Multimedia Enhanced

Whirlpool®

TRAINING MANUAL

Service Tool



W11509149 Rev D

FOREWORD

This Training Manual (Part No. W11509149 Rev D), provides the information for the “Service Tool.”

GOALS AND OBJECTIVES

The goal of this Training Manual is to provide information that will enable the In-Home Service Professional to properly understand the information of “Service Tool.”

The objectives of this Training Manual are to:

- Understand and follow proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the product to its proper operational status.

WHIRLPOOL CORPORATION assumes no responsibility for any repairs made on our products by anyone other than authorized In-Home Service Professionals.

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Notes



Section 1: Installation Requirements

This section provides the information of Service Tool App Installation and Service Tool Parts.

- Service Tool Parts
- Service Module-Warnings
- Additional Items

Service Tool Parts

NOTE: Included in each Service Tool Kit.

Part Number	Description	Note
W11222199	White Cable	Service Cooking (High Temp)
W11222198	Blue Cable	Service Refrigeration (Jupiter)
W11493345	Yellow Cable	Service Fabric Care (Janus, VA01)
W11222197	Black Cable	Service Dryer (Supernova)
W11495711	Service Module	Service
W11495710	Service Key	Service



Service Module-Warnings

- It is highly recommended to use the 12 V power supply to power the Service Module.
  In this way the programming will work both with the board at the bench and installed on the product.
- The use of a 9 V battery is covered in section 5 on page 5-2.

Additional Items

NOTE: Not included with Service Tool Kit.

Technical specifications for the Power Adapter:

- Voltage: 12 V
- Amps: 1-2 A
- Barrel: 0.75 x 2.35 (Center Positive) -(O+).

Amazon: https://www.amazon.com/gp/product/B0852HX9HV/ref=ppx_yo_dt_b_asin_title_o09_s00?ie=UTF8&psc=1





SERVICEMATTERS

Multimedia Enhanced

Section 2: “Service Tool” App

This section provides general information about downloading data, and navigating in Service Tool App.

- Getting Started
  - Downloading Service Data
  - Pairing Module
  - Firmware Update
- Firmware Update
  - Searching For a Model
  - Selecting Update
  - Setting File Update

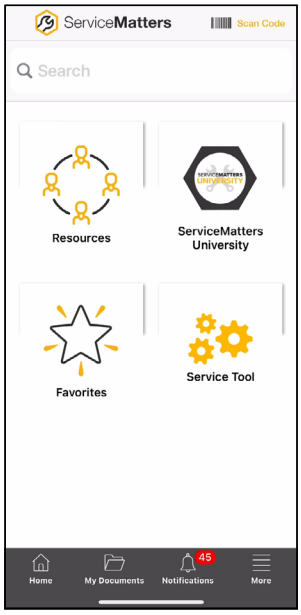
Video Available  Look for this ICON through out Section 2.

Getting Started

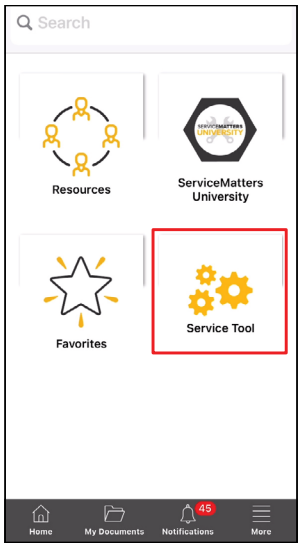
Update or download the ServiceMatters app from the app store on your phone or tablet.

Download on the App Store

ServiceMatters Home Screen:



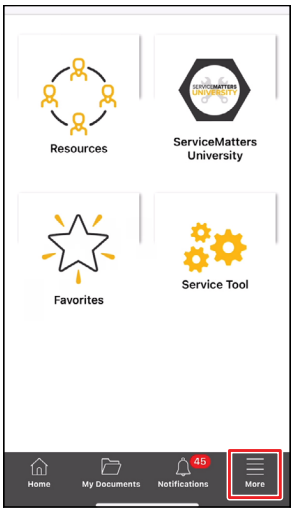
- Notice the addition of the Service Tool icon.



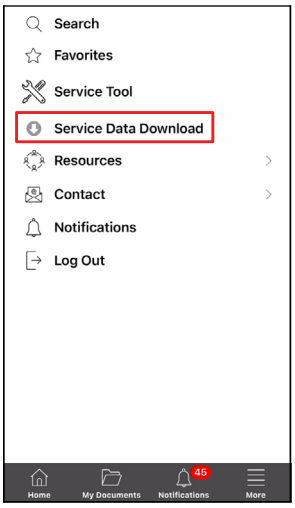
NOTE: Some of the features may be located differently dependent on phone/tablet and whether it is a android or apple device

Downloading Service Data

1. Select “More” Icon from bottom right corner.



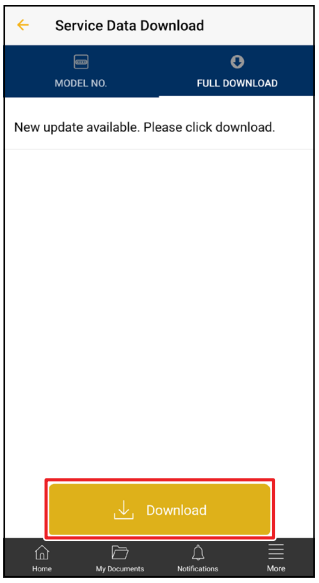
2. Select Service Data Download.



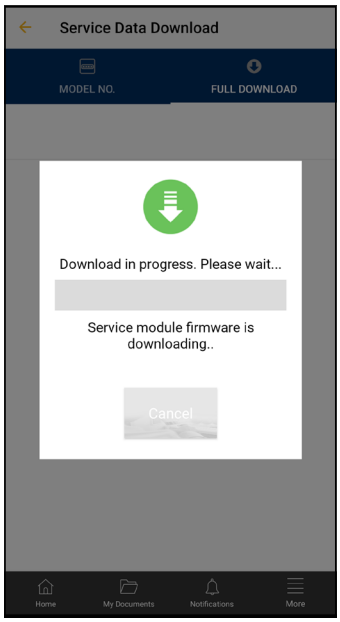
3. From Service Data Download screen select “Full Download” (iOS Displayed).



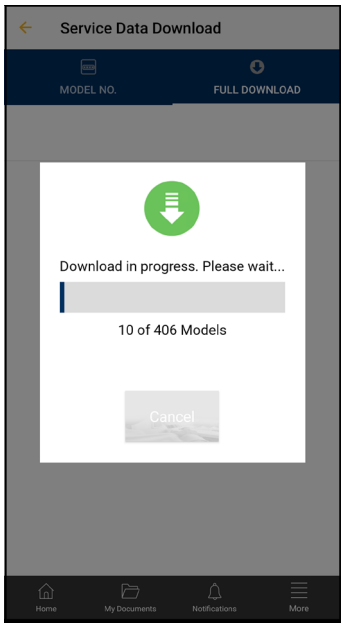
4. Select Download



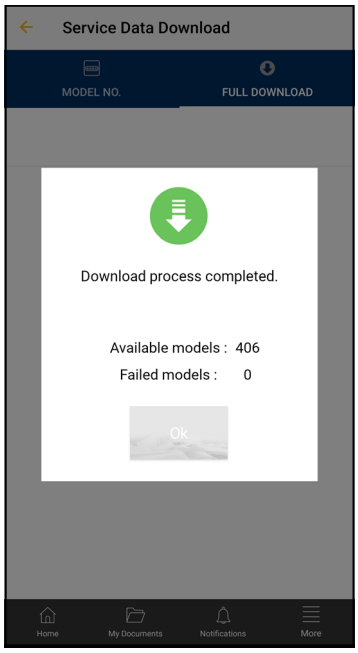
5. Download will begin



6. Progress is Displayed

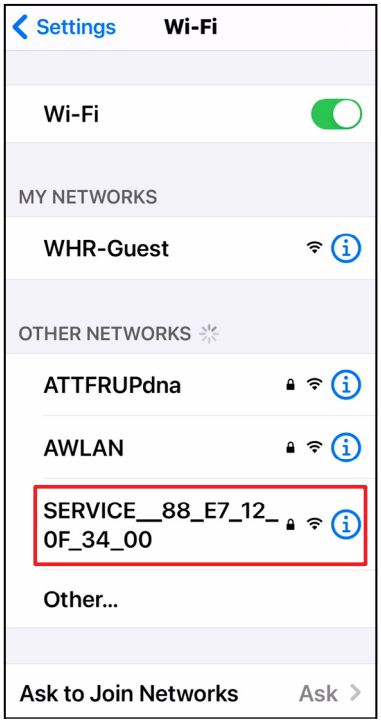


7. Completed Download Displayed



Pairing Module

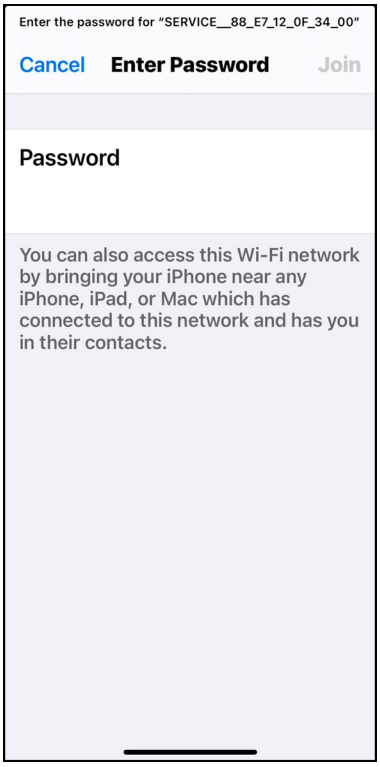
1. Make sure Service Module is powered.
   - 12 V AC Adapter is recommended for best performance.
   - A red LED will light to confirming module is powered.
2. Access the devices WiFi settings. It is recommended to disable the auto log-in to wireless network feature on your device when using the tool.
   - For iOS - Settings >> WiFi
   - For Android - Settings >> WiFi
3. Select SERVICE_XXXX from available networks.



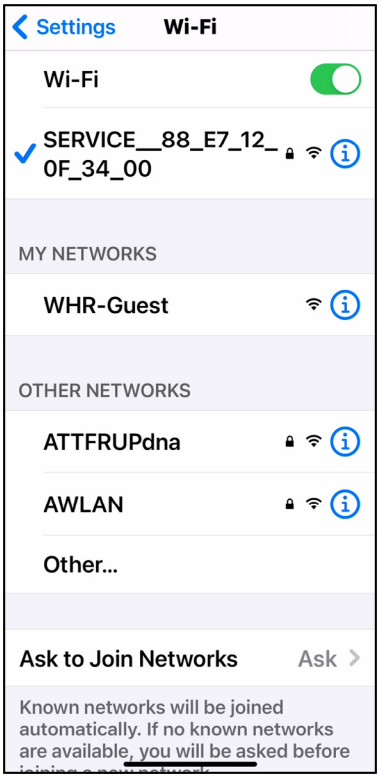
4. Module specific information can be found by removing battery cover.
   - Password will be the SAID number : SAID ID.
   - Module will have a unique alphanumeric id : MAC ID.



5. If multiple tools are being set-up at the same time, make sure the MAC-ID on the tool you are using matches the internet you select in the devices WiFi settings.
   - Enter password.

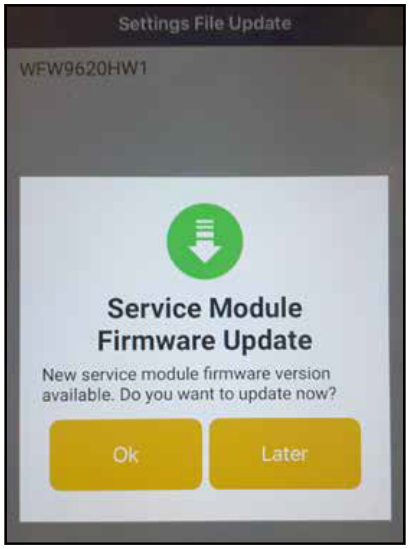


   - Now, WiFi is successfully connected.

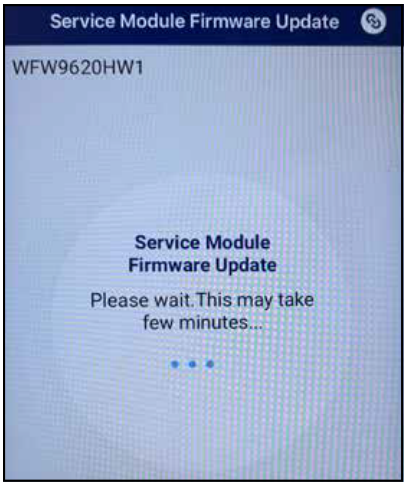


Firmware Update (First Time Use)

1. Upon first time use, the app will prompt user to update firmware of the Service Module.



2. Confirm update and wait for software to process.



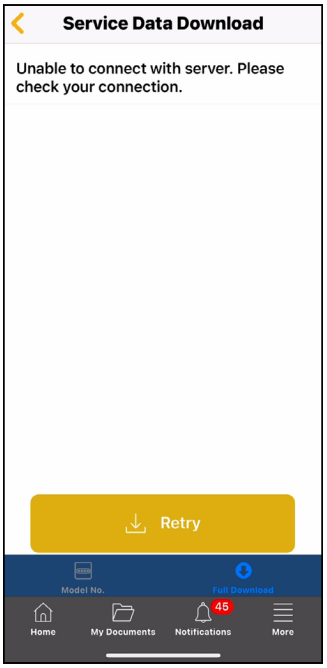
NOTE: Make sure your device has access to internet service during this step. If device is connected to module (WiFi), the WiFi signal will no longer be connected to the internet and only connected to device.

- For devices with cellular signal you still may see connectivity issues.
- This will ONLY take place on first use or will be prompt when updates are available.
- It is recommended to download full library and be sure to check for updates as new models and updated files are added on a regular basis. Only new models will download, so time to update will be less.

- If data is already updated, then below message will appear.



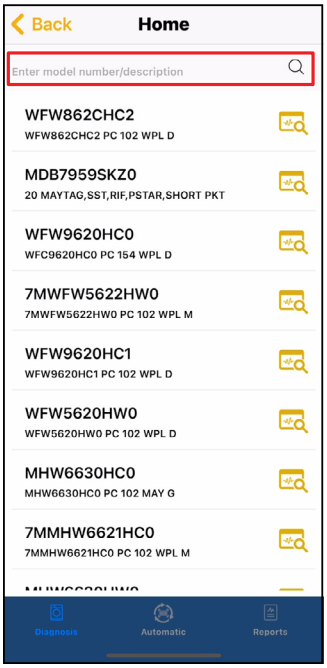
- If there is a problem with server, check the connection and click on Retry.



- Service Engineering is looking into the capability of the app displaying a notification when updates are available.

Searching for a Model

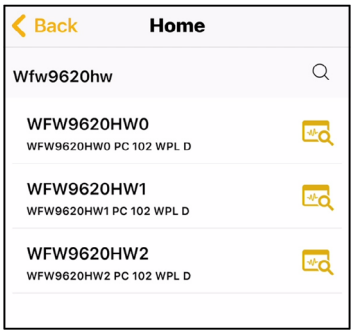
1. Currently there are approximately 406 models available.
2. Once download is completed, confirm and return to home screen.
3. Use the search field to find specific model needed for service update.



NOTE: Searching without engineering digit will display all available files for that given model.

Verify you have selected the correct model and engineering digit, as it is possible to upload the incorrect software from a different model.

Example:



Model: WFW9620HW#
#: Engineering Digit

Selecting Update

■ Setting File Update

Software Update: This will be the most commonly used function.

■ Diagnosis (Currently Unavailable)

Currently Service Engineering is working on getting resources to develop diagnostic tools to help streamline troubleshooting as well as improve the overall time to service.

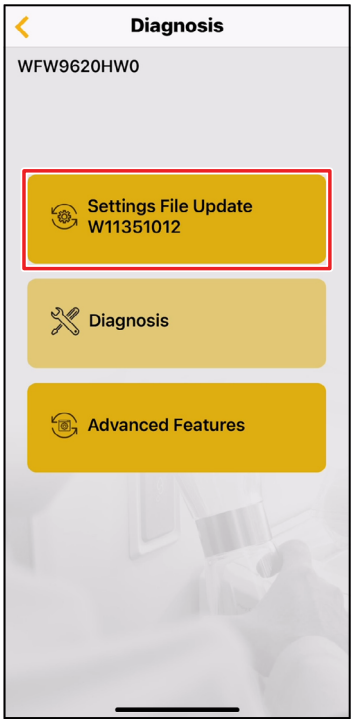
■ Advanced Features

Hardware Firmware update.

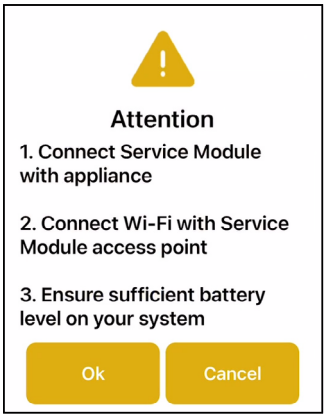
The Advanced Features should not be used at this time.

■ Select Settings File Update

- When selected you will receive a prompt.



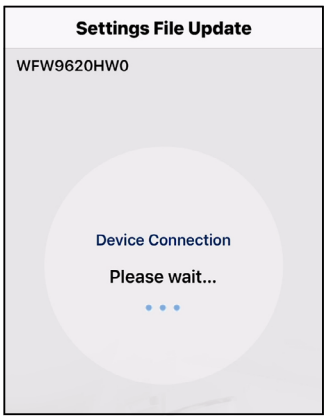
- Select OK after confirming:
  1. Confirm Module is connected to unit.
  2. Confirm Module is connected to WiFi on device.
  3. Ensure there is enough battery to perform update (AC adapter recommended).



Settings File Update

■ Device Connection

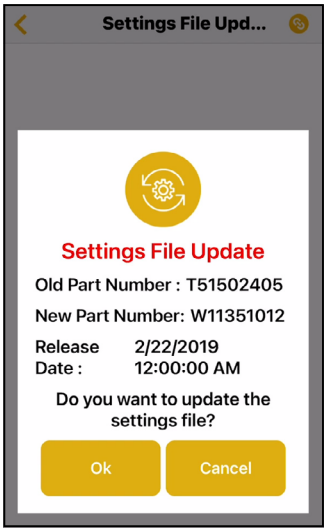
- This process can take 5-15 seconds.



■ Possible Outcomes

Successful Connection:

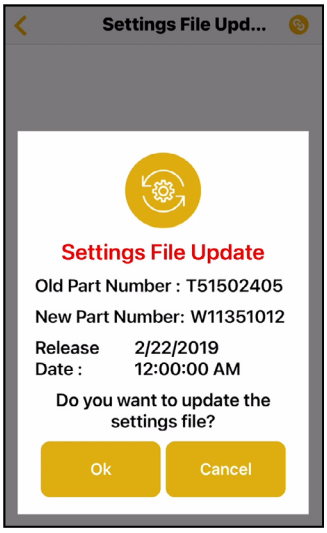
1. A successful connection will display a part number in the "Old Part Number Field."
2. Select "OK."



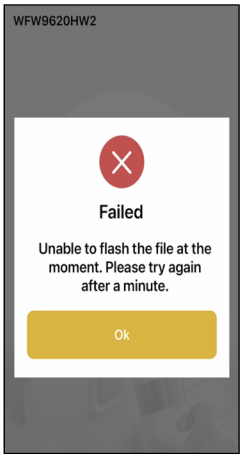
3.

Unsuccessful Connection:

1. "TIMEOUT" - there was an error in the connection process. See troubleshooting section.

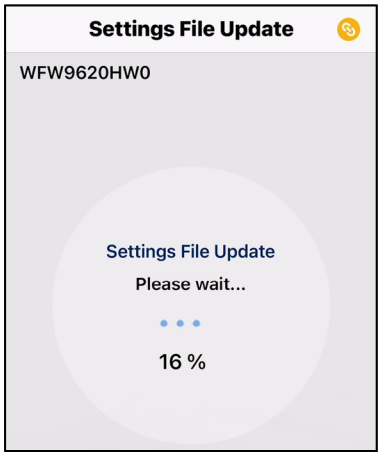


2. "Error" - there was an error in the connection process. See troubleshooting section.

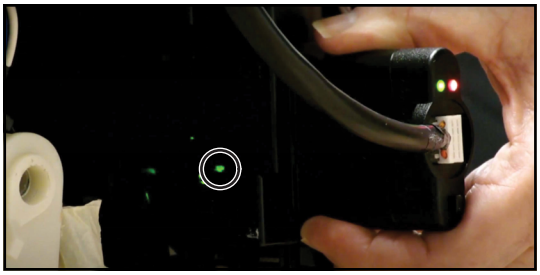


Settings File Update

1. Depending on platform update can take 30-120 seconds.
2. Progress % will display on screen.

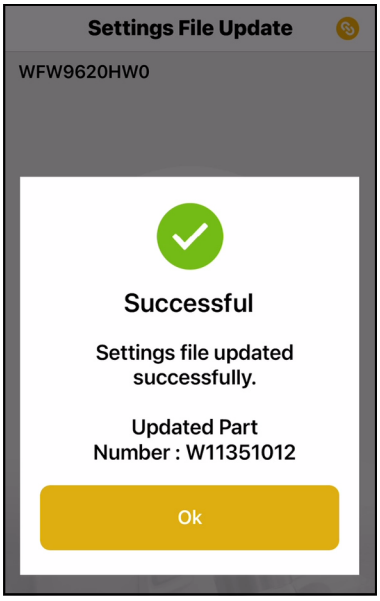


3. Make sure to keep module connected to unit during this process.
4. Make sure to keep app open until process is completed.
5. Make sure the green light on the board lights up when the tool is connected to it.



Software Update Completed

Successful screen will display and communicate new updated part number.





Section 3: Programming a Board

This section provides the information related to Service Module and its programming.

- Setting Up the System
- Hardware Key Reference Features
- Making Connection to Unit (Test Example)
- Programming With the Cable

Setting Up the System

⚠ DANGER



Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

1. Power the Service Module via the power supply 12 V.
   To switch on the device, push the red button. (The red LED on will indicate that the module is being powered).





2. Couple the Smartphone to the Wi-Fi network of the Service Module. Once powered, the Service Module will set up a Wi-Fi network, to which the smartphone needs to be connected. To spot the Wi-Fi network and the password:
   a. Remove the battery cover as shown in below image.



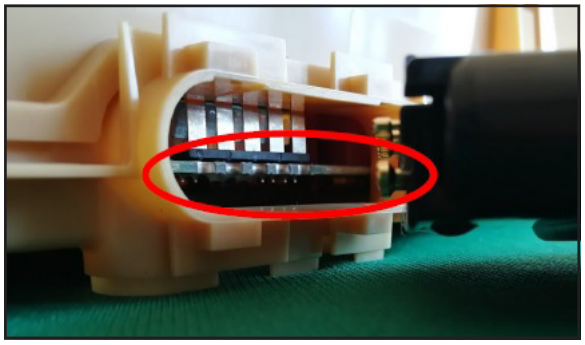
   b. Read the information in the label shown in the below image.



- The Wi-Fi network of the module will be named Service__<MAC ID>.
  Example-(SERVICE_88_E7_12_0F_02_B0).
- The MAC ID of the device is shown on its label.
- The password to be used to connect to the network is the SAID in the label (10 digits).
  Example: 4J98NFGGB6 as given in above image.

Programming With Hardware Key

3. Connect the key to the board.
   NOTE: The row with larger pins should be aligned to the edge of the PCB.



4. Connect the cable to the hardware key.



5. Connect the cable to the Service Module.

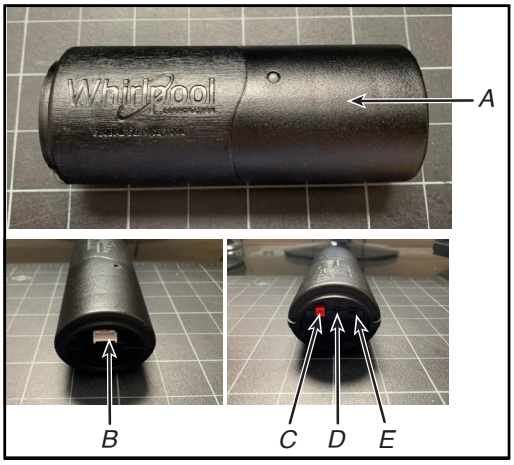
⚠ WARNING

This must be the last step, for there is the risk of damaging the microprocessor of the board, making it unusable!



Hardware Key Reference Features

Service Module Details



A. LED Indicator
Color:
- Green - Active (Normal Operation)
- Amber - Only happens during firmware update of module

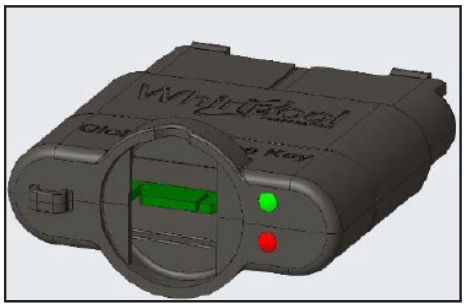
B. Harness connector (Female)

C. Power Button

D. LED - Power Indicator

E. AC Adapter input
Technical specs for the power adapter
- Voltage: 12 V
- Amps: 1-2 A
- Barrel: 0.75 x 2.35 (Center Positive) -(O+

Key Status Indicators



Red LED is On, Green LED is Off: Error

The key got inserted wrongly into a powered appliance board. No connection is made.

Red LED is Off, Green LED is On: Ok

The key got inserted correctly into a powered appliance board. GND and DATA connections are made. Also, refer section "Troubleshooting."

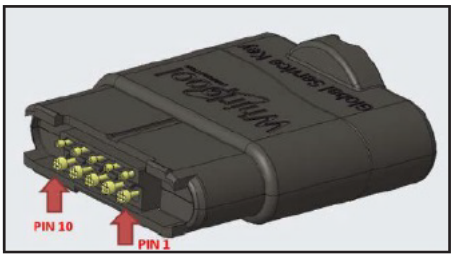
Red LED is On, Green LED is On: Ok

The key got inserted correctly into an unpowered appliance board. GND, DATA 12 V and 5 V connections are made.

Red LED is Off, Green LED is Off: Idle

The key got inserted wrongly into an unpowered appliance board or is not inserted at all. Only GND connection is made.

Key Output Pinout

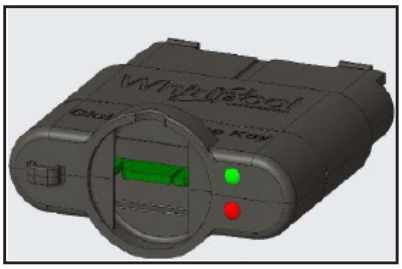


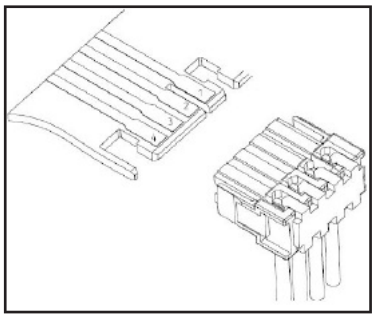
The key features two rows of terminal pins connected in parallel. The key shall be inserted into the appliance in such a way that these terminals contact the appliance connector and/or the appliance PCB. The pinout for this connection is:

- PIN 1, 2: 12 V*
- PIN 3, 4: 5 V
- PIN 5, 6: DATA (WIN)
- PIN 7, 8: GND
- PIN 9, 10: No connection

*If available.

Key Input Pinout





Five Position RAST 2.5 connection made with the key PCB edge and located on the front side of the key. The pinout for this connection is:

- PIN 1: 12 V*
- PIN 2: 5 V
- PIN 3: DATA (WIN)
- PIN 4: GND
- PIN 5: No connection

*If available.

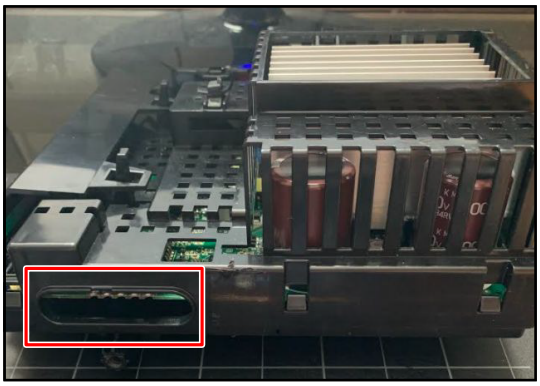
The key can take up to 1.5 W of power; maximum voltage values are 12.7 and 5.5 V, respectively, for the 12 V and 5 V connections.

Making Connection to Unit (Test Example)

1. Service Port (For use with Service Key):

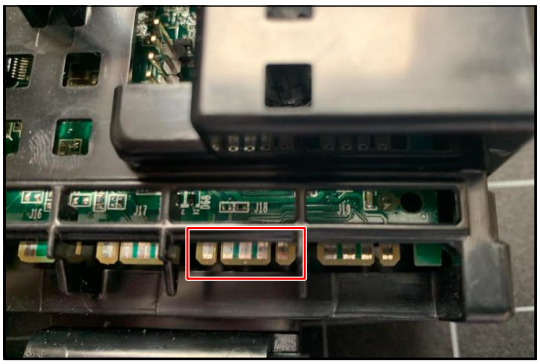
■ **Offers universal cross platform connection.**

- Accessible from exterior of unit after removal of access panel.
- Service Engineering working on getting this style on more platforms.

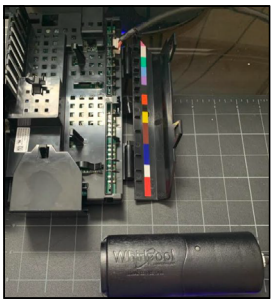


2. RAST Edge Connection:

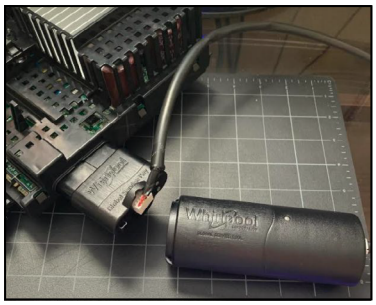
- Connect on board J18.
- Uses W11222197 - Black Cable - Service Dryer (Supernova).



NOTE: Recommended using RAST connector for testing.



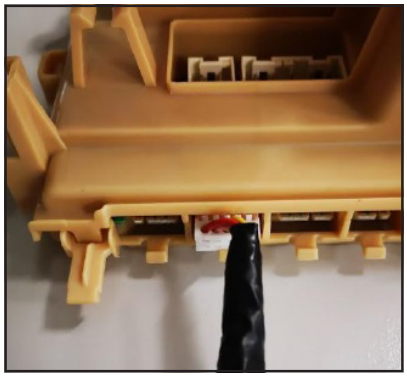
RAST Connection



Service Port Connection

Programming With the Cable

1. Complete steps 1-2 from Setting Up the System.
2. Connect the cable to the board (in the image below, for the board we used the black cable W11222197 in the CN1 connector); in the "Examples of Current Service Boards" section, for each basic board the correct cable and connector will be indicated.



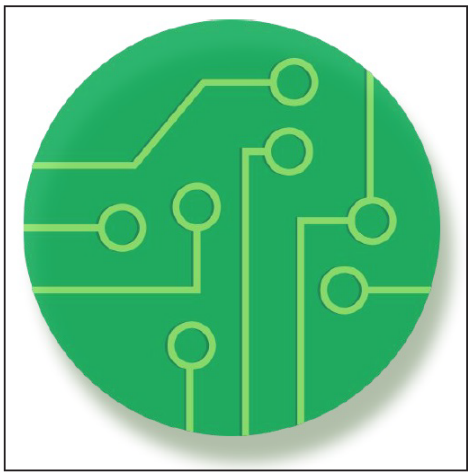
NOTE:When removing the cable DO NOT pull it; pull the connector instead.

3. Connect the cable to the Service Module.

⚠ WARNING

This must be the last step, for there is the risk of damaging the microprocessor of the board, making it unusable!





Section 4: Examples of Current Service Boards

This section provides the information of current service boards (Programmable Electronic Platforms) of washer.

- Programmable Electronic Platforms-Service
  - Washer

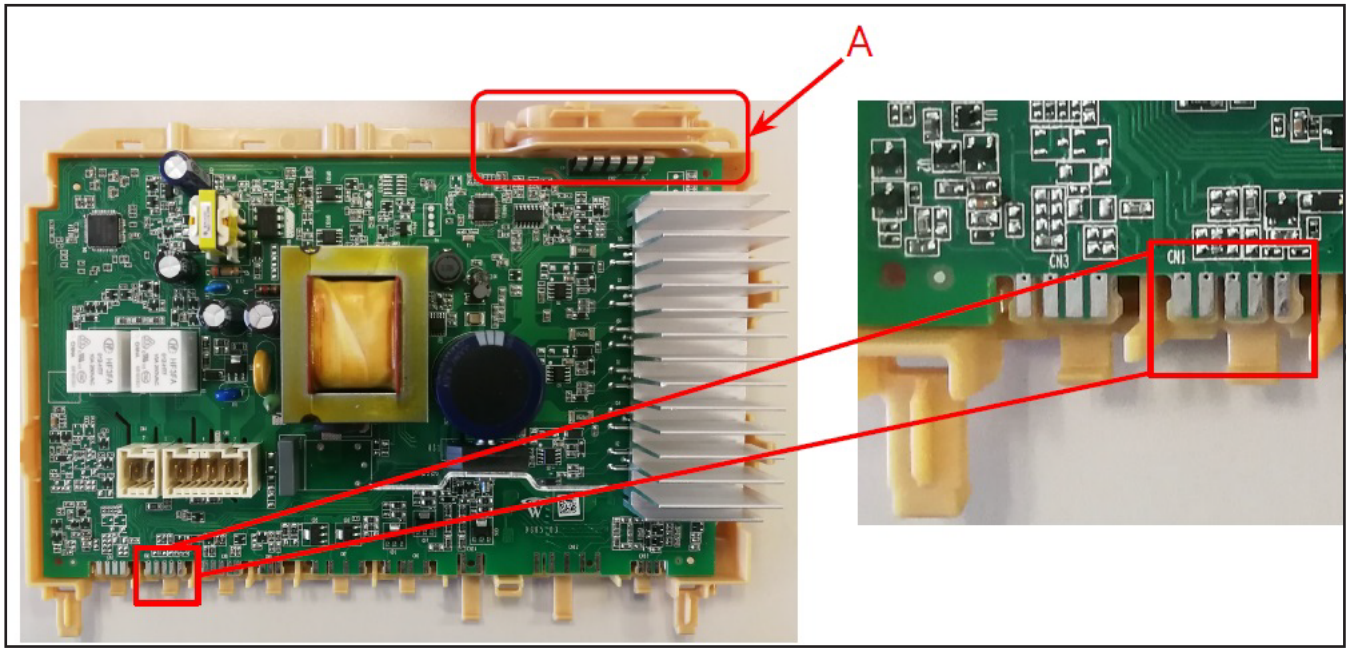
Programmable Electronic Platforms-Service

Washer

C00525728-MODULE WINDY STR. NUCL. CIM P50 600 mA

To program via the cable, use:

- Programming connector = CN1
- Programming cable = Black

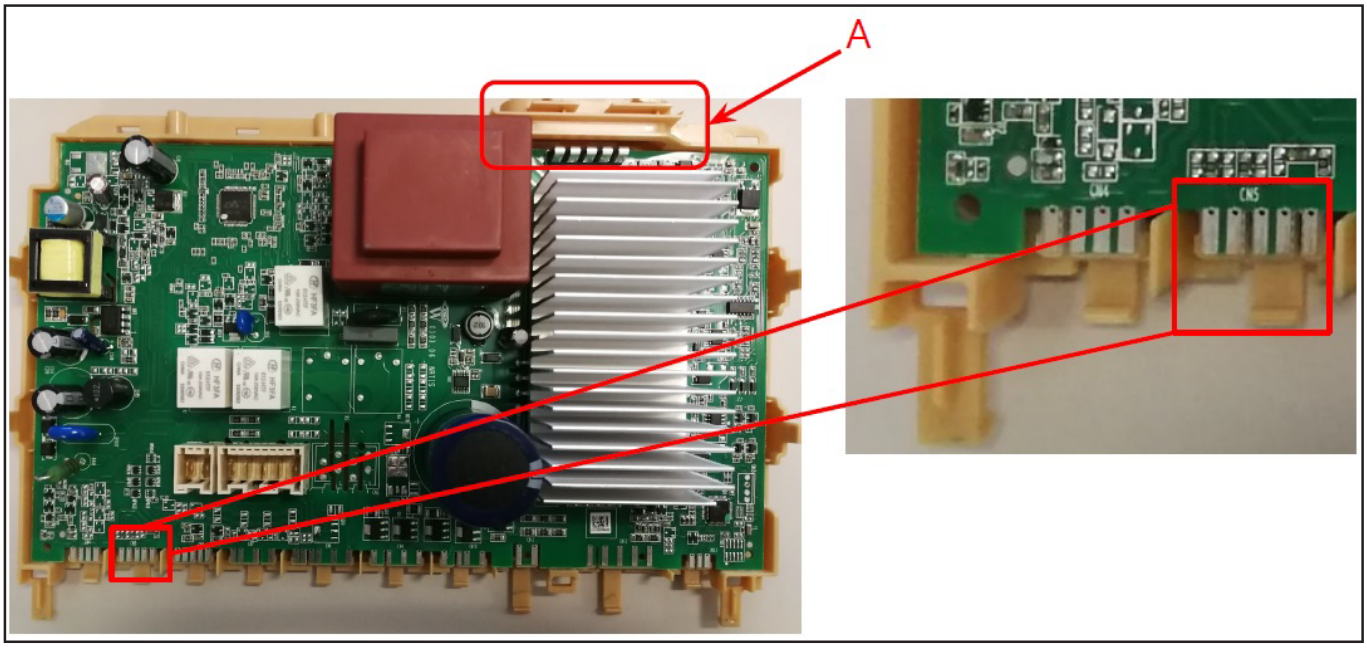


A. Connection To Program Via the Hardware Key

C00525934-MODULE WINDY FULL NUCL. CIM P60 800 mA

To program via the cable, use:

- Programming connector = CN5
- Programming cable = Black

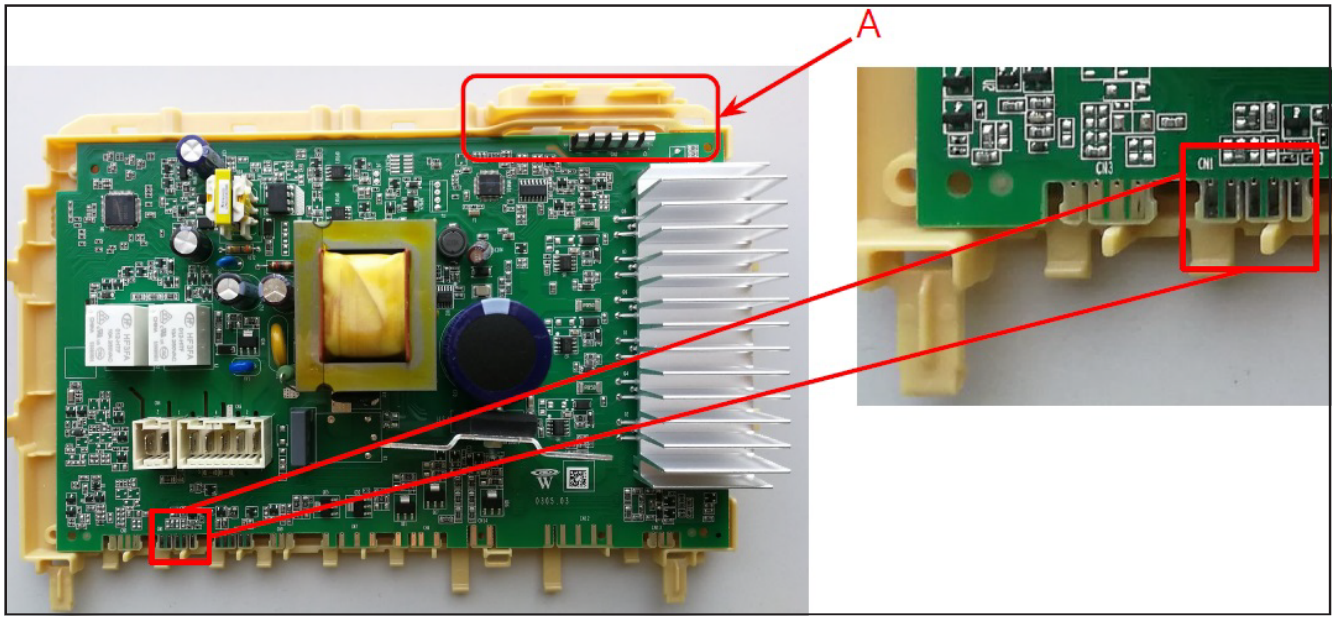


A. Connection To Program Via the Hardware Key

C00536841-MODULE WINDY STRIP NUCL. CIM P50 600 LCD

To program via the cable, use:

- Programming connector = CN1
- Programming cable = Black

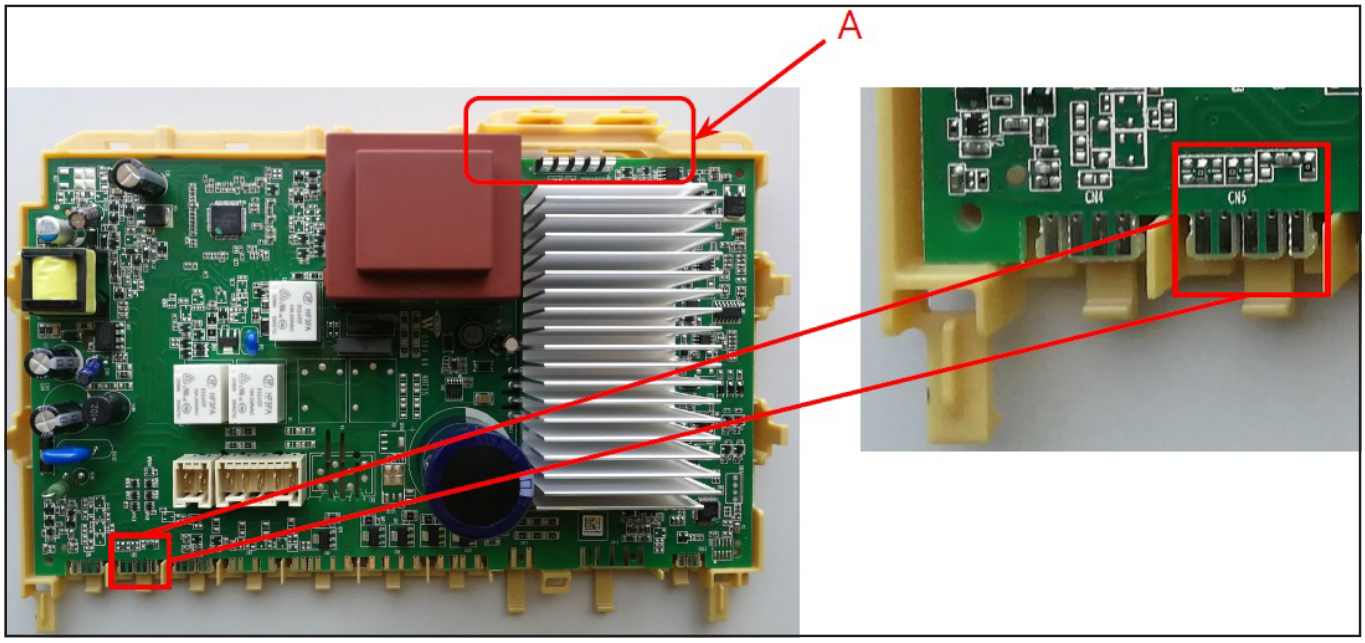


A. Connection To Program Via the Hardware Key

C00545800-MODULE WINDY FULL NUCL. CIM P60 DIV

To program via the cable, use:

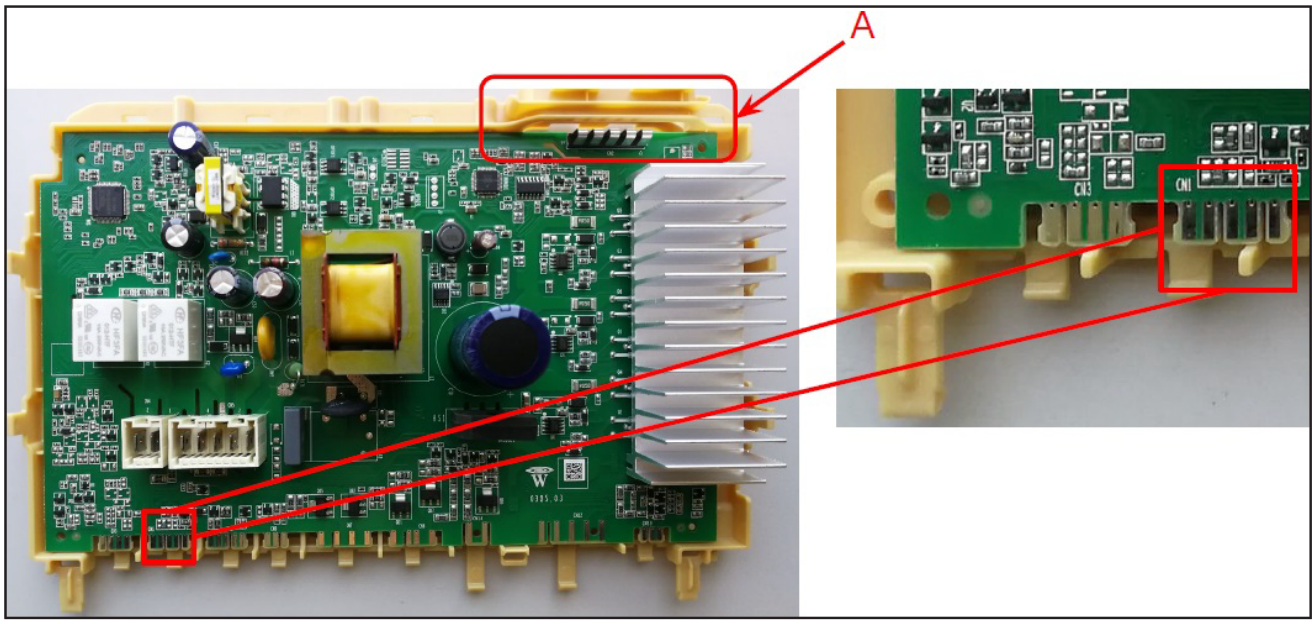
- Programming connector = CN5
- Programming cable = Black



A. Connection To Program Via the Hardware Key

C00550513-MODULE WINDY STR. NUCL. CIM P40 600 mA

To program via the cable, use:
Programming connector = CN1
Programming cable = Black

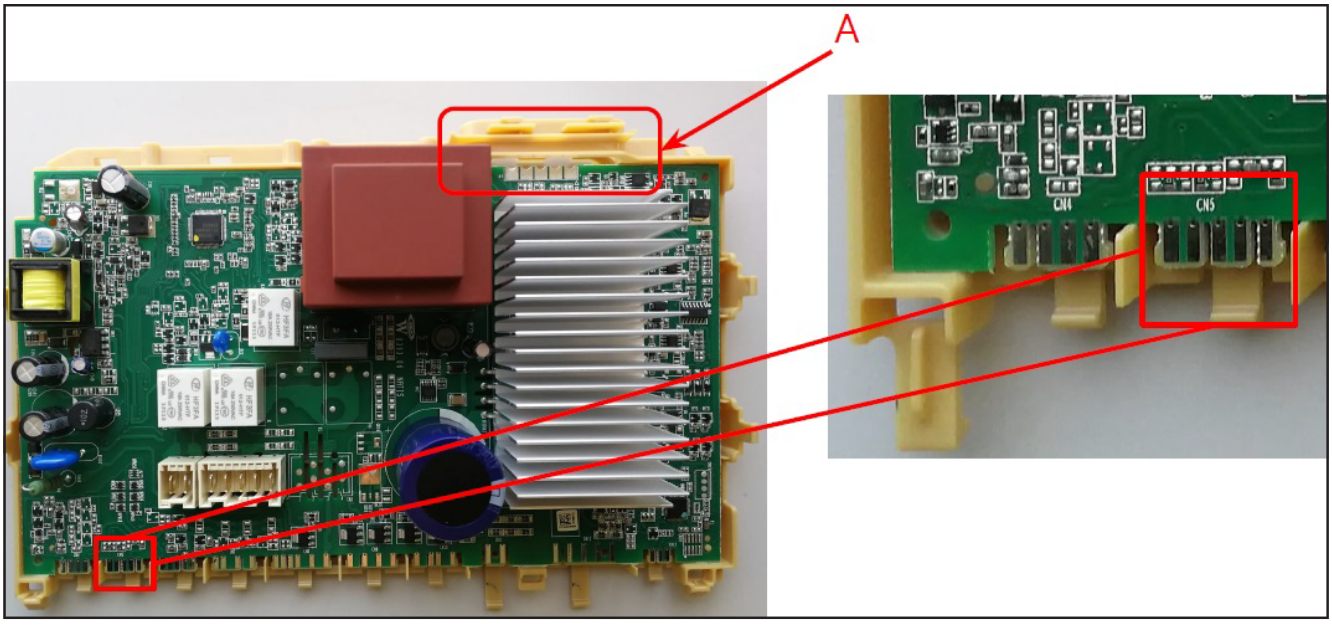


A. Connection To Program Via the Hardware Key

C00590807-MODULE WINDY FULL CIM P60 WM DIV NUCL.

To program via the cable, use:

- Programming connector = CN5
- Programming cable = Black



A. Connection To Program Via the Hardware Key



Section 5: Troubleshooting

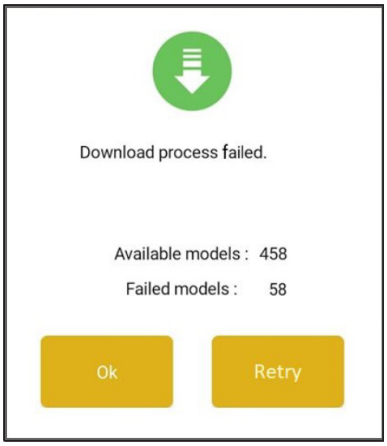
This section provides troubleshooting information of Service Tool.

- Troubleshooting

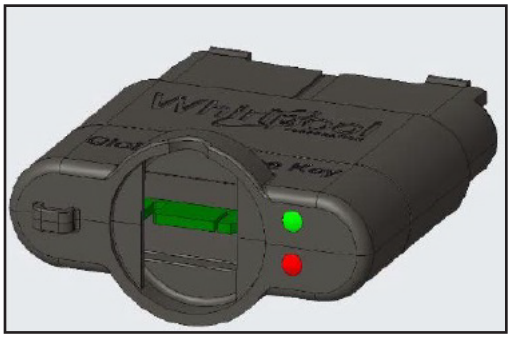
Troubleshooting

Interrupted Download

If the download of the models database was interrupted, click “Retry” in the error pop up to allow the completion of the download.



Unexpected LEDs On/Off



Key Status Indicators

Red LED is Off, Green LED is On: Ok

The key got inserted correctly into a powered appliance board. GND and DATA connections are made.

It could happen that, when inserting the key into an unpowered board, you see the Red LED Off and the Green LED On instead of both LEDs (Red and Green) On at the same time. This is not correct.

As a first workaround, rapidly switch On and Off the module 2 or 3 times in a row. At this point you should see the Red LED On and Green LED On, as correctly expected with an unpowered board.

As a second workaround, you can try to extract the key only for some millimeters (without disconnecting any other part of the circuitry) and the re-insert the key fully into its slot.

Service Tool Jumpers for 9 V Battery Use

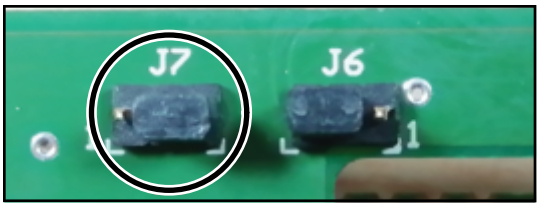
1. Remove three (3) screws on the back of the Service Tool.



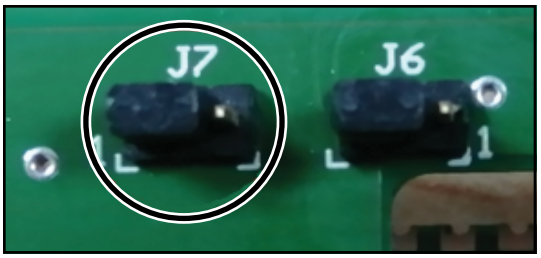
2. Unlock the PCB of the Service Tool, unhooking the four (4) hooks.



3. On the back of the PCB you can find the jumpers J6 and J7; they have three (3) pins identified as 1, 2, and 3 (only the label of the pin “1” will be visible).



To allow the tool to operate properly with a 9 V battery, the jumpers shall be adjusted as in the following picture. The jumpers do not need to be put back to their original position if the 12 V adapter is going to be used.



J6: Bridge Between Pins 2 and 3

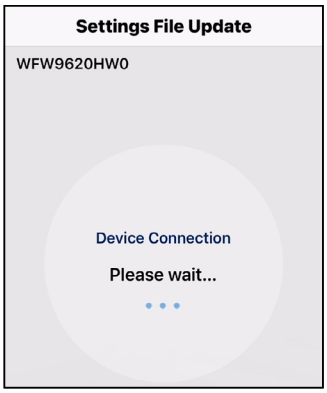
J7: Bridge Between Pins 1 and 2

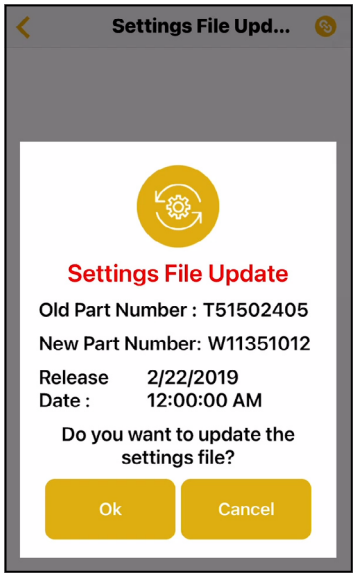
At this time, it is only recommended to use the 9V battery to to test if the module is working, certain situations will not work correctly with the battery.

ServiceMatters App Connection Issues

If ServiceMatters returns an error or “TIMEOUT” screen while trying to connect to module take the following steps:

1. Make sure module is connected to devices WiFi.

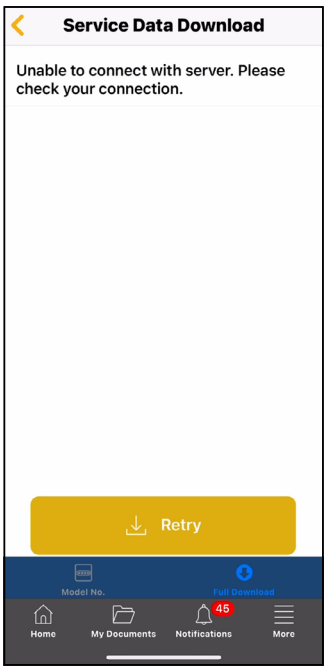




2. If connected and continue to experience issues, restart ServiceMatters app and try again.
3. Cycle power on module, turn off, wait 10 seconds, and restart module and ensure module is connected to device once rebooted.

■ Service Data Download

If there is a problem with server, check the connection and click on Retry.



Possible Issues: During the initial data download, you might get an error message stating “No Internet.”

Possible Solutions: The “No Internet” is normal as it is not connected to the internet (when connected to the service tool), it is using the WiFi connection to pair with the device and the service module. This should not create issues with connection. Make sure you have the latest build updates on your device. Also, make sure to do a full download of the models while connected to a WiFi source connected to the internet.

NOTE: It is recommended to disable the auto log-in to wireless network feature on your device when using the tool.

Note

Service Tool

W11509149 Rev D