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Class Specifications for the:

TELEVISION TECHNICIAN SERIES

This series contains classes of positions the duties of which are to install, maintain and repair various types of television transmitting and receiving equipment such as those involved in commercial and closed-circuit TV systems, including the installation and maintenance of community, neighborhood and/or master antennae systems.

TELEVISION TECHNICIAN I

8K.078

Duties Summary:

Duties of positions allocable to this class are concerned mainly with the installation, repair and maintenance of monochrome television transmitting and receiving equipment including community, master and/or neighborhood antennae systems.

Examples of Duties:

The following duties are typical but not necessarily all inclusive of the usual work cycle:

1. Monochrome TV Repair Work: Installs, maintains and repairs commercial-type monochrome TV sets to receive educational and newsworthy programs; determines from the presence or absence of audio, raster, video, horizontal and vertical rolls, snow, brightness and contrast, size, etc., the probable causes of malfunctions in various circuits of the TV set; checks and adjusts various control knobs or screws to further ascertain proper functioning of various circuits; checks and determines the adequacy and proper operations of vacuum tubes, transistors, diodes, various types of resistors and capacitors, transformers, coils, fuses, packaged units, etched circuit boards, shields, insulators, etc., using various electronic testing and measuring instruments; performs test pattern analysis for diagonal lines, proper interlacing, horizontal and vertical resolutions, brightness and contrast, AGC adequacy, low-frequency phase shifts, centering, 60 cycle hums, etc.; isolates, identifies and replaces worn, broken or leaking parts; makes cost estimation of repairs and parts, and may recommend replacement of entire TV rather than repairs; makes minor modifications to equipment and instruments increasing the versatility or adaptability for greater application; lubricates or oils mechanical parts; cleans up work area; and determines and keeps a stock of frequently used parts and replacements.

2. Antennae Systems Maintenance: Installs, repairs and maintains community, master and/or neighborhood antennae systems for the reception of educational and newsworthy transmissions; determines cost, kind of equipment and hardware, location,

antenna direction, converters, etc., considering the geographical location of the installation, antennae configuration for gain, need for pre-amplification and distribution amplification of signals, quarter wave transformer for matching purposes, number of tapoffs, types of cables, distance of TV sets and monitors, etc.; insures proper matching of impedances between different equipment, antennae and cables by properly matching fixed items, adding loads and balancing of system through variable controls and adjustment screws; insures that antennae masts are properly secured by guy and anchor wires; insures that the system is protected from lightning by properly grounding the system at the mast and before entry into the house or building.

3. Closed-Circuit TV Maintenance: Installs, repairs and maintains a closed-circuit monochrome TV system generally consisting of camera with/without remote controls, intermediate devices and monitor; carefully performs a sequential readjustment of the operator controls before assuming some part of the system is defective; performs monitor adjustments and repairs before adjusting other controls using signal substitution to locate and isolate troubled components; performs adjustments in defective unit or circuit and, if still defective, identify, remove and replace defective parts and readjust unit or circuit; checks, adjusts and repairs camera video amplifier for proper frequency response using oscilloscope and video sweep generator or the test pattern technique; checks and adjusts built-in pulse and sync generators according to specified manufacturer's requirements (random or synchronized interlace); checks camera tube for burns, discolored areas and areas not responding to target or beam adjustments resulting in poor resolution, noise, poor contrast and other signs of weak tube; performs tests, replaces weak and burnt out camera tubes, and makes adjustments to target and sensitivity controls; troubleshoots intermediate devices such as switching matrix, sync generators, faders, distribution amplifiers, etc.; and checks and determines appropriateness of transmission cables, lines, etc.

4. Video Recorder/Player: Performs mechanical adjustments to the video recorder such as torque adjustments to take up reel and holdback tension, holdback tension clearance, capstan drive pressure, solenoid stroke, take-up wheel brake, etc., to prevent spillage, drum stall, etc.; replaces video heads observing proper positioning and contouring the head for proper and optimum head to tape contact; checks video tape output for optimum record head drive during the record mode using oscilloscope with the proper probe ratio; insures interchange quality by checking and adjusting the timing between control track pulses and video head position using an oscilloscope trigger and measure horizontal displacements; cleans entrance and exit guide pins, drum and cone surfaces which come into contact with the tape adjusting tape entrance and exit guides to obtain proper RF envelope while making repeated adjustments where such adjustments have interaction with others; checks and adjusts audio for proper biasing; checks and adjusts frequency response using an audio generator as the primary signal source and a VTVM for measuring proper tolerances; makes adjustments to VCO, servo, dropout,

modulator, playback phase, etc., following manual instructions as to procedures and results to be expected; installs and maintains cable systems to monitors and audio outputs; performs necessary circuit analysis, isolation of defective or trouble parts, and repairs to such circuits as modulator/demodulator, signal detection, dropout, servo, bias and oscillator, video head driver, RF pre-amplifier, recorder/player, audio, power supply, pilot adder and extractor, etc.

5. Tape Recorder/Player and Microphones: Performs necessary inspection, cleaning, repairs and modifications to these equipment following similar sequential testing procedures recommended by manufacturer's handbook, manual, etc., as well as other well-tested bench practices.

6. May drive and operate from a mobile electronic shop van.

Responsibilities:

Responsibilities of an incumbent at this level include responsible conduct of work while performing at various work sites, concern for the safety of others, proper and safe operations of electrical and electronic tools, equipment and instruments, and reasonably securing assigned equipment from damages, theft and fire. Incumbent is also expected to use judgment and discretion in establishing maintenance schedules, creating unnecessary classroom interruptions, purchasing of supplies, and in contact with the general public.

Subordinate-Supervisor Relationship:

Generally involves the resolution of difficult problems, providing assistance in securing parts, materials, additional help and other coordinative and administrative matters.

Guidelines Available:

Manufacturer's manual, analysis, diagrams and schematics; cross reference indices on interchangeable electronic parts, materials and units; other published materials and books on electronic troubleshooting procedures and analysis; departmental and central agency's rules and regulations on purchasing, disposition of surplus materials, etc.

Working Conditions:

Hazard of electrical shock up to 25,000 volts or more; exposure to toxic cleaning fluids; hazard of falling from ladder, roof top and other high places; works outdoors, as

well as indoors, such as on roof tops, classrooms, mobile shop van and other places; may be required to make trips to the neighbor islands in the performance of electronic repairs; and comes into contact with both public officials as well as private citizens.

Physical Effort:

Standing and working in cramped positions; may lift up to 100 lbs. or more occasionally; requires close visual work including a need for color perception and hearing; may be required to climb ladders and work on roof tops; and requires good hand-eye coordination.

Knowledge and Abilities Required:

Knowledge of: Theory of monochrome television (UHF and VHF) transmission and reception; audio amplification and recording; high-voltage sweep and pulse modulation circuits; power supply circuits; principles and practices of commercial neighborhood and/or master types of antennae systems; operation and care of various electronic testing and measuring instruments, tools and equipment such as wide band oscilloscope, signal sweep and audio generators, VTVM, ohmmeters, etc.; good maintenance and bench work practices.

Ability to: Observe, diagnose, isolate and pinpoint problems and nature of repairs required; read, comprehend and follow oral and written instructions and guidelines; operate specialized and general electronic testing and measuring instruments and equipment; learn new methods, techniques, operations and repair work on electronic equipment including mechanical repairs; exercise care, judgment and precaution in repairs, alignments and adjustment work to prevent damages to other persons, equipment, tools and facility's electrical line system.

TELEVISION TECHNICIAN II

8K.079

Duties Summary:

Duties of positions allocable to this class are concerned mainly with the installation, repair and maintenance of color and monochrome television transmitting and receiving equipment including community and/or master antennae systems.

Examples of Duties:

The following duties are typical but not necessarily all inclusive of the usual work cycle. Duties related to monochrome television closed-circuit TV systems, antennae

systems and camera repairs, maintenance and installation are identical to the class Television Technician I, 10.078, and are, therefore, not repeated.

1. Color TV Repair Work: Installs, maintains and repairs commercial-type color and monochrome television sets to receive educational and newsworthy programs; analyzes and determines first the proper and adequate operations of monochrome circuits of the set such as audio, tuner, video IF and detectors, vertical and horizontal syncs, AGC, etc.; after checking out the monochrome circuits, determines and analyzes from the presence/absence of desired or undesired colors, bars, dots, rainbow, etc., as to the probable causes of malfunctions in the circuits of burst amplifier, keyer, color killer, bandpass amplifier, demodulators, 3.58 oscillator and control, matrix, color (green, blue, red) amplifiers, and others using various testing and measuring instruments and equipment; identifies signal losses (I, Q, red, green, blue color sync), interferences (60-cycle hums) misalignments (hue, burst amplifier transformer, quadrature amplifier, IF coils, convergences, etc.) and other problems; isolates and pinpoints defective parts and packaged units through isolation technique and in-circuit testing for voltages, resistance, reluctance, wave forms, etc.; replaces defective parts, units, fixtures, etc., and checks for continued operational defects; restores television set to fully operative level including final alignments of convergence, color purity, contrast, brightness, etc.; and makes cost estimates of repair, labor and materials.

2. Antennae Systems: Duties are similar to grade 1 level except for determining needs for addition stacking of antenna, antenna with more elements, and other configurations to insure sufficiently good signal for color reception.

3. Closed-Circuit TV: Installs, repairs and maintains closed-circuit monochrome and color TV systems consisting of camera, intermediate devices (fader, matrix, sync generators, etc.), audio tape recorder/player, microphones, video recorder/players, monitors and/or commercial-type TV sets and other components; estimates and determines labor and equipment cost of installing additional components or new closed-circuit TV systems including multiple channel network; trains responsible school official and students in the proper operation and uses of closed-circuit TV equipment; establishes periodic maintenance checks and repair schedules; keeps records on maintenance frequency and costs; recommends replacement of components such as TV sets, monitors, cameras, tape recorders, etc. Camera Train and Intermediate Devices: performs necessary operator's check to ascertain trouble is in the system and not that of misadjustments; follows manufacturer's directions in sequential adjustments and tests of various circuits such as matrixing unit, band-pass filters, modulators, sync and blanking unit, frequency dividers generator, delay units, burst gate, adder sections, etc.; makes adjustments, replacements or returns to the manufacturer as directed by instructions especially those parts requiring sophisticated and expensive test/calibrating instruments; and inspects and repairs worn out or broken parts, cables, wires, etc.

Responsibilities:

Responsibilities at this level include application of sound judgment in establishing a good maintenance schedule, avoiding unnecessary classroom interruptions, keeping costs within reasonable limits, determining the best repair procedure, responsible conduct of work while performing at various work sites and insuring the safety of others. Incumbent is also responsible for reasonable safekeeping of assigned tools, equipment, vehicles, etc., from theft, damages and fire.

Supervisor-Subordinate Relationship:

Generally involves the resolution of difficult problems, providing assistance in securing parts, materials, additional help, and other coordinative and administrative matters.

Guidelines Available:

Manufacturer's manual, analysis, diagrams and schematics; cross reference indices on interchangeable electronic parts, materials and units; other published materials and books on electronic troubleshooting procedures and analysis; departmental and central agency's rules and regulations on purchasing, disposition of surplus materials, code of conduct, safekeeping of governmental property and equipment, etc.

Working Conditions:

Hazard of electrical shock up to 25,000 volts or more; exposure to toxic cleaning fluids; hazard of falling from ladder, roof tops and other high places; works outdoors as well as indoors such as on roof tops, classrooms, shops, mobile shop vans, school grounds, etc.; may be required to make trips to the neighbor islands in the performance of installing or repairing electronic equipment and antennae systems; and comes into contact with both public officials, students and private citizens.

Physical Effort:

Standing and working in cramped positions, may lift up to 100 lbs. or more occasionally; requires close visual work including a need for color perception and hearing; may be required to climb ladders and work on roof tops; and requires a good hand-eye coordination while working with small tools, parts, probes, etc.

Knowledge and Abilities Required:

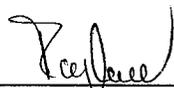
Knowledge of: Theory of monochrome and color television (VHF and UHF) transmission and reception; audio and video amplification and recordings; high-voltage sweep circuits; power supply circuits; principles and practices of commercial, neighborhood or master antenna types of system; operation and care of various electronic testing, measuring, recording, etc., equipment, instruments, tools, etc., such as wide band oscilloscope, signal and audio generators, color bar-dot-rainbow generators, VTVM, ohmmeters, sweep generators, capacitance checkers, tube testers, etc.; good maintenance and shop repair practices.

Ability to: Observe, diagnose, isolate and pinpoint problems and nature of repairs required; read, understand and follow oral and written instructions and guidelines; operate specialized and general electronic testing and measuring instruments and equipment; learn new methods, techniques, operations and repair work on electronic equipment including mechanical repairs; exercise considerable care, judgment and precaution in repair, alignment and adjustment work to prevent damages to equipment, tools, other persons, facility's electrical line system and to minimize loss of technical time.

Due to the transfer of authority to the Department of Education to administer its own Civil Service System pursuant to Act 51 Session Laws of Hawaii 2004, this is an adoption of the class specifications for the Executive Branch Civil Service class TELEVISION TECHNICIANS I & II by the Department of Education Civil Service system.

DATE APPROVED: OCT 31 2006

EFFECTIVE DATE: JUL 1 2005



for Gerald Okamoto
Assistant Superintendent
Office of Human Resources