



CUSTOM-FIT CAR STEREO FOR TOYOTA 4RUNNER 2010-2019



VISION series

INSTALLATION MANUAL

Important Notice!

Please read this installation guide carefully before disassembling your vehicle or making any wire connections. Installing this product requires technical expertise, experience and specialized tools.

If you are unsure about performing the installation steps outlined in this manual, we strongly recommend having the product professionally installed by an authorized VINLAND dealer.

Retain Your Factory Features with Vinland Vision (via Maestro RR)

Upgrade without compromise—Vinland Vision, when paired with the Maestro RR module, preserves select OEM features so you can enjoy modern technology while keeping the conveniences you love.

Explore the table below for a complete overview of retainable functions.

Note: Listed features are for reference only. Actual retained functions may vary by vehicle model year, trim, and regional specifications.

Feature	Retention Status
OEM Camera	Retained
Steering Wheel Controls	Retained
Navigation Outputs	Retained
Factory Amplifier	Retained
Vehicle Settings	Retained
Advanced Camera Features	Retained
Gauges	Retained
Park Assist	Retained
Vehicle Info	Retained

Content

Chapter 1 Tools Needed & Packing List.....	1
Chapter 2 Maestro RR Configuration.....	2
Chapter 3 Ports Function Overview	6
Chapter 4 Installation Process	7
1. Disassembly and Assembly	7
2. Cable Harness Connection.....	9
2005-2011 Toyota 4 Runner with JBL.....	9
2005-2011 Toyota 4 Runner without JBL.....	11
2012-2013 Toyota 4 Runner With JBL.....	13
2012-2013 Toyota 4 Runner Without JBL	15
2014-2019 Toyota 4 Runner	17
Chapter 5 Troubleshooting Table	19

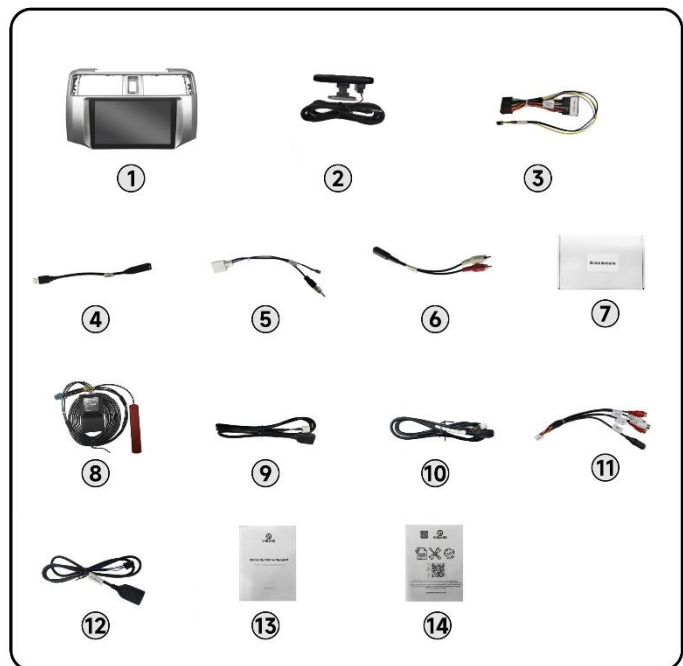
Chapter 1 Tools Needed & Packing List

Tools needed for installation: Plastic pry tools, Socket wrench (7mm or 10mm, depending on your stereo), Screwdriver, Electrical tape, Scissor, Wrench, Screw Tray/Box, Cable Ties.

Warning:

- We regularly release system updates that may introduce new features or changes not covered in this manual. Always refer to the latest release notes for comprehensive details.
- Download the latest Installation Manual from our website or contact customer support for assistance.
- We strive for comprehensive documentation. If you have questions or encounter issues with your car stereo not covered in this manual, please get in touch with customer support.

- ①. Car Stereo with Mounting Frame
- ②. External Microphone
- ③. Power Adapter
- ④. TO2 USB Adapter
- ⑤. TO Radio Antenna Adapter
- ⑥. AUX Adapter
- ⑦. Universal Accessories Box
- ⑧. 4-in-1 Antenna (GPS/Wi-Fi/4G-ANT)
- ⑨. USB to 4 Pin: USB 1 Phone Link
- ⑩. USB to 6 Pin: USB 2 External Storage
- ⑪. Tri-band Audio with Remote Receiver
- ⑫. 4G SIM Slot Cable
- ⑬. Product Manual
- ⑭. Warranty Online Support

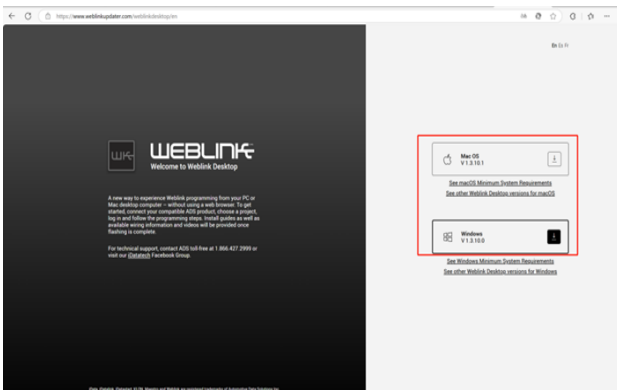


To Retain OEM Features

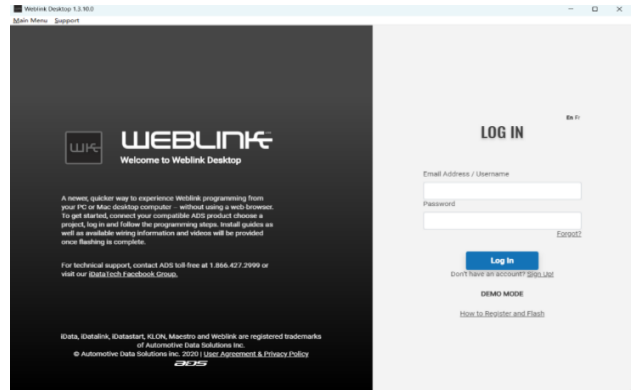
You'll need the Maestro RR interface and the vehicle-specific T-Harness (sold separately).

Chapter 2 Maestro RR Configuration

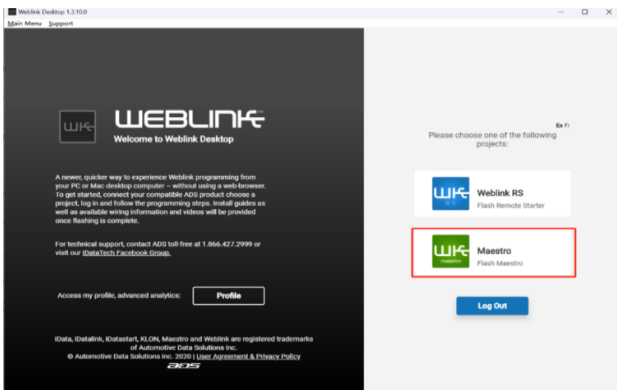
To ensure proper functionality and seamless integration with your vehicle, Weblink Desktop must be installed before setting up the Maestro RR. This software is required for device configuration, firmware updates, data synchronization, and remote management.



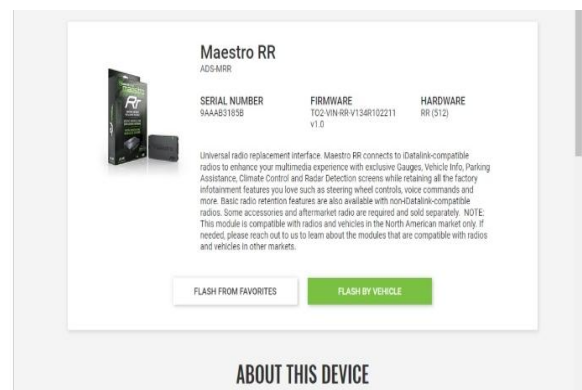
1. Go to <https://www.weblinkupdater.com/weblinkdesktop/en> and download the Weblink Desktop software.



2. Initiate a new Weblink account or sign in to an existing one.

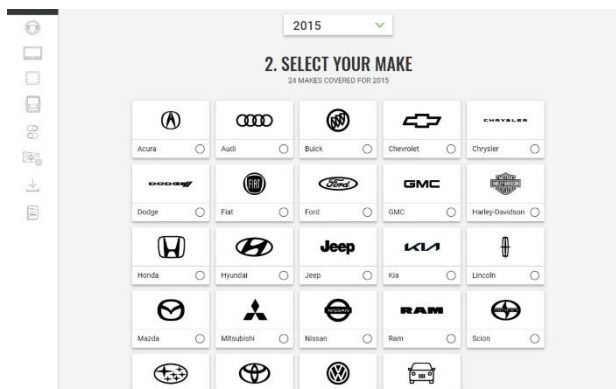


3. Establish a connection between the Maestro RR module and your computer via the USB cable included in the package, then proceed by selecting the “Maestro Flash Maestro” option.

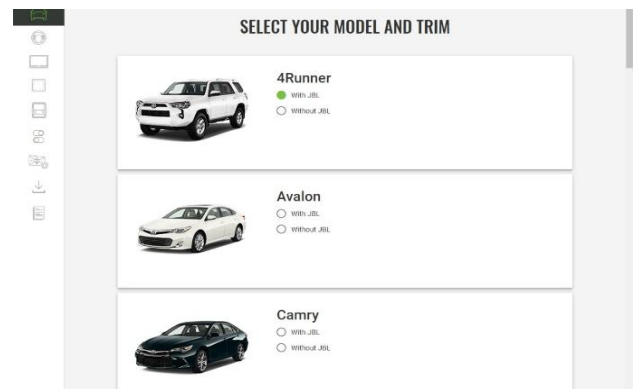


4. Weblink Desktop will automatically recognize the connected Maestro RR module and present its corresponding details (e.g., serial number and current firmware version). Subsequently, select “FLASH BY VEHICLE” to proceed with the configuration process.

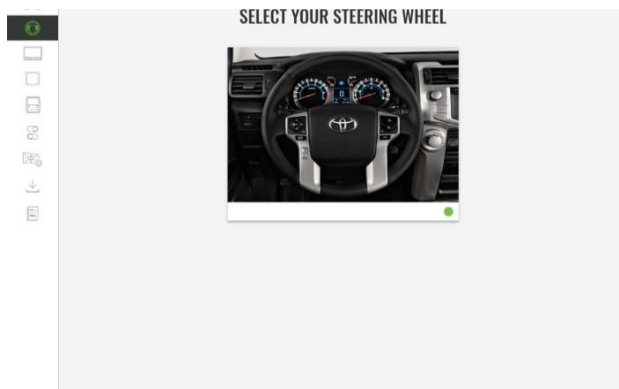
5. Specify the vehicle and car stereo information by entering the required details in the sequence outlined below:



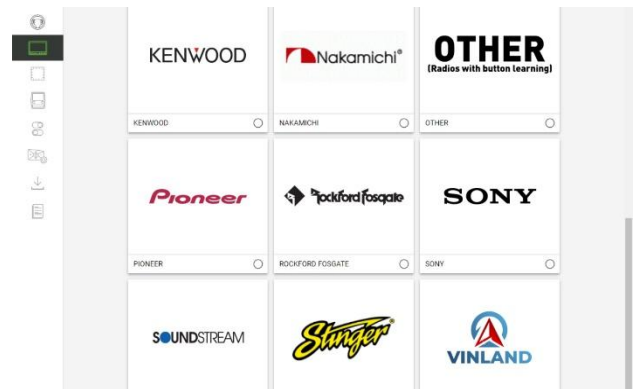
① Select the vehicle's production year and corresponding brand.



② Select the appropriate vehicle model and configuration parameters.



③ Select the appropriate steering wheel type for your vehicle.

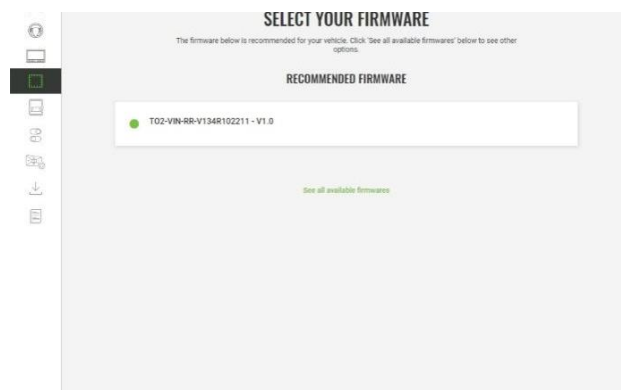


④ Choose VINLAND as the designated brand of the car stereo.



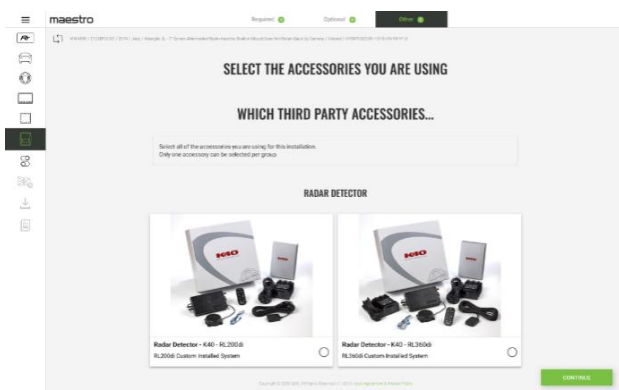
- ⑤ Select the exact model corresponding to the car stereo you have purchased.

Every car stereo carries a unique serial number—please locate and reference the one found on your car stereo.

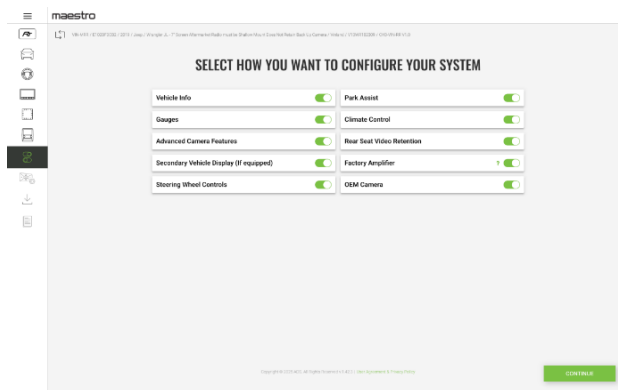


- ⑥ Enter the 8-digit serial number located on the rear of the car stereo. Please locate this number and input it as prompted.

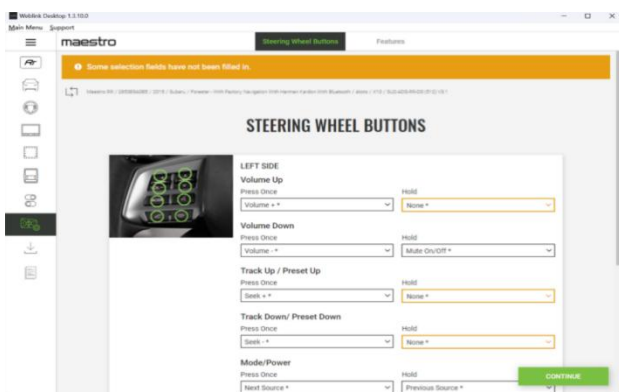
- ⑦ Select the correct firmware version from the available options.



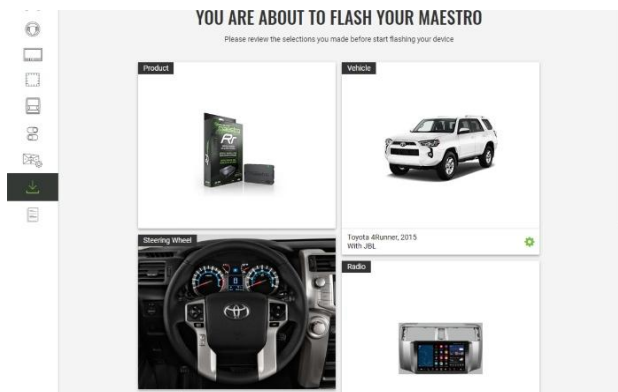
6. Select the accessories currently in use.



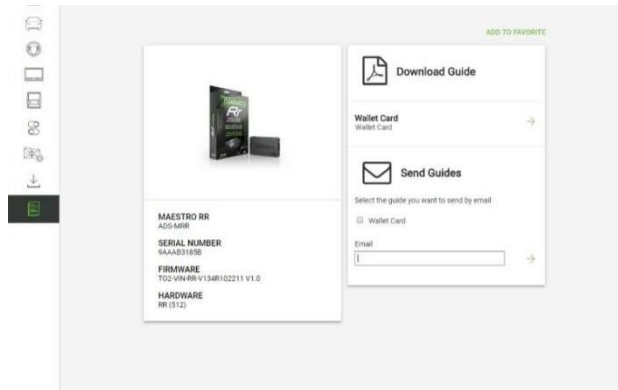
7. The system will automatically apply the recommended settings. If no adjustments are required, simply click “CONTINUE” to proceed to the next step.



8. The default steering wheel button functions will be displayed on the interface. If needed, adjust the button assignments according to user preferences and save the settings.

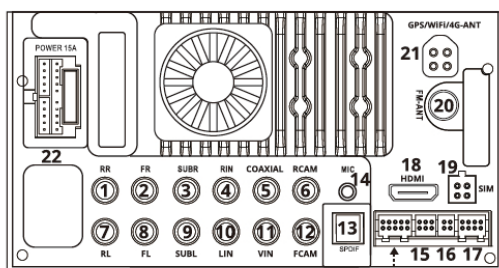


9. Verify the firmware version, user-defined settings, and vehicle or car stereo information. To begin updating the Maestro RR module, click “FLASH”. Ensure that neither the module nor the USB connection is interrupted during the process.



10. Once the firmware update is complete and the “Flash Successful” message appears, download the module’s installation guide and follow the remaining steps to complete the in-vehicle installation.

Chapter 3 Ports Function Overview



SWC
Front Right Midrange Output
Front Left Midrange Output
Front Left Tweeter Output
Front Right Tweeter Output

1. Rear Right Audio Output
2. Front Right Audio Output
3. Subwoofer Output Right
4. Right Channel Auxiliary Audio Input
5. Coaxial Output
6. Rear Camera Input
7. Rear Left Audio Out
8. Front Left Audio Out
9. Subwoofer Output Left
10. Left Channel Audio Input
11. Video Input
12. Front Camera Input
13. Optical SPDIF Output
14. Microphone Input
15. USB2 External Storage
16. USB1 Recording Storage
17. Rear Recording Camera Input
Front Recording Camera Input
18. HDMI Input
19. 4G LTE Adapter Interface
20. F-M-ANT-Radio Antenna input
21. 4-in-1 Antenna-4G/WiFi/GPS
22. Car Stereo Fuse

Chapter 4 Installation Process

1. Disassembly and Assembly

This part provides a brief overview of the procedures required to remove the factory stereo and install the new car stereo. The instructions are specifically designed for 2010-2019 Toyota 4 Runner models and are intended to guide you through the process safely, accurately, and efficiently.

Part one Disassembly



Step 1

Switch off the vehicle's ignition.



Step 2

Use a plastic pry tool to release and remove the two side trim panels and the climate control panel.



Step 3

Remove the four 10mm bolts securing the factory car stereo.



Step 4

Grip both the top and bottom of the car stereo to release and remove it from the dashboard. Then, disconnect all wiring cables.



Step 5

Remove the two A/C vents and the factory control button assembly for reinstallation onto the new car stereo panel.

Part Two Cable Harness Connection

Refer to the detailed wiring installation steps for the Toyota 4Runner (2010-2022) of different configurations provided below.

Part Three Disassembly



Step 1

Position the car stereo back into its mounting slot and secure it using the four 10mm bolts.



Step 2

Align the climate control panel and the two side trim panels, then press them firmly back into place.

2. Cable Harness Connection

For installation, follow the wiring instructions that match your vehicle's specific configuration.

2005-2011 Toyota 4 Runner with JBL

Step 1

① Connect the Main Harness of the **HRR-TO1 T-harness** directly to the car stereo.

OR

② Connect the **HRR-TO1 harness** to the **Power Adapter**. Then connect the other end of the **Power Adapter** to the aftermarket car stereo.

Step 2

• If the vehicle is equipped with an OEM backup camera, connect the HRR-TO1 harness to appropriate HRR adapter cable (D, E or F), then connect to the backup camera harness.

Step 3

- Identify whether your vehicle has a 20 or 28 pin secondary connector.
- Assemble TO1 T-harness as shown in the wiring diagram.
- Connect the factory harness to the HRR-TO1 harness.

Step 4

- Connect HRR-TO1 3-pin black connector to black connector of OBDII extension harness.
- Plug the OBDII connector into the OBDII of the

vehicle.

Step 5

- Plug the harnesses into the car stereo.
- Connect the backup camera RCA cable to the aftermarket car stereo (if equipped).
- Connect the factory radio harness to the car stereo outputs: white/front left (**FL**), gray/front right (**FR**).

- Connect the **AUX Cable** as follows:

Two RCA plugs → Connect to the car stereo's **RIN** and **LIN** ports.

Other end → Insert the 3.5mm audio jack into the **Audio Cable**.

Step 6

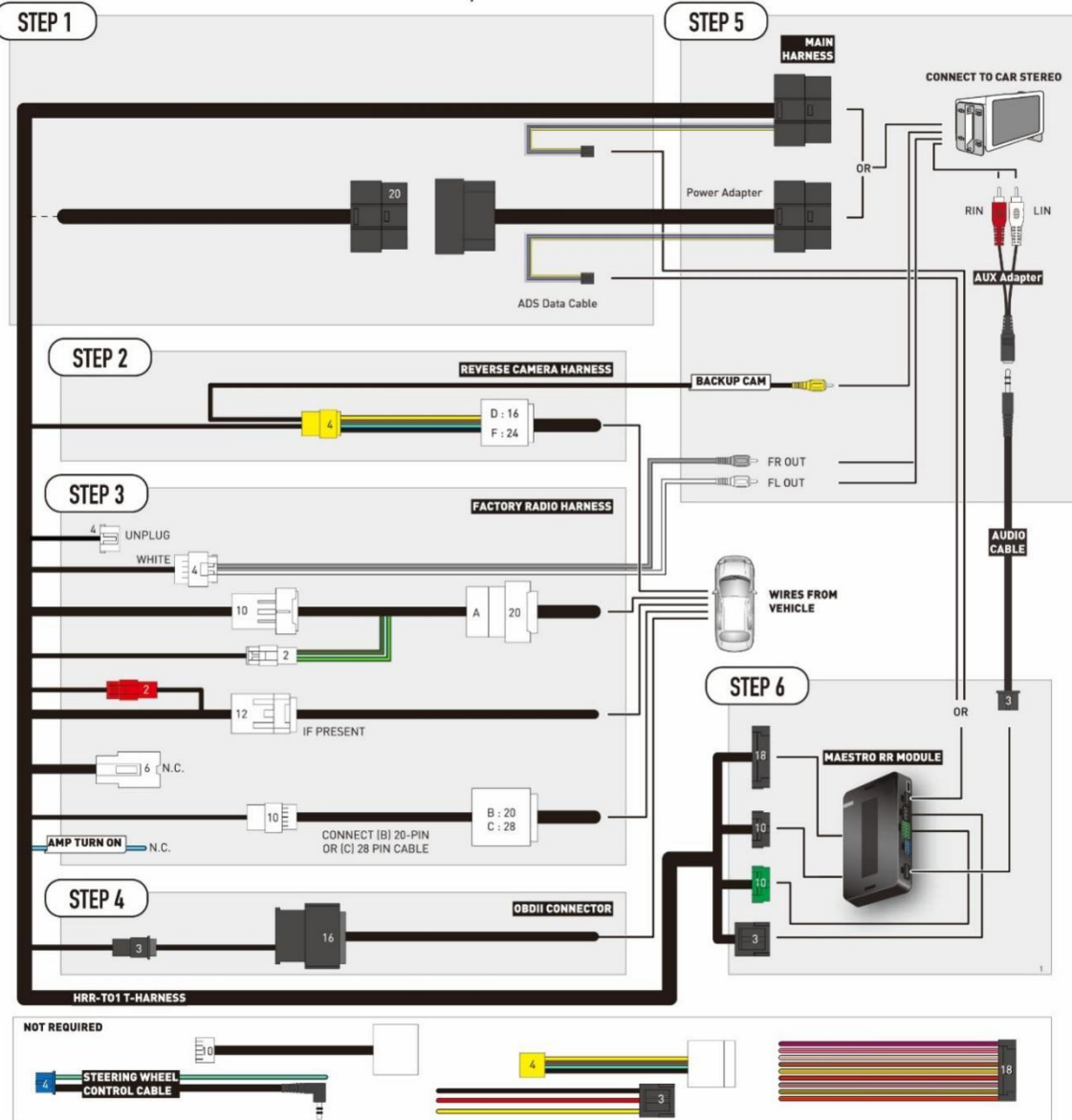
- Plug the **ADS Data Cable** of the **Power Adapter** into the Maestro RR module.

OR

Plug the **ADS Data Cable** from the **Main Harness** into the Maestro RR module.

- Plug the other end of the **Audio Cable** into the Maestro RR module.
- Connect all the harnesses to the Maestro RR module, then test your installation.

WIRING DIAGRAM *with an Amplifier*



[Connection Diagram of 2005-2011 Toyota 4 Runner with JBL]

2005-2011 Toyota 4 Runner without JBL

Step 1

① Connect the Main Harness of the **HRR-TO1 T-harness** directly to the aftermarket car stereo.

OR

② Connect the HRR-TO1 harness to the **Power Adapter**. Then connect the other end of the **Power Adapter** to the car stereo.

Step 2

- Identify if your vehicle has a 20 or 28 pin secondary connector.
- Assemble TO1 T-harness as shown in the wiring diagram.
- Connect the factory harness to the HRR-TO1 harness.

Step 3

- Connect HRR-TO1 3-pin black connector to black connector of OBDII extension harness.
- Plug the OBDII connector into the OBDII port of the vehicle.

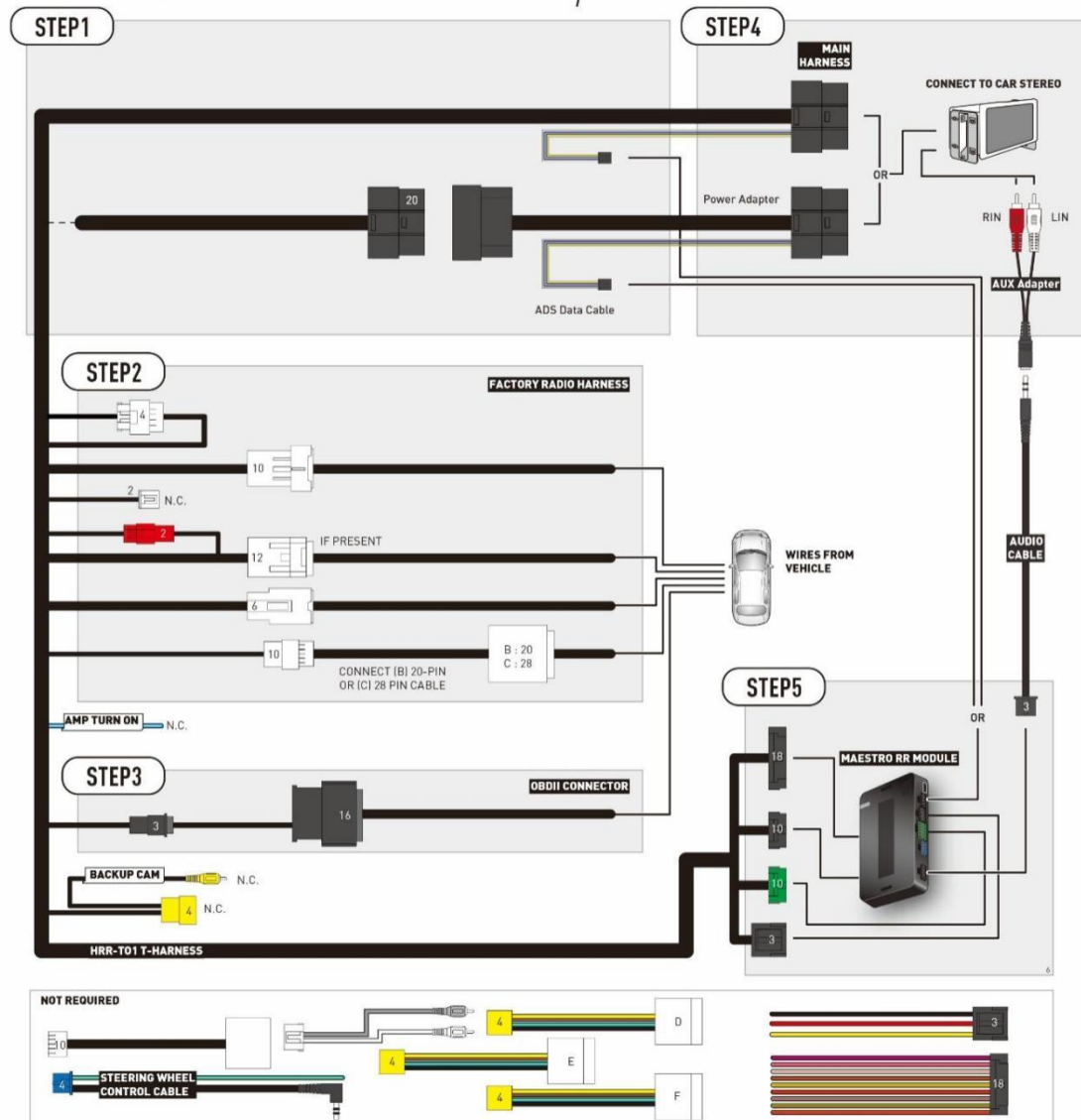
Step 4

- Plug the harnesses into the aftermarket car stereo.
- Connect the **AUX Cable** as follows:
Two RCA plugs → Connect to the car stereo's **RIN** and **LIN** ports.
Other end → Insert the 3.5mm audio jack into the **Audio Cable**.

Step 5

- Plug the **ADS Data Cable** of the **Power Adapter** into the Maestro RR module.
- OR**
- Plug the **ADS Data Cable** from the **Main Harness** into the Maestro RR module.
- Plug the other end of the **Audio Cable** into the Maestro RR module.
 - Connect all the harnesses to the Maestro RR module, then test your installation.

WIRING DIAGRAM *without an Amplifier*



[Connection Diagram of 2005-2011 Toyota 4 Runner Without JBL]

2012-2013 Toyota 4 Runner With JBL

Step 1

① Connect the Main Harness of the **HRR-TO1 T-harness** directly to the car stereo.

OR

② Connect the HRR-TO1 harness to the **Power Adapter**, then connect the other end of the **Power Adapter** to the car stereo.

Step 2

- If the vehicle is equipped with an OEM backup camera, connect the HRR-TO1 harness to appropriate HRR adapter cable (D, E or F) then connect to the backup camera harness.

Step 3

- Identify if your vehicle has a 20 or 28 pin secondary connector.
- Assemble TO1 T-harness as shown in the wiring diagram.
- Connect the factory harness to the HRR-TO1 harness.

Step 4

- Connect HRR-TO1 3-pin black connector to black connector of OBDII extension harness.

- Plug the OBDII connector into the OBDII of the vehicle.

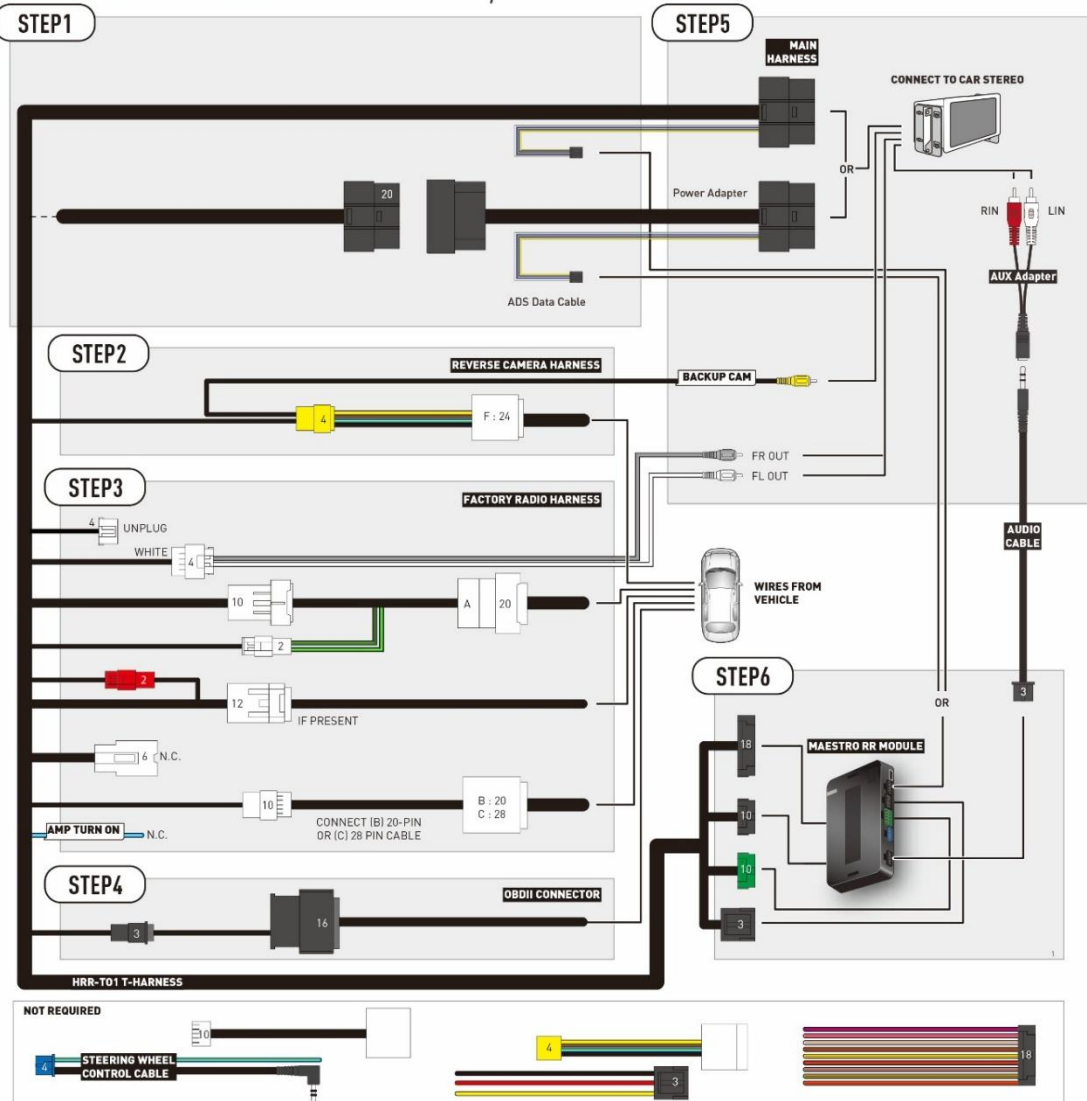
Step 5

- Connect the backup camera RCA cable to the aftermarket car stereo (if equipped).
- Connect the factory radio harness to the car stereo outputs: white/front left (**FL**), gray/front right (**FR**).
- Connect the **AUX Cable** as follows:
Two RCA plugs → Connect to the car stereo's **RIN** and **LIN** ports.
Other end → Insert the 3.5mm audio jack into the **Audio Cable**.

Step 6

- Plug the **ADS Data Cable** of the Power Adapter to the data port of the Maestro RR module.
- OR**
- Plug the **ADS Data Cable** from the **Main Harness** to the Maestro RR module.
- Connect the other end of the **Audio Cable** to the Maestro RR module.
 - Connect all the harnesses to the Maestro RR module, then test your installation.

WIRING DIAGRAM *with an Amplifier*



[Connection Diagram of 2012-2013 Toyota 4 Runner with JBL]

2012-2013 Toyota 4 Runner Without JBL

Step 1

① Connect the **Main Harness** of the HRR-TO1 T-harness directly to the car stereo.

OR

② Connect the HRR-TO1 harness to the **Power Adapter**, then connect the other end of the **Power Adapter** to the aftermarket car stereo.

Step 2

- If the vehicle is equipped with an OEM backup camera, connect the HRR-TO1 harness to appropriate HRR adapter cable (D, E or F) then connect to the backup camera harness.

Step 3

- Identify if your vehicle has a 20 or 28 pin secondary connector.
- Assemble TO1 T-harness as shown on wiring diagram.
- Connect the factory harness to the HRR-TO1 harness.

Step 4

- Connect HRR-TO1 3-pin black connector to black connector of OBDII extension harness.

- Plug the OBDII connector into the OBDII of the vehicle.

Step 5

- Connect the backup camera RCA cable to the aftermarket car stereo (if equipped).
- Connect the **AUX Cable** as follows:
Two RCA plugs → Connect to the car stereo's **RIN** and **LIN** ports.
Other end → Insert the 3.5mm audio jack into the **Audio Cable**.

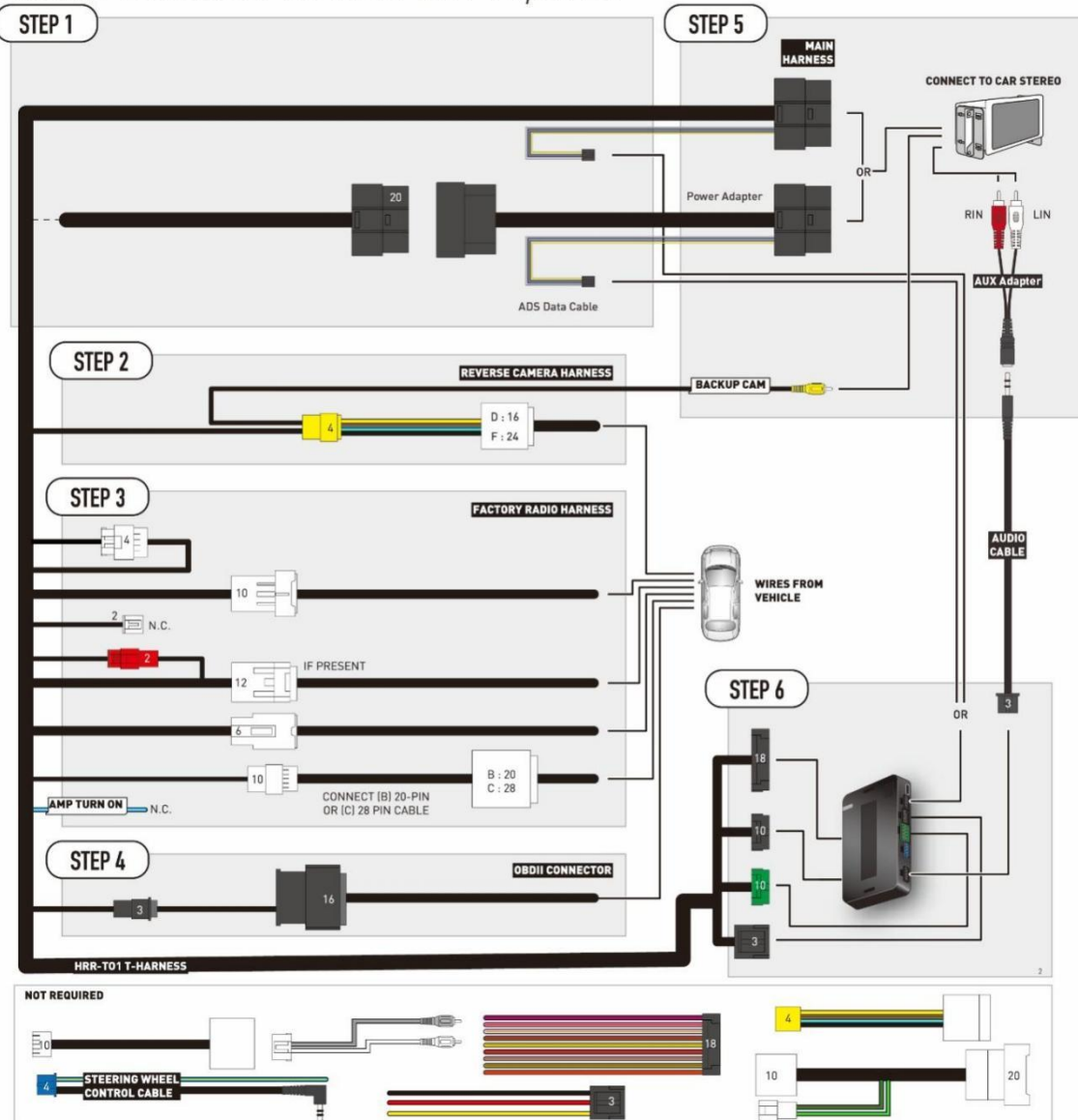
Step 6

- Plug the **ADS Data Cable** of the Power Adapter into the data port of the Maestro RR module.

OR

- Plug the **ADS Data Cable** from the Main Harness into the Maestro RR module.
- Connect the other end of the **Audio Cable** to the Maestro RR module.
 - Connect all the harnesses to the Maestro RR module, then test your installation.

WIRING DIAGRAM *without an Amplifier*



[Connection Diagram of 2012-2013 of Toyota 4 Runner without JBL]

2014-2019 Toyota 4 Runner

Step 1

① Connect the **Main Harness** of the HRR-TO2 T-harness directly to the car stereo.

OR

② Connect the HRR-TO2 harness to the **Power Adapter** cable, then connect the other end of the **Power Adapter** to the aftermarket car stereo.

Step 2

- Determine whether the vehicle is equipped with a factory amplifier.

If the vehicle DOES NOT have a factory amplifier:

- Plug in the HRR-TO2 4-pin white connectors.

If the vehicle DOES have a factory amplifier:

- Unplug the HRR-TO2 4-pin white connectors.
- Connect the 4-pin white to 4-pin white connector with RCAs. Connect the RCAs to the car stereo outputs: white/front left (**FL**), gray/front right (**FR**).

Step 3

- If the vehicle is equipped with an OEM backup camera, a 16-pin and 24-pin adapter are provided to retain it. Identify which harness your vehicle has and connect the adapter to the vehicle and to the 8-pin connector on the HRR-TO2 T-harness.

Step 4

- Connect the factory harness to the HRR-TO2 T-harness.

Step 5

- Plug the male WHITE 2-pin connector of your TO2 T-harness into the OBDII harness.
- Plug the OBDII connector into the OBDII of the vehicle.

Step 6

- Plug the **TO2 USB Adapter** cable into the vehicle, and the other into **USB1** cable.

Step 7

- Plug the backup camera RCA into the aftermarket car stereo (if applicable).
- Plug the **TO Radio Antenna Adapter** cable to the car stereo and **Power ANT** separately, and the other end to the vehicle.
- Plug the **USB1** cable into the car stereo.

Step 8

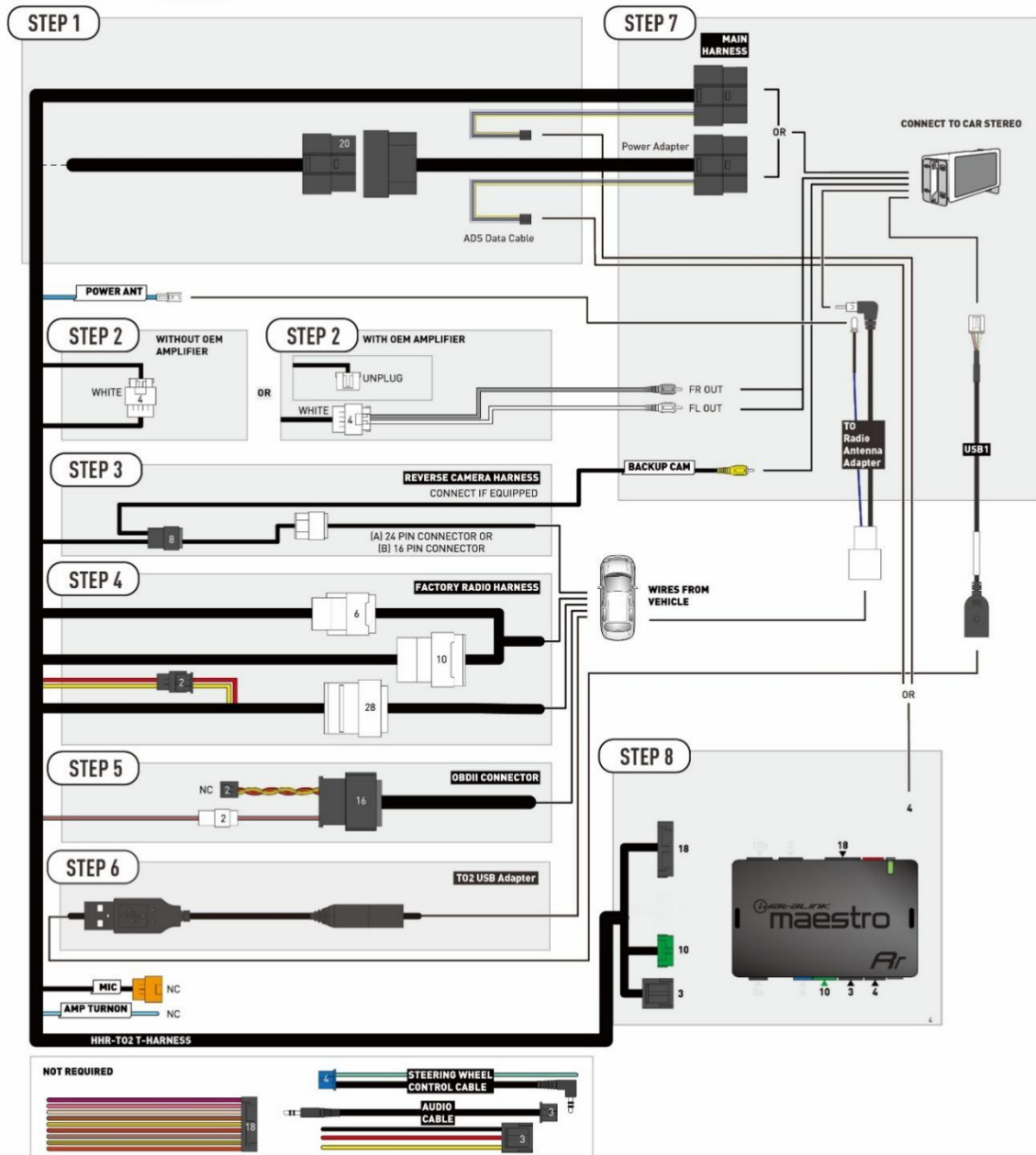
- Plug the **ADS Data Cable** of the Power Adapter to the data port of the Maestro RR module.

OR

Plug the data cable from **Main Harness** to the Maestro RR module.

- Connect all the harnesses to the Maestro RR module, then test your installation.

WIRING DIAGRAM



[Connection Diagram of 2014-2019 Toyota 4 Runner]

Chapter 5 Troubleshooting Table

Before contacting technical support, please consult the troubleshooting table below to quickly resolve common issues.

IMPORTANT SAFETY WARNINGS:

- **Disconnect Power:** Always disconnect the vehicle's negative battery terminal and wait at least 5 minutes before handling any wiring to ensure the system is fully powered down.
- **Professional Installation Recommended:** To prevent damage to the device or vehicle, and to avoid personal injury, disassembly or repair should only be performed by a qualified technician.
- **Verify Compatibility:** Ensure all components—including the antenna, wiring harness, car stereo and firmware—are fully compatible with your specific vehicle model and regional standards.

No.	Problem	Solution
1	GPS signal reception issues	Check that the GPS antenna is securely connected. The recommended position is on the interior of the vehicle's A-pillar.
		GPS functionality may be limited in signal-obstructed environments. Please avoid parking your vehicle in places such as underground garages, mountainous areas, or other areas with poor signal reception.
2	No rearview image or failure to switch to rearview	Verify proper connection of the reverse detection wire and camera harness. Ensure all connections are secure and correctly seated.
3	The car stereo fails to power on	Verify that the B+ (constant 12V), ACC (ignition signal), and chassis ground wires are securely and correctly terminated.

		Use a multimeter to confirm that the voltage at the B+ and ACC terminals is within the operational range of 9V-16V. Incorrect wiring connection can lead to abnormal voltage readings, and prevent the stereo from powering on.
		If no voltage is detected on B+ or ACC, inspect the power supply circuit. Check the power cables for any visible damage or loose connections and verify the integrity of the fuse.
		If no voltage is present at the ACC terminal: (1) Verify that the ADS protocol module is properly connected to the computer. (2) Flash the module using software configured for the vehicle model. (3) Confirm that all wiring connections comply with the vehicle-specific installation manual.
4	Protocol communication malfunction	Connect the ADS interface module to the computer and ensure that the configuration matches the specific vehicle model. Then, flash the module using the appropriate software and a valid authorized serial number.
		Verify that all wiring connections align with the dedicated installation manual. Check for any loose or improperly seated connectors.
5	Car stereo and mobile device pairing failure	Verify if the mobile device is connected to other Bluetooth devices. If so, unpair all other devices to prevent signal interference.
		Verify cellular signal strength and network connectivity.

6	The clock on the car stereo is inaccurate.	Verify the network connectivity.
		Verify that the location settings in the car stereo are correctly configured.
7	Audio output issues after installation in vehicles with and without factory JBL sound systems	Check that the audio harness is properly connected in accordance with the correct wiring diagram for your vehicle.