

## MECP Skilled Installation Technician Job Description – 2021-2022



### Position Summary - MECP Skilled Installation Technician

The MECP Skilled Installation Technician position involves carefully and correctly installing and configuring entry-to-mid-level difficulty aftermarket electronic products in a wide range of vehicles with minimal supervision. In addition to installation duties, the MECP Skilled level technician position commonly involves troubleshooting, utilizing both experience and specific tools to correct operational problems and installation errors present in existing and new installations. The role also often includes dealing directly with customers before, during, and after the installation in a courteous manner and maintaining a clean, safe, and functional workshop environment.

### Full Description - MECP Skilled Installation Technician

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##### Duties and Responsibilities

- Install aftermarket replacements of in-dash audio/video source units (both direct OEM fit replacements with a dash kit and custom-fitted replacements requiring cosmetic or electrical modification).
  - Duties (cosmetically) will typically require at least some degree of customization to fit and function with light cosmetic modifications to the surrounding dash and mounting area where commercially available dash kit and trim panels are not offered.
  - Duties (electrically) for source unit replacements should focus on retaining the functionality of existing factory-installed electronics and features using wire harnesses, antenna adapters, and other specialty integration devices. Hardwire with custom connections when no alternative to accomplish the task exists commercially.
- Install and replace OEM speakers with aftermarket speakers, both in OEM factory and custom locations, either a direct replacement or with adapters the technician uses or fabricates. The speaker's fitment and function should have no leaks, gaps in mounting surfaces, warping of the mounting adaptor, damages due to placement (being kicked, poked, unnecessarily exposed to moisture), etc.
- Install aftermarket speakers in locations where no speaker currently resides but where interior panels exist with sufficient space to accommodate a speaker. Cutting the mounting hole(s) for the speaker in the vehicle's interior panel(s) and sufficiently wiring and mounting the speakers with no leaks, gaps in mounting surfaces, warping of the mounting adaptor, damages due to placement (being kicked, poked, unnecessarily exposed to moisture), etc.
- Install communication antennas for AM/FM/HD Radio, GPS, Satellite Radio, Telematic Systems, and other mobile communication devices without compromising the vehicle's interior or exterior fit and finish. The vehicle's safe operation must be maintained while also understanding how to maximize effectiveness by selecting proper locations.
- Install aftermarket keyless entry, security, remote start, and convenience devices to enhance or add vehicle features while maintaining all pre-existing vehicle functionality. The technician will maintain any anti-theft prevention systems, vehicle access, and security features, and emergency communication features through the use of commercially available integration modules and accessories.

The listed expectations are recommendations only and imply no qualification to work on any particular product or vehicle. Any damages caused by a technician or any missing or misrepresented technical capability, regardless of MECP Certification level, are not the responsibility of MECP or the Certification Systems Technology Company.

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- Install reverse cameras, back up distance sensors, in-vehicle video screens of all types, and OEM video screen integration with driver safety as a priority and in a way that maintains standard vehicle operation and safety features. Screens and monitors should be installed in compliance with all local and federal laws and comply with MECP recommended best practices.
- Correctly choosing and running wires, cables, and harness assemblies throughout the vehicle (including into the engine compartment, trunk or hatch, and doors) with a competency to execute safe and serviceable methods. Proper evaluation of current capacity, weatherproofing, wire passage through metal, wiring alongside existing vehicle wiring, and where wiring passes near any moving parts. The technician must also understand the difference of non-standard wire size labeling compared to the AWG reference standard, including compensation for adequate current capacity and corrosion resistance.
- Possess a complete understanding of how to evaluate and test a vehicle charging system (state of health), including the use of commercially available, menu-driven battery condition and load test equipment, DMMs, and Hall-Effect DC current clamps. Effectively test for voltage drops, short circuits, open circuits, AC ripple, charging system current output/capacity, and key-off parasitic current draw in a vehicle electrical system.

### Knowledge, Skills, and Ability

- Ability to read and understand wiring and electronic component schematics provided by service-based support sources (from both OE manufacturers and third-party sources) to plan installation-related connections when available to the technician.
- Ability to understand electrical circuit paths and vehicle electrical systems, including hybrid gas/electric, stop-start, and high voltage powertrain components, applying aftermarket electronic device installation and areas of caution to avoid for safety purposes.
- Ability to read and understand installation and operation instructions supplied by the aftermarket equipment manufacturer, both provided with the products and within the manufacturer's online, fax, and telephone resources.
- Knowledge and ability to use important automotive and electronic test and diagnostic equipment:
  - Using a DMM to measure voltage (AC and DC), low current (<10a), resistance, and continuity on vehicle electrical systems and aftermarket mobile electronics equipment, then know what the expected results should be.
  - Using a Hall-Effect DC current clamp (integrated clamp or as an accessory to a DMM) to take high current (>10a) measurements and what the expected results would be.
  - Using an oscilloscope to identify audio signal waveforms. Knowledge to differentiate between sine waves and other implementations of waveforms in automotive audio and electronics applications applying to aftermarket electronics and installations.
- Knowledge and understanding of Ohm's Law and Watt's Law and basic math (addition, subtraction, multiplication, and division) combine with electrical diagnosis and form a basis for good or bad diagnoses of the aftermarket product's operational aspects equipment and the vehicle electrical system.
- Thorough knowledge of electronic components such as automotive SPDT relays, silicon diodes, resistors, and switches is required and the application of them in aftermarket installations. The candidate must know what the electronic components do, their schematic representations, and how to apply them in aftermarket installations where they are required.
- A brief knowledge of visually and schematically identifying transistors and terminology knowledge of their parts.

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- Knowledge of series and parallel wiring practices and understanding the individual calculation process of DC resistance, inductance, and capacitance, including dual voice coil speakers, resistors, and capacitors. The candidate should accurately calculate a given DC resistance load on an amplifier channel when using multiple speakers or voice coils.
- General knowledge of inductors, transformers, and capacitors concerning how they are applied in installation considerations in the audio signal path and power supply applications external of components (such as external power supply noise filtering and energy storage) as well as connecting multiples of a component in series or parallel.
- Knowledge of various commercially available installation accessories such as dash kits, wiring harnesses, antenna adapters, speaker adapters, line output converters, specialty interfaces for OEM audio system replacements, audio patch cables, high current power/ground wiring, circuit protection devices, etc.
- General knowledge and familiarity of the appropriate application of various fasteners for equipment mounting and those encountered during removal of interior panels with regard to the original integrity of the vehicle and subsequent re-installation.
- A firm knowledge of security system and remote starter components and advanced functionality (including control module, siren, sensors, input/outputs, programmable features, etc.), including the vehicle's electrical interface discrete functionality circuit, variable voltage, or true data bus circuit. The individual should complete the installation of vehicle security systems and remote starters in cars with commercially available devices that require application specific connection and configuration programming by the technician.
- A firm knowledge of specific remote starter concerns (such as high and low current ignition wiring, vehicle anti-theft systems, hood pin and brake switch safety, and standard programmable features) and the ability to install/connect these devices. The individual should correctly and safely determine a safe and reliable approach observing these concerns when installing a remote starter.
- Knowledge of mobile video and rear-seat entertainment system components and how they interconnect. Also, general knowledge of how to install direct replacement headrests and overhead video screens.
- Knowledge of all Bluetooth profiles and applications for communication, control, audio/video, and serial communications relating to consumer products used and installed in the vehicle.
- General knowledge of satellite positioning system (GPS and GLONASS) operation and how common devices that receive these signals operate in an in-vehicle application and the factors that affect reception and using GPS data in addition to mapping data to determine routing or position reporting.
- Skill to use a personal computer, internet browser, and various technical support resources.
- Skill to disassemble vehicle interiors without damaging the vehicle or the interior components or locate information if disassembly procedure is unknown or not evident.
- Ability to accurately measure dimensions and calculate subwoofer internal and exterior enclosure volume in square and rectangular enclosures (including those with an angled "wedge style" design on one of the enclosure sides).
- Ability to establish priorities, and work with supervision, ask for clarification when necessary.
- Ability to understand the differences between the various wireless data and voice communication methods employed in commercially available aftermarket consumer products relating to car electronics.

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- Ability to diagnose and resolve common installation errors through Identify-Isolate-Eliminate troubleshooting before contacting technical support resources.

### Credentials and Experience

- Most employers expect one or more years of professional experience.
- The Candidate must be MECP Apprentice Installation Certified before becoming eligible for MECP Skilled Installation Technician certification.
- The Candidate should possess a current MECP Skilled Installation Technician certification.
- The Candidate should have personal experiences with their own installations in addition to professional work experience.
- Training at an installation-related school or program is a plus.

### Special Requirements

- Willing to work weekends, holidays, and shift overtime as required by the employer.
- In most states or provinces, the individual will be required to supply their essential installation tools.

### Notes about MECP Skilled Installation Technician Certification

- MECP Skilled Installation Technician level certification is intended for individuals with one or more years of hands-on work experience installing aftermarket vehicle electronics.
- These individuals should function in a working environment with minimal supervision of the work-related tasks and daily communication of the day's work-related goals.
- The learning content contains ten key topic areas and related questions and a certification exam with 75 total questions.
- Once achieved, the certification is valid for the remainder of the technician's membership. Membership does not equate to certification; only successful completion of the learning content and the subsequent certification exam results in certification. Membership must be renewed, and a shirt review exam must be completed to maintain certification.
- MECP certified technicians are granted a digital certificate with an alphanumeric license number that can be validated at any time by contacting [mecp@mecp.com](mailto:mecp@mecp.com) or on [www.mecp.com](http://www.mecp.com) as a free service to potential employers or clients.
- Prospective employers are encouraged to place any candidates with MECP Apprentice Installation Technician certification but limited professional experience in a supervised work environment for at least 60 days to ensure the best employee development and retention.

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