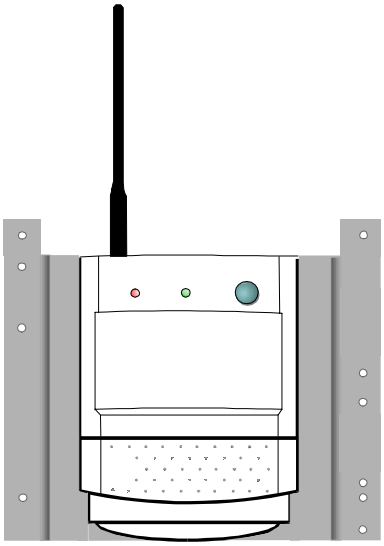
Vending Interface Unit
(VIU)
Installation Guide

617/HH/30787/000



GPT TELEMETRY SYSTEMS,
MARCONI COMMUNICATIONS
Edge Lane, Liverpool,
United Kingdom L7 9NW

Tel: International: +44 151 254 3000
Fax: International: +44 151 254 3029

History

This document consists of 23 pages, all at the same issue.

Issue: 3 Draft February 1999

Please address any comments to:

GPT Telemetry Systems,
MARCONI COMMUNICATIONS,
Post Point 224,
Faraday Building, 2nd Floor,
Edge Lane,
Liverpool.
United Kingdom.
L7 9NW.

CONTENTS

1. VIU INSTALLATION IN ELECTRONIC AND ELECTRO-MECHANICAL VENDING MACHINES. 1

1.1 UNPACK THE EQUIPMENT 1

1.2 VERIFY THE EQUIPMENT SHIPPED 1

1.2.1 For electro-mechanical machines the required equipment is as follows : 1

1.2.2 For electronic machines the required equipment is as follows : 3

1.3 TOOLS AND ACCESSORIES REQUIRED 4

1.4 TYPES OF VENDER 5

1.5 INITIAL PRECAUTIONS 5

1.6 ARRANGEMENT OF VIU AND MOUNTING BRACKET 6

1.7 FITTING THE VIU IN AN ELECTRO-MECHANICAL VENDER. 8

1.8 FITTING THE VIU IN AN ELECTRONIC VENDER 11

APPENDIX A. PARTS LISTS 17

APPENDIX B. TROUBLE SHOOTING GUIDE 25

Table of Figures

FIGURE 1 SCHEMATIC WIRING DIAGRAM FOR VIU FITTED IN AN ELECTRO-MECHANICAL VENDER 14
FIGURE 2 SCHEMATIC WIRING DIAGRAM FOR VIU FITTED IN AN ELECTRONIC VENDER..... 14
FIGURE 3 BLOCK DIAGRAM OF INSTALLATION PROCEDURE FOR VENDER INTERFACE UNIT 15

1. VIU Installation in Electronic and Electro-mechanical vending machines.

1.1 Unpack the equipment

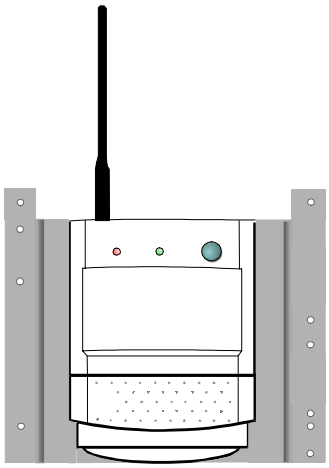
- Remove all of the equipment from its packaging.
- Check to ensure that there is no visible damage to the equipment or components. If damage is apparent, contact the freight company immediately to file a claim.
- Check the equipment order, the delivery note and the actual equipment received, to ensure that the total order has been received.

1.2 Verify the Equipment Shipped

1.2.1 For electro-mechanical machines the required equipment is as follows :

- the VIU, complete with mounting bracket

  Part No. 617/1/30787/200

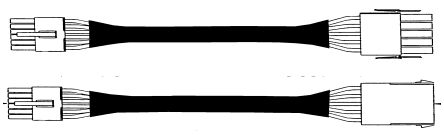


- the Electro-mechanical Interface Unit.

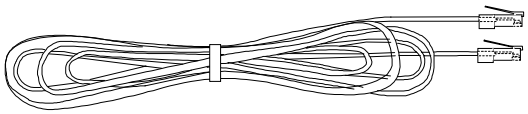
  Part No. 617/1/23386/000

- the two Electro-mechanical interface cables.

  Refer to the Harness Cable Supplement sheet for Part No. references.



- the Electro-mechanical Interface Unit to VIU communications cable.
  Part No. 617/1/23466/000



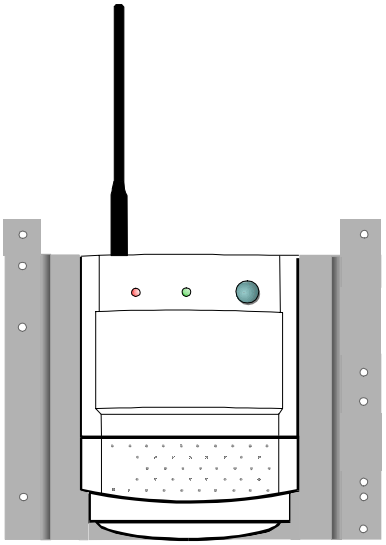
- 6 - No.8 x 9.5mm. Philips, pan head self-tapping screws.

- 10 - Plastic cable ties.

1.2.2 For electronic machines the required equipment is as follows :

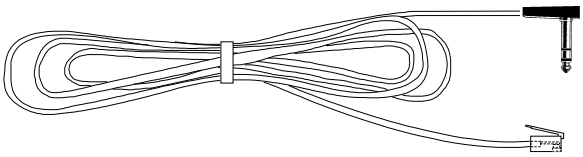
- the VIU, complete with mounting bracket.

  Part No. 617/1/30787/200



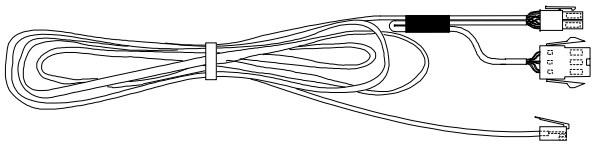
- the DEX (Direct exchange) cable.

  Part No. 617/1/30803/000



- the MDB (Multi-drop bus) cable

  Part No. 617/1/30802/000

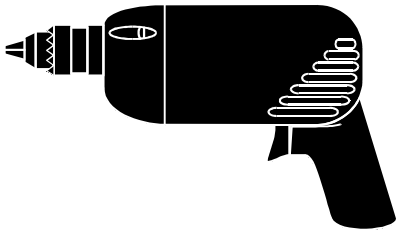


- 6 - No.8 x 9.5mm. Philips, pan head self-tapping screws.

- 10 - Plastic cable ties.

1.3 Tools and accessories required

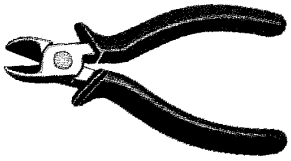
- Cordless hand-drill.



- No.6 Drill bits.

- Philips-head screwdriver.

- Side cutters.



- Extra plastic cable ties.

- Extra screws

- Safety glasses

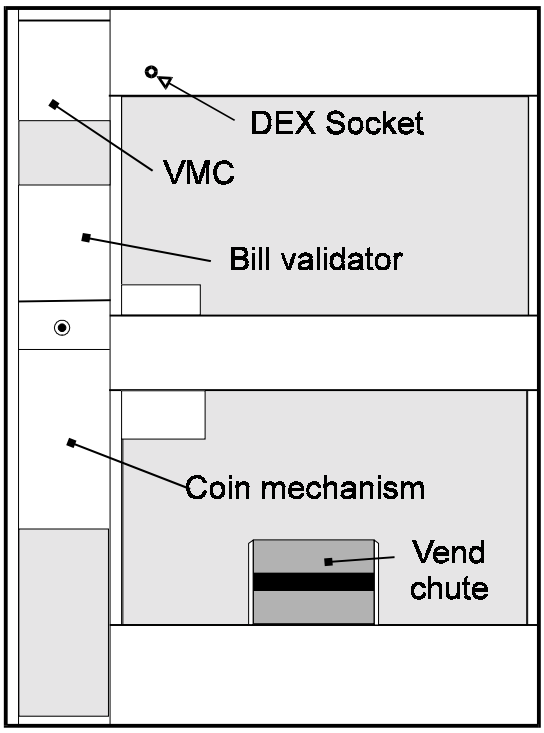
1.4 Types of Vender

Two types of vender are in use :

- **electro-mechanical**.
- **electronic**

Identification of each type can be made by checking the equipment mounted inside the vender door.

- Only the **electronic** vender is fitted with a **Vending Machine Controller** (**VMC**). This comprises the electronic circuitry enclosed within a metal box.



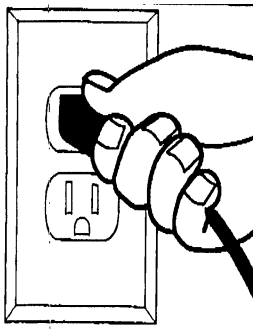
View on inside of door of electronic vending machine

For installations in an electro-mechanical vender, refer to para 1.7 page 8.

For installations in an electronic vender, refer to para 1.8 page 11.

1.5 Initial Precautions

- **Before carrying out any work inside the vender DISCONNECT THE ELECTRICAL SUPPLY**.
- First obtain any necessary permission from the vending machine supervisor or manager.
- Unplug the electrical supply to the machine.
- If the electrical supply is hard wired, schedule a qualified electrician to make the disconnection.
- Unlock the vending machine and gain access to the rear of the door to enable installation of the VIU and the appropriate cables, as described in the following pages.



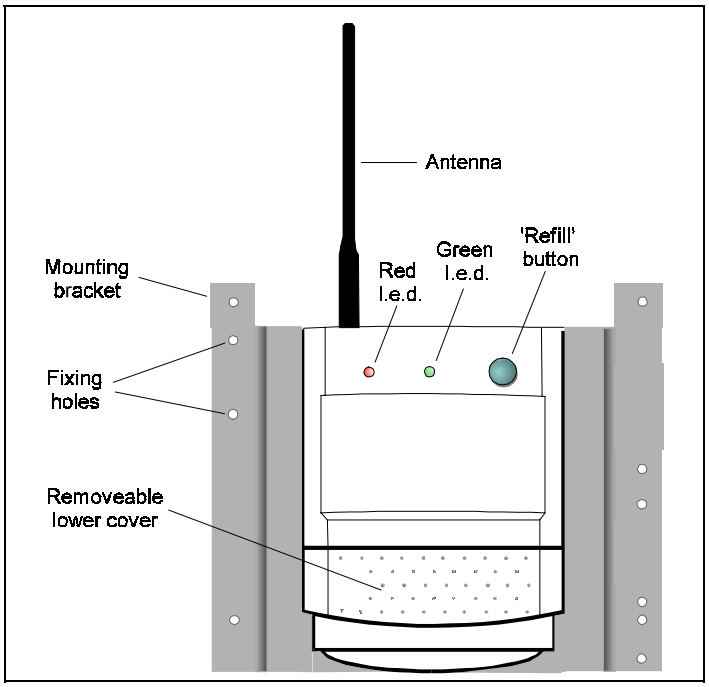
1.6 Arrangement of VIU and mounting bracket

The standard arrangement of the VIU is shown in the illustration opposite.

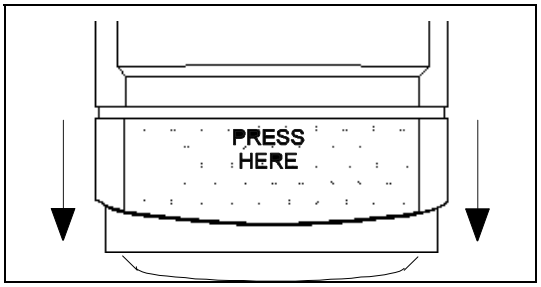
In some cases it may be better to change the arrangement of the VIU and its mounting bracket, to suit the space available for fixing inside the vender.

This will involve turning the bracket upside-down, which can be carried out as detailed below

.

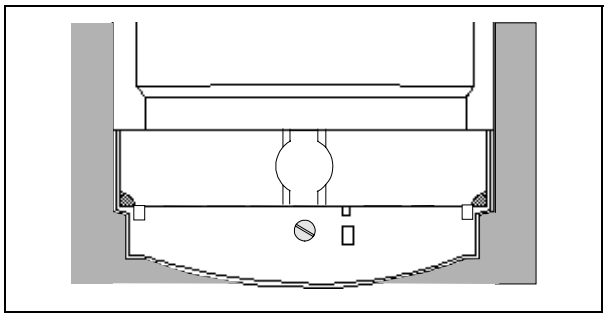


- Remove the lower cover from the VIU by pressing the top centre of the cover and then sliding it downwards.
- Do not lever the cover upwards



- Remove the self-tapping screw that secures the VIU to the bracket.

The bracket also attaches to the VIU by means of a nut and bolt which locates in a keyhole slot in the rear of the VIU case.

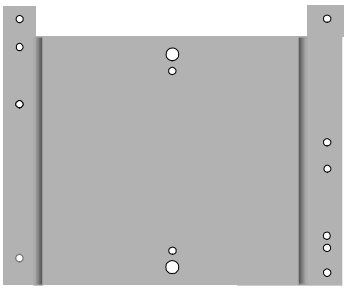


- Hold the bracket and slide the VIU upwards until the bolt is released from the keyhole slot and the two items can be separated.

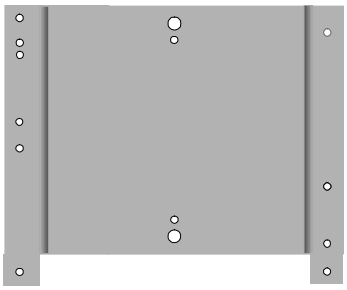
- Remove the bolt, nut and washer from the bracket.

The bracket has two pairs of holes for securing the VIU each pair having one hole larger than the other, and which accommodates the nut and bolt..

This arrangement allows the bracket to be fitted in the upright or inverted position.



Upright



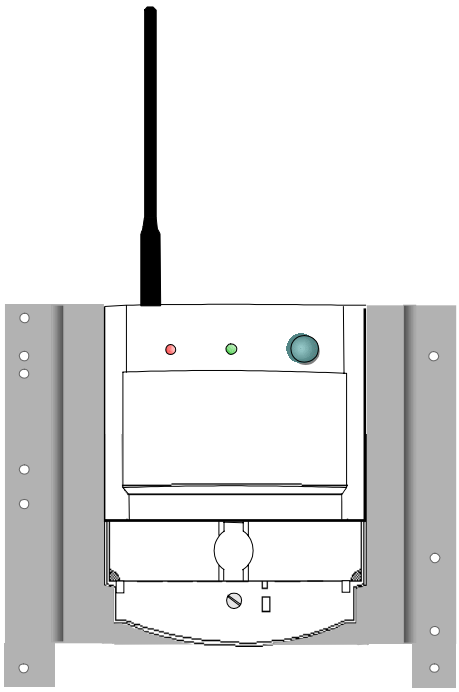
Inverted

To fit the VIU to the inverted bracket :

- Invert the bracket as shown above.
- Fit the bolt, nut and washer to the large hole at the top of the bracket so that the nut and washer are on the outside of the bracket.
- Attach the VIU to the bracket by inserting the bolt head into the keyhole slot at the rear of the VIU.
- Ensure that the bolt is correctly engaged in the slot and then tighten the nut at the rear of the bracket to hold the VIU.

The fixing hole at the bottom of the VIU will now be in alignment with the small hole at the bottom of the bracket.

- Screw the self tapping screw into the bracket to secure the VIU.

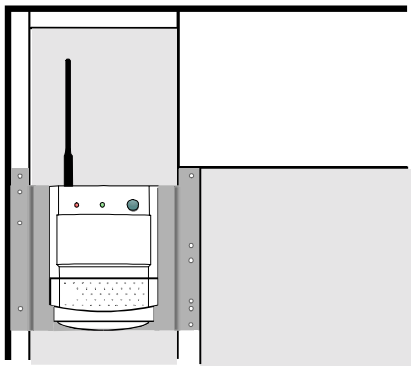


If the VIU is not to be installed in the vendor immediately, slide the cover back into place.

1.7 Fitting the VIU in an electro-mechanical vender.

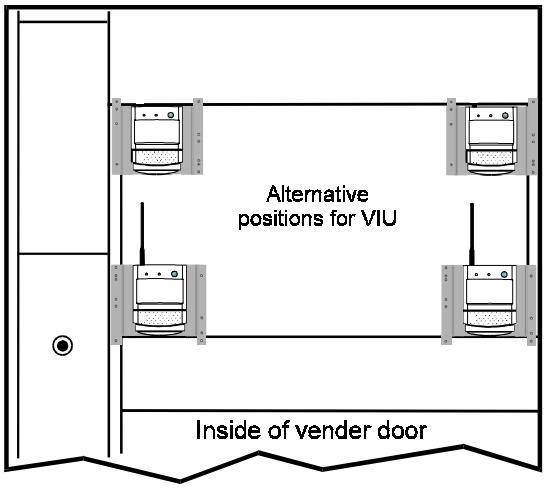
a) Because of the machine equipment fitted in the vender door, the VIU can only be positioned within certain free spaces, so that it does not obstruct other items such as the bill validator.

- The most suitable location would normally be at the top left-hand side of the door, but each machine should be assessed individually. Possible alternative locations for fitting the VIU are shown in the illustration below.



b) Install the VIU in the most suitable position.

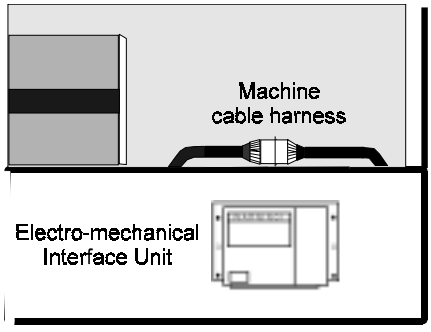
- Ensure that the antenna does not come into contact with any metal surface.
- If it is decided to fit the VIU *above* part of the door framework, the mounting bracket can be inverted as described in Section 6.
- Drill any necessary fixing holes in the vender door framework, corresponding to the holes in the VIU mounting bracket.
- Take care not to damage any existing cables or equipment.
- Use the self-tapping screws to secure the VIU to the vender door framework.



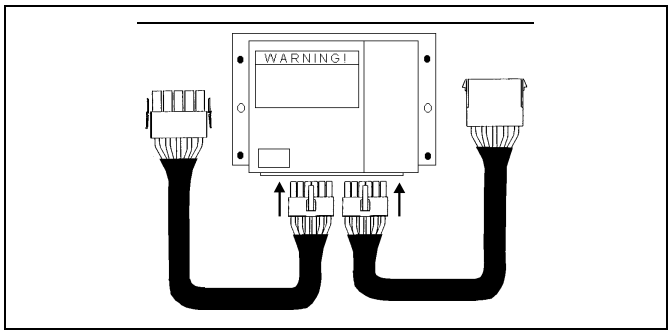
CAUTION. Check for cables behind door framework before drilling any holes.

c) Install the Electro-mechanical Interface Unit as follows :

- Fit the unit at the bottom right-hand side of the door, using the same method as for the VIU.



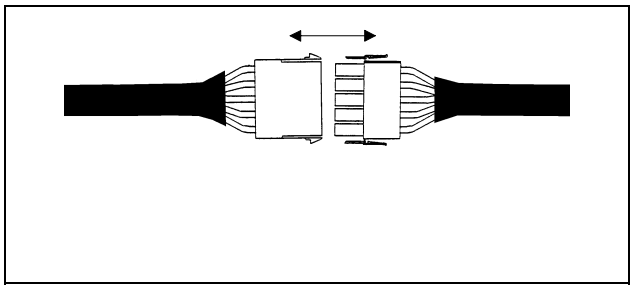
- Plug the two new interface cables into the two large sockets in the Electro-mechanical Interface unit (in any order)



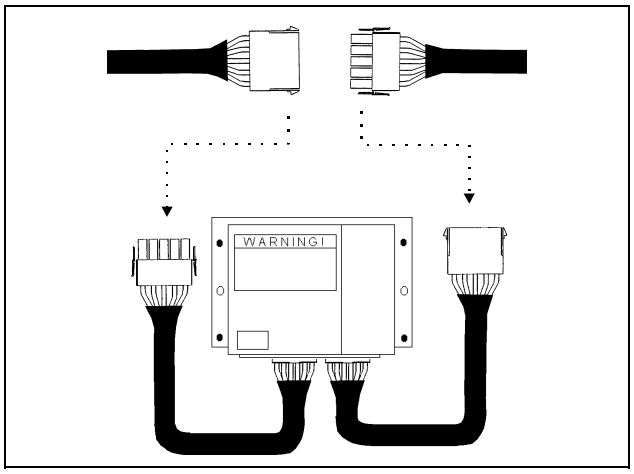
Refer to Figure 1 Schematic wiring diagram for VIU fitted in an electro-mechanical vender**.** (page 14)

d) Connect the Interface Unit into the vender's cable system as follows :

- Locate the machine cable harness at the bottom of the door.
- Split the harness by separating the plug and socket connector.

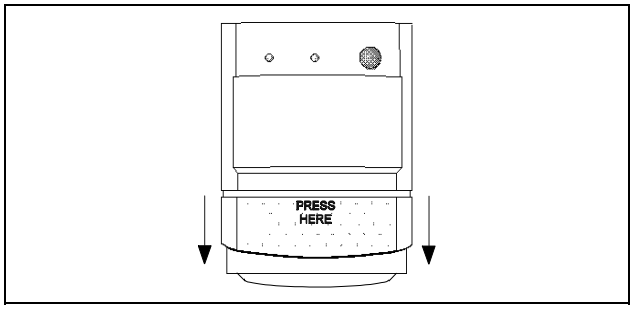


- Plug the male connector of the harness into the female connector of the appropriate interface cables.
- Plug the male connector of the other interface cable into the female connector of the harness.

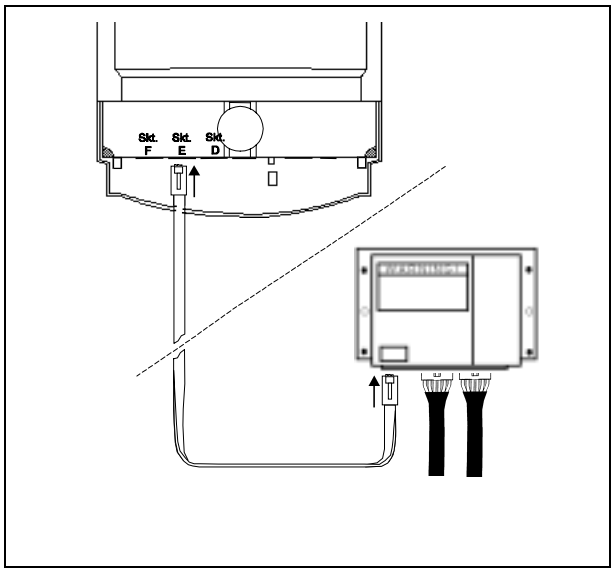


e) Connect the communications cable between the VIU and the Electro-mechanical Interface Unit as follows : Remove the lower front cover from the VIU by pressing the top centre of the cover and sliding the cover downwards.

- <u>Do not lever the cover upwards</u>.



- Insert the plug labelled '**E**' of the communications cable into the socket marked '**E**' on the VIU.
- Push the plug inwards until it clicks into place.
- Insert the plug at the other end of the cable into the small socket of the Electro-mechanical Interface Unit.
- Push the plug inwards until it clicks into place.
- Replace the cover of the VIU by sliding it back into place.



f) Re-connect the electrical supply to the vender. <u>If the electrical supply is hard wired schedule a qualified electrician to make the reconnection.</u>

Check that the VIU operates in the correct manner for an electro - mechanical vender, as follows :

Initially, *after a delay of up to 5 minutes*, the **green l.e.d.** on the VIU should light and then stay lit.

If the **green l.e.d.** flashes in a slow 'on/off-on/off' sequence, it indicates that the VIU has not been initialised. *In this case do not proceed any further, but report the fault to your service department.*

- When the **green l.e.d.** is on, press and hold down the '**Refill**' button for at least 5 seconds.

  Wait until the **red l.e.d.** comes on and then goes off again before releasing the button.

  After an 80 second pause, the **red l.e.d**. should come on again, indicating that the VIU is contacting the management system.
- Wait until the **red l.e.d**. goes off again before finalising the installation.

  If the **red l.e.d.** flashes at this stage it indicates that the VIU has failed to be set up.

- If the l.e.ds do not operate in the correct manner, or if a failure is indicated, refer to Appendix Appendix B Trouble Shooting Guide or contact your service department.
- If the operation is successful, secure the cables neatly to the door framework with cable ties.
- Close and lock the door and return the machine to normal usage.

<u>NOTE</u>. *PRESSING THE 'REFILL' BUTTON AFTER INSTALLATION AND FOLLOWING A REFILL IS ABSOLUTELY ESSENTIAL TO THE EFFICIENCY AND CORRECT OPERATION OF THE VENDING CONCEPT. GPT (USA) Inc. ACCEPTS NO RESPONSIBILITY FOR THE INSTALLER'S / FILLER'S FAILURE TO PERFORM THIS ACTION.*

1.8 Fitting the VIU in an electronic vender

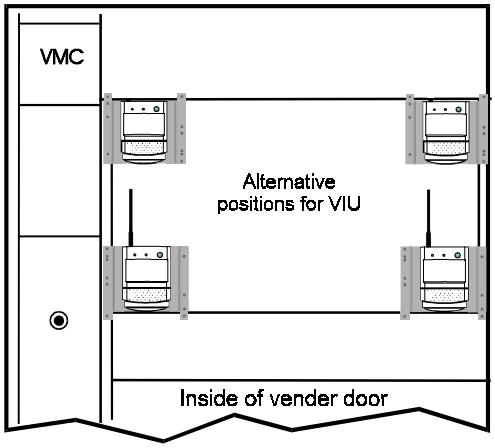
Because of the extra equipment fitted in the electronic vender door, there will be less free space than in an electro-mechanical vender.

a) The most suitable location would probably be in the area at the top of the door, but each machine should be assessed individually.

- Position the VIU so that it does not obstruct other items such as the bill validator or the VMC.

b) Install the VIU in the most suitable position. Possible alternative locations for fitting the VIU are shown in the illustration opposite.

- Ensure that the antenna does not come into contact with any metal surface.
- If it is decided to fit the VIU *above* part of the door framework, the mounting bracket can be inverted as described in Section 1.6.
- Drill any necessary fixing holes in the vender door framework, corresponding to the holes in the VIU mounting bracket.
- Take care not to damage any existing cables or equipment.
- Use the self-tapping screws to secure the VIU to the vender door framework.

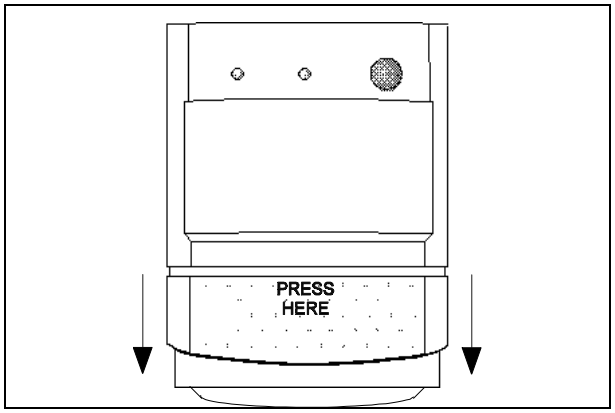


CAUTION. Check for cables behind door framework before drilling any holes.

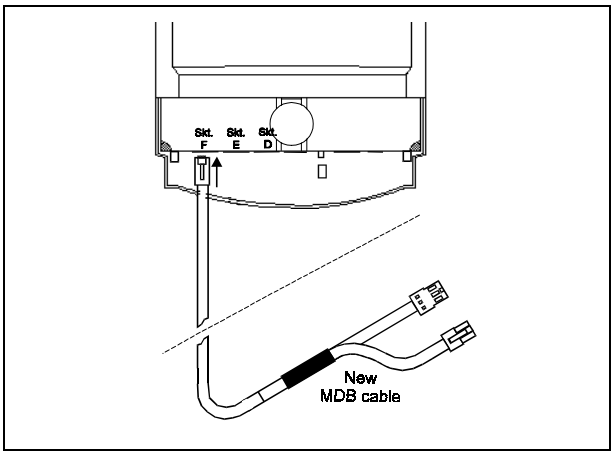
Refer Figure 2 Schematic wiring diagram for VIU fitted in an electronic vender**.** (page 14)

c) Connect the MDB cable into the VIU as follows :

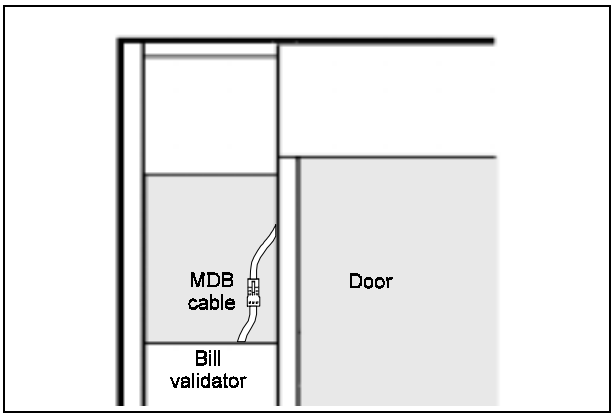
- Remove the lower front cover from the VIU by pressing the top centre of the cover and sliding the cover downwards.
- Do not lever the cover upwards.



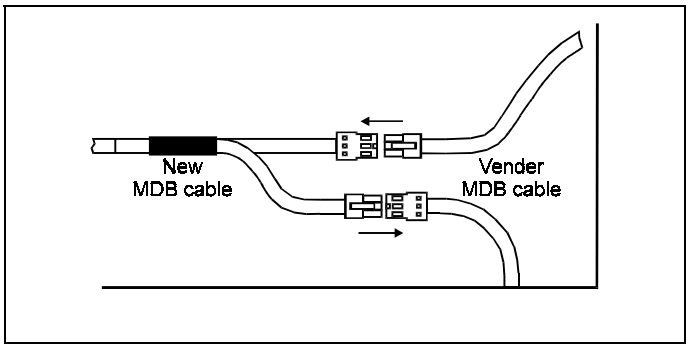
- Insert the plug labelled '**F**' of the MDB cable into the socket marked '**F**' on the VIU.
- Push the plug inwards until it clicks into place.
- Insert the male and female connectors at the other end of the cable into the corresponding connectors of the vender MDB cable, as described below.



- Locate the MDB cable exiting from the bill validator in the vender door.
- Separate the plug and socket connector.

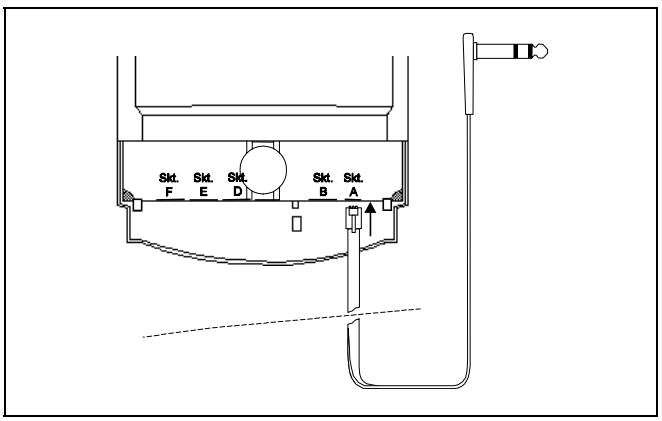


- Insert the male and female connectors of the new VIU cable (labelled '**MDB**'), into the corresponding female and male connectors of the vender MDB cable.

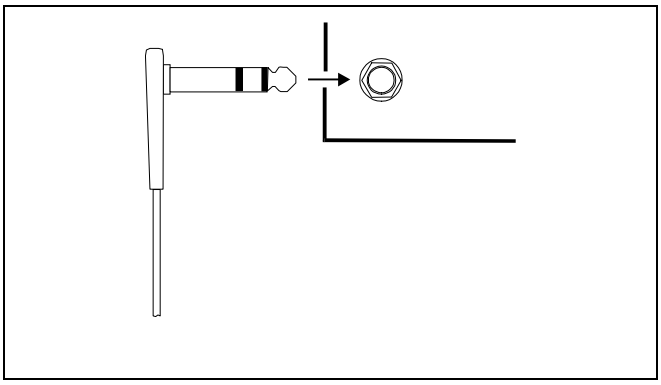


d) Connect the DEX cable between the VIU and the DEX socket as follows :

- Connect the plug labelled '**A**' of the DEX cable, into socket '**A**' of the VIU.
- Push the plug inwards until it clicks into place.
- Replace the cover of the VIU by sliding it back into place.



- Locate the 0.25” DEX jack-socket in the door of the vender.
  NOTE : this may not always be fitted in the same position in all machines.
- Insert the Jack plug of the DEX cable fully into the DEX jack-socket.



e) Re-connect the electrical supply to the vender. <u>If the electrical supply is hard wired schedule a qualified electrician to make the reconnection.</u>

Check that the VIU operates in the correct manner for an electronic vender, as follows :

Initially, after a 2-5 minute delay, the **green l.e.d.** on the VIU should light and then stay lit.

If the **green l.e.d.** flashes in a slow ‘on/off-on/off’ sequence, it indicates that the VIU has not been initialised. *In this case do not proceed any further, but report the fault to your service department.*

- When the **green l.e.d.** is on, press and hold down the ‘**Refill**’ button for at least 5 seconds.

  Wait until the **red l.e.d.** comes on and then goes off again before releasing the button.

  After a short pause, the **red l.e.d**. should come on again, indicating that the VIU is contacting the management system.

  The **green l.e.d**. should flash at a fast rate for 10 seconds and then return to a steady state again.

- Wait until the **red l.e.d**. goes off again before finalising the installation.

  If the **red l.e.d.** flashes at this stage it indicates that the VIU has failed to be set up.

- If the l.e.ds do not operate in the correct manner, or if a failure is indicated, refer to the Operations Manual - Troubleshooting - Section A or contact your service department.
- If the operation is successful, secure the cables neatly to the door framework with cable ties.
- Close and lock the door and return the machine to normal usage.

<u>NOTE</u>. *PRESSING THE ‘REFILL’ BUTTON AFTER INSTALLATION AND FOLLOWING A REFILL IS ABSOLUTELY ESSENTIAL TO THE EFFICIENCY AND CORRECT OPERATION OF THE VENDING CONCEPT. GPT (USA) Inc. ACCEPTS NO RESPONSIBILITY FOR THE INSTALLER’S / FILLER’S FAILURE TO PERFORM THIS ACTION.*

Figure 1 Schematic wiring diagram for VIU fitted in an electro-mechanical vender

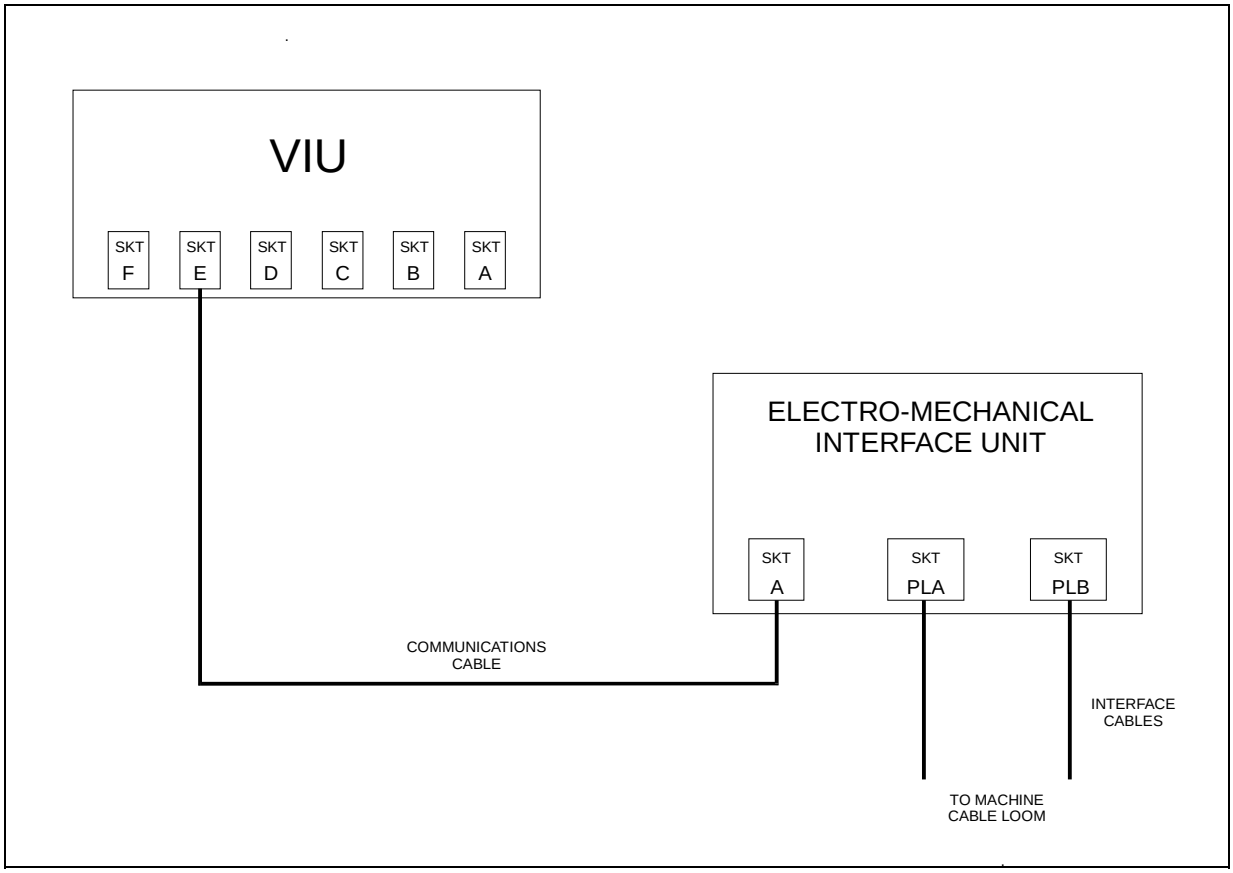


Figure 2 Schematic wiring diagram for VIU fitted in an electronic vender

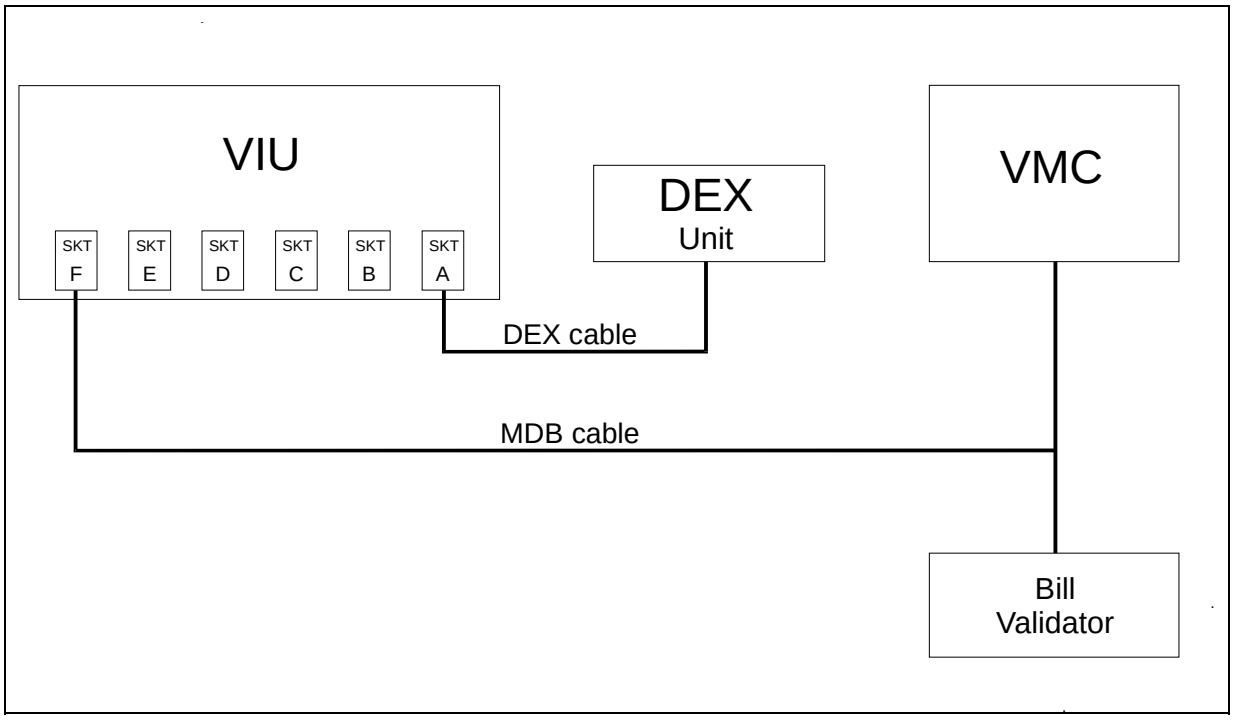
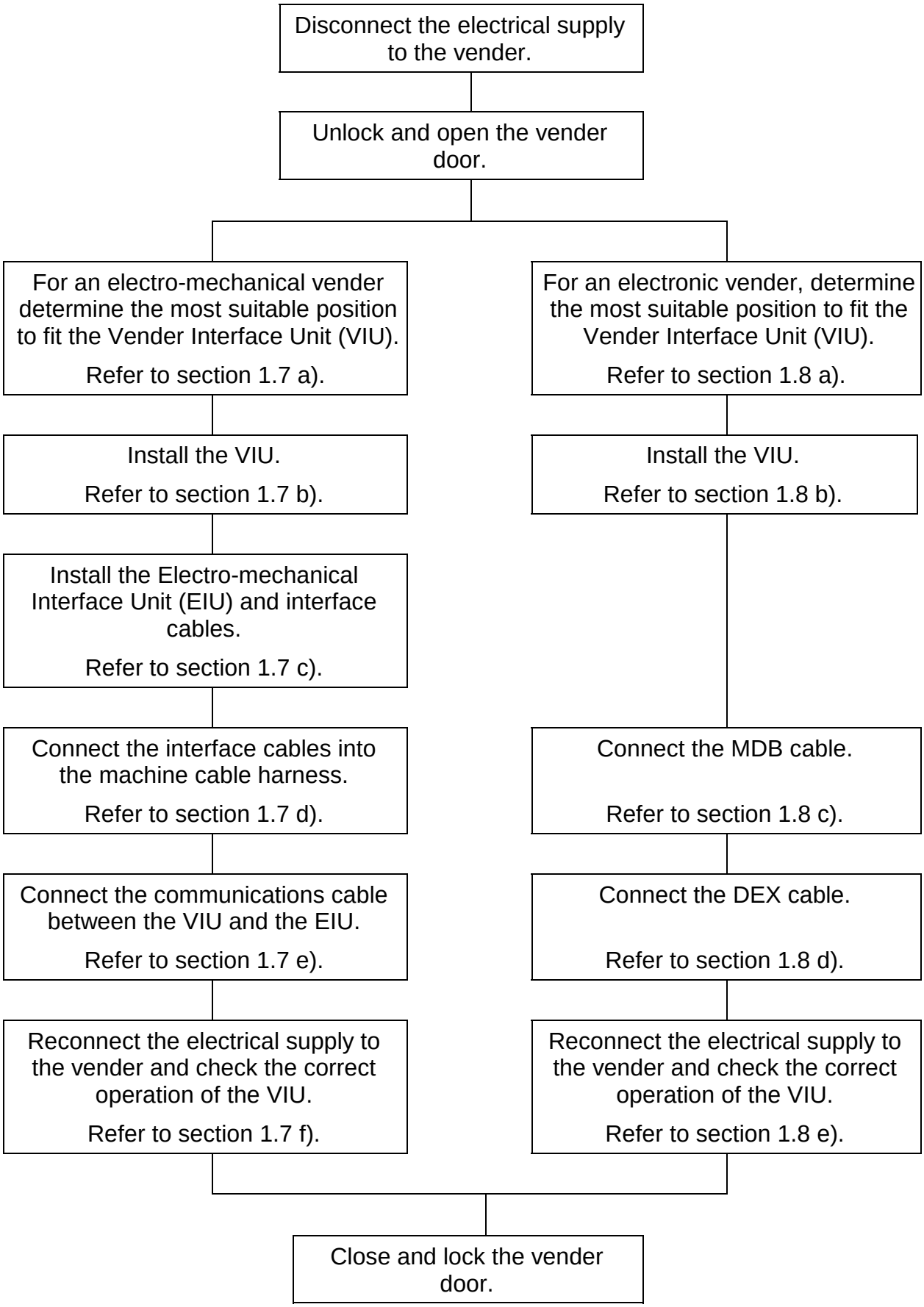


Figure 3 Block diagram of installation procedure for Vender Interface Unit

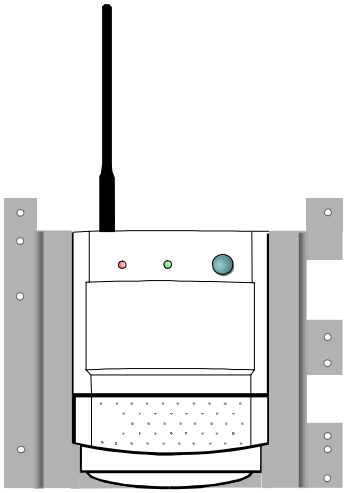


Appendix A. Parts Lists

VIU

The VIU complete with mounting bracket.

Part No. 617/1/30787/200



4 - No.8 x 9.5 mm. Philips, pan head, self tapping screws.

5 - Plastic cable ties.

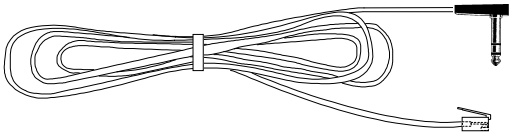
Label -

VIU 200W/ - RFDB

ELECTRONIC CABLING

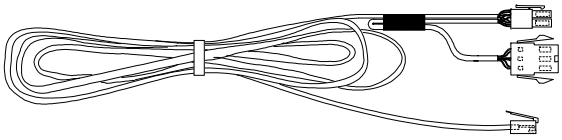
Top level code 617/5/30799/100

The DEX (Direct exchange) cable.



Part No. 617/1/30803/000

The MDB (Multi-drop bus) cable.



Part No. 617/1/30802/000

Label -

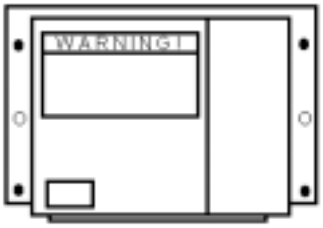
KOP CABLE A,F ELECTRONIC VIU

EMECH I'FACE

Top level code 617/1/30791/000

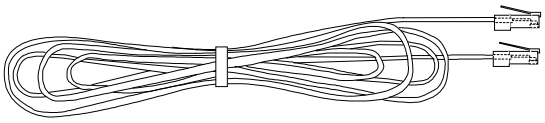
The Electro-mechanical Interface Unit.

Part No. 617/1/23386/000



The Electro-mechanical Interface Unit to VIU communications cable.

Part No. 617/1/23466/000



No.8 x 9.5 mm. Philips, pan head, self tapping screws.

Plastic cable ties.

Label -

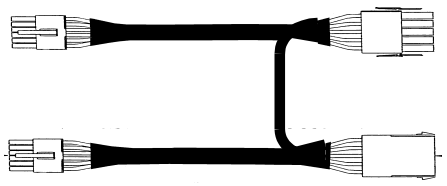
VIU 200 EMECH INTERFACE ASSM.

EMECH CABLING

DIXIE Pre 1990 - D276

Top level code 617/5/30799/001

Electro-mechanical interface cable.



Part No. 617/1/23472/000

Label - CABLE G2 EMECH DIXIEPRE90 D276

EMECH CABLING

DIXIE 1990 + D276, 368, 501, 522

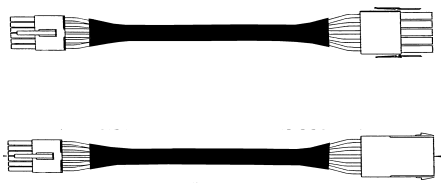
Top level code 617/5/30799/000

two Electro-mechanical interface cables :

Part No. 617/1/23473/000

&

Part No. 617/1/23474/000



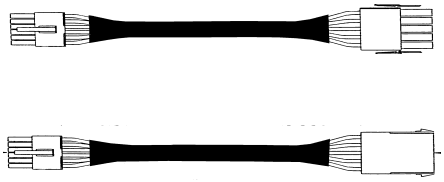
Label - EMECH DIXIE90+ D276, 368, 501, 522

EMECH CABLING

VENDO 264, 427

Top level code 617/5/30799/003

two Electro-mechanical interface cables :



Part No. 617/1/23467/000

&

Part No. 617/1/23468/000

Label - CAB G4, H4 EMECH VEN 264, 427

EMECH CABLING

VENDO 280, 406, 407

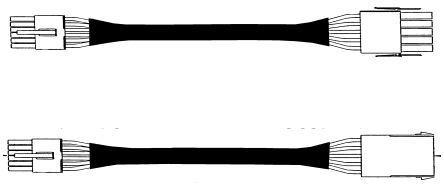
Top level code 617/5/30799/002

two Electro-mechanical interface cables :

Part No. 617/1/23469/000

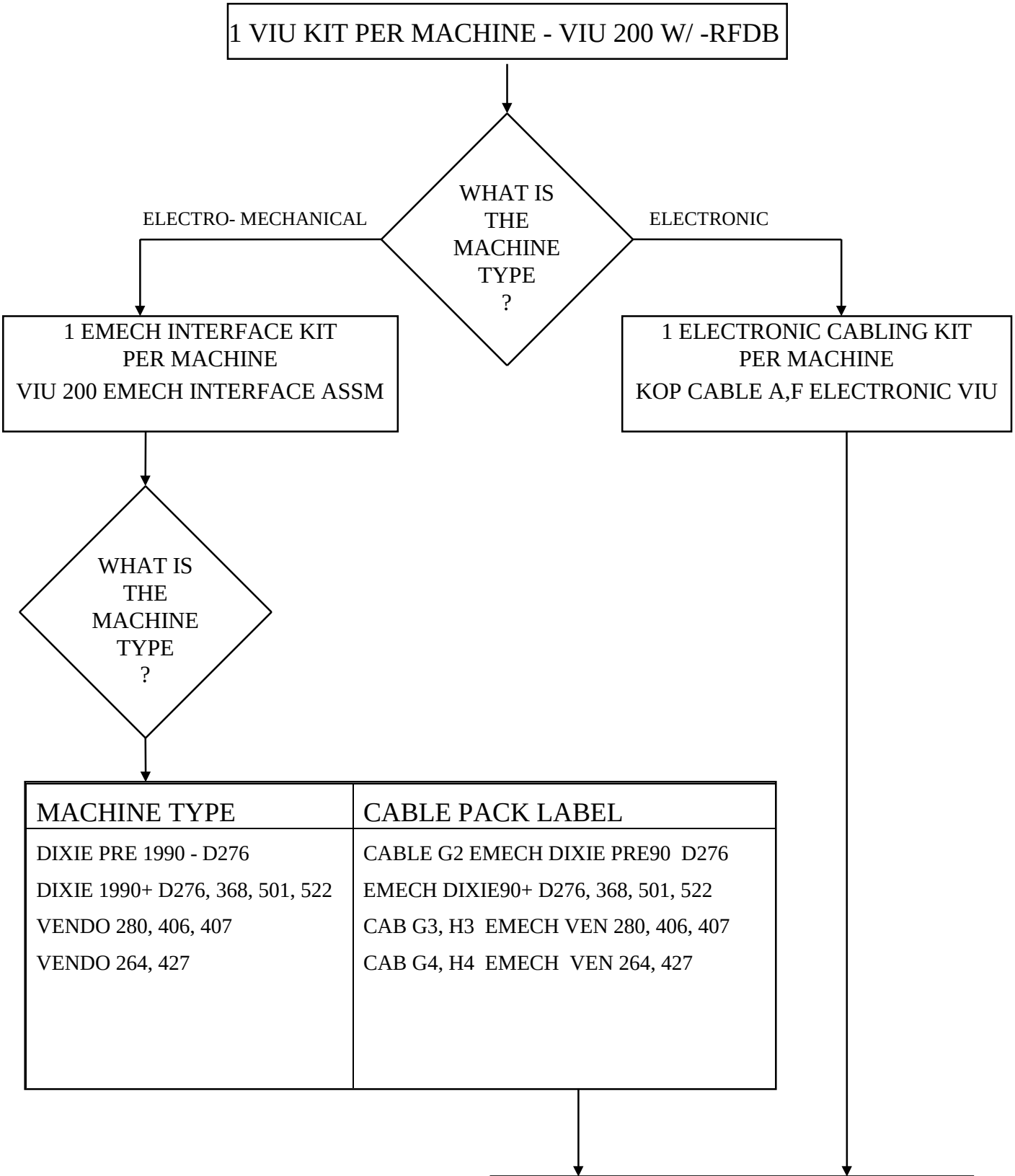
&

Part No. 617/1/23471/000



Label - CAB G3, H3 EMECH VEN 280, 406, 407

INSTALLATION - KIT and CABLING REQUIREMENTS



MACHINE TYPE	CABLE PACK LABEL
DIXIE PRE 1990 - D276	CABLE G2 EMECH DIXIE PRE90 D276
DIXIE 1990+ D276, 368, 501, 522	EMECH DIXIE90+ D276, 368, 501, 522
VENDO 280, 406, 407	CAB G3, H3 EMECH VEN 280, 406, 407
VENDO 264, 427	CAB G4, H4 EMECH VEN 264, 427

PROCEED TO INSTALL USING GPT (USA) Inc. INSTALLATION GUIDE

Appendix B. Trouble Shooting Guide

Annex B describes the procedures for diagnosis of possible faults when installing the VIU.

The engineer installing the VIU will require a normal range of simple hand tools and be skilled in their use.

Fault diagnosis can be rapid and accurate if a systematic procedure is employed and there is careful observation of the symptoms displayed.

Warnings & Cautions

WARNINGS

The VIU incorporates NiCd rechargeable type storage batteries. They are sealed and if used as specified they present no direct hazard. However, they contain toxic and corrosive materials and has a potential risk of explosive rupture if it is subject to excessive charging or discharging currents, or it is burned.

The following precautions must be observed to ensure there is no risk to health or safety:

a) Do not allow a battery to be short-circuited.

b) Do not attempt to open or rupture a battery. If any rupture of a battery occurs, treat its contents as highly toxic and avoid contact with eyes, mouth or skin. If any contact occurs or is suspect, rinse copiously with clean water and seek immediate medical attention.

c) Never dispose of batteries by burning.

d) Discarded batteries must be treated as toxic waste and be disposed of by appropriate safe means.

Caution

The VIU contains components that are sensitive to and can be permanently damaged by static electricity, which may be carried by hand or tools. Within the closed case they are at no risk, but it is essential to take anti-static precautions before touching or handling printed circuit board assemblies or the components on them. Suitable precautions can include wearing an earthed strap to discharge body static, ensuring that all equipment is effectively earthed.

1. VIU operating States.

VIU OPERATING STATE	GREEN LED ACTIVITY	RED LED ACTIVITY
POWER OFF	OFF	OFF
POWER ON	ON	OFF
MODEM INITIALISATION FAILURE	FLASHING 2 Sec ON / 2 Sec OFF	OFF
REFILL BUTTON PRESSED <5 SECONDS GENERATES REFILL ALARM	ON	ON WHILE THE BUTTON IS PRESSED
REFILL BUTTON PRESSED >5 SECONDS GENERATES SERVICE CALL ALARM	ON	OFF RED LED WILL BE LIT FOR THE FIRST 5 SECONDS AND WILL THEN TURN OFF.
REFILL BUTTON RELEASED	ON	OFF
OUTGOING ALARM CALL INITIATED, OR RESPOND TO INCOMING CALL	ON	ON
COMMUNICATIONS IN PROGRESS	ON	ON
SUCCESSFUL OUTGOING CALL OR INCOMING CALL ENDED	ON	OFF
UNSUCCESSFUL OUTGOING CALL - RETRY ACTIVATED	ON	FLASHING 500mS ON / 500mS OFF
SUCCESSFUL DEX TRANSFER BETWEEN THE VIU & VMC	FLASHING (for 10 Sec) 500mS ON / 500mS OFF	OFF

2. General Faults

Action

After completion of the installation. Refer 1.7 Fitting the VIU in an electro-mechanical vender. (page 8) or 1.8 Fitting the VIU in an electronic vender (page 11) apply power.

Normal Result

After an initial delay of up to 5 minutes, the Green L.E..D on the VIU will illuminate.

Fault Condition

Green L.E.D does not illuminate.

- Check the power supply output.
- Check the electrical connections to the VIU. (see Section 1.7 Fitting the VIU in an electro-mechanical vender. (page 8) or 1.8 Fitting the VIU in an electronic vender (page 11).
- Replace the VIU.
- Replace the power supply.

Green L.E.D flashes in a slow on/off -on/off sequence. An indication that the VIU has not initialised.

- Report the fault to your service department.

Action

With the Green L.E.D illuminated. Press the 'Refill' button for at least 5 seconds.

Normal Result

Red L.E.D comes on and then goes off again before releasing the button. After an 80 second pause, the **red l.e.d**. comes on again, indicating that the VIU is contacting the management system. The red L.E.D extinguishes indicating successful communication.

Fault Condition

Red L.E.D flashes.

- VIU makes 3 attempts at contacting the Management System. If the VIU has failed to communicate, then a 90 minute timer is started before another attempt is automatically made.

Failure to communicate with the Management System.

- Check that the VIU has been registered on the management System.
- Poor signal strength/weather conditions.

