

PITTS AEROBATICS

AIRPLANE FLIGHT MANUAL

MODEL S-1T AIRPLANE

*Pitts*  
**S-1T**

SERIAL NO. 1054

FAA APPROVED: John F. Vogel

CHIEF, ENGINEERING AND  
MANUFACTURING BRANCH,  
SOUTHERN REGION,  
FEDERAL AVIATION AGENCY

DATE: July 24, 1975

PITTS AEROBATICS  
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LOG OF REVISIONS

| REVISION<br>LETTER | PAGES<br>AFFECTED         | DESCRIPTION<br>OF CHANGE        | APPROVAL<br>AND DATE                                                                                                              |
|--------------------|---------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| A                  | i, 1 of 10,<br>10.1 of 10 | typo., and<br>placards<br>added | <i>F. E. McEwen</i><br>Acting Chief,<br>Engineering and<br>Manufacturing Branch<br>Southern Region, FAA<br>Date: October 29, 1976 |
| B                  | i, ii, 1, 2,<br>5, 10     | Misc. minor<br>changes          | <i>Mark E. Baldwin</i><br>Manager, Denver Air-<br>craft Certification<br>Field Office<br>Date: Sept. 15, 1982                     |
| C                  | i, 3                      | Changed Rear<br>C.G. Limits     | <i>Woodford Boyce</i><br>Manager, Denver<br>Aircraft Certific-<br>ation Office.<br>Date: July 26, 1985                            |
|                    |                           |                                 |                                                                                                                                   |

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SECTION I OPERATING LIMITATIONS

| A. <u>Airspeeds:</u>                                             | <u>CAS</u>           |
|------------------------------------------------------------------|----------------------|
| Normal operating range (green arc) from stall speed:             | 64 MPH<br>56 KNOTS   |
| To maximum normal operating speed:                               | 154 MPH<br>134 KNOTS |
| Caution range (yellow arc) from maximum structural cruise speed: | 154 MPH<br>134 KNOTS |
| To never exceed speed: (red radial)                              | 203 MPH<br>176 KNOTS |

NOTE: DO NOT OPEN CANOPY PAST FIRST NOTCH ABOVE 120 MPH (104 KNOTS)  
 FOR ACROBATIC MANEUVER ENTRY SPEEDS, SEE PLACARDS SECTION.

B. Powerplant Limits:

For Lycoming AEIO-360-A1E engine and Hartzell HC-C2YK-4CF/FC7666A-2 propeller. Propeller minimum diameter 72 inches. Propeller maximum diameter is 74 inches.

|                            |                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------|
| Propeller Pitch Settings:  | High Pitch $28^{\circ} \pm \frac{1}{2}^{\circ}$<br>Low Pitch $13\frac{1}{2}^{\circ}$ |
| <u>Engine rated power:</u> | 200 HP @ 2700 RPM                                                                    |
| <u>Minimum fuel grade:</u> | 100 Octane                                                                           |
| <u>Oil Pressure:</u>       |                                                                                      |
| Minimum (red radial)       | 25 PSI                                                                               |
| Caution range (yellow arc) | from 25 PSI<br>to 60 PSI                                                             |
| Normal range (green arc)   | from 60 PSI<br>to 90 PSI                                                             |

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SECTION 1 OPERATING LIMITATIONS

B. Powerplant Limits (cont'd)

Oil Pressure: (cont'd)

|                             |      |         |
|-----------------------------|------|---------|
| Cautious range (yellow arc) | from | 90 PSI  |
|                             | to   | 100 PSI |

|                      |  |         |
|----------------------|--|---------|
| Maximum (red radial) |  | 100 PSI |
|----------------------|--|---------|

Oil Temperature:

|                      |  |            |
|----------------------|--|------------|
| Maximum (red radial) |  | 245 Deg. F |
|                      |  | 118 Deg. C |

|                          |      |            |
|--------------------------|------|------------|
| Normal range (green arc) | from | 100 Deg. F |
|                          |      | 38 Deg. C  |
|                          | to   | 245 Deg. F |
|                          |      | 118 Deg. C |

Fuel Pressure:

|         |  |       |
|---------|--|-------|
| Minimum |  | 0 PSI |
|---------|--|-------|

|                          |      |        |
|--------------------------|------|--------|
| Normal range (green arc) | from | 0 PSI  |
|                          | to   | 12 PSI |

|                      |  |        |
|----------------------|--|--------|
| Maximum (red radial) |  | 12 PSI |
|----------------------|--|--------|

Tachometer:

|                  |  |         |
|------------------|--|---------|
| Recommended idle |  | 650 RPM |
|------------------|--|---------|

|                          |          |          |
|--------------------------|----------|----------|
| Normal range (green arc) | from     | 500 RPM  |
|                          | to       | 2000 RPM |
|                          | and from | 2350 RPM |
|                          | to       | 2600 RPM |

|                            |      |          |
|----------------------------|------|----------|
| Avoid continuous operation | from | 2000 RPM |
| (red arc)                  | to   | 2350 RPM |
|                            | and  | 2600 RPM |
|                            | to   | 2700 RPM |

|                                                     |  |          |
|-----------------------------------------------------|--|----------|
| Do Not exceed (red radial)                          |  | 2700 RPM |
| Avoid continuous operation (red arc) above 2600 RPM |  |          |
| in aerobatic and full throttle level flight         |  |          |

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SECTION I OPERATING LIMITATIONS

C. Weights

Maximum gross weight 1150 LBS.

NOTE: Reference station, FS 0.00 is located  
60.56 inches forward of lower wing leading edge.

|                            |               |          |
|----------------------------|---------------|----------|
| Maximum oil                | 2 U.S. Gals.  | 15 LBS.  |
| Fuel tank capacity         | 20 U.S. Gals. | 120 LBS. |
| Baggage, maximum           |               | 15 LBS.  |
| Usable fuel, normal flight | 19 U.S. Gals. | 114 LBS. |

(See Section V, "Weight and Balance," for allowable weight and center of gravity combinations and detail loading instructions.)

Weight and Center of Gravity Limits:

Most forward limit:

FS 59.35 (17.53%MAC) at 1115 lbs. or less;

Most forward at maximum gross weight:

FS 60.37 (20.47%MAC) at 1150 lbs.;

Most rearward at maximum gross weight:

FS 62.20(25.7% MAC) at 1150 lbs.;

Most rearward limit:

FS 62.48 (26.6% MAC) at 970 lbs. or less; with  
straight line variation between points given.

D. Flight Load Factors:

|                        |          |
|------------------------|----------|
| Positive flight, limit | +6.0 G.  |
| Negative flight, limit | -4.67 G. |

Maneuvers and entry speeds:

See section IV, "Placards."

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SECTION I OPERATING LIMITATIONS

C. Weights

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|                            |               |          |
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| Maximum oil                | 2 U.S. Gals.  | 15 LBS.  |
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| Baggage, maximum           |               | 15 LBS.  |
| Usable fuel, normal flight | 19 U.S. Gals. | 114 LBS. |

(See Section V, "Weight and Balance," for allowable weight and center of gravity combinations and detail loading instructions.)

Weight and Center of Gravity Limits:

Most forward limit:

FS 59.35 (17.53%MAC) at 1115 lbs. or less;

Most forward at maximum gross weight:

FS 60.37 (20.47%MAC) at 1150 lbs.;

Most rearward at maximum gross weight:

FS 61.38 (23.39%MAC) at 1150 lbs.;

Most rearward limit:

FS 62.48 (26.6% MAC) at 970 lbs. or less; with  
 straight line variation between points given.

D. Flight Load Factors:

|                        |          |
|------------------------|----------|
| Positive flight, limit | +6.0 G.  |
| Negative flight, limit | -4.67 G. |

Maneuvers and entry speeds:

See section IV, "Placards."

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SECTION I                      OPERATING LIMITATIONS

E. Flight Limitations:

This airplane must be operated as a day VFR airplane only.

Flight into known icing conditions is prohibited.

No acrobatic maneuvers with baggage.

F. Usable Fuel:

Of the 20 U.S. gallon fuel tank capacity, 19 gallons are usable during all normal flight conditions.  
Unusable fuel, normal flight: 1 U.S. Gallon.

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SECTION II OPERATING PROCEDURES

A. Normal Procedures:

a. Opening Canopy:

1. To open canopy from outside, pull up on the canopy latch tabs located at the lower front edges of the canopy, and slide the canopy aft.
2. To open canopy from inside, pull aft on cable latch release located at top forward center of canopy.

b. Check Stall Warning System as follows before every flight if aircraft does not have a full electrical system:

1. Reach into cockpit and turn master stall warn switch ON.
2. Walk to stall warn sensor on right wing and deflect vane UP.
3. If horn is clearly audible from wing, system is acceptable for flight. If horn is not clearly audible from wing, replace dry-cell battery before flight.

c. Starting Engine from Cold:

- |                                                              |                         |
|--------------------------------------------------------------|-------------------------|
| 1. Alternate air:                                            | OFF                     |
| 2. Propeller governor control:                               | HIGH RPM                |
| 3. Fuel selector:                                            | ON                      |
| 4. Master stall warn switch                                  | ON                      |
| 5. Mixture control:                                          | FULL RICH               |
| 6. Throttle:                                                 | OPEN $\frac{1}{4}$ INCH |
| 7. Auxiliary fuel pump:                                      | PUMP 3 STROKES          |
| 8. Pull mixture control to:                                  | IDLE CUT-OFF            |
| 9. Switch ignition to:                                       | LEFT MAGNETO            |
| 10. Prop engine                                              |                         |
| 11. When engine starts, push mixture control immediately to: | FULL RICH               |
| 12. Switch ignition to:                                      | BOTH MAGNETOS           |
| 13. Oil pressure:                                            | INDICATION              |

NOTE: Hot idle oil pressure 25 PSI minimum.

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SECTION II OPERATING PROCEDURES

A. Normal Procedures (cont'd):

d. Starting Engine From Hot:

- |                                                              |                         |
|--------------------------------------------------------------|-------------------------|
| 1. Alternate air:                                            | OFF                     |
| 2. Propeller governor control;                               | HIGH RPM                |
| 3. Fuel selector:                                            | ON                      |
| 4. Master stall warn switch:                                 | ON                      |
| 5. Mixture control;                                          | FULL RICH               |
| 6. Throttle:                                                 | HALF OPEN               |
| 7. Auxiliary fuel pump:                                      | PUMP 1 STROKE           |
| 8. Throttle                                                  | OPEN $\frac{1}{4}$ INCH |
| 9. Pull mixture control to:                                  | IDLE CUT-OFF            |
| 10. Switch ignition to;                                      | LEFT MAGNETO            |
| 11. Prop engine.                                             |                         |
| 12. When engine starts, push mixture control immediately to: | FULL RICH               |
| 13. Switch ignition to:                                      | BOTH MAGNETOS           |
| 14. Oil pressure                                             | INDICATION              |

e. Ground Running and Warm-Up:

To prevent overheating follow these procedures:

- |                               |                 |
|-------------------------------|-----------------|
| 1. Head airplane into wind    |                 |
| 2. Mixture:                   | FULL RICH       |
| 3. Propeller governor control | HIGH RPM        |
| 4. Warm-up at approximately:  | 1000 - 1200 RPM |

Avoid prolonged idling and do not exceed: 2200 RPM

f. Pre-Takeoff:

- |                                                                                                   |           |
|---------------------------------------------------------------------------------------------------|-----------|
| 1. Warm-up as above.                                                                              |           |
| 2. Oil pressure:                                                                                  | GREEN ARC |
| 3. Oil temperature:                                                                               | GREEN ARC |
| 4. Mixture control:                                                                               | FULL RICH |
| 5. Elevator trim:                                                                                 | NEUTRAL   |
| 6. Flight controls:                                                                               | FREE      |
| 7. Fuel pressure:                                                                                 | GREEN ARC |
| 8. Set throttle to 1700 RPM and move propeller governor control through full range and return to: | HIGH RPM  |

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SECTION II OPERATING PROCEDURES

A. Normal Procedures (cont'd):

f. Pre-Takeoff: (cont'd)

9. Magneto check:

With propeller set at high RPM set  
 throttle at: 2200 RPM

10. Switch magnetos from both to one and  
 note drop off, return to both until  
 engine regains speed and switch to  
 other magneto and note drop-off,  
 then return to both.

Normal drop-off is: 100 RPM

Maximum drop-off is: 175 RPM

Difference in drop-off between magnetos is: 50 RPM

g. Landing:

1. Mixture control: FULL RICH

2. Propeller governor control: HIGH RPM

h. Engine Shut-down:

1. Throttle: CLOSED

2. Mixture control: IDLE CUT-OFF

3. Master stall warn switch: OFF

4. Ignition switch: OFF

i. Acrobatic Flight:

Low altitude acrobatics with less than  $\frac{1}{4}$  tank of  
 fuel onboard is not recommended.

j. Spin Recovery Procedure:

With aileron neutral, apply full opposite rudder  
 briskly, followed by full nose down elevator. When  
 spin rotation stops, neutralize rudder and elevator  
 and recover to level flight.

NOTE: Aileron held against the spin may delay the  
 recovery.

B. Emergency Procedures:

a. In-flight Engine Restart:

1. Pull mixture control to: IDLE CUT-OFF

2. Establish glide at: 100 MPH IAS

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SECTION II OPERATING PROCEDURES

A. Normal Procedures (cont'd):

a. In-Flight Engine Restart (cont'd):

3. Fuel selector: ON
4. Master stall warn switch: ON
5. Ignition switch: BOTH MAGNETOS
6. Throttle:  $\frac{1}{4}$  OPEN
7. Propeller governor control: HIGH RPM
8. Increase airspeed to start propeller wind-milling, if it has stopped.
9. Advance mixture control to: FULL RICH

b. Freezing of Pitot-Static Head:

In the event of icing of the static orifices on the pitot static head, an alternate source of static pressure is provided. To open the alternate static pressure source, turn the indicated valve on the instrument panel counterclockwise to full open. See placard for altitude error.

c. Best Glide Speed, Engine Out Is: 97 MPH IAS

d. In Case of Emergency Bailout, pull canopy full aft prior to bailing out.

e. NOTE: Stall warning is inoperative with master stall warn switch "OFF"

SECTION III PERFORMANCE INFORMATION

A. Altitude loss during power off stalls: 200 FT

B. Power-off stalling speed versus bank angle, at 1150 lbs. gross weight and forward gross C.G. =

| <u>BANK ANGLE</u> | <u>STALLING SPEED</u> | <u>BANK ANGLE</u> | <u>STALLING SPEED</u> |
|-------------------|-----------------------|-------------------|-----------------------|
| 0°                | 64 MPH CAS            | 45°               | 76 MPH CAS            |
| 30°               | 69 MPH CAS            | 60°               | 91 MPH CAS            |

C. Demonstrated flight time, inverted is: 3 MINUTES

D. Demonstrated crosswind velocity is: 20 MPH

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SECTION IV

PLACARDS

The following placards are installed in the airplane:

1. Adjacent to fuel selector handle in cockpit:  
    "Fuel Select"  
    "19 gals. usable"  
    "ON"      "OFF"
2. Adjacent to airspeed indicator: "Design maneuver speed 154  
    MPH: demonstrated crosswind velocity 20 MPH."
3. On inside of baggage compartment door: "No acrobatics with  
    baggage; max. baggage 15 lbs."
4. Adjacent to fuel tank filler neck: "Fuel 100/130 octane.  
    19 gals. usable."
5. On instrument panel adjacent to alternate static source valve:  
    "Open for alternate static      ."
6. On left side of cockpit, adjacent to mixture control: "Pull  
    for lean mixture."
7. On right side of cockpit, adjacent to alternate engine inlet  
    air control: "Pull for alternate air."
8. On left side of cockpit, adjacent to elevator trim control  
    handle: "Nose up; Neutral; Nose down."
9. On throttle quadrant: "Open; Throttle; Closed."
10. On instrument panel: "No Smoking."
11. Adjacent to master stall warn switch: "Master stall warn.;  
    Must be on for flight; ON; OFF."
12. Adjacent to propeller governor control on LH side of cockpit:  
    "Push for high RPM."
13. On LH side of cockpit fairing, inside in clear view of pilot:  
    "This airplane must be operated as an aerobatic category  
    airplane in compliance with the operating limitations stated  
    in the form of placards markings and manuals. Operations  
    limited to day VFR conditions. Flight into known icing  
    conditions prohibited."

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## SECTION IV

## PLACARDS

## 13. cont'd

## "APPROVED MANEUVERS AND RECOMMENDED ENTRY SPEEDS: (MPH)

| MANEUVER         | INSIDE              |      | OUTSIDE |      |
|------------------|---------------------|------|---------|------|
|                  | MAX.                | MIN. | MAX.    | MIN. |
| LOOP (UP)        | 180                 | 130  | 180     | 130  |
| LOOP (DOWN)      | 100                 | 70   | 100     | 70   |
| SLOW ROLL        | 180                 | 100  | 180     | 100  |
| BARREL ROLL      | 180                 | 130  | 180     | 130  |
| SNAP ROLL        | 140                 | 90   | 110     | 90   |
| HAMMERHEAD       | 180                 | 130  | 180     | 130  |
| LAZY EIGHT       | 180                 | 140  | 180     | 140  |
| CHANDELLE        | 180                 | 140  | 180     | 140  |
| STALLS AND SPINS | (SLOW DECELERATION) |      |         |      |

For spin recover, put ailerons neutral, apply full opposite rudder briskly and then apply nose down elevator."

14. On instrument panel, adjacent to "F" mark on fuel quantity indicator: "19 gals. usable."
15. On LH side of cockpit fairing in clear view of pilot: "No acrobatics with baggage."
16. On top centerline of canopy at forward edge: "Pull aft to open."
17. On right hand forward lower corner of canopy: "Do not open past first notch above 120 MPH IAS."
18. On instrument panel adjacent to alternate static source valve:  
 "Altimeter Error,  
 Alternate Static On: Airspeed, MPH Error, Ft.
- |     |      |
|-----|------|
| 80  | -20  |
| 100 | -10  |
| 120 | +60  |
| 140 | +90  |
| 160 | +150 |

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SECTION IV

PLACARDS (cont'd)

21. On outside lower forward corners of canopy bubble (both sides): "To open: Lift tab slide aft (both sides)."

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SECTION V

WEIGHT AND BALANCE

ACTUAL WEIGHT AND BALANCE OF:

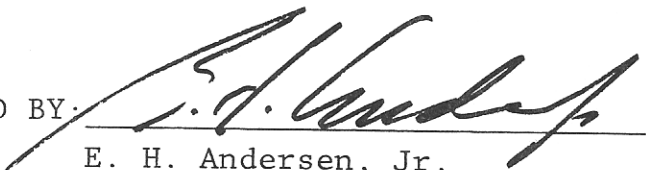
MODEL: PITTS S-1T

SERIAL NO.: 1054

DATE: 14 Feb 1990

UPDATE: 16 Feb 1990

PREPARED BY:

  
E. H. Andersen, Jr.  
Chief Engineer

NOTE: It is the responsibility of the pilot to ensure that his airplane is operated in loading configurations which are within the approved weight and center of gravity limits.

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## SECTION V

## WEIGHT AND BALANCE

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| REVISION<br>LETTER | PAGES<br>AFFECTED    | DESCRIPTION<br>OF CHANGE                                | APPROVAL<br>AND DATE     |
|--------------------|----------------------|---------------------------------------------------------|--------------------------|
| A                  | 13 & 14 of 14        | Equipment list<br>revised                               | E. F. D.<br>13 Oct. 1976 |
| B                  | 5, 12, & 13<br>of 14 | Changed Rear C.G.<br>Location. Corrected<br>Battery Arm | E. H. A.<br>27 July 1985 |
|                    |                      |                                                         |                          |

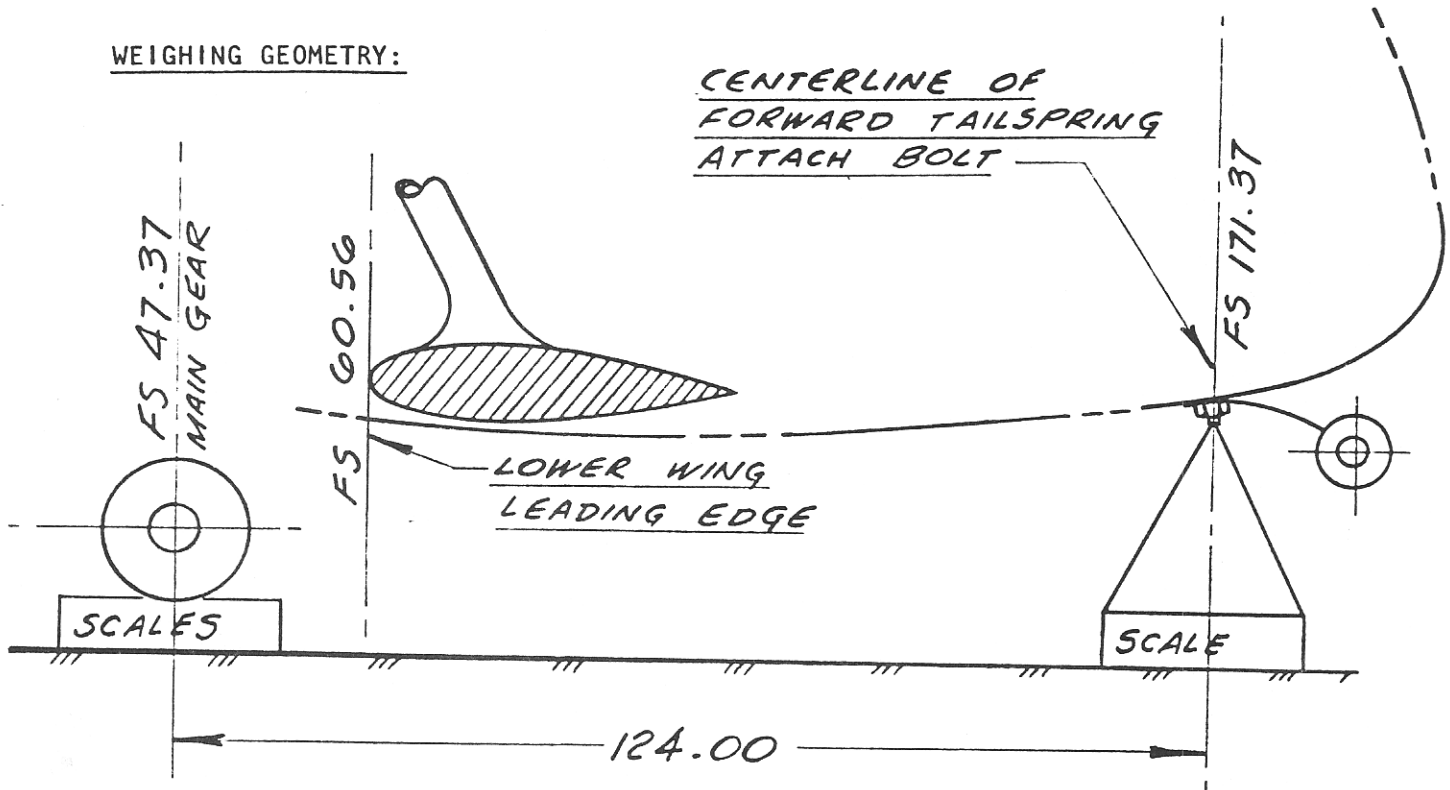
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## SECTION V

## WEIGHT AND BALANCE

AIRPLANE SERIAL NUMBER 1054

## WEIGHING GEOMETRY:

WEIGHING GEOMETRY:

Datum is 60.56 inches forward of lower wing leading edge.

Weighing performed with airplane level.

Level airplane on upper longerons at cockpit.

EMPTY WEIGHT AS WEIGHED

| SCALE      | READING | TARE | NET   |
|------------|---------|------|-------|
| Left Main  | 420.8   | 0    | 420.8 |
| Right Main | 406.2   | 0    | 406.2 |
| Tail       | 97.5    | 34   | 63.5  |

Empty weight as weighed is total 890.5 lb.

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## SECTION V

## WEIGHT AND BALANCE

AIRPLANE SERIAL NUMBER 1054 $\bar{X}$  C.G. As Weighed:

$$\bar{x} \text{ c.g.} = \frac{(\text{left main net} + \text{right main net})47.37 + (\text{tail net})171.37}{\text{total net}}$$

$$\bar{x} \text{ c.g.} = \frac{(420.8 + 406.2)47.37 + (63.5)171.37}{(890.5)}$$

$$\bar{x} \text{ c.g.} = \frac{56.2}{\text{inches aft of datum.}}$$

Standard zero - fuel weight and moment:As-weighed weight, net, (page 3 of 14) = 890.5 lb.As-weighed moment = (as-weighed weight) ( $\bar{x}$  C.G.)

$$= (890.5) (56.2)$$

$$= 50057.0 \text{ in-lb.}$$

The as-weighed weight and moment above includes the following items:

1. Engine oil:

| <u>Weight, lb.</u> | <u>Arm, in.</u> | <u>Moment, in-lb.</u> |
|--------------------|-----------------|-----------------------|
| (2 gal.)           | 31.26           | ( 0 )                 |

NOTE: Full oil is as follows:

|         |            |       |         |
|---------|------------|-------|---------|
| (2 gal. | (15.0 lb.) | 31.26 | ( 469 ) |
|---------|------------|-------|---------|

2. Fuel:

|          |     |       |       |
|----------|-----|-------|-------|
| (0 gal.) | ( ) | 59.50 | ( 0 ) |
|----------|-----|-------|-------|

NOTE: Full fuel is as follows:

|           |           |       |          |
|-----------|-----------|-------|----------|
| (20 gal.) | (120 lb.) | 59.50 | ( 7140 ) |
|-----------|-----------|-------|----------|

| ITEM                 | WEIGHT, LB. | MOMENT, IN.-LB. |
|----------------------|-------------|-----------------|
| As-weighed           | 890.5       | 50057.0         |
| Oil Correction       | + 15.0      | + 468.9         |
| Fuel Correction      | — 0         | — 0             |
| Other Correction (1) | 3.0         | 214.5           |
| Standard, Zero-Fuel  | 908.5       | 50740.4         |

This standard zero fuel weight is for Pitts Model S-1T  
 Serial No. 1054 with 2 gals. of oil, zero fuel, no pilot, no  
 baggage.

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## SECTION V

## WEIGHT AND BALANCE

AIRPLANE SERIAL NUMBER 1054

Standard zero - fuel weight and moment cont'd:

2. Fuel cont'd:

(1) Other Correction: Radio; Escort II 3.0lbs @ FS 71.5

Equipped Weight Empty:

The equipped weight empty of the airplane is the standard zero-fuel weight above, plus 1 gallon, (6 pounds) of unusable fuel.

| ITEM                  | WEIGHT, LB. | MOMENT, IN.-LB. |
|-----------------------|-------------|-----------------|
| Standard Zero Fuel    | 908.5       | 50740.4         |
| Normal Unusable Fuel  | + 6.0       | + 357           |
| Equipped Weight Empty | 914.5       | 51097.4         |

Allowable Weight and Center of Gravity:

The allowable weight and center of gravity envelope to which the Model S-1T is F.A.A. Type Certificated in the Acrobatic Category is defined by the following points:

|                            | <u>WEIGHT, LB.</u> | <u>Arm, FS</u> | <u>MOMENT</u> | <u>%MAC</u> |
|----------------------------|--------------------|----------------|---------------|-------------|
| Most Fwd:                  | 1115               | 59.35          | 66175         | 17.53       |
| Most Fwd. and Max. Gross:  | 1150               | 60.63          | 69725         | 20.47       |
| Most Rearwd and Max Gross: | 1150               | 61.38          | 70587         | 23.39       |
| Most Rearwd:               | 970                | 62.48          | 60606         | 26.6        |

The following section of this manual has been provided for your convenience in determining the weight and center of gravity of your airplane for various loading configurations.

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Allowable Weight and Center of Gravity cont'd:

CAUTION

1. The envelope of page 12 of 14 has been investigated by Pitts Aerobatics and by the F.A.A., and the Model S-1T has been found to comply with all flight and structural requirements of FAR 23, Acrobatic Category, within this envelope. Operations at weights or centers of gravity not within this envelope are illegal, and may be dangerous.
2. Do not perform acrobatics with baggage.
3. Do not perform low level acrobatics with less fuel than  $\frac{1}{4}$  tank.

For your convenience, some loading points for various configurations have been computed and plotted on the envelope of page 12 of 14. These are sample calculations, and are based on an airplane dry empty weight of 805 lbs., and a corresponding moment of 43631 in.-lb., which is typical; however, the owner is cautioned to base actual weight and center of gravity calculations for his airplane on the equipped weight empty shown on page 5 of 14, for his particular airplane.

To Determine Your Weight and C.G.:

1. Begin with the equipped weight empty of your airplane shown on page 5 of 14. Record the weight and moment.
2. From the plot on page 10 of 14, (weight and moment due to pilot), locate the weight and moment corresponding to the actual weight of the pilot (and his parachute if one is worn.)
3. From the plot of page 10 of 14, (weight and moment due to baggage), locate the weight and moment due to whatever baggage is being carried in the airplane baggage compartment. NOTE: No acrobatics with baggage.

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To Determining Your Weight and C.G. cont'd:

4. Add these weights and moments as shown:

| ITEM                  | WEIGHT | MOMENT  |
|-----------------------|--------|---------|
| EQUIPPED WEIGHT EMPTY | 914.5  | 51097.4 |
| PILOT                 |        |         |
| BAGGAGE               |        |         |
| TOTAL                 |        |         |

5. Locate the total weight and moment from Step 4 above on the plot of page 12 of 14. This point on the weight/c.g. envelope represents the airplane and its contents with zero usable fuel. This point must be inside the envelope.
6. To the weight and moment obtained in Step 4 above, add the weight and moment due to maximum usable fuel, which you obtain from the plot on page 11 of 14, (weight and moment due to fuel.) This point represents the airplane plus contents with maximum usable fuel, and it also must be inside the envelope of page 12 of 14.

The above six step procedure is illustrated by the examples which follow

EXAMPLE NO. 1

Step 1. From page 5 of 14, equipped weight empty is 826 lbs. and the moment is 44427 in.-lb.

Step 2. From plot of pilot weight and moment, page 10 of 14, for 160 lbs. pilot plus parachute, read moment of 14474 in.-lb.

Step 3. Since no baggage is carried, this step is skipped.

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To Determine Your Weight and C.G. cont'd:

EXAMPLE NO. 1 cont'd:

Step 4. Add these weight and moments:

| <u>ITEM</u>     | <u>WEIGHT</u> | <u>MOMENT</u> |
|-----------------|---------------|---------------|
| Equipped, empty | 826           | 44427         |
| Pilot + Chute   | 160           | 14474         |
| Baggage         | <u>(0)</u>    | <u>(0)</u>    |
| TOTAL           | 986 lbs.      | 58901 in.-lb. |

Step 5. Locate this point, (986 lbs. and 58901 in.-lb.), on the c.g. envelope of page 12 of 14. It is labelled "A". It is your weight and c.g. location with zero usable fuel, and is within the envelope.

Step 6. From plot of fuel weight and moment, page 11 of 14, for maximum usable fuel of 19 gallons, read fuel weight of 114 lbs. and moment of 6783 in.-lb. Add this weight and moment to the results of Step 4 above as shown:

| <u>ITEM</u>             | <u>WEIGHT</u> | <u>MOMENT</u> |
|-------------------------|---------------|---------------|
| Equipped, empty + pilot | 986           | 58901         |
| 19 gals. usable fuel    | <u>114</u>    | <u>6783</u>   |
| TOTAL                   | 1100 lbs.     | 65684 in.-lb. |

Step 7. Locate this point on the weight/c.g. envelope of page 12 of 14. It is labelled "B" and represents your weight and c.g. with full fuel. Since points "A" and "B" are both within the approved envelope, you will be inside the approved limits for the entire flight.

EXAMPLE NO. 2 Pilot weight of 205 lbs. not wearing parachute, no baggage.

Step 1. From page 5 of 14, equipped weight empty is 826 lbs. and the moment is 44427 in.-lb.

Step 2. From plot of pilot weight and moment, page 10 of 14, for 205 lbs. read moment of 18544 in.-lb.

Step 3. Since no baggage is carried, skip this step.

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To Determine Your Weight and C.G. cont'd:

EXAMPLE NO. 2 cont'd:

Step 4. Add the weights and moments:

| <u>ITEM</u>     | <u>WEIGHT</u> | <u>MOMENT</u> |
|-----------------|---------------|---------------|
| Equipped, empty | 826           | 44427         |
| Pilot           | 205           | 18544         |
| Baggage         | <u>(0)</u>    | <u>(0)</u>    |
| TOTAL           | 1031          | 62971         |

Step 5. Locate this point, (1031 lbs. and 62971 in.-lb.), on the weight/c.g. envelope of page 12 of 14. It is labelled "C". It is your weight and c.g. with zero usable fuel, and is within the envelope.

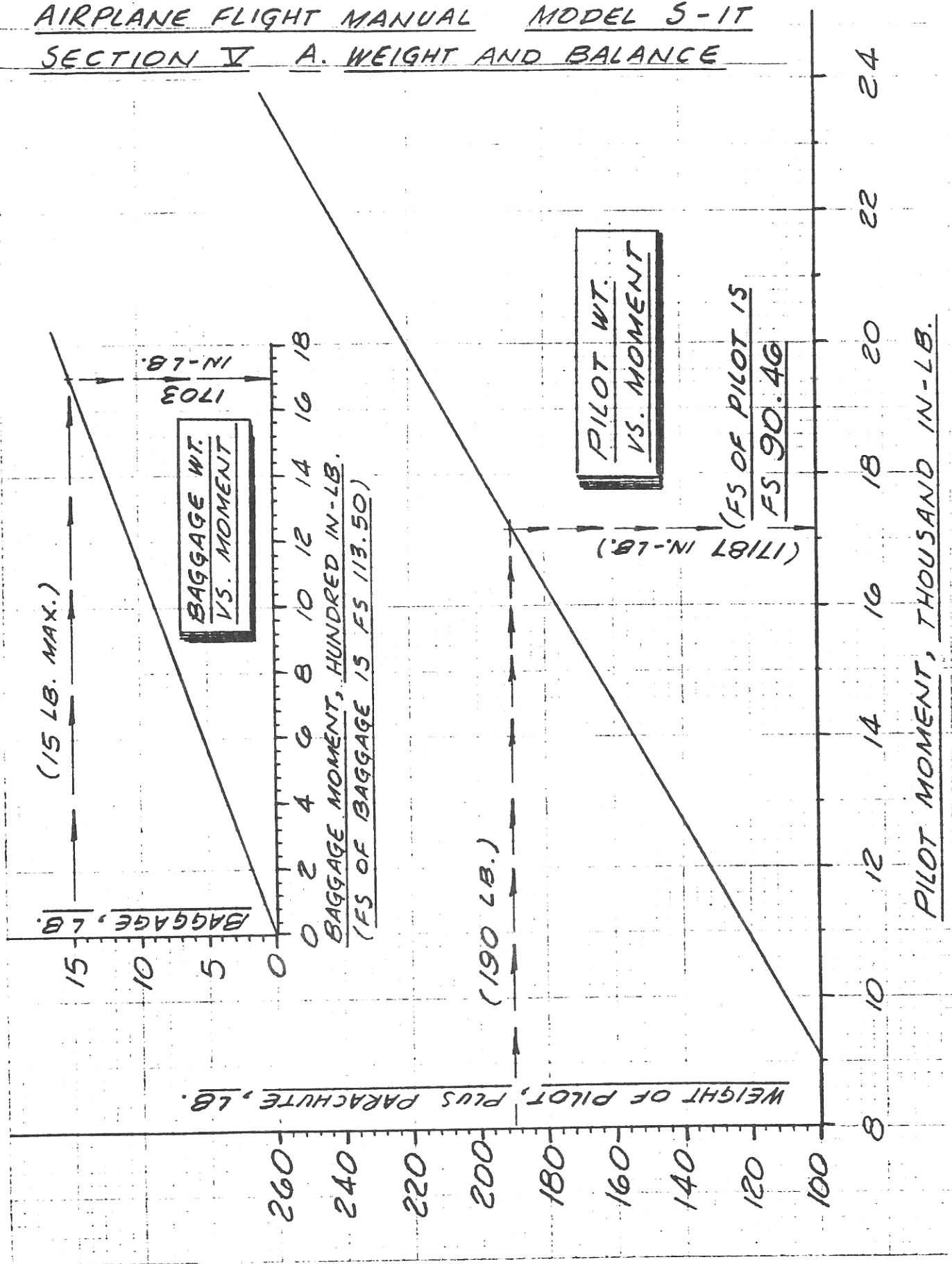
Step 6. From plot of fuel weight and moment, page 11 of 14 for maximum usable fuel of 19 gallons, read weight of 114 lbs. and moment of 6783 in.-lb. Add this weight and moment to the total of Step 4 above as shown:

| <u>ITEM</u>                 | <u>WEIGHT</u> | <u>MOMENT</u> |
|-----------------------------|---------------|---------------|
| Equipped empty + pilot      | 1031          | 62971         |
| Fuel (19 gals. max. usable) | <u>114</u>    | <u>6783</u>   |
| TOTAL                       | 1145 lbs.     | 69754 in.-lb. |

Step 7. Locate this point on the weight c.g. envelope of page 12 of 14. It is labelled "D", and is your weight and c.g. with full fuel. Since both points "C" and "D" are within the envelope, you will be inside the approved limits for the duration of the flight.

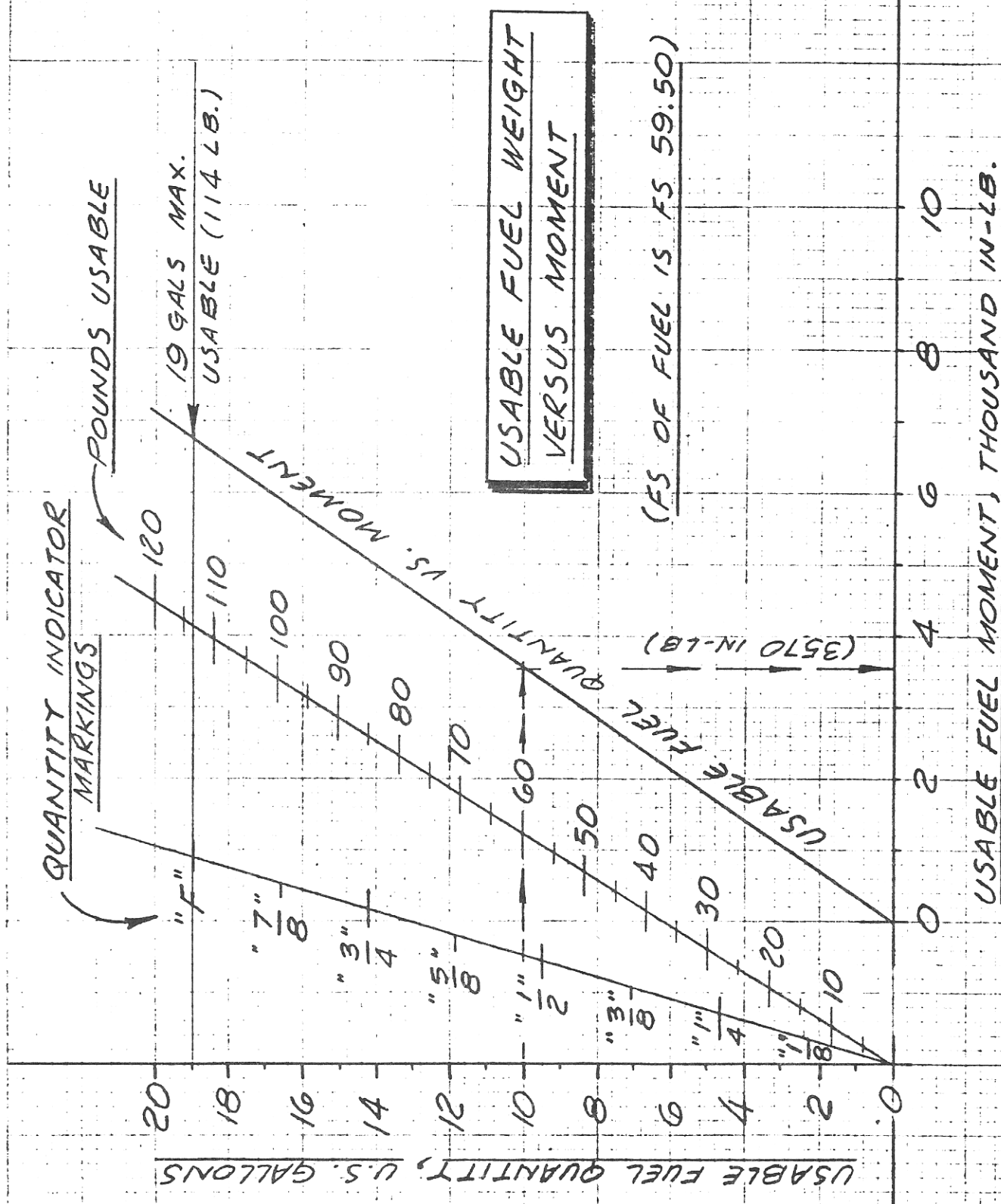
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SECTION V A. WEIGHT AND BALANCE



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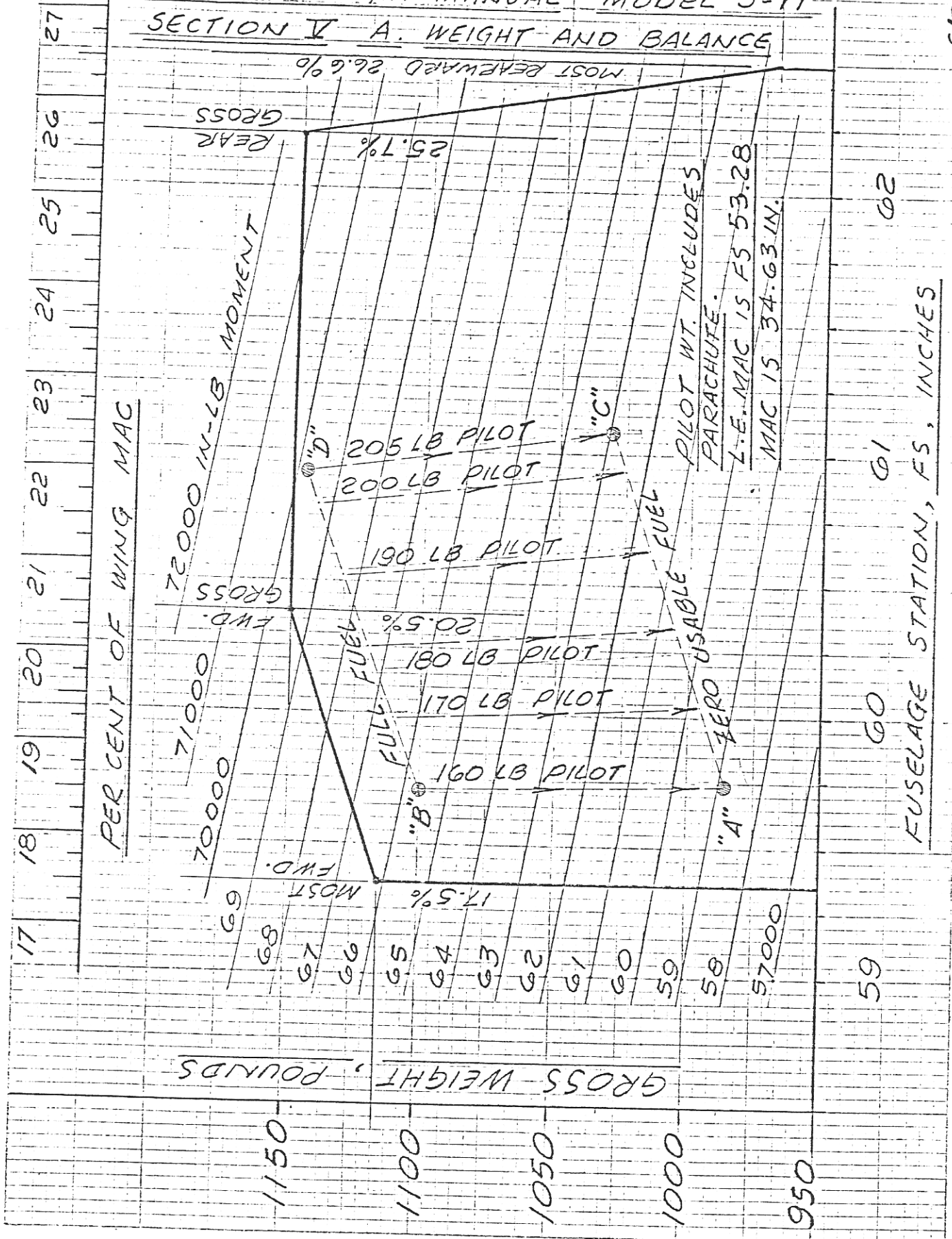
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## SECTION V A. WEIGHT AND BALANCE

67D



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SECTION V STANDARD AND OPTIONAL EQUIPMENT LIST

The Pitts Model S-1T airplane empty weight includes the following items of installed equipment.

Pitts Aerobatics reserves the right to reassign manufacturers or part numbers at any time, subject to F.A.A. Approval.

EXCEPT AS NOTED, THE FOLLOWING ITEMS ARE STANDARD EQUIPMENT:

1. AIRSPEED INDICATOR  
(Per TSO C2-(B))  
Weight .75 lb @ FS 71.5
2. ALTIMETER  
(Per TSO C10-(B) or equiv.)  
Weight 1.00 lb @ FS 71.5
3. COMPASS  
(Airpath C-2300 or equiv.)  
Weight .50 lb @ FS 71.5
4. BRAKE MASTER CYLINDERS (2)  
(Cleveland Model 10-19 or equiv.)  
Weight 1.0 lb @ FS 54.4
5. 12 VOLT DRY-CELL BATTERY  
(Burgess TW2 or equiv. per NEDA 926)  
Weight 3.0 lb @ FS 108.0
6. ENGINE  
(Lycoming AEIO-360-A1E, dry)  
Weight 287.0 lb @ FS 31.3
7. PROPELLER  
(Hartzell HC-C2YK-4AF/Fc7666A-2)  
Weight 62.5 lb @ FS 13.3
8. GAUGE, OIL TEMP/OIL PRESSURE  
(U.S. Gauge Co. P/N 092738 or equiv.)  
Weight 1.0 lb @ FS 71.5
9. GAUGE, FUEL PRESS./MANIFOLD PRESS.  
(Edo-Aire IU028-005-14 or equiv.)  
Weight 1.0 lb @ FS 71.5
10. TACHOMETER (0 to 3500 RPM)  
(AD div. of GM P/N RT-7)  
Weight .75 lb @ FS 71.5

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- |     |                                                                                         |        |      |      |    |       |
|-----|-----------------------------------------------------------------------------------------|--------|------|------|----|-------|
| 11. | <u>AUXILIARY BOOST PUMP</u><br>(Christen Industries P/N 844)                            | Weight | 2.4  | 1b @ | FS | 76.3  |
| 12. | <u>MAIN GEAR WHEELS (2)</u><br>(Cleveland P.N 40-78B, per TSO (26-(A)))                 | Weight | 8.0  | 1b @ | FS | 47.37 |
| 13. | <u>MAIN GEAR BRAKES (2)</u><br>(Cleveland P/N 30-9)                                     | Weight | 3.0  | 1b @ | FS | 47.37 |
| 14. | <u>MAIN GEAR TIRES (2)</u><br>(5:00 x 5, 6 P.R., Type III, tube type)                   | Weight | 14.0 | 1b @ | FS | 47.37 |
| 15. | <u>TAILWHEEL UNIT</u><br>(Maule SFS-1-4)                                                | Weight | 9.9  | 1b @ | FS | 184.1 |
| 16. | <u>ACCELEROMETER (optional)</u><br>(AN 5745-2 or equiv.)                                | Weight | 1.0  | 1b @ | FS | 71.5  |
| 17. | <u>STALL WARNING HORN</u><br>(Safe-Flight Model "R")                                    | Weight | .3   | 1b @ | FS | 71.5  |
| 18. | <u>STALL WARNING SENSOR</u><br>(Safe-Flight No. 146)                                    | Weight | .3   | 1b @ | FS | 61.5  |
| 19. | <u>PROPELLER GOVERNOR</u><br>(Hartzell F6-58Z) (included with engine dry wt. & moment.) |        |      |      |    |       |
| 20. | <u>SPINNER</u><br>(Hartzell 836-60) (included with propeller weight & moment.)          |        |      |      |    |       |
| 21. | <u>RADIO</u><br>(Escort II)                                                             | Weight | 3.0  | 1b @ | FS | 71.5  |