

**FCC ID: QVJSM110T**  
FleetLink M1 OBC, Model S-M1-10-T

## Exhibit 9

### **User's Manual**

# Fleetlink Driver Display for TRUX

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User Guide

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*Fleetlink Driver Display for TRUX User Guide*

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<b>Preliminaries</b>	<b>Chapter 1</b>
	Welcome to Fleetlink ..... 6
	Important Safety and Compliance Information ..... 6
	FCC Compliance Statement (USA) ..... 7
	Industry Canada Certification ..... 7
	Using the Documentation ..... 8
	Conventions ..... 8
	Suggested Reading ..... 9
	Service and Support ..... 9
	Contacting Us ..... 9
<b>Introduction</b>	<b>Chapter 2</b>
	Introduction ..... 12
	Fleetlink Overview ..... 12
	How Communication Works ..... 13
	Introducing the Driver Display ..... 14
	Working with the Driver Display ..... 15
	Working with the Keyboard ..... 15
	Working with the Screen ..... 16
	Understanding the Main Menu ..... 16
	Viewing Statistics ..... 17
	Vehicle moving and Screen Behavior ..... 18

<b>Operation</b>	<b>Chapter 3</b>
	Introduction..... 20
	Logging On ..... 20
	Working with the Calls Menu ..... 22
	Viewing Call Information..... 23
	Searching for Calls by Sequence Number..... 25
	Confirming Calls..... 26
	Creating New Calls ..... 28
	Entering Disposal Tickets ..... 29
	Sending Messages ..... 31
	Viewing Messages..... 32
	Entering Activities ..... 33
	Logoff..... 35

# Chapter 1

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## Preliminaries

## Welcome to Fleetlink

Welcome to Fleetlink, FleetMind's fleet management solution. In this user guide, you will learn about the Fleetlink Driver Display, which is the interface between your mobile resources and your terminal. The guide is divided into three chapters (see "Using the Documentation" in this chapter), which will help you understand how the Driver Display works and how you will use it to confirm calls and enter activities.

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## Important Safety and Compliance Information

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**Note** This section applies to the Fleetlink M1 OBC model, specifically model S-M1-10 Fleetlink M1 OBC Short-Range RF without Terminal and S-M1-10-T Fleetlink M1 OBC Short-Range RF with Terminal.

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Before you install or use the Fleetlink product, read the FCC and other regulatory material found below, as well as in the other documents that accompanied your order.

This section provides information on the following topics:

- FCC compliance statement (USA)
- Industry Canada Certification

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**Warning** To meet FCC/IC RF exposure guidelines, you must keep at least 8in. (20 cm.) from the antenna during operation.

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## FCC Compliance Statement (USA)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial, industrial or business environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the product manuals, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense. This equipment also complies with the FCC Part 15 Subpart C.

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**Caution** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void your authority to operate this equipment.

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## Industry Canada Certification

This Class A digital apparatus complies with Canadian ICES ICES-003 and RSS 210.

# Using the Documentation

This user guide assumes some basic understanding of the Fleetlink fleet management system and is designed for drivers and dispatchers who need general and user information for the Driver Terminal. It is divided into the following three chapters:

## 1 Preliminaries

Provides general information about the manual, safety and compliance information, as well as information on how to contact customer support.

## 2 Introduction

Provides a brief overview of the Fleetlink solution and introduces the Driver Display, including its key elements.

## 3 Operation

Provides detailed procedures on how to use the Driver Display to confirm calls and enter activities.

# Conventions

This user guide uses the following conventions to convey instructions and information:

**Table1** User Guide Conventions

Convention	Description
<b>Bold</b>	When bold is used within procedures, it identifies key's on the Driver Display's keyboard (e.g., Press <b>Enter</b> .)
<b>Caution</b>	Indicates <i>reader be careful</i> In this situation, you might do something that could result in equipment damage or loss of data.
<b>Note</b>	Indicates <i>reader take note</i> . Notes contain helpful suggestions or references to additional information and material.
<b>Tip</b>	Indicates that <i>the described action saves time</i> .

## Suggested Reading

For related information, see the following publications:

- *Fleetlink Report Manager User Guide*, 33-911-0001-01
- *Fleetlink Hardware Installation and Configuration Guide*, 33-911-0002-01
- *Fleetlink Administrator Guide*, 33-911-0003-01

## Service and Support

If you require assistance with this or any other FleetMind product, please call or email technical support.

### **Call for Assistance:**

Greater Montreal Area: 514.631.3666, ext. 250

Toll-free North America: 1.877.698.4286, ext. 250

### **Email for Assistance:**

[service@fleetmind.com](mailto:service@fleetmind.com)

## Contacting Us

If you have comments about this or other FleetMind product documentation, send us an email at [techdocs@fleetmind.com](mailto:techdocs@fleetmind.com). In your message, be sure to include the manual's complete document number and revision letter (e.g., 33-911-0001-01.A), which you can find on the back cover. We appreciate your comments.

## NOTES

## Chapter 2

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### Introduction

## Introduction

This manual describes the Fleetlink Driver Display and provides instructions for its use. It is designed primarily for drivers who require a general overview of the Fleetlink solution and detailed procedures for logging on, viewing and completing customers calls and logging off, but can also be a valuable source of information for dispatchers. This chapter provides a brief introduction into the Fleetlink fleet management solution, its key components and a detailed description of the Driver Display. In addition, it provides introductory user information that will help you better understand and work with the Driver Display.

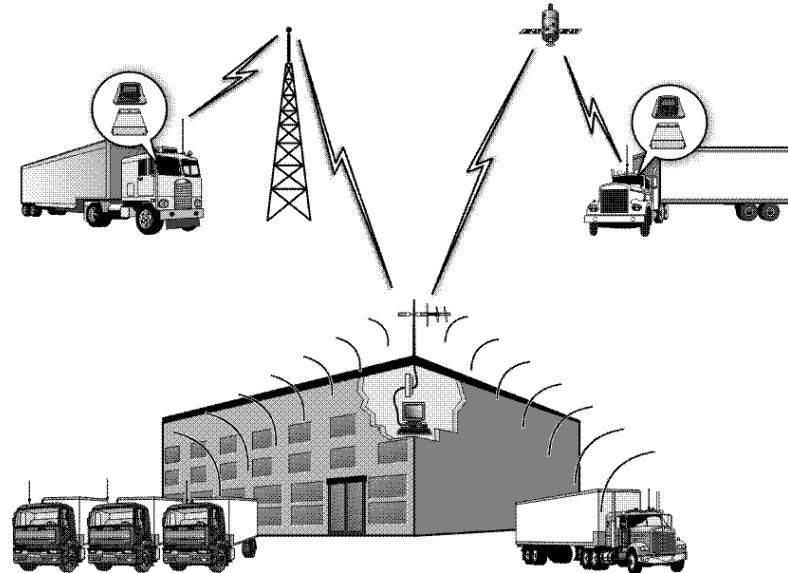
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## Fleetlink Overview

A typical configuration of Fleetlink includes an on-board computer (OBC), Fleetlink's easy-to-use fleet management application for dispatch and operations staff, a driver display, as well as the necessary wiring and antennas.

- The Fleetlink OBC receives route information from the Fleetlink server and displays it on the driver display. It also records vehicular data and driver information, which are uploaded to the Fleetlink server at the end of the route.
- The fleet management application allows dispatch and operations personnel to configure the system and to generate reports from the vehicular data and driver information. It can be used as a standalone application or integrated with existing applications.
- The driver display supplies route information to drivers and allows them to record their activities.

**Figure1** Fleetlink Solution



## How Communication Works

As illustrated in Figure1 above, communication between your vehicles and the Fleetlink server is possible using short-wave radio, which is standard in all configurations, and terrestrial or satellite radio, both of which are optional. This wireless transfer of data without human intervention is one of the main benefits of the Fleetlink solution.

Inside the yard, short-range radio is used to send information to and from the vehicles. At the start of the day, route information is downloaded to the vehicles; at the end of the day, vehicular data and driver information are uploaded to the Fleetlink server. When vehicles are outside of this zone, optional wireless communication—terrestrial or satellite radio—can be used to transmit selected information to and from the vehicles.

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**Note** If the Fleetlink server fails, communication between the terminal and vehicles will be impossible. However, drivers will still be able to use the Driver Display and the OBC will continue to store information.

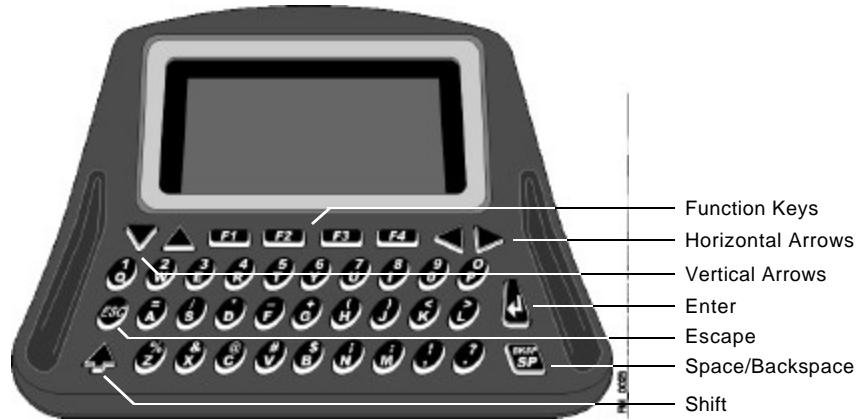
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## Introducing the Driver Display

The driver display is the interface between drivers and your company's terminal, and includes a monochrome display and a keyboard. It allows you to confirm calls and enter activities. When optional terrestrial or satellite radio communication is equipped, the driver display can also be used to maintain constant communications with your dispatcher.

Information entered by drivers is recorded by the OBC, which uploads it to the Fleetlink server wirelessly. In standard RF-only configurations, information is uploaded to the server when the vehicle comes into range. When communication via terrestrial or satellite radio is available, selected information, such as completed calls, can also be uploaded in real-time.

**Figure2** Driver Display



# Working with the Driver Display

## Working with the Keyboard

The driver display's keyboard includes several keys (see figure2on page14), with special functions (see table below).

**Table1** Special keys

Key	Function
Horizontal arrows	Use to navigate left or right through fields. Also use to change the value in a scrolling list.
Vertical arrows	Use to navigate up or down through fields. Also use to change the value in a scrolling list.
Escape	Use to return to the previous menu.
Space/Backspace	Use to add a space between characters. Press the Shift key before pressing this key, and you will erase the character to the left of the cursor.
Enter	Use to confirm data entry and proceed to the next step.
Shift	Use to access special functions or characters. Press once for a single function or character. Press twice to lock shift function; the key lights up. To turn off shift lock, press the key again.
Function keys	Use these keys to access the functions that are represented by abbreviations at the bottom of the screen. Note that when there is no abbreviation indicated above a key, the key is inactive.

## Working with the Screen

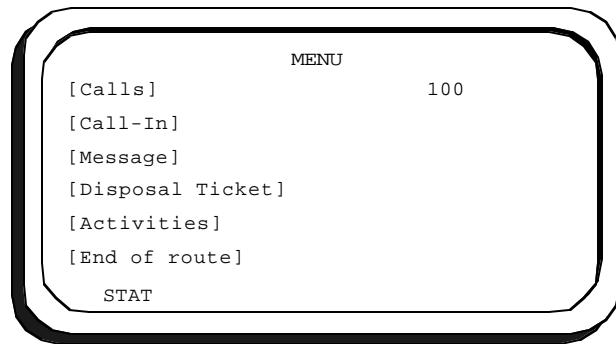
The screen of the driver display has a capacity of 8 lines by 21 characters in text mode. The driver display uses the following conventions:

- **Scrolling list:** To indicate a scrolling list, the screen uses either vertical or horizontal arrows.
- **Active function key:** When a function key is active, the screen displays an abbreviation directly above the key. This abbreviation indicates the key's function.
- **Inactive function key:** When there is no abbreviation displayed above a function key, the key is inactive.

## Understanding the Main Menu

The main menu (see Figure3) provides access to all submenus and functions. It appears automatically after you logon (see “Logging On” on page20 for procedure). To navigate through the available submenus, use the arrows on the display’s keyboard. To select a submenu, simply navigate to the desired menu and press **Enter**. To return to the main menu at any time, press **ESC**.

**Figure3** Main Menu



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**Tip** The main menu includes a counter of unconfirmed or pending calls. During the download of route information to the vehicle, this counter increases until all calls have been downloaded. Once the download is complete, the function key STAT becomes active (see Figure3 above). The presence of the STAT function key is your indicator that all information has been downloaded and that you can safely start your route. As you confirm calls along your route, the call counter in the main menu will decrease accordingly.

---

## Viewing Statistics

The STAT function key provides access to such information as number of unconfirmed calls and number of customers cancelled (see Table2 below for complete list).

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**Note** The STAT function key becomes active once route information has been successfully downloaded to the vehicle.

---

**Table2** Statistics

Name	Description
Calls	Number of unconfirmed calls
CustCncl	Number of customers canceled
Lifts	Number of lifts
New	Number of new calls
No Serv	Number of "No services"
NTW	Number of "Not this week"
ServSusp	Number of suspended services
SiteCncl	Number of sites cancelled
Stops	Number of stops
WO	Number of work orders
Yards	Number of yards

## Vehicle moving and Screen Behavior

When the vehicle is in motion, you cannot access the various menus of the Driver Display. As soon as the vehicle stops or falls below the speed threshold of 20 km per hour, an **OK** function key becomes active. Press this key to continue using the driver display.

# Chapter 3

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## Operation

## Introduction

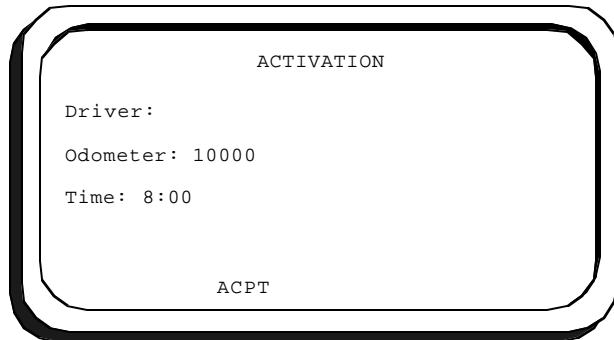
In Chapter 2 “Introduction”, you learned general information about the Driver Display and how it is used. In this chapter, you will become familiar with detailed procedures for logon and logoff, confirming calls, entering driver activities, among others. Note, however, that the procedures presented are specific to use with TRUX back-office applications. If your back-office application is Soft-Pak, refer to the appropriate Driver Display user guide for Soft-Pak.

---

## Logging On

Unlike other menus, which must be selected from the main menu of the driver display, the Activation or logon screen appears as soon as you key on. Before you begin your route, you must logon.

**Figure1** Activation (Logon) Screen



**To logon:**

- 1 Enter your driver ID or employee number.

---

**Note** Driver IDs can include numbers or letters, or both.

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- 2 Verify the odometer and time on the driver display. Inform the dispatcher of any significant differences.
- 3 Press **F2** (ACPT) to accept.

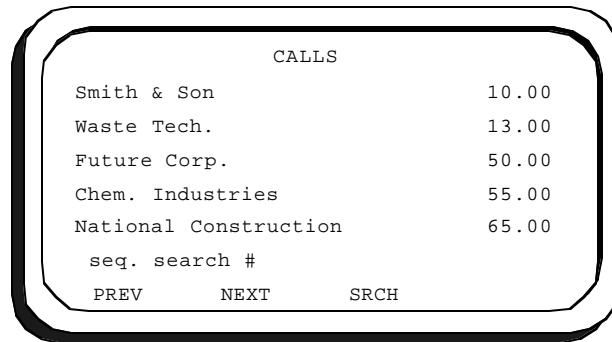
## Working with the Calls Menu

The Calls menu displays a list of the calls that make up your route, with each line representing a call.

**To access the Calls menu:**

- From the main menu, navigate to **Calls** using the arrow keys and press **Enter**.

**Figure2** Calls Menu



To scroll through the list of calls, use the vertical arrows on the keyboard.

---

**Note** Up to 30 calls can be displayed at a time. When there are more than 30 calls, the **F1** (PREV) and **F2** (NEXT) function keys allow you to view the previous and next set of calls.

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## Viewing Call Information

### To view the details of a call:

- From the Calls menu, navigate to the desired call using the arrow keys and press **Enter**.

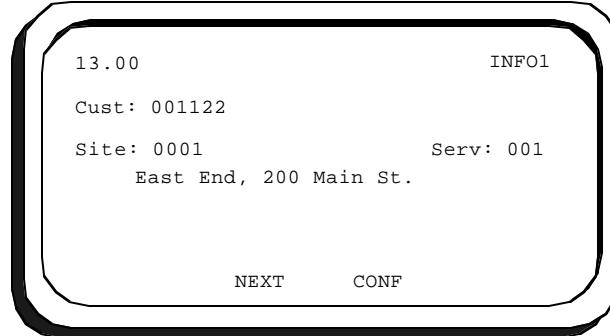
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**Tip** The search function allows you to find a call quickly using its sequence number. This saves you from scrolling through the list of calls. For information, see “Searching for Calls by Sequence Number” on page25.

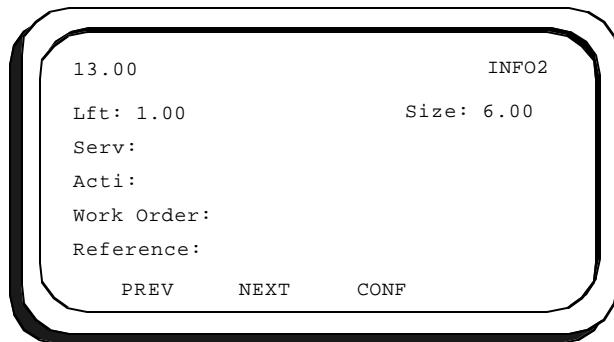
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The driver display will show the first of four information screens (see Figure3 through to Figure6). You will notice that the top of the screen includes the call's sequence number, as well as the number of the information screen currently displayed. To navigate through the information screens, use the **F1** (PREV) and **F2** (NEXT) function keys.

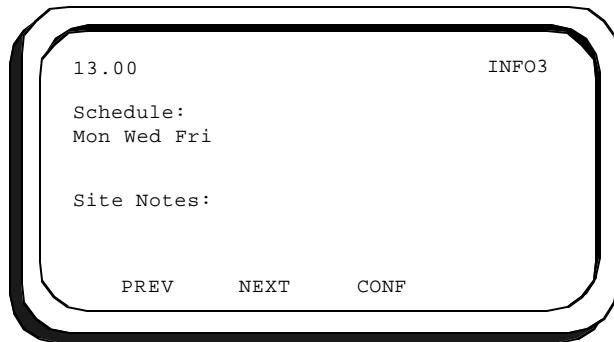
**Figure3** INFO1 Screen



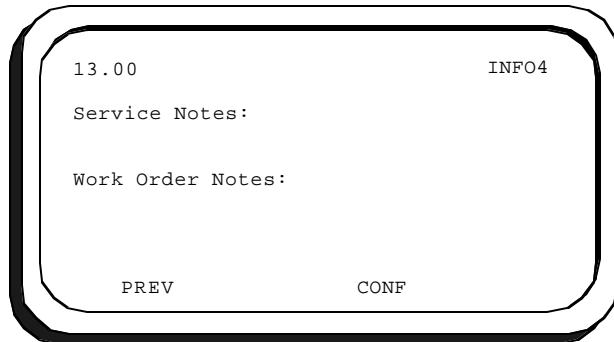
**Figure4** INFO2 Screen



**Figure5** INFO3 Screen



**Figure6** INFO4 Screen



## Searching for Calls by Sequence Number

The Calls menu includes a search function (see Figure 2 on page 22) that allows you to find a call using its sequence number. This saves you from scrolling through the list of calls.

**To search for a specific call:**

- 1 From the Calls menu, press the right arrow to access the search function.
- 2 At the prompt, enter the sequence number of the desired call, including any decimals and press **F3** (SRCH). If a match is found it will appear highlighted in the call list. If there is no match, the screen will remain unchanged.

---

**Note** The Search function remembers the last sequence number searched. To perform a new search, first use the **BKSP** key to clear the field and then enter the desired sequence number.

---

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**Note** When searching for sequence numbers that include decimals, Fleetlink searches first by the number before the decimal, and then refines its search by searching for the number after the decimal. If a match is found only for the first part, Fleetlink will return the first occurrence in the call list.

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**Tip** To exit the search function without searching for a call, press the up arrow.

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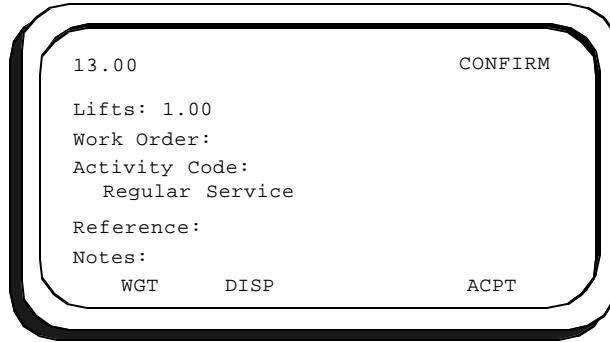
## Confirming Calls

As you complete calls during your route, you must confirm them. This information tells the dispatcher that you have completed the call and is used to build your trip sheet. It also provides office personnel with key information about how much waste is collected for each customer.

**To confirm a call:**

- 1 From a Call Info screen, press **F3 (CONF)** to access the Confirm screen.

**Figure7** Call Confirmation Screen



- 2 Verify the number of containers or lifts. Correct, if necessary.
- 3 Use the arrow keys to navigate to the **Activity Code** field and select the desired code.

---

**Note** If **No List** appears under **Activity Code**, contact the office to have the list uploaded.

---

- 4 If necessary, enter additional information under Notes (e.g., "container blocked by parked vehicle").
- 5 Press **F1 (WGT)** to enter the weight of the container. If you have an on-board scale direct connected (integrated), wait a few seconds for the reading. Otherwise, enter the weight manually. Use the arrow keys to change the measurement unit, if necessary. If there are other containers, press **F2 (NEXT)** and repeat this step. When you have entered the weight for all containers, press **F3 (ACPT)** to accept and to return to the Confirm screen.

---

- 6** In the Confirm screen, press **F4 (ACPT)** to confirm the call.

---

**Caution** You must enter the weight of each container *before* you confirm the call. Once a call is confirmed, you cannot go back to enter any weights.

---

Once you have confirmed a call, it disappears from the list in the Calls menu.

## Creating New Calls

The Call-In menu allows you to create new calls during your route. This is useful when the dispatcher informs you of an additional call after you have already left the yard.

**To create a new call during your route:**

- 1 From the main menu, navigate to **Call-In** using the arrow keys and press **Enter**. This will display the first of four call information screens identical to those shown in Figure3 through to Figure6 in “Viewing Call Information” on page23.
- 2 In the first Info screen, use the arrow keys to navigate to the sequence number field and enter a sequence number. Press **F2** (NEXT) to access the second Info screen.
- 3 Using the arrow keys, navigate to the number of lifts field and enter the number of lifts.
- 4 Using the arrow keys, navigate to the size field and enter the size of the container.
- 5 Enter any other available information about the new call. Use the **F1** (PREV) and **F2** (NEXT) function keys to navigate through the information screens and the arrow keys to navigate through the fields.
- 6 Press **F3** (REC) to save the call.

---

**Note** Make sure you enter a sequence number so that you can locate the call later in the call list.

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Once you have finished creating a new call, it is added to the list of calls in the calls menu. For information on viewing call information, searching for calls and confirming call, see “Working with the Calls Menu” on page22.

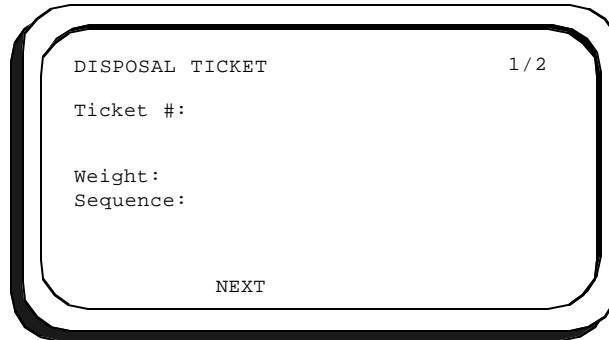
## Entering Disposal Tickets

The main menu selection called Disposal Ticket gives you access to two Disposal Ticket screens that allow you to enter information about the waste you unload at the landfill or other facility. This information tells office personnel how much waste was unloaded each trip. This can be very valuable when your company wants to compare your disposal costs to your customer billing.

**To enter a disposal ticket:**

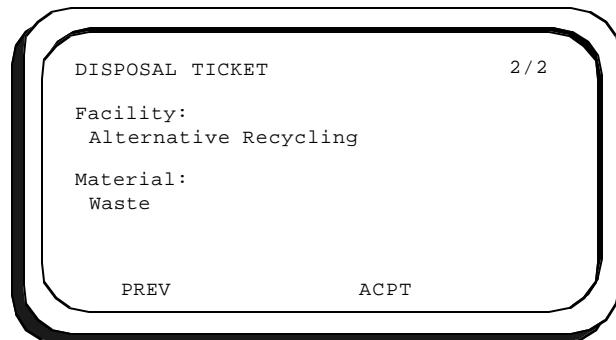
- 1 From the main menu, use the arrow keys to navigate to **Disposal Ticket** and press **Enter**.
- 2 In the first disposal ticket screen, enter the ticket number, as well as the weight and sequence, if applicable.

**Figure8** First Disposal Ticket Screen



- 3 Press **F2** (NEXT) to access the second Disposal Ticket screen.
- 4 In the second disposal ticket screen, enter the facility and the material.

**Figure9** Second Disposal Ticket Screen



**5** When you have finished entering the information, press **F3** (ACPT).

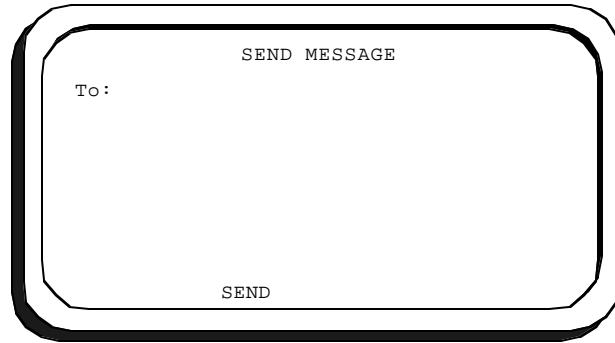
## Sending Messages

The main menu selection called Message allows you to send messages of up to 105 characters, including spaces, to the dispatcher.

**To send a message:**

- 1 From the main menu, navigate to **Message** using the arrow keys and press **Enter**.

**Figure10** Send Message Screen



- 2 Enter the name of the recipient and press **Enter**.
- 3 Type your message and press **F2** (SEND).

## Viewing Messages

You can view messages sent to you by the dispatcher by pressing **F4 (MSGs)**, which is accessible from the main menu, as well as from the Calls and Activities menus<sup>1</sup>.

---

**Tip** Whenever you receive a new message, an exclamation point appears to the right of MSGs on the screen.

---

**To view messages in your message box:**

- 1 From either the main, Calls or Activities menu, press **F4 (MSGs)** to access your message box. The first received message will automatically appear.
- 2 Use the **F1 (PREV)** and **F2 (NEXT)** function keys to view other messages.
- 3 To delete a message, navigate to the message and press **F3 (DEL)**.

---

**Note** If you delete all messages in your message box, the **F4 (MSGs)** function key will become inactive until you receive a new message.

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**Note** Any messages remaining at the end of your day are automatically deleted upon logoff.

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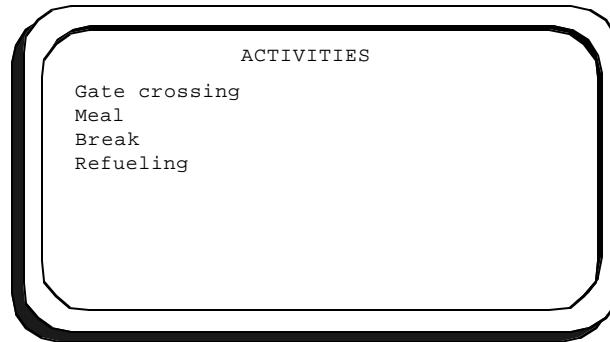
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<sup>1</sup> The **F4 (MSGs)** function key is only active when there are messages in your message box.

## Entering Activities

The Activities menu allows you to enter activities, such as meals and refueling, which help complete your trip sheet. An activity represents a task, which has a beginning and an end, or an event. Some activities, such as breaks, prevent you from starting another activity or from confirming a call until they are ended. These activities are called blocking activities. Other activities, such as gate crossings, are simply recorded as an occurrence in time. These activities are referred to as events.

**Figure11** Activities Menu



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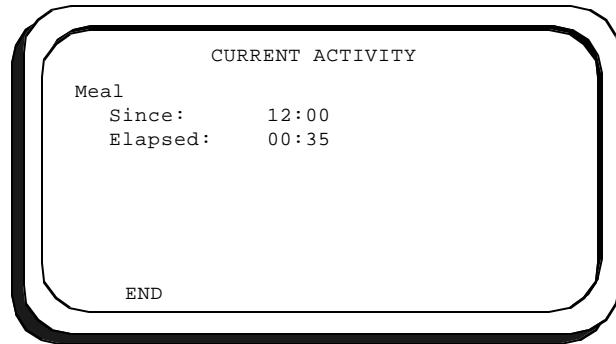
**Note** The Activities menu shown above includes common activities. Your available activities may differ based on your configuration.

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**To enter an activity:**

- 1 From the main menu, navigate to **Activities** using the arrow keys and press **Enter**.
- 2 Use the arrow keys to navigate to the desired activity and press **Enter**. If the selected activity is an event, such as gate crossing, the main menu will appear. You may skip the following steps. However, if the selected activity is a blocking activity, such as meal, break or refueling, a screen similar to the one screen in Figure12 will appear. You must proceed to step 3.

**Figure12** Current Activity Screen (Meal)



- 3 When you have completed the activity, press **F1** (END). This will close the activity and return you to the Activities menu.

## Logoff

At the end of the day, you must logoff. This tells the dispatcher that you have completed your route and updates the information in your trip sheet.

However, to make sure that your information is properly uploaded to the Fleetlink server, do not logoff until you are back in the yard and in RF range. When you logoff, Fleetlink actually delays the logoff by 60 minutes as an extra precaution to ensure that information has sufficient time to be uploaded to the server.

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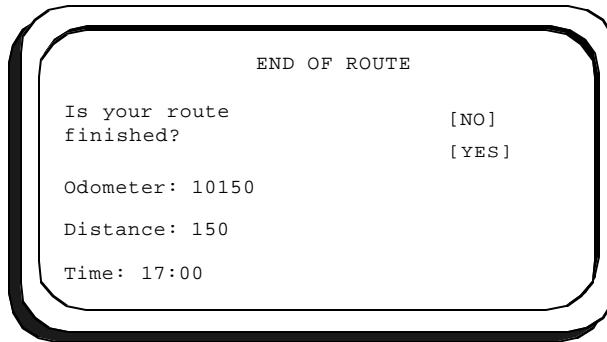
**Caution** Before you logoff, make sure that you have confirmed all calls. Calls that are not confirmed when you logoff will be erased.

---

**To logoff:**

- 1 From the main menu, navigate to **End of Route** using the arrow keys and press **Enter**.

**Figure13** End of Route Menu



- 2 Verify the odometer reading and the time. Inform the dispatcher of any significant differences.
- 3 Using the arrow keys, select **Yes** and press **Enter**.

## NOTES

# Fleetlink

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## Hardware Installation and Configuration Guide

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*Fleetlink Hardware Installation and Configuration Guide*

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<b>Preliminaries</b>	<b>Chapter 1</b>
	Welcome..... 6
	Important Safety and Compliance Information ..... 6
	Using the Documentation ..... 8
	Service and Support ..... 10
	Contacting Us ..... 10
<b>Preinstallation</b>	<b>Chapter 2</b>
	Introduction..... 12
	Unpacking the Fleetlink Components..... 12
	Safety Recommendations ..... 14
	Tools Required ..... 14
<b>Installation</b>	<b>Chapter 3</b>
	Introduction..... 16
	Standard and Optional Components ..... 16
	Installation Tips ..... 19
	Installing Antennas ..... 20
	Connecting the Deutsch Connector Harness ..... 24
	Installing the Copilot in Pulse-measured Vehicles ..... 27
	Installing the Junction Box ..... 33
	Installing the Copilot ..... 34
	Installing the Driver Display ..... 38
	Installing the Bar Code Scanner..... 40
<b>Configuration</b>	<b>Chapter 4</b>
	Introduction..... 42
	Preparation ..... 42
	Configuring the Copilot ..... 43
	Verifying the Vehicle's RPMs ..... 48
	Verifying the GPS Status Reading ..... 49

<b>Specifications</b>	<b>Appendix 1</b>
	Fleetlink Component Specifications ..... 52
<b>In-Vehicle Installation</b>	<b>Appendix 2</b>
	Introduction ..... 58
	Installing the Antennas ..... 58
	Installing the Deutsch Connector Harness ..... 65
	Installing Driver Display and JunctionBox ..... 68
	Installing the Copilot ..... 71

# Chapter 1

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## Preliminaries

## Welcome

Welcome to Fleetlink, which provides a complete picture of what's happening across your fleet. The Fleetlink On-board Computer (OBC), which is also referred to as the Copilot, captures and records vehicular data, such as speed, RPM and fuel consumption, from a variety of sources. This manual is divided into four chapters (see "Using the Documentation" in this chapter), which will guide you step-by-step through the various tasks of preparing, installing and configuring the Fleetlink Copilot. It also includes two appendices, which provide detailed equipment specifications and practical installation tips.

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## Important Safety and Compliance Information

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**Note** This section applies to the Fleetlink M1 OBC model, specifically model S-M1-10 Fleetlink M1 OBC Short-Range RF without Terminal and S-M1-10-T Fleetlink M1 OBC Short-Range RF with Terminal.

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Before you install or use the Fleetlink product, read the FCC and other regulatory material found below, as well as in the other documents that accompanied your order.

This section provides information on the following topics:

- FCC compliance statement (USA)
- Industry Canada Certification

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**Warning** To meet FCC/IC RF exposure guidelines, you must keep at least 8in. (20 cm.) from the antenna during operation.

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## FCC Compliance Statement (USA)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial, industrial or business environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the product manuals, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense. This equipment also complies with the FCC Part 15 Subpart C.

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**Caution** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void your authority to operate this equipment.

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## Industry Canada Certification

This Class A digital apparatus complies with Canadian ICES ICES-003 and RSS 210.

## Using the Documentation

This publication assumes a basic familiarity with transport vehicles and radio installation. It is designed for persons who are responsible for the installation of the Fleetlink components, such as mechanics. It is divided into the following four chapters, which are arranged in order of the complexity of the information:

**1 Preliminaries**

Provides general information about the manual, safety and compliance information, as well as information on how to contact customer support.

**2 Preinstallation**

Provides an overview of the Fleetlink Copilot components, as well as safety measures to consider during installation and tips on how to prepare for installation.

**3 Installation**

Provides instructions on how to install the Fleetlink Copilot.

**4 Configuration**

Describes how to configure Fleetlink Copilot once installed.

In addition to the above, this manual also includes the following two appendices:

**1 Specifications**

Provides detailed specifications for the various components.

**2 In-Vehicle Installation**

Provides practical tips on installation.

## Conventions

This publication uses the following conventions to convey instructions and information:

**Table1** Hardware Installation and Configuration Guide Conventions

Convention	Description
>	The arrow indicates a menu choice. For example, <i>select File&gt;Save</i> means <i>select the File menu, then select the Save command on the File menu</i> .
Click	Clicking the left mouse button.
Right-click	Clicking the right mouse button.
Ctrl-click	Holding down Ctrl and clicking the left mouse button.
Ctrl-right-click	Holding down Ctrl and clicking the right mouse button.
Double-click	Clicking the left mouse button twice.
<b>Caution</b>	Indicates <i>reader be careful</i> . In this situation, you might do something that could result in equipment damage or loss of data.
<b>Note</b>	Indicates <i>reader take note</i> . Notes contain helpful suggestions or references to additional information and material.
<b>Tip</b>	Indicates that <i>the described action saves time</i> .

## Suggested Reading

For related information, see the following publications:

- *Fleetlink Report Manager User Guide*, 33-911-0001-01
- *Fleetlink Administrator Guide*, 33-911-0003-01
- *Fleetlink Access Point 300 Installation Guide*, 33-911-0004-01
- *Fleetlink Driver Display for TRUX User Guide*, 33-911-0005-01
- *Fleetlink Driver Display for Soft-Pak User Guide*, 33-911-0006-01

## Service and Support

If you require assistance with this or any other FleetMind product, please call or email technical support.

**Call for Assistance:**

Greater Montreal Area: 514.631.3666, ext. 250

Toll-free North America: 1.877.698.4286, ext. 250

**Email for Assistance**

[service@fleetmind.com](mailto:service@fleetmind.com)

## Contacting Us

If you have comments about this or other FleetMind product documentation, send us an email at [techdocs@fleetmind.com](mailto:techdocs@fleetmind.com). In your message, be sure to include the manual's complete document number and revision letter (e.g., 001-000001-011, Rev. A), which you can find on the back cover. We appreciate your comments.

# Chapter 2

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## Preinstallation

## Introduction

Fleetlink is an easy-to-use on-board computer (OBC) combined with management software for dispatch and operations staff. The on-board computer or Copilot communicates vital route information to the driver via a driver display. It also sends vehicle, driver activity, GPS coding, and trip record information back to the office through a variety of wireless links, including a short-range, in-yard system with no airtime charges. In this chapter, you will become familiar with Fleetlink components and learn about necessary tools and safety precautions.

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## Unpacking the Fleetlink Components

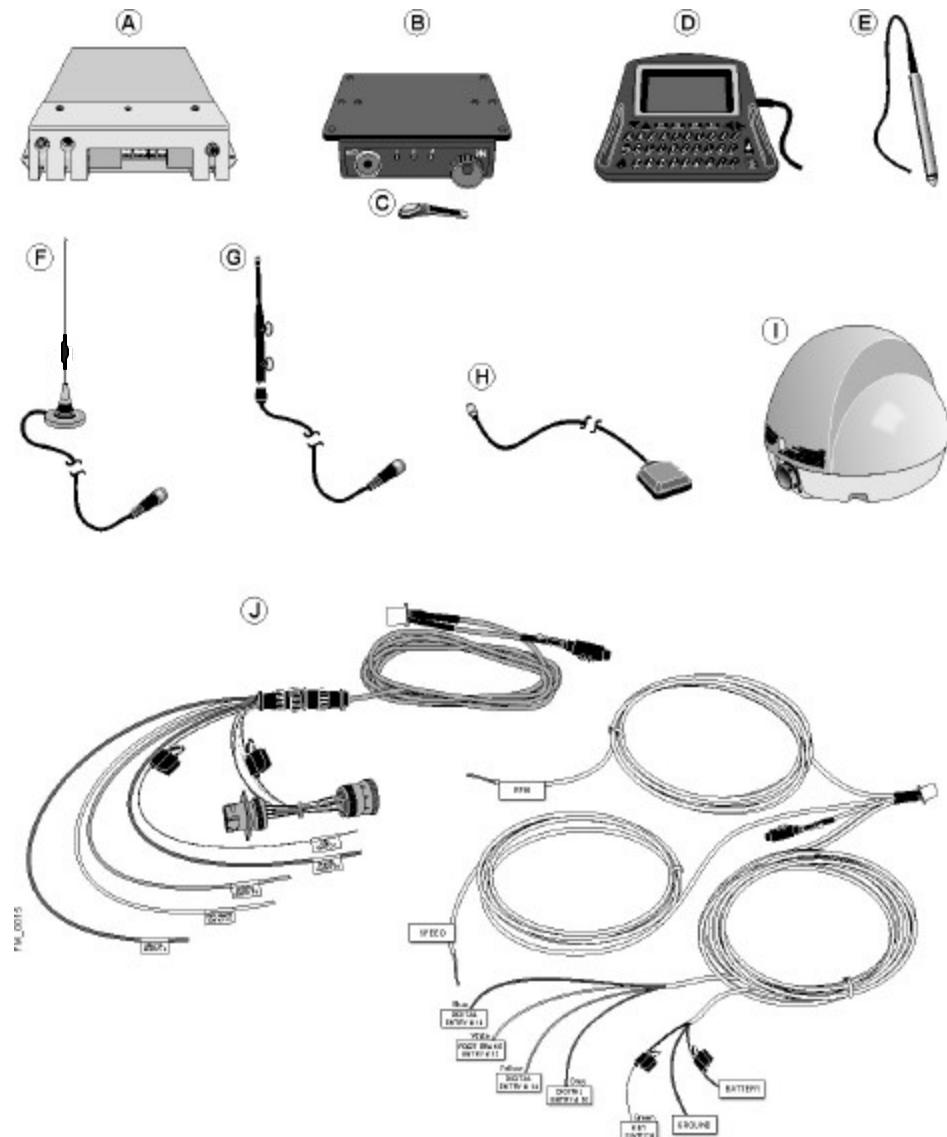
When you unpack your installation kit—

- Check all items against your shipping order to ensure that you have received all the components. If a component is missing, contact customer support.
- Inspect the equipment for visible shipping damage. If you notice any damage, contact customer support.

Your Fleetlink installation kit includes the following components:

- A** Copilot
- B** Junction box
- C** Dallas key (optional)
- D** Driver display and support (optional)
- E** Bar code scanner and support (optional)
- F** WAN antenna (optional)
- G** LAN antenna
- H** GPS antenna
- I** Satellite antenna (optional)
- J** One of the following: 1. Deutsch connector harness and ECM cable or 2. Pulse cable

## Figure1 Fleetlink Components



## Safety Recommendations

Before installing Fleetlink, please review the following guidelines to protect the equipment and ensure your safety.

- Turn off the vehicle.
- Make sure that the parking brake is fully engaged.
- Disconnect the vehicle's battery prior to connecting any wires to the vehicle's power supply.

## Tools Required

Make sure you have the following tools on site before installing Fleetlink:

- Jumper cable with alligator clip
- Drill
- 3/4 inch-diameter drill bit
- Multimeter
- Phillips screwdriver
- Pulsemeter
- Scotch lock
- Tie-wraps
- Weather-resistant sealant or caULKING

# Chapter 3

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## Installation

## Introduction

Fleetlink is designed to suit almost all makes of trucks; however, the location of a component may vary slightly from one truck to another. This chapter explains how Fleetlink components interconnect, and provides step-by-step procedures for the most common types of installation.

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## Standard and Optional Components

Fleetlink consists of standard and optional components. In a standard configuration, the components are:

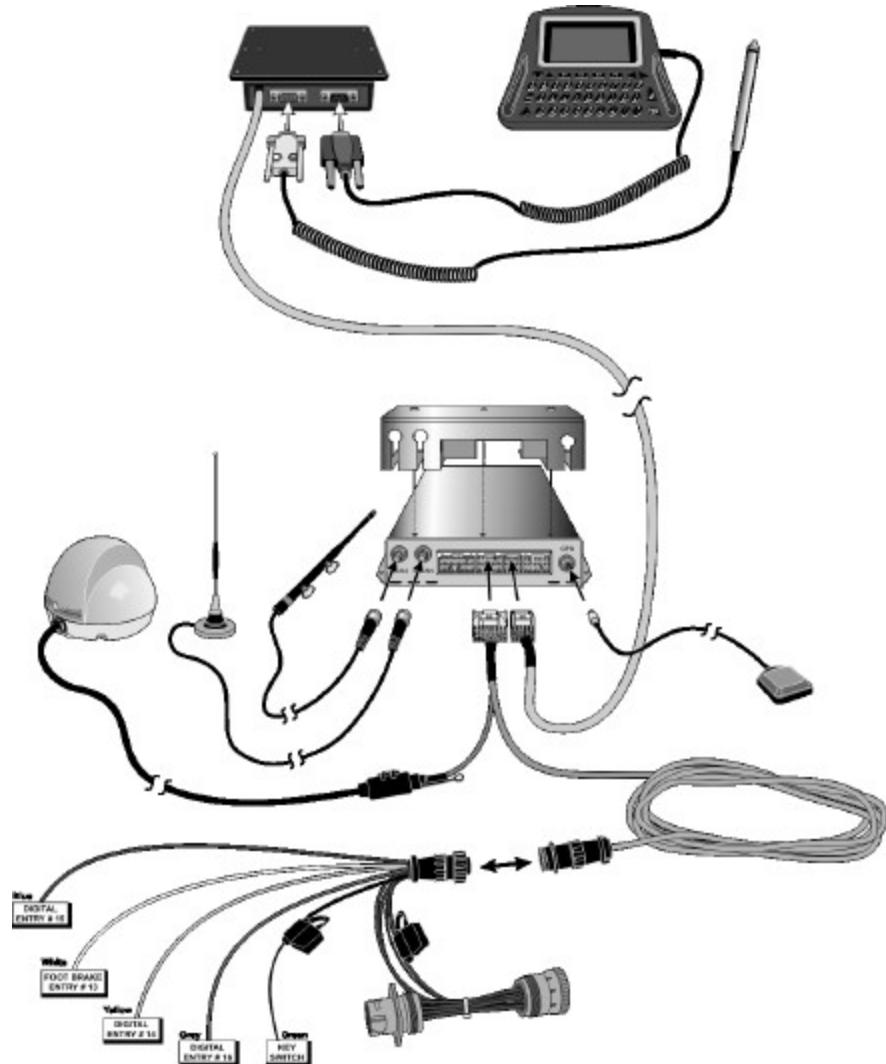
- Copilot
- Junction box
- One of the following: 1. Deutsch harness connector and ECM cable or 2. Pulse cable
- LAN antenna
- GPS antenna
- One of the following: 1. Driver display and support or 2. Dallas key

The optional components are:

- Bar code reader and support
- WAN antenna
- Satellite antenna

Figure 2 on page 17 shows how the Fleetlink components, both standard and optional, interconnect.

Figure2 Fleetlink Components (Deutsch harness connector and ECM cable shown)



The following sections describe the Fleetlink installation procedures and their recommended installation location:

- “[Installing Antennas](#)” on [page20](#)
- “[Connecting the Deutsch Connector Harness](#)” on [page24](#)
- “[Installing the Copilot in Pulse-measured Vehicles](#)” on [page27](#)
- “[Installing the Junction Box](#)” on [page33](#)
- “[Installing the Copilot](#)” on [page34](#)
- “[Installing the Driver Display](#)” on [page38](#)
- “[Installing the Bar Code Scanner](#)” on [page40](#)

Your Fleetlink package may not include all of these components. Refer to your packing slip for a complete list of shipped components.

See Appendix 2, “[In-Vehicle Installation](#)” on [page57](#) to view a sample installation.

## Installation Tips

Depending on the truck model in which you install the Fleetlink components, you may choose to vary the order for your installation. You may also choose to install the components, such as the Copilot or junction box, in places other than those suggested in this guide.

FleetMind provides you with the following tips, based on our experience with installations:

- The Copilot is the main Fleetlink component. You must install the other Fleetlink components within a 5-metre cabling distance of the Copilot.
- FleetMind recommends that you install the Copilot inside the dashboard. However, you can also install it under the passenger's seat or behind the middle console.
- When you install the Copilot, junction box, driver display support and bar scanner support, you can use the equipment as a template to determine where to drill the holes.
- You must leave sufficient slack in the cables of the components connected to the Copilot to ensure that they will not be pulled tight by the vibrations of the vehicle and therefore risk becoming disconnected.
- After installing and testing the components (see "Configuring the Copilot" on page43), neatly fold back any excess cables behind the glove compartment or in the dashboard and secure with plastic tie-wraps. Clip any excess tie-wrap.
- Fleetmind recommends that you drill the hole for the antenna cables into the back wall of the cab and not into the floor. This will minimize damage to the vehicle due to water corrosion.

## Installing Antennas

Fleetlink currently offers four types of wireless communication requiring different types of antennas:

- LAN
- GPS
- WAN (Mobitex or iDEN)
- Satellite

The LAN antenna provides the short-range, in-yard radio link, which is standard to all configurations. The other antennas you install will depend on your chosen configuration.

For the installation of the GPS, WAN and satellite antennas, FleetMind recommends the following:

- Drill the hole through which you will pass the antenna cable in the cab's rear wall. Drilling a hole in the rear wall rather than through the cab floor will reduce the risk of water damage and unnecessary wear and tear.
- Ensure that the area receiving an exterior antenna is clean and dry. If the area is dirty or greasy, the antenna may become unstuck.
- Drill only one 3/4 inch-diameter hole into the back of the cab. A hole of this size is sufficient for both antenna cables.
- Use tie-wraps to tie exterior cables together at regular intervals (approximately four inches). Clip any excess.
- Use a drip loop to ensure that water will drip off the antenna cables and not run into the cab.

## Installing the LAN Antenna

Make sure you install the LAN antenna in a location where it will not disturb the driver or interfere with another mechanism within the cab of the vehicle if it becomes unstuck. The recommended location for the LAN antenna is inside the cab, vertically positioned in the lower right-hand corner of the windshield.

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**Caution** The Fleetlink Copilot is designed to operate with an antenna having a maximum gain of 3 dB. Antennas having a higher gain are strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

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**Warning** To meet FCC/IC RF exposure guidelines, you must keep at least 8in. (20 cm.) from the antenna during operation.

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### To install the LAN antenna:

- 1 Select the desired location for the antenna inside the cab.
- 2 Remove panelling as required.
- 3 Clean the windshield area where the antenna will be mounted with an alcohol wipe or equivalent method.
- 4 Gently warm the windshield with a hair dryer, or 12V defroster blower, if the temperature is below about 15 deg. C.
- 5 Put a drop of adhesive on each suction cup. Press and hold the antenna to the windshield for the time indicated in the adhesive instructions. Consult FleetMind customer Service for recommended adhesives.
- 6 Pass the antenna cable through to the location where the Copilot will be installed.
- 7 Connect the LAN antenna cable to the Copilot following the procedure: “Installing the Copilot” on page34.

## Installing Exterior Antennas

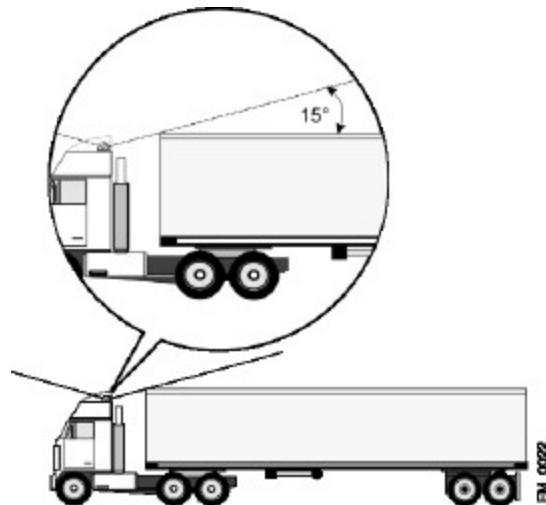
The Fleetlink solutions supports three types of exterior antennas:

- WAN (Mobitex and iDEN)
- GPS
- Satellite

When installing the exterior antennas:

- Make sure the antenna and its cable cannot come into contact with the vehicle's exhaust pipe. If necessary, you can pass it safely behind the pipe bracket and fasten it there.
- Install the antenna on the roof of the cab.
- Move any accessories that might interfere with passing the cable safely from the roof through the cab.
- Ensure a minimum of 15% angle clearance when installing a satellite antenna (see Figure3).

**Figure3** Installation for Satellite Antenna



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**Note** You cannot have a WAN and a satellite antenna on the same Fleetlink installation.

---

**To install an exterior (GPS, WAN or satellite) antenna:**

- 1 Select the locations on the cab's roof where you will install the antennas. Clean the selected areas to ensure that the antennas will stick well to the surface.
- 2 Position the antenna on the cab roof, making sure to place it away from other antennas.
- 3 Select a spot on the cab's rear wall through which you will pass the antenna cable. Make sure that drilling this area will not damage anything inside the cab.
- 4 Remove the panelling inside the cab where you will drill the hole and through which you will pass the antenna cables. This is usually the panelling behind the passenger seat and above the passenger door.
- 5 Drill a 3/4 inch-diameter hole into the back of the cab.
- 6 Install the seal on the cab.
- 7 Pass the antenna cable through the hole into the corner of the cab, around the passenger side of the cab, above the passenger door and through the dashboard to the Copilot.
- 8 Ensure that water cannot seep through the seal by letting the cable hang a little below the level of the seal.
- 9 Seal the space between the cable and the seal using a weather-resistant sealant or caulk.
- 10 Connect the antenna cable to the Copilot following the procedure “Installing the Copilot” on page34.

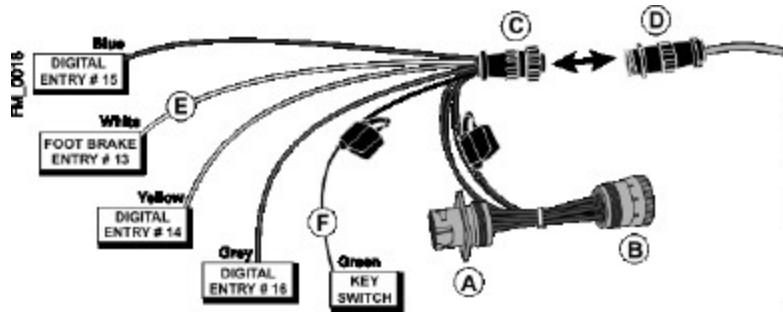
## Connecting the Deutsch Connector Harness

When you install the Deutsch connector harness, you connect it to the—

- Vehicle's ECM.
- Key switch wire.
- Foot brake wire.

The Deutsch connector harness is also equipped with three wires so that you can take readings for additional digital inputs, such as PTO.

**Figure4** Connecting the Deutsch Connector Harness



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**Warning** In vehicles manufactured by Peterbuilt, the ignition wire is encased in the cable leading to the diagnostic connector that connects to the vehicle's ECM. You must cut open the cable and disconnect the ignition wire from the diagnostic connector. You must then connect the ignition wire to the ignition/key switch wire of the OBC cable as described in this procedure. If you connect the diagnostic connector to the Deutsch connector harness without disconnecting the ignition wire, you may damage the Copilot.

---

**To install the Deutsch connector harness:**

- 1 Unscrew the fuse box under the dashboard on the driver's side.
- 2 Lower the fuse box completely. This will allow you to insert the Deutsch connector harness under the dashboard.
- 3 Plug the vehicle's diagnostic connector into the Deutsch harness connector (A).
- 4 Clip the Deutsch harness connector into the designated bracket in the vehicle.
- 5 Plug the ECM cable connector (D) into the corresponding jack of the Deutsch connector harness (C).
- 6 Leave the fuse box unscrewed and proceed to connect the key switch and brake signal wires.

**To connect the key switch wire:**

- 1 Locate the vehicle's key switch wire. The key switch wire transmits the starter signal (i.e., the On position).
- 2 Connect a multimeter to the key switch wire.
- 3 Turn the key switch to the Accessories position.
- 4 Verify that the multimeter reading is 0 VDC.
- 5 Turn the key switch to the On position.
- 6 Verify that the multimeter reading is 12 VDC or more.
- 7 Connect the green wire of the Deutsch connector harness to the vehicle's key switch wire.
- 8 Verify that the multimeter reading is 12 VDC or more. It is important that you are not connected to the accessories circuit, so that you have a constant signal when starting.

**To connect to the service brake signal sire:**

- 1 Locate the service brake signaling wire.
- 2 Connect a multimeter to the service brake signaling wire.
- 3 Apply the service brakes.
- 4 Verify that the multimeter has a reading of 12 VDC or more.
- 5 Connect the white foot brake wire to the service brake signaling wire.

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**Note** On some vehicles, the position lights may be on the same circuit. If so, you must install a pressure switch on the service brake system and connect it to the service brake system.

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- 6 Apply the service brakes and verify the signal again.

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**Warning** Use the connections approved and specified for this installation.

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## Installing the Copilot in Pulse-measured Vehicles

If you have vehicles without ECUs, the Copilot can still collect data for your vehicles using speed and RPM data readings. To achieve this, you connect the speed and RPM wires to the Copilot cable using Frequency Finder (FF) converters. FF converters filter out interference and amplify the pulses transmitted by the speed and RPM wires. Two FF converters are required: one for the speed wire and one for the RPM wire.

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**Note** In vehicles without RPM gages, you can connect the FF converter to a wire connected to the alternator to obtain the data required by the Copilot. However, the customer must have a mechanic connect this wire to the alternator. If the wire is improperly connected, the alternator may be damaged.

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This section describes how to install the Copilot in pulse-measured vehicles:

- “Preparing FF Converters for Installation” on page 28
- “Installing Copilot Cable in Pulse-measured Vehicles” on page 30

## Preparing FF Converters for Installation

FF converters are equipped with five input wires and two output wires. The input wires have the following functions:

- Red—connects to the vehicle's battery wire and provides power to the FF converter.
- Black—serves as the ground wire and connects to a ground within the vehicle.
- White—connects to the vehicle's speed wire.
- Blue—serves as a ground wire for the input wire (white or yellow) not connected to the vehicle. (For example, if the FF converter is connected to the speed input, then the yellow wire is not used. In this case, you would use the blue wire to ground the yellow wire.)
- Yellow—connects to the vehicle's RPM or alternator wire.

The output wires have the following functions:

- Orange—connects to the speed or RPM wire of the Copilot cable.
- Brown—serves a ground wire and is clipped and stored inside the FF converter.

You must install two FF converters in vehicles without ECMS: one to the speed input and one to the RPM input.

### To configure an FF converter for connection to a speed input:

- 1 Open the housing of the FF converter.
- 2 Clip the blue and yellow input wires to a length of approximately three inches.
- 3 Connect the blue and yellow input wires using a Scotch lock.
- 4 Fold back the blue and yellow wires into the housing of the FF converter.
- 5 Clip the brown output wire to a length of approximately three inches.
- 6 Cap the brown output wire with a Scotch lock.
- 7 Fold back the brown output wire into the housing of the FF converter.
- 8 Close the housing of the FF converter.

The FF converter is now ready for connection to the speed input.

**To configure an FF converter for connection to an RPM input:**

- 1 Open the housing of the FF converter.
- 2 Clip the white and blue input wires to a length of approximately three inches.
- 3 Connect the white and blue input wires using a Scotch lock.
- 4 Fold back the white and blue wires into the housing of the FF converter.
- 5 Clip the brown output wire to a length of approximately three inches.
- 6 Cap the brown output wire with a Scotch lock.
- 7 Fold back the brown output wire into the housing of the FF converter.
- 8 Close the housing of the FF converter.

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**Note** You can also connect an FF converter to an alternator input if the vehicle is not equipped with an RPM gage.

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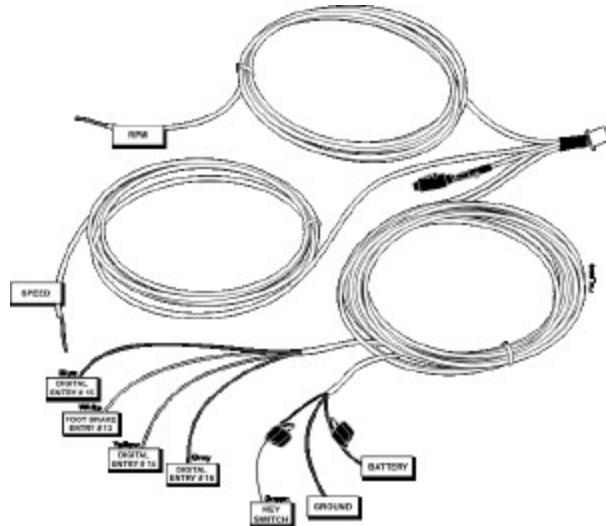
The FF converter is now ready for connection to the RPM on alternator input.

## Installing Copilot Cable in Pulse-measured Vehicles

Installing the Copilot cable in pulse-measured vehicles, requires that you—

- Install the FF converters and connect them to the vehicle's speed and RPM inputs
- Connect the key switch wire.
- Connect the battery wire to provide a power source for the Copilot.

**Figure5** Connecting the Copilot Cable in Pulse-measured Vehicles



### To install FF converters in pulse-measured vehicles:

- 1 Unscrew the fuse box under the dashboard on the driver's side.
- 2 Lower the fuse box completely. This will allow you to insert the FF converters under the dashboard.
- 3 Connect the red wires of both FF converters to the vehicle's battery wire.
- 4 Connect the black wires of both FF converters to a ground within the vehicle.
- 5 Connect the white wire of the speed FF converter to the vehicle's speed wire/input.

- 6 Connect the orange wire of the speed FF converter to the speed wire of the Copilot cable.
- 7 Connect the yellow wire of the RPM FF converter to the vehicle's RPM wire.

---

**Tip** You can locate the RPM wire at the back of the RPM gage. The RPM wire and the ground wire are twisted together at the back of the gage. Use a pulsemeter to determine which wire is the RPM wire and which is the ground wire.

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**Note** If the vehicle does not have an RPM gage, connect the yellow wire of the RPM FF converter to the wire connected to the alternator.

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**Warning** Never connect the Copilot cable directly to the RPM wire as this will prevent the RPM gage from displaying the RPMs.

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- 8 Connect the orange wire of the RPM FF converter to the RPM wire of the Copilot cable.

**To connect the key switch wire in pulse-measured vehicles:**

- 1 Locate the vehicle's key switch wire. The key switch wire transmits the starter signal (i.e., the On position).
- 2 Connect a multimeter to the key switch wire.
- 3 Turn the key switch to the Accessories position.
- 4 Verify that the multimeter reading is 0 VDC.
- 5 Turn the key switch to the On position.
- 6 Verify that the multimeter reading is 12 VDC or more.
- 7 Connect the vehicle's key switch wire to the key switch wire of the Copilot cable.
- 8 Verify that the multimeter reading is 12 VDC or more. It is important that you are not connected to the accessories circuit, so that you have a constant signal when starting.

**To connect to the battery wire and the ground:**

- 1 Locate the battery wire.
- 2 Connect the vehicle's battery wire to the battery wire of the Copilot cable.
- 3 Connect the ground wire from the Copilot cable to a ground within the vehicle.

## Installing the Junction Box

When installing the junction box, consider the following:

- Install the junction box so that it is easily accessible by the driver.
- Make sure there is enough space behind the junction box, so that you can connect the driver display and bar code scanner.
- If you must drill a hole to install the junction box, make sure that nothing will be damaged behind or beneath the surface.

**Figure6** Installing the Junction Box



### To install the junction box:

- 1 Select a location for the junction box.
- 2 Drill the holes for the junction box in the dashboard.
- 3 Pass the junction box cable through to the Copilot.
- 4 Plug the bar code scanner connector (A) into the designated connector at the back of the junction box.
- 5 Plug the driver display connector (B) into the designated connector at the back of the junction box.
- 6 Screw the junction box into the dashboard with the front panel facing the driver.
- 7 Connect the junction box cable to the Copilot following the procedure "Installing the Copilot" on page34.

## Installing the Copilot

Fleetmind recommends that you install the Copilot inside the dashboard. However, you can also install the Copilot underneath the passenger seat or behind the middle console (the doghouse). Be sure to install the Copilot with the connection plate facing outward, so that you can easily access the connectors.

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**Caution** While it is possible to install the Copilot under the passenger seat, it is not the preferred location because of the increased risk of exposure to water or other liquids.

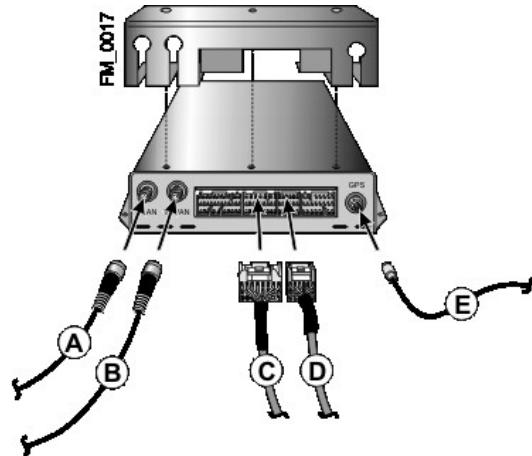
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When installing the Copilot—

- Make sure the cables can connect to the Copilot without getting in the driver's way.
- Provide enough slack in the cables so they will not pull on the Copilot when connected and risk pulling it out of place.
- Do not put it in a place where it will be exposed to direct sunlight, intense heat (e.g., heat ducts) or liquid.
- Do not install it near a magnetic field (e.g., welding machine).
- Fasten it securely into place in the dashboard or underneath the passenger seat.

Figure7 shows the Copilot and the cables that connect to it.

**Figure 7** Installing the Copilot



**To install the Copilot inside the dashboard or behind the middle console:**

- 1 Remove the dashboard fastening panels.
- 2 Remove the Copilot's faceplate.
- 3 Pass the junction box cable through the dashboard to the Copilot.
- 4 Plug the 17-pin junction box connector (D) into the designated connector of the Copilot.
- 5 Plug the 24-pin connector of the ECM cable (C) into the designated connector of the Copilot.
- 6 Pass the antenna cables through the dashboard to the Copilot.
- 7 Connect the antenna cables to the connectors of the Copilot as follows:
  - Plug the LAN antenna cable (A) into the WLAN RF connector.
  - Plug the GPS antenna cable (E) into the GPS RF connector.
  - Plug the WAN antenna cable (B) into the WWAN RF connector (optional).
- 8 Plug the satellite antenna cable into the Quad 2 Com port connector of the ECM cable (optional).

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**Note** Fleetlink does not support the installation of a WAN antenna and a satellite antenna at the same time.

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- 9 Fold back and attach the surplus cables with a tie-wrap and put them under the dashboard.
- 10 Once you have installed and tested all the Fleetlink components, put the faceplate back on the Copilot and screw it into place in the dashboard.

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**Note** FleetMind recommends that you wait until you complete the configuration procedure before you replace the dashboard fastening panels.

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**To install the Copilot under the passenger seat:**

- 1 Remove the Copilot's faceplate.
- 2 Remove the cab floor mat fastening panels and any accessories that prevent the cables from passing under the mat between the floor structures.
- 3 Pass the junction box cable to the Copilot.
- 4 Plug the 17-pin junction box connector (D) into the designated connector of the Copilot.
- 5 Plug the 24-pin connector of the ECM cable (C) into the designated connector of the Copilot.
- 6 Pass the antenna cables to the Copilot.
- 7 Connect the antenna cables to the connectors of the Copilot as follows:
  - Plug the LAN antenna cable (A) into the WLAN RF connector.
  - Plug the GPS antenna cable (E) into the GPS RF connector.
  - Plug the WAN antenna cable (B) into the WWAN RF connector (optional).
- 8 Plug the satellite antenna cable into the Quad 2 Com port connector of the ECM cable (optional).

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**Note** Fleetlink does not support the installation of a WAN antenna and a satellite antenna at the same time.

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- 9 Fold back and attach the surplus cables with a tie-wrap and put them under the mat between the cab floor structures.
- 10 Once you have installed and tested all the Fleetlink components, put the faceplate back on the Copilot and screw it into place under the passenger seat.

## Installing the Driver Display

When installing the driver display, consider the following:

- Install the driver display so that it can be viewed easily and reached by the driver when seated.
- Select an appropriate and safe location to install the driver display. Make sure that you chose a location where you can fix the support solidly into the dash so that it can bear the weight of the driver display.
- Prior to drilling a hole to install the driver display support, make sure that nothing will be damaged behind or beneath the surface.
- Install the support above the junction box at a distance that allows you to connect the driver display easily to the junction box.

**Figure8** Installing the Driver Display



**To install the driver display:**

- 1** Select a location for the driver display.
- 2** Loosen the bolts of the support and unfold it.
- 3** Using the support as a guide, drill holes into the dashboard at the desired location.
- 4** Screw the driver display support to the dashboard.
- 5** Remove the velcro strip from the driver display support.
- 6** Remove backing and stick the velcro strip to the bottom of the driver display.
- 7** Install the driver display on its support. Make sure that it is secured in place by the velcro and the magnet.
- 8** Adjust the angle of the driver display so that the screen faces the driver and tighten the bolts of the support.
- 9** Plug the driver display's DB-9 male connector into the designated connector at the back of the junction box (see Figure8on page38).

## Installing the Bar Code Scanner

When installing the bar code scanner, consider the following:

- Install the bar code scanner so that it can be reached easily by the driver when seated.
- Select an appropriate and safe location to install the driver display. Make sure that you chose a location where you can fix the support solidly into the dash so that it can bear the weight of the driver display.
- Prior to drilling a hole to install the support, make sure that nothing will be damaged behind or beneath the surface.
- Make sure that the bar code scanner can be connected easily to the junction box.

**To install the bar code scanner:**

- 1 Select a location for the bar code scanner.
- 2 Loosen the bolts of the support and unfold it.
- 3 Using the bar code scanner support as a guide, drill holes into the dashboard at the desired location.
- 4 Screw the support to the dashboard.
- 5 Adjust the angle of the support and tighten the bolts.
- 6 Insert the bar code scanner in its support.
- 7 Plug the bar code reader connector into the designated connector at the back of the junction box (see Figure 6 on page 33).

# Chapter 4

---

## Configuration

## Introduction

Once the Fleetlink components are installed, you must configure the on-board computer or Copilot using an installation terminal. Among other things, configuring the Copilot ensures that communication will function properly and that the Fleetlink management software will properly recognize the Copilot and its associated vehicle. In this chapter, you will learn how to configure the Copilot, as well as how to perform verification tests.

---

## Preparation

Before you start to configure the Copilot, make sure that the vehicle is within the RFcoverage of the company's terminal. To prepare the vehicle for the configuration procedure—

- Apply the parking brakes.
- Put the vehicle in neutral.
- Stop the Engine.
- Turn the key switch to On.

At any time during configuration of the Copilot, you may—

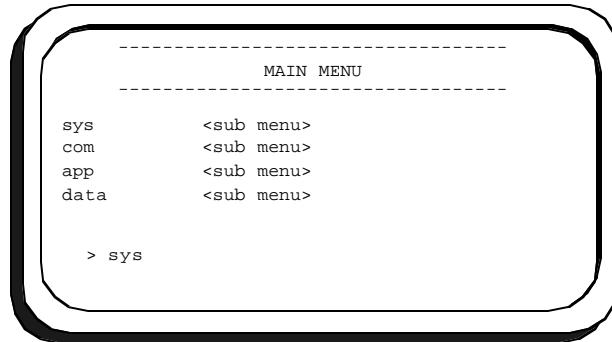
- Press **F1** to return to the main menu.
- Press **Enter** to select a menu.

## Configuring the Copilot

### To configure the Copilot in the vehicle:

- 1 Plug the jack of the installation terminal into the cigarette lighter.
- 2 Connect the installation terminal to the junction box. Use the J45-DB9 adapter, if necessary.
- 3 Press **F1** to display the main menu.

**Figure9** Main Menu on the Installation Terminal



- 4 At the prompt, type **sys** and press **Enter**.

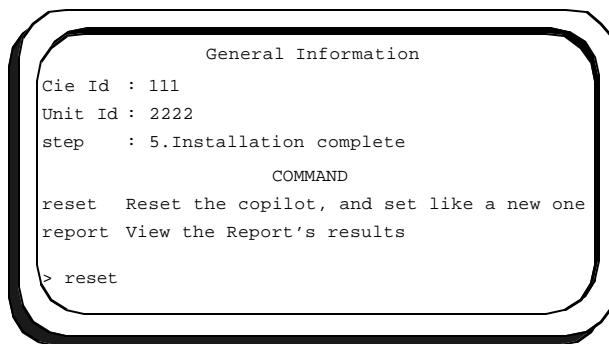
The options available in system (sys) mode appear on the installation terminal. Use the arrow keys of the keyboard to scroll through the list.

**Figure10** Options of the SYS Command

```
-----  
          SYS  
-----  
  rtc      modification de la RTC Hardware  
  log      Log des evenements  
  startup  Startup subsystem  
  fs       File System  
  cfg      Configuration  
  arrettmp Arret Temp  
  cerr     Conservation des Erreurs  
  install  Installation module  
  ressource View of synchronization resources  
  task     View all task in system  
  cpu      View CPU usage  
  dump     shows memory content  
  buffer   shows MQX buffer allocation  
  core     General Info  
  imp      68302
```

- 5 At the prompt, type **install** and press **Enter**.
- 6 At the prompt, type **reset** and press **Enter**. You may now proceed with the configuration.

**Figure11** Resetting the Copilot



- 7 At the **prompt company identification number**, specify the company identification number assigned by FleetMind and press **Enter**.

- 8 At the prompt **copilot identification number**, specify the identification number of the Copilot installed on the vehicle and press **Enter**.

---

**Note** The Copilot identification number must match the Copilot number entered for the vehicle in the control center.

---

- 9 At the prompt **Frequency**, specify the company frequency number assigned by FleetMind and press **Enter**.
- 10 At the prompt **Manager's ID**, specify the identification number of the control center and press **Enter**. To keep the default value, do not specify a value and press **Enter**.

---

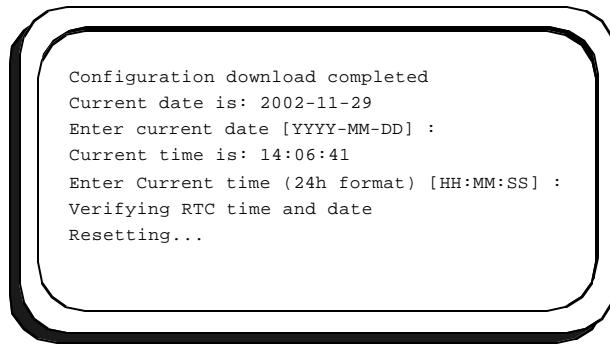
**Caution** Do not enter 0 (zero) as the value. Entering 0 will disable the short-range RF connection and you will not be able to continue with the configuration process.

---

- 11 At the prompt **Manager's Mobitex address**, specify the cellular address. If there is no cellular antenna installed, press **Enter** to keep the default value.
- 12 At the prompt **Manager's iDEN address**, specify the iDEN address and the port number. If there is no iDEN antenna installed, press **Enter** to keep the default value.
- 13 At the prompt **Manager's Msat appSel**, specify the **satellite communication address**. If there is no satellite antenna installed, press **Enter** to keep the default value.

The configuration procedure starts configuring the communications systems. When the configuration is completed, the following screen appears:

**Figure12** Completing the Copilot Configuration



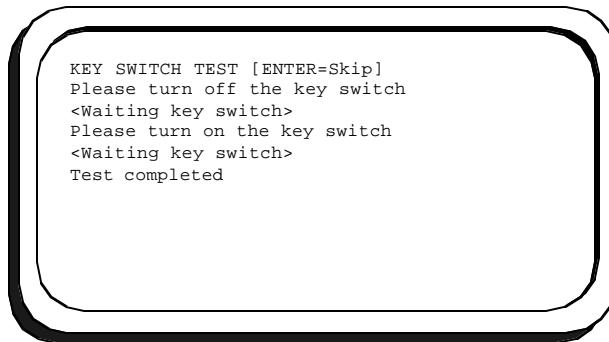
- 14 Specify the date and press **Enter**. If the values shown are correct, press **Enter** to confirm them.
- 15 Specify the time and press **Enter**. If the values shown are correct, press **Enter** to confirm them.

The database should be detected within 30 seconds. Once it is detected, continue with the configuration procedure.

If the database is not detected, press **F1** or **Ctrl-Break** to return to the main menu. Verify that the all the Fleetlink components are properly connected and start the configuration procedure from the beginning.

- 16 In the vehicle, turn the key switch to **Off**.

**Figure13** Executing the Key Switch Test



17 On the installation terminal, wait for the prompt **Please turn on the key switch** and turn the key switch to **On**.

The installation terminal verifies the communication with the electronic control module (ECM).

18 At the prompt **Enter odometer value**, specify the vehicle's odometer value and press **Enter**. Do not include the decimal value when entering the odometer value.

---

**Note** Fleetlink does not support the use of commas, periods or spaces.

---

19 Execute the tests for the digital entries following the instructions that appear on the installation terminal. The number of tests that you must execute depends on the number of digital entries connected to the vehicle and the Copilot.

When you have completed the digital entry tests, the Copilot transmits the installation report to Fleetlink's Victor Manager, Master Server within the terminal. The configuration is complete when the entire report has been downloaded.

You can now perform verification tests to make sure that the data collected by the Copilot is correct:

- “Verifying the Vehicle’s RPMs” on page48
- “Verifying the GPS Status Reading” on page49

## Verifying the Vehicle's RPMs

After completing the configuration, you should perform tests to measure the vehicle's RPMs to make sure that the data collected by the Copilot is correct.

**To verify RPM data:**

- 1 In the vehicle, turn the key switch to **On** and start the engine.
- 2 On the installation terminal keyboard, press **F1** to access the main menu.
- 3 At the prompt, type `data` to select the data submenu.
- 4 At the prompt, type `uccd` and press **Enter**. The following information appears on the installation terminal.

**Figure14** Display in UCCD Mode

```
-----
          UCCD
-----
showt      Show or not invalid data
Nb Entry/Total Entry      : 19/64
Data Size/Data Size Max.  : 48/512
Key switch      1
Speed          0
Odometer (.1KM) 1000
Panic button    3
Voltage de JBox 2
UDAC int. temp. 29
RF RSSI         68
Foot brake     1
Gen contact 1  0
Gen contact 2  1
Gen contact 3  0
RPM            0
Odometer       1000
```

- 5 Increase the engine RPM and press **Shift-?** on the installation terminal keyboard to obtain the RPM level.
- 6 Repeat the test at different RPMs to verify that the RPM values and the values displayed on the driver display are the same.

## Verifying the GPS Status Reading

You can view the vehicle's GPS status on the installation terminal. To obtain the GPS reading, the vehicle must be outdoors. If the vehicle is inside a garage, the antenna will not receive the GPS signal and you will not get a reading. Exit the garage and allow a few minutes to obtain a satellite connection.

**To verify the GPS reading:**

- 1 Press **F1** to display the main menu.
- 2 At the prompt, type **data** to access the data submenu.
- 3 At the prompt, type **gps** and press **Enter**.
- 4 The following information appears on the installation terminal screen. Use the arrow keys to scroll through the screen.

**Figure15** Verifying GPS Data

```
Lassen SKI II Statistics:  
Lassen SK II device is present  
Firmware version Major: 8, Minor: 6  
Receiver Status: Doing position  
Fixes BBRAM was not available at startup  
Number of satellites in view: 7  
3D Fixes, Automatic,  
Differential DGPS  
Latitude: 40.31'16"N  
Longitude: 73°42'38"W
```

- 5 Wait 15 minutes to obtain a GPS position reading.
- 6 At the prompt, type **gps** and press **Enter**.
- 7 Verify your GPS data.

## NOTES

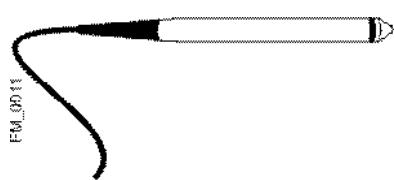
## Appendix 1

---

## Specifications

## Fleetlink Component Specifications

### Bar Code Scanner and Support (not shown)



### Bar Code Scanner—

**Operating Temperature:** -4°F to +122°F  
(-20°C to +50°C)

**Relative Humidity:** 95% max non-condensing

**Input Voltage:** 4.5 V to 5.5 V

**Typical Internal Consumption:** 19 mA

**Weight:** 3.6 oz. (102 g)

**Length:** 7.5 in. (19.1 cm)

**Diameter:** 0.5 in. (1.3 cm)

**Scanning Speed:** 1.9-50 in./sec. (5-127 cm/sec.)

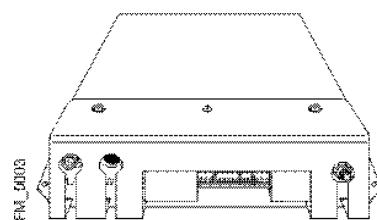
**Tip:** replaceable sapphire

**Cable Length:** 5.9 ft. (1.8 m)

### Bar Code Scanner Support—

**Dimensions (H x W x D):** 3.74 x 1.97 x 2.17 in.  
(9.5 x 5 x 5.5 cm)

### Copilot



### Com Ports:

1 SAE J1708-J1587,  
3 RS232

**RAM Memory:** 2 MB

**Flash Memory:** 4 MB

### Antenna Connectors:

WLAN connector

GPS connector

WWAN connector (optional)

**Operating Temperature:** -13°F to +122°F (-  
25°C to +50°C)

**Relative humidity:** 0% to 95% (non-condensing)

**Supply Inputs:** 16 digital inputs, including 8  
supplying voltage

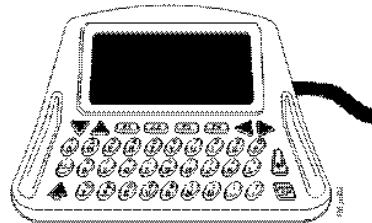
**Dimensions (H x W x D):** 8.8 x 7.8 x 1.8 in.  
(22.5x20 x 4.7 cm)

### Dallas Key

1D and 256-bit EEPROM



**Driver Display and Support**  
 (not shown)



**Driver Display—**

**Display:** VFD with four luminosity levels

**Keyboard:** QWERTY

**Screen (H x W):** 8 lines x 21 characters

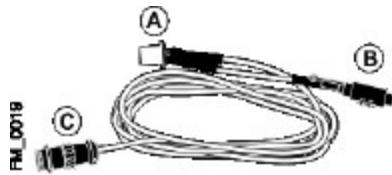
**Dimensions (H x W):** 5.75 x 7.25 in. (14.5 x 18.5 cm)

**Connector:** serial interface

**Support—**

**Dimensions (folded) (W x H x D):** 4.5 x 3.5 x 5 in.  
 (11.5 x 9 x 12.7 cm)

**ECM Connector Cable**



**Cable Type:** J1708

**Length:** 16.4 ft. (5 m)

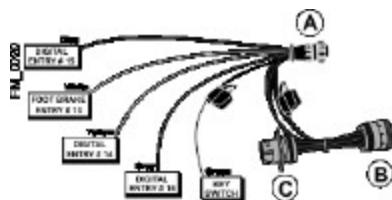
**Connectors:**

A—24-pin Copilot connector

B—Satellite connector (Quad 2 Com port)

C—ECM connector

**ECM Deutsch Connector Harness**



**Connector:** Copilot connector (A), 6 pin or 9 pin

**Jacks:**

B—jack remains free (to connect to diagnostic tool connector)

C—ECM jack

**Fuses:** Two 5A fuses (Type ATC 5)

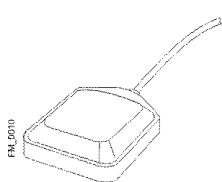
**Input wires:**

1 key switch input wire (green)

1 brake signal input wire (white)

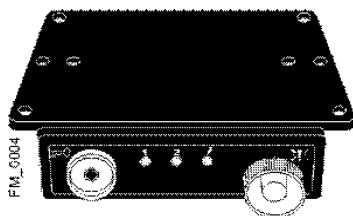
3 digital input wires (blue, yellow and grey)

**GPS Antenna**



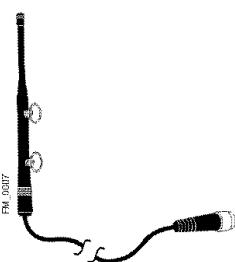
**Fastening:** magnetic  
**Tensile strength:** 29.4 N/mm<sup>2</sup>  
**Frequency:** 1 575.42 ± 1.023 MHz  
**Gain:** ± 27 dBi  
**Dimensions:** 1.65 x 1.99 x 0.54 in.  
(42x50.5x13.9 mm)  
**Length of connecting cable:** 16.4 ft. (5 m)

**Junction Box**



**COM ports:** 2  
Bar code scanner port  
Driver display port  
**Connector cable:** 16.4 ft. (5 m)  
**Computer connector:** 17-pin Copilot connector  
**LEDs:**  
Red—indicates driver connection (dimmed)  
Yellow—indicates connection with the base  
Green—indicates Copilot, driver display and junction box are on  
**Other:**  
Dallas key reader (with red or green LED, depending on model)  
Panic button  
**Dimensions (W x H x D):** 5.5 x 2.95 x 1.4 in.  
(14x7.5 x 3.6 cm)

**LAN Antenna**



**Transmission range:** ± 600 m  
**Frequency:** 902 to 928 MHz  
**Gain:** 3 dBd  
**Fastening:** suction-cup  
**Connector:** TNC

**Pulse Cable**



**Length:** 16.4 ft. (5 m)

**Connectors:**

A—24 pin Copilot connector

B—Satellite connector (Quad 2 Com port)

**Fuses:** Two 5A fuses (Type ATC 5)

**Input wires.**

1 key switch input wire (green)

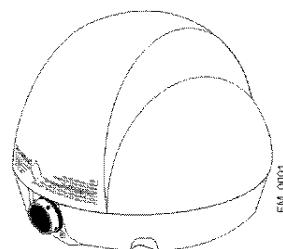
1 brake signal input wire (white)

3 digital input wires (blue, yellow and grey)

2 pulse input wires (white with label RPM and SPEED)

2 wires for power (label with Battery 24 Volt Max and Ground)

**Satellite Radio Antenna**



**Radio—**

**Operating Temperature:** -40°F to +122°F  
(-40°C to +50°C)

**Relative Humidity Tolerance:** 98%

**Input Voltage:** 9 VDC - 16 VDC

**Internal Consumption:**

250 mA receiving mode

3.3A transmitting mode

**Antenna—**

**Fastening:** 3 screws, 1/4-20

**Frequency:** L-Band, 1.525 GHz to 1.660 GHz

**WAN Antenna**



**Fastening:** magnetic

**Tensile Strength:** 29.4 N/mm<sup>2</sup>

**Transmission Range:**

896 to 941 MHz (Mobitex)

806 to 866 MHz (iDEN)

## NOTES

## Appendix 2

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### In-Vehicle Installation

## Introduction

This appendix shows a sample installation of the Fleetlink components in a truck. The truck type used is an International, 4000-series model.

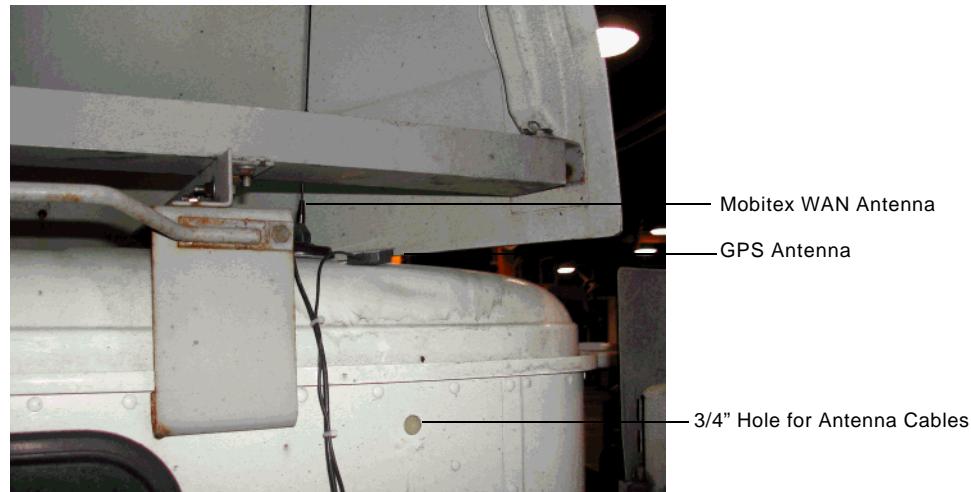
## Installing the Antennas

The following pictures shows the installation of the GPS, LAN and WAN antennas and how their cables are run through the cab.

**Figure16** shows—

- Installation of a WAN (Mobitex) and GPS antennas.
- Placement of the hole for the antenna cables
- Use of tie-wraps to keep the installation orderly.

**Figure16** Installing the WAN and GPS Antennas



**Figure17 shows—**

- Placement of the seal on the antenna cable. You do not put the seal in place in the hole until you have run the antenna cables through the hole, around the cab and connected them to the Copilot.

**Figure17** Installation of the Seal on the Antenna Cables

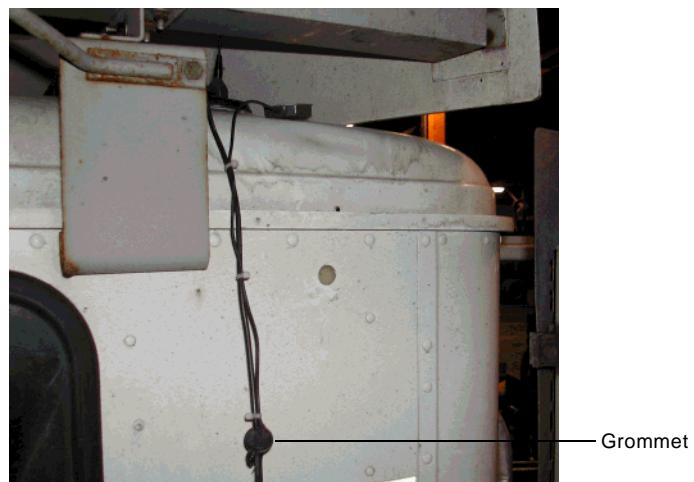
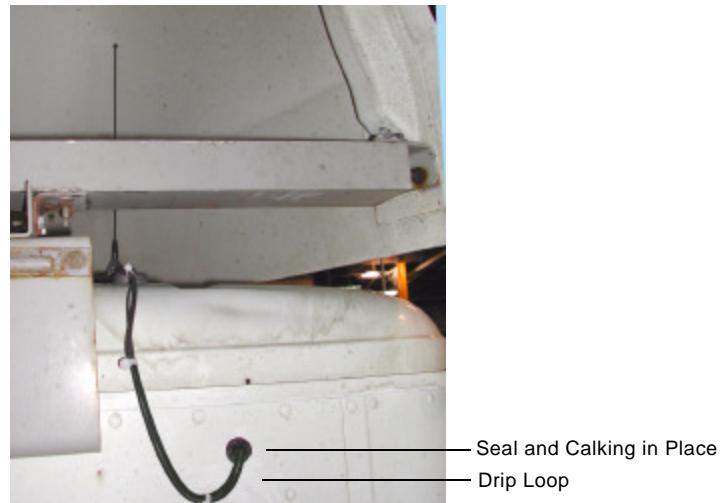


Figure18 shows—

- Installation of the antennas with the antenna cables passed through the hole.
- How the hole is closed using the seal and calking.
- Use of a drip loop on the antenna cable helps water run off the cables, thus preventing water from running to the hole.

**Figure18** Antenna Cables Passed Through the Hole with the Seal in Place



**Figure19 shows—**

- How the antenna cable are run from the hole in the back wall of the cab, over the passenger door and down the right-side of the front window.
- Paneling and the weather stripping on the door have been removed to run the cables. Once the cables are in place and connected to the Copilot, the paneling and the weather stripping is put back in place.

**Figure19** Running of GPS and WAN Antenna Cables Through the Cab



Figure20 shows—

- How to run the antenna cables above the passenger door. The paneling and weather stripping have been removed and the antenna cables are attached with tie-wraps are regular intervals.
- Installation of the LAN antenna in the lower-right corner of the front window. The cable from the GPS, LAN and WAN antennas will now be run through the dashboard to the Copilot.

**Figure20** Running of Antenna Cables Above Passenger Door Down to Dashboard



Figure21 shows—

- How the antenna cables for the GPS, LAN and WAN cables are run through the dashboard, behind the glove compartment and in front of the fuse box.
- Once the cables are run through to the Copilot, any excess cable is tied up with tie-wraps. The excess tie-wrap is then cut.

**Figure21** Antenna Cables Behind the Glove Compartment and in Front of the Fuse Box



**Figure22 shows—**

- Completed installation of the LAN antenna with the paneling and weather stripping put back in place.

**Figure22 LAN antenna installation complete**



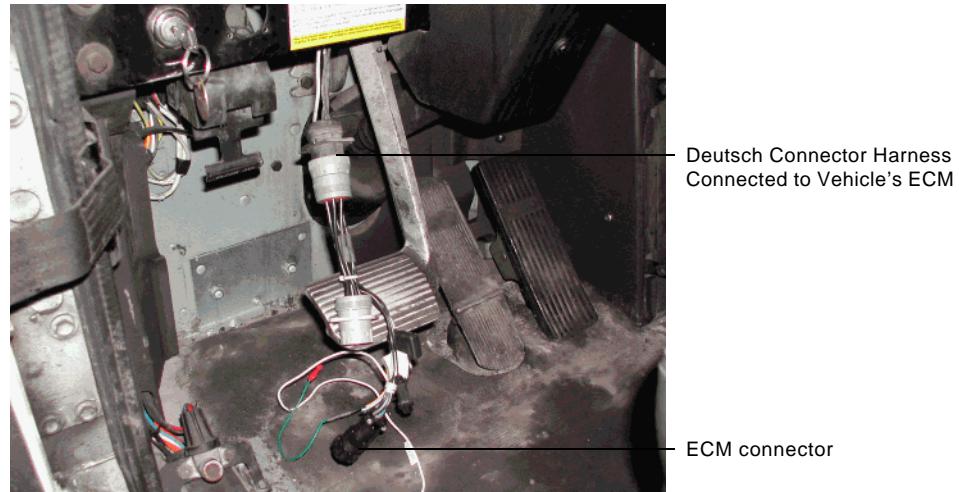
## Installing the Deutsch Connector Harness

The following pictures shows the installation of the Deutsch connector harness.

Figure23 shows—

- Deutsch connector harness connected to the vehicle's ECM connector.
- ECM connector which will be connected to the ECM cable and passed through the dashboard and connected to the Copilot.

**Figure23** Connection of the Deutsch Connector Harness to the Vehicle's ECM Connector



---

**Warning** Ensure that the Deutsch connector harness and the vehicle's ECM cable do not interfere with vehicle's brake.

---

Figure24 shows—

- Deutsch connector harness connected to the vehicle's ECM connector.
- Deutsch connector harness connected to the wires for the foot brake and the key switch.

**Figure24** Deutsch Connector Harness Connected to the Vehicle's ECM connector, Foot Brake and Key Switch

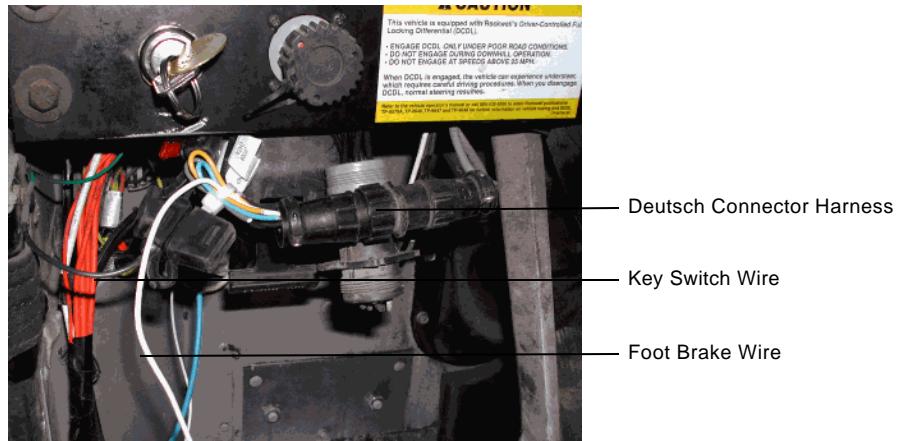


Figure25 shows—

- Completed installation of the Deutsch connector harness with the panel put back in place behind the foot brake.

**Figure25** Completed Installation of the Deutsch Connector Harness



## Installing Driver Display and Junction Box

The following pictures shows the installation of the driver display and junction box.

Figure26 shows—

- Installation of the junction box and driver display viewed from the passenger side.
- Connection of the bar code scanner and driver display to the junction box.
- Cable that connects the junction box to the Copilot.

**Figure26** Side View of the Junction Box and Driver Display Installation

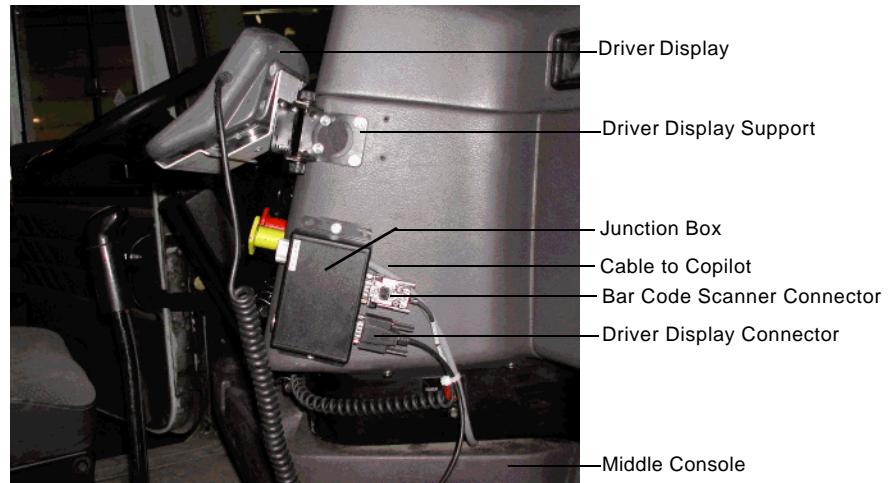


Figure27 shows—

- Installation of the junction box and driver display viewed from the driver seat.

**Figure27** Front View of Driver Display and Junction Box Installation

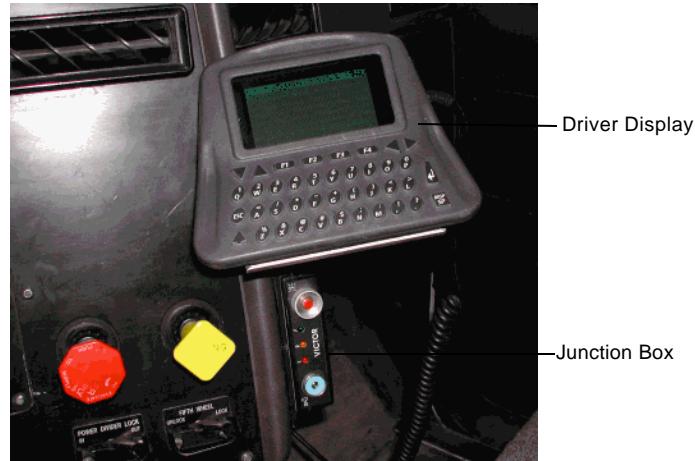


Figure28 shows—

- Completed installation of the driver display, junction box and bar code scanner. The Copilot is installed behind the middle console which has been back into place.

**Figure28** Front View of the Complete Installation of the Driver Display, Junction Box and Bar Code Scanner



## Installing the Copilot

The following pictures show the installation of the Copilot.

Figure29 shows—

- Installation of the copilot as viewed from the passenger side. The copilot is installed below the dashboard and behind the middle console.
- GPS, LAN and WAN antenna cables have been connected to the Copilot,
- ECM connector cable which is connected to the Deutsch connector harness.

Figure29 Installation of the Copilot Viewed from the Passenger Side)

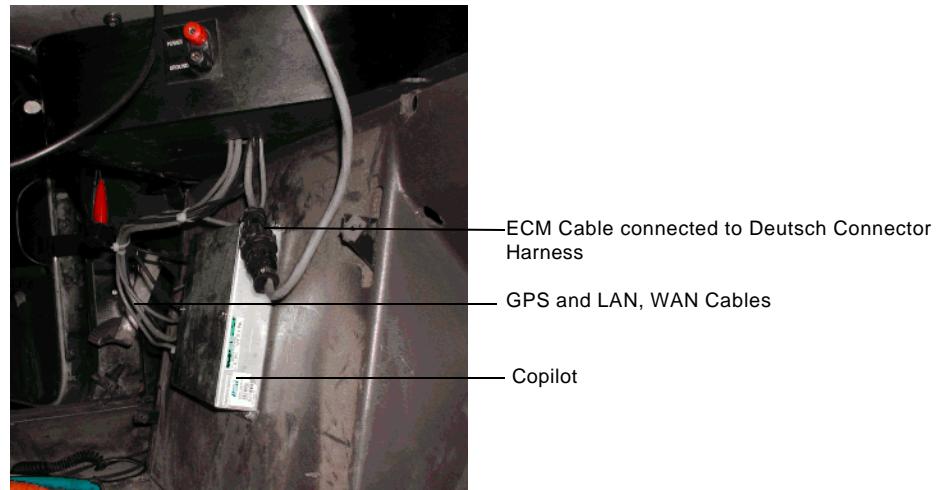


Figure30 shows—

- Installation of the Copilot as viewed from the driver side.
- Connection of the GPS, LAN and WAN antenna cables to the Copilot.
- Connection of the junction box cable to the Copilot.
- Connection of the Deutsch connector harness's ECM cable to the Copilot.

**Figure30** Installation of the Copilot Viewed from the Driver Side

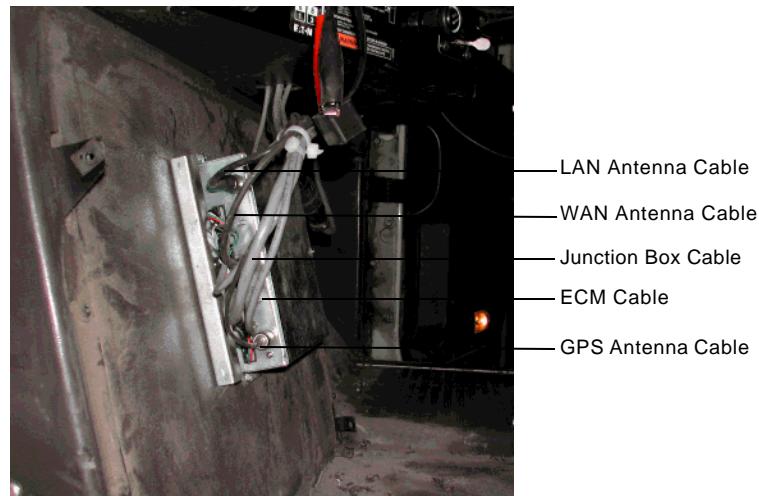


Figure31 shows—

- Completed Copilot installation as viewed from the driver side. The middle console has been put back in place.

**Figure31** Completed Copilot Installation



## NOTES

**A**

- antennas
  - installing GPS 22
  - installing LAN 21
  - installing R/F 21
  - installing satellite 22
  - installing WAN 22
- recommended location for ~ holes 19

**B**

- bar code scanner
  - installing 40
  - specifications 52
- battery wire
  - connecting in pulse-measured vehicles 32

**C**

- cabling distance 19
- configuring
  - FF converters 28
- Copilot
  - installing behind console 35
  - installing inside dashboard 35
  - installing under passenger seat 37
  - recommended installation location 19
  - specifications 52
- Copilot cable
  - connecting to key switch wire in pulse-measured vehicles 31
  - installing in pulse-measured vehicles 30
- customer support
  - contacting 10

**D**

- Dallas key
  - specifications 52
- Deutsch connector harness
  - connecting 24
  - connecting to foot brake wire 26
  - connecting to key switch wire 25

- specifications 53
- diagnostic connector 25
- documentation
  - suggested reading 9
- driver display
  - installing 38
  - specifications 53

**E**

- ECM 25
- ECM connector cable
  - specifications 53

**F**

- FF converters 28
  - configuring for RPM input 29
  - configuring for speed input 28
  - installing in pulse-measured vehicles 30
  - preparing for installation 28
  - understanding input wires 28
  - understanding output wires 28
- Fleetlink components
  - optional components 16
  - standard components 16
- foot brake wire
  - connecting to Deutsch connector harness 26

**G**

- GPS antenna
  - installing 23
  - specifications 54

**I**

- iDEN antenna 22
  - specifications 55
- installation
  - tips 19
- installation tips 19
- installing

bar code scanner 40  
Copilot behind console 35  
Copilot inside dashboard 35  
Copilot under passenger seat 37  
Deutsch connector harness 24  
driver display 38  
FF converters in pulse-measured vehicles 30  
GPS antenna 23  
satellite antenna 23  
WAN antenna 23

## J

junction box  
specifications 54

## K

key switch wire  
connecting to Copilot wire in pulse-measured  
vehicles 31  
connecting to Deutsch connector harness 25

## L

LAN antenna  
installing 21  
recommended location 21  
specifications 54

## M

Mobitex antenna  
specifications 55

## O

optional components 16

## P

preparing  
FF converters for installation 28

Pulse cable  
specifications 55  
pulse-measured vehicles  
connected key switch wire 31  
connecting battery wire 32  
installing copilot cable 30  
installing Copilots in ~ 27  
installing FF converters 30  
preparing FF converters for installation in ~ 28

## R

R/F antenna  
installing 21  
recommended location 21

## S

satellite antenna  
installing 23  
specifications 55  
standard components 16  
suggested reading 9

## T

technical support  
contacting 10  
templates  
for drilling 19  
tips  
for installation 19

## W

WAN antenna  
iDEN 22  
installing 23  
Mobitex 22  
specifications 55  
water corrosion 19



