Communications Electrician (3686) – Task List

General

1. Installs, repairs, tests, and inspects the following types of equipment or systems using basic test equipment, such as
   a. Dispatch systems and radio communications, transmitters, antennas, and receivers
   b. Electronic devices
   c. Telephone instruments, multi-line telephones, trunking, electronic telephone switching and automatic dialing, phone jacks, trace wiring, cross connect terminals, and voice mail systems
   d. Microwave
   e. Multiplexing
   f. Office intercommunications
   g. Data network systems (LANs, WANs, fiber optics and routers) and data transmission systems
   h. Supervisory, control, and telemetry
   i. Video (closed circuit television (CCTV), cable T.V., and Information display systems)
   j. Audio (paging and sound reinforcement, public address, recording and enunciator)
   k. Mobile data systems and terminal
   l. Access control and monitoring system (ACAMS)
   m. Fire alarm system
   n. Fiber optics terminal equipment

2. Locates trouble in equipment and circuits using hand tools, power tools, and electronic test equipment such as computers, transmission level and frequency meters, return loss measuring equipment, programmable data transmission test equipment, pulse generators, analyzers, oscilloscopes, printed circuit card testers, signal tracers, signal generators, and telephone test boards and sets in order to repair various communication systems.

3. Notifies supervisor orally or through written communication of unsafe working conditions such as exposed wiring, asbestos, lead contaminants, and other hazardous materials

4. Replaces circuit board components such as shunts, coils, transformers, modules and circuit boards, switches fuses, and other electronic, electrical, and mechanical parts in systems equipment, and circuits manually, using basic hand tools and test equipment in order to correct defects in operation.

5. Operates test equipment or built in test capabilities in order to determine responses and transmission characteristics of communication systems.

6. Constructs and fabricates test panels, relay racks, and communications equipment in communication sites and vehicles by using various hand and power tools (such as drill presses, table saws, chassis punches, and grinders).

7. Modifies electronic equipment in order to conform to new standards, rules, and laws (i.e. FCC, FAA, and Cal OSHA) and meet changing needs of a communications system.

8. Completes written reports (e.g. work management system), forms, and emails of work in order to document system configurations and maintenance history.

9. Creates and updates schematic drawings of circuit installations, drawings, and cable records as required in order to document system configuration manually or electronically (e.g. Auto Cad).

10. Drives an automobile, light truck, or snow vehicle to perform work at hilltop communication sites and remote areas.

11. Receives service requests from users orally or by written communication and evaluates or refers service requests in order to make repairs and changes to systems or communications equipment.

12. Installs, maintains, repairs, and replaces equipment located at heights where ladders and lifts are required.

13. Documents work performed in order to ensure work is in compliance with regulatory agencies such as FCC, City, and departmental rules and regulations by keeping electronic and manual logs, and as built documentation.

14. Tests newly installed, repaired, or updated equipment to ensure that it functions properly and conforms to specifications, using test equipment and observation.

15. Analyzes test readings network management system alarms, and trouble reports to assess and determine equipment repair needs.

16. Inspects, replaces, and repairs antenna systems to ensure proper working conditions by using specialized equipment such as time domain reflectometers and cable analyzers.

17. Coordinates the service of contractors for the installation or repair of communications systems and equipment, including coordination of work schedules, performance records, verification, and evaluation of work performed.

18. Works with potentially hazardous tools, equipment, and materials such as fiber optics, exposed electrical wires, radio frequency radiation.

Radio Communications

19. Tests radio equipment functions and parameters such as signal strength and quality, transmission capacity, interference, and signal delay, using equipment such as communication service analyzers/monitors, oscilloscopes, circuit analyzers, frequency meters, watt meters, and spectrum analyzers.

20. Installs, test and adjusts, and repairs fixed and mobile radio equipment systems such as trunked and conventional two-way radios using basic radio frequency test equipment.

21. Examines malfunctioning radio equipment to locate defects such as loose connections, broken wires, or defective components using schematic diagrams and test equipment.

22. Tests, adjusts, and performs preventative maintenance on receivers and transmitters to system specifications and FCC regulations using basic radio frequency test equipment.

23. Mounts antennas and radio equipment on transmission towers or vehicles by hoisting, lifting, or carrying such equipment.

24. Investigates radio and television interference caused by power transmission lines to comply with FCC rules and regulations using frequency monitoring devices and antennas.

Telephone

25. Troubleshoots, repairs, or replaces faulty equipment such as defective and damaged telephones, copper or fiber optic cables and associated equipment.

26. Manages, installs, and modifies connections in order to change circuit layouts, following work orders or diagrams manually or electronically.

27. Programs, troubleshoots, installs, repairs, and performs routine adds, moves, and changes to telephone systems and voice over IP systems.

IP Network

28. Analyzes and troubleshoots IP networks using simple network management protocol (SNMP), network management systems and portable network analysis

and troubleshooting tools such as T-carrier testers, power meters, optical time domain reflectometers, and packet analyzers in order to construct, maintain, and/or troubleshoot IP networks.

29. Identifies areas of operation that need upgraded equipment such as routers, switches, wireless access points (WAP) fiber optic and Ethernet cabling.

30. Installs and configures routers, switches, wireless access points, and fiber optic transport systems such as SONET and dense wave division multiplex (DWDM) equipment using basic hand tools and computers.

31. Terminates Ethernet or fiber optic cables and installs fiber patch panels using punch down tools and splice kits