Standard Aircraft Characteristics

NAVY MODEL
AF-9J
AIRCRAFT
(TITLE UNCLASSIFIED)

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PUBLISHED BY DIRECTION OF THE
COMMANDER OF THE NAVAL AIR SYSTEMS COMMAND

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1 JULY 1967
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NAVAIR 00-110AF9-5

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A

UNCLASSIFIED
STANDARD AIRCRAFT CHARACTERISTICS

AF-9J COUGAR

GRUMMAN
POWER PLANT

NO. & MODEL .................. (1) J85-F-6A
SNR. .................. Pratt & Whitney
TVFR. .................. Centrifugal Compressor
ENGINE LENGTH .................. 110°
ENGINE DIA. .................. 51°

RATINGS

LEG.  "  SWP  "  ALT.
T.O.  7,250  11,000  S.S.L.
MIL.  7,250  11,000  S.S.L.
NONL.  5,500  10,400  S.S.L.

Spec. P.M. No. NY6-4D Appendix B

MISSION AND DESCRIPTION

The FW-26 is a single seat, swept wing, carrier based airplane whose primary purpose is carry special weapon stores. This airplane is the development of the FW-24. Improvements are increased wing area, flap area, fuel capacity and a cambered leading edges. A pressurized cabin with temperature control and an ejection seat, is installed. The guns and radar are accessible by sliding the nose forward. A nose boom is installed for in-flight refueling.

The airplane is controlled longitudinally and laterally by hydraulically operated surfaces and directionally by a mechanically operated surface. Lateral control is provided by means of flap and lateral trim by a wing tip trimmer flap. Longitudinal control is provided by an all moveable stabilizer and the conventional manual elevator which is used for flap down and emergency flight conditions. Longitudinal trim is accomplished by moving the entire stabilizer.

DEVELOPMENT

First Production .................. January 1954
Service Use .................. October 1954

WEIGHTS

LOADING LBS.  LBS.  LBS.
EMPTY .................. 11,060
BARE .................. 12,076
BARE INCL. O.S.  16,780  7.0
CANNON .................. 17,545  7.0
MIL. T.O. (Field)  24,703
(Gal.)  24,763
MAX. L.O.G. (Field)  26,793
(Arrest.)  17,613

All Weights are Actual.

FUEL AND OIL

CALS.  NO. TANKS  LOCATION
647  2  Fuselage
236  6  Wing
300  2  Wing Droppable

FUEL GRADE .................. J-4
FUEL S/N/D .................. Applicable MIL-P-5624

OIL

CAPACITY [GALS] .................. 3.25
GRADE .................. 1010
SPEOC .................. Applicable MIL-O-4681

ORDNANCE

GUNS
4 - 20mm M-3 Nose, 760 Rds.

FIRE CONTROL

ADS 30-1
ACPS Mk. 6 Mod. 3
Radar Arm/AFC-30A
Cape ARO 195

EXTERNAL STORES PROVISIONS

KIND  STA  BACK  CAPABILITY
7L  Aero  150 Fuel Pack
7L  Aero  65A
(All)  25A  Mk. 12 Bomb

DIMENSIONS

ARM.  AREA .................. 137 Sq. Ft.
SPAN .................. 34°  - 6°
MAC. .................. 10°  - 6°
SAAEAGE .................. 90°
LENGTH .................. 41°  - 9°
HEIGHT .................. 12°  - 3°
TREAD .................. 8°  - 3°
### PERFORMANCE SUMMARY

#### TAKE-OFF LOADING CONDITION

<table>
<thead>
<tr>
<th>Description</th>
<th>Clean Fly, 2 Racks</th>
<th>Clean Fly, 2 Racks + 1 MB-12 Store</th>
<th>Clean Fly, 2 Racks + 1 MB-12 Store + 1 Rack</th>
<th>Clean Fly, 2 Racks + 1 MB-12 Store + 1 Rack + 1 Rodeo Drop Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take-off Weight</td>
<td>1 lb.</td>
<td>22,575 lb.</td>
<td>22,575 lb.</td>
<td>22,575 lb.</td>
</tr>
<tr>
<td>Fuel</td>
<td>1 lb.</td>
<td>6,930 lb.</td>
<td>6,930 lb.</td>
<td>6,930 lb.</td>
</tr>
<tr>
<td>Fay load</td>
<td>1 lb.</td>
<td>1,596 lb.</td>
<td>1,596 lb.</td>
<td>1,596 lb.</td>
</tr>
<tr>
<td>Wing loading</td>
<td>1 lb./sq. ft.</td>
<td>66.9 lb./sq. ft.</td>
<td>66.9 lb./sq. ft.</td>
<td>66.9 lb./sq. ft.</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td></td>
<td>123.2 ft./sec.</td>
<td>123.2 ft./sec.</td>
<td>123.2 ft./sec.</td>
</tr>
<tr>
<td>Take-off run at S.L. - calms</td>
<td>ft.</td>
<td>5,330</td>
<td>5,330</td>
<td>5,330</td>
</tr>
<tr>
<td>Take-off run at S.L. - 25 knots</td>
<td>ft.</td>
<td>3,690</td>
<td>3,690</td>
<td>3,690</td>
</tr>
<tr>
<td>Take-off to clear 50 ft. - calms</td>
<td>ft.</td>
<td>6,450</td>
<td>6,450</td>
<td>6,450</td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>(a)</td>
<td>520/10,000</td>
<td>520/10,000</td>
<td>520/10,000</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>(a)</td>
<td>3,640</td>
<td>3,640</td>
<td>3,640</td>
</tr>
<tr>
<td>Time: S.L. to 20,000 ft.</td>
<td>(a)</td>
<td>6.5</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Time: S.L. to 30,000 ft.</td>
<td>(a)</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Service ceiling (100 fps)</td>
<td>(a)</td>
<td>36,600</td>
<td>36,600</td>
<td>36,600</td>
</tr>
<tr>
<td>Combat radius</td>
<td>n.m.</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>km.</td>
<td>443</td>
<td>443</td>
<td>443</td>
</tr>
<tr>
<td>Cruising altitude</td>
<td>ft.</td>
<td>32,900/41,500</td>
<td>32,900/41,500</td>
<td>32,900/41,500</td>
</tr>
<tr>
<td>Combat radius</td>
<td>n.m.</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>km.</td>
<td>427</td>
<td>427</td>
<td>427</td>
</tr>
<tr>
<td>Mission time</td>
<td>hrs.</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Fuel added in flight at distance out</td>
<td>lbs./min.</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

#### COMBAT LOADING CONDITION

<table>
<thead>
<tr>
<th>Description</th>
<th>Clean Fly, 2 Racks</th>
<th>Clean Fly, 2 Racks + 1 MB-12 Store</th>
<th>Clean Fly, 2 Racks + 1 MB-12 Store + 1 Rack</th>
<th>Clean Fly, 2 Racks + 1 MB-12 Store + 1 Rack + 1 Rodeo Drop Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take-off Weight</td>
<td>1 lb.</td>
<td>19,160 lb.</td>
<td>19,160 lb.</td>
<td>19,160 lb.</td>
</tr>
<tr>
<td>Fuel</td>
<td>1 lb.</td>
<td>4,762 lb.</td>
<td>4,762 lb.</td>
<td>4,762 lb.</td>
</tr>
<tr>
<td>Combat speed/altitude</td>
<td>km./sec.</td>
<td>554/s.L.</td>
<td>554/s.L.</td>
<td>554/s.L.</td>
</tr>
<tr>
<td>Rate of climb/altitude</td>
<td>(a)</td>
<td>546/15,000</td>
<td>546/15,000</td>
<td>546/15,000</td>
</tr>
<tr>
<td>Combat ceiling (500 fps)</td>
<td>ft.</td>
<td>41,700</td>
<td>41,700</td>
<td>41,700</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>(a)</td>
<td>3,460</td>
<td>3,460</td>
<td>3,460</td>
</tr>
<tr>
<td>Max. speed at S.L.</td>
<td>km.</td>
<td>514</td>
<td>514</td>
<td>514</td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>(a)</td>
<td>532/17,000</td>
<td>532/17,000</td>
<td>532/17,000</td>
</tr>
<tr>
<td>Landing Weight</td>
<td>1 lb.</td>
<td>14,790 lb.</td>
<td>14,790 lb.</td>
<td>14,790 lb.</td>
</tr>
<tr>
<td>Fuel</td>
<td>1 lb.</td>
<td>1,362 lb.</td>
<td>1,362 lb.</td>
<td>1,362 lb.</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>km.</td>
<td>95.9</td>
<td>95.9</td>
<td>95.9</td>
</tr>
<tr>
<td>Stall speed - with approach power</td>
<td>km.</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### NOTES

(A) Military Power.

(B) Radius is reduced approximately 178 km. and fuel allowance is increased 5 minutes for each additional aircraft up to a total of 4 aircraft.

PERFORMANCE BIAS: NAVAIR and contractor's flight tests of the FWE-6 clean airplane. Store data based on contractor's estimates.

RANGE AND BIAS ARE BASED ON ENGINE SPECIFICATION FUEL CONSUMPtIO.

MISSION TIME: Any time where fuel is used and distance gained including combat and refueling allowance time.
NOTES

SPOTTING: A total of 103 airplanes can be accommodated in a landing spot on the flight and hangar decks of a CV-21 class angled deck carrier.

SPECIAL STORE PROBLEM
SEA LEVEL, ALTITUDE STORE DELIVERY

WARM-UP, TAXI, TAKE-OFF: 5 minutes at normal threat at sea level.
CLIMB: On course to optimum cruise altitudes with military threat.
CRUISE-OUT: At maximum range airspeeds at optimum cruise altitudes.
DESCEND TO SEA LEVEL: No fuel used, no distance gained.
RUN-IN TO TARGET: At sea level, 50 N. Mi. at maximum speed with military threat.

DROP STORE
COMBAT FUEL ALLOWANCE: 2 minutes at maximum speed with military threat at sea level.
ESCAPE: At sea level, 50 N. Mi. toward base at maximum speed with military threat.
CLIMB: On course to optimum cruise altitudes with military threat.
CRUISE BACK: At maximum range airspeeds at optimum cruise altitudes.
RESERVE: 20 minutes at speeds for maximum endurance at sea level plus 5% of initial fuel load.

COMBAT RADIUS = CLIMB + CRUISE-OUT + RUN-IN = ESCAPE + CLIMB + CRUISE-BACK

SPECIAL STORE PROBLEM
15,000 FEET ALTITUDE STORE DELIVERY

WARM-UP, TAXI, TAKE-OFF: 5 minutes at normal threat at sea level.
CLIMB: On course to optimum cruise altitudes with military threat.
CRUISE-OUT: At maximum range airspeeds at optimum cruise altitudes.
DESCEND TO 15,000 FEET: Release store.
No fuel used, no distance gained.

COMBAT FUEL ALLOWANCE: 3 minutes at maximum speed with military threat at 15,000 feet.
CRUISE BACK: At maximum range airspeeds at optimum cruise altitudes.
RESERVE: 20 minutes at speeds for maximum endurance at sea level plus 5% of initial fuel load.

COMBAT RADIUS = CLIMB + CRUISE-OUT = CLIMB + CRUISE-BACK

SPECIAL STORE PROBLEM
SEA LEVEL, ALTITUDE STORE DELIVERY
WITH AIRFLIGHT REFUELING

WARM-UP, TAXI, TAKE-OFF: 5 minutes at normal threat at sea level.
CLIMB: On course to optimum cruise altitudes with military threat.
CRUISE-OUT: At maximum range airspeeds at optimum cruise altitudes.
DESCEND TO 35,000 FEET REFueling ALTITUDE: No fuel used, no distance gained.
ALLOWANCE FOR RESERVICE, REROUTING, AND FUEL CONTINGENCIES: 15 minutes at maximum endurance airspeed. (No fuel used or distance gained during fuel transfer).

CLIMB: On course to optimum cruise altitude with military threat.
CRUISE OUT: At maximum range airspeeds at optimum cruise altitudes.
DESCEND TO SEA LEVEL: No fuel used, no distance gained.

The remainder of the problem is the same as the Special Store Problem of loading condition column number 0.

COMBAT RADIUS = CLIMB + PRIMARY CRUISE-OUT + SECONDARY CRUISE-OUT + RUN-IN = ESCAPE + CLIMB + CRUISE-BACK

LOADING CONDITION COLUMN NUMBER 6

CONFIDENTIAL