



PA44
SEMINOLE



EMERGENCY PROCEDURES



EMERGENCY PROCEDURES CHECK LIST

AIRSPEDS FOR SAFE OPERATIONS

One engine inoperative air minimum control	56 KIAS
One engine inoperative best rate of climb	88 KIAS
One engine inoperative best angle of climb	82 KIAS
Maneuvering	135 KIAS
Never exceed	202 KIAS

ENGINE INOPERATIVE PROCEDURES

DETECTING DEAD ENGINE

Loss of thrust.

Nose of aircraft will yaw in direction of dead engine (with coordinated controls).

ENGINE SECURING PROCEDURE (FEATHERING PROCEDURE)

Minimum control speed	56 KIAS
One engine inoperative best rate of climb	88 KIAS
Maintain direction and airspeed above 82 KIAS.	
Mixture controls	forward
Propeller controls	forward
Throttle controls	forward
Flaps	retract
Gear	retract
Identify inoperative engine.	
Throttle of inop. engine	retard to verify

To attempt to restore power prior to feathering:

Mixtures	as required
Fuel selector	ON
Primers	locked
Magnetos	left or right only
Electric fuel pump	check ON
Carburetor heat	ON
Prop control of inop. engine	feather before RPM drops below 950
Mixture of inop. engine	idle cut-off

Trim as required (3° to 5° of bank toward
operative engine - ball ½ to ¾ out)
Electric fuel pump of inop. engine OFF
Magnetos of inop. engine OFF
Cowl flaps close on inop. engine,
as required on operative engine
Alternator of inop. engine OFF
Electrical load reduce
Fuel selector OFF inop. engine,
consider crossfeed
Electric fuel pump operative engine OFF

ENGINE FAILURE DURING TAKEOFF (Below 75 KIAS)

If engine failure occurs during takeoff and 75 KIAS has not been attained:
Throttles CLOSE both immediately
Stop straight ahead.

If inadequate runway remains to stop:

Throttles CLOSED
Brakes apply max. braking
Master switch OFF
Fuel selectors OFF
Continue straight ahead, turning to avoid obstacles.

ENGINE FAILURE DURING TAKEOFF (75 KIAS or above)

If engine failure occurs during takeoff ground roll or after lift-off with gear still down and 75 KIAS has been attained:

If adequate runway remains CLOSE both throttles immediately, land if airborne and stop straight ahead.

If runway remaining is inadequate for stopping, decide whether to abort or continue. If decision is made to continue, maintain heading and when climb is established retract landing gear, accelerate to 88 KIAS, and feather inoperative engine prop.

WARNING

In certain combinations of aircraft weight, configuration, ambient conditions and speed, negative climb performance may result.



Rudder apply toward operative engine
Throttles (both)..... retard to stop turn
Pitch attitude..... lower nose to accelerate above 56 KIAS
Operative engine increase power as airspeed increases above 56 KIAS

ONE ENGINE INOPERATIVE LANDING

Inop. engine prop	feather
When certain of making field:	
Landing gear	extend
Wing flaps	lower
Maintain additional altitude and speed during approach.	
Final approach speed	90 KIAS
Wing flaps	25°

**ONE ENGINE INOPERATIVE GO-AROUND
(SHOULD BE AVOIDED IF AT ALL POSSIBLE)**

Mixture	forward
Propeller.....	forward
Throttle	open slowly
Flaps	retract
Landing gear	retract
Airspeed	88 KIAS
Trim	set
Cowl flap operating engine	as required



Fuel selector inop. engine	ON
Electric fuel pump inop. engine	ON
Prop control	forward to cruise RPM position
Mixture	RICH
Throttle	two full strokes and then open 1/4 inch
Magneto switches	ON
Starter	engage until prop windmills
Throttle	reduce power until engine is warm
If engine does not start, prime as required.	
Alternator	ON

ENGINE FIRE ON GROUND

Mixture idle cut-off
Throttle open
Starter crank engine

Fuel selector valves OFF
Mixture idle cut-off

Fuel selector OFF
 Throttle close
 Propeller feather
 Mixture idle cut-off
 Cowl flap OPEN
 If terrain permits land immediately.

FUEL MANAGEMENT DURING ONE ENGINE INOPERATIVE OPERATION

CRUISING

When using fuel from tank on the same side as the operating engine:

Fuel selector operating engine	ON
Fuel selector inop. engine	OFF
Electric fuel pumps	OFF
(except in case of engine driven pump failure, electric fuel pump on operating engine side must be used)	

When using fuel from tank on the side opposite the operating engine:

Fuel selector operating engine	CROSSFEED
Fuel selector inop. engine	OFF
Electric fuel pumps	OFF
(except in case of engine driven pump failure, electric fuel pump on operating engine side must be used)	

NOTE

Use crossfeed in level cruise flight only.

LANDING

Fuel selector operating engine	ON
Fuel selector inop. engine	OFF

ENGINE DRIVEN FUEL PUMP FAILURE

Electric fuel pump	ON
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Throttles	retard to idle
Rudder	full opposite to direction of spin
Control wheel	release back pressure
Control wheel	full forward if nose does not drop
Ailerons	neutral
Rudder	neutralize when rotation stops
Control wheel	smooth back pressure to recover from dive

Federal Aviation Administration Regulations do not require spin demonstration of multi-engine airplanes; therefore, spin tests have not been conducted. The recovery technique presented is based on the best available information

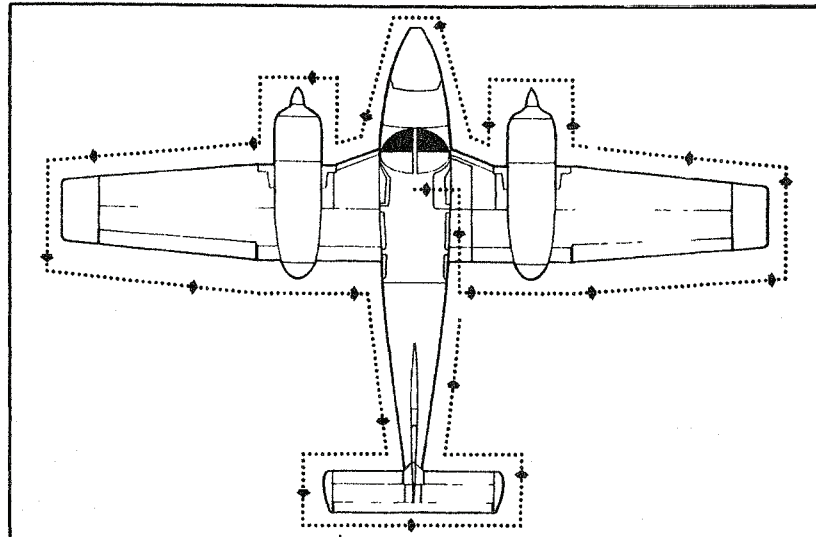


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NORMAL PROCEDURES



WALK-AROUND

NORMAL PROCEDURES CHECK LIST

PREPARATION

Airplane statusairworthy, papers on board
 Weather suitable
 Baggage weighed, stowed, tied
 Weight and C.G..... within limits
 Navigation planned
 Charts and navigation equipmenton board
 Performance and range computed and safe

PREFLIGHT CHECK

INSIDE CABIN

Landing gear control DOWN position
 Avionics OFF



Master switch ON
Landing gear lights 3 GREEN
Fuel quantity adequate plus reserve
Cowl flaps OPEN
Master switch OFF
Ignition switches OFF
Mixture controls idle cut-off
Trim indicators neutral
Flaps check operation
Controls free
Pitot and static systems drain
Empty seats fasten belts
Emergency exit closed and locked

OUTSIDE CABIN

Fuel sump drains drain
Right wing, aileron and flap check, no ice
Right main gear no leaks
Strut proper inflation
Tire check
Right wing tip check
Right leading edge check, no ice
Fuel cap open, check quantity and
color, secure
Right engine nacelle check oil
Right propeller check
Cowl flaps OPEN and secure
Fuel drains drain
Nose section check
Nose gear no leaks
Strut proper inflation
Tire check
Tow bar removed and stowed
Landing light check
Windshield clean
Left wing, engine nacelle and landing gear check as
on right side
Stall warning vanes check
Pitot/static mast clear, checked
Dorsal fin air scoop clear
Empennage check, no ice
Stabilator free



Antennascheck
Navigation and landing lightscheck
Baggage door secure and locked

BEFORE STARTING ENGINES

Seats adjusted
Seat belts and harness fasten/adjust
check inertia reel
Parking brake set
Circuit breakers in
Radios OFF
Cowl flaps OPEN
Carburetor heat OFF
Alternators ON
Prop sync MANUAL

STARTING ENGINES

Fuel selector ON
Mixture RICH
Throttle 1/4 inch open
Propeller FORWARD
Master switch ON
Electric fuel pump ON
Ignition switches ON
Propeller clear
Primer as required
Starter engage
Throttle adjust when engine starts
Oil pressure check
Repeat for opposite engine.
Alternators check
Gyro suction check

NOTE

When starting at ambient temperatures +20° F and below, operate first engine started with alternator ON (at max charging rate not to exceed 1500 RPM) for 5 minutes minimum before initiating start on second engine.



STARTING ENGINES IN COLD WEATHER (BELOW 10°F)

If available, preheat should be considered. Rotate each propeller through 10 blades manually during preflight inspection.

CAUTION

Insure magneto and master switches are OFF
and mixture controls are in idle cut-off before
turning propeller manually.

Master switch OFF
External powerconnected (See
Starting Engines With
External Power)
Magnetos OFF
Electric fuel pump ON
Mixturefull RICH
Propeller..... full forward
Throttle 1/4 inch open
Primer..... 5-10 strokes
Magnetos ON
Starter.....engage
Oil pressurecheck
If engine does not start, add prime and repeat above. When engine fires,
pump primer as required until engine is running smoothly.
External power disconnected
Master switch ON

STARTING ENGINES WHEN HOT

Throttle 1/2 inch open
Master switch ON
Electric fuel pump ON
Mixturefull RICH
Starter.....engage
Throttle adjust
Oil pressurecheck



STARTING ENGINES WHEN FLOODED

Mixture	idle cut-off
Throttle	open full
Propeller.....	full forward
Master switch	ON
Ignition switch.....	ON
Electric fuel pump	OFF
Starter.....	engage
Throttle	retard
Mixture	advance
Oil pressure	check

STARTING ENGINES WITH EXTERNAL POWER

Master switch	OFF
All electrical equipment	OFF
Terminals	connect
External power plug.....	insert in fuselage
Proceed with normal start.	
Throttles	lowest possible RPM

WARNING

Shutdown the right engine when it is warmed
prior to disconnecting the external power plug.

External power plug.....	disconnect from fuselage
Master switch	ON - check ammeter
Oil pressure	check
Right engine	restart

WARM-UP

Throttles	1000 to 1200 RPM
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TAXIING

Chocks removed
Taxi area clear
Throttle apply slowly
Brakes check
Steering check
Instruments check
Heater and defroster check
Fuel selector ON, check crossfeed

BEFORE TAKEOFF - GROUND CHECK

Parking brake ON
Mixture controls FORWARD
Prop controls FORWARD
Prop sync MANUAL
Throttle controls 1500 RPM
Prop controls check feathering,
500 RPM max. drop
Throttle controls 2000 RPM
Prop controls check governor
Prop controls full FORWARD
Carburetor heat check
Magnetos check, max. drop
175 RPM, max. diff.
drop 50 RPM
Alternator output check
Gyro suction gauge 4.8 to 5.2 in. Hg.
Throttles 800-1000 RPM
Fuel selectors ON
Electric fuel pumps ON
Alternators ON
Engine gauges in the green
Annunciator panel press-to-test
Altimeter set
Attitude indicator set
D.G. set
Clock wound and set
Mixtures set
Primers locked
Propellers set in forward position



Quadrant friction adjusted
Carburetor heat OFF
Cowl flaps set
Wing flaps set
Trim set
Seat backs erect
Seat belts and harness fastened/adjusted
Empty seats seat belts fastened
Controls free, full travel
Doors latched
Air conditioner OFF
Pitot heat as required

TAKEOFF

CAUTION

Fast taxi turns immediately prior to takeoff run should be avoided.

Adjust mixture prior to takeoff from high elevations. Do not over heat.
Adjust mixture only enough to obtain smooth engine operation.

NORMAL TAKEOFF (Flaps up)

Flaps UP
Accelerate to 75 KIAS.
Control wheel ease back to rotate
to climb attitude
After breaking ground, accelerate to best rate of climb speed of 88 KIAS.
Gear UP

SHORT FIELD TAKEOFF (Flaps up)

Flaps UP
Stabilator trim takeoff range
Brakes set
Full power before brake release.
Accelerate to 70 KIAS.
Control wheel rotate firmly to attain
75 KIAS through 50 ft.



Accelerate to best angle of climb speed of 82 KIAS for obstacle clearance or best rate of climb speed of 88 KIAS, no obstacle.
Gear UP

SHORT FIELD TAKEOFF (25° Flaps)

Flaps 25° (second notch)
Stabilator trim..... set
Brakes..... set
Full power before brake release.
Accelerate to 63 KIAS.
Control wheel rotate firmly to attain
67 KIAS through 50 ft.
Gear UP

TAKEOFF CLIMB

Best rate (flaps up) 88 KIAS
Best angle (flaps up)..... 82 KIAS
En route 105 KIAS
Cowl flaps as required
Electric fuel pump OFF at
desired altitude

CRUISE CLIMB

Mixture full RICH
Power 75%
Climb speed 105 KIAS
Cowl flaps as required

CRUISING

Reference performance charts and Avco-Lycoming Operator's Manual.
Power set per power table
Mixture controls..... adjust
Cowl flaps as required

DESCENT

Mixtures adjust with descent
Throttles set
Cowl flaps CLOSED

APPROACH AND LANDING

Gear warning horn check
Seat backs erect
Seat belts and harness fasten/adjust
Fuel selectors ON
Cowl flaps as required
Electric fuel pumps ON
Mixture controls rich
Prop sync MANUAL
Prop controls full FORWARD
Landing gear DOWN, 140 KIAS max.
Flaps set, 111 KIAS max.
Approach speed 75 KIAS or above
Air conditioner OFF

GO-AROUND

Full takeoff power, both engines.
Establish positive climb.
Flaps retract
Gear UP
Cowl flaps adjust

AFTER LANDING

Clear of runway.
Flaps retract
Cowl flaps fully OPEN
Carburetor heat OFF
Electric fuel pump OFF



SHUTDOWN

Radios OFF
Throttle full aft
Mixture idle cut-off
Magnetos OFF
Master switch OFF

PARKING

Parking brake set
Control wheel secured with belts
Flaps full up
Wheel chocks in place
Tie downs secure



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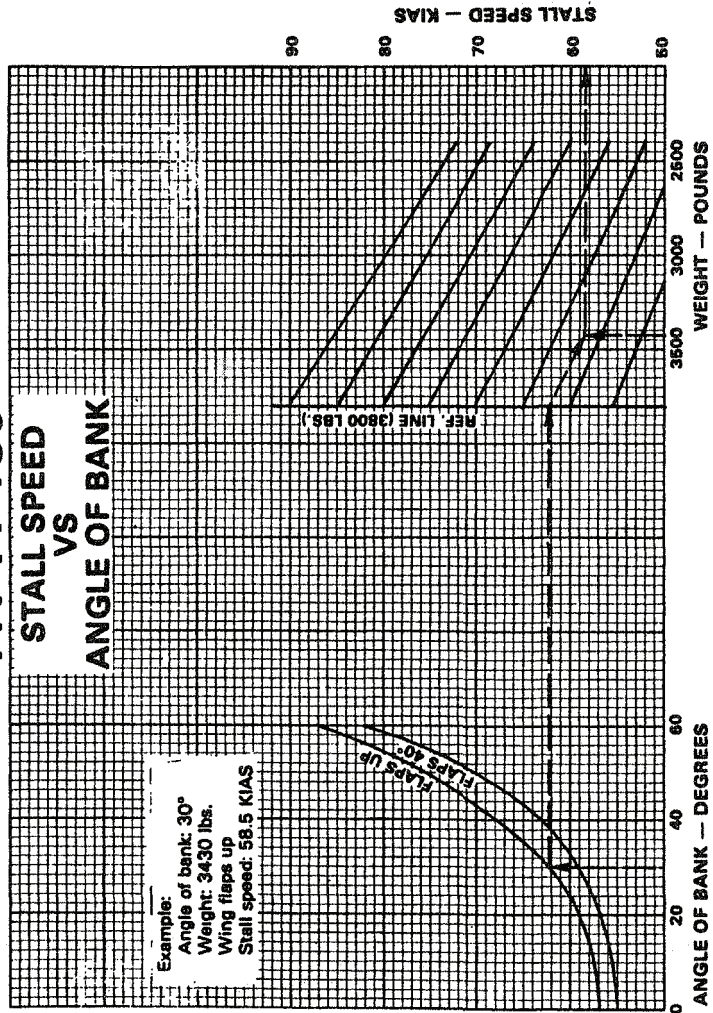


PERFORMANCE TABLES



PA-44-180

STALL SPEED VS ANGLE OF BANK





FUEL AND POWER CHART - LYCOMING (L) O-360-E SERIES (PER ENGINE)

Press. Alt. Feet	Std. Alt. Temp. °C	99 BHP - 55% Rated Power Approx. Fuel Flow-9.3 Gal/Hr.* RPM AND MAN. PRESS.				117 BHP - 65% Rated Power Approx. Fuel Flow-10.3 Gal/Hr.* RPM AND MAN. PRESS.				135 BHP - 75% Rated Power Approx. Fuel Flow-11.2 Gal/Hr.* RPM AND MAN. PRESS.				Press. Alt. Feet
		2100	2200	2300	2400	2100	2200	2300	2400	2200	2300	2400		
SL	15	22.2	21.7	21.2	20.7	24.5	24.0	23.4	22.9	26.4	25.8	25.2	SL	
1000	13	21.9	21.4	21.0	20.4	24.2	23.7	23.1	22.6	26.1	25.5	24.9	1000	
2000	11	21.6	21.1	20.7	20.2	23.9	23.4	22.9	22.3	25.8	25.2	24.6	2000	
3000	9	21.3	20.8	20.4	19.9	23.6	23.1	22.6	22.1	25.4	24.9	24.4	3000	
4000	7	21.0	20.6	20.1	19.7	23.2	22.7	22.3	21.8	FT	24.7	24.1	4000	
5000	5	20.8	20.3	19.9	19.4	22.9	22.4	22.0	21.5	—	FT	23.8	5000	
6000	3	20.5	20.2	19.6	19.2	22.6	22.1	21.7	21.3	—	—	FT	6000	
7000	1	20.2	19.7	19.3	18.9	FT	21.8	21.5	21.0	—	—	—	7000	
8000	-1	19.9	19.5	19.1	18.6	—	FT	21.2	20.7	—	—	—	8000	
9000	-3	19.6	19.2	18.8	18.4	—	—	FT	20.5	—	—	—	9000	
10,000	-5	19.3	18.9	18.5	18.1	—	—	—	FT	—	—	—	10,000	
11,000	-7	FT	18.6	18.3	17.9	—	—	—	—	—	—	—	11,000	
12,000	-9	—	FT	18.0	17.6	—	—	—	—	—	—	—	12,000	
13,000	-11	—	—	FT	17.4	—	—	—	—	—	—	—	13,000	
14,000	-13	—	—	—	FT	—	—	—	—	—	—	—	14,000	

NOTE: To maintain constant power, add approximately 1% manifold pressure for each 6°C above standard, subtract approximately 1% for each 6°C below standard.

*Best Power



PA-44-180

SPEED POWER

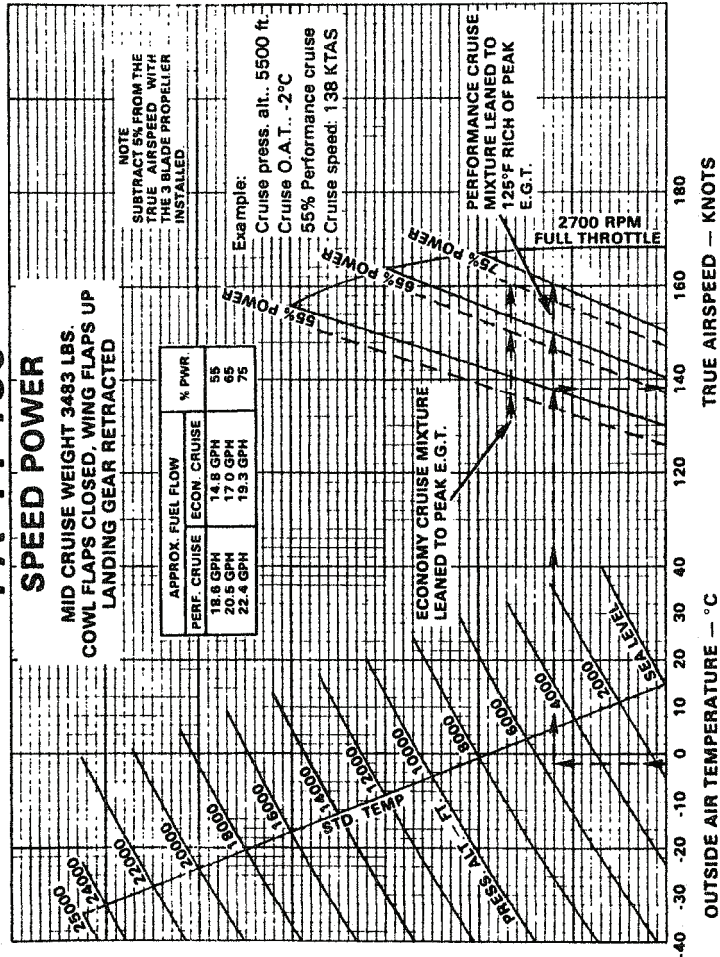
MID CRUISE WEIGHT 3483 LBS.
COWL FLAPS CLOSED, WING FLAPS UP
LANDING GEAR RETRACTED

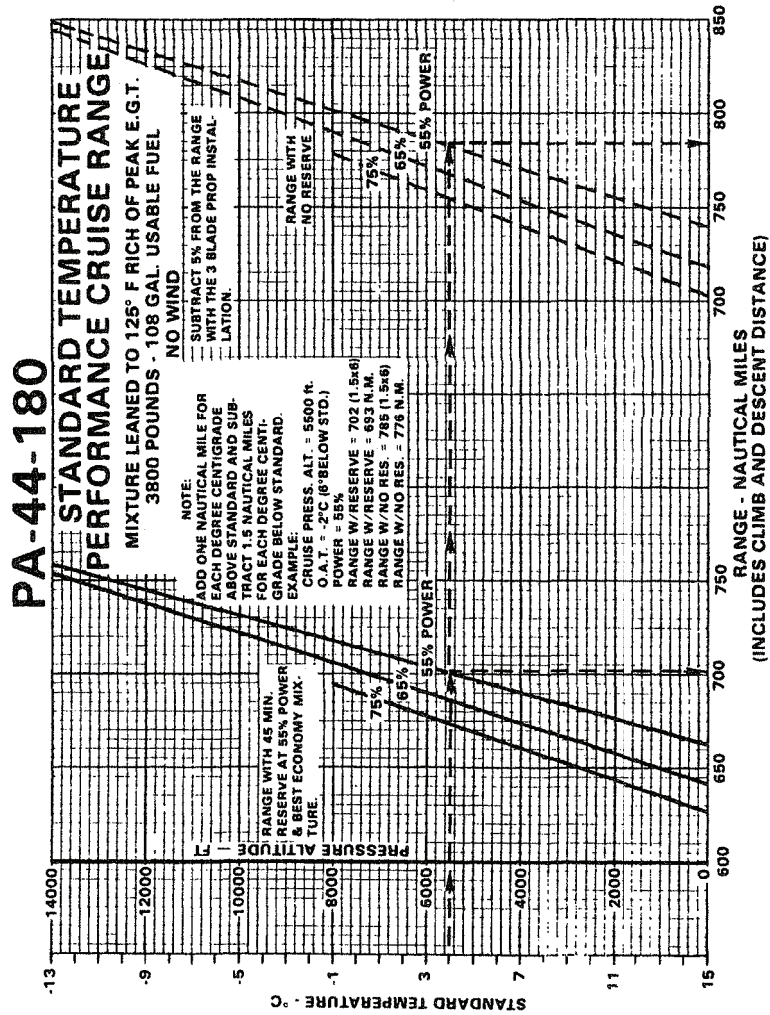
APPROX. FUEL FLOW		% PWR.
PERF. CRUISE	ECON. CRUISE	
18.6 GPH	14.8 GPH	55
20.5 GPH	17.0 GPH	65
22.4 GPH	19.3 GPH	75

NOTE
SUBTRACT 1% FROM THE
TRUE AIRSPEED WITH
THE 3 BLADE PROPELLER
INSTALLED

Example:

Cruise press. alt., 5500 ft.
Cruise O.A.T., -2°C
55% Performance cruise
Cruise speed: 138 KTAS

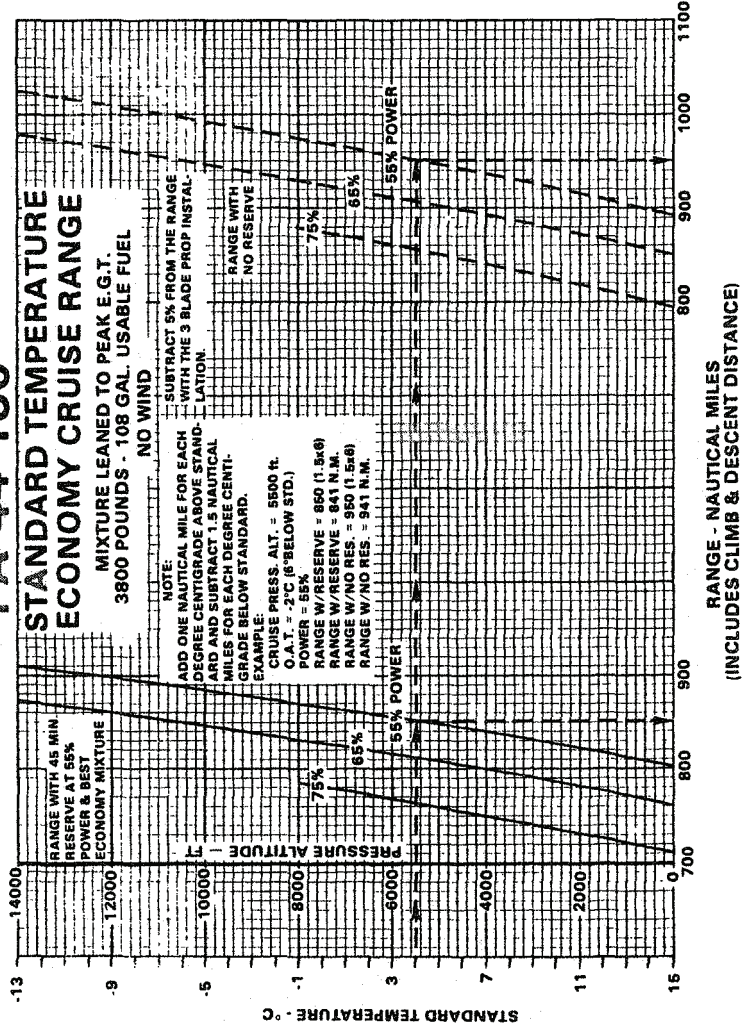




PA-44-180

STANDARD TEMPERATURE ECONOMY CRUISE RANGE

MIXTURE LEANED TO PEAK E.G.T.
3800 POUNDS - 108 GAL. USABLE FUEL
NO WIND





AIRSPEED LIMITATIONS

SPEED	KIAS	KCAS
Design Maneuvering Speed (V_A) - Do not make full or abrupt control movements above this speed.		
3800 lbs.	135	133
2700 lbs.	112	112

CAUTION

Maneuvering speed decreases at lighter weight as the effects of aerodynamic forces become more pronounced. Linear interpolation may be used for intermediate gross weights. Maneuvering speed should not be exceeded while operating in rough air.



SPEED	KIAS	KCAS
Never Exceed Speed (VNE) - Do not exceed this speed in any operation.	202	194
Maximum Structural Cruising Speed (VNO) - Do not exceed this speed except in smooth air and then only with caution.	169	165
Maximum Flaps Extended Speed (VFE) - Do not exceed this speed with the flaps extended.	111	109
Maximum Gear Extended Speed (VLE) - Do not exceed this speed with landing gear extended.	140	138
Maximum Landing Gear Extending Speed (VLO) - Do not extend landing gear above this speed.	140	138
Maximum Landing Gear Retracting Speed (VLO) - Do not retract landing gear above this speed.	109	109
Air Minimum Control Speed (VMCA) - Lowest airspeed at which airplane is controllable with one engine operating and no flaps. Note: This is a stalled condition.	56	63
One Engine Inoperative Best Rate of Climb Speed.	88	90



Autopilot (AP) Flight System



FLIGHT DIRECTOR/AUTOPILOT MASTER (FD/AP) BUTTON	THIS BUTTON HAS THREE MODES:
	Mode 1) FD off - AP off Mode 2) FD on - AP off Mode 3) FD on - AP on Left click will advance one mode and Right click will decrease one mode.
HEADING MODE	
	In Heading mode the autopilot will maintain the heading selected by the heading bug on the directional gyro or HSI.
HEADING BUG INDICATOR	
	The Heading Bug indicator provides a fully visible course indicator around the normal directional gyro or HSI.
NAVIGATION MODE	
	The NAV button pursues the Selected Course in the directional gyro or HSI. Once the course is caught, the AP will hold it. NAV mode will follow NAV1.
APPROACH MODE	
	The approach mode is used for automatic approach. When the APR button is pressed, the AP will follow the ILS signal of the NAV 1. This mode is recommended for instrument approach.
REVERSE MODE	
	Reverse mode permits automatic Back-Course approaches and for tracking outbound on the Front Course prior to a procedural turn. When using this mode, the Course Selector of the directional gyro needs to be set to the opposite direction of the Front-Course heading.

ALTITUDE HOLD



Engagement of the altitude hold button will maintain the altitude (desired altitude) at the moment the ALT button is pressed.

VERTICAL SPEED FUNCTION



When pressed, AP will engage the vertical speed hold mode.

You can modify the vertical speed using the DECR/INCR knob of the right of the AP

Desired vertical speed will appear:

- On the AP screen indication (x100 feet/minute)



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