

## LOG OF OPERATION FOR STAND-BY ENGINE SETS

### 1. GENERAL

**1.01** This section provides for keeping a chronological log for all stand-by engine sets, stationary and portable. A full, up-to-date record should be kept of stand-by engine operation, performance, and maintenance activity.

**1.02** It is reissued to update the Engine Run Log, Form E 5697-PAC.

*Note:* Marginal arrows used to denote changes are omitted.

**1.03** A well-kept log provides an important and continuing record of satisfactory engine performance as well as indications of developing problems. The information recorded will provide a reference for diagnosis of troubles or abnormal performance and will indicate need for corrective action before failure or damage occurs.

**1.04** In general, the log should record all engine runs whether routine or emergency with reason for emergency runs. The performance of the engine set during runs should be recorded as indicated by instrument readings such as output voltage and current, frequency, KW load, water temperature, lube oil pressure, etc.

**1.05** It is recommended that the engine run log be kept with the engine so that it is available at any time the engine is used or inspected. A copy of the annual extended run should be forwarded to the Equipment Power Maintenance Staff for review of engine performance and loading.

**1.06** The complete log will also note inspection observations and maintenance activity such as leaks of fuel, lube, water or exhaust in engine or piping and action taken to eliminate them; repairs, replacement, or adjustments made such as fuel pump replaced, quarts of lube oil added, filters changed, lube sample sent for analysis, etc.

### 2. ENGINE RUN LOG

**2.01** A performance record of all engine set runs should be kept on front of Form E 5697-PAC shown in Exhibit 1. File completed forms in the Power Log book, under the tab marked E 5697-PAC Record of Engine Runs.

**2.02** First readings should be taken 5 minutes after load is applied. Thereafter, take readings at 30-minute intervals, and just prior to removal of load and shutdown.

**2.03** Much of the data recorded will, of course, depend on the particular engine set and the instruments provided. Use those headings which are applicable.

**2.04** The log headings are generally obvious and indicate the data to be recorded. Present turbine engines have a thermometer to read exhaust gas temperature. It is also desirable to record temperature of air to the compressor inlet. If not so equipped, a thermometer should be provided in the intake air duct.

**2.05** Record the cumulative total hours that the turbine is operated. One reading, when set is shut down, is satisfactory.

**2.06** Current unbalance between phases is not normally critical, unless one or more of the following conditions exist:

- Excessive mechanical vibration or severe audible hum
- Voltage between phases greater than 1%
- Current unbalance between phases exceeds 10% of full load current.

**2.07** In locations with more than one engine operating in parallel, the information for engine

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## SECTION 155-002-010PT

1, 2, etc, shall be on consecutive lines for each reading. A line shall be skipped between *readings* but not between *engines*.

### 3. DIARY OF OBSERVATIONS AND DEMAND MAINTENANCE ACTIVITY

**3.01** In addition to running characteristics as indicated by instruments, it is important to record a diary of events associated with and affecting overall engine operation. Such a record will support indication of satisfactory performance or serve as a basis for accurate diagnosis of abnormal operation.

**3.02** Notations of observation and maintenance activity concerning the engine should be made in the Power Log book under the appropriate sections. Tabs are provided for Engine Fuel and Fuel Tanks, Crankcase Oil Analysis Forms, and Engine Troubles. The date and/or engine hour meter readings should be recorded with all log notations.

**3.03** Examples of observations and generally unscheduled maintenance activity which should be logged include the following:

#### FUEL SYSTEM

- Gallons and type of fuel purchased
- Fuel inhibitor added
- Fuel sample analysis
- Fuel strainers drained and cleaned
- Filters replaced

#### LUBRICATING SYSTEM

- Lube oil sample analysis
- Lube oil added
- Filters replaced
- Strainers drained or cleaned
- Crankcase drained and flushed

#### COOLING SYSTEM

- Makeup water added
- Water sample analysis
- Cooling system drained and refilled
- Antifreeze or rust inhibitor added

#### GENERAL

- Air filters cleaned or replaced
- Color of engine exhaust
- Governor oil replaced
- Adjustments changed
- Parts replaced and reason
- Tightening of bolts or fittings, etc.
- Troubles and corrections

### 4. THE PORTABLE ENGINE AND THE REMOTE ENGINE

**4.01** It is emphasized that keeping a log for portable engines is most important. Since these sets are generally "out of sight" and not stored at central office locations, a complete log is the only indication of adequate supervisory attention.

To prove the capability of the portable engine set under dynamic load conditions as well as the connecting arrangements provided, it is advantageous to connect the mobile unit to the various office loads to which it is assigned on a routine rotational basis.

**4.02** The automatic stationary engines at unattended locations such as carrier or repeater stations are routined generally either with a local timer programmed for weekly runs or on a remote start basis from the supervising office. It is important, therefore, that these engines should be run during scheduled station visits to observe the sets under load conditions and record performance characteristics in the log.



