

# Piper Archer Flows & Profiles (Rev. 1.0)



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# Flows Introduction

## General

There are 2 basic philosophies to completing checklists: read-and-do, and flow-and-verify.

Under the “read and do” philosophy, the pilot reads the checklist item, then completes the required action, one at a time.

Under the “flow and verify” philosophy, the pilot does multiple action items in a logical sequence, and then reads the checklist to verify everything has been completed.

Flows are used to standardize operations in the AU fleet and help ensure all checklists are being completed. All flows are to be memorized, and completed **silently**.

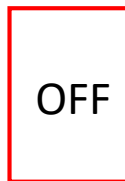
For example, upon entering the aircraft, the pilot will accomplish the Before Starting Engine flow (silently). Upon completion of the flow, he/she will read the Before Starting Engine checklist (aloud). Reading the checklist then becomes a verification that all the items in the flow have been completed.

## Structure

For each phase of operation (ex. Before start, before takeoff, after landing, etc), the detail of the flow is given in the slide preceding the picture. The picture shows the flow line of where to start (red dot in most cases), and where to go. Electrical switches are highlighted with either a red, amber, or green box. Green means the switch should be placed in the ON position, and red means the switch should be placed in the OFF position. An Amber box indicates that the switch will be in a momentary or intermediate position (ex: during the ground check, the magnetos are turned OFF, then back ON). A red box over anything other than an electrical switch simply means to check that item.

## Ground Check

- Parking Brake – SET
- Throttle – 2000 RPM
- Carb Heat – APPROX. 75 RPM DROP
- Left/Right MAG Check – MAX. DROP 175RPM/MAX. DIFF. 50 RPM
- Fuel Pump – OFF



# Checklist Usage

Each pilot will carry a paper “preflight” checklist and a paper “normal” checklist. Electronic checklists will be allowed for the preflight inspection, but only paper checklists will be used after the preflight. This is primarily to reduce the amount of “heads-down” time in the cockpit, increase heads-up time, and decrease the amount of time to complete the checklists. If all flows have been memorized, the amount of time it takes to run through a checklist is decreased as opposed to the “read and do” philosophy.

An example of the paper checklist is shown on the right. Checklists are set up as a hybrid between flows and read-and-do. The “flow” portion of each checklist is indicated by a black bar on the side (ex, from “FUEL selector” to “EMERG BATT switch” is a flow).

Regardless of where the flow appears in the checklist (beginning, middle, or end), the flow is to be completed first, and then the checklist will be read aloud from beginning to end.

Prior to reading any checklist, the pilot will read the name of the checklist. Ex: “*Before start checklist..... Flaps - Retract, Passengers – Board, Passenger briefing - complete.....(etc).....*”

Upon completion of the checklist, the pilot will state “Before starting engine checklist complete”.

Each Student should keep their checklists in their flight bags, but should a replacement be needed, spare checklists may be obtained from dispatch.

Piper Archer Normal Checklist (V. beta3)	
<b>BEFORE STARTING ENGINE</b>	
Flaps.....	RETRACT
Passengers.....	BOARD
Passenger Briefing.....	COMPLETE
Weight & Balance.....	VERIFY IN LIMITS
Door.....	CLOSED & SECURE
Seats.....	ADJUSTED & LOCKED
Seatbelts & Harnesses.....	FASTEN/ADJUST
FUEL Selector.....	DESIRED TANK
ALTN. STATIC SOURCE.....	OFF
PARK BRAKE.....	SET
CARB HEAT.....	FULL COLD
Circuit Breakers.....	CHECK IN
AVION MASTR.....	OFF
DAY/NIGHT Switch.....	SET
All Electrical Switches.....	OFF
BATT MASTR.....	OFF
<b>NOTE</b>	
The EMERG BATT may remain ON after checking for proper bus operation, thereby allowing the displays to remain active prior to engine start. Avoid delays between this check and engine starting to preserve emergency battery power.	
EMERG BATT Switch.....	ARM
Verify Operation of:	
• PFD with no red-x's on:	
o Attitude	
o Airspeed	
o Altitude	
o Vertical Speed	
• Audio Panel	
• Com 1	
• <u>Nav 1</u>	
• Engine Indications	
• Standby Flight Instruments	
E VOLTS Indication.....	23.3 VOLTS
(Minimum for flight)	
FUEL QTY Indications.....	CHECK QTY AND IMBALANCE

# Checklist Usage

## Engine Start Checklist

The Engine Start checklist is broken into 2 sections: Engine Start to-the-line, and Engine Start below-the-line.

Pilots will complete the “to the line” flow, which ends after priming the engine. Then, they will read the Engine start checklist to the line.

After reading to the line, they will complete the “below the line” flow, and then read the checklist below the line. As with all checklists, upon completing the entire checklist, the pilot will say “engine start checklist complete”.

## Descent checklist

In general, the Descent Checklist should be completed within 10 NM from the destination airport. For a VFR local flight, the descent checklist should be completed when leaving the practice area and returning to C20, and for an IFR flight, it should be completed after briefing the instrument approach. For cross-country flights, it should be completed during or prior to commencing the descent from cruise altitude.

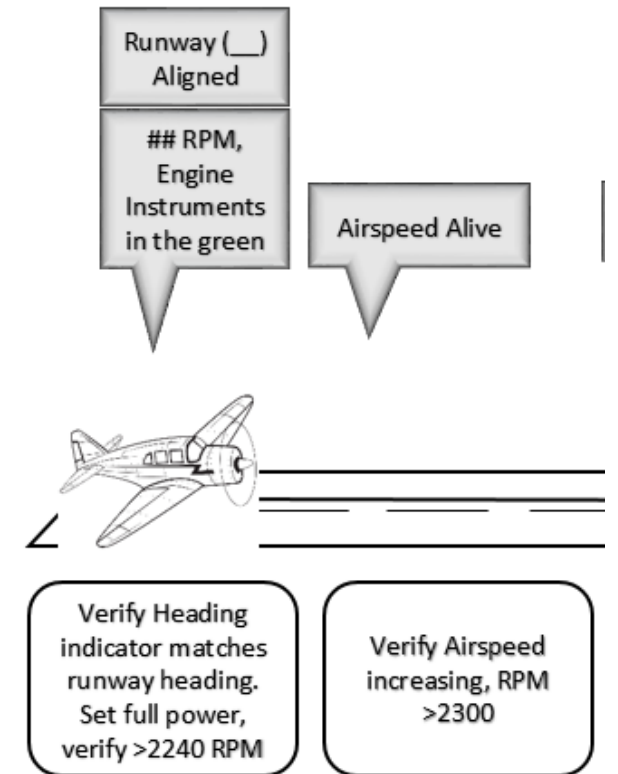
# Profiles Introduction

Profiles are mandatory callouts that are to be made during specified times/events during flight. Again, the goal is to standardize the way we fly, and increase awareness of what's happening during the flight. An example of the departure profile is shown on the right.

Verbal callouts are depicted in the gray speech boxes, and supplemental information is given below in the white boxes.

**For example**, as the pilot lines up on the runway, he/she calls “runway 13 aligned”. He then adds full power, verifies oil pressure and temperature in the green, and verifies RPM is greater than 2240. He then calls out what the RPM is indicating. “2260 RPM, engine instruments in the green”.

For practical reasons, not all information is contained in the profiles. For example, power settings and aircraft limitations (eg flap speeds) are left out as it is expected that the pilot has memorized the power grid, and that he/she knows the aircraft limitations.



# General Callouts

These Callouts should be made at all times:

- 200' before reaching the preselected altitude, the pilot will call “(altitude at) for (altitude set)” (ex, “thirty three for thirty five hundred” or “three thousand three hundred for three thousand five hundred”)
- Anytime an altitude is set in the altitude preselect, the pilot will call “(altitude) set” (ex. “thirty five hundred set” or “three thousand five hundred set”)

# Briefings

The following briefings will be completed on every flight:

- Takeoff Briefing
  - For subsequent takeoffs on the same flight, the pilot may say “as previously briefed”. If the aircraft has been shut down since the last takeoff, a new briefing should be performed.
- Approach Briefing
  - Either an instrument approach briefing or a visual approach briefing, as applicable



# Takeoff Briefings

A takeoff briefing should be conducted to plan for emergency situations. The following items should be covered:

- Departure Runway
- Type of takeoff (normal, short field, or soft field)
- Action plan if engine fails:
  - On takeoff roll
  - After rotation, below 1000' AGL
  - Above 1000' AGL
- Normal action plan (staying in pattern, departing to practice area, flying an instrument departure, etc)

## Briefing Example

“this will be a soft field takeoff from runway 13. If the engine fails on the takeoff roll, we’ll abort and stay on the runway. If the engine fails after rotation and below pattern altitude, we’ll pitch for best glide and land straight ahead. If it fails above 1000’ we’ll pitch for best glide and pull out the emergency checklist if we have enough altitude. Otherwise, we’ll climb to 3500’ and depart to the northeast practice area (or brief instrument departure procedure, if applicable).”

# Visual Approach Briefings

A visual approach briefing should cover the following items

- Landing runway
- Pattern direction
- Pattern altitude
- Minimum altitude for final
- Any other applicable considerations

## Briefing Example

“This will be a visual approach to runway 13, right pattern. Pattern altitude is 1700’, my minimum altitude before turning final will be 1200.”

# Instrument Approach Briefings

Every instrument approach needs to be briefed, *after setting up* the radios and GPS for the approach, and *prior to* completing the descent checklist. (See next page)

Approach setup should include getting the current weather/ATIS, loading the GPS, and tuning the appropriate frequencies and courses.

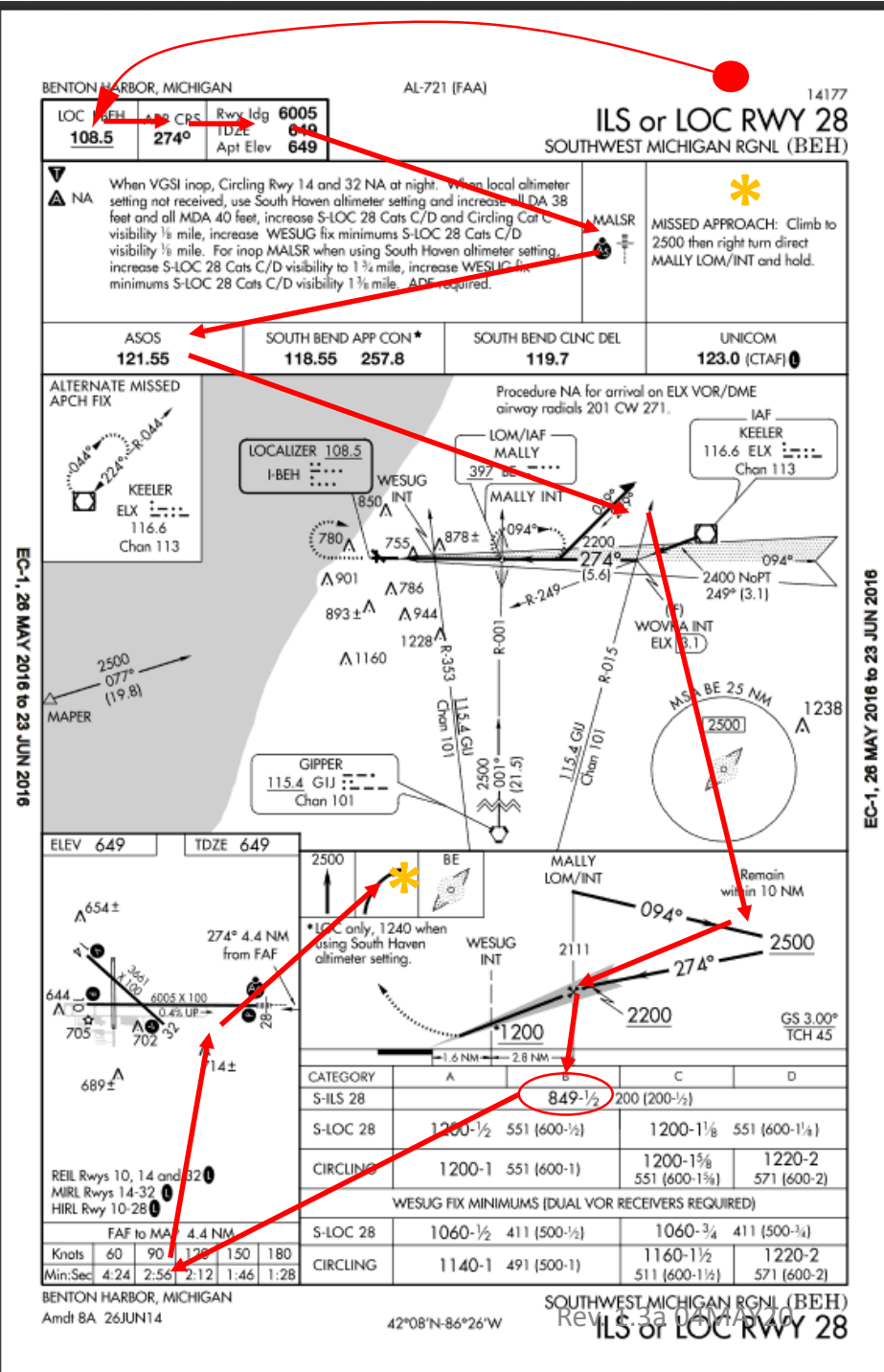
The following items should be covered in every instrument approach briefing:

- Review ATIS and/or reported field conditions and weather.
- Usable landing length, obstructions, braking action reports, etc.
- Landing Distance Required.
- Review of the Planned Approach Procedure.
- Identity of Nav aids to be used and their frequencies.
- Flaps setting.
- Configuration of flight instrumentation. (NAV, GPS, etc)
- Approach Lighting Configuration.
- Missed Approach Procedure
- Planned taxi route for after landing, including runway incursion hot spots and designated hold short areas.
- Any other special considerations or data pertinent to the approach and current weather, aircraft or traffic conditions and any ATC restrictions

## Briefing Flow:

- Title
- Frequency
- Course
- Runway info
- Approach lights
- Weather information
- Plan view (where we start the approach from, etc)
- Profile view (brief altitudes, FAF, MAP, etc)
- Minimums and minutes
- Runway plan (left or right turn off)
- Missed approach (\* details in top right corner of plate)

(This flow can be modified slightly as needed, but the briefing should always maintain a logical flow. Think of it as telling a story about what you're going to do during the approach.)



## Example:

“this will be the ILS 28 approach at Benton Harbor, in green needles (conventional navigation). Localizer frequency is 108.50, and that’s tuned and identified. Final approach course is 274, and that’s dialed in. Runway length is 6005 feet long, touch down zone elevation is 649’. This approach has MALSRL approach lights. We have the current weather, winds are \_\_\_\_\_, ceiling is \_\_\_\_\_, altimeter is \_\_\_\_\_. This approach will be vectors to final (or, “we’ll be starting this approach from ELX as the IAF”). Once we’re on the localizer we can descend to 2200 and intercept the glideslope there (or, “stay at 2500’ and intercept the glideslope”). We’ll cross the outer marker at 2111’ on the glideslope and follow it down to our DA of 849’. 1/2 SM visibility is required for this approach, currently we have \_\_\_\_\_. If we see the runway, we’ll add full flaps when we break out, and plan on a left turn off the runway. If we don’t see the runway, or for any reason have to go missed, the missed approach procedure is climb to 2500 and right turn direct to MALLY and hold.”

# Before Starting Engine

- Passenger Briefing ..... COMPLETE
- Weight and Balance ..... VERIFY IN LIMITS
- Seats ..... ADJUSTED AND LOCKED
- Seatbelts/Harnesses ..... FASTENED
- Circuit Breakers ..... CHECK IN
- Avionics Master ..... OFF
- Carb Heat ..... OFF/COLD



# Before Starting Engine 2

- Fuel Selector ..... FULLEST TANK
- Altn. Static Source ..... OFF
- Parking Brake ..... ON
- Mixture ..... RICH
- Throttle ..... OPEN ¼ inch
- BATT/ALT Switch ..... ON
- Fuel Pump Switch ..... ON
- Strobe Switch ..... ON
- Prime ..... AS REQ'D THEN LOCK



N4338M

CHRONOMETR

V<sub>R</sub> - 111 KIAS  
AT 2000 LB (908 P.W.)  
WITH 4 WING P.W.

ALTIMETER  
FOOTER  
2000

HEADING  
300

600  
800  
1000  
1200  
1400  
1600  
1800  
2000

VERTICAL SPEED  
20  
10  
0  
-10  
-20

HEADING  
300

VERTICAL SPEED  
20  
10  
0  
-10  
-20

HEADING  
300

NAV SYSTEM  
KING 80  
NAV SYSTEM  
KING 80

FASTEN SEAT BELTS

FASTEN SEAT BELTS

CLIMATE CONTROL CENTER

WARNING  
DO NOT OPERATE WITH SEAT BELTS UNFASTENED

REVERSE  
BRAKE  
CLUTCH

CARB HEAT

NO SMOKING

Plus 5000 Plus 5000  
4,500 3,500  
6,500 5,500  
8,500 7,500  
etc. etc.

ALTERNATE STATIC AIR

Rev. 1.3a 04MAY20

T.O.C.



# Engine Start

- Propeller Area - “CLEAR”
- Ignition Switch - START
- Power - ADJUSTED TO-  
1000RPM
- Oil Pressure - CHECK



# Before Taxing

- Avionics Master..... ON
- Mixture ..... LEAN OUT 1” FOR TAXI
- LAND Light ..... ON
- Parking Brake ..... OFF
- Throttle ..... APPLY SLOWLY
- Brakes & Steering ..... CHECK



N4338M

CHRONOMETR  
SELECT CONTROL

V<sub>R</sub> - 111 KIAS  
AT 2000' IN USE (PARK)  
1000' X 1000' X 1000'

ALTIMETER  
FOOTER  
2000

ASPEED  
KIAS

VERTICAL SPEED  
20  
10  
0  
-10  
-20

VERTICAL SPEED  
20  
10  
0  
-10  
-20

VERTICAL SPEED  
20  
10  
0  
-10  
-20

VERTICAL SPEED  
20  
10  
0  
-10  
-20

NAV SYSTEM  
NAV SYSTEM  
NAV SYSTEM

FASTEN SEAT BELTS

FASTEN SEAT BELTS

CLIMATE CONTROL CEN

BEGIN

WARNING  
TURN OFF TO PREVENT ICE FROM FORMING ON CARBURETOR

CARB HEAT

NO SMOKING

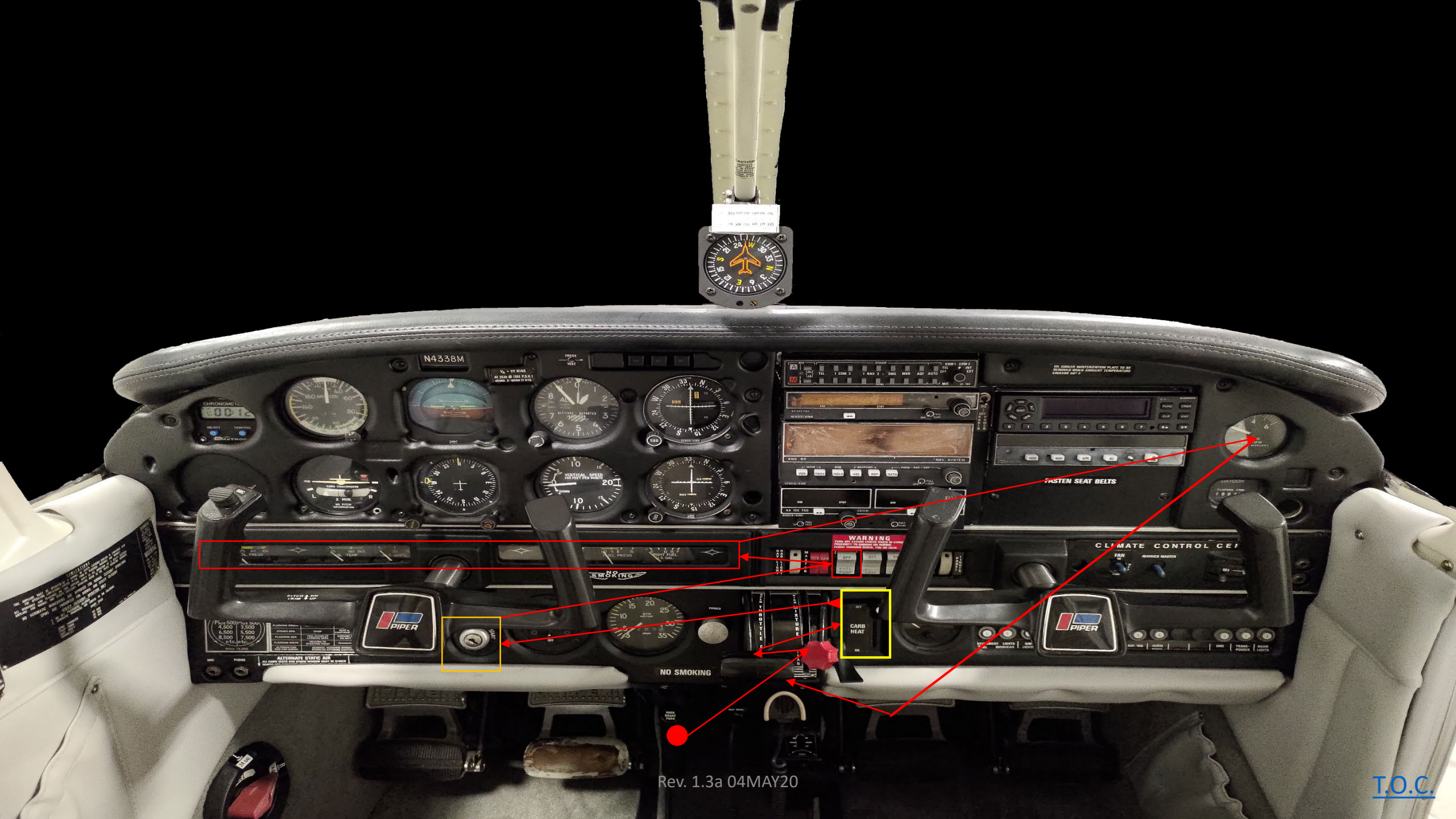


Rev. 1.3a 04MAY20

T.O.C.

# Ground Check

- Parking Brake - SET
- Fuel Selector - FULLEST TANK
- Mixture - ADJUST FOR D.A. & ELEVATION
- Throttle - 2000 RPM
- Carburetor Heat - CHECK ON, THEN OFF
- Ignition Switch – CHECK
  - MAX DROP 175/MAX DIFFERENCE 50 RPM
- Fuel Pump - OFF
- Engine Instruments -CHECK
  - VACUUM 4.9 – 5.1
  - OIL TEMP/PRESSURE
  - FUEL PRESSURE
  - ALT AMPS - NORMAL
- Throttle - FULL BACK THEN 1000 RPM



N4338M

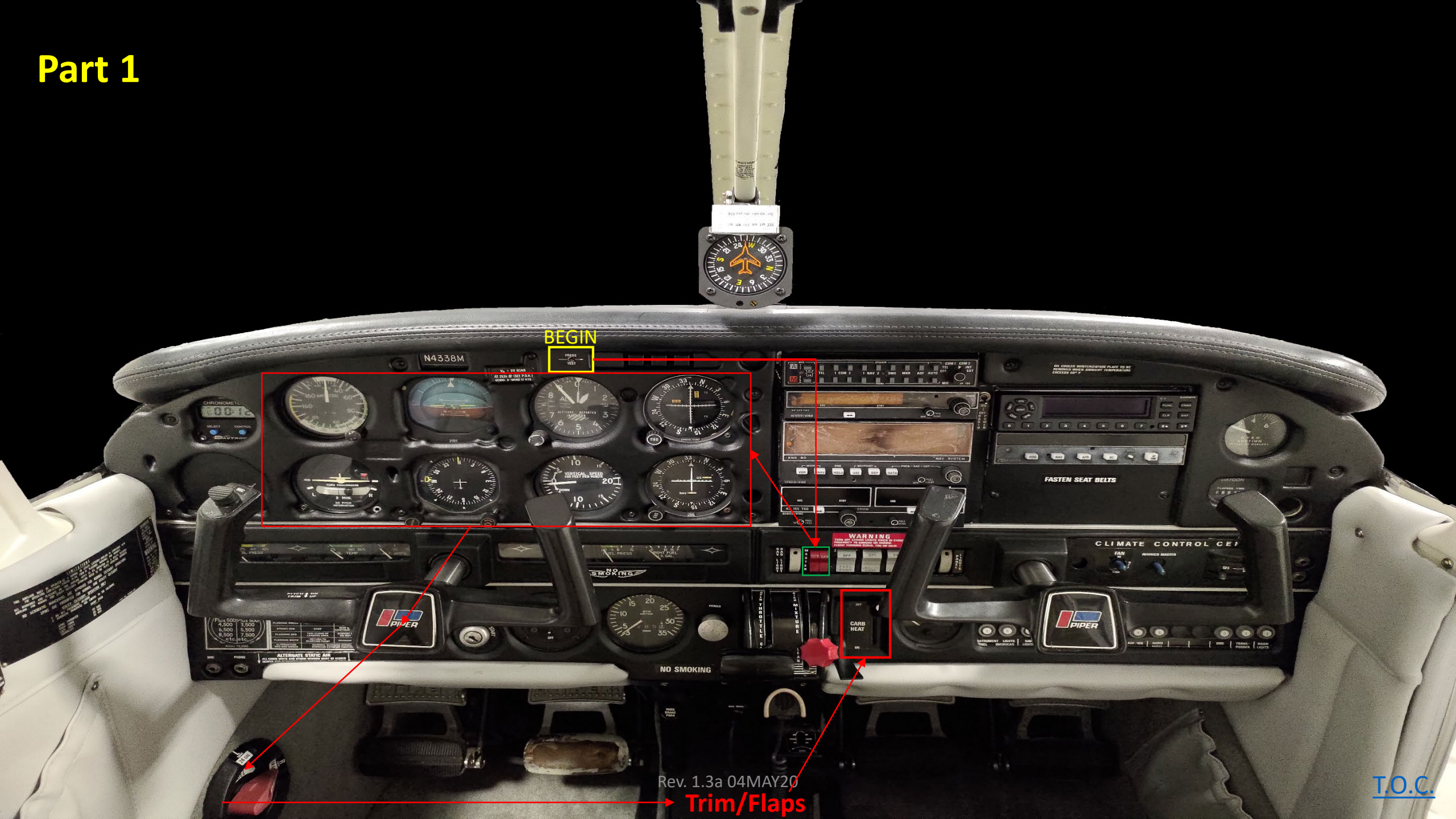
CHRONOMETR  
SELECT CONTROL  
V<sub>R</sub> - 111 KIAS  
AT 2000 IN ILSA P-3.1  
8000 x 1000 ft 1000

60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740 760 780 800 820 840 860 880 900 920 940 960 980 1000 1020 1040 1060 1080 1100 1120 1140 1160 1180 1200 1220 1240 1260 1280 1300 1320 1340 1360 1380 1400 1420 1440 1460 1480 1500 1520 1540 1560 1580 1600 1620 1640 1660 1680 1700 1720 1740 1760 1780 1800 1820 1840 1860 1880 1900 1920 1940 1960 1980 2000 2020 2040 2060 2080 2100 2120 2140 2160 2180 2200 2220 2240 2260 2280 2300 2320 2340 2360 2380 2400 2420 2440 2460 2480 2500 2520 2540 2560 2580 2600 2620 2640 2660 2680 2700 2720 2740 2760 2780 2800 2820 2840 2860 2880 2900 2920 2940 2960 2980 3000 3020 3040 3060 3080 3100 3120 3140 3160 3180 3200 3220 3240 3260 3280 3300 3320 3340 3360 3380 3400 3420 3440 3460 3480 3500 3520 3540 3560 3580 3600 3620 3640 3660 3680 3700 3720 3740 3760 3780 3800 3820 3840 3860 3880 3900 3920 3940 3960 3980 4000 4020 4040 4060 4080 4100 4120 4140 4160 4180 4200 4220 4240 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41760 41780 41800 41820 41840 41860 41880 41900 41920 41940 41960 419

# Before Takeoff

- Annunciator Panel - PRESS TO TEST
  - Master Switch - ON
  - Flight Instruments - CHECK/SET
  - Flight Controls - FREE AND CORRECT
  - Fuel Selector - FULLEST TANK
  - Flaps - 0° NORMAL/25° SHORT or SOFT
  - Trim - SET FOR TAKEOFF
  - Carburetor Heat - OFF
- 
- Mixture - ADJUST FOR D.A. & ELEVATION
  - Fuel Pump - ON
  - LANDING Light - ON
  - Primer - IN & LOCKED
  - Door/Window - LATCHED/CLOSED
  - Seatbelts - FASTENED
  - Empty Seats - SECURED
  - Takeoff Briefing - COMPLETE

# Part 1



BEGIN

PRESS TEST

WARNING  
NEVER SET TO ON POSITION UNLESS IN CRUISE  
OPERATION AT 10,000 FT OR ABOVE.

CARB HEAT  
OFF  
ON

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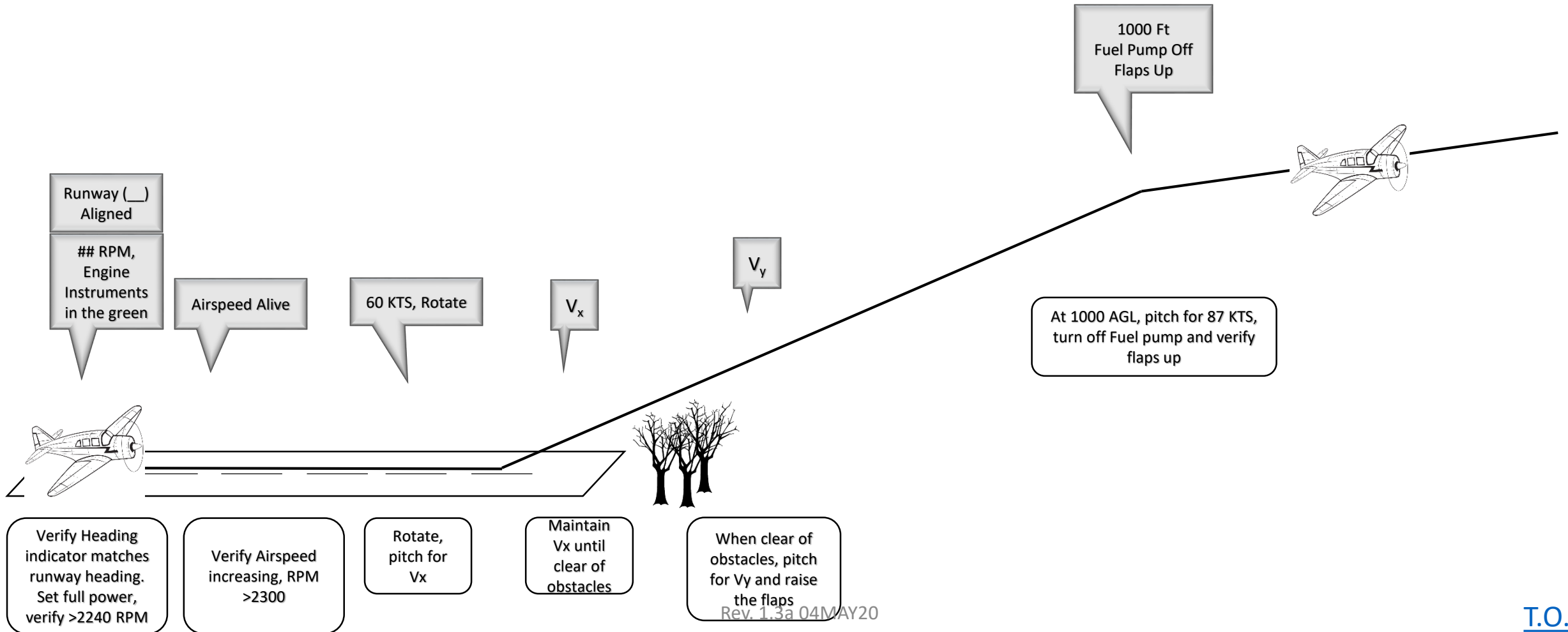
Trim/Flaps

T.O.C.





# Departure Profile



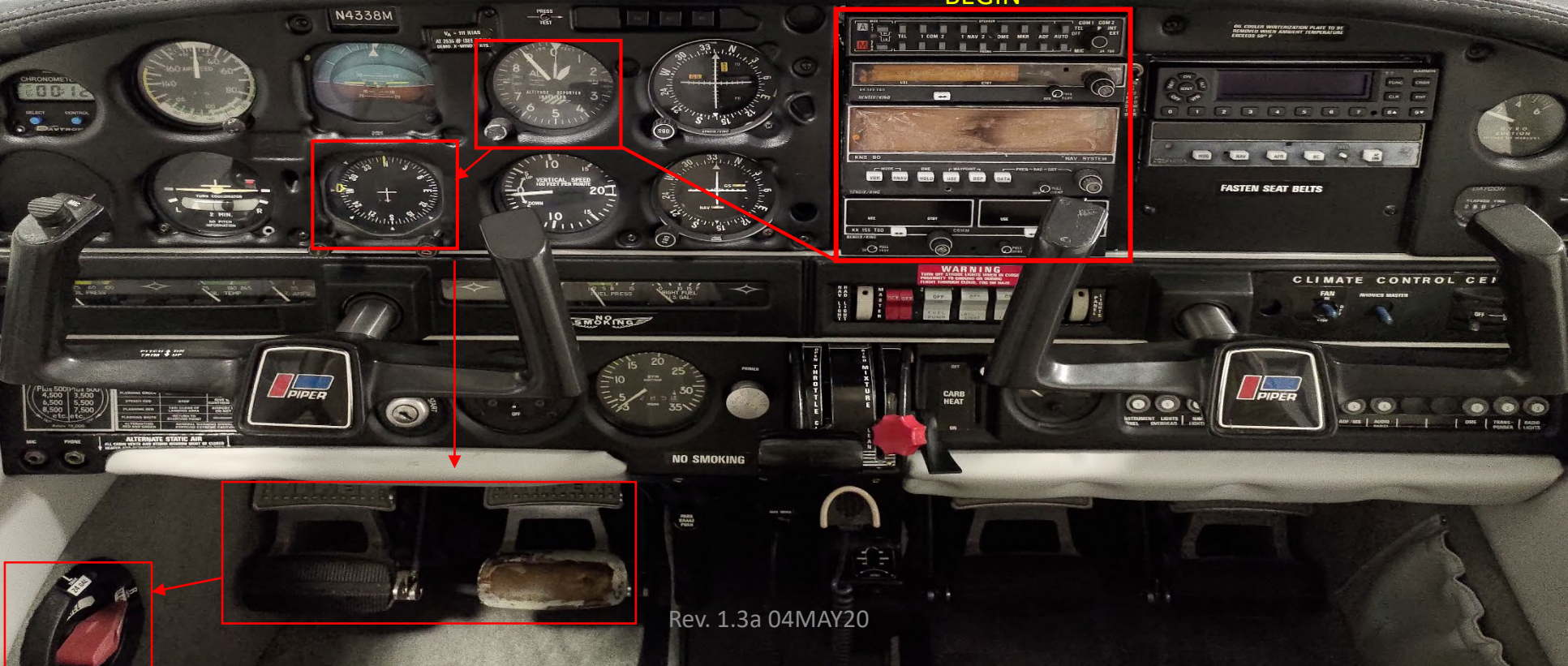
# Descent (within 10 miles)

- COM/NAV Radios & Avionics – CHECK AND SET
- Landing Light - ON
- Altimeter – SET
- Heading Indicator – SET
- Fuel Selector – FULLEST TANK
- Toe Brakes – DEPRESS TO CHECK
- Seatbelts/Harnesses – FASTEN/ADJUSTED
- Seat Backs – ERECT

Seatbelts/harnesses  
Seat backs



BEGIN



# Before Landing

- (G) Fuel Selector – PROPER TANK
- (M)ixture – FULL RICH
- (S) Fuel Pump – ON
- (S) Landing Light – AS REQUIRED



N4338M

CHRONOMETR  
SELECT CONTROL

V<sub>R</sub> - 111 KIAS  
AT 2000' (USE P/BK1)  
WIND X WIND Y WIND Z

ALTITUDE FOOTER  
2000

HEADING  
330

TURN INDICATOR  
L 2 MIN. R 2 MIN.

VERTICAL SPEED  
20

VERTICAL SPEED  
20

HEADING  
330

NAV SYSTEM  
KING 80  
NAV SYSTEM  
KING 80

FASTEN SEAT BELTS

FASTEN SEAT BELTS

CLIMATE CONTROL CENTER

WARNING  
NEVER SET TO DISCONNECT WHILE IN CRUISE  
PROTECTS THE BATTERY FROM OVERDISCHARGE

CARB HEAT

NO SMOKING

Plus 5000 Plus 5000  
4,500 3,500  
6,500 5,500  
8,500 7,500  
etc. etc.

ALTERNATE STATIC AIR



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T.O.C.

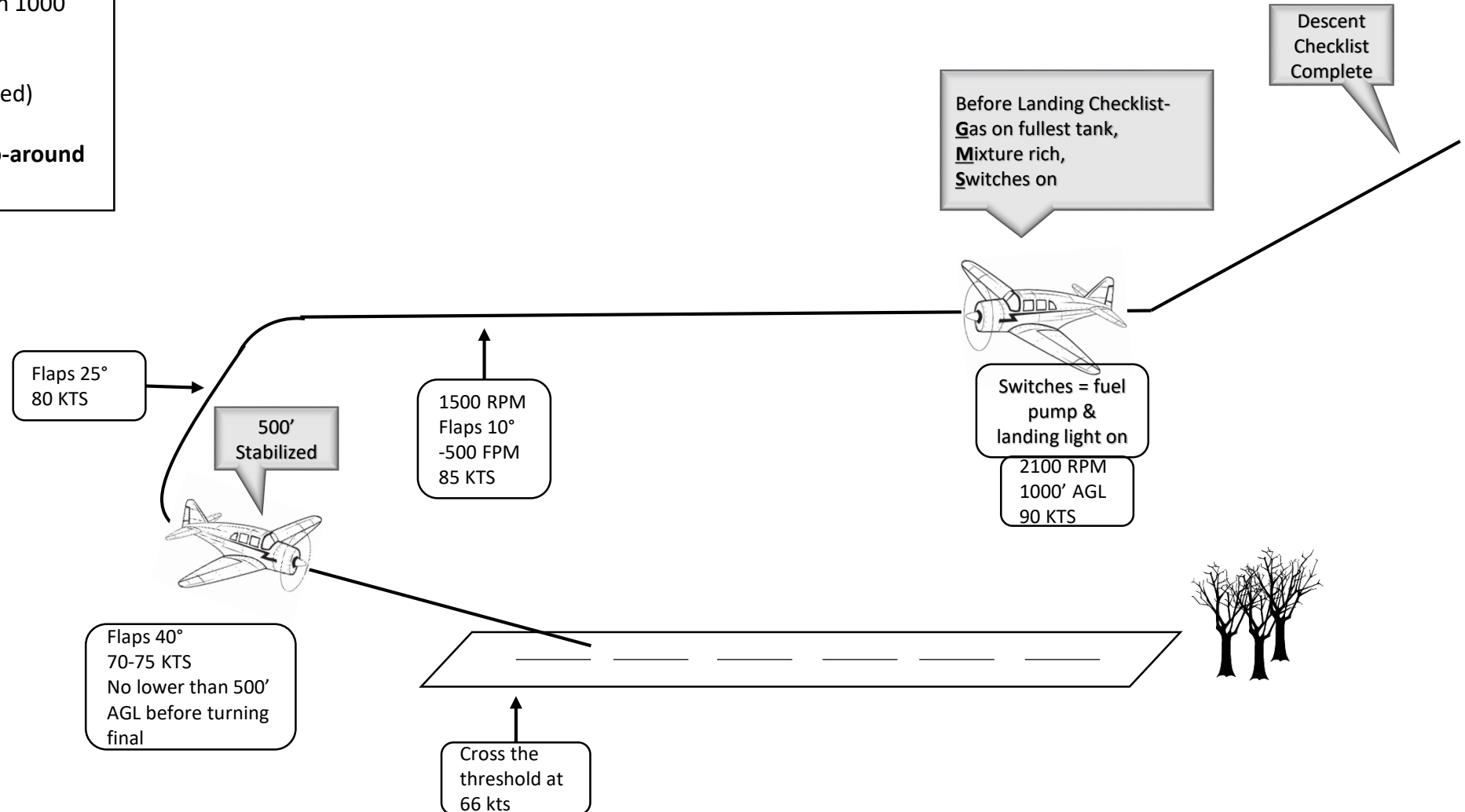
## Stabilized Approach Criteria

By no lower than 500' AGL on a visual approach

- Airspeed 70-75
- Descent Rate no greater than 1000 FPM
- Fully Configured to land
  - Flaps 40 (or as required)
  - Gear Down

If not stabilized by 500' AGL, a go-around should be performed

# Visual Approach



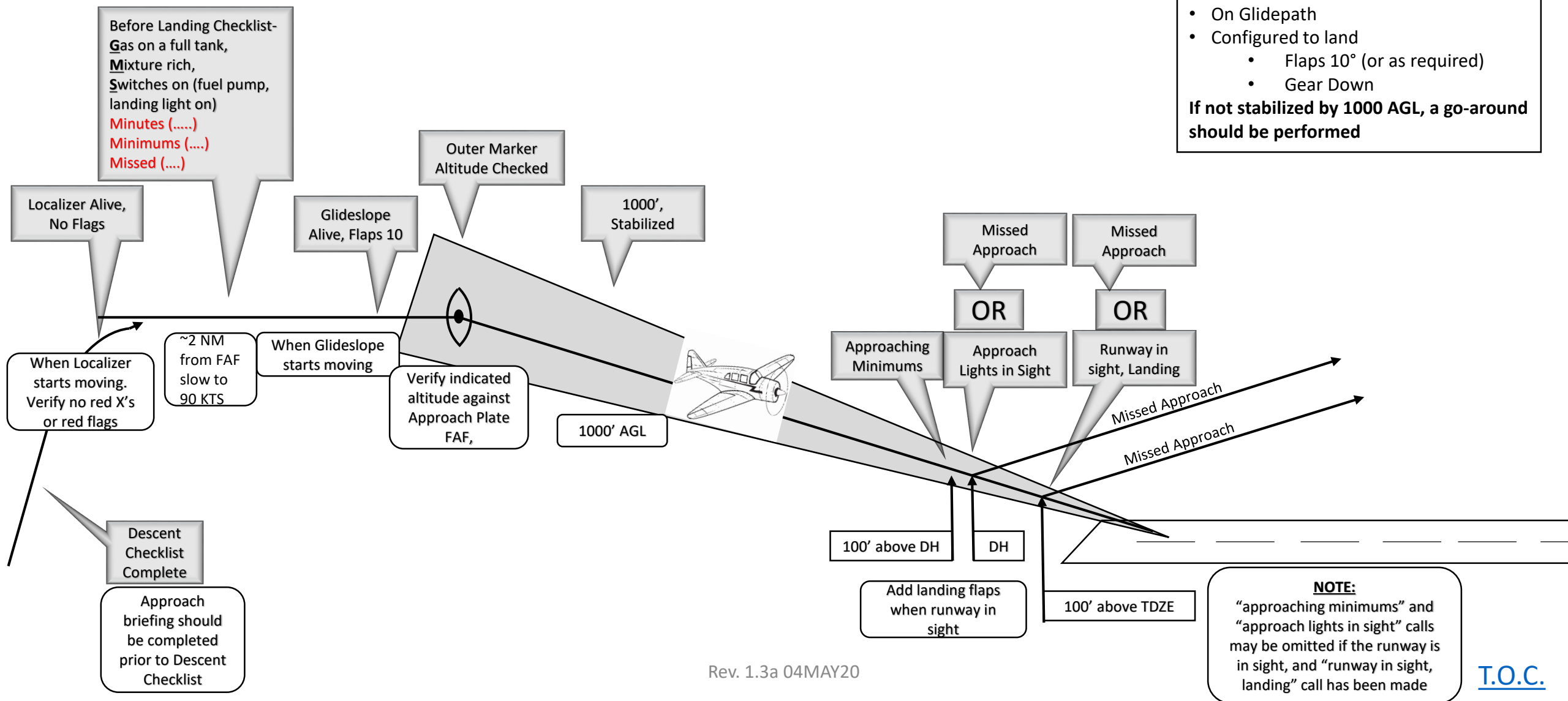
# Precision Approach

## Stabilized Approach Criteria

By no lower than 1000' AGL on an instrument approach

- Airspeed 90
- Descent Rate no greater than 1000 FPM
- On Glidepath
- Configured to land
  - Flaps 10° (or as required)
  - Gear Down

If not stabilized by 1000' AGL, a go-around should be performed





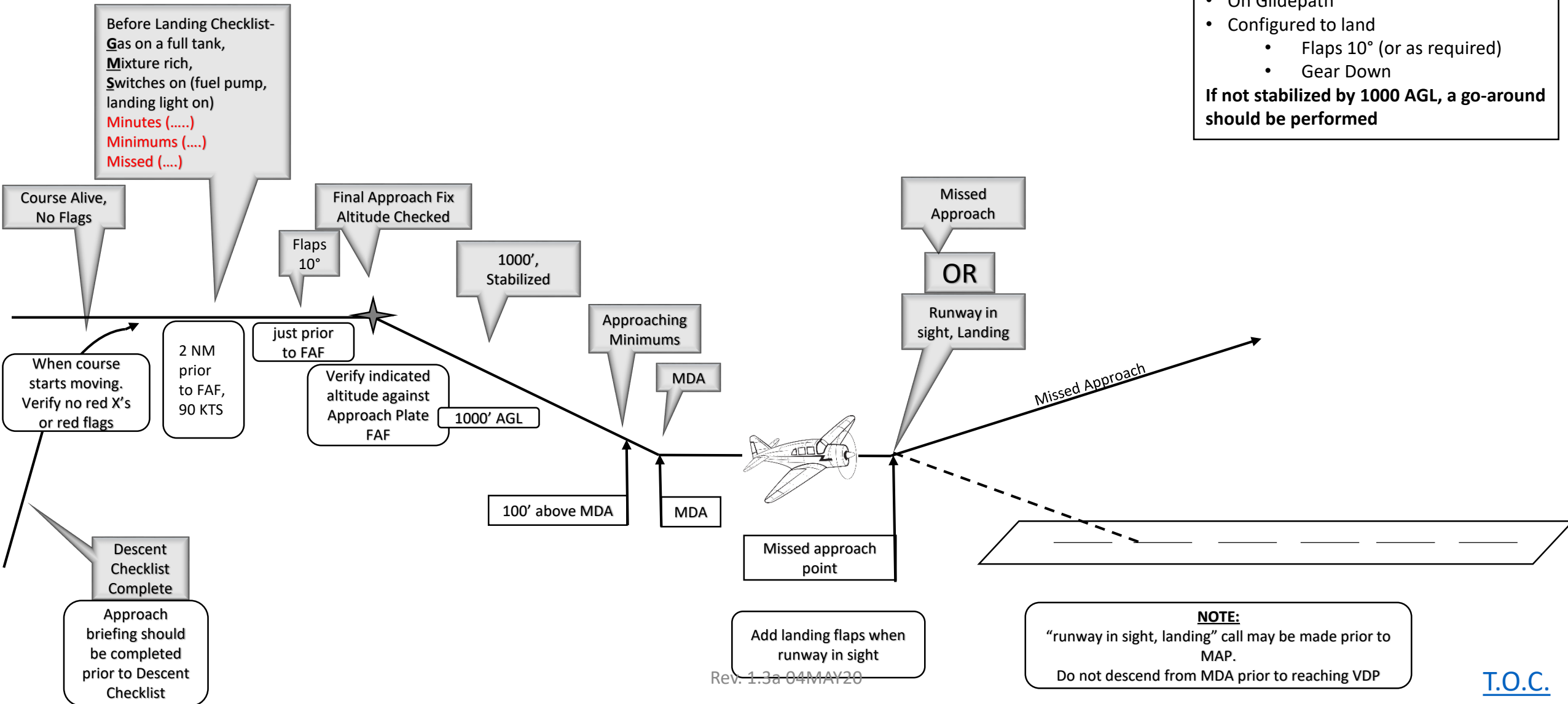
# Non-Precision Approach

## Stabilized Approach Criteria

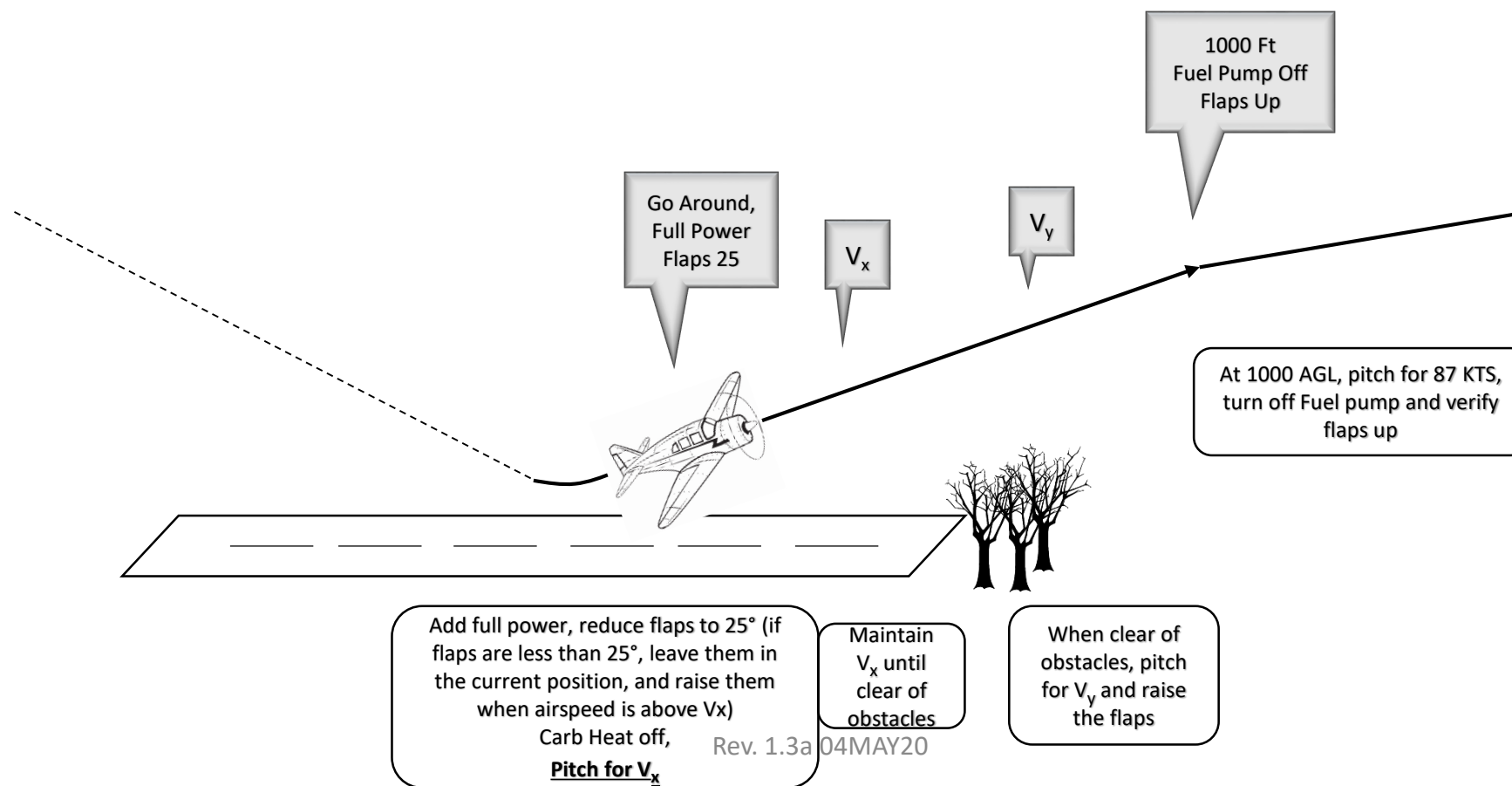
By no lower than 1000' AGL on an instrument approach

- Airspeed 90
- Descent Rate no greater than 1000 FPM
- On Glidepath
- Configured to land
  - Flaps 10° (or as required)
  - Gear Down

If not stabilized by 1000 AGL, a go-around should be performed



# Go Around/Missed Approach



# After Landing Checklist

- Clear Runway
- Trim/Flaps – SET NEUTRAL/RETRACTED
- Mixture - LEAN 1 inch
- Fuel Pump – OFF
- Landing Light Switch – AS REQUIRED



DO NOT OPERATE  
IN ICE OR Icing Conditions

N4338M

V<sub>R</sub> - 111 KIAS  
At 2000 ft (1000 ft) 1000 ft

CHRONOMETR

SELECT CONTROL

ALTIMETER  
PRESS TEST

HEADING  
INDICATOR

TURN  
COORDINATOR

VERTICAL  
SPEED  
INDICATOR

VERTICAL  
SPEED  
INDICATOR

HEADING  
INDICATOR

NAV SYSTEM  
COMM 1 COMM 2  
TTL P INT  
1 COM 1 1 NAV 2 COM 1 MIC AUTO OFF  
RNG SO  
NAV SYSTEM  
COMM 1 COMM 2  
TTL P INT  
1 COM 1 1 NAV 2 COM 1 MIC AUTO OFF

FASTEN SEAT BELTS

FASTEN SEAT BELTS

CLIMATE CONTROL CENTER

WARNING  
Trim set to 0.000 is used in cruise  
Trim set to 0.000 is used in cruise

TRIM

FLAPS

TRIM

FLAPS

TRIM

FLAPS

TRIM

FLAPS

TRIM

FLAPS

TRIM

FLAPS

TRIM

FLAPS

TRIM

FLAPS

Plus 5000 Plus 5000  
4,500 3,500  
6,500 5,500  
8,500 7,500  
etc./etc.

ALTERNATE STATIC AIR

PIPER

NO SMOKING

PIPER

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● Trim/Flaps

T.O.C.

# Stopping Engine

- Parking Brake ..... SET
  - LANDING Light ..... OFF
  - Fuel Pump ..... OFF
  - Avionics ..... OFF
  - Throttle ..... IDLE
  - Ignition Switch ..... GROUND CHECK
  - Mixture ..... IDLE CUT-OFF
- 
- Strobe ..... OFF
  - Battery Master Switch ..... OFF
  - Ignition ..... OFF

# Part 1



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# Part 2

