

REMOTE STARTER SYSTEM FOR AUTOMATIC TRANSMISSION ONLY



DRAFT

IMPORTANT NOTICE



Special programming procedure for vehicles that may not have a Tach source.

FCC USER NOTICE:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

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GOVERNMENT REGULATIONS

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with the Industry Canada Radio Standards Specification RSS 210. Its use is authorized only on a no-interference, no-protection basis; in other words, this device must not be used if it is determined that it causes harmful interferences to services authorized by IC. In addition, the user of this device must accept any radio interface that may be received, even if this interference could affect the operation of the device.

Warning:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.

GENERAL

General service information

Installation points to remember

- Always make sure to cover fenders, seats, and floor areas before starting to work.
- When working on a vehicle, always roll down a window to avoid being locked out of the car.
- **Always make all of the necessary connections BEFORE plugging in the module.**
- Never install the control unit where it could interfere with normal operation or obstruct service technicians.
- Airbag wires are not always labelled (i.e. yellow split loom/tubing) on the harness itself, but will always be labelled at the connector plugs where they terminate.
- Make sure that all safety equipments – i.e., the hood switch and the warning label -- are installed.

Preparation of tools and measuring equipment

Ensure that all of the necessary information, material, tools and measuring equipment are available before beginning the installation.

Tools needed to perform the installation:

- Philips tip screwdriver
- ¼" drive ratchet
- ¼" drive ratchet extension
- ¼" drive 10 MM socket
- Miniature pick set
- Wire stripper
- Utility knife / blade
- Multimeter
- Trim pad remover
- Hyundai GDS or HI-SCAN tool
- Soldering iron

Information needed to perform the installation:

- Obtain the vehicle's 6-digit PIN number by either contacting Hyundai's tech line or using the online service.

Material needed to perform the installation:

- Tie-WRAP / cable ties
- Black electrical tape
- Wire solder

MAKING YOUR CONNECTIONS

Preparation

1. Locate and test the wire with the appropriate measurement tool.



2. Using your wire stripper, make two incisions in the wire insulation, approximately 3.8 cm (1.5 inch) apart from each other. Make sure not to cut any of the wire strands.



3. Using your utility knife / blade, remove the top part of the insulation to expose the wire strands.



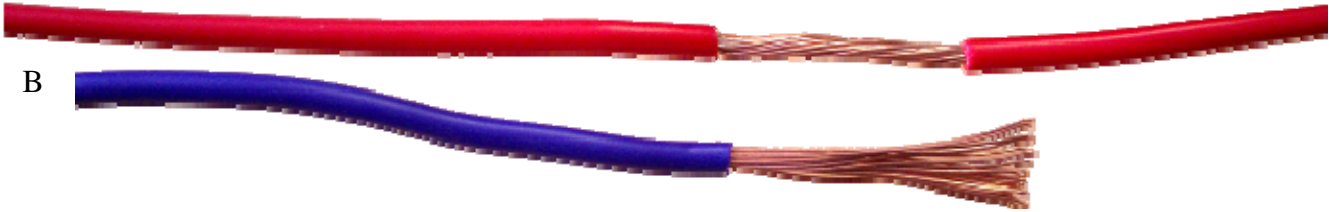
4. Completely remove the wire insulation between the incisions.



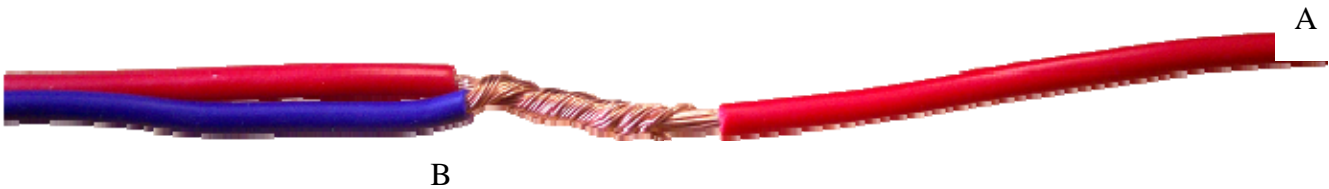
Connections

We strongly recommend soldering all of the remote starter connections that are not done with the T-harness provided.

1. Cut the wire you wish to connect to the right length and remove approximately 3.8 cm (1.5 inch) of insulation at its end (B).



2. Twist the wire (B) around, making sure to expand the connection pad to the entire length of the exposed part of the source wire (A).



3. Solder the connection, making sure to properly heat both wires beforehand.



4. Use electrical tape to isolate your connection. Ensure you let the wires cool down from the soldering process before you proceed, so as to avoid melting the electrical tape.



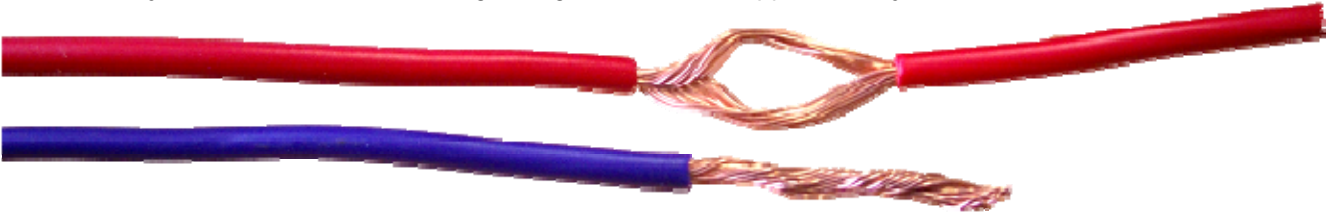
Alternative methods of making your connections

The "poke and twist" method can also be used for connecting wires.

1. Using a sharp point tool (i.e., a straight pick), separate the wire strands in two.



2. Cut the wire you wish to connect to the right length and remove approximately 3.8 cm (1.5 inch) of insulation at its end.



3. Insert the wire you wish to connect in the middle of the "LOOP" part of the source wire.



4. Twist the wire around, making sure to expand the connection pad to the entire length of the exposed part of the source wire.



5. Use electrical tape to isolate your connection. Make sure that there are no wire strands going through the electrical tape.



PREPARATION

Panel removal

Completely remove the driver's running board (Picture A) and driver's kick panel. You must first remove the hood release handle by unscrewing the Philips screw in the centre part and lightly pulling on the handle (Pictures B and C).



Picture A



Picture B



Picture C

Remove the crash panel side cover (Picture D); unscrew the four (4) Philips screws (Pictures E, F). Pull lightly on the panel, making sure to disconnect the data link and other control switch connectors on the lower dash (Pictures G and H). Unscrew the 5X 10 mm bolts retaining the metal crash bolster (Picture I).



Picture D



Picture E



Picture F



Picture G



Picture H



Picture I

Panel removal

Remove the three (3) Philips screw holding the steering column shroud located on the left (picture J) and right (picture K) and also on the bottom (Picture L) of the steering column, once the screws are removed gently separate the top half from the bottom half and completely remove the bottom half of the steering column shroud.



Picture J



Picture K

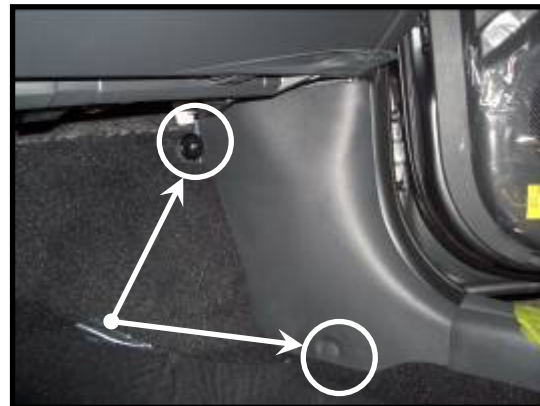


Picture L

Loosen the passenger running board (Picture M) and pull lightly to remove it. Remove the two (2) clips retaining the passenger kick panel and remove it (Picture N).



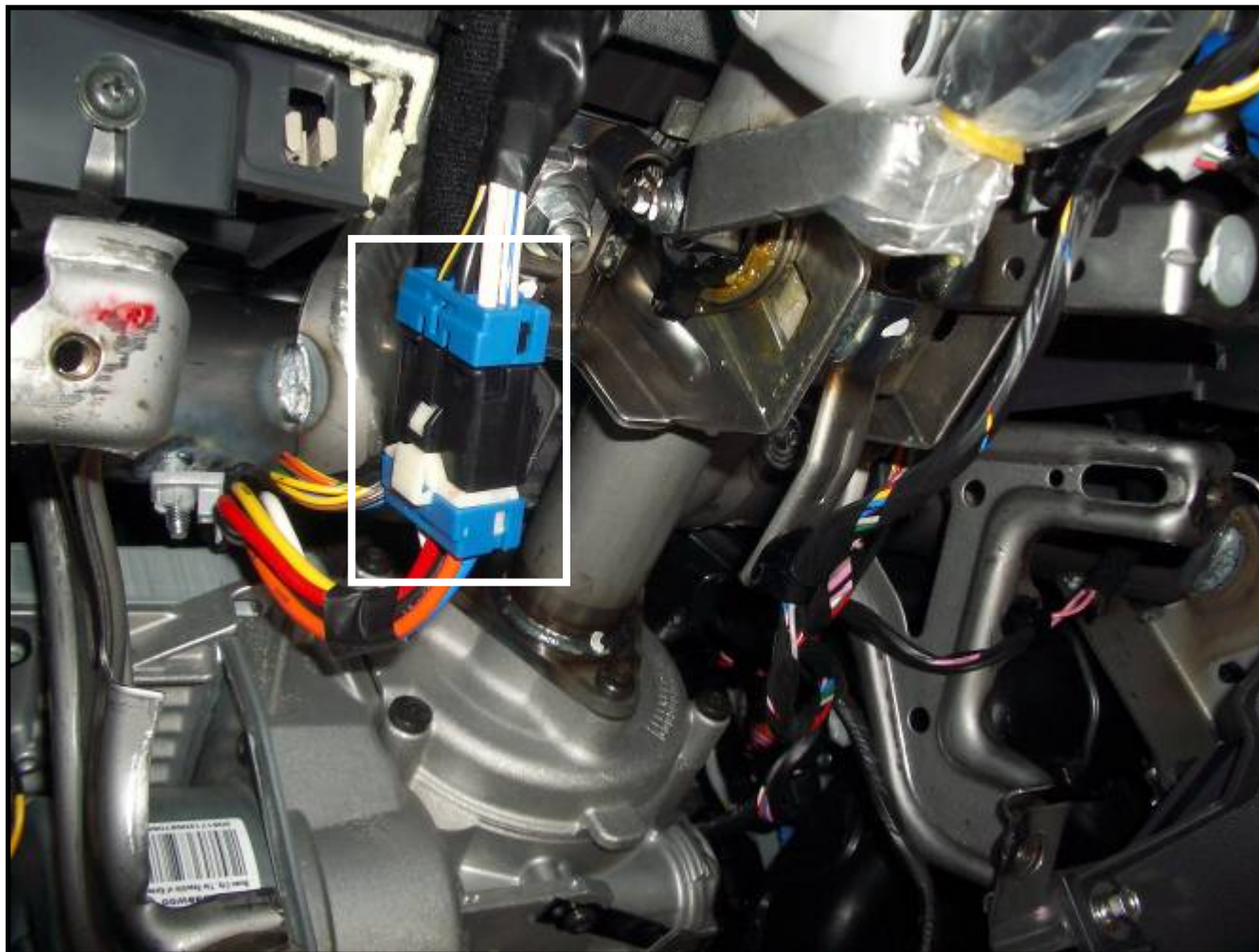
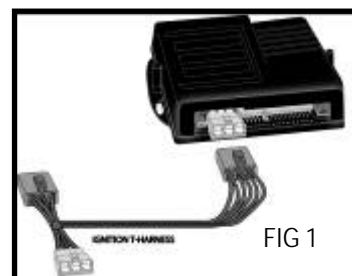
Picture M



Picture N

MAIN IGNITION HARNESS

At the vehicle ignition switch, disconnect the harness located at the left of the steering column (Pictures O). Connect the main ignition T-harness (Fig 1) between the vehicle's harnesses you just disconnected. Run the T-harness to the left of the steering column and secure it with a tie wrap.

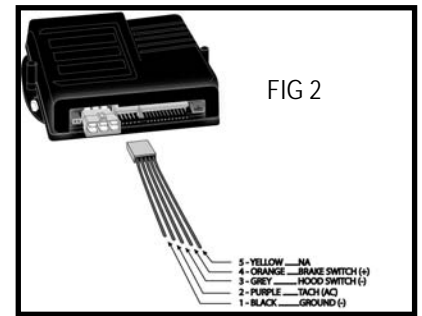


Picture O

5-PIN ACCESSORY HARNESS

Ground input (-) (Black wire)

Using the round terminal provided, connect the black wire of the remote starter's 5-pin accessory connector (Fig 2) to the 10-mm factory ground bolt located in the driver's side kick panel (Picture P).



Picture P

Tach input (AC) (Purple wire)

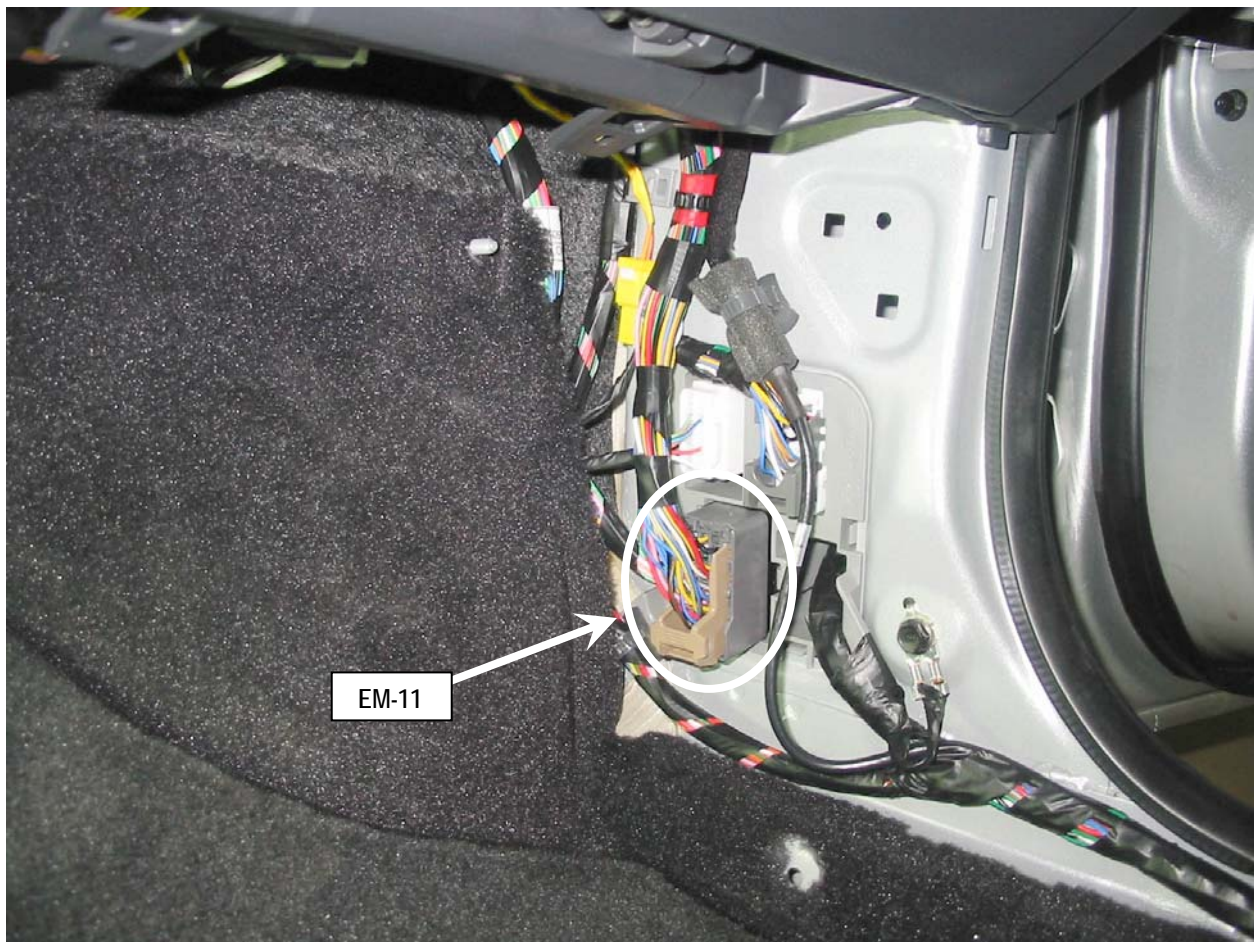
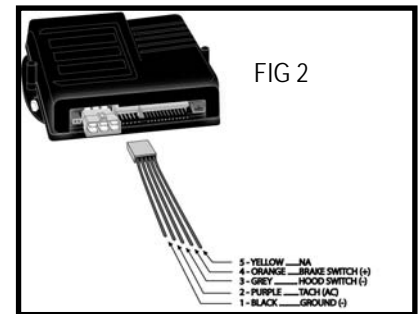


IMPORTANT NOTICE

For vehicles that do not have a Tach source, in this case skip this step. (Refer to the Virtual Tach System when programming the unit)

Run the purple wire of the remote starter's 5-pin accessory connector (Fig 2) alongside the firewall to the passenger's kick panel. Be careful not to interfere with pedals and steering assembly.

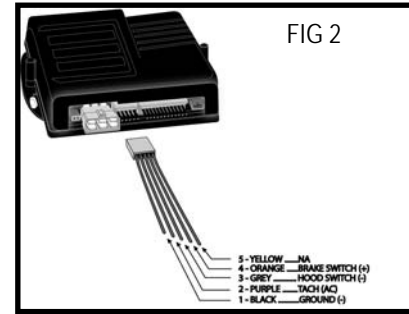
Locate the connector EM-11 and connect the remote starter Tach input (Purple wire) to the Blue/Red wire at pin #5 (Picture Q). This wire can be tested with an A/C voltmeter. The reading should be between 6 and 8 volt A/C when the engine is idling. A frequency meter should read between 35 and 50Hz.



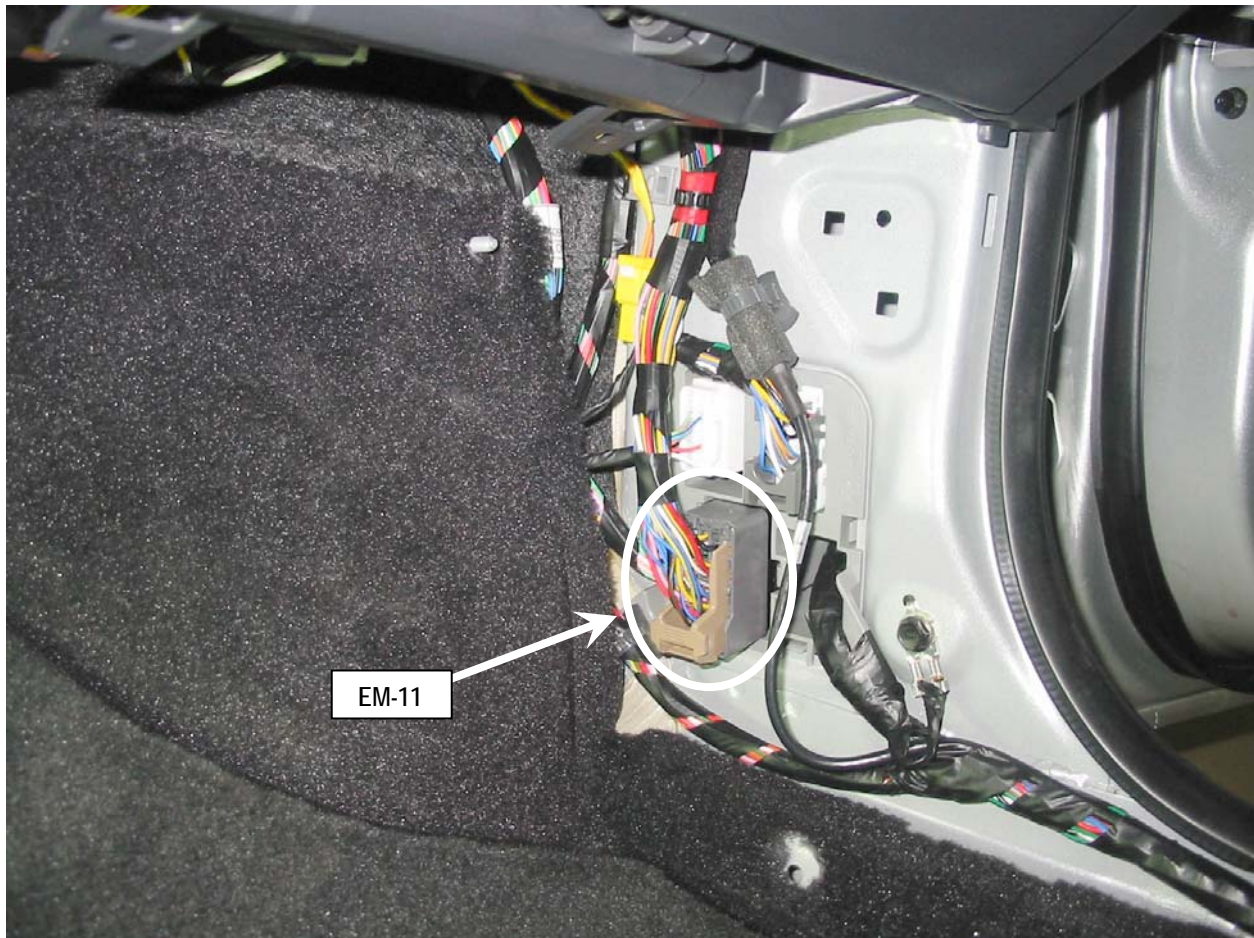
Picture Q

Hood switch input (-) (Grey wire)

Run the Grey wire of the remote starter's 5-pin accessory connector (Fig 2) alongside the firewall to the passenger's kick panel. Be careful not to interfere with pedals and steering assembly.



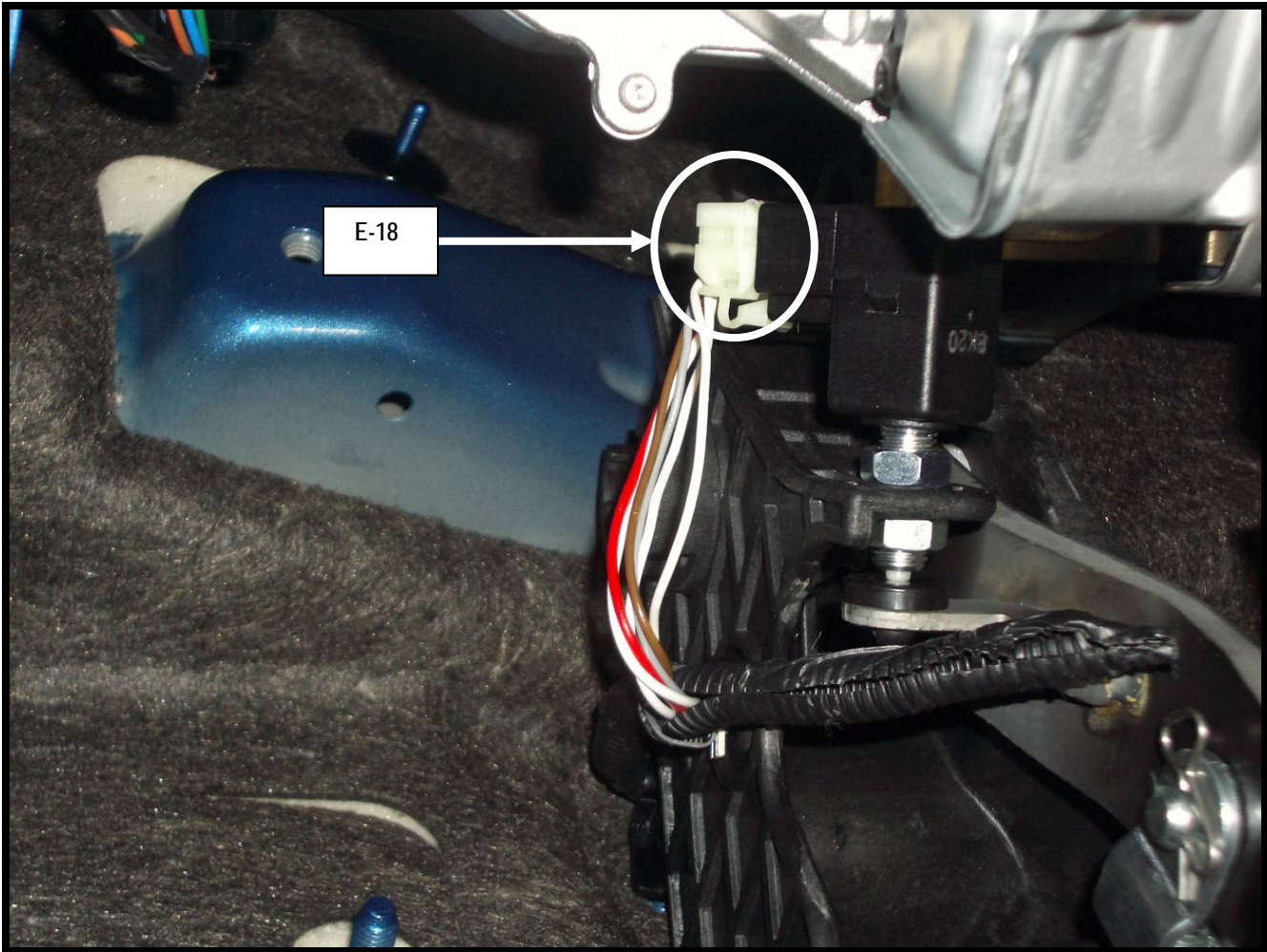
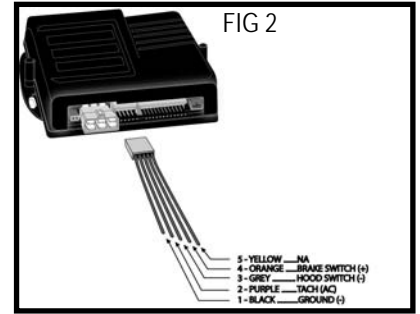
Connect the grey wire of the remote starter's 5-pin accessory connector (Fig 2) to the Green/Red wire, pin #1 of connector EM-11 (Picture R). This wire can be tested with a voltmeter. It will read approximately 12 volt D/C when the hood is closed and almost nothing when it is open.



Picture R

Brake switch input (+) (Orange wire)

Connect the orange wire from the remote starter's 5-pin accessory connector (Fig 2), to the white wire located at vehicle's brake pedal switch (Pin number 1, connector E18)" (refer to picture S). This wire can be tested with a voltmeter. It will read approximately 12 volt D/C when the brake pedal is depressed and zero when the pedal is at rest.

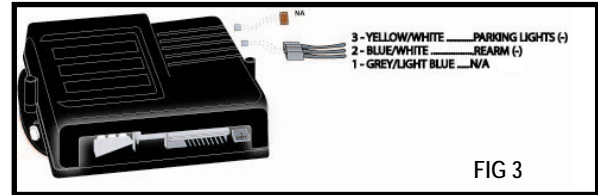


Picture S

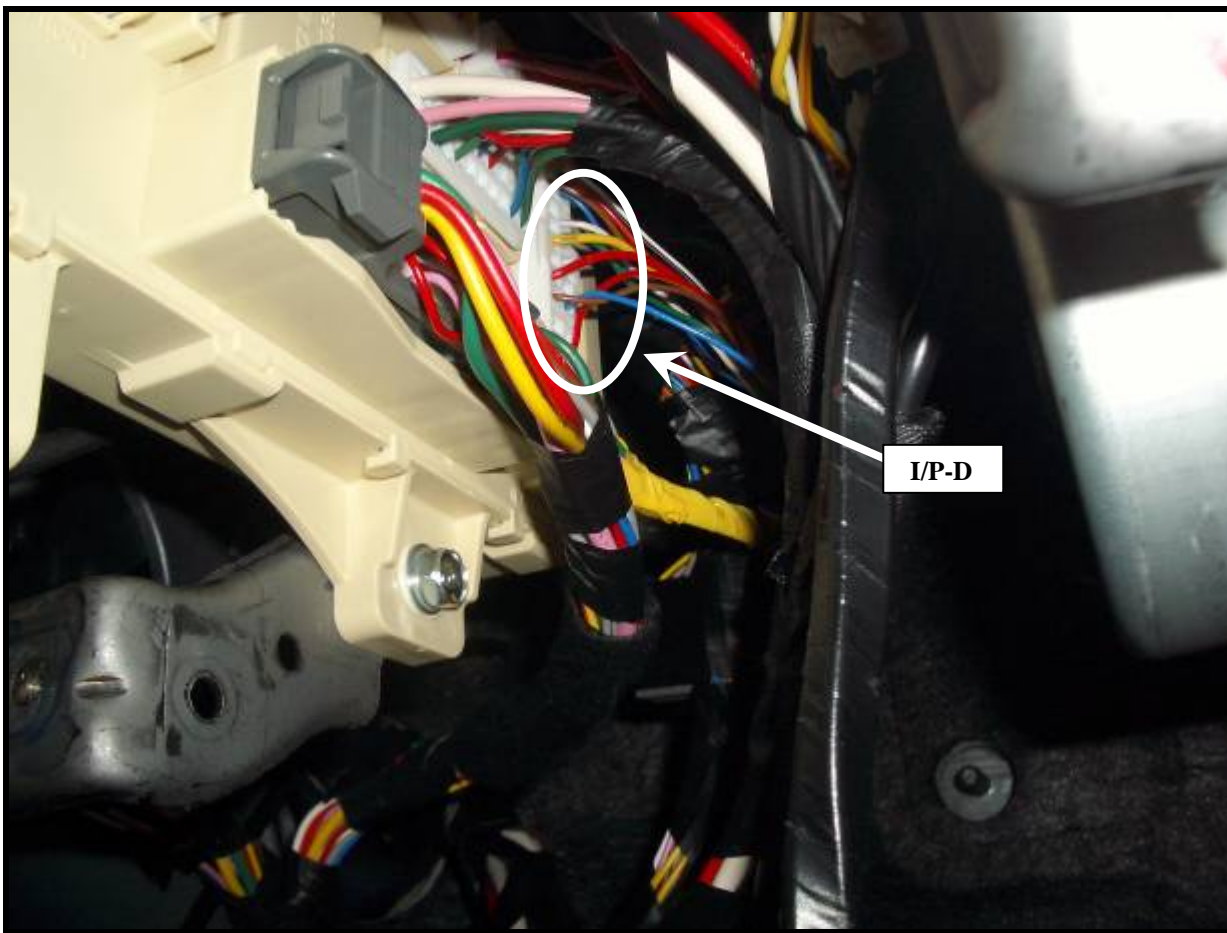
3-PIN HARNESS

Parking lights output (-) (Yellow/White wire)

Connect the yellow/white wire of the remote starter's 3-pin side connector (Fig 3) to the **Blue wire pin #6** of connector I/P-D (Picture T).



This wire can be identified with a voltmeter. It will show approximately 12 volt D/C when the headlight switch is off and less than 1 volt D/C when the headlight switch is in the parking light ON position.

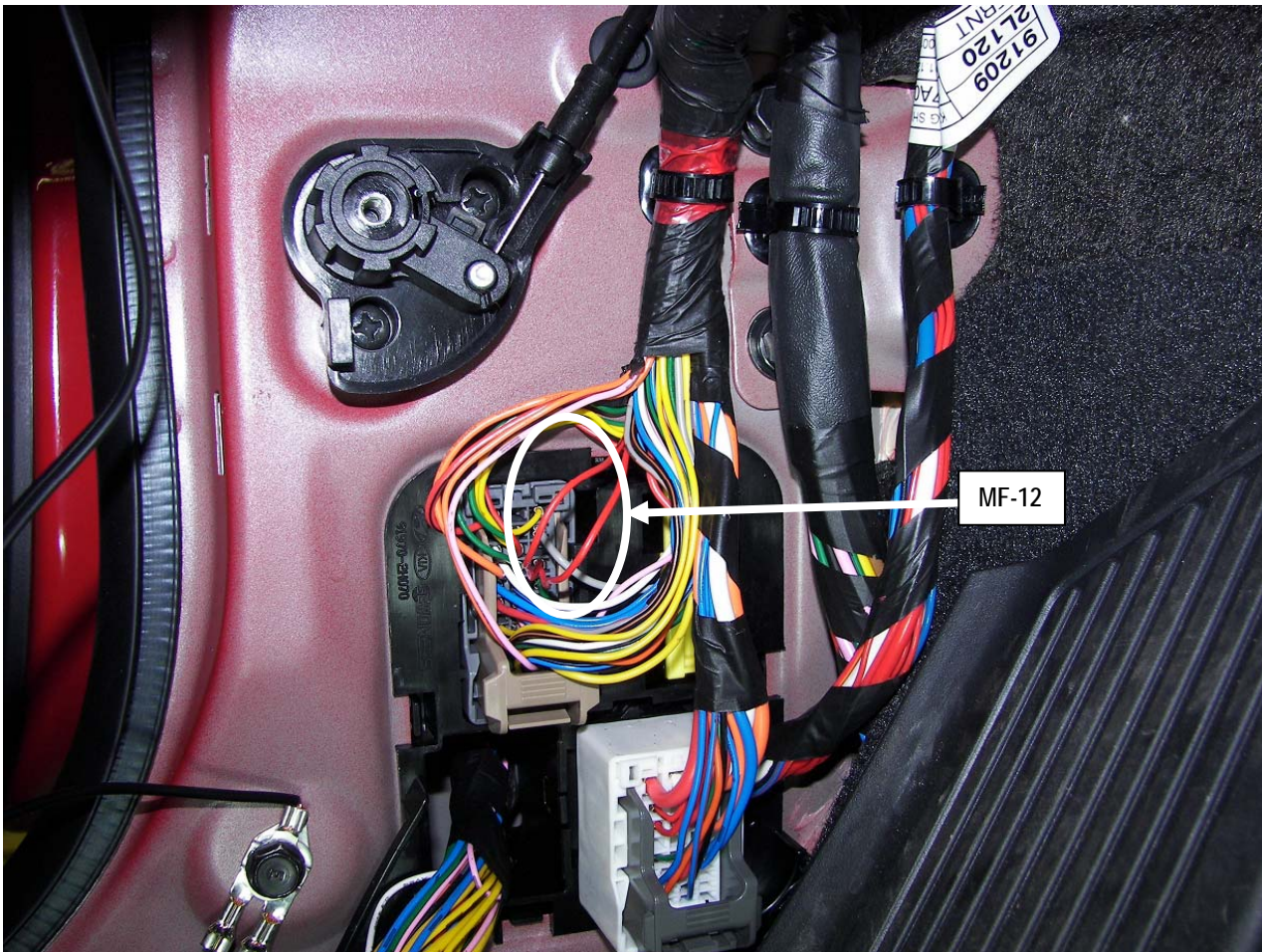


Rearm output (-) (Blue/White wire)

Connect the blue/white wire of the remote starter's 3-pin side connector (fig 3) to one of the vehicle's red wires located in the driver's kick panel (connector MF 12, pin 36). Please note, this connector has **TWO** red wires present at pin 36, use one of the two (picture U).



This wire can be identified with a Multi-meter. It will show ground only when the drivers' door is open.



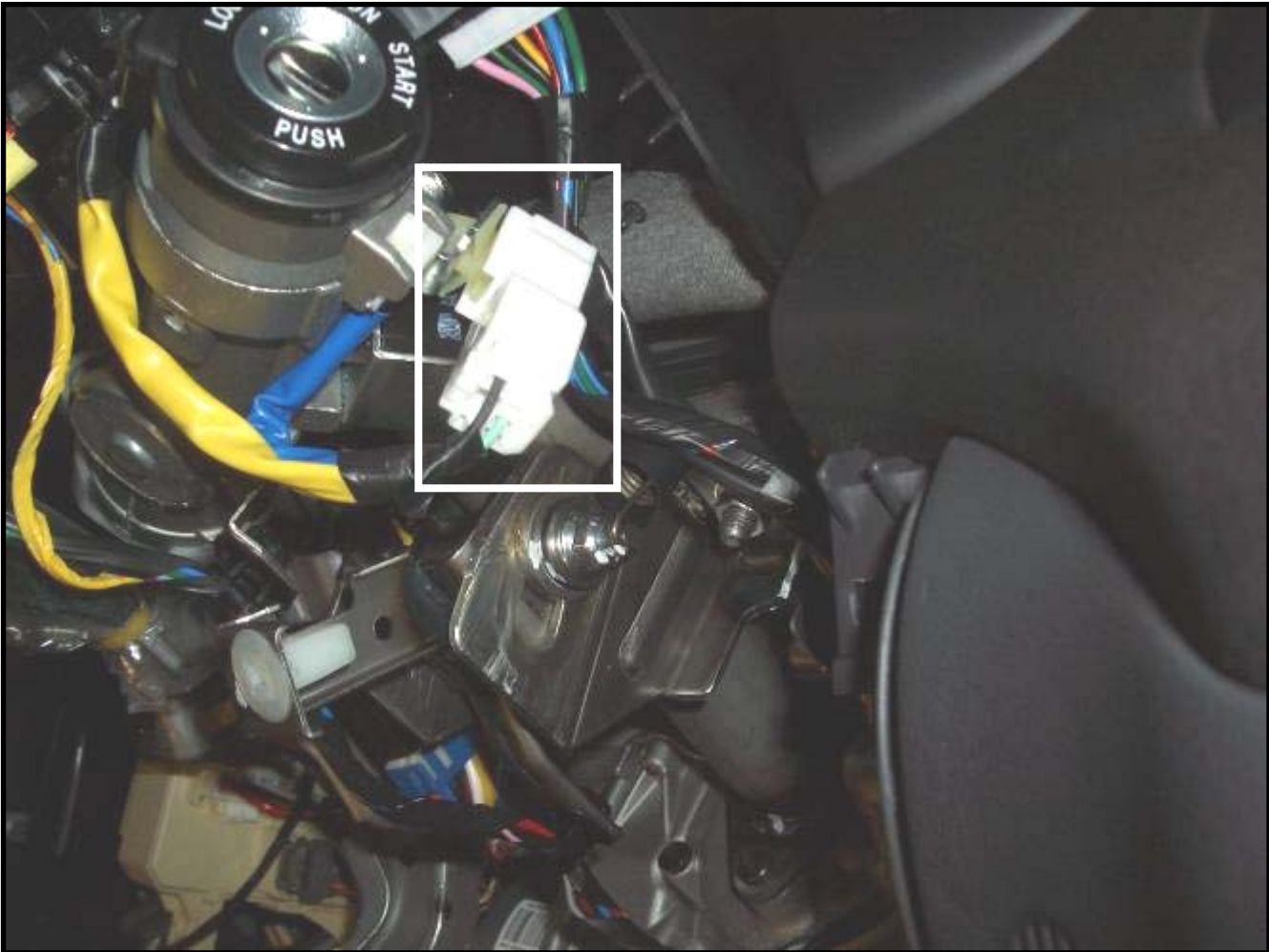
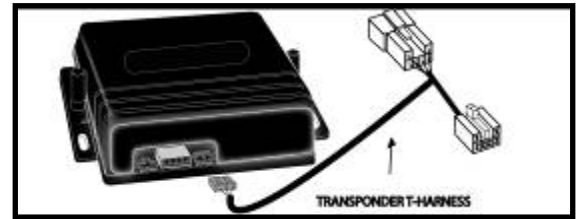
Picture U

IMMOBILIZER INTERFACE MODULE

Transponder T-harness

Unplug the immobilizer/key switch connector located on the side of the ignition switch cylinder (Picture V) and interconnect the INTERFACE MODULE supplied T-harness (Fig 4). Run the T-harness on top of the steering column and secure it with a tie wrap.

FIG 4



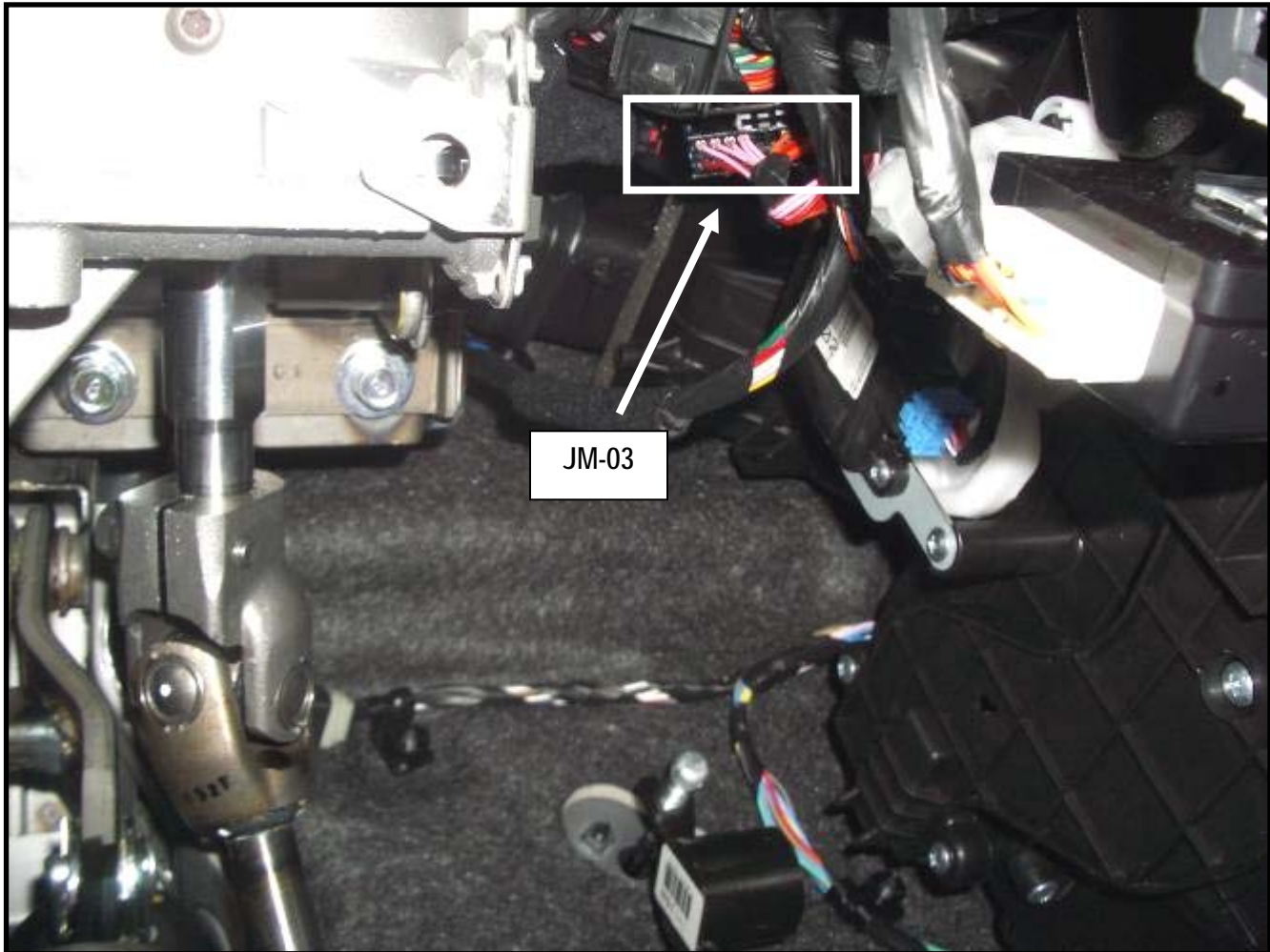
Picture V

WARNING! DO NOT ATTEMPT TO START THE VEHICLE WITH THE TRANSPONDER T-HARNESS DISCONNECTED FROM THE BYPASS INTERFACE MODULE.

IMMOBILIZER INTERFACE MODULE

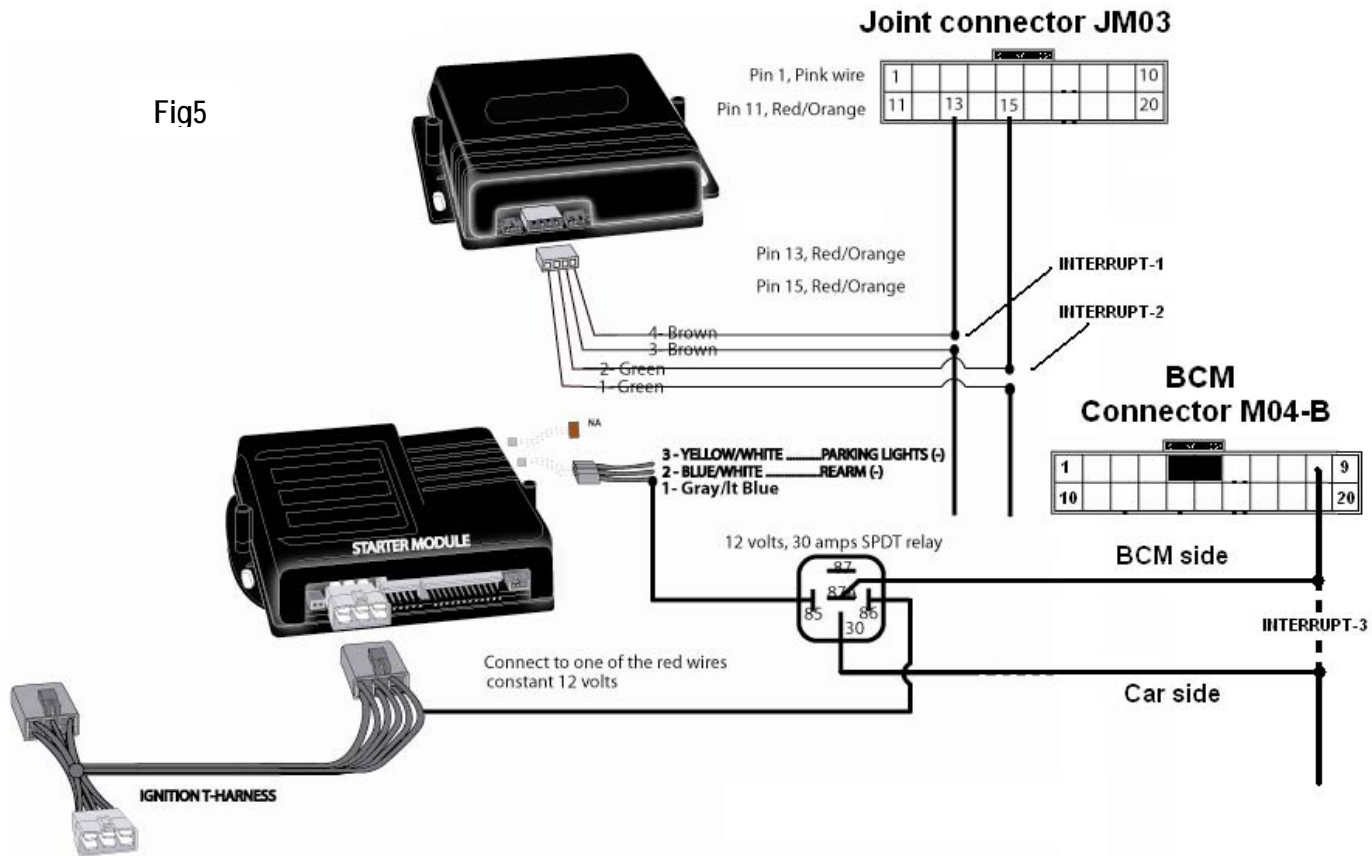
Ignition interrupt

Part of the Ignition interrupt is done at joint connector JM-03 (of BCM 952 1/2 schematic), the other part is done at the BCM (M04-B). The joint connector is located high on the right side of the steering column (picture W). The BCM (M04-B) is located behind the fascia at the center of the dash. Please refer to the following page for installation instructions.



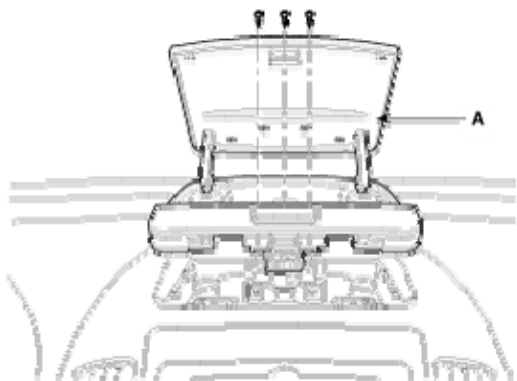
Picture W

Ignition Interrupt wiring schematic



The BCM connector M04-B is located behind the crash panel in the center of the dash board. Follow these steps for removal.

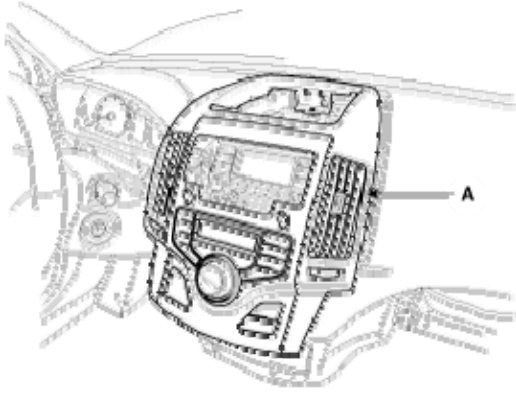
1. Remove the upper tray (A).



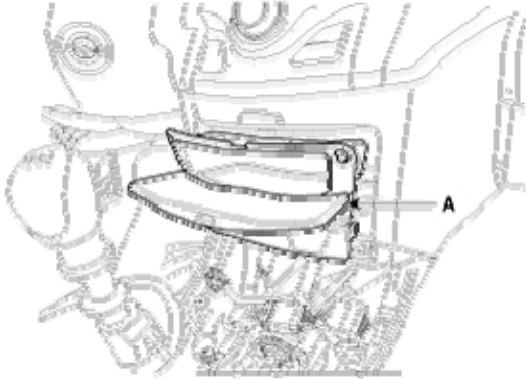
2. Remove the crash pad center facia panel (A).

NOTE

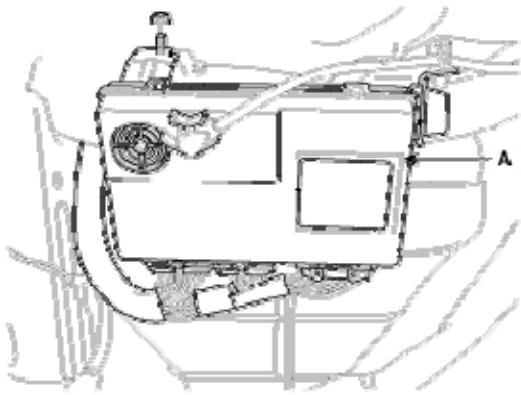
Take care not to scratch the crash pad and related parts. Be sure to also remove radio faceplate before removing facia panel (A).



3. After loosening the mounting clips, then remove the center fascia lower tray (A).

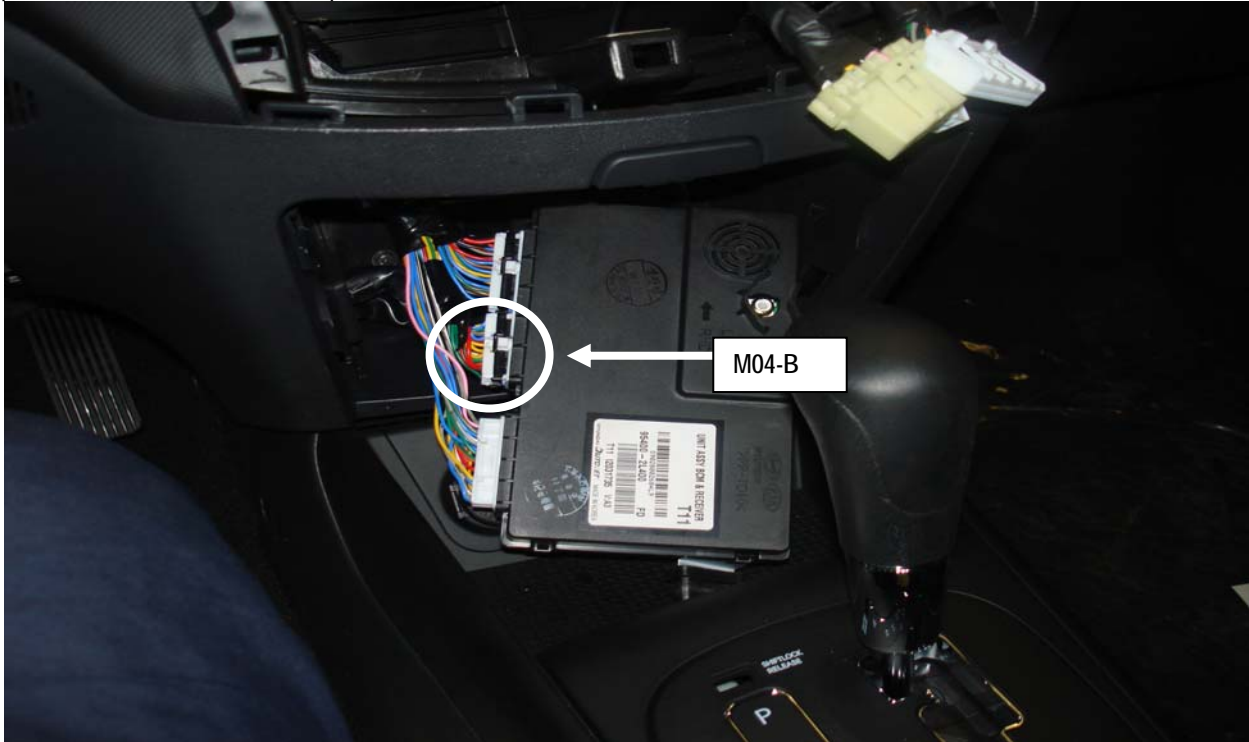


4. Remove the body control module (A) after loosening 1 bolts and disconnecting connector.

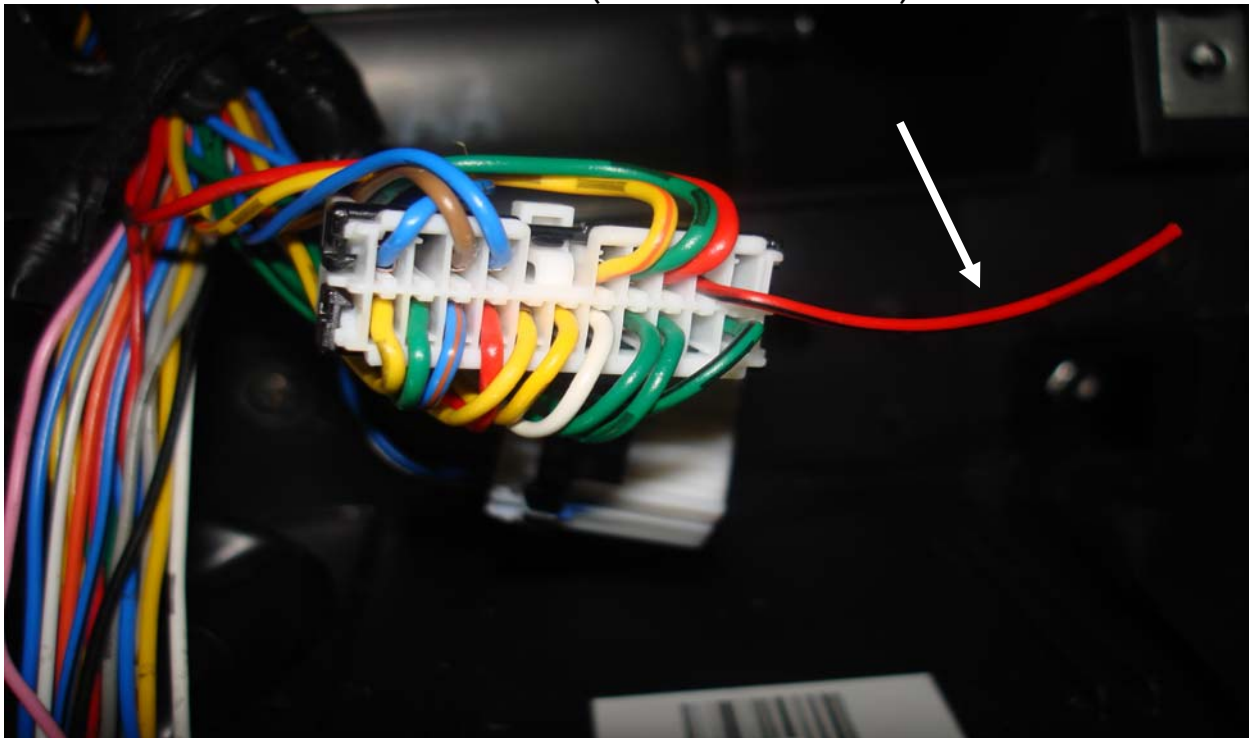


BCM connector M04-B removed

After gaining access to the BCM, unplug it and remove it (this will give you more room to work). The center plug (M04-B) is where you'll find the third interrupt. The wire is **red/black** and is found in pin number 8 of the 20 pin connector. Cut it and attach pin 87a of the external relay (provided in the kit) to the BCM side of the cut (red/black) wire. Attach pin 30 of the relay to the vehicle side of the cut (red/black) wire. Pin 85 of the relay will get attached to the grey/light blue wire on the remote starter's three pin side connector. Pin 86 of the relay will get attached to one of the two (constant) 12v wires on the large 6 pin (T) harness. Please see pictures below.



Connector M04-B (BCM's center connector)



ANTENNA INSTALLATION

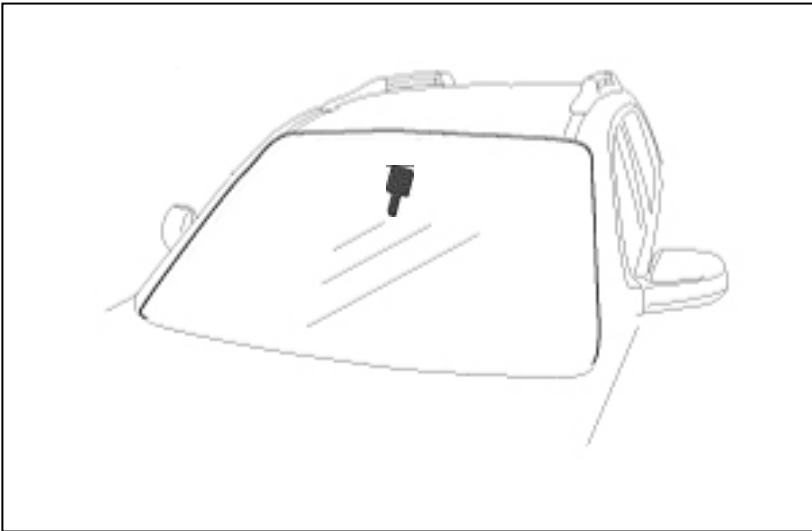
The remote starter antenna (Fig 6) should be installed **inside the vehicle** in the centre of the windshield, at least 9 cm (3 inches) below the roof liner with its "pole" pointing down (Fig 7). It is recommended to install the antenna so that it is "hidden" from the driver's view by the rearview mirror

Peel the tape on the remote starter's antenna and position the antenna on the windshield inside the vehicle.

Run the antenna cable between the roof and the roof liner, behind the left side "A" pillar trim and run it down under the driver's dashboard



FIG7

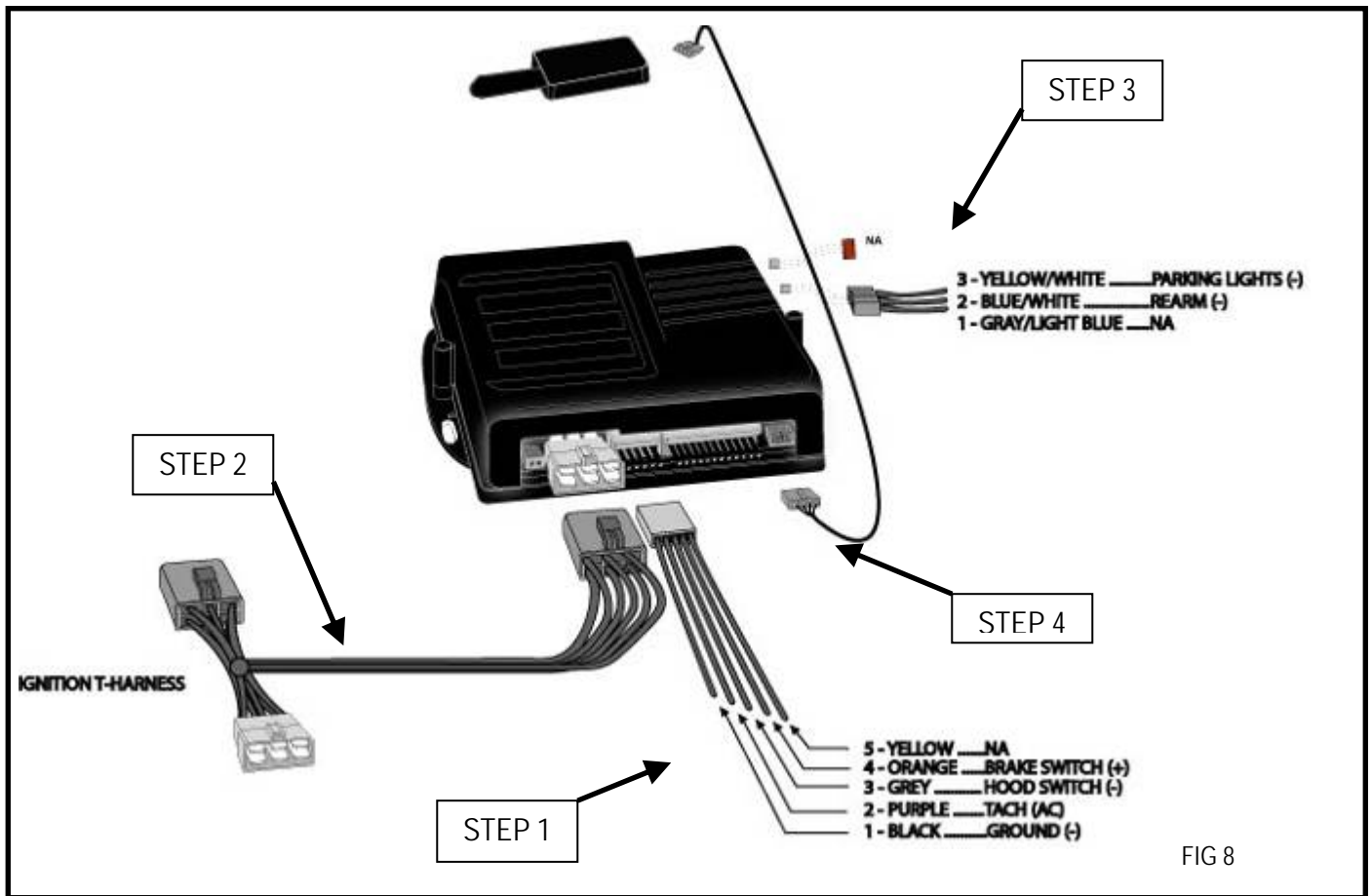


FINISHING THE INSTALLATION

WARNING! DO NOT ATTEMPT TO START THE VEHICLE UNTIL ALL THE HARNESSSES FROM THE REMOTE STARTER AND IMMOBILIZER INTERFACE ARE CONNECTED.

Connecting the harness to the remote starter module

1. Connect the 5-pin accessory connector to the remote starter module (Fig 8).
2. Connect the main ignition T-harness to the remote starter module (Fig 8).
3. Connect the 3-pin parking lights harness to the remote starter (Fig 8).
4. Connect the antenna to the remote starter (Fig 8).

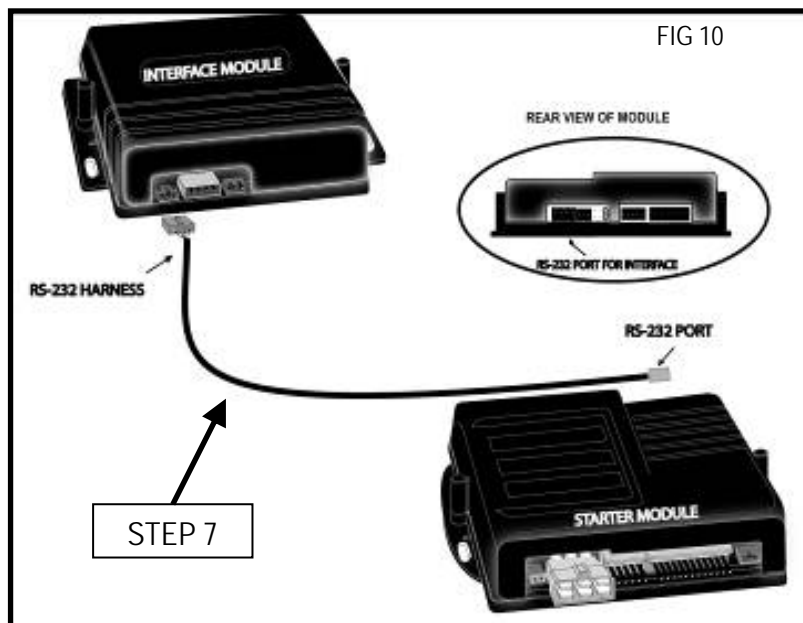
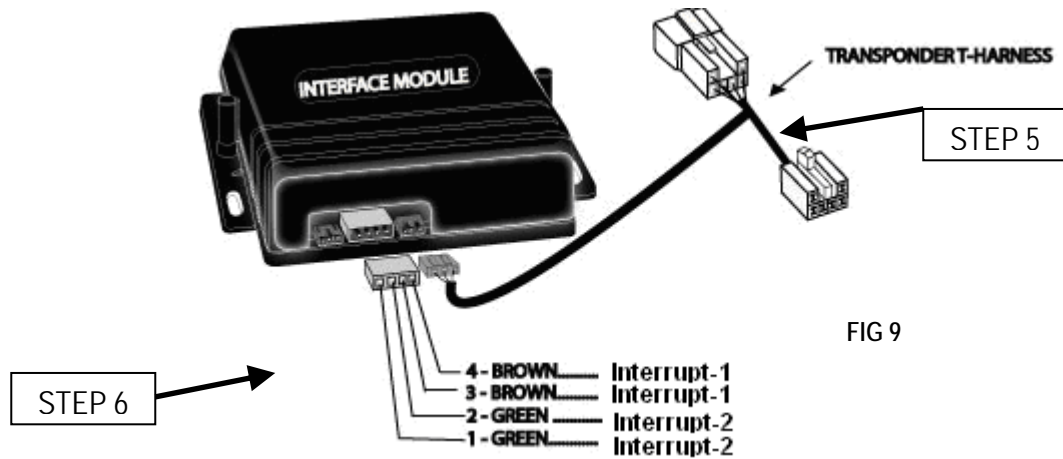


FINISHING THE INSTALLATION

WARNING! DO NOT ATTEMPT TO START THE VEHICLE WITH THE TRANSPONDER T-HARNESS DISCONNECTED FROM THE BYPASS INTERFACE MODULE.

Connecting the harness to the immobilizer interface module

1. Connect the transponder T-harness to the immobilizer interface module (Fig 9).
2. Connect the ignition interrupt 4-pin harness to the immobilizer interface module (Fig 9).
3. Connect the RS-232 harness from the immobilizer interface to the remote starter module (Fig 10).



PROGRAMMING

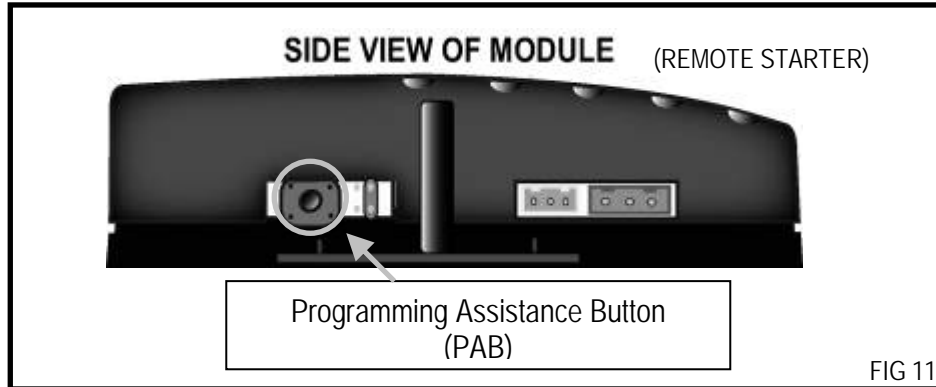
Programming of the remote starter transmitters

How to enter remote starter programming mode

THE INSTALLER ...	ANTENNA LED
<ul style="list-style-type: none">• Ensure that the vehicle hood is OPEN.	
<ul style="list-style-type: none">• Press and hold the PAB button for 4 seconds (Fig 11).	
<ul style="list-style-type: none">• Release the PAB button (the antenna LED will turn ON).	"ON"
<ul style="list-style-type: none">• While the antenna LED is on, press the PAB button once more and release immediately.	"ON" for 20 seconds
<ul style="list-style-type: none">• You now have 20 seconds to select one of the sub-menus.	

Remote starter transmitter programming procedure

1. **Enter programming mode (see above)** — the antenna embedded LED will stay on for up to 20 seconds.
2. Before the LED turns off, turn the ignition key to the **IGNITION ON (RUN)** position and immediately to the **OFF** position.
3. Press and hold the remote starter transmitter **LOCK** button and keep it down until the LED flashes 5 times quickly.
4. The transmitter has been stored in memory.
5. Repeat steps 1 to 4 for the second remote starter transmitter.
6. To exit programming at any time, close the hood. **Note:** Each unit can store 4 remotes in its memory.



AS PRG-1000 (tech tool) remote starter transmitter programming procedure (optional)

* Please refer to the AS PRG-1000 user guide for proper procedure.

PROGRAMMING

Entering programming options

1. Enter programming mode (see page 24) — the antenna embedded LED will stay on for up to 20 seconds.
2. Before the LED turns off, press and hold the brake pedal.
3. Press one of the following buttons:
 - LOCK to access option 1;
 - UNLOCK..... to access option 2; or
 - START/STOP to access option 3.
4. Release the brake pedal.

Programming options

* INDICATES DEFAULT SETTING

Engine Run Time

OPTION 1*	Run Time = 3 minutes
OPTION 2	Run Time = 8 minutes
OPTION 3	Run Time = 15 minutes

Remote starter tachometer learning procedure

Multi-speed tach programming

1. Enter programming mode (see page 24) — the antenna embedded LED will stay on for up to 20 seconds.
2. Before the LED turns off, press and hold the brake pedal and press the LOCK and UNLOCK buttons of the remote starter transmitter simultaneously — the LED will flash 4 times. At that point, release the brake pedal and LOCK and UNLOCK buttons.
3. Start up the engine and allow the vehicle to reach regular engine idle speed.
4. Once the engine is running at normal idle speed, press the brake pedal and keep it down until you hear the remote starter module click 5 times.
5. Release the brake pedal —the tach programming is now complete.

Virtual Tach System (VTS)

VTS is able to effectively monitor the engine starting sequence and release the starter at the right time without physically connecting the Tach wire of the remote starter to the vehicle.



IMPORTANT NOTICE

Special VTS programming procedure for vehicles with no Tach wire.

Ensure that the vehicle hood is OPEN:

- Press and hold the PAB button for 4 seconds
- Release the PAB button (the antenna LED will turn ON)
- While the antenna LED is on, press the PAB button once more and release immediately
- You now have 20 seconds to press and release the brake pedal 6 times (rapidly)
- The parking lights will flash 8 times, confirming the reset
- Remote starter is now in VTS mode, you can continue with programming

PROGRAMMING

REMOTE STARTER TRANSMITTERS AND TACH LEARNING PROCEDURE MUST BE COMPLETED BEFORE PROGRAMMING THE IMMOBILIZER INTERFACE.

ALL CONNECTIONS MUST BE COMPLETED PRIOR TO PROCEEDING WITH IMMOBILIZER INTERFACE PROGRAMMATION.

Programming the immobilizer interface

Keyless interface

Note: The remote starter transmitters must have been programmed before proceeding.

- Plug in the Hyundai HI-SCAN or GDS tool to the car and turn the key to the **RUN** position.
- Select the "**CODE SAVING**" mode on the scan tool menu and follow the procedure, as if you were programming a regular Hyundai transmitter. When asked to press **LOCK** or **UNLOCK**, press the **LOCK** button of one of the remote starter transmitters.
- You do not need to program additional Hyundai's transmitters onto the vehicle. All transmitters already learned in the remote starter programming procedure (see above) will work.

Immobilizer interface

- The following steps require that you already have the vehicle's 6-digit PIN number for programming purposes.
- Plug in the HI-SCAN or GDS tool and follow the Hyundai key teaching procedure.
- Program the Hyundai's regular keys.
- The immobilizer bypass should be programmed as the last available key.
- When the scan tool displays "**Insert "X" key and turn IG. ON**", Remove the key from the ignition switch, press and hold the bypass programming button (Fig 12) of the remote starter until the scan tool displays "**"X" key teaching completed**".
- When finished, remove the bypass programming button as it is needed only for programming purposes.

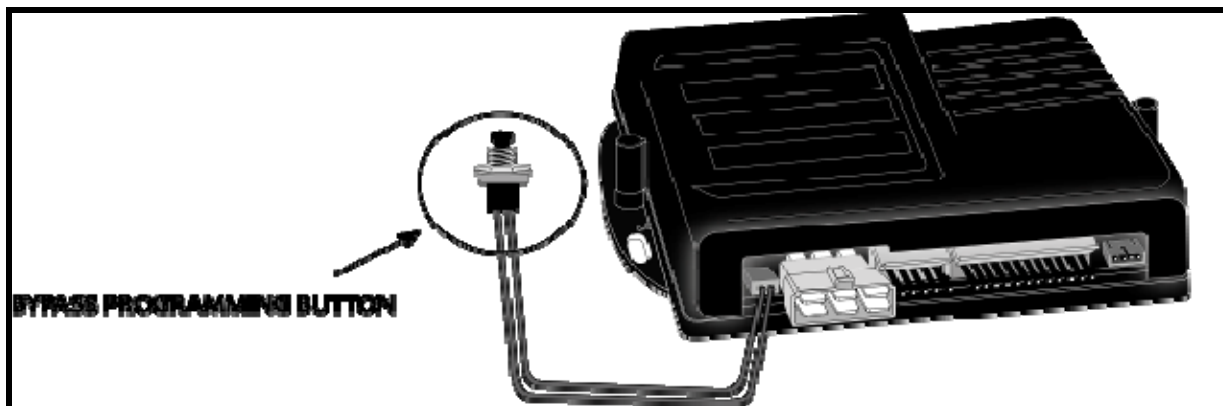


Fig-12

TESTING AND CLOSING UP

Testing

Before putting the vehicle back together, it is recommended to check that the system operates properly. The following testing procedures should be used to verify proper installation and operation of the system. Before testing, make sure that all connections are done and that the unit is plugged in.

Testing of features and options

THE INSTALLER ...	THE VEHICLE
• Presses LOCK button	Locks all doors
• Presses UNLOCK button	Unlocks driver's doors
• UNLOCK button pressed twice within 6 seconds	Unlocks all doors
• Presses the PANIC button	Triggers vehicle panic alert

Testing of the remote starting features

The following steps involve remote starting the engine; therefore, additional precautions must be taken. Ensure that the hood is closed, that the transmission is in PARK, that you are seated in the driver's seat, that you are not pressing the brake pedal and that the vehicle is in a well ventilated area. Should any malfunctions occur while testing the remote starting features, simply press the vehicle's brake pedal or open the hood to cancel and shut down the remote starter.

THE INSTALLER ...	THE VEHICLE
1. Presses START/STOP button	Remote starts the engine
2. Presses START/STOP button	Shuts off the engine
3. Presses START/STOP button	Remote starts the engine
4. Presses the vehicle's brake pedal	Shuts off the engine
5. Presses START/STOP button	Remote starts the engine
6. Opens the hood	Shuts off the engine
7. UNLOCK button pressed twice within 6 seconds	Unlocks all doors
8. Presses LOCK button while vehicle is remote running	Locks all doors
9. Presses UNLOCK button while vehicle is remote running	Unlocks driver's door
10. UNLOCK button pressed twice within 6 seconds while vehicle is remote running	Unlocks all doors
11. Presses the PANIC button while vehicle is remote running	Triggers vehicle panic alert

TESTING AND CLOSING UP

Closing up

Before putting everything back together, perform the testing procedure mentioned above to ensure that the system operates as it should.

It is also recommended that you scan the vehicle for any DTC that might have been created during the installation process and erase them if needed.

Use tie-wraps to properly secure the starter module and keep it and its wiring away from any moving parts such as the parking brakes or steering column shafts. Mount all switches in good and accessible locations, where they do not risk getting kicked or hit accidentally.

Points to remember

- **Always make all of your connections BEFORE plugging in the remote car starter.**
- Make sure to test all functions properly before closing up the installation.
- Make sure that the warning label is applied in a visible place under the hood.