

# N5765M

## 1969 Cessna T310P

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# Performance & Weight & Balance



**RidgeAire**  
WORLDWIDE  
aviation specialists

MSN: 310P0065

*Prepared by the worldwide aviation specialists at RidgeAire, Inc.*



TURBO-SYSTEM

# SECTION IV

## OPERATING LIMITATIONS

### OPERATIONS AUTHORIZED

Your Cessna with standard equipment, as certificated under FAA Type Certificate No. 3A10, is approved for day and night operation under VFR or IFR conditions.

### MANEUVERS - NORMAL CATEGORY

The aircraft exceeds the requirements of the Federal Aviation Regulations, set forth by the United States Government for airworthiness. Spins and aerobatic maneuvers are not permitted in normal category airplanes in compliance with these regulations. In connection with the foregoing, the following gross weight and flight load factors apply:

|   |           |
|---|-----------|
| Maximum Takeoff Weight . . . . .                          | 5400 lbs. |
| Maximum Landing Weight . . . . .                          | 5400 lbs. |
| *Flight Load Factor (at design gross weight of 5400 lbs.) |           |
| Flaps UP . . . . .  | +3.8G     |
|   | -1.52G    |
| Flaps DOWN . . . . .                                      | +2.0G     |

\*The design load factors are 150% of the above and in all cases the structure exceeds design loads.

Your aircraft must be operated in accordance with all FAA approved markings, placards, and checklists in the aircraft. If there is any information in this section which contradicts the FAA approved markings, placards, and checklists, it is to be disregarded.

### AIRSPED LIMITATIONS (CAS)

|                                    |         |
|------------------------------------|---------|
| Maximum Structural Cruising Speed  |         |
| Level Flight or Climb . . . . .    | 210 MPH |
| Maximum Speed                      |         |
| Flaps Extended 15° . . . . .       | 180 MPH |
| Flaps Extended 15° - 35° . . . . . | 160 MPH |
| Gear Extended . . . . .            | 160 MPH |

\*Maximum Maneuvering Speed . . . 170 MPH

\*The maximum speed at which you can use abrupt control travel.

## AIRSPEED INDICATOR INSTRUMENT MARKINGS

The following is a list of the certificated calibrated airspeed (CAS) limitations for the aircraft.

|  |                          |
|--|--------------------------|
| Never Exceed (glide or dive, smooth air)   | 257 MPH (red line)       |
| Caution Range . . . . .                    | 210-257 MPH (yellow arc) |
| Normal Operating Range . . . . .           | 87-210 MPH (green arc)   |
| Flap Operating Range (0° - 35°) . . . . .  | 77-160 MPH (white arc)   |
| Minimum Control Speed . . . . .            | 90 MPH (red line)        |
| Best Single-Engine Rate of Climb . . . . . | 122 MPH (blue line)      |

## ENGINE OPERATION LIMITATIONS

Maximum Power and Speed 285 BHP at 2700 RPM and 32 in. Hg.  
(for all operations)

## ENGINE INSTRUMENT MARKINGS

### OIL TEMPERATURE GAGES

|                                  |                           |
|----------------------------------|---------------------------|
| Normal Operating Range . . . . . | 75° to 240° F (green arc) |
| Maximum Temperature . . . . .    | 240° F (red line)         |

### OIL PRESSURE GAGES

|                                  |                          |
|----------------------------------|--------------------------|
| Idling Pressure . . . . .        | 10 PSI (red line)        |
| Normal Operating Range . . . . . | 30 to 60 PSI (green arc) |
| Maximum Pressure . . . . .       | 100 PSI (red line)       |

### CYLINDER HEAD TEMPERATURE

|                                  |                            |
|----------------------------------|----------------------------|
| Normal Operating Range . . . . . | 200° to 460° F (green arc) |
| Maximum Temperature . . . . .    | 460° F (red line)          |

### MANIFOLD PRESSURE

|                                  |                              |
|----------------------------------|------------------------------|
| Normal Operating Range . . . . . | 15 to 29 in. Hg. (green arc) |
| Maximum Pressure . . . . .       | 32 in. Hg. (red line)        |

**MAXIMUM ALLOWABLE MANIFOLD PRESSURE**

| ALTITUDE  | MAX ALLOWABLE<br>M. P. | ALTITUDE | MAX ALLOWABLE<br>M. P. |
|-----------|------------------------|----------|------------------------|
| Sea Level | 32.0                   | 24,000   | 24.3                   |
| 16,000    | 32.0                   | 26,000   | 22.2                   |
| 18,000    | 30.7                   | 28,000   | 20.2                   |
| 20,000    | 29.0                   | 30,000   | 18.5                   |
| 22,000    | 26.4                   | 32,000   | 17.0                   |

**TACHOMETER**

Normal Operating Range . . . 2100 to 2350 RPM (green arc)  
Above 10,000 Ft. - Hot Day . 2100 to 2500 RPM (inner green arc)  
Maximum Engine Rated Speed . . . 2700 RPM (red line)

**FUEL FLOW GAGE**

Normal Operating Range . . . 1.4 to 29.17 GPH (green arc)  
Minimum and Maximum Fuel Flows . 0 and 29.80 GPH (red line)  
2.5 and 19.5 PSI (red line)

**WING LOCKERS**

The wing lockers are intended primarily for low density items, such as luggage and briefcases. The floor of the wing lockers, in particular, is primary structure, therefore, care should be exercised during loading and unloading to prevent damage. When loading high density objects, insure that adequate protection is available to prevent damage to any aircraft primary structure.

**WEIGHT AND BALANCE**

The following information will enable you to operate your Cessna within the prescribed weight and center of gravity limitations. To figure the weight and balance for your particular aircraft, use figures 4-1, 4-2, and 4-3 as follows:

Take the licensed Empty Weight and Moment/1000 from the Weight and Balance Data sheet, plus any changes noted on forms FAA-337, carried in your aircraft, and write them down in the proper columns of figure 4-1. Using figure 4-2, determine the moment/1000 of each item to be carried. Total the weights and moments/1000 and use figure 4-3 to determine whether the point falls within the envelope and if the loading is acceptable.

ADM

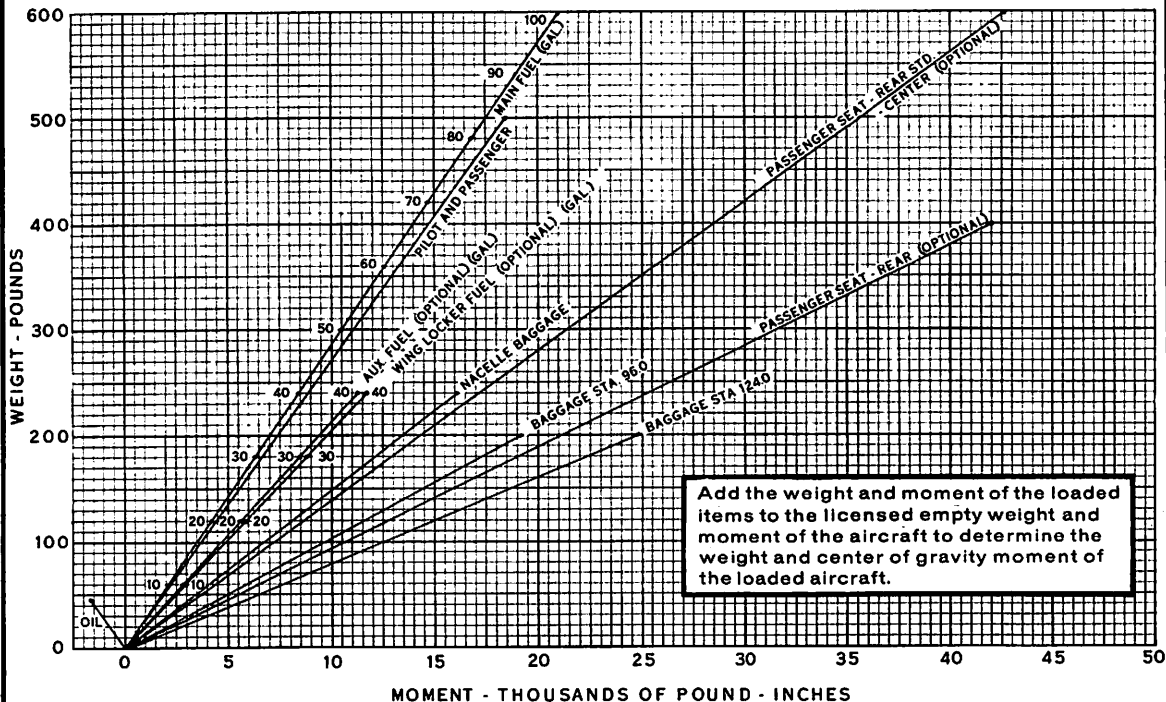
37  
71  
105  
35  
47  
96  
124  
63

| TURBO-SYSTEM 310P<br><br>SAMPLE PROBLEM   | Sample Aircraft |                        | Your Aircraft |                        |
|---|-----------------|------------------------|---------------|------------------------|
|   | Weight (lbs)    | Moment (lb-ins.) /1000 | Weight (lbs)  | Moment (lb-ins.) /1000 |
| 1. Licensed Empty Weight (Sample Problem)   | 3503.7          | 124.0                  |               |                        |
| 2. Oil *(26 Qts. x 1.875 lb/qt.)  | 49.0            | -0.2                   | 49.0          | -0.2                   |
| 3. Pilot and Passenger <sup>37</sup>  | 340.0           | 12.6                   |               |                        |
| 4. Rear Passengers (Standard Seating) <sup>71</sup><br>(6-Place Option) <sup>105</sup>  | 340.0<br>340.0  | 24.1<br>35.7           |               |                        |
| 5. Fuel (gals. x 6 lbs./gal.) <sup>35</sup><br>Main Tanks (100 gals.) <sup>47</sup><br>Auxiliary Tanks<br>Wing Locker Tanks     | 600.0<br>47.3   | 21.0<br>2.6            |               |                        |
| 6. Baggage (Sta. 96.0) <sup>96</sup><br>(124.0) <sup>124</sup><br>63. (Wing Lockers) <sup>63</sup>                              | 180.0           | 11.3                   |               |                        |
| 7. Total Aircraft Weight (Loaded)   | 5400.0          | 231.1                  |               |                        |
| 8. Locate this point ( 5400 at 231.1 ) on Figure 4-3 and since this point falls within the envelope, the loading is acceptable. |                 |                        |               |                        |
| *Note: Normally full oil may be assumed for all flights.  |                 |                        |               |                        |

Figure 4-1

# LOADING CHART

Figure 4-2



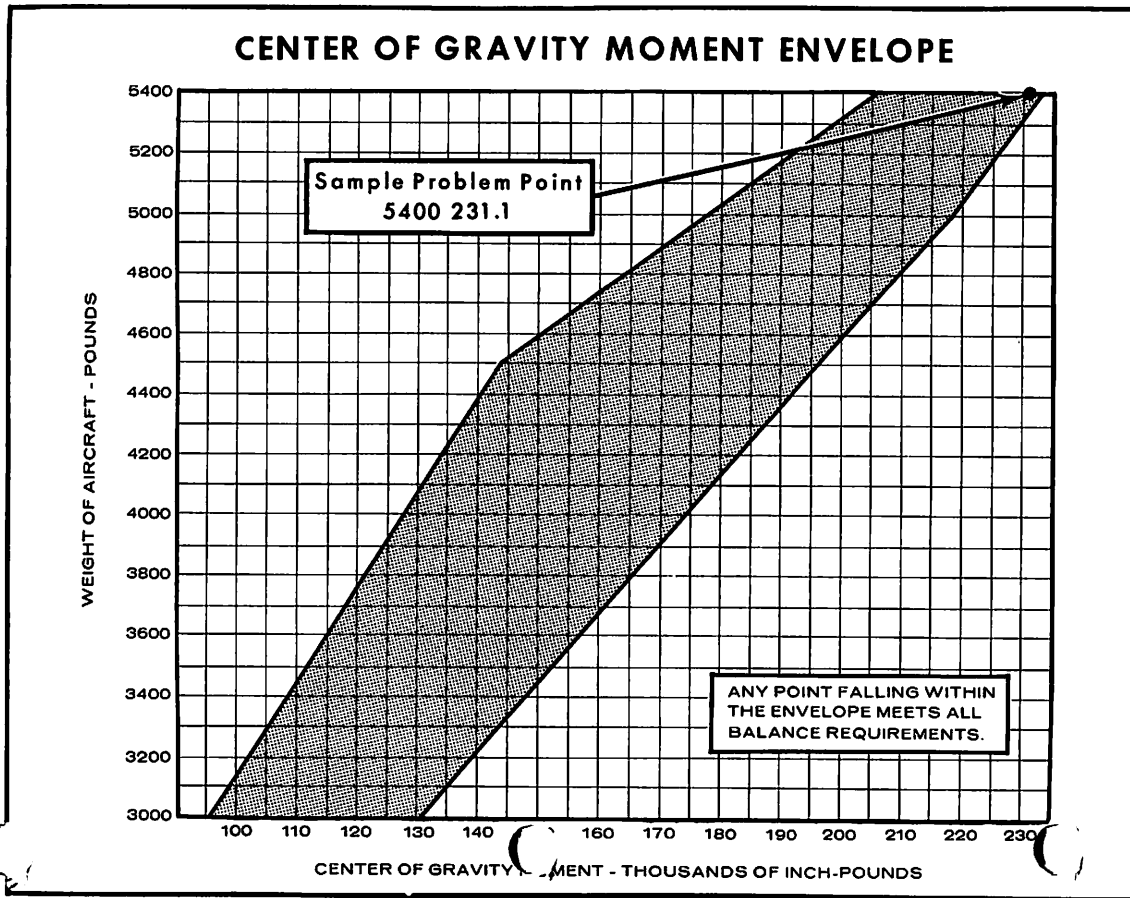


Figure 4-3



**TURBO-SYSTEM**

## **SECTION VI**

### **OPERATIONAL DATA**

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The operational data charts on the following pages are presented for two purposes; first, so that you may know what to expect from your aircraft under various conditions; and second, to enable you to plan your flights in detail and with reasonable accuracy.

A power setting selected from the range charts usually will be more efficient than a random setting, since it will permit accurate fuel flow settings and your fuel consumption can be estimated closely. You will find that using the charts and your Cessna Turbo-System 310P Power Computer will pay dividends in over-all efficiency.

The data in the charts has been compiled from actual flight tests with the aircraft and engines in good condition, and using average piloting techniques. Note also that the range charts make no allowances for wind, navigational errors, warmup, takeoff, climb, etc. You must estimate these variables for yourself and make allowances accordingly.

Because of temperature and pressure effect on turbines, the operational data shown for over 10,000 feet may have a tolerance of plus or minus five percent.

## AIRSPEED CORRECTION TABLE

| FLAPS 0° |          | FLAPS 15° * |          | FLAPS 35° ** |          |
|----------|----------|-------------|----------|--------------|----------|
| IAS, MPH | CAS, MPH | IAS, MPH    | CAS, MPH | IAS, MPH     | CAS, MPH |
| 80       | 81       | 70          | 72       | 60           | 60.5     |
| 100      | 101      | 80          | 82       | 70           | 70.5     |
| 120      | 121      | 90          | 92       | 80           | 80.5     |
| 140      | 140.5    | 100         | 101.5    | 90           | 90.5     |
| 160      | 160.5    | 110         | 111      | 100          | 100      |
| 180      | 180.5    | 120         | 121      | 110          | 110      |
| 200      | 200      | 130         | 130.5    | 120          | 120      |
| 220      | 220      | 140         | 140.5    | 130          | 130      |
| 240      | 239.5    | 150         | 150      | 140          | 140      |
| 260      | 260.5    | 160         | 160      | 150          | 150      |
|          |          | 170         | 169.5    | 160          | 159.5    |
|          |          | 180         | 179.5    |              |          |

\* Maximum Flap Speed 180 MPH-CAS      \*\* Maximum Flap Speed 160 MPH-CAS

Figure 6-1

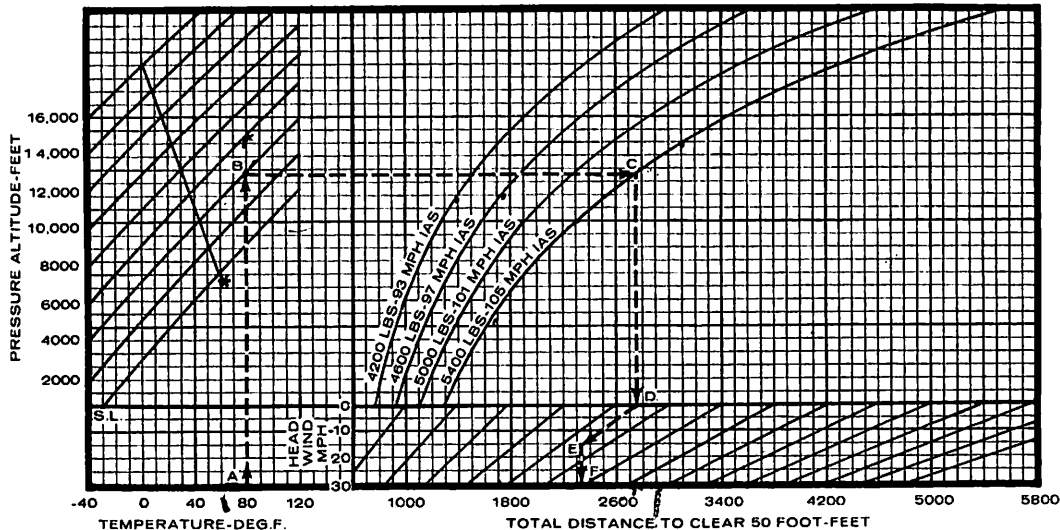
## STALL SPEED CHART

MPH (IAS IS APPROXIMATE)  
5400 POUNDS GROSS WEIGHT

| CONFIGURATION           | ANGLE OF BANK |     |     |     |     |     |     |     |
|-------------------------|---------------|-----|-----|-----|-----|-----|-----|-----|
|                         | 0°            |     | 20° |     | 40° |     | 60° |     |
|                         | IAS           | CAS | IAS | CAS | IAS | CAS | IAS | CAS |
| Gear and Flaps Up       | 86            | 87  | 89  | 90  | 99  | 100 | 122 | 123 |
| Gear Down and Flaps 15° | 82            | 84  | 85  | 87  | 95  | 96  | 118 | 119 |
| Gear Down and Flaps 35° | 76            | 77  | 79  | 80  | 87  | 88  | 109 | 109 |

Figure 6-2

# NORMAL TAKE-OFF DISTANCE



\* STANDARD TEMPERATURE

### CONDITIONS:

1. Level Hard Surface Runway.
2. Wing Flaps - UP.
3. Cowl Flaps - OPEN.
4. 2700 RPM, 32 in. Hg. M. P. Before Brake Release.
5. Maintain Speed to 50 Ft.

NOTE: Ground Run is Approximately 83% of Total Distance.

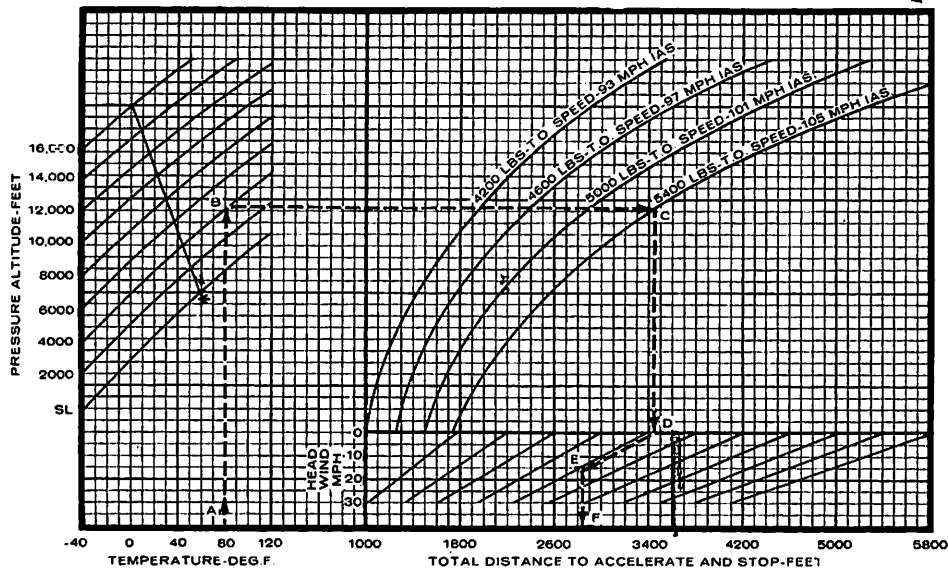
NOTE: Increase Total Distance by 7.5% for Operation on Firm Dry Sod Runway.

### EXAMPLE:

- A. Temperature - 80° F.
- B. Pressure Altitude - 4000 Ft.
- C. Gross Weight - 5400 Lbs.
- D. Total Distance to Clear 50 Ft. (No Wind) - 2750 Ft.
- E. Headwind - 15 MPH.
- F. Total Distance to Clear 50 Ft. (15 MPH Headwind) - 2325 Ft.

Figure 6-3

## ACCELERATE STOP DISTANCE



\* STANDARD TEMPERATURE

## CONDITIONS:

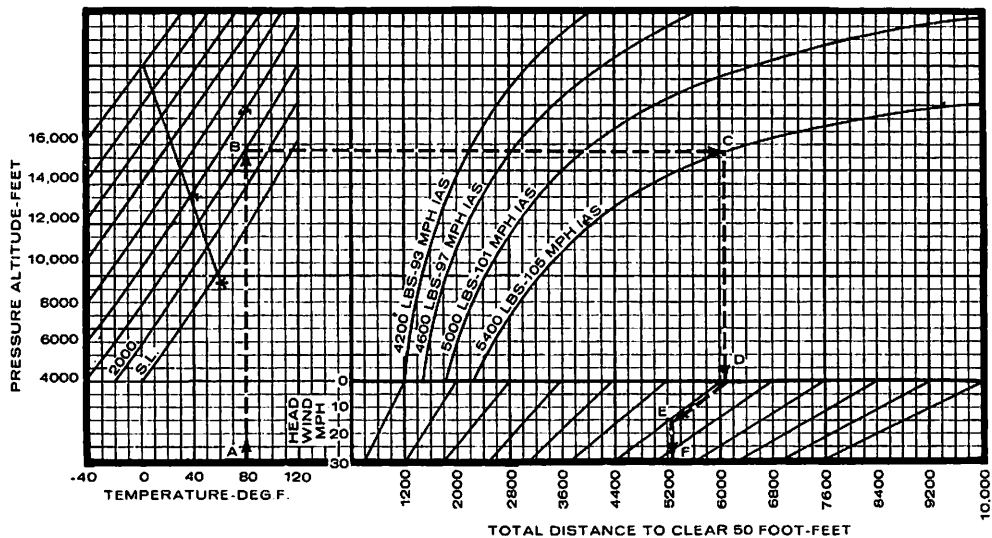
1. Level Hard Surface Runway.
2. Wing Flaps - UP.
3. Cowl Flaps - OPEN.
4. 2700 RPM, 32 in. Hg. M. P. Before Brake Release.
5. Engine Failure at Takeoff Speed.
6. Heavy Braking After Engine Failure.

## EXAMPLE:

- A. Temperature - 80° F.
- B. Pressure Altitude - 4000 Ft.
- C. Gross Weight - 5400 Lbs.
- D. Distance to Stop (No Wind) - 3443 Ft.
- E. Headwind - 15 MPH.
- F. Distance to Stop (15 MPH Headwind) - 2840 Ft.

Figure 6-4

# SINGLE ENGINE TAKEOFF DISTANCE



\* STANDARD TEMPERATURE

## CONDITIONS:

1. Level Hard Surface Runway.
2. Wing Flaps - UP.
3. Cowl Flaps - OPEN.
4. 2700 RPM, 32 in. Hg. M. P. Before Brake Release.
5. Engine Failure at Takeoff Speed.
6. Propeller Feathered and Gear Retracted During Climb.
7. Maintain Speed to 50 Ft.

## EXAMPLE:

- A. Temperature - 80° F.
- B. Pressure Altitude - 4000 Ft.
- C. Gross Weight - 5400 Lbs.
- D. Total Distance to Clear 50 Ft. (No Wind) - 6069 Ft.
- E. Headwind - 15 MPH.
- F. Total Distance to Clear 50 Ft. (15 MPH Headwind) - 5265 Ft.

Figure 6-5

## MULTI-ENGINE CLIMB DATA AT 5400 POUNDS

### MAXIMUM PERFORMANCE

| SEA LEVEL 59°F     |                      |                  | 5000 FT. 41°F      |                      |                     | 10000 FT. 23°F     |                      |                     | 15000 FT. 5°F      |                      |                     | 20000 FT. -12°F    |                      |                     | 25000 FT. -30°F    |                      |                     |
|--------------------|----------------------|------------------|--------------------|----------------------|---------------------|--------------------|----------------------|---------------------|--------------------|----------------------|---------------------|--------------------|----------------------|---------------------|--------------------|----------------------|---------------------|
| Best Climb IAS MPH | Rate of Climb Ft/Min | Gal of Fuel Used | Best Climb IAS MPH | Rate of Climb Ft/Min | From S.L. Fuel Used | Best Climb IAS MPH | Rate of Climb Ft/Min | From S.L. Fuel Used | Best Climb IAS MPH | Rate of Climb Ft/Min | From S.L. Fuel Used | Best Climb IAS MPH | Rate of Climb Ft/Min | From S.L. Fuel Used | Best Climb IAS MPH | Rate of Climb Ft/Min | From S.L. Fuel Used |
| 120                | 1862                 | 5                | 119.7              | 1760                 | 7.6                 | 119.4              | 1658                 | 10.3                | 119.1              | 1558                 | 13.2                | 118.0              | 1080                 | 16.2                | 116.2              | 515                  | 20.6                |

**NOTE: FULL THROTTLE, 2700 RPM, MIXTURE AT RECOMMENDED FUEL FLOW, FLAPS AND GEAR UP  
FUEL USED INCLUDES WARM-UP AND TAKEOFF ALLOWANCE.  
DECREASE RATE OF CLIMB 70 FT/MIN FOR EACH 10°F ABOVE STANDARD TEMPERATURE FOR  
A PARTICULAR ALTITUDE'**

### CRUISE CLIMB

| POWER SETTING |      | Climb IAS MPH | Fuel Flow Gal/Hr Per Eng | 5000 FT. 41°F  |           | 10000 FT. 23°F |             |           | 15000 FT. 5°F  |             |           | 20000 FT. -12°F |             |           |                |  |  |
|---------------|------|---------------|--------------------------|----------------|-----------|----------------|-------------|-----------|----------------|-------------|-----------|-----------------|-------------|-----------|----------------|--|--|
|               |      |               |                          | FROM SEA LEVEL |           | FROM SEA LEVEL |             |           | FROM SEA LEVEL |             |           | FROM SEA LEVEL  |             |           |                |  |  |
|               |      |               |                          | Dist. Miles    | Time Min. | Fuel Used Gal. | Dist. Miles | Time Min. | Fuel Used Gal. | Dist. Miles | Time Min. | Fuel Used Gal.  | Dist. Miles | Time Min. | Fuel Used Gal. |  |  |
| RPM           | M.P. |               |                          |                |           |                |             |           |                |             |           |                 |             |           |                |  |  |
| 2350          | 29   | 150           | 16.8                     | 11.6           | 4.41      | 7.47           | 26.2        | 9.58      | 10.36          | 45.7        | 15.92     | 13.92           | 72.4        | 23.98     | 18.43          |  |  |

**NOTE: WARM-UP AND TAKEOFF ALLOWANCE 5 GALLONS AT SEA LEVEL  
MIXTURE AT RECOMMENDED FUEL FLOW, FLAPS AND GEAR UP.**

Figure 6-6

## MAXIMUM PERFORMANCE TAKEOFF 15° FLAPS

| Gross Weight Pounds | IAS at Takeoff MPH | IAS at Obstacle MPH | Head Wind MPH | DENSITY ALTITUDE   |                                    |                     |                                    |                     |                                    |                      |                                    |
|---------------------|--------------------|---------------------|---------------|--------------------|------------------------------------|---------------------|------------------------------------|---------------------|------------------------------------|----------------------|------------------------------------|
|                     |                    |                     |               | SEA LEVEL 59°F     |                                    | 2500 FT. 50°F       |                                    | 5000 FT. 41°F       |                                    | 7500 FT. 32°F        |                                    |
|                     |                    |                     |               | Ground Run         | Total Distance over 50 Ft Obstacle | Ground Run          | Total Distance over 50 Ft Obstacle | Ground Run          | Total Distance over 50 Ft Obstacle | Ground Run           | Total Distance over 50 Ft Obstacle |
| 5400                | 93                 | 93                  | 0<br>15<br>30 | 1250<br>985<br>733 | 1590<br>1277<br>977                | 1411<br>1122<br>846 | 1772<br>1434<br>1109               | 1602<br>1285<br>982 | 1987<br>1620<br>1265               | 1831<br>1481<br>1145 | 2243<br>1842<br>1454               |

Figure 6-7

## SINGLE ENGINE CLIMB DATA

| Gross Weight Pounds | SEA LEVEL 59°F     |                      | 5000 FT 41°F       |                      | 10000 FT 23°F      |                      | 15000 FT 5°F       |                      | 20000 FT -12°F     |                      |
|---------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|
|                     | Best Climb IAS MPH | Rate of Climb Ft/Min | Best Climb IAS MPH | Rate of Climb Ft/Min | Best Climb IAS MPH | Rate of Climb Ft/Min | Best Climb IAS MPH | Rate of Climb Ft/Min | Best Climb IAS MPH | Rate of Climb Ft/Min |
| 5400                | 121.8              | 440                  | 121.2              | 353 120.4            | 265                | 119.4                | 178                | 114.2                | -48                |                      |
| 5000                | 117.0              | 545                  | 116.5              | 458                  | 115.5              | 273                  | 115.0              | 287                  | 111.0              | 25                   |
| 4600                | 112.0              | 650                  | 111.7              | 565                  | 111.0              | 505                  | 110.2              | 395                  | 105.5              | 97                   |

NOTE: FLAPS AND GEAR UP, INOPERATIVE PROPELLER - FEATHERED, WING BANKED 5° TOWARD OPERATING ENGINE, FULL THROTTLE, 2700 RPM AND MIXTURE AT RECOMMENDED FUEL FLOW. DECREASE RATE-OF-CLIMB 35 FT/MIN FOR EACH 10°F ABOVE STANDARD TEMPERATURE FOR A PARTICULAR ALTITUDE.

Figure 6-8

## SINGLE ENGINE SERVICE CEILING

BEST CLIMB SPEED APPROXIMATELY 115 MPH IAS

| Gross Weight Pounds | OUTSIDE AIR TEMPERATURE °F |        |        |        |        |        |        |
|---------------------|----------------------------|--------|--------|--------|--------|--------|--------|
|                     | -10                        | 0      | 10     | 20     | 30     | 40     | 50     |
|                     | ALTITUDE-FEET              |        |        |        |        |        |        |
| 5400                | 18,300                     | 17,900 | 17,600 | 17,300 | 16,850 | 16,420 | 16,000 |
| 5000                | 19,540                     | 19,250 | 18,950 | 18,620 | 18,270 | 17,900 | 17,500 |
| 4600                | 20,580                     | 20,260 | 19,970 | 19,700 | 19,400 | 19,020 | 18,700 |

NOTE: TABLE PROVIDES PERFORMANCE INFORMATION TO AID IN ROUTE SELECTION WHEN OPERATING UNDER FAR 135.145 AND FAR 91.119 REQUIREMENTS.

INCREASE INDICATED SERVICE CEILINGS 100 FEET FOR EACH 0.10 INCH H<sub>g</sub>. ALTIMETER SETTING GREATER THAN 29.92.

DECREASE INDICATED SERVICE CEILINGS 100 FEET FOR EACH 0.10 INCH H<sub>g</sub>. ALTIMETER SETTING LESS THAN 29.92.

Figure 6-9

### CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT SEA LEVEL

| RPM  | MP | %BHP | TAS   | Gal/Hr | Endurance<br>100 GAL | Range<br>100 GAL | Endurance<br>140 GAL | Range<br>140 GAL | Endurance<br>180 GAL | Range<br>180 GAL |
|------|----|------|-------|--------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| 2350 | 29 | 73.7 | 210.5 | 30.2   | 3.31                 | 698              | 4.64                 | 976              | 5.96                 | 1255             |
|      | 27 | 67.5 | 204.5 | 27.4   | 3.64                 | 744              | 5.10                 | 1042             | 6.57                 | 1344             |
|      | 25 | 61.4 | 197.5 | 25.0   | 4.00                 | 789              | 5.60                 | 1105             | 7.20                 | 1422             |
|      | 23 | 54.6 | 189   | 22.6   | 4.42                 | 837              | 6.19                 | 1171             | 7.96                 | 1504             |
|      | 21 | 48.1 | 180   | 20.4   | 4.89                 | 882              | 6.85                 | 1234             | 8.82                 | 1588             |
| 2200 | 29 | 66.5 | 203   | 27.0   | 3.70                 | 752              | 5.19                 | 1053             | 6.67                 | 1354             |
|      | 27 | 60.7 | 196.5 | 24.7   | 4.04                 | 794              | 5.66                 | 1112             | 7.29                 | 1432             |
|      | 25 | 54.9 | 189.5 | 22.7   | 4.41                 | 835              | 6.17                 | 1169             | 7.93                 | 1503             |
|      | 23 | 48.8 | 181   | 20.7   | 4.84                 | 877              | 6.78                 | 1228             | 8.70                 | 1575             |
|      | 21 | 43.0 | 172.5 | 18.8   | 5.31                 | 918              | 7.44                 | 1285             | 9.57                 | 1651             |
| 2100 | 29 | 61.4 | 197.5 | 25.0   | 4.00                 | 789              | 5.60                 | 1105             | 7.20                 | 1422             |
|      | 27 | 56.0 | 191   | 23.0   | 4.34                 | 829              | 6.08                 | 1160             | 7.83                 | 1496             |
|      | 25 | 50.5 | 184   | 21.2   | 4.72                 | 867              | 6.60                 | 1214             | 8.49                 | 1562             |
|      | 23 | 45.0 | 176   | 19.4   | 5.14                 | 905              | 7.20                 | 1267             | 9.28                 | 1633             |
|      | 21 | 38.9 | 166   | 17.6   | 5.69                 | 944              | 7.96                 | 1322             | 10.23                | 1698             |
|      | 19 | 31.4 | 149   | 15.3   | 6.52                 | 973              | 9.13                 | 1362             | 11.76                | 1752             |

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (59°F),  
ZERO WIND, 100, 140 AND 180 GALLONS OF FUEL (NO RESERVE).

NOTE: See range profile Figure 6-11 for range including climb.

### CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 5000'

| RMP  | MP | %BHP | TAS   | Gal/Hr | Endurance<br>100 GAL | Range<br>100 GAL | Endurance<br>140 GAL | Range<br>140 GAL | Endurance<br>180 GAL | Range<br>180 GAL |
|------|----|------|-------|--------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| 2350 | 29 | 73.7 | 221   | 30.2   | 3.31                 | 732              | 4.64                 | 1025             | 5.96                 | 1317             |
|      | 27 | 67.5 | 214   | 27.4   | 3.64                 | 781              | 5.10                 | 1093             | 6.57                 | 1406             |
|      | 25 | 61.4 | 207   | 25.0   | 4.00                 | 827              | 5.60                 | 1158             | 7.20                 | 1490             |
|      | 23 | 54.6 | 198   | 22.6   | 4.42                 | 877              | 6.19                 | 1228             | 7.96                 | 1576             |
|      | 21 | 48.1 | 188.5 | 20.4   | 4.89                 | 923              | 6.85                 | 1292             | 8.82                 | 1663             |
| 2200 | 29 | 66.5 | 213   | 27.0   | 3.70                 | 789              | 5.19                 | 1104             | 6.67                 | 1421             |
|      | 27 | 60.7 | 206   | 24.7   | 4.04                 | 833              | 5.66                 | 1166             | 7.29                 | 1502             |
|      | 25 | 54.9 | 198.5 | 22.7   | 4.41                 | 875              | 6.17                 | 1225             | 7.93                 | 1574             |
|      | 23 | 48.8 | 190   | 20.7   | 4.84                 | 920              | 6.78                 | 1288             | 8.70                 | 1653             |
|      | 21 | 43.0 | 180.5 | 18.8   | 5.31                 | 959              | 7.44                 | 1342             | 9.57                 | 1727             |
| 2100 | 29 | 61.4 | 207   | 25.0   | 4.00                 | 827              | 5.60                 | 1158             | 7.20                 | 1490             |
|      | 27 | 56.0 | 200   | 23.0   | 4.34                 | 869              | 6.08                 | 1216             | 7.83                 | 1566             |
|      | 25 | 50.5 | 192   | 21.2   | 4.72                 | 907              | 6.60                 | 1269             | 8.49                 | 1630             |
|      | 23 | 45.0 | 184   | 19.4   | 5.14                 | 945              | 7.20                 | 1325             | 9.28                 | 1708             |
|      | 21 | 38.9 | 172   | 17.6   | 5.69                 | 979              | 7.96                 | 1369             | 10.23                | 1760             |
|      | 19 | 31.4 | 150   | 15.3   | 6.52                 | 978              | 9.13                 | 1370             | 11.76                | 1764             |

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (41°F),  
ZERO WIND, 100, 140 AND 180 GALLONS OF FUEL (NO RESERVE).

NOTE: See range profile Figure 6-11 for range including climb.

Figure 6-10 (Sheet 1 of 3)

### CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 10,000 FT

|      | MP | %BHP | TAS   | Gal/Hr | Endurance<br>100 GAL | Range<br>100 GAL | Endurance<br>140 GAL | Range<br>140 GAL | Endurance<br>180 GAL | Range<br>180 GAL |
|------|----|------|-------|--------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| 2350 | 29 | 73.7 | 232.5 | 30.2   | 3.31                 | 770              | 4.64                 | 1078             | 5.96                 | 1386             |
|      | 27 | 67.5 | 225   | 27.4   | 3.64                 | 820              | 5.10                 | 1147             | 6.57                 | 1478             |
|      | 25 | 61.4 | 217.5 | 25.0   | 4.00                 | 869              | 5.60                 | 1216             | 7.20                 | 1566             |
|      | 23 | 54.6 | 207.5 | 22.6   | 4.42                 | 919              | 6.19                 | 1287             | 7.96                 | 1652             |
|      | 21 | 48.1 | 198   | 20.4   | 4.89                 | 968              | 6.85                 | 1355             | 8.82                 | 1746             |
| 2200 | 29 | 66.5 | 224   | 27.0   | 3.70                 | 830              | 5.19                 | 1161             | 6.67                 | 1494             |
|      | 27 | 60.7 | 216.5 | 24.7   | 4.04                 | 875              | 5.66                 | 1225             | 7.29                 | 1578             |
|      | 25 | 54.9 | 208.5 | 22.7   | 4.41                 | 918              | 6.17                 | 1285             | 7.93                 | 1653             |
|      | 23 | 48.8 | 199   | 20.7   | 4.84                 | 963              | 6.78                 | 1348             | 8.70                 | 1731             |
|      | 21 | 43.0 | 187.5 | 18.8   | 5.31                 | 996              | 7.44                 | 1395             | 9.57                 | 1794             |
| 2100 | 29 | 61.4 | 217.5 | 25.0   | 4.00                 | 869              | 5.60                 | 1216             | 7.20                 | 1566             |
|      | 27 | 56.0 | 209.5 | 23.0   | 4.34                 | 910              | 6.08                 | 1274             | 7.83                 | 1640             |
|      | 25 | 50.5 | 201.5 | 21.2   | 4.72                 | 951              | 6.60                 | 1332             | 8.49                 | 1711             |
|      | 23 | 45.0 | 191   | 19.4   | 5.14                 | 982              | 7.20                 | 1375             | 9.28                 | 1772             |
|      | 21 | 38.9 | 177   | 17.6   | 5.69                 | 1007             | 7.96                 | 1409             | 10.23                | 1811             |
|      | 19 | 31.4 | 146.5 | 15.3   | 6.52                 | 955              | 9.13                 | 1338             | 11.76                | 1723             |

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (23°F),  
ZERO WIND, 100, 140 AND 180 GALLONS OF FUEL (NO RESERVE).

NOTE: See range profile Figure 6-11 for range including climb.

### CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 15,000 FT

|      | RPM | MP   | %BHP  | TAS  | Gal/Hr | Endurance<br>100 GAL | Range<br>100 GAL | Endurance<br>140 GAL | Range<br>140 GAL | Endurance<br>180 GAL | Range<br>180 GAL |
|------|-----|------|-------|------|--------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| 2350 | 29  | 73.7 | 245   | 30.2 | 3.31   | 811                  | 4.64             | 1139                 | 5.96             | 1480                 |                  |
|      | 27  | 67.5 | 237   | 27.4 | 3.64   | 863                  | 5.10             | 1208                 | 6.57             | 1557                 |                  |
|      | 25  | 61.4 | 228.5 | 25.0 | 4.00   | 913                  | 5.60             | 1278                 | 7.20             | 1645                 |                  |
|      | 23  | 54.6 | 218   | 22.6 | 4.42   | 965                  | 6.19             | 1350                 | 7.96             | 1735                 |                  |
|      | 21  | 48.1 | 206.5 | 20.4 | 4.89   | 1010                 | 6.85             | 1415                 | 8.82             | 1821                 |                  |
| 2200 | 29  | 66.5 | 235.5 | 27.0 | 3.70   | 872                  | 5.19             | 1221                 | 6.67             | 1571                 |                  |
|      | 27  | 60.7 | 227   | 24.7 | 4.04   | 918                  | 5.66             | 1286                 | 7.29             | 1655                 |                  |
|      | 25  | 54.9 | 218.5 | 22.7 | 4.41   | 963                  | 6.17             | 1348                 | 7.93             | 1733                 |                  |
|      | 23  | 48.8 | 207.5 | 20.7 | 4.84   | 1004                 | 6.78             | 1407                 | 8.70             | 1805                 |                  |
|      | 21  | 43.0 | 193   | 18.8 | 5.31   | 1025                 | 7.44             | 1436                 | 9.57             | 1847                 |                  |
| 2100 | 29  | 61.4 | 228.5 | 25.0 | 4.00   | 913                  | 5.60             | 1278                 | 7.20             | 1645                 |                  |
|      | 27  | 56.0 | 220.5 | 23.0 | 4.34   | 957                  | 6.08             | 1339                 | 7.83             | 1727                 |                  |
|      | 25  | 50.5 | 211.5 | 21.2 | 4.72   | 997                  | 6.60             | 1396                 | 8.49             | 1796                 |                  |
|      | 23  | 45.0 | 199.5 | 19.4 | 5.14   | 1025                 | 7.20             | 1436                 | 9.28             | 1851                 |                  |
|      | 21  | 38.9 | 183   | 17.6 | 5.69   | 1041                 | 7.96             | 1457                 | 10.23            | 1872                 |                  |

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (5.5°F),  
ZERO WIND, 100, 140 AND 180 GALLONS OF FUEL (NO RESERVE).

E: See range profile Figure 6-11 for range including climb.

Figure 6-10 (Sheet 2 of 3)

### CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 20,000 FT

| RPM  | MP | %BHP | TAS   | Gal/Hr | Endurance<br>100 GAL | Range<br>100 GAL | Endurance<br>140 GAL | Range<br>140 GAL | Endurance<br>180 GAL | Range<br>180 GAL |
|------|----|------|-------|--------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| 2350 | 29 | 73.7 | 257.5 | 30.2   | 3.31                 | 854              | 4.64                 | 1195             | 5.96                 | 1535             |
|      | 27 | 67.5 | 249   | 27.4   | 3.64                 | 908              | 5.10                 | 1271             | 6.57                 | 1636             |
|      | 25 | 61.4 | 240.5 | 25.0   | 4.00                 | 960              | 5.60                 | 1345             | 7.20                 | 1732             |
|      | 23 | 54.9 | 230   | 22.7   | 4.41                 | 1012             | 6.17                 | 1417             | 7.93                 | 1824             |
|      | 21 | 48.8 | 216.5 | 20.7   | 4.84                 | 1048             | 6.78                 | 1468             | 8.70                 | 1884             |
| 2200 | 29 | 65.5 | 246.5 | 26.6   | 3.76                 | 928              | 5.27                 | 1299             | 6.77                 | 1669             |
|      | 27 | 60.0 | 238.5 | 24.5   | 4.08                 | 973              | 5.71                 | 1302             | 7.35                 | 1753             |
|      | 25 | 54.6 | 229.5 | 22.6   | 4.42                 | 1015             | 6.19                 | 1421             | 7.96                 | 1827             |
|      | 23 | 48.8 | 216.5 | 20.7   | 4.84                 | 1048             | 6.78                 | 1468             | 8.70                 | 1884             |
|      | 21 | 43.0 | 200.5 | 18.8   | 5.31                 | 1065             | 7.44                 | 1492             | 9.57                 | 1919             |
| 2100 | 29 | 60.4 | 239.0 | 24.6   | 4.06                 | 971              | 5.69                 | 1359             | 7.32                 | 1749             |
|      | 27 | 55.6 | 231.0 | 23.0   | 4.36                 | 1007             | 6.10                 | 1410             | 7.83                 | 1809             |
|      | 25 | 50.5 | 221   | 21.2   | 4.72                 | 1043             | 6.60                 | 1459             | 8.49                 | 1876             |
|      | 23 | 45.4 | 208   | 19.6   | 5.11                 | 1063             | 7.16                 | 1489             | 9.18                 | 1909             |
|      | 21 | 39.2 | 185.5 | 17.7   | 5.66                 | 1050             | 7.93                 | 1471             | 10.17                | 1887             |

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (-12°F), ZERO WIND, 100, 140 AND 180 GALLONS OF FUEL (NO RESERVE).

NOTE: See range profile Figure 6-11 for range including climb.

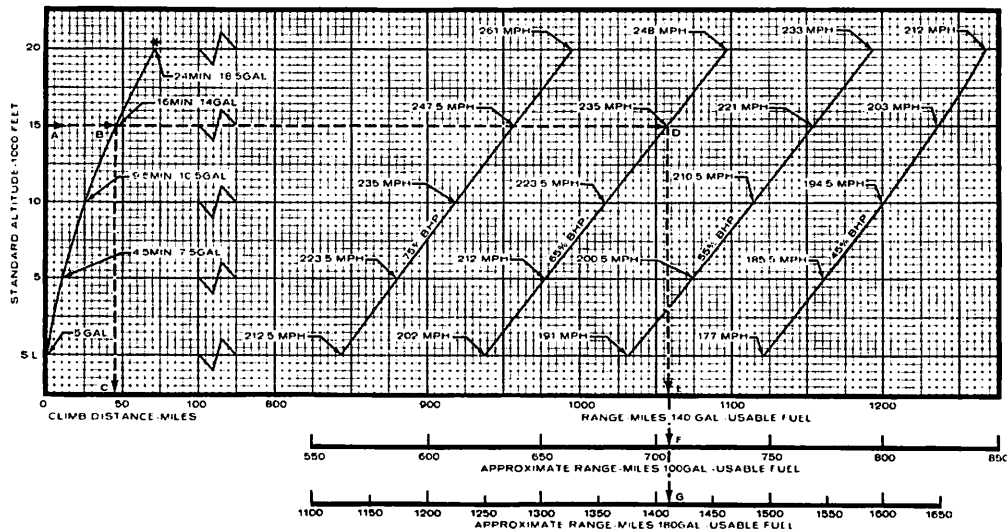
### CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 25,000 FT

| RPM  | MP | %BHP | TAS   | Gal/Hr | Endurance<br>100 GAL | Range<br>100 GAL | Endurance<br>140 GAL | Range<br>140 GAL | Endurance<br>180 GAL | Range<br>180 GAL |
|------|----|------|-------|--------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| 2350 | 23 | 55.2 | 241   | 22.8   | 4.39                 | 1058             | 6.14                 | 1480             | 7.89                 | 1901             |
|      | 22 | 51.8 | 233.5 | 21.7   | 4.62                 | 1079             | 6.46                 | 1508             | 8.29                 | 1936             |
|      | 21 | 48.1 | 222.5 | 20.4   | 4.89                 | 1088             | 6.85                 | 1524             | 8.82                 | 1962             |
|      | 20 | 45.0 | 212   | 19.4   | 5.14                 | 1090             | 7.20                 | 1526             | 9.28                 | 1967             |
| 2200 | 23 | 48.8 | 224.5 | 20.7   | 4.84                 | 1087             | 6.78                 | 1522             | 8.70                 | 1953             |
|      | 22 | 46.1 | 216.5 | 19.8   | 5.05                 | 1093             | 7.07                 | 1531             | 9.09                 | 1968             |
|      | 21 | 43.0 | 203   | 18.8   | 5.31                 | 1078             | 7.44                 | 1510             | 9.57                 | 1943             |
| 2100 | 23 | 45.4 | 213.5 | 19.6   | 5.11                 | 1091             | 7.16                 | 1529             | 9.18                 | 1960             |
|      | 22 | 42.3 | 200.5 | 18.6   | 5.38                 | 1079             | 7.53                 | 1510             | 9.68                 | 1941             |

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (-30°F), ZERO WIND, 100, 140 AND 180 GALLONS OF FUEL (NO RESERVE).

Figure 6-10 (Sheet 3 of 3)

# RANGE PROFILE Climb info



## NOTES

- Maximum range is not changed appreciably with variations in climb power setting and climb speed.
- Range includes distance to alternate destination.
- Climb fuel includes Allowance for start, taxi, & takeoff.

## CONDITIONS

- Starting Weight - 5400 Lbs.
- Cruise Climb to Desired Cruise Altitude.
- Cruise Fuel Flow Normal Lean Mixture.
- Zero Wind.
- 45 Min. Reserve Fuel (12.3 Gals.) at 35% BHP Provides Additional 132 Miles.

## EXAMPLE

- Cruise Altitude - 15,000 Ft.
- Time and Fuel Used to Climb from S. L. to 15,000 Ft. - 16 Min. and 14 Gal.
- Climb Distance - 45.5 Miles.
- Cruise Power and Speed - 65% and 235 MPH TAS.
- Range - 1058 Miles (140 Gals. Usable Fuel - Optional).
- Range - 702 Miles (100 Gals. Usable Fuel - Standard).
- Range - 1414 Miles (180 Gals. Usable Fuel - Optional).

\* Cruise Climb at 2350 RPM, 29.0 In. Hg. M. P. and 150 MPH IAS.

Figure 6-11

Figure 6-12

| LANDING PERFORMANCE |                     |                 |                                      |                |                                      |                |                                      |                |                                      |
|---------------------|---------------------|-----------------|--------------------------------------|----------------|--------------------------------------|----------------|--------------------------------------|----------------|--------------------------------------|
| Gross Weight Pounds | IAS at Obstacle MPH | SEA LEVEL 59° F |                                      | 2500 FT. 50° F |                                      | 5000 FT. 41° F |                                      | 7500 FT. 32° F |                                      |
|                     |                     | Ground Run      | Total Distance Over 50 Foot Obstacle | Ground Run     | Total Distance Over 50 Foot Obstacle | Ground Run     | Total Distance Over 50 Foot Obstacle | Ground Run     | Total Distance Over 50 Foot Obstacle |
| 5400                | 108                 | 640             | 1790                                 | 689            | 1839                                 | 742            | 1892                                 | 801            | 1951                                 |
| 5000                | 104                 | 540             | 1690                                 | 582            | 1732                                 | 627            | 1777                                 | 677            | 1827                                 |
| 4600                | 100                 | 450             | 1600                                 | 484            | 1634                                 | 522            | 1672                                 | 563            | 1713                                 |
| 4200                | 95                  | 368             | 1518                                 | 396            | 1546                                 | 427            | 1577                                 | 461            | 1611                                 |

NOTE WING FLAPS 35°, POWER OFF, HARD SURFACE RUNWAY, ZERO WIND, MAXIMUM BRAKING EFFORT. REDUCE LANDING DISTANCE 10% FOR EACH 10 MPH HEADWIND.

NOTE INCREASE DISTANCE BY 25% OF THE GROUND RUN FOR OPERATION ON FIRM DRY SOD RUNWAYS.

## **ELECTRIC ELEVATOR TRIM**

The electric elevator trim system consists of an electrically operated drive motor and clutch assembly, which receives power through a "momentary on" two way trim switch and an emergency disengage switch.

### **NORMAL OPERATION**

To operate the electrical elevator trim system proceed as follows:

- (1) Battery Switch - ON.
- (2) Elevator Trim Disengage Switch - ELEVATOR TRIM.
- (3) Trim Switch - ACTUATE (AS DESIRED).
- (4) Elevator Position Indicator - CHECK.

#### **NOTE**

To check the operation of the disengage switch: actuate the elevator trim switch with the disengage switch in the disengage position. Observe that the manual trim wheel and indicator do not rotate when the elevator trim switch is actuated.

### **EMERGENCY OPERATION**

Electric Elevator Trim System Failure.

- (1) Elevator Trim Disengage Switch - DISENGAGE.

#### **NOTE**

The disengage switch removes all power from the system and places motor and clutch circuits to ground.

- (2) Manual Trim - AS REQUIRED.

## DUAL HEATED PITOT AIRSPEED SYSTEM

The dual heated pitot airspeed system consists of two pitot heads ~~na~~ folded together and located on the sides of the fuselage just forward of the pilot's compartment.

### WITHOUT WEATHER RADAR INSTALLED

When the system is installed without the radar nose, the standard pitot head remains in the normal position and indicates on the pilot's airspeed indicator in the normal manner (See Pilot's Checklist for airspeed calibrations). The dual pitot system indicates on the copilot's airspeed indicator. The following tables present the copilot's airspeed calibrations.

#### STANDARD STATIC SOURCE

| AIRSPEED CORRECTION TABLE                 |                     |                        |                        |
|---|---------------------|------------------------|------------------------|
| Gear Position<br>Flap Position<br>MPH-CAS | Up<br>0°<br>MPH-IAS | Down<br>15°<br>MPH-IAS | Down<br>35°<br>MPH-IAS |
| 80  | 66.5                | 70.5                   | 75.5                   |
| 100                                       | 96.5                | 96                     | 97.5                   |
| 120                                       | 118                 | 117.5                  | 118                    |
| 140                                       | 138                 | 138                    | 139.5                  |
| 160                                       | 158                 | 159                    | 161                    |
| 180                                       | 178                 | 180                    |                        |
| 200                                       | 198                 |                        |                        |
| 220                                       | 218                 |                        |                        |
| 240                                       | 238                 |                        |                        |

#### ALTERNATE STATIC SOURCE AIRSPEED CALIBRATIONS

| Pilot's Storm Window Closed<br>Heater Vents "on" or "off" |                     |                        |                        | Pilot's Storm Window Open<br>Heater Vents "on" or "off" |                        |                        |
|---|---------------------|------------------------|------------------------|---|------------------------|------------------------|
| Gear Position<br>Flap Position<br>MPH-CAS                 | Up<br>0°<br>MPH-IAS | Down<br>15°<br>MPH-IAS | Down<br>35°<br>MPH-IAS | Up<br>0°<br>MPH-IAS                                     | Down<br>15°<br>MPH-IAS | Down<br>35°<br>MPH-IAS |
| 80  | 64.5                | 70.5                   | 75                     | 79.5  | 86                     | 89.5                   |
| 100   | 96                  | 97.5                   | 98.5                   | 111.5   | 112                    | 112.5                  |
| 120   | 119                 | 120.5                  | 121.5                  | 135   | 134                    | 134                    |
| 140   | 140                 | 142.5                  | 144.5                  | 156   | 155                    | 156.5                  |
| 160   | 161                 | 164.5                  | 168                    | 178   | 176.5                  | 179.5                  |
| 180   | 182.5               | 187                    |                        | 200   | 198                    |                        |
| 200   | 204                 |                        |                        | 221.5   |                        |                        |
| 220   | 224.5               |                        |                        | 243   |                        |                        |
| 240   | 246                 |                        |                        | 265   |                        |                        |

Figure 7-3

## WITH WEATHER RADAR INSTALLED

When the optional weather radar is installed, the standard pitot head is deleted and only the two side pitot heads are installed. In this configuration both the pilot and copilot's airspeed indicators are connected to the optional pitot heads. The airspeed calibrations with this configuration are shown in the following tables.

### STANDARD STATIC SOURCE

| AIRSPEED CORRECTION TABLE                 |                     |                        |                        |
|---|---------------------|------------------------|------------------------|
| Gear Position<br>Flap Position<br>MPH-CAS | Up<br>0°<br>MPH-IAS | Down<br>15°<br>MPH-IAS | Down<br>35°<br>MPH-IAS |
| 80  | 71.5                | 72                     | 73                     |
| 100                                       | 97                  | 96.5                   | 98.5                   |
| 120                                       | 118                 | 118                    | 120                    |
| 140                                       | 138.5               | 138                    | 140                    |
| 160                                       | 158.5               | 158                    | 160                    |
| 180                                       | 179                 | 178                    |                        |
| 200                                       | 199.5               |                        |                        |
| 220                                       | 220                 |                        |                        |
| 240                                       | 240                 |                        |                        |

| ALTERNATE STATIC SOURCE AIRSPEED CALIBRATIONS             |                     |                        |                        |   |                        |                        |
|---|---------------------|------------------------|------------------------|---|------------------------|------------------------|
| Pilot's Storm Window Closed<br>Heater Vents "on" or "off" |                     |                        |                        | Pilot's Storm Window Open<br>Heater Vents "on" or "off" |                        |                        |
| Gear Position<br>Flap Position<br>MPH-CAS                 | Up<br>0°<br>MPH-IAS | Down<br>15°<br>MPH-IAS | Down<br>35°<br>MPH-IAS | Up<br>0°<br>MPH-IAS                                     | Down<br>15°<br>MPH-IAS | Down<br>35°<br>MPH-IAS |
| 80  | 69.5                | 72                     | 72.5                   | 84.5  | 87.5                   | 87                     |
| 100   | 96.5                | 98                     | 99.5                   | 112   | 112.5                  | 113.5                  |
| 120   | 119                 | 121                    | 123.5                  | 135   | 134.5                  | 136                    |
| 140   | 140.5               | 142.5                  | 145                    | 156.6   | 155                    | 157                    |
| 160   | 161.5               | 163.5                  | 167                    | 178.5   | 175.5                  | 178.5                  |
| 180   | 183.5               | 185                    |                        | 201   | 196                    |                        |
| 200   | 205.5               |                        |                        | 223   |                        |                        |
| 220   | 226.5               |                        |                        | 245   |                        |                        |
| 240   | 248                 |                        |                        | 267   |                        |                        |

Figure 7-4

# AIRCRAFT "AS WEIGHED" REPORT

DATE: 6/17/2020

THIS WEIGHT/BALANCE SUPERCEDES OLD REPORT DATED: ~~March 12, 2009~~ JUL 16 2009  
*Jewell*

SCALES: MANUFACTURER LONGACRE MODEL 72700

AIRCRAFT REG. N5765M MODEL 310P

MANU Cessna SERIAL 310P0065

AIRCRAFT LEVELED ON SCALES I/A/W APPLICABLE SERVICE MANUALS  
AND FAA AC-43-13.

|                               | WEIGHT                | ARM          | MOMENT             |
|-------------------------------|-----------------------|--------------|--------------------|
| NOSE/TAIL WHEEL               | 834                   | -50.39       | -42,025.26         |
| LT. MAIN WHEEL                | 1887                  | 55.63        | 104,973.81         |
| RT. MAIN WHEEL                | 1838                  | 55.63        | 102,247.94         |
| USEABLE FUEL (-)<br>6 lbs/GAL | mains-600<br>Aux -240 | 35.0<br>47.0 | -21,000<br>-11,280 |

|                  |                 |            |
|------------------|-----------------|------------|
| NEW EMPTY WEIGHT | 3719            |            |
| NEW MOMENT       |                 | 132,916.49 |
| NEW EW/CG        |                 | 35.7       |
| GROSS WEIGHT     | NEW USEFUL LOAD |            |
| 5400             | 1681            |            |

DATUM: 55.63" Fwd mains

X \_\_\_\_\_ Distance in Inches \_\_\_\_\_ X

| Prop | W/P       | Fuel | W/P       | Fuel | W/P       |
|------|-----------|------|-----------|------|-----------|
| X    | Nosewheel | X    | Main gear | X    | Tailwheel |
|      | X         |      | X         |      | X         |
|      | X         |      | X         |      | X         |

*John B. [Signature]*  
AP-3687810 IA