Standard Aircraft Characteristics

C-74

GLOBEMASTER
Douglas

FOUR R-4360-49
PRATT & WHITNEY

6 NOVEMBER 1952

UNCLASSIFIED
**POWER PLANT**

No. & Model: (4) R-4350-49  
Mfr.: Pratt & Whitney  
Engine Spec No.: A-7069  
Superch.: 1 stag, 1 spool  
Red. Gear Ratio: 0.375  
Prop Mfr.: Curtiss Electric  
Blade Design No.: 1016-4C-18  
Prop Type: Elec., F.P., Reverse  
No. Blades: 4  
Prop Dia.: 16’8”  
Augmentation: None

**ENGINE RATINGS**

BHP: 3500 - 2700 - S.L. - 5  
MIL: 3500 - 2700 - Turbo - 30  
NOR: 2650 - 2550 - Turbo - Cont  
* Wet (Water injection not utilized in C-74)

**DIMENSIONS**

Wing Span: 173.3’  
Incidence (root): 5°15’  
(tip): 3°15’  
Dihedral: 6°  
Sweepback (LE): 4°30’  
Length: 124.2’  
Height: 43.8’  
Prop Grd Clearance: 36.5”  
Tread: 34.2”

**CAPACITIES**

Crew (normal): 9  
Pilot  
Co-pilot  
Radio Operator  
Navigator  
Engineer  
Relief Crew (4)  
Troops (max): 125  
Litters (level): 115  
Litters (inclined): 61  
Attendants: 4

**PERSONNEL**

See Pages 8 & 9

**WEIGHTS**

Loading: 86,172(A)  
Basic: 89,389(A)  
Design: 145,000  
Combat: *105,979  
Max T.O. (overload): 165,000  
Max T.O. (normal): #170,000  
Max Land: 160,000  
(A) Actual  
* For Basic Mission  
† Limited by gear strength  
‡ Limited by gear strength & ground handling characteristics

**FUEL**

Location No. Tanks Gal  
Wgs. outbd: 2: 2700  
Wgs. inbd: 2: 5000  
Wgs. aux: 2: 2400  
Total: 11,100

**OIL**

Nacelles: 4: (tot.) 330  
Grade: S-1120; W-1100  
Specification: MIL-P-5572

**POWER PLANT**

No. & Model: (4) R-4350-49  
Mfr.: Pratt & Whitney  
Engine Spec No.: A-7069  
Superch.: 1 stag, 1 spool  
Red. Gear Ratio: 0.375  
Prop Mfr.: Curtiss Electric  
Blade Design No.: 1016-4C-18  
Prop Type: Elec., F.P., Reverse  
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Augmentation: None

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BHP: 3500 - 2700 - S.L. - 5  
MIL: 3500 - 2700 - Turbo - 30  
NOR: 2650 - 2550 - Turbo - Cont  
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**DIMENSIONS**

Wing Span: 173.3’  
Incidence (root): 5°15’  
(tip): 3°15’  
Dihedral: 6°  
Sweepback (LE): 4°30’  
Length: 124.2’  
Height: 43.8’  
Prop Grd Clearance: 36.5”  
Tread: 34.2”

**CAPACITIES**

Crew (normal): 9  
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Co-pilot  
Radio Operator  
Navigator  
Engineer  
Relief Crew (4)  
Troops (max): 125  
Litters (level): 115  
Litters (inclined): 61  
Attendants: 4

**PERSONNEL**

See Pages 8 & 9

**WEIGHTS**

Loading: 86,172(A)  
Basic: 89,389(A)  
Design: 145,000  
Combat: *105,979  
Max T.O. (overload): 165,000  
Max T.O. (normal): #170,000  
Max Land: 160,000  
(A) Actual  
* For Basic Mission  
† Limited by gear strength  
‡ Limited by gear strength & ground handling characteristics

**FUEL**

Location No. Tanks Gal  
Wgs. outbd: 2: 2700  
Wgs. inbd: 2: 5000  
Wgs. aux: 2: 2400  
Total: 11,100

**OIL**

Nacelles: 4: (tot.) 330  
Grade: S-1120; W-1100  
Specification: MIL-P-5572

**ELECTRONICS**

VHF Command: AN/ARC-3  
Manual Radio Compass: AN/ARN-11  
Radio Altimeter: AN/APN-1  
Localizer: RC-103  
Marker Beacon: RC-193  
Liaison: AN/ARC-8  
Auto. Radio Compass: AN/ARN-7  
IFP: SCR-695  
Loran: AN/APN-9  
High Alt. Altimeter: SCR-718  
Interphone: AN/AIC-3  
Glide Path: AN/ARN-5  
Radio Transmitter: AN/ART-13A

**UNCLASSIFIED**

6 NOVEMBER 1952

C-74
### Loading and Performance - Typical Mission

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>BASIC MISSION</th>
<th>DESIGN LOAD</th>
<th>NORMAL</th>
<th>MAX FUEL</th>
<th>FERRY RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAKE-OFF WEIGHT (lb)</td>
<td>170,000</td>
<td>145,500</td>
<td>165,000</td>
<td>170,000</td>
<td>V 165,000</td>
</tr>
<tr>
<td>Fuel at 6.0 lb/gal (grade 115/145) (lb)</td>
<td>29,037</td>
<td>16,800</td>
<td>28,547</td>
<td>28,547</td>
<td>55,860</td>
</tr>
<tr>
<td>Payload (outbound) (lb)</td>
<td>48,149</td>
<td>35,386</td>
<td>43,639</td>
<td>10,586</td>
<td>55,860</td>
</tr>
<tr>
<td>Wing loading (lb/sq ft)</td>
<td>67.7</td>
<td>57.8</td>
<td>65.7</td>
<td>67.7</td>
<td>65.7</td>
</tr>
<tr>
<td>Stall speed (power off) (kn)</td>
<td>97</td>
<td>89</td>
<td>95</td>
<td>97</td>
<td>95</td>
</tr>
<tr>
<td>Take-off ground run at SL (ft)</td>
<td>3400</td>
<td>1950</td>
<td>3050</td>
<td>3400</td>
<td>3050</td>
</tr>
<tr>
<td>Take-off to clear 50 ft (ft)</td>
<td>4700</td>
<td>2850</td>
<td>4250</td>
<td>4700</td>
<td>5250</td>
</tr>
<tr>
<td>Rate of climb at SL (fpm)</td>
<td>800</td>
<td>1150</td>
<td>860</td>
<td>800</td>
<td>860</td>
</tr>
<tr>
<td>Rate of climb at SL (one engine out) (fpm)</td>
<td>650</td>
<td>1020</td>
<td>720</td>
<td>650</td>
<td>720</td>
</tr>
<tr>
<td>Time: SL to 10,000 ft (min)</td>
<td>15</td>
<td>15</td>
<td>13.5</td>
<td>15</td>
<td>13.5</td>
</tr>
<tr>
<td>Time: SL to Service Ceiling (min)</td>
<td>34</td>
<td>31</td>
<td>33</td>
<td>34</td>
<td>33</td>
</tr>
<tr>
<td>Service ceiling (100 fpm) (ft)</td>
<td>15,200</td>
<td>19,600</td>
<td>16,000</td>
<td>15,200</td>
<td>16,000</td>
</tr>
<tr>
<td>Service ceiling (one engine out) (ft)</td>
<td>8800</td>
<td>13,100</td>
<td>9600</td>
<td>8800</td>
<td>9600</td>
</tr>
<tr>
<td>COMBAT RANGE (n. mi.)</td>
<td>1825</td>
<td>1094</td>
<td>1350</td>
<td>9083</td>
<td>1272</td>
</tr>
<tr>
<td>Average cruising speed (kn)</td>
<td>184</td>
<td>176</td>
<td>182</td>
<td>176</td>
<td>174</td>
</tr>
<tr>
<td>Cruising altitude (ft)</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>Total mission time (hr)</td>
<td>9.9</td>
<td>6.2</td>
<td>10.2</td>
<td>28.8</td>
<td>30.1</td>
</tr>
<tr>
<td>COMBAT RADIUS (n. mi.)</td>
<td>1000</td>
<td>551</td>
<td>1000</td>
<td>2553</td>
<td>2595</td>
</tr>
<tr>
<td>Average cruising speed (kn)</td>
<td>170</td>
<td>165</td>
<td>169</td>
<td>171</td>
<td>171</td>
</tr>
<tr>
<td>Cruising altitude (ft)</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>Total mission time (hr)</td>
<td>19.1</td>
<td>6.7</td>
<td>26.8</td>
<td>30.4</td>
<td>30.4</td>
</tr>
<tr>
<td>FIRST LANDING WEIGHT (lb)</td>
<td>154,128</td>
<td>136,405</td>
<td>149,559</td>
<td>134,866</td>
<td>130,151</td>
</tr>
<tr>
<td>Ground roll at SL (ft)</td>
<td>2400</td>
<td>2125</td>
<td>2330</td>
<td>2095</td>
<td>2025</td>
</tr>
<tr>
<td>Ground roll (auxiliary brake) (ft)</td>
<td>1440</td>
<td>1270</td>
<td>1395</td>
<td>1255</td>
<td>1215</td>
</tr>
<tr>
<td>Total from 50 ft (ft)</td>
<td>3720</td>
<td>3290</td>
<td>3610</td>
<td>3250</td>
<td>3140</td>
</tr>
<tr>
<td>Total from 50 ft (auxiliary brake) (ft)</td>
<td>2350</td>
<td>2435</td>
<td>2670</td>
<td>2405</td>
<td>2325</td>
</tr>
<tr>
<td>COMBAT WEIGHT (lb)</td>
<td>105,979</td>
<td>101,019</td>
<td>105,920</td>
<td>124,100</td>
<td>124,565</td>
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<tr>
<td>Combat altitude (ft)</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td>Combat speed (kn)</td>
<td>264</td>
<td>264</td>
<td>264</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>Combat climb (fpm)</td>
<td>2180</td>
<td>2340</td>
<td>2185</td>
<td>1690</td>
<td>1680</td>
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<tr>
<td>Combat climb (500 fpm) (ft)</td>
<td>21,300</td>
<td>22,300</td>
<td>21,300</td>
<td>17,700</td>
<td>17,600</td>
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<tr>
<td>Service ceiling (100 fpm) (ft)</td>
<td>27,200</td>
<td>28,200</td>
<td>27,200</td>
<td>23,700</td>
<td>23,600</td>
</tr>
<tr>
<td>Service ceiling (one engine out) (ft)</td>
<td>19,900</td>
<td>21,000</td>
<td>19,950</td>
<td>16,100</td>
<td>16,000</td>
</tr>
<tr>
<td>Take-off ground run at SL (ft)</td>
<td>650</td>
<td>550</td>
<td>650</td>
<td>1100</td>
<td>1120</td>
</tr>
<tr>
<td>Take-off to clear 50 ft (ft)</td>
<td>1050</td>
<td>900</td>
<td>1050</td>
<td>1700</td>
<td>1730</td>
</tr>
<tr>
<td>Max rate of climb at SL (fpm)</td>
<td>2605</td>
<td>2780</td>
<td>2610</td>
<td>2060</td>
<td>2050</td>
</tr>
<tr>
<td>Max speed at optimum altitude (kn)</td>
<td>285/10,000</td>
<td>285/10,000</td>
<td>285/10,000</td>
<td>283/9600</td>
<td>283/9600</td>
</tr>
<tr>
<td>Basic speed at 5000 ft (kn)</td>
<td>264</td>
<td>264</td>
<td>264</td>
<td>264</td>
<td>264</td>
</tr>
<tr>
<td>LANDING WEIGHT (lb)</td>
<td>94,912</td>
<td>94,912</td>
<td>94,889</td>
<td>96,807</td>
<td>96,807</td>
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<tr>
<td>Ground roll at SL (ft)</td>
<td>1470</td>
<td>1465</td>
<td>1470</td>
<td>1470</td>
<td>1470</td>
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<tr>
<td>Ground roll (auxiliary brake) (ft)</td>
<td>880</td>
<td>880</td>
<td>880</td>
<td>880</td>
<td>880</td>
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<tr>
<td>Total from 50 ft (ft)</td>
<td>2285</td>
<td>2275</td>
<td>2285</td>
<td>2285</td>
<td>2285</td>
</tr>
<tr>
<td>Total from 50 ft (auxiliary brake) (ft)</td>
<td>1695</td>
<td>1685</td>
<td>1695</td>
<td>1695</td>
<td>1695</td>
</tr>
</tbody>
</table>

**NOTES**

1. Max Power
2. Normal Power
3. Detailed description of RADIUS and RANGE missions are given on page 6
   **PERFORMANCE BASIS:**
   (a) Data source: Flight test & estimated data
   (b) Performance is based on powers shown on page 6

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C-74

UNCLASSIFIED

6 NOVEMBER 1952
FORMULA: RADIUS MISSIONS I, II, III, IV & V

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds to remote base, land and unload cargo. Without refueling, warm-up, take-off, climb on course to 5000 feet at normal power and return at long range speeds. Range free allowance are 20 minutes of normal power for warm-ups and take-offs plus fuel for 30 minutes at speeds for long range at sea level and 5 per cent of initial fuel for reserve.

FORMULA: RANGE MISSIONS I, II, III, IV, V & VI

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds until only reserve fuel remains. Range free allowances are 10 minutes of normal power for warm-up and take-off plus fuel for 30 minutes at speeds for long range at sea level and 5 per cent of initial fuel for reserve.

GENERAL DATA:

(a) For detailed planning refer to Technical Order AN 01-40NT-1.

(b) Engine powers used for calculation of performance data:

<table>
<thead>
<tr>
<th>(4) R-4360-49</th>
<th>BHP</th>
<th>RPM</th>
<th>CLIMB CRITICAL</th>
<th>LEVEL FLT CRITICAL</th>
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</thead>
<tbody>
<tr>
<td>T, O,</td>
<td>3250</td>
<td>2700</td>
<td>2400</td>
<td>5000</td>
</tr>
<tr>
<td>MAX.</td>
<td>3250</td>
<td>2700</td>
<td>2400</td>
<td>5000</td>
</tr>
<tr>
<td>NORMAL</td>
<td>2650</td>
<td>2550</td>
<td>5500</td>
<td>8000</td>
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</table>
### Cargo Compartment Belly Forward

**Maximum Heights**

<table>
<thead>
<tr>
<th>Width, Inches</th>
<th>Height, Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
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</tbody>
</table>

#### Cargo Loading Well

**Maximum Heights**

<table>
<thead>
<tr>
<th>Width, Feet</th>
<th>Height, Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>83</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>48</td>
<td>40</td>
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<tr>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>14</td>
<td>40</td>
</tr>
</tbody>
</table>

### Cargo Compartment Belly Aft

**Maximum Heights**

<table>
<thead>
<tr>
<th>Width, Inches</th>
<th>Height, Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

#### COMPARTMENT DESIGN DATA

<table>
<thead>
<tr>
<th>Designation</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
<th>Column 6</th>
<th>Column 7</th>
<th>Column 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pilot's</td>
<td>300</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>B. Flight Deck</td>
<td>1,000</td>
<td>170</td>
<td>615</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>141</td>
</tr>
<tr>
<td>C. Cargo</td>
<td>10,000</td>
<td>90</td>
<td>474</td>
<td>104 lb/Sq Ft</td>
<td>50 Sq Ft</td>
<td>68</td>
<td>310</td>
<td>360</td>
</tr>
<tr>
<td>D. Cargo</td>
<td>10,000</td>
<td>90</td>
<td>474</td>
<td>104 lb/Sq Ft</td>
<td>50 Sq Ft</td>
<td>68</td>
<td>410</td>
<td>560</td>
</tr>
<tr>
<td>E. Cargo</td>
<td>10,000</td>
<td>90</td>
<td>474</td>
<td>104 lb/Sq Ft</td>
<td>50 Sq Ft</td>
<td>68</td>
<td>415</td>
<td>560</td>
</tr>
<tr>
<td>F. Cargo</td>
<td>10,000</td>
<td>90</td>
<td>474</td>
<td>104 lb/Sq Ft</td>
<td>50 Sq Ft</td>
<td>68</td>
<td>415</td>
<td>560</td>
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<tr>
<td>G. Cargo</td>
<td>10,000</td>
<td>90</td>
<td>474</td>
<td>104 lb/Sq Ft</td>
<td>50 Sq Ft</td>
<td>68</td>
<td>710</td>
<td>760</td>
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<tr>
<td>H. Cargo</td>
<td>10,000</td>
<td>90</td>
<td>474</td>
<td>104 lb/Sq Ft</td>
<td>50 Sq Ft</td>
<td>68</td>
<td>710</td>
<td>760</td>
</tr>
</tbody>
</table>

**NOTES:**

1. In addition to the loads shown in columns 6 and 7, the remainder of the compartment may be loaded to the value shown in column 5 provided the compartment capacity (column 2) is not exceeded.
2. Centroids for compartments A, B, and L are based on crew members in seats or bunks.
3. Centroids for cargo compartments are based on areas.

**Date:** 6 November 1952
# SUPPLEMENTAL

## Loading and Performance—Typical Mission

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Basic Mission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take-off weight</td>
<td>170,000 lb</td>
</tr>
<tr>
<td>Fuel at 6.0 lb/gal (grade 115/145)</td>
<td>30,018 lb</td>
</tr>
<tr>
<td>Payload (outbound)</td>
<td>47,160 lb</td>
</tr>
<tr>
<td>Wing loading (lb/sq ft)</td>
<td>67.7</td>
</tr>
<tr>
<td>Stall speed (power off)</td>
<td>97 kts</td>
</tr>
<tr>
<td>Take-off ground run at SL</td>
<td>3400 ft</td>
</tr>
<tr>
<td>Take-off to clear 50 ft</td>
<td>4700 ft</td>
</tr>
<tr>
<td>Rate of climb at SL (fpm)</td>
<td>800</td>
</tr>
<tr>
<td>Rate of climb at SL (one engine out) (fpm)</td>
<td>650</td>
</tr>
<tr>
<td>Time: SL to 10,000 ft</td>
<td>15 min</td>
</tr>
<tr>
<td>Time: SL to service ceiling</td>
<td>34 min</td>
</tr>
<tr>
<td>Service ceiling (100 fpm) (ft)</td>
<td>15,200</td>
</tr>
<tr>
<td>Service ceiling (one engine out) (ft)</td>
<td>8800</td>
</tr>
</tbody>
</table>

### COMBAT RANGE
- (n, mi.) | 1765
- Average cruising speed (kn) | 181
- Cruising altitude (ft) | 10,000
- Total mission time (hr) | 11.0

### COMBAT RADIUS
- (n, mi.) | 1000
- Average cruising speed (kn) | 181
- Cruising altitude (ft) | 10,000
- Total mission time (hr) | 11.0

### FIRST LANDING WEIGHT
- (lb) | 153,610
- Ground roll at SL (ft) | 4390
- Ground roll (auxiliary brake) (ft) | 1430
- Total from 50 ft (ft) | 3690
- Total from 50 ft (auxiliary brake) (ft) | 2730

### COMBAT WEIGHT
- (lb) | 105,842
- Combat altitude (ft) | 10,000
- Combat speed (kn) | 285
- Combat climb (fpm) | 1600
- Combat ceiling (500 fpm) (ft) | 21,300
- Service ceiling (100 fpm) (ft) | 27,200
- Service ceiling (one engine out) (ft) | 20,000
- Take-off ground run at SL (ft) | 300
- Take-off to clear 50 ft (ft) | 1050
- Max rate of climb at SL (fpm) | 2620
- Max speed at optimum altitude (kn) | 285/10,000
- Basic speed at 5000 ft (kn) | 264

### LANDING WEIGHT
- (lb) | 94,315
- Ground roll at SL (ft) | 1465
- Ground roll (auxiliary brake) (ft) | 880
- Total from 50 ft (ft) | 2275
- Total from 50 ft (auxiliary brake) (ft) | 1685

### NOTES
- 1. Max power
- 2. Normal power
- 3. For Radius Mission if radius is shown
- 4. Speed restriction: AN 01-40NT-1
- 5. Brakes and reverse thrust

### PERFORMANCE BASIS
(a) Data source: Flight test & estimated data
(b) Performance is based on powers shown on page 6

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6 NOVEMBER 1952

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