashboard panels.

Unlike light vehicles that have a standard OBD-II connector, heavy vehicles have different types of connectors and the DataPass is connected to the connector wires/harness from the interior part of the panel.

To connect the DataPass to vehicle bus, proceed as follows:

1   The following illustration details the pinout for common protocols in heavy vehicles representing the required DataPass wiring and also illustrates the typical J1587 protocol with 6-pin harnesses.

Figure 38: J1708 (J1587) 6 Pin Harness - DataPass Connection
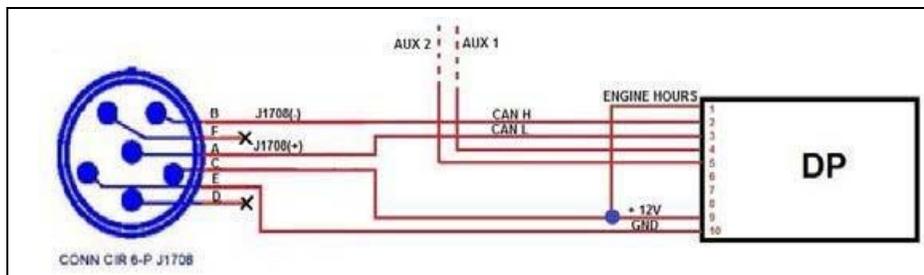
2 The following illustration details the typical J1587 protocol with 9-pin harnesses:

Figure 39: J1708 (J1587) 9-Pin Harness - DataPass Connection
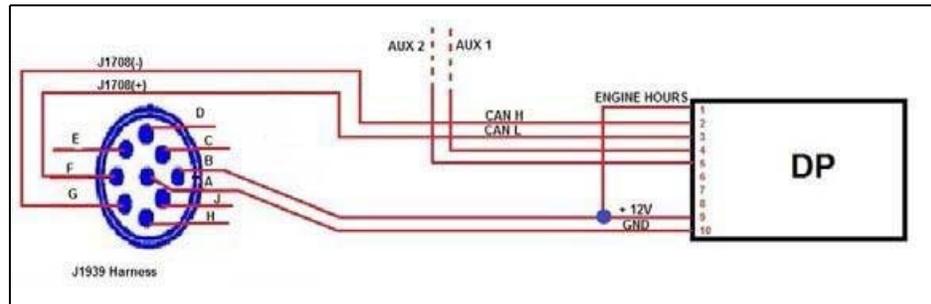
3 The following figure illustrates the J1939 protocol harness, including description for the respective pins:

Figure 40: J1939 Harness - DataPass Connection
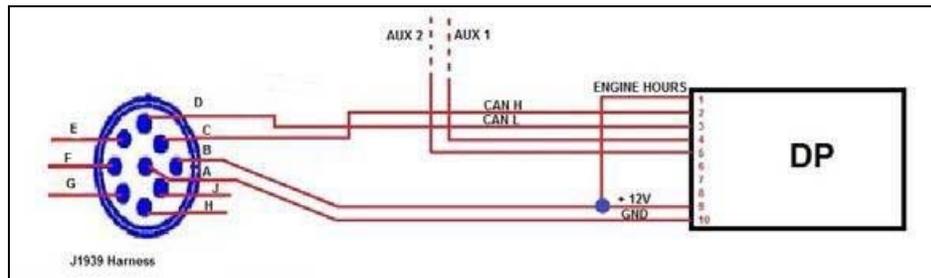
Table 12: Typical Bus Connector Pin Out

Pin Number	Protocol: FMS/J1939/CAN	Protocol: J1708/J1587
1	+V (vehicle switch)	+V (vehicle switch)
2	CAN H	J1708 (-B)
3	CAN L	J1708 (-A)
9	+V (vehicle battery)	+V (vehicle battery)
10	-V (vehicle battery)	-V (vehicle battery)

3.3.2.3 Connecting the DataPass to the Odometer Pulses Source

A simple way to retrieve odometer pulses is from the truck's tachograph output.

The installation of the DataPass requires disassembling the vehicle's tachograph and accessing its rear side wiring to connect the DataPass harness to the tachograph's wiring.

The following table details the connections between the tachograph and the DataPass:

Table 13: Tachograph - DataPass Harness Connections

DataPass Harness Wire	Tachograph
White	Pulse output
Red	Connect to vehicle's switch/battery
Black	VIN-
Blue	Vehicle switch

To connect the DataPass to the Odometer Pulses Source, proceed as follows:

1 Locate the tachograph in the vehicle. Two extraction slots are placed on both sides.

Figure 41: Tachograph Extraction Slots

Extraction Slots

2 Use the dedicated extraction tool to disassemble the Tachograph.

Figure 42: Removing the Tachograph

Note: Handle each wire individually until it is fully connected and isolated to avoid shorts.

3 Access the wiring in the back of the tachograph and expose the desired wires.

Figure 43: Tachograph Wiring
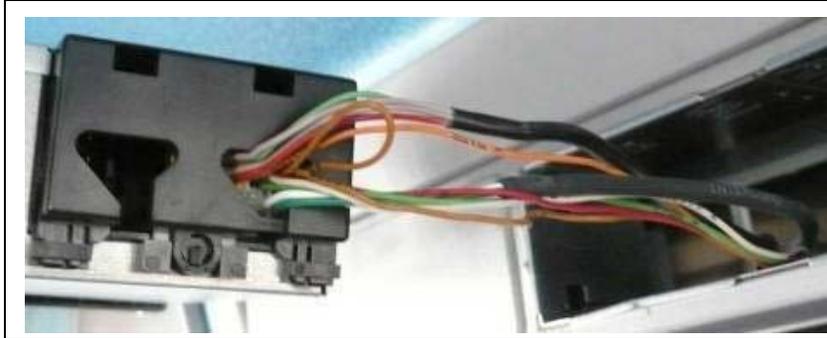
4 Connect and solder each wire to its corresponding wire in the DataPass harness.

Figure 44: Connecting DataPass Harness to Tachograph Wiring
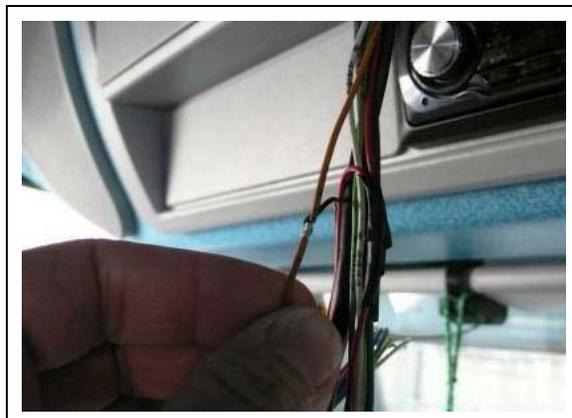
5 Wrap each soldered wire in insulating tape.

Figure 45: Wrapping Connections in Insulating Tape
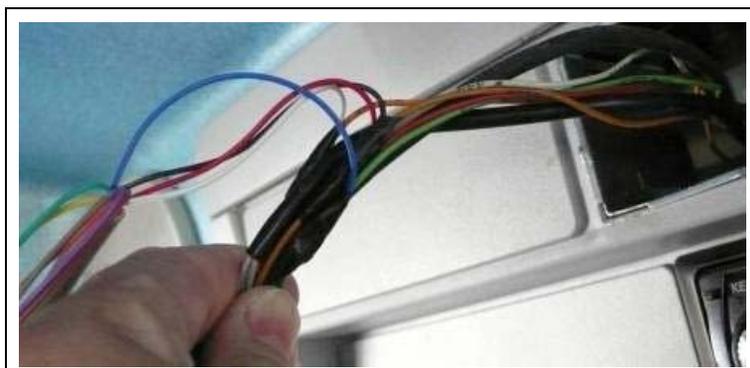
6 Wrap the newly created harness in insulating tape.

Figure 46: Wrapping the Harness with Insulating Tape

7 Connect the DataPass to the harness.

Figure 47: Connecting the DataPass to the Harness

8 Fasten the DataPass to any of the vehicle panels/rods using a tie wrap; verify that the unit does not move.

9 Fasten the newly created harness to one of the vehicle's rods/boards; verify that the harness is secured.

Figure 48: Fastening the DataPass and Harness

10 Gently push the tachograph with its harness into place until it is locked (a clicking sound is heard).

This page is intentionally left blank.

4 – Programming Vehicle Units

4.1 General

This section provides a description of the Wireless Programmer Units as well as installation guidelines.

Gasboy's Wireless Programmer is a field programming device used to set-up all FuelPoint PLUS's Vehicle Identification and Data units as well as the Wireless Nozzle Reader device.

The Wireless Programmer is a portable unit which reduces installation and activation time without compromising security as only authorized technicians can install and program units on-premises.

Figure 49: Wireless Programmer Unit
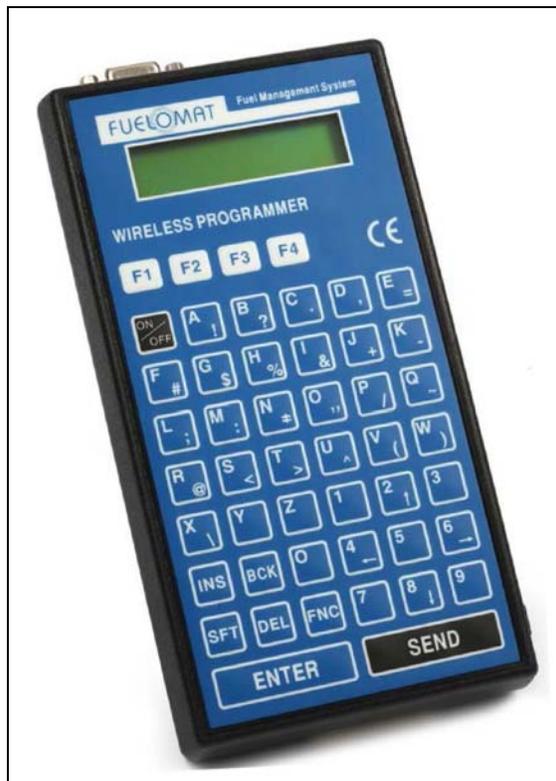
4.2 Homebase Solution

This section provides instructions on the programming sequence of the vehicle units installed in private and heavy duty vehicles using the Wireless Programmer device as follows:
- FP and μDP / μDP+ / μDP-Sense
- FP and DP / DP+ for heavy vehicles
- FP and DP for light vehicles

In addition, this section describes the Wireless Programmer device and includes instructions for setting up the WP as well as registering the device in the FHO server.

Note: If an error message is received when programming FP +DP units, replace the FP unit, and use the Replace FP option detailed below.

4.2.1 Wireless Programmer

WARNING
Programming using the Wireless Programmer should be done in safe area (Non-Hazardous location). Therefore, it should be done prior to Fuel Ring installation.

In the Homebase solution, the vehicle units are programmed on-the-spot with the Wireless Programmer (WP) - version 2.07.45, P/N PA04010000.

Figure 50: Homebase Solution Wireless Programmer
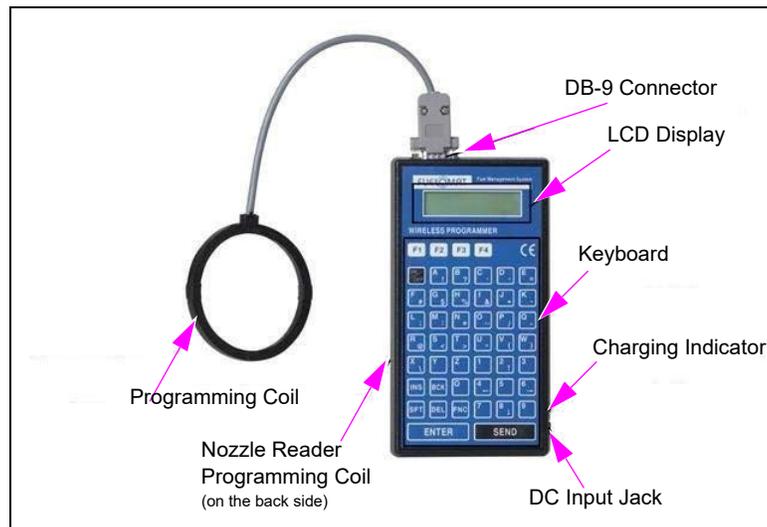
4.2.1.1 Technical Specifications

Table 14 details the technical specifications for the Homebase Solution Wireless Programmer unit.

Table 14: Homebase Solution Wireless Programmer -Technical Specifications

	Parameter	Value
Physical	Height	29 mm
	Width	192 mm
	Depth	99 mm
	Weight	380 grams
	Connectors	Terminal Port: DB-9 (Female)Power Port: DC Jack
User Interface	Keyboard	48 Keys
	Display	2 x 16 Characters LCD
Electrical	Supply Voltage	.2V, 2000mAh Lithium-ion internal battery
	Charge Voltage	12V to 28V DC input
	Protection	Supply voltage reverse polarity protected Short circuit protected over charge and full discharge protected
Environmental Conditions	Temperature	**Operating**: -20 to +70 degree celsius **Storage**: -40 to +85 degree celsius
	Humidity	In accordance with IEC 68-2-30
Communication	Wired Interfaces	External - RS232 Communication Link
	Wireless Interfaces	Single IEEE802.15.4 wireless channel **Receive sensitivity**: -101dbm: 50 meters at open space
	Wireless Antenna	Built in PCB Antenna for Nozzle Reader units programming
	RFID/VIU	Designed for Low Frequency (125 KHz) chip reading Reading distance: Up to 8cm, influenced by Tag geometry

4.2.1.2 Battery Saving and Chargers
The WP includes a battery saving timeout function which alerts the user emitting three consecutive beeps in cases where the unit has been idle for more than five minutes. The unit stays on by pressing any key. When turned off, the user is logged out, and the device can be turned on again by using the ON/OFF button.

The WP is supplied with two types of battery chargers:
- AC Adapter – Connected to main power supply

Figure 51: WP AC Adapter

- DC Adapter – Connected to vehicle's cigarette lighter socket

Figure 52: WP DC Adapter

4.2.1.3 Wireless Programmer Keyboard

The following table provides a description for the keys on the Wireless Programmer Keyboard:

Table 15: Homebase Wireless Programmer - Keyboard

	Parameter
	Turns the device ON/OFF
	Sends data to the Head Office/Vehicle ID Unit/Vehicle Data Unit
	Stores data entered
	Deletes current selection
	Returns to the previous screen
	Scrolls up
	Scrolls down
	Scrolls right
	Scrolls left
+	Inserts a space
+	Inserts a hyphen
	Inserts a blank character in editing screens
+	Inserts a point
+	Redirects to the Main Menu (Home)
+	Redirects to Tech Functions Menu
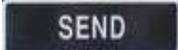
Parameter	
+	Redirects to Read VIU Screen (for maintenance purposes such as modifying parameters)
+	Redirects to Program VIU first screen

4.2.1.4 Wireless Programmer Common Actions

The following table details common actions for the Wireless Programmer:

Table 16: Wireless Programmer - Common Actions

Action	Description
Editing parameters	To change a default, or edit already entered values, use the key and then enter the new value using the keypad
Saving parameters/ Navigating screens	To save definitions and advance to the next screen, use the ENTER key. In cases where both display lines contain parameters, use the ENTER key to approve the first parameter and point to the second parameter.
Selecting parameters	In cases where several parameters are displayed, use the UP/DOWN/LEFT/RIGHT arrow keys to move the pointer (>) to the required parameter. Various parameters (i.e. Vehicle Manufacturer, Model, Year) support insertion of the parameter's first character to quicken the process.

4-2.1.5 Wireless Programmer Parameters
The following table details common parameters for the Wireless Programmer:

Table 17: Wireless Programmer - Common Parameters

Parameter	Description
Organization ID	Company Name assigned in the HO.
Vehicle ID	The license plate number, or unique number of the vehicle, to which the device is assigned, as defined in HO.
Fleet Code	The code of the fleet to which the device is associated with, as defined in HO.
Fuel Type	The fuel type allowed for the vehicle, as defined in HO.
Additional Info	Special structure which may be included in the vehicle in addition to vehicle model, year, and manufacturer, and that may affect the odometer factor.
Odometer Address	Source address for odometer reading in the vehicle communication protocol. Default is 255 and should only be changed in cases where odometer was not successfully read or another value was provided by the client.
DP Odometer Address	Address assigned in the vehicle communication protocol to the DP for obtaining odometer reading. Default is 141 and should only be changed in cases where odometer was not read or another value was provided by the client.
Distance Unit	Distance measurement unit's definition for calculations and reports.
E.H. Source	Physical source of E.H. reading: Vehicle switch or bus.

E.H. Address	Source address for E.H. reading in the vehicle communication protocol. Default is 255 and should only be changed in cases where E.H. was not successfully read or another value was provided by the client.
DP E.H. Address	Address assigned in the vehicle communication protocol to the DP for obtaining E.H. reading. Default is 141 and should only be changed in cases where E.H. was not read or another value was provided by the client.
E.H. PID	E.H. Parameter ID. The code used to request E.H. data from the vehicle. Default is 247 and should only be changed in cases where E.H. was not read or another value was provided by the client.
EngineOnReport	Reports on Main Engine operation status (ON / OFF), as may be required to comply with local regulations forbidding refueling while vehicle's engine is ON.
MAC Address	Unique identifier assigned to the DP/µDP unit. The MAC appears on the unit's back label.
Main Engine	The source engine for Idle Time, Over Speeding, OverRPM, and Fuel Level data collection.
SwitchTimeOut	Period of time in which the DataPass remains active after the vehicle is switched off. Default is 10 minutes.
Odometer Factor	Number of pulses indicating a distance unit (mile or Km), as provided by the vehicle manufacturer.
Odometer Threshold	Oscillation amplitude to be identified as a pulse (1), as provided by the vehicle manufacturer (in cases where the value is unknown, set a threshold of 2000 mV).
Odometer Hysteresis	Amplitude threshold to be identified as no pulse (0) for noise elimination (in cases where the value is unknown, set the hysteresis to 200 mV).
DP Factor	Odometer reading calibration factor for different OBD-II interface vehicle models.
DP Offset	Offset value for calibration of Odometer readings in different OBD-II interface vehicle models.
Aux EH Polarity	Auxiliary Engine Hour counter setup, according to the available physical connection, as follows: • Select **Plus** if Aux Engine starts to operate when the line go from zero to 12V (from 0 to 1 state). • Select **Minus** to start counting in power drop, from 12V to zero (from 1 to 0 state). In cases where the vehicle chassis is the positive output line, call Professional Services for support.

4-2.1.6 Wireless Programmer Setup in FHO

Prior to programming the vehicle units, the Wireless Programmer device should be registered in the Fleet Head Office to which the vehicles to be programmed are attributed.

After the Fleet Head Office has been completely installed and set up, verify that the Company name field is filled (see Figure 53 on page 52).

For further details on the Fleet Head Office installation, refer to *MDE-4821 Fleet Head Office Installation and User's Manual*.

Figure 53: Administration Setup Screen General Tab
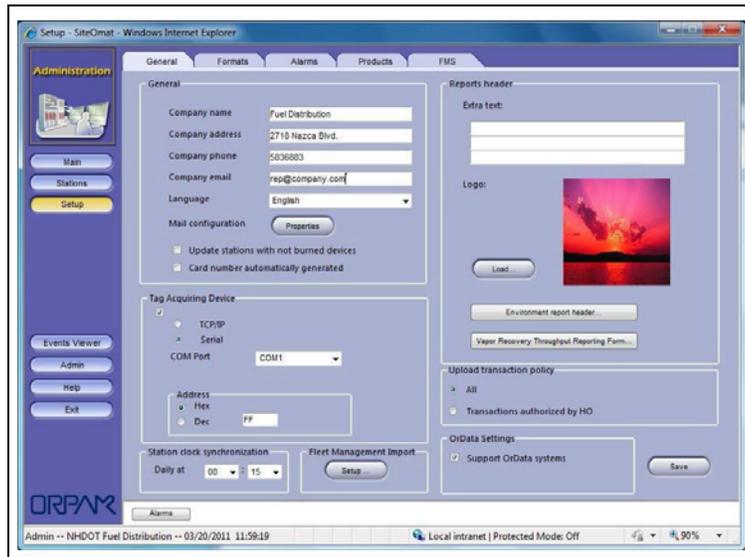
4.2.1.7 WP Tunnel Installation

The WP Tunnel application is required for registering the Wireless Programmer.

Note: To properly register the Wireless Programmer, you must install all certifications prior to the WP Tunnel Installation.

To install WP Tunnel, proceed as follows:

1   Double click the **WP Tunnel.exe** file. The following welcome screen opens:

Figure 54: WP Tunnel Setup Wizard -Welcome Screen

2 Click **Next**. The License Agreement screen opens.

Figure 55: WP Tunnel Setup Wizard - License Agreement Screen
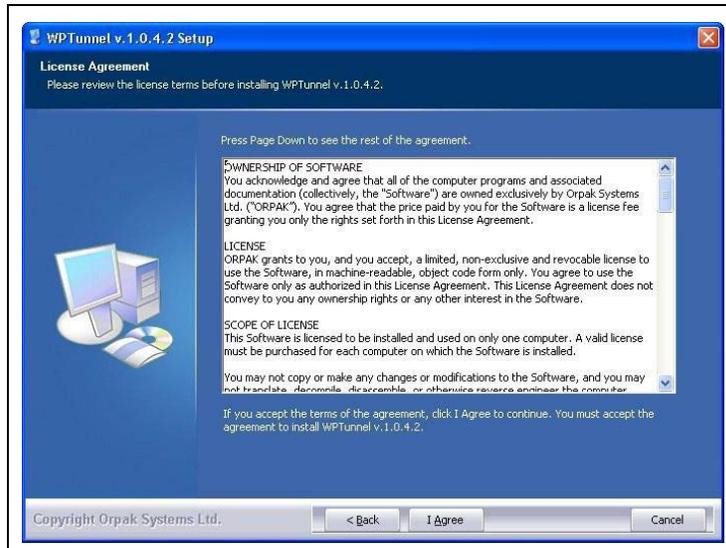
3 Click **I Agree** and the following screen opens:

Figure 56: WP Tunnel Setup Wizard - Choose Install Location Screen
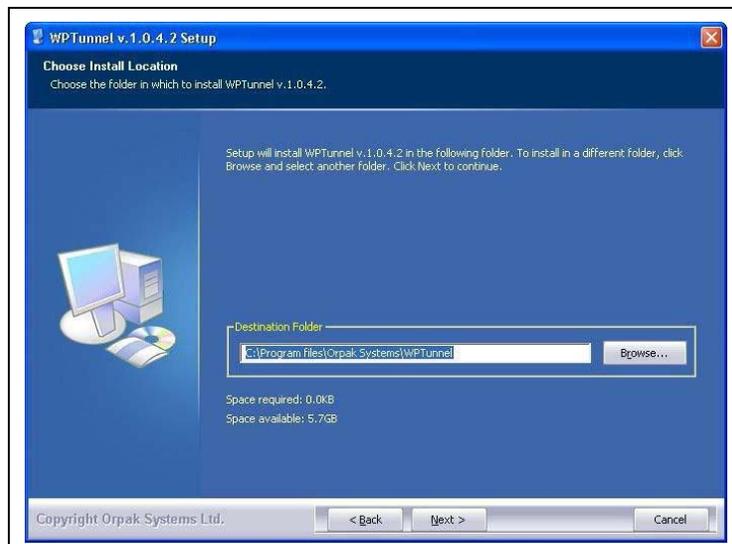
4 Click **Next** to install the files in the default folder, or click **Browse** to choose another
destination folder and then click **Next**. The Connection settings screen opens.

Figure 57: WP Tunnel Setup Wizard - Connection Settings Screen
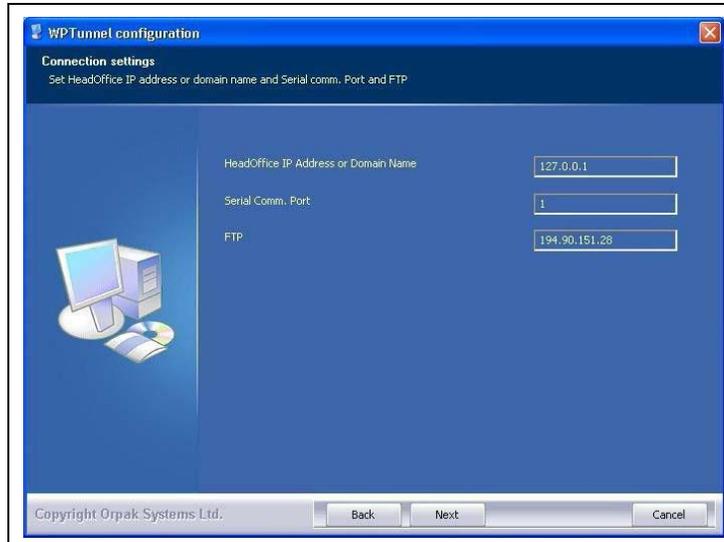
5 Enter the **Head Office IP Address**. In the above example, WP Tunnel is installed in FHO PC,
so the local Host IP address (127.0.0.1) is entered.

6 Enter the Serial Com Port to which the WP device is to be connected. Click **Next**.

7 The installation process is fully automated. The Installing screen displays process messages as
well as possible error messages. At the end of the process, click **Close** to exit the Wizard.

Figure 58: WP Tunnel Setup Wizard - Installation Complete Screen
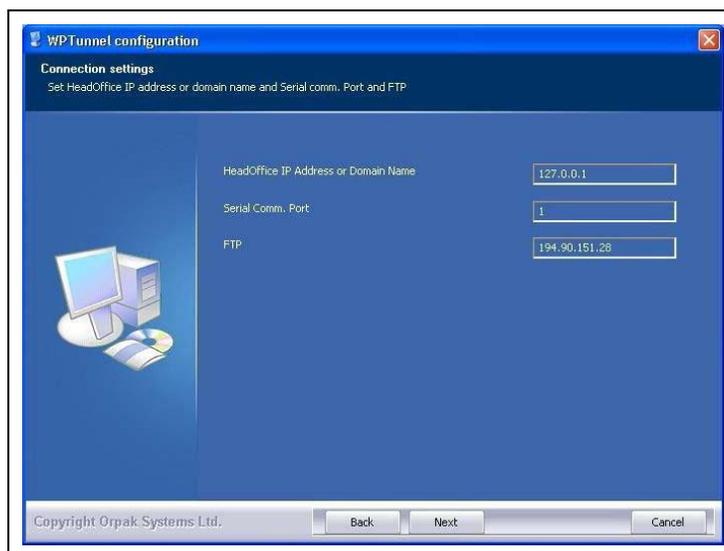
8   A WP Tunnel icon is created on the PC's desktop.

Figure 59: WP Tunnel Desktop Icon

4.2.1.8 Establishing Communication between WP and Head Office

To establish communication between the WP and the Head Office, proceed as follows:

1   Open the Fleet Head Office application

2   Click **Admin** on the left-hand side navigation bar.

3   Select the **Registration** tab.

Figure 60: Admin Screen - Registration Tab
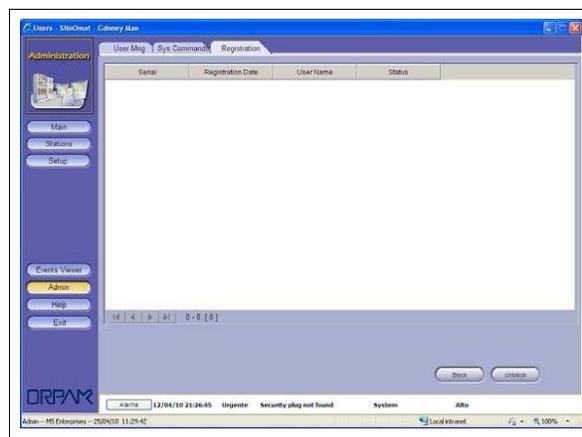
4   Launch the WP Tunnel application by clicking on the desktop icon.

Figure 61: WP Tunnel - Main Screen
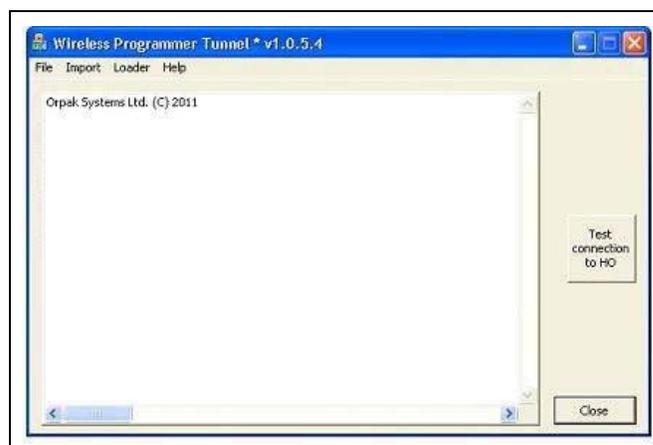
5 Connect the WP to the PC using a RS232 serial cable.

6 Turn the Wireless Programmer on, and follow the instructions shown on its display.

Note: When operating the Wireless Programmer for the first time, enter the factory default user name and password: "admin". The device will prompt the user for a new username and password.

Table 18: WP Registration Sequence

Step	Display	Description
1	Enter User ID	TEnter User ID and press **ENTER**.
	Enter Password	Enter password and press **ENTER**. Press the **BCK** key
2	>WP Functions Sys Functions	The System menu is displayed.
3	>Sys Functions Services	Use the DOWN arrow key to move the pointer (>) to the Sys Functions option and press **ENTER**.
3	>WP Registration Remove Registr	Press **ENTER**.
4	Connect to PC and press SEND	Press **SEND**.
5	Connect to PC Wait...	Wait while the PC connects to the FHO.

7 The WP Tunnel displays the session details. After the WP is successfully recognized by the FHO, the application registers the device's serial number as well as the currently logged user name and sends the organization's name (company name) to the WP. A confirmation message is displayed.

Figure 62: Approving Wireless Programmer Registration
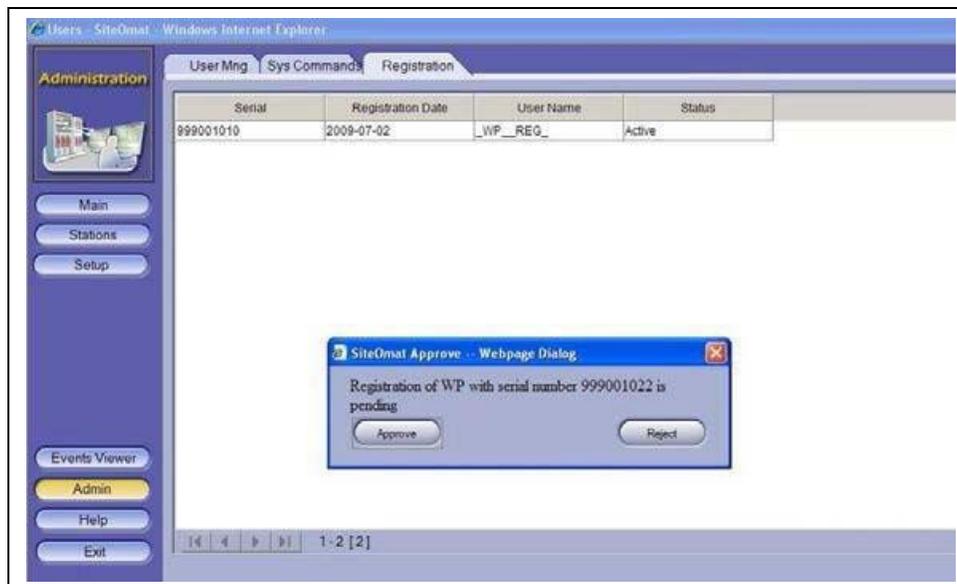
8 Close the WP Tunnel.

The organization name is recorded in the Wireless Programmer's memory, and the device is now ready for programming the vehicle units.

The **Block** button blocks the WP device (selected from the grid) for future use, while the **Unblock** button activates previously blocked WP units.

4.2.1.9 Updating Vehicle List

The Vehicle List contains updated specific calibration data per vehicle model, required for programming the vehicle data units.

To download the latest vehicle table from Gasboy's FTP server into the Wireless Programmer, proceed as follows:

1 Connect the WP to the PC using a RS232 serial cable.

2 Launch the WP Tunnel application by clicking the WP Tunnel icon.

3 Click **Import** on the menu bar and then select Vehicle List. The application downloads the updated vehicle table from the FTP server and displays the session details. This process takes approximately 2 minutes to complete.

Figure 63: WP Tunnel - Vehicle List Update
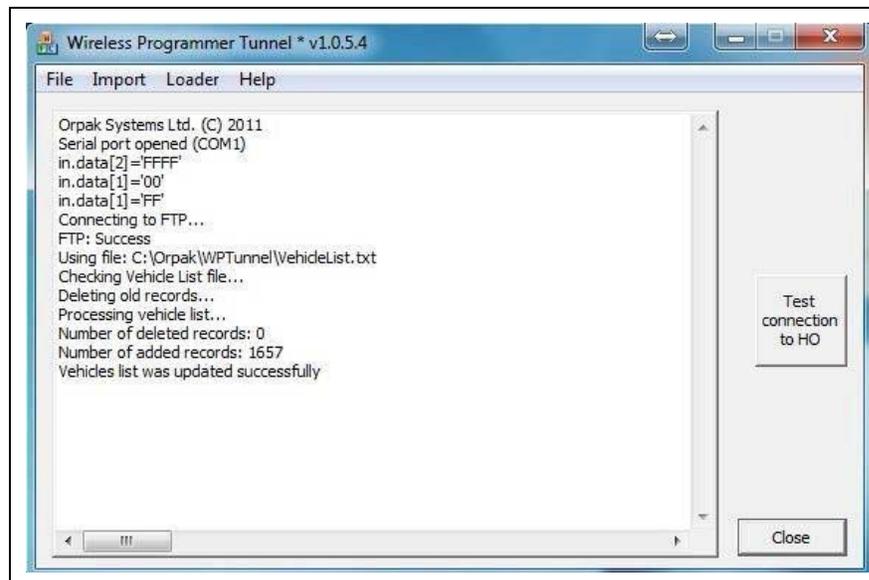
4 Do not close the WP Tunnel application. Turn the WP on and follow the instructions appearing on the display.

Table 19: Vehicle List Update Sequence

Step	Display	Description
1	Enter User ID	Enter User ID and press **ENTER**.
	Enter Password	Enter password and press **ENTER**. Press the **BCK** key.
2	>Services Tech Functions	The System menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Services option and press **ENTER**.
3	>Replace Veh TBL Local Download	Use the DOWN arrow key to move the pointer (>) to the Replace Vehicle Table option and press **ENTER**. *Note:* After loading the WP with the Vehicle List for the first time, you may check for Updates and download these updates only by selecting the Check for Updates option. If a new list is available "Update Vehicle Parameters" message is displayed. Otherwise, the WP displays: "No need for update".
4	Connect to PC and press SEND	Press **SEND**.
5	Updating vehicle params, wait...	Wait while the WP receives the data.
6	Update Done	At the end of the process, the following success message is displayed: Restart the WP

4.2.1.10 Updating WP Software

Local Download
Local Download option allows downloading the latest version of the following components from Gasboy's FTP into your WP device:
- WP AVR (antenna component)
- WP ARN (WP application)
- DP and µDP firmware

To download the latest versions of the components, proceed as follows:

1 Connect the WP to the PC using a RS232 serial cable.

2 Launch the WP Tunnel application by clicking the icon.

3 Click **Loader** on the menu bar and then select **Start**. The Loader dialog box opens.

Figure 64: Loader Dialog Box
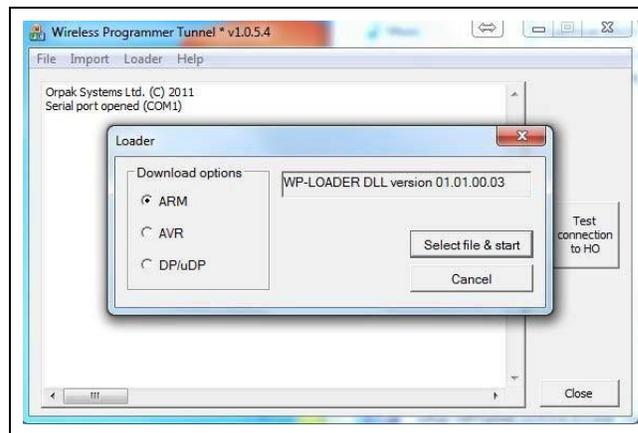
4 Select the component radio button in the Download options section and then click **Select File and Start**.

5 A file selection dialog box opens. Browse for the file and click **OK**.

6 Click **Select file & start**.

7 Do not close the WPTunnel application. Turn the WP on and follow the instructions on the WP display.

Table 20: Local Download Sequence

Step	Display	Description
1	Enter User ID	Enter User ID and press **ENTER**.
	Enter Password	Enter password and press **ENTER**. Press the **BCK** key.
2	>Services Tech Functions	The System menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Services option and press **ENTER**.
3	>Local Download Update DP SW	Use the DOWN arrow key to move the pointer (>) to the Local Download option and press **ENTER**.
4	Downloading WP success, wait...	The following success message is displayed: At the end of the process, the WP restarts automatically

4.2.1.10 Updating WP Software
### 4.2.1.10.1 Local Download
Local Download option allows downloading the latest version of the following components from Gasboy's FTP into your WP device:
- WP AVR (antenna component)
- WP ARN (WP application)
- DP and μDP firmware

For local download option, proceed as follows:

1 Connect the WP to the PC using a RS232 serial cable.

2 Launch the WP Tunnel application by clicking the icon.

3   Click **Loader** on the menu bar and then select **Start**. The Loader dialog box opens.

Figure 65: Loader Dialog Box
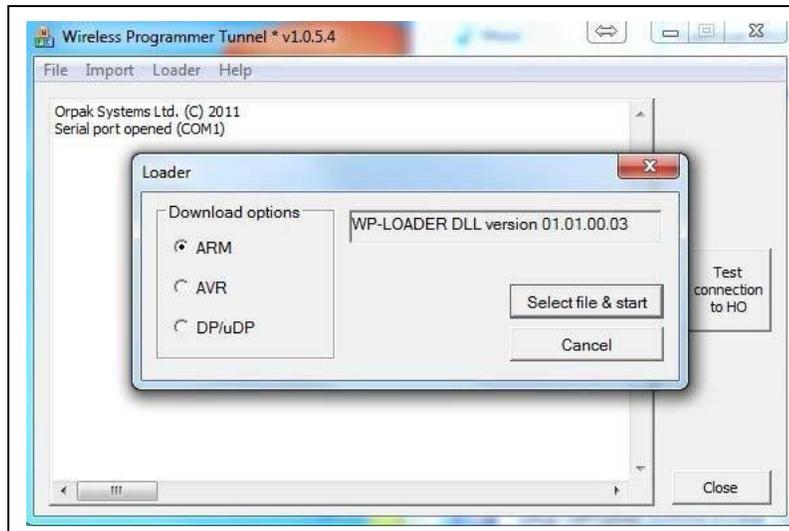
4   Select the component radio button in the Download options section and then click
     Select file & start.

5   A file selection dialog box opens. Browse the file and click **OK**.

6   Click **Select File** and **Start**.

7   Do not close the WPTunnel application. Turn the WP on and follow the instructions on the
     WP display.

8   **Local Download Sequence**

Step	Display	Description
1	Enter User ID	Enter User ID and press **ENTER**.
	Enter Password	Enter password and press **ENTER**. Press the **BCK** key.
2	>Services Tech Functions	The System menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Services option and press **ENTER**.
3	>Local Download Update DP SW	Use the DOWN arrow key to move the pointer (>) to the Local Download option and press ENTER.
4	Downloading WP success, wait...	The following success message is displayed: At the end of the process, the WP restarts automatically

4.2.1.10.2 Show Files
The Show Files option enables the technician to verify that the latest versions are stored in
WP's internal memory: WP's ARM (WP firmware) and AVR (WP antenna firmware), Vehicle
Parameters table, DP and μDP firmware (for view only).

In cases where a file is missing: "**File not found**" is displayed under the file type.

The following table describes the Show Files sequence steps. Turn the WP on and follow the instructions that are shown on the screen:

Table 21: Show Files Address Sequence

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/ FP+DP >WP Functions Sys Functions	The WP Functions menu is displayed. Press the **BCK** key to access the main menu.
3	>Services Tech Functions	Use the **DOWN** arrow key to move the pointer (>) to the Services menu
4	>Show Files Test	Use the **UP** arrow key to move the pointer (>) to the Show Files option
5	>DP Heavy: Ver: XX.XX.XX	The Vehicle Parameters update date and time is displayed (for view only). Use the DOWN arrow key to view the next file.
		The currently installed WP ARM is displayed (for view only). Use the DOWN arrow key to view the next file.
		The currently installed WP AVR is displayed (for view only). Use the DOWN arrow key to view the next file.
		The currently installed DP and µDP firmware versions are displayed (for view only) for each unit type. Use the DOWN arrow key to view next firmware files, these will include: • DP Light • DP AVL Light DP Heavy • DP AVL Heavy • µDP CAN • µDP Kline *Note: Firmware versions are compatible for both DP/µDP and DP Plus /µDP Plus units.*

4.2.1.10.3 Updating DP Software

This option enables the technician to upgrade a DP/μDP unit with the firmware version stored in WP's internal memory.

Turn the WP on and follow the instructions on the display.

Table 22: Update DP Software Sequence

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/ FP+DP >WP Functions Sys Functions	The WP Functions menu is displayed. Press the **BCK** key to access the main menu.
3	>Services Tech Functions	Use the **DOWN** arrow key to move the pointer (>) to the Services menu.
4	>Update DP SW WP MAC Address	Select the **Update DP SW** option.
5	>Read DP by Tag Read DP by Add	DP identification method: • **Tag**: WP recognizes the DP by means of the FP correlated with the unit. If this option was selected, **proceed to step 8**. • **Address**: WP recognizes the DP by means of the unit MAC address. If this option was selected, **proceed to step 6**.
6	>DP Address: 1. Auto 2. Manual	DP MAC address (unique unit ID) insertion: • Enter **1** to automatically recognize DP MAC address. Stay inside the vehicle close to DP, or at a maximum range of ~0.5m to maintain proper receiving signal and avoid the possibility of finding by mistake another DP. Wait up to seven seconds for result. • Enter **2** for manual insertion of the MAC address.
7	>DP Address: XXXXXXXX	Verify the automatically entered MAC/Type the eight characters as shown on DP rear label and save. **Proceed to step 9.**
8	Reading FP + DP Wait...	Wait a few seconds until the WP recognizes the FP & DP.
9	DP Ver X.XX.XX Do: WP Ver X.XX.XX Y/N	The first row displayed the current unit firmware version, while the second row shows the version stored in WP's memory. Press **Y** to update.
10	DP Updating Wait...	Wait a few seconds while the unit is being updated.
11	DP Updating Succeeded!	A success message is displayed.

4.2.2 Programming Light Vehicles

The following sections describe the programming processes for light vehicles.

4.2.2.1 FP and µDP Programming Sequence

The following table describes the programming sequence for light vehicles equipped with Fuel Ring only, and Fuel Ring as well as µDataPass/µDataPass Plus/µDataPass Sense devices.

Before proceeding, verify that µDP is already installed and is powered (turn ignition switch ON).

Turn the WP on and follow the instructions appearing on the display described as follows:

Table 23: FP and µDP Programming Sequence

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/ FP+DP	The WP Functions menu is displayed. Press the **BCK** key to access the main menu.
3	Reading VIU Wait...	Wait a few seconds until the WP recognizes the Fuel Ring.
4	Org: [Organization Name]	The Organization Name is displayed. If the WP is associated with several HO, select the required organization.
5	Vehicle ID:	1. Enter Vehicle ID (8 characters). 2. Reenter Vehicle ID for confirmation.
6	Fleet Code:	Enter fleet code (4 characters).
7	Fuel Type:	Enter the allowed fuel type code.
8	FP Type: 1: FP 2: FP+DP	FP type options are displayed: • Enter **1** to program a Fuel Ring device only. In this case **proceed to step 42**. • Enter **2** to program both Fuel Ring and DataPass devices.
9	DP Address: 1: Auto 2: Manual	DP MAC address (unique unit ID) insertion: • Enter **1** to automatically recognize DP MAC address. Stay inside the vehicle close to DP, or at a maximum range of ~0.5m to maintain proper receiving signal and avoid the possibility of finding by mistake another DP. Wait up to seven seconds for result. • Enter **2** for manual insertion of the MAC address.
	DP Address: XXXXXXXX	Verify the automatically entered MAC/Type the eight characters as shown on DP rear label and save.
10	Reading DP Wait...	Wait a few seconds until the WP recognizes the DP. Proceed to step 13, except for the following:
11	Old Generation! Update DP? Y/N	In cases where the current DP version is old, users may update DP firmware (i.e. update DP to DP+): • Press **Y** to update. • Press **N** to continue the current process.
12	DP Not Empty! Overwrite? Y/N	In cases where the DP has been previously programmed, approve re-programming: Press **Y**.
13	Vehicle Manufact: >XXXXX	Select the vehicle manufacturer.
14	Vehicle Model: >XXXXX	Select the vehicle model.

Step	Display	Description
15	Vehicle Year: >XXXX	Select the vehicle year.
16	Additional Info: >	Select additional vehicle data, if any.
17	DP Type: μDP DP Type: μDP+	The detected DP type is displayed: • μDP • μDP+
18	Odometer X Method	The WP displays the odometer method: • Direct • OBD • VAG
19	Interface: >Kline Interface: >CAN	The communication protocol is displayed depending on the μDP type.
20	Enbl OBD if Auto Dtct Fail? Y/N	**This screen opens for CAN OBD with μDP only**. • Press **Y** to enable reading odometer if the OBD doesn't provide it. **Caution**: If you press **N**, and the vehicle doesn't provide the odometer reading, then the unit won't be able to read the odometer.
21	Read Odometer: Y/N	Odometer reading option. Default: Y. • Press **ENTER** to retrieve odometer reading. • Change default to **N** to disable the option. **In CAN and VAG, proceed to step 22.** **In Direct, proceed to step 25.**
22	Distance Unit: 1: Km 2: Miles	This screen opens in CAN and VAG only. Distance measurement units definition: • Enter **1** for Km. • Enter **2** for Miles. **In CAN, proceed to step 23.** **In VAG, proceed to step 25.** **If Odometer reading was disabled, proceed to step 39.**
23	DP Factor: 7200	DP Factor is displayed. Edit the parameter, entering a known factor, if needed.
24	DP Offset: 0	DP Offset is displayed. Edit the parameter, entering a known offset, if needed.
25	Read Engine Hour: Y/N	Engine Hour reading option. Default: Y. • Press **ENTER** to retrieve engine hour reading. • Change default to **N** to disable the option. *Note: In Direct, and if selected N in step 21, proceed to step 39.*
26	Odometer: 0.0	**This screen opens for OBD and VAG only, and is displayed in cases where Odometer reading was not disabled**. Edit the parameter, entering the value displayed on the dashboard. *Note: In Direct and VAG, if the odometer entered does not match what the WP read, then you'll receive an error message asking to try again:* • *Press **Y** to display the WP odometer reading.* • *If pressed **N**, the WP returns to step 23.*

Step	Display	Description
27	Switch on Engine Press SEND	**This screen opens in Direct and VAG only.** Switch on the engine, wait 20 seconds, and then press **SEND**. DP attempts to read the odometer/engine hours. If reading attempt failed, a failure message will display and will ask if you to repeat the odometer reading. Press **Y** to repeat reading attempt.
28	Odometer XXXXXXX Correct? Y/N	Odometer reading is displayed. • Press **Y** to confirm the odometer reading displayed and proceed to next step. • Press **N** if the reading displayed is incorrect. *Note: If the odometer does not match the WP's reading, a message displays asking to enter dashboard odometer. The WP then converts the entered reading from miles to kilometers, or vice versa, to confirm the difference between both readings. If you've entered something out of the mile/ kilometer conversion range, a failure message displays asking if to repeat the odometer reading.* *In this case, press **Y** to repeat WP odometer reading attempt. If pressed **N**, the WP returns to step 19 and proceeds through the CAN interface process.*
29	E.H.: 0.0	**This screen is displayed only in cases where Engine Hour reading was not disabled**. Edit the parameter, entering the value displayed on the dashboard (if available). **If programming µDP (not µDP+), proceed to step 39.**
30	Progress <_ _ _ _ _ _ >	**This screen opens when programming µDataPass Sense only**.
31	Error Codes Exist: Y/N	Error codes collection option.Default: N. • Press **ENTER** to leave the option disabled. • Change default to **Y** to enable the option.
32	Idle Time: Exist: Y/N	Idle Time collection option. Default: N. • Press **ENTER** to leave the option disabled. In this case, proceed to step 34. • Change default to **Y** to enable the option.
33	Idle Time (Min) Threshold: 5	Idle Time Threshold. Default: Five minutes. Save or edit the parameter and save.
34	Over Speed Exist: Y/N	Over Speed collection option. Default: N. • Press **ENTER** to leave the option disabled. In this case, proceed to step 36 for µDP+ CAN, or to step 38 for µDP+ K-Line. • Change default to **Y** to enable the option.
35	Over Speed Threshold: 70	Over Speed Threshold. Default: 70 miles/113 Km. Save or edit the parameter and save.
36	Over RPM Exist: Y/N	**This parameter is available for µDP+ CAN**. Over RPM collection option. Default: N Press **ENTER** to leave the option disabled. **In this case, proceed to step 38.** Change default to **Y** to enable the option.
37	Over RPM Threshold: 4500	Over RPM Threshold. Default: 4500 RPM. Save or edit the parameter and save.
38	Fuel Level Exist: Y/N	Fuel level collection option. Default: N. • Press **ENTER** to leave the option disabled. • Change default to **Y** to enable the option.
39	Switch T.O. Units 1: M 2: H 3: D	Switch Timeout units: • 1 for Minutes • 2 for Hours • 3 for Days Default: Minutes. Save or edit the parameter and save.

Step	Display	Description
40	Switch Time Out: 10 Minutes	Switch Timeout. Default: 10 Minutes. Save or edit the parameter and save.
41	Engine On Report Exist: Y/N	Engine On Report option. Default: N. • Press **ENTER** to leave the option disabled. • Change default to **Y** to enable the option.
42	SEND to FP/DP	Press **SEND**.
43	Programming DP Wait...	Wait a few seconds until the DP and VIU programming process finishes.
44	Programming Done!	An operation successful screen is displayed.

4.2.2.2 FP and DP Light Programming Sequence

The following table describes the programming sequence for light vehicles equipped with Fuel Ring only and Fuel Ring and DataPass Light devices.

Before proceeding, verify that the DataPass is already installed and is powered (turn ignition switch ON).

Turn the Wireless Programmer on and follow the instructions on the display as described in the following table.

Table 24: FP and DP Light Programming Sequence

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/FP+DP	Place the WP coil near the vehicle's fuel inlet.
3	Reading VIU Wait...	Wait a few seconds until the WP recognizes the Fuel Ring.
4	Org: [Organization Name]	The Organization Name is displayed. If the WP is associated with several HO, select the required organization.
5	Vehicle ID:	1. Enter Vehicle ID (8 characters). 2. Re-enter Vehicle ID for confirmation.
6	Fleet Code:	Enter fleet code (4 characters).
7	Fuel Type:	Enter the allowed fuel type code.
8	FP Type: 1: FP 2: FP+DP	FP type options are displayed: • Enter **1** to program a Fuel Ring device only. **In this case proceed to step 42**. • Enter **2** to program both Fuel Ring and DataPass devices.
9	DP Address: 1: Auto 2: Manual	DP MAC address (unique unit ID) insertion: • Enter **1** to automatically recognize DP MAC address. Stay inside the vehicle close to DP, or at a maximum range of ~0.5m to maintain proper receiving signal and avoid the possibility of finding by mistake another DP. Wait up to seven seconds for result. • Enter **2** for manual insertion of the MAC address.
	DP Address: XXXXXXXX	Verify the automatically entered MAC/Type the eight characters as shown on DP rear label and save.
10	Reading DP Wait...	Wait a few seconds until the WP recognizes the DP. Proceed to step 13, except for the following:

Step	Display	Description
11	Old Generation! Update DP? Y/N	In cases where the current DP version is old, users may update DP firmware (i.e. update DP to DP+): • Press **Y** to update. • Press **N** to continue the current process.
12	DP Not Empty! Overwrite? Y/N	In cases where the DP has been previously programmed, approve re-programming: Press **Y**.
13	Vehicle Manufact: >XXXXX	Select the vehicle manufacturer.
14	Vehicle Model: >XXXXX	Select the vehicle model.
15	Vehicle Year: >XXXX	Select the vehicle year.
16	Additional Info: >	Select additional vehicle data, if any.
17	DP Type: DP Light	The detected DP type is displayed.
18	Interface: >CAN Kline PLS	Select the communication protocol.
19	Is DP Connected to Switch? Y/N	Select the DP connection type (whether DP is connected to ignition switch or not) to set the unit sleep mode. **If working with Odometer pulses, proceed to step 20 in Table 4-12.**
20	Read Odometer: Y/N	Odometer reading option. Default: Y • Press **ENTER** to retrieve odometer reading. • Change default to **N** to disable the option.
21	Distance Unit: 1: Km 2: Miles	Distance measurement units definition: • Enter **1** for Km. • Enter **2** for Miles. **If Odometer reading was disabled, proceed to step 24.**
22	DP Factor: 7200	DP Factor is displayed. Edit the parameter, entering a known factor, if needed.
23	DP Offset: 0	DP Offset is displayed. Edit the parameter, entering a known offset, if needed.
24	Read Engine Hour: Y/N	Engine Hour reading option. Default: Y • Press **ENTER** to retrieve engine hour reading. • Change default to **N** to disable the option.
25	Odometer: 0.0	**This screen is displayed only in cases where Odometer reading was not disabled**. Edit the parameter, entering the value displayed on the dashboard
26	E.H.: 0.0	**This screen is displayed only in cases where E.H. reading was not disabled**. Edit the parameter, entering the value displayed on the dashboard (if available)
27	Switch Time Out: 10 Minutes	Switch Timeout. Default: 10 Minutes. Save or edit the parameter and save.
28	SEND to FP/DP	Press **SEND**.
29	Programming DP Wait...	Wait a few seconds until the DP and VIU programming process finishes.
30	Programming Done!	An operation successful screen is displayed.

4.2.2.3 DP Light Programming Sequence - Pulses Interface

The following table describes the sequence for units connected directly to odometer pulses output:

Table 25: DP Light Programming Sequence - Pulses Interface

Step	Display	Description
1	Read Odometer: Y/N	Odometer reading option. Default: Y. • Press **ENTER** to retrieve odometer reading. • Change default to **N** to disable the option.
2	Distance Unit: 1: Km 2: Miles	Distance measurement units definition: • Enter **1** for Km • Enter **2** for Miles Save or edit the parameter and save. In cases where the Odometer reading option was disabled, **proceed to step 6**.
3	Odometer Factor: 0	Set the Odometer factor.
4	Odometer Threshold: mV 0	Set the Odometer threshold.
5	Odometer Hysteresis: mV 0	Set the Odometer hysteresis.
6	Read Engine Hour: Y/N	Engine Hour reading option. Default: Y. • Press **ENTER** to retrieve engine hour reading. • Change default to **N** to disable the option.
7	Odometer: 0.0	This screen is displayed only in cases where Odometer reading was not disabled. Edit the parameter, entering the value displayed on the dashboard.
8	E.H.: 0.0	This screen is displayed only in cases where E.H. reading was not disabled. Edit the parameter, entering the value displayed on the dashboard (if available).
9	Switch Time Out: 10 Minutes	Switch Timeout. Default: 10 Minutes. Save or edit the parameter and save.
10	SEND to FP/DP	Press **SEND**.
11	Programming DP Wait...	Wait a few seconds until the DP and VIU programming process finishes.
12	Programming Done!	An operation successful screen is displayed.

4.2.2.4 DP Programming Only

The Program DP only option enables the technician to program a DP unit, which is not correlated with an FP unit. Table 26 describes the Program DP only sequence steps which are common for all DP types.

Before proceeding, verify that the DP is powered (turn ignition switch ON). Turn the WP on and follow the instructions on the WP display.

Table 26: DP Programming Only

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/FP+DP >Prog DP Only Read DP Only	The WP Functions menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Prog DP Only option.
3	DP Address: 1: Auto 2: Manual	DP MAC address (unique unit ID) insertion: • Enter **1** to automatically recognize DP MAC address. Stay inside the vehicle close to DP, or at a maximum range of ~0.5m to maintain proper receiving signal and avoid the possibility of finding by mistake another DP. Wait up to seven seconds for result. • Enter **2** for manual insertion of the MAC address.
4	DP Address: XXXXXXXX	Verify the automatically entered MAC/Type the eight characters as shown on DP rear label and save. **In cases where automatic recognition was selected and more than one DP is detected, the WP shows the MAC addresses of all DP units found.**
5	Select DP Address: >XXXXXXXX	Use the DOWN arrow key to move the pointer (>) to the required DP address.
6	Wait...	Wait a few seconds until the WP recognizes the DP. Proceed to step 9, except for the following:
7	Old Generation! Update DP? Y/N	In cases where the current DP version is old, users may update DP firmware (i.e., update DP to DP+): • Press **Y** to update. • Press **N** to continue the current process
8	DP Not Empty! Overwrite? Y/N	In cases where the DP has been previously programmed, approve reprogramming: press **Y**.
9	Org: [Organization Name]	The Organization Name is displayed. If the WP is associated to several HO, select the required organization
10	Vehicle ID:	1. Enter Vehicle ID (8 characters). 2. Re-enter Vehicle ID for confirmation.
11	Fleet Code:	Enter fleet code (4 characters). Program the unit, as follows: • Proceed to step 13 in Table 23 on page 63 for μDP. • Proceed to step 13 in Table 30 on page 73 for DP Heavy. • Proceed to step 13 in Table 24 on page 66 for DP Light.
After setting DP parameters, the following screen is displayed:		
	SEND to DP	Press SEND to set DP parameters.
	Programming Done!	An operation successful screen is displayed.

Adding FP to DP Only

Add DP to FP option enables the technician to add an FP unit to a vehicle equipped with DP only. Table 27 describes the Add FP to DP sequence steps which are common for all DP types.

Before proceeding, verify that the DP is powered (turn ignition switch ON). Turn the WP on and follow the instructions on the WP display as described below.

Table 27: Adding FP to DP Only

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/FP+DP >Add FP to DP Initialize NR	The WP Functions menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Add FP to DP option.
3	Reading VIU Wait...	Wait a few seconds until the WP recognizes the Fuel Ring.
4	DP Address: 1: Auto 2: Manual	DP MAC address (unique unit ID) insertion: • Enter **1** to automatically recognize DP MAC address. Stay inside the vehicle close to DP, or at a maximum range of ~0.5m to maintain proper receiving signal and avoid the possibility of finding by mistake another DP. Wait up to seven seconds for result. • Enter **2** for manual insertion of the MAC address.
5	DP Address: XXXXXXXX	Verify the automatically entered MAC/Type the eight characters as shown on DP rear label and save. **In cases where automatic recognition was selected and more than one DP is detected, the WP shows the MAC addresses of all DP units found.**
6	Select DP Address: >XXXXXXXX	Use the DOWN arrow key to move the pointer (>) to the required DP address.
7	Wait...	Wait a few seconds until the WP recognizes the DP.
8	Vehicle ID:	Vehicle ID is displayed. Re-enter Vehicle ID for confirmation.
9	Fleet Code: XX	Fleet Code is displayed. Save or edit the parameter and save.
10	Fuel Type:	Enter the allowed fuel type code
11	Vehicle Code: XXXX	Vehicle code is displayed. Save or edit the parameter and save. • Proceed to step 13 in Table 23 on page 63 for µDP. • Proceed to step 13 in Table 30 on page 73 for DP Heavy. • Proceed to step 13 in Table 24 on page 66 for DP Light.
After setting DP parameters, the following screen is displayed:		
	SEND to DP+FP	Press **SEND** to set DP parameters.
	Programming Done!	An operation successful screen is displayed.

4.2.2.5 Replacing DP

Replace DP option enables the technician to check a DP unit correlated with FP and to replace the DP if necessary.

During this process, the WP attempts to read the DP. In cases where the DP is found to be working, a proper message is displayed.

If the unit is defective, the technician should connect a new DP and use this option to program the new DP correlating it with the existing FP.

Table 28 describes the Replace DP sequence steps which are common for all DP types.

Before proceeding, verify that the DP is powered (turn ignition switch ON).

Turn the WP on and follow the instructions on the WP display described as follows:

Table 28: Replace DP Sequence

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/FP+DP >Replace DP Add DP to FP	The WP Functions menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Replace DP option.
3	Attach Coil to FP Press **SEND**	Place the WP coil near the vehicle's fuel inlet and then press **SEND**.
4	Reading FP + DP Wait...	Wait a few seconds while the WP attempts to read FP and DP units. **In cases where the DP is found to be working, the following message is displayed (see step 5), otherwise proceed to step 6.**
5	DP OK! No need to replace it!	No further action is required.
6	Replace DP and Press SEND	Replace defective DP with a working unit and then press **SEND**.
7	DP Address: 1: Auto 2: Manual	Program the newly installed unit, as follows: • Proceed to step 9 in Table 23 on page 63 for µDP. • Proceed to step 9 in Table 30 on page 73 for DP Heavy. • Proceed to step 9 in Table 24 on page 66 for DP Light.
After setting DP parameters, the following screen is displayed:		
	SEND to DP	Press **SEND** to set DP parameters.
	DP Parameters Done	An operation successful screen is displayed.

4.2.2.6 Add DP to FP

The Add DP to FP option enables the technician to program a DP unit and to correlate it with an already programmed FP.

Note: FP units may not be reprogrammed after being associated to a DP.

Table 29 describes the Add DP to FP sequence steps which are common for all DP types.

Before proceeding, verify that the DP is powered (turn ignition switch ON).

Turn the WP on and follow the instructions on the WP display described as follows:

Table 29: Add DP to FP Sequence

Step	Display	Description
1	Enter User ID	Enter User ID
	Enter Password	Enter password
2	>Prog FP/FP+DP Read FP/FP+DP >Add DP to FP Prog DP Only	The WP Functions menu is displayed. Use the DOWN arrow key to move the pointer (>) to the Add DP to FP option
3	Attach Coil to FP. Press SEND	Place the WP coil near the vehicle's fuel inlet and then press **SEND**.
4	Reading VIU Wait...	Wait a few seconds until the WP recognizes the Fuel Ring.
5	DP Address: 1: Auto 2: Manual	Program the newly added unit, as follows: • Proceed to step 9 in Table 23 on page 63 for µDP. • Proceed to step 9 in Table 30 on page 73 for DP Heavy. • Proceed to step 9 in Table 24 on page 66 for DP Light.
After setting DP parameters, the following screen is displayed:		
	SEND to FP & DP	Press **SEND** to set DP parameters.
	DP Parameters Done	An operation successful screen is displayed.

4.2.3 Programming Heavy Vehicles

The following describes the programming process for heavy vehicles.

4.2.3.1 FP and DP Heavy Programming Sequence

Table 30 on page 73 describes the programming sequence for heavy vehicles equipped with Fuel Ring only and Fuel Ring and DataPass/DataPass Plus heavy devices.

Before proceeding, verify that the DP is already installed and is powered (turn ignition switch ON).

Turn the WP on and follow the instructions on WP display described in the following table.

Table 30: FP and DP Heavy Programming Sequence

Step	Display	Description
1	Enter User ID	Enter User ID.
	Enter Password	Enter password.
2	>Prog FP/FP+DP Read FP/FP+DP	Place the WP coil near the vehicle's fuel inlet.
3	Reading VIU Wait...	Wait a few seconds until the WP recognizes the Fuel Ring.
4	Org: [Organization Name]	The Organization Name is displayed. If the WP is associated with several HO, select the required organization.
5	Vehicle ID:	1. Enter Vehicle ID (8 characters). 2. Reenter Vehicle ID for confirmation.
6	Fleet Code:	Enter fleet code (4 characters).
7	Fuel Type:	Enter the allowed fuel type code.
8	FP Type: 1: FP 2: FP+DP	FP type options are displayed: • Enter **1** to program a Fuel Ring device only. In this case proceed to step 42. • Enter **2** to program both Fuel Ring and DataPass devices.
9	DP Address: 1: Auto 2: Manual	DP MAC address (unique unit ID) insertion: • Enter 1 to automatically recognize DP MAC address. Stay inside the vehicle close to DP, or at a maximum range of ~0.5m to maintain proper receiving signal and avoid the possibility of finding by mistake another DP. Wait up to seven seconds for result. • Enter 2 for manual insertion of the MAC address
	DP Address: XXXXXXXX	Verify the automatically entered MAC/Type the eight characters as shown on DP rear label and save.
10	Reading DP Wait...	Wait a few seconds until the WP recognizes the DP. Proceed to step 13, except for the following:
11	Old Generation! Update DP? Y/N	In cases where the current DP version is old, users may update DP firmware (i.e. update DP to DP+): • Press Y to update. • Press N to continue the current process.
12	DP Not Empty! Overwrite? Y/N DP Not Empty! >Add FP↓ DP Not Empty! >Add FP ↑	In cases where the DP has been previously programmed, approve re-programming: Press Y In cases where the DP has been previously programmed, approve re-programming: press Y The following options are available when using WP ARM ver. 2.1.16, AVR ver. 4.3.6 and up, DP ver. 4.2 and up: • Select Add FP to correlate an additional FP to the DP (for multi-tank trucks) and proceed to step 56. • Select Overwrite to reprogram the DP and proceed to step 13. • Select to replace a defective FP in cases where more than one FP unit is correlated to the DP (multi-tank trucks) and proceed to step 60
13	Vehicle Manufact: >XXXXX	Select the vehicle manufacturer.
14	Vehicle Model: >XXXXX	Select the vehicle model.
15	Vehicle Year: >XXXX	Select the vehicle year.
16	Additional Info: >	Select additional vehicle data, if any.

Step	Display	Description
17	DP Type: DP+ Heavy DP Type: DP Heavy	Select the communication protocol.
18	Interface: FMS >PLS J1939 J1587	The WP displays the odometer method: • Direct • OBD • VAG
19	Is DP Connected to Switch? Y/N	Select the DP connection type (whether DP is connected to ignition switch or not) to set the unit sleep mode. **If working with Odometer pulses, proceed to step 20 in Table 31 on page 77.**
20	CAN Data Rate: 1: 250K 2: 500K	**This option exists for J1939 and FMS only.** CAN Data Rate: • Enter **1** for 250K • Enter **2** for 500K Then press **Enter**.
21	Read Odometer: Y/N	Odometer reading option. Default: Y. • Press **ENTER** to retrieve odometer reading. • Change default to N to disable the option. **In this case, proceed to step 23.**
22	Odometer Adr: 255 DP Odo. Adr: 141	Odometer Address (Default: 255) and DP Odometer Address (Default: 141). Save or edit the parameters and then save.
23	Distance Unit: 1: Km 2: Miles	Distance measurement units' definition: • Enter 1 for Km. • Enter 2 for Miles. Save or edit the parameter and then save.
24	Read Engine Hour: Y/N	Engine hour reading option. Default: Y • Press **ENTER** to retrieve engine hour reading. • Change default to N to disable the option. **In this case, proceed to step 28.**
25	E.H. SRC 1: Switch 2: Bus	Select the input source for Engine Hour reading: 1 for Switch or 2 for Vehicle Bus. Default: Bus • Press **ENTER** to select Bus • Change default to 1 to select Switch. **In this case, proceed to step 28.**
26	E.H. Adr: 255 DP E.H. Adr: 141	E.H. Address (Default: 255) and DP E.H. Address (Default: 141). Save or edit the parameters and then save.
27	E.H. PID: 247	The E.H. PID (Parameter ID) is displayed. Default: 247. Save or edit the parameter (changing the value to 246) and then save.
28	Switch on Engine Press SEND	Switch on the engine, wait 20 seconds and then press **SEND**. DP attempts to read the odometer/engine hours. If reading attempt fails, the WP will go back to step 21.
29	Odometer: XXXXXXX	Odometer reading is displayed. Edit the parameter, entering the value displayed on the dashboard.
30	Engine Hour: XXXXXXX	Engine Hour reading is displayed, in cases where the E.H. source is the Bus. Otherwise, a zero is displayed. Edit the parameter, entering the value displayed on the dashboard (if available).
31	Main Engine: 255 DP SRC Adr: 141	This screen is displayed in cases where Engine Hour reading was disabled (step 24) or the E.H. source selected was Switch (step 25). Main Engine Address (Default: 255) and DP Source Address (Default: 141). Save or edit the parameters and then save. **If programming DP (not DP+), proceed to step 53.**

Step	Display	Description
32	Error Codes Exist: Y/N	Error codes collection option. Default: N. • Press **ENTER** to leave the option disabled. • Change default to Y to enable the option.
33	Aux1 E.H. Exist: Y/N	Aux. Engine #1 E.H. reading option. Default: N • Press **ENTER** to leave the option disabled. **In this case, proceed to step 38.** • Change default to Y to enable the option
34	Aux1 E.H. SCR: 1: Line 2: Bus	Select the input source for Aux. #1 Engine Hour reading: 1 for Line or 2 for Vehicle Bus. Default: Bus • Press ENTER to select BUS. **In this case, proceed to step 36.** • Change default to 1 to select Line. **In this case, proceed to step 35.**
35	Aux1 Polarity: • 1: Minus • 2: Plus	Select the line polarity: 1 for Minus, 2 for Plus. Default: Plus • Press **ENTER** to select Plus • Change default to 1 to select Minus **Proceed to step 37.**
36	Aux1 E.H. Adr: 175	Aux. Engine #1 E.H. Address (Default: 175). Save or edit the parameter and then save.
37	Aux1 E.H.:	Aux. Engine #1 E.H. reading is displayed, in cases where the E.H. source is the Bus. Otherwise, a zero is displayed. Edit the parameter, entering the value displayed on the dashboard (if available).
38	Aux2 E.H. Exist: Y/N	Aux. Engine #2 E.H. reading option. Default: N • Press ENTER to leave the option disabled. **In this case, proceed to step 43.** • Change default to Y to enable the option.
39	Aux2 E.H. SCR: 1: Line 2: Bus	Select the input source for Aux. #2 Engine Hour reading: 1 for Line or 2 for Vehicle Bus. Default: Bus • Press ENTER to select BUS. **In this case, proceed to step 41.** • Change default to 1 to select Line. **In this case, proceed to step 40.**
40	Aux2 Polarity: 1: Minus 2: Plus	Select the line polarity: 1 for Minus, 2 for Plus. Default: Plus • Press **ENTER** to select Plus. • Change default to **1** to select **Minus**. **Proceed to step 42.**
41	Aux2 E.H. Adr: 183	Aux. Engine #2 E.H. Address (Default: 183). Save or edit the parameter and then save.
42	Aux2 E.H.	Aux. Engine #2 E.H. reading is displayed, in cases where the E.H. source is the Bus. Otherwise, a zero is displayed. Edit the parameter, entering the value displayed on the dashboard (if available).
43	PTO Exist: Y/N	Power take-off operating hour's collection option. Default: N. Press **ENTER** to leave the option disabled Change default to Y to enable the option.
44	Idle Time Exist: Y/N	Idle Time collection option. Default: N. • Press **ENTER** to leave the option disabled. **In this case, proceed to step 47.** • Change default to Y to enable the option.
45	Idle Time (Min) Threshold: 5	Idle Time Threshold. Default: Five minutes. Save or edit the parameter and then save.
46	Over Speed Exist: Y/N	Over Speed collection option. Default: N • Press **ENTER** to leave the option disabled. **In this case, proceed to step 48.** • Change default to Y to enable the option.
47	Over Speed Threshold: 65	Over Speed Threshold. Default: 65 miles/105 Km. Save or edit the parameter and then save.

Step	Display	Description
48	Over RPM Exist: Y/N	Over RPM collection option. Default: N. • Press **ENTER** to leave the option disabled. **In this case, proceed to step 50.** • Change default to Y to enable the option.
49	Over RPM Threshold: 3500	Over RPM Threshold. Default: 3500 RPM. Save or edit the parameter and then save.
50	Fuel Level: Exist: Y/N	Fuel level collection option. Default: N. • Press **ENTER** to leave the option disabled. • Change default to Y to enable the option.
51	Fuel Consumed Exist: Y/N	Fuel consumption collection option. Default: N. • Press **ENTER** to leave the option disable. • Change default to Y to enable the option.
52	Tacho Driver ID Exist? Y/N	**This option exists for J1939 and FMS only**. • Tachograph reading of Driver ID from driver's card. • Press **ENTER** to leave the option disabled. • Change default to Y to enable the option.
53	Switch T.O. Units 1: M 2: H 3: D	Switch Timeout units: • 1 for Minutes • 2 for Hours • 3 for Days Default: Minutes. Save or edit the parameter and then save.
54	Switch Time Out: 10 Minutes	Switch Timeout. Default: 10 Minutes. Save or edit the parameter and then save.
55	Engine On Report Exist: Y/N	Engine On Report option. Default: N • Press **ENTER** to leave the option disabled. • Change default to Y to enable the option.
56	SEND to FP/DP	Press **SEND**.
57	Programming DP	Wait a few seconds until the DP and VIU programming process finishes. Proceed to step 64, except for the following:
58	Done! (X FP) Add FP? Y/N	**The following options are available when using WP ARM ver. 2.1.16, AVR ver. 4.3.6 and up, DP ver. 4.2 and later:** The number of FP units correlated to the DP is displayed. • To add another FP (for an additional tank), place the WP coil near the FP coil and press Y. **Proceed to step 59**. • Press N to finish the process and return to the WP Functions main menu (step 2). *Note: The system supports up to five different FP devices per vehicle. After 5 FP units were successfully programmed the option to add FP becomes unavailable and a success message is displayed.*
59	Fuel Type:	Enter the allowed fuel type code. **Proceed to step 56.**
60	X FPs Left: >Read another FP↓	**The following screens appear if the Replace FP option was selected (step 12, WP ARM ver. 2.1.16, AVR ver. 4.3.6 and up, DP ver. 4.2 and later):** The number of remaining functional FP devices is displayed. Select the Read another FP option.
61	Bring Ring to FP and Press SEND	Place the WP coil near the FP coil and press SEND. The WP reads the functional FP data. If there are more FPs installed, the WP automatically returns to step 60 to read the rest of the units. Otherwise, **proceed to step 62.**
62	Bring Ring to new FP and Press SEND	Place the WP coil near the newly replaced FP coil and press **SEND**.

Step	Display	Description
63	Programming DP Wait...	Wait a few seconds until the DP and VIU programming process finishes.
64	Programming Done!	An operation successful screen is displayed.

4.2.3.2 DP Heavy Programming Sequence - Pulses Interface

The following table describes the sequence for units connected directly to odometer pulses output:

Table 31: DP Heavy Programming Sequence - Pulses Interface

Step	Display	Description
1	CAN Data Rate: 1: 250K 2: 500K	**This step is intended for J1939 only**. CAN Data Rate: • Enter 1 for 250K. • Enter 2 for 500K. Then press **Enter**.
2	Read Odometer: Y/N	Odometer reading option. Default: Y. • Press **ENTER** to retrieve odometer reading. • Change default to **N** to disable the option.
3	Distance Unit: 1: Km 2: Miles	Distance measurement units definition: • Enter 1 for Km. • Enter 2 for Mile. Save or edit the parameter and then save. **In cases where the Odometer reading option was disabled, proceed to step 7.**
4	Odometer Factor: 0	Set the Odometer factor.
5	Odometer Threshold: mV 0	Set the Odometer threshold.
6	Odometer Hysteresis: mV 0	Set the Odometer hysteresis.
7	Read Engine Hour: Y/N	Engine hour reading option. Default: Y. Press **ENTER** to retrieve Engine Hour reading Change default to **N** to disable the option.
8	Odometer: 0.0	**This screen is displayed only in cases where Odometer reading was not disabled**. Edit the parameter, entering the value displayed on the dashboard.
9	E.H.: 0.0	**This screen is displayed only in cases where Engine Hour reading was not disabled**. Edit the parameter, entering the value displayed on the dashboard (if available).
10	Switch T.O. Units 1: M 2: H 3: D	Switch Timeout units: • 1 for Minutes • 2 for Hours • 3 for Days Default: Minutes. Save or edit the parameter and then save.
11	Switch Time Out: 10 Minutes	Switch Timeout. Default: 10 Minutes. Save or edit the parameter and then save.
12	Engine On Report Exist: Y/N	Engine On Report option. Default: N Press **ENTER** to leave the option disabled. Change default to Y to enable the option.
13	Pulse Factor: Y/N	**This option exists for Pulse interface only**. • Press ENTER to leave the option disabled. • Change default to Y to enable the option.
14	SEND To FP/DP	Press **SEND**.

Step	Display	Description
15	Programming DP Wait...	Wait a few seconds until the DP and VIU programming process finishes. Proceed to step 22, except for the following:
16	Done! (X FP) Add FP? Y/N	**The following options are available when using WP ARM ver. 2.1.16, AVR ver. 4.3.6 and up, DP ver. 4.2 and later:** The number of FP units correlated to the DP is displayed. • To add another FP (for an additional tank), place the WP coil near the FP coil and press Y. Proceed to step 17 • Press N to finish the process and return to the WP Functions main menu (step 2 in Table 30 on page 73). *Note: The system supports up to five different FP devices per vehicle. After 5 FP units were successfully programmed the option to add FP becomes unavailable and a success message is displayed.*
17	Fuel Type:	Enter the allowed fuel type code. **Proceed to step 14.**
18	X FPs Left, >Read another FP↓	**The following screens appear if the Replace FP option was selected (Step 12 in Table 4-17, WP ARM ver. 2.1.16, AVR ver. 4.3.6 and up, DP ver. 4.2 and later):** The number of remaining functional FP devices is displayed. Select the **Read another FP** option
19	Bring Ring to FP and Press SEND	Place the WP coil near the FP coil and press SEND. The WP reads the functional FP data. If there are more FPs installed, the WP automatically returns to step 18 to read the rest of the units. **Otherwise, proceed to step 20.**
20	Bring Ring to new FP and SEND	Place the WP coil near the newly replaced FP coil and press **SEND**.
21	Programming DP Wait...	Wait a few seconds until the DP and VIU programming process finishes.
22	Programming Done!	An operation successful screen is displayed.

4.2.3.3 DP Heavy Vehicle Interface - Communication Parameters

The following table details the default and the alternative values for DP-vehicle interface communication parameters described above:

Table 32: DP-Heavy Vehicle Interface Communication Parameters Values

Parameter	J1587		J1939	
	Default	Alternative	Default	Alternative
Odometer Adr	255	128	255	0
DP Odo Adr	144	171,179, 180	24	-
E.H Adr	255	128	255	0
DP E.H Adr	141	171, 179, 180	24	-
E.H PID	247	246	229	-

In cases where Odometer and Engine Hour readings are not obtained using default values, proceed as follows:

Odometer reading:
If Odometer reading is 0/fails: Change **DP Odo Adr** to one of the alternative values shown above in Table 32.

Engine Hour Reading:
If Engine Hour reading fails: Change **DP E.H Adr** to one of the alternative values shown above in Table 32. If Engine Hour reading still fails - change **E.H PID** to 246.

5 – Troubleshooting

5.1 General

This section provides a description of possible issues related to the vehicle units, or to their communication with the FuelPoint PLUS system, as well as corrective actions.

5.1.1 Programming Troubleshooting

The following table details possible programming issues and their corrective actions:

Table 1:Programming Troubleshooting

Symptom	Probable Cause	Checks	Corrective Action
When turning the WP unit on, the display is blank	The battery is empty		Charge the unit and check again.
	The unit is faulty		Replace the WP: insert SAM card into the unit, enter its Serial Number into OLIC, and check again.
WP works but can't program FP	Faulty SAM	Perform the internal tests.	Replace the SAM card.
	Faulty WP antenna		Replace the antenna.
	Incorrect parameters	Check communication parameters.	Update parameters according to the local ISP.
	FP is not defined in the HO	Check the presence of the device under Devices.	Enter device into HO.
	Faulty WP		Replace the WP: insert SAM card into the unit, enter its Serial Number into OLIC, and check again.
WP doesn't work with FP or DP	Faulty antenna		Replace the antenna.
Wireless Gateway LEDs are off	Units power	Check that the power supply is connected to the main one.	Connect to power.
		Check the power's wiring from the power supply to the Wireless Gateway.	Fix the wiring and check again.
	Faulty Wireless Gateway		Replace Wireless Gateway, set it up, and check again.
Wireless Gateway's LAN's LEDs are off	Faulty unit		Replace Wireless Gateway.
	Faulty LAN cable		Replace the LAN cable.
	Faulty FCC LAN		Replace FCC.
	Incorrect setup	1 Check the FCC setup for correct IP+Port+4852. 2 Check Wireless Gateway (Master) for correct IP+Port+48.	Edit parameters.

5.1.2 Refueling Troubleshooting

The following details possible refueling issues and their corrective actions.

Table 2: Refueling Troubleshooting

Symptom	Probable Cause	Checks	Corrective Action
Specific vehicle cannot refuel at any station	Defective FP Coil / Chip	Read FP with WP.	If issue persists, replace antenna or chip, and program using the WP.
	Connection between antenna and chip	Check the connection.	Improve connection, and if needed - open and reassemble (solder).
	FP antenna is far from nozzle's antenna		• Fuel Ring: Use the coil clamp to raise the antenna to the top so it will be closer to the nozzle antenna when refuelling. • NanOpass: It is strongly recommended to test the location before installing the unit (see Verifying Location Using the RFID Tester).
	DP is missing	Search for DP availability.	• Restart the DP (power off / on). • Reprogram it.
	DP is not working	Check with WP that DP is working.	• Check parameters. • Check DP connection to power. • Check sleep timeout. • Check that Engine Hour wire is connected properly. • Replace DP.
	DP does not match FP	Check with WP.	Reprogram the vehicle (FP+DP).
	Programming did not complete correctly	With WP, check that parameters are valid.	Correct or reprogram the parameters.
Specific vehicle can't refuel with specific nozzle (fuel type)	Incorrect device parameters	Check device parameters in Head Office.	Update parameters in HO then try to refuel.
Vehicle cannot refuel at a specific station	SAM in Wireless Gateway (Master) or Wireless Gateway	Check that SAM card is defined in Wireless Gateway.	Add/replace defective SAM.
	No communication between FCC and HO	Check communication's path.	Update communication between FCC and HO.
	No communication to the Wireless Gateway (Master)		See Wireless Gateway Communication above.
Wireless Nozzle Reader LED blinks twice but fuelling does not start	FCC or HO wrong setup	Check the specific device parameters (fuel type, rules, etc).	Update parameters, wait for HO to sync with SO, and then try to refuel.
	NR is not set up properly to work with Wireless Gateway	Use WP to check NR parameters.	Update NR parameters according to its linked Wireless Gateway parameters.

Symptom	Probable Cause	Checks	Corrective Action
	No communication between the Wireless Gateway (Master) and FCC	Ping Wireless Gateway (Master) from FCC.	If ping is available: • Check setup of FCC & Wireless Gateway (Master). • Replace Wireless Gateway (Master). If ping is unavailable: • Check Wireless Gateway (Master)'s IP+Port+485. • Repair/replace LAN cable. • Replace Wireless Gateway (Master). • Replace/check FCC LAN port.
	DP is not detected by Wireless Gateway (Master)	Check that DP available is enabled in Wireless Gateway (Master) setup.	Enable Wireless Gateway (Master) to read FP even if DP is not available.
The FP is read, but the DP is not detected	Faulty DP	Read DP with WP.	Check wires and firm connections If the DP is not responding, replace and reprogram.
	DP is missing	Check the DP's availability.	Add DP and reprogram it.
Can't read vehicles and/or no authorization at the pumps	No communication between NR and Wireless Gateway (Master)	Check Wireless Gateway's physical connection to the local network.	• If no activity on LAN port, check the cable and/or change the port on switch. • Check Wireless Gateway (Master) LEDs status. • Check Wireless Gateway settings, browse and setup the Wireless Gateway (Master) according to your station layout. • If Wireless Gateway is not responding to ping: connect to Wireless Gateway (Master) through the 9-pin serial port and open HyperTerminal (115200, 8, None, 1, None), reset the power to the Wireless Gateway (Master), and follow the start-up messages to locate the IP address. • Check the FCC settings, and set the FCC, Wireless Gateway (Master), and Nozzle channel, according to your station layout.
		Check if NR LED blinks 3 times.	Unblock the NR using WP or Wireless Gateway (Master).
	Incorrect Wireless Nozzle Readers setup	Check the Wireless Gateway's network settings.	Reprogram the Wireless Gateway (Master) to include the correct NR mapping in Group.
		Check the Wireless Nozzle Reader programming.	Reprogram the NR.
Incorrect Odometer reading	Calibration procedure for this vehicle was not performed	Check vehicle model in calibration parameter.	Perform calibration procedure (Factor, Offset, and Bus).

Symptom	Probable Cause	Checks	Corrective Action
	Incorrect DP type for this vehicle	Check the bus type using VCM.	Replace DP to fit the specific vehicle Bus reprogram and setup.
Odometer is zero	Faulty DP	Read DP with WP.	If DP is not responding: replace and reprogram.
	Incorrect wiring	Check wires according to the vehicle's electric schema.	Fix the wiring and check again.
Incorrect Engine Hour reading	Weak signal	Use an oscilloscope to check the signal.	• Improve wire connection. • Locate a stronger signal. • Add a Protection Box.
	Incorrect initial value	Using the WP, compare DP reading to the vehicle engine hour meter.	Set the DP to have the same value as the vehicle's engine hour meter.