

# *"The Straight Word"*

## **Cessna 337 Skymaster**

*337C Series*

### **I. FLIGHT PROCEDURES:**

#### ***COCKPIT PREPARATION***

|               |                 |
|---------------|-----------------|
| Heading Bug   | Set QFU         |
| OBS Indicator | Set Course      |
| Altimeters    | Set QNH         |
| Trims         | Set for Takeoff |
| Parking Brake | Apply           |

#### ***ENGINE START***

The front engine should always be started first as the battery-to-starter cable is shorter.

The only difference between a hot and cold start is the amount of priming necessary. For a cold start, the prime button shall be held on until the fuel flow peaks, while for a hot start it only needs to be held until the first needle rise is read on the fuel flow meter.

|                      |   |
|----------------------|---|
| Master Switch        | On, Unless GPU Used                         |
| Anti-Collision Light | On  |
| Avionic Master       | Off   |
| Fuel Tanks           | Front Left, Rear Right                      |
| Cowl Flaps           | Open  |
| Mixture Levers       | Full Rich                                   |
| Propeller Levers     | High RPM                                    |
| Prime                | Lo to FF Peak (Cold)<br>Lo to FF Rise (Hot) |
| Throttles            | Half Inch                                   |
| Magnetos             | On  |
| Starter              | Engage                                      |

#### ***AFTER START***

|               |             |
|---------------|-------------|
| Master Switch | On          |
| Alternators   | On          |
| Vent Fan      | As Required |
| Flaps         | 1/3         |
| Taxi Light    | On          |

Avionic Master On

### **TAXIING**

Taxiing on soft surfaces shall be made with the rear engine as blade clearance is greater;

|                    |         |
|--------------------|---------|
| Parking Brake      | Release |
| Flight Instruments | Check   |
| Brakes             | Test    |
| Flight Controls    | Check   |

### **RUN-UP**

The run-up shall be made before the first flight of the day.

|                 |            |
|-----------------|------------|
| Throttle Levers | 1800 RPM   |
| Feather         | Check      |
| Magnetos        | Check Drop |
| Vacuum          | Check      |
| Alternators     | Check      |
| Throttle Levers | Idle Check |

### **BEFORE TAKE-OFF**

|                   |     |
|-------------------|-----|
| Directional Gyros | Set |
| Strobe Lights     | On  |
| Landing Lights    | On  |
| Transponder       | Alt |

### **AFTER TAKE-OFF**

The normal takeoff power setting is 29,9 in MAP and 2800 RPM. Rotation occurs at 80 MPH. Once positive rate of climb is obtained:

|                |                       |
|----------------|-----------------------|
| Landing Gear   | Up (not below 100 ft) |
| Landing Lights | Off                   |

A speed above the V<sub>2</sub> of 79 MPH must be maintained for the initial climb. Then, upon reaching the takeoff safety altitude (ASD):

|                  |              |
|------------------|--------------|
| Flaps            | Up           |
| Throttle Levers  | 24 in MAP    |
| Propeller Levers | 2650 RPM     |
| Mixture Levers   | 150 pph      |
| Altimeter        | Set Standard |

A climb speed of 120 MPH shall then be taken for normal climb.

## ***CRUISE***

Normal cruise power is 25 in MAP, 2500 RPM, and a fuel flow set for peak EGT – 40°C on the rich side. CHT should be maintained around 380°C.

|               |        |
|---------------|--------|
| Cowl Flaps    | Closed |
| Mixture Lever | Leaned |

## ***DESCENT***

|                |           |
|----------------|-----------|
| Mixture Levers | Full Rich |
| Altimeter      | Set QNH   |

## ***BEFORE LANDING***

The normal arrival technique calls for the following steps:

- Flaps 1/3.
- Landing Gear Down.
- Flaps 2/3.
- Flaps 3/3.
- Propellers High RPM.

A speed of 120 MPH shall be maintained in the approach environment. The required MAP to maintain a Vapp of 90 MPH normally stands around \_\_\_\_ in MAP.

|                       |           |
|-----------------------|-----------|
| Fuel Tanks            | Mains     |
| Cowl Flaps            | Closed    |
| Landing & Taxi Lights | On        |
| Flaps                 | Set       |
| Landing Gear          | Down      |
| Mixture Levers        | Full Rich |
| Propeller Levers      | High RPM  |

## ***AFTER LANDING***

|                |         |
|----------------|---------|
| Cowl Flaps     | Open    |
| Strobe Lights  | Off     |
| Landing Lights | Off     |
| Transponder    | Standby |
| Flaps          | Up      |

## ***ENGINE SHUTDOWN***

|                         |              |
|-------------------------|--------------|
| Avionic Master          | Off          |
| All Electrical Switches | Off          |
| Alternators             | Off          |
| Mixture Levers          | Idle Cut-Off |
| Magnetos                | Off          |

Master Switch

Off

## **II. SYSTEMS DESCRIPTION:**

### ***FLIGHT CONTROLS***

Conventional surfaces, operated mechanically.  
Mechanical trims.

### ***ENGINES & PROPELLERS***

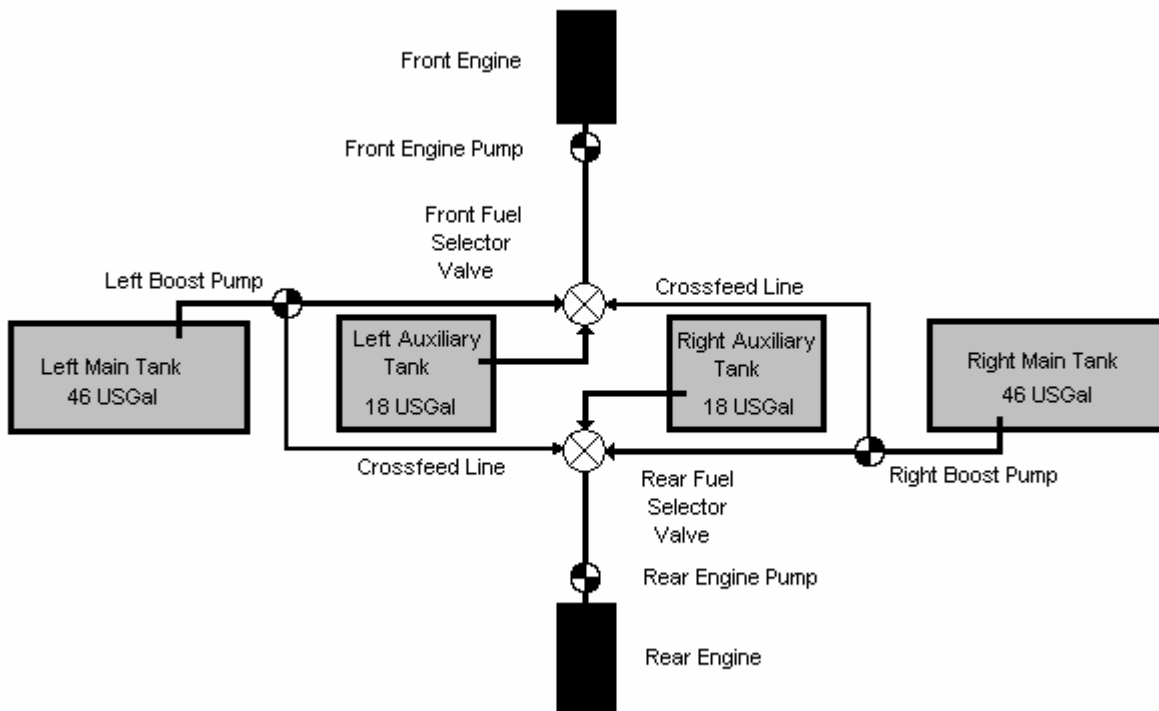
Two Lycoming IO-360C, 210 bhp each.

The rear engine is critical performance wise.

### ***FUEL SYSTEM***

Four fuel tanks in the following useable configuration:

- Mains : 2 x 46 USGal (2 x 270 lbs)
- Auxiliaries (optional) : 2 x 18 USGal (2 x 105 lbs)
- Total : 128 USGal ( 750 lbs)  
= 486 litres.



The electrical fuel pumps are named 'Left' and 'Right' and correspond to each Main Tank, no matter which engine they are feeding. They have three positions:

- Off: Normal flight operations.
- Lo: Engine priming and starting.
- Hi: Emergency (engine-driven pump failure) or vapor lock.

## ***ELECTRICAL SYSTEM***

28 VDC system:

- One 24 V battery in front of the engine compartment.
- Two 28 V alternators.

The alternators are self-sustaining and will keep on running even if the battery is isolated from the circuit. However, they may stop under extreme load conditions. The Alt Restart Switch is designed to provide initial exciting current to restart an alternator.

The aeroplane is equipped with two voltage regulators, which can be selected alternatively to provide DC current.

The system comprises two buses: the Primary Bus and the Electronics Bus. They are powered by both alternators. The Electronics Bus is disconnected if:

- Either Start Switch is in the On position.
- Ground power is connected.

## ***LANDING GEAR & WING FLAPS***

The landing gear is hydraulically actuated by an engine-driven pump mounted on the front engine. Another engine-driven pump mounted on the rear engine is optional. Otherwise, loss of the front engine entails a manual gear extension.

A Landing Gear Warning Horn activates every time one of the throttle levers is pulled back. A squat switch on the nose wheel prevents retraction on the ground.

The emergency landing gear extension involves actuating a hand pump located between the two front seats. This pump feeds from a reservoir independent from the main system.

The electrical single-slot wing flaps have four positions: Up, 1/3, 2/3 and 3/3.

Full extension of wing flaps will make additional nose up trim available.

## **III. PERFORMANCE:**

### ***TAKEOFF***

Normal takeoff: 29.9 in MAP, 2800 RPM, flaps 1/3.

Use a VR of 80 MPH. For a paved field at 2000 ft elevation, ISA + 20°C, no wind and MTOW, expect a TODR of 600 metres.

### ***CLIMB***

Normal climb: 24 in MAP, 2650 RPM, 150 pph FF.

Use a 120 MPH cruise climb speed, and expect a MTOW rate of climb of 400 fpm at MSL.

### ***CRUISE***

Normal cruise: 25 in MAP, 2500 RPM, 110 pph FF.

Expect to cruise at 155 MPH around FL100.

Max endurance cruise: 18 in MAP, 2500 RPM, 85 pph FF.

Expect to cruise at 115 MPH around 1000 ft MSL.

### ***LANDING***

Normal landing: flaps 3/3, full brakes on impact.

Use a Vapp of 90 MPH. For a paved field at 2000 ft elevation, ISA + 20°C, no wind and MLW, expect an LDR of 500 metres.

### ***N-1 PERFORMANCE***

Single-engine climb: 29.9 in MAP, 2800 RPM.

Use a 100 MPH climb speed, and expect a MTOW rate of climb of 100 fpm at MSL.

## **IV. WEIGHT & BALANCE:**

### ***LIMITATIONS***

|  |           |
|--|-----------|
| MTOW                                   | 4,400 lbs |
| Maximum Forward Cabin Compartment Load | 250 lbs   |
| Maximum People Onboard                 | 6         |

## **USEFUL LOADS**

|                               |           |
|-------------------------------|-----------|
| Empty Weight (N7604S, 1 crew) | 2,990 lbs |
| Maximum Fuel Load (128 USGal) | 750 lbs   |
| Full Fuel Useful Load         | 660 lbs   |

## **V. SPEEDS:**

|            |         |        |                |
|------------|---------|--------|----------------|
| Vso =      | ___ MPH | Vx =   | 82 MPH         |
| Vsi =      | ___ MPH | Vy =   | 113 MPH        |
| Vr =       | 80 MPH  | Vxse = | 90 MPH         |
|            |         | Vyse = | 100 MPH        |
| Vfe/ 1/3 = | 150 MPH | Va =   | ___ MPH @ MTOW |
| Vfe/2/3 =  | 108 MPH | Vapp = | 90 MPH         |