## Aircraft Engine Characteristics Summary

**RAM-JET........... XRJ47-W-3**

**NONE**

### FEATURES

A supersonic fixed geometry ram-jet with air turbine driven fuel pump and power controls located in the diffuser centerbody. Same as -1 except that diffuser has been compromised to assure stable operation at lower Mach numbers.

### AVAILABILITY

- Experimental Engine: Oct 1951
- Installation Engine: Apr 1952

### CONTRACTUAL

<table>
<thead>
<tr>
<th>Contract</th>
<th>Funds</th>
<th>FY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-20179</td>
<td>$246,962</td>
<td>1948</td>
</tr>
<tr>
<td>AC-20179 S-2 (S-49-320)</td>
<td>917,689</td>
<td>1949</td>
</tr>
<tr>
<td>AF-9000</td>
<td>1,430,638</td>
<td>1950</td>
</tr>
<tr>
<td>AF-9000 S-1, S-2</td>
<td>954,849</td>
<td>1951</td>
</tr>
<tr>
<td>AF-22980 S-6, S-8</td>
<td>776,504</td>
<td>1953</td>
</tr>
<tr>
<td>AF-22980</td>
<td>974,500</td>
<td>1955</td>
</tr>
</tbody>
</table>

### PROCUREMENT

**NUMBER TO BE DELIVERED DURING FISCAL YEAR**

### STATUS

No specification will be required. Currently used in flight testing of the X-7 test vehicle. All -1's (2) have been converted to -3 configuration.

### GENERAL

- Diffuser: Centerbody type with single external oblique shock
- Area Variable: No
- D.P. Total Pressure Recovery: 61%
- Combustion Chamber: Multi-piloted gutters
- Inside Dia at Combustion Chamber Entrance: 20 in.
- Ignition Limits: ---
- D.P. Combustion Efficiency: 89%
- Exhaust Nozzle: Fixed, throat area = 1.74 sq ft

- D.P. Nozzle Efficiency: 98%
- Ignition: Flare
- Fuel Injection: Variable area nozzles
- Thrust Control: Variable F/A
- Fuel: JP-4
- Accessory Drive Provisions: Air turbine driven fuel pump

### SIZE & WEIGHT

- Length (overall): 143.4 in.
- Diameter (outside): 21.8 in.
- Weight (w/access): 549 lb

### UTILIZATION

One XRJ47-W-3 being used to power the X-7 test vehicle.
CONFIDENTIAL

Performance

ESTIMATED DESIGN POINT PERFORMANCE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mach number</td>
<td>2.55</td>
</tr>
<tr>
<td>Altitude</td>
<td>35,000 ft.</td>
</tr>
<tr>
<td>Net thrust</td>
<td>2950 lb.</td>
</tr>
<tr>
<td>Specific fuel consumption</td>
<td>3.55 lb/lb/hr.</td>
</tr>
</tbody>
</table>

NACA STANDARD TEMPERATURE & PRESSURE
35,000 FEET ALTITUDE

NOTES

NOTE 1: All performance based on empirical component test results, and 90% combustion efficiency as defined by temperature rise ratio.