Aircraft Engine Characteristics Summary

**TURBO-JET.........XJ40-WE-1**

![Engine Diagram]

**Westinghouse**
Spec. WAGT-X40E3A-1C
Revised 14 Aug 53
(Not approved)

### FEATURES
The XJ40-WE-1 is an axial flow turbo-jet expendable engine having a split inlet air duct and a symmetrical gear box mounted at the vertical centerline between the air inlet ducts. Incorporates an afterburner for auxiliary augmentation. Similar to the Navy XJ40-WE-8 except for installation modifications.

### AVAILABILITY
- Engine Mock-up Inspection .... May 1951
- Experimental Engine .......... Aug 1952
- Mock-up for Airplane .......... Jun 1951
- Installation Engine .......... Feb 1953
- 50 Hr. Preliminary Rating Test None
- 150 Hr. Qualification Test .... (SEE STATUS)

### PROCUREMENT
NUMBER TO BE DELIVERED DURING FISCAL YEAR

### CONTRACTUAL

<table>
<thead>
<tr>
<th>Contract</th>
<th>Qty</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIPR-49-235N</td>
<td>16</td>
<td>$217,578</td>
</tr>
<tr>
<td>CSOA-52-995</td>
<td>14</td>
<td>217,578</td>
</tr>
</tbody>
</table>

### STATUS
Experimental, 1st engine delivered in February 1953. Qualification of these engines based upon completion of qualification test of the Navy XJ40-WE-8.

### GENERAL
- Compressor: Axial, single, 11-stage
- Max Design Pressure Ratio/SLS: 4:6:1
- Turbine: Axial, reaction, two-stage
- Combustion Chambers: Single, annular
- Exhaust Nozzle: Variable area, 360-726 sq in.
- Max Rated Thr Turbine Inlet Temp: 1440°F
- Fuel: JP-4
- Oil: Grade 1010
- Ignition: Basic engine - Low tension, electric; Afterburner - Hot streak
- Power Control: Hydraulic with electronic trim of exhaust nozzle area
- Max Rated Thrust Airflow: 141 lb/sec

### SIZE & WEIGHT
- Length: 287.0 in.
- Width: 41.5 in.
- Height: 43.0 in.
- Diameter: 40.9 in.
- Weight (dry): 3550 lb

### UTILIZATION
- X-10 Test Vehicle
### Performance

<table>
<thead>
<tr>
<th>RATING</th>
<th>THRUST (lb)</th>
<th>RPM</th>
<th>SFC (lb/lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum (60 min)</td>
<td>10,900 (WAB)</td>
<td>7280</td>
<td>2.700 (WAB)</td>
</tr>
<tr>
<td>Military (60 min)</td>
<td>7250</td>
<td>7280</td>
<td>1.073</td>
</tr>
<tr>
<td>Normal (cont)</td>
<td>6500</td>
<td>7280</td>
<td>1.035</td>
</tr>
<tr>
<td>90% normal thrust</td>
<td>5856</td>
<td>7280</td>
<td>1.020</td>
</tr>
<tr>
<td>75% normal thrust</td>
<td>4880</td>
<td>7050</td>
<td>1.025</td>
</tr>
<tr>
<td>Idle</td>
<td>450 (max)</td>
<td>3000</td>
<td>4.000</td>
</tr>
</tbody>
</table>

### Guaranteed Operating Limits
- Absolute Alt. 60,000 ft.
- Operational Alt. (SEE NOTE 1)
- Max Starting Alt. (SEE NOTE 1)
- Limiting Mach. Number at Sea Level Standard Conditions: 1.0

### Estimated Performance at 35000 Feet and 100% RAM Efficiency

<table>
<thead>
<tr>
<th>RATING</th>
<th>AIRSPEED 500 KN</th>
<th>MAX AIRSPEED 1075 KN</th>
</tr>
</thead>
<tbody>
<tr>
<td>THRUST (lb)</td>
<td>SFC (lb/lb/hr)</td>
<td>THRUST (lb)</td>
</tr>
<tr>
<td>SFC (lb/lb/hr)</td>
<td></td>
<td>SFC (lb/lb/hr)</td>
</tr>
<tr>
<td>Maximum (60 min)</td>
<td>4825 (WAB)</td>
<td>2.310 (WAB)</td>
</tr>
<tr>
<td>Military (60 min)</td>
<td>2850</td>
<td>1.235</td>
</tr>
<tr>
<td>Normal (cont)</td>
<td>2540</td>
<td>1.213</td>
</tr>
</tbody>
</table>

### NACA Standard Temperature & Pressure

### Notes

**NOTE 1:** Operational altitude for basic engine is 60,000 feet; for afterburner, 50,000 feet.
Max starting altitude for basic engine and the afterburner is 40,000 feet.