

# SERVICE LEVEL CHECKS

## ANNUAL PLANNED MAINTENANCE

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### LEVEL 1 INSPECTION – TO BE PERFORMED ANNUALLY

#### ENGINE ELECTRICAL (STARTING SYSTEM)

- **Batteries** – Check battery water level, age, specific gravity & perform load test. Clean batteries externally including cables & posts.
- **Alternator** – Visually inspect alternator & alternator belt. Measure & record alternator DC voltage output.
- **Glow Plugs** (where applicable) – Check for proper operation.
- **Battery Charger** – Visually inspect, measure & record DC voltage output.
- **Starting Motor** – Visually inspect, test for proper operation (Performed during engine start).
- **Spark Plugs** (where applicable) – Check spark plugs & spark plug wires condition & annotate recommendations for repair or replacement.
- **Distributor Cap** – (where applicable) – Inspect. Annotate recommendations for repair or replacement.

#### GENERATOR

- **Windings** – Visually inspect windings.
- **Bearings** – Inspect for proper lubrication.
- **Brushes/Diodes** – Visually inspect for wear.
- **Leads/Connections** – Visually inspect for wear.
- **Circuit Breaker** – Test for proper operation.
- **Mounts/Bolts** – Visually inspect for wear and/or damage.
- **Noise** – Annotate operational noise indicators of mechanical malfunctions.

#### SAFETY CONTROLS / CONTROL PANEL

- **Voltage** (where applicable) – Measure & record loaded & unloaded AC voltage.
- **Frequency** (where applicable) – Measure & record loaded & unloaded Hertz frequency.
- **Amperage** (where applicable) – Measure & record loaded amperage.
- **Auto Start/Stop** – Check for proper operation. If allowed, check for automatic start.
- **Shutdowns** – Visually inspect for wiring deterioration. Verify proper operation of shutdowns.
- **Pre-alarms** – Verify proper annunciation of pre-alarms.
- **Remote Annunciator** (where applicable) – Inspect for proper operation.

#### INSTRUMENTATION

- **Oil Pressure Gauge** – Check for proper operation. Measure & record oil pressure PSI.
- **Water Temperature Gauge** – Check for proper operation. Measure & record water temperature in degrees Fahrenheit.
- **Ammeter** - Check for proper operation. Measure & record amperage in DC amps.
- **AC Electric Meters** - Check for proper operation. Measure & record readings.
- **Control Panel Wiring** – Visually inspect for signs of wear & correct observed loose connections.

#### AIR INDUCTION & EXHAUST

- **Precleaner** – Visually inspect condition & clean when necessary.
- **Air Filter** – Inspect & clean air filter. Recommend replacement when necessary. Note condition of filter housing.
- **Intake** – Visually inspect & note condition of intake piping & gaskets.
- **Turbocharger** – Visually inspect turbocharger for leaks, physical condition, & annotate auditory indicators of wear.
- **Exhaust/Silencer** – Visually inspect for leaks & proper operation including rain cap (where applicable). Annotate anomalies in exhaust smoke.

## LUBRICATION SYSTEM

- **Lubrication Oil** – Check for proper oil level.
- **Crankcase Breather** – Clean breather (where applicable). Annotate condition & any excessive blow by.
- **Governor** – Check oil level.
- **Tubes, Lines, Seals & Gaskets** – Visually inspect for deterioration or indications of wear.

## COOLING SYSTEM

- **Radiator** – Visually inspect radiator core condition, annotate indications of coolant leakage or core blockage. Check coolant level.
- **Radiator Cap** – Check for indications of wear.
- **Coolant** – Measure & record antifreeze freeze point & PH level.
- **Hoses** – Visually inspect hoses, clamps, gaskets & connections.
- **Fan Assembly** – Visually inspect fan, fan bearing, pulleys & belts for indications of wear. Measure belt tension for proper operation.
- **Water Pump** – Visually inspect for proper operation, leaks, or audible indications of wear.
- **Jacket Water Heater** – Inspect for proper operation, indication of wear on heater & associated hoses & clamps.
- **Thermostat** – Check for proper operation

## FUEL SYSTEM

- **Fuel Lines & Connections** – Visually inspect for proper operation & indications of deterioration.
- **Priming Pump** (where applicable) – Verify proper operations & inspect for seal damage or deterioration.
- **Fuel Filters** – Visually inspect for damage, leaks, & proper operation.
- **Governor & Controls** – Inspect controls & linkage for proper operation.
- **Carburetor/Mixer** – Visually inspect & verify proper operation.
- **Day Tank/Fuel Cell** – Visually inspect for leaks & check for proper operation. Make note of water in fuel cell & level of fuel.

## ATS

- **Wiring & Contacts** – Visually inspect.
- **Connections Temp.** – Check temperature of connections with infrared temperature gun.
- **Contactors Operation** – If allowed, perform simulated power failure to test operation of contactor.
- **Timers & Controls** – Observe all time delays during simulated test.

## LEVEL 2 INSPECTION & ENGINE SERVICE – TO BE PERFORMED ANNUALLY

### INCLUDES ALL SERVICES IN LEVEL 1 INSPECTION

- **Fuel System** – Fuel filter & fuel/water separator filter replacement. Check for proper seal & operation.
- **Lubricating System** – Replace oil filters. Inspect all gaskets & seals. Remove existing lubricating oil & dispose. Fill with fresh engine oil, Oil sampling analyzed by independent laboratory.
- **Generator** – Lubricate bearings if applicable.

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