WORK PROCESS SCHEDULE OUTLINE

Occupational Title: **Outdoor Power Equipment Technician**
DOT Code: **625.281034**
RAIS Code: **0525**
Mission Statement:

Provide dealerships and their service staff with an educational tool focused on "growth and professional development" of well-qualified technical staff dedicated to the highest levels of quality, service, and profitability...

Occupational Description

Outdoor Power Equipment Technician: Assemble operate and inspect equipment, analyze malfunctions and defects, disassemble, repair, rebuild, test and maintain equipment utilizing diesel and/or gas [both 2 & 4 cycle including those equipped with electronic control engine management systems (EFI)] driven internal-combustion engines, gear or hydrostatic transmissions, differentials and final drives, hydraulic power assist systems, clutch assemblies, electrical and hydraulic control systems such as those found on compact tractors (under 40 horsepower), commercial landscape equipment, light construction and forestry equipment in addition to that equipment meant for home owner use which could include generators and air compressors. Utilizing available diagnostic, technical information, schematics, precision measuring devices [such as micrometers and gauges] and may include the use of pneumatic tools, hoists and welding equipment.

Federal and State Certification: As part of the 0824-C apprentices will demonstrate prior to completion of all federal and approved state training and competency requirements for certified Outdoor Power Equipment Technicians. At a minimum these will include at least 4900 hours of training including 4475 hours of practical training both in and outside of the workplace.

Term: Competency Based (4475 Minimum Hours)

On the Job Training:

The following competency areas have been identified to lend focus and direction to the professional development of Outdoor Power Technician. The apprentice must demonstrate competency skills across all competency areas and related course work before receiving certification.

The order of work in which the apprentices learn will be determined by the flow of work on-the-job and will not necessarily be in the order listed. Times allotted to these various processes are estimated for the average apprentice to learn each phase of the occupation and demonstrate competency. They are intended only as a guide to indicate the quality of training being provided and the ability of an apprentice to absorb this training in an average amount of time.

Competencies **Approximate Hours (min/max)**

A. Communication, Problem Solving and Organizational Skills 300-400Hrs

- Communicates clearly, honestly and appropriately with co-workers, management and customers
- Uses patience and effective communication skills when dealing with difficult situations
- Demonstrates respect for customers and co-workers
- Communicates in a non-judgmental manor
- Demonstrates organizational skills and effective time management – i.e. diagnosis potential defects, organizes tools, disassembly, identification of replacement parts and supplies in a manor necessary for timely completion of work (prevents back-tracking)
- Recognizes problems – knows who and when to ask for help
- Demonstrates active listening skills and clarification of communications
- Respects customer perceptions without judgment – customer service skills
- Completes documentation in a prompt and professional manner

B. Orientation 450-500 hrs

- Learns the appropriate use of tools and equipment
- Learns the appropriate names of parts (nomenclature)
- Fundamentals of engine function and operation
  - 2 – cycle
  - 4 – cycle
  - Diesel
- Fundamentals of schematics, technical reference materials, specifications to include terminology, symbols, diagrams, prints and schematics
- Fundamentals of Fuels, lubricants and coolants
- Safety observance
  - Lock out - tag out
  - OSHA
  - EPA
  - MSDS
  - Material handling and recycling requirements
  - Maintenance of Safety Equipment
- Trade periodicals study

C. Materials, Parts and Nomenclature 100-200 Hrs

- Identification of repair part numbers
- Proper use of both “hard’ and/or “soft” copy service manuals and parts Schematics
- Proper ordering, accounting and billing procedures

D. Assembly 300-400 Hrs

- Follow provided instruction manuals and procedures
- Interpret critical clearance and specifications ensuring all measurements on assembled equipment fall within the criteria
- Operate and test equipment ensuring proper function and performance
- Ensure that all procedures and requirements have been met and the equipment is fully functional – ready for delivery

E. Engines **1500-2000 Hrs**

a. Two Cycle

- Master diagnostic and engine analysis procedures and equipment
- Engine disassembly
- Identification of worn “out of spec” parts
- Cylinder reconditioning (honing) and or replacement
- Reassembly of engine and related systems according to manufacturer specifications
- Testing and adjustment for proper performance

b. Four Cycle

- Master diagnostic and engine analysis procedures and equipment
- Engine disassembly
- Refacing , reseating and grinding of valves
- Cylinder reconditioning (reboring and honing)
- Identification and replacement of worn “out of spec” parts
- Reassembly of engine and related systems (fuel, electrical, ignition, and lubrication) according to manufacturer specifications
- Testing and adjustment necessary for proper performance

c. Liquid Cooled and or Multi-cylinder

- Master diagnostic and engine analysis procedures and equipment
- Engine disassembly
- Identification and replacement of worn “out of Spec” parts
- Value, timing, Crank and Cam shaft reconditioning as necessary
- Cylinder reconditioning (reboring and or honing)
- Reassembly of engine and related systems (fuel, electrical, ignition, and lubrication) according to manufacturer specifications
- Testing and adjustment of Ignition, fuel, starting and electrical systems and controls
- Repair and or replacement of cooling system components as necessary

d. Diesel

- Master diagnostic and engine analysis procedures and equipment
- Engine disassembly
- Identification and replacement of worn “out of Spec” parts
- Value, Crank and Cam shaft reconditioning as necessary
- Cylinder reconditioning (reboring and or honing)
- Reassembly of engine and related systems (fuel, electrical, ignition, and lubrication) according to manufacturer specifications
- Testing and adjustment of Ignition, Injection Pump timing, fuel delivery components, starting and electrical systems and controls
- Repair and or replacement of cooling system components as necessary

F. Power transmission **400-500Hrs**

- Master diagnostic and analysis trouble shooting procedures and equipment
- Repair or Replacement of both wet and dry clutches
- Single and multi-stage converters
- Repair or replacement Drive Shaft and Universal Joint components
- Hydrostatic systems to include pumps, valves and controls

- Mechanical gear driven components (final drives and differentials)
- Inspect, repair, adjust and replace as necessary components within belt and pulley systems

G. Electric motors and Generators 300-400 Hrs

- Master diagnostic and analysis and procedures and equipment
- Inspect, test and or replace armatures, brushes, communicators voltage regulators, starting and charging systems
- Test fields, grounds and wiring
- Ensure proper function and lubrication

H. Diagrams and Schematics 250-300 Hrs

- Identification and interpretation of symbols used within Diagrams and schematics
- Master interpretation of Electrical systems diagrams and schematics
- Master interpretation of Hydraulic systems diagrams and schematics

I. Welding & Cutting 25-50 Hrs

- Master electrical welding equipment to include Arc, Tig and Mig systems
- Master Gas welding and cutting equipment

J. Power Take off Units and Hydraulic systems & pumps 350-400 Hrs

- Master diagnostic procedures and testing
- Disassemble, inspect Drive shaft, Joint and associated components
- Inspect repair and or replace Joint, Drive shaft, hoses, Cylinders, Values, tubing and connections
- Assemble replacement hose and fittings

K. General Equipment Care and Maintenance 400-450 Hrs

- Research and institute procedures for required Periodic Service [Establish and master a system “check list” of inspection and equipment evaluation ensuring all PM items are addressed
- Intervals such as:
    - Inspect and maintain fuel systems (filters and mixtures)
    - Inspect and maintain lubrication and cooling systems
    - Inspect and maintain cutting systems
    - Inspect and maintain brake systems
    - Inspect and maintain electrical and safety systems

L. Shop Equipment and House keeping 100-200 Hrs

- Master proper use and care of provided shop tools, diagnostic equipment
- Practice good house keeping procedures
- Practice respect and consideration for fellow technicians and their policy regarding personal tools, etc.