



# **PA28-161 WARRIOR II**

## **Quick Reference Handbook**

### **Version 1.1**

**ALL GREY SHADED AREAS ARE  
MEMORY ITEMS**

PA28-161 QRH  
PIPER WARRIOR II

BASAIR AUSTRALIA PTY LTD

## Normal Procedures

Pre-Flight Check.....	N-1
Before Starting Engine .....	N-3
Flooded Engine Start.....	N-4
Starting With External Power Source.....	N-4
Starting Engine.....	N-4
After Start Checks .....	N-5
Taxi Checks .....	N-5
Run Up Checks .....	N-5
Before Take Off.....	N-5
Line Up.....	N-6
Rolling Checks .....	N-6
After Take Off.....	N-7
Top Of Climb .....	N-7
Top Of Descent .....	N-7
Pre-Landing Checks.....	N-8
Final Checks .....	N-8
After Landing.....	N-8
Stopping Engine .....	N-9
Securing Aeroplane.....	N-9

PA28-161 QRH  
PIPER WARRIOR II

BASAIR AUSTRALIA PTY LTD

## Pre-Flight Check

1. Control Wheel..... RELEASE BELTS
2. Avionics ..... OFF
3. Master Switch ..... ON
4. Fuel Quantity Gauges..... CHECK
5. Master Switch ..... OFF
6. Ignition..... OFF
7. Flaps..... EXTEND
8. Exterior ..... CHECK FOR DAMAGE
9. Control Surfaces..... CHECK FOR INTERFERENCE  
..... FREE OF ICE, SNOW, FROST
10. Hinges ..... CHECK FOR INTERFERENCE
11. Wings ..... FREE OF ICE, SNOW, FROST
12. Stall Warning ..... CHECK
13. Tie Down & Chocks ..... REMOVE
14. Navigation & Other Lights ..... CHECK
15. Fuel Tanks..... CHECK SUPPLY VISUALLY  
..... & SECURE CAPS
16. Fuel Tank Sumps..... DRAIN
17. Fuel Vents ..... OPEN
18. Main Gear Struts ..... PROPER INFLATION (4.5in.)
19. Tyres ..... CHECK
20. Brake Blocks..... CHECK
21. Pitot Head..... REMOVE COVER & HOLES CLEAR
22. Windshield..... CLEAN (INSIDE & OUT)
23. Propeller & Spinner..... CHECK
24. Fuel & Oil..... CHECK FOR LEAKS

- 25. Oil..... CHECK LEVEL
- 26. Dipstick..... PROPERLY SEATED
- 27. Cowling..... SECURE
- 28. Inspection Covers..... SECURE
- 29. Nose Wheel Tyre..... CHECK
- 30. Nose Gear Strut.....PROPER INFLATION (3.25in.)
- 31. Air Inlets ..... CLEAR
- 32. Alternator Belt.....CHECK TENSION
- 33. Tow Bar & Control Locks ..... STOW
- 34. Baggage .....STOW PROPERLY & SECURE
- 35. Baggage Door ..... CLOSE & SECURE
- 36. Fuel Strainer .....DRAIN
- 37. Primary Flight Controls ..... PROPER OPERATION
- 38. Cabin Door ..... CLOSED & SECURE
- 39. Required Papers..... ON BOARD
- 40. Seat Belts & Harness..... FASTEN/ADJUST &  
..... CHECK INERTIA REEL
- 41. Flaps..... RETRACT

## Before Starting Engine

1. Pre-Flight & Passenger Brief ..... COMPLETE
2. Flight Authorisation ..... COMPLETE
3. Maintenance Release .....CHECKED & SIGNED
4. Seats and Seat Belts .....ADJUSTED & SECURED
5. Fuel Selector ..... DESIRED TANK (LEFT OR LEAST)
6. Radios / Avionics ..... OFF
7. Circuit Breakers ..... IN
8. Master Switch ..... ON
9. Electric Fuel Pump..... ON
10. Fuel Pressure .....CHECKED
11. Electric Fuel Pump..... OFF
12. Carburettor Heat ..... COLD
13. Mixture..... FULL RICH
14. Throttle .....  $\frac{1}{4}$ " OPEN (COLD)  $\frac{1}{2}$ " OPEN (HOT)
15. Parking Brake .....SET ON
16. Propeller Area..... CLEAR

Proceed with after start

### WARNING

Do not pump throttles during or prior to the starting procedures.

### CAUTION

Maximum starter engage duty cycle is 30 seconds on, followed by a minimum of two minutes off.

## Flooded Engine Start

1. Throttle ..... OPEN FULL
2. Master Switch ..... ON
3. Electric Fuel Pump..... OFF
4. Mixture..... ICO
5. Starter..... ENGAGE
6. Mixture..... ADVANCE
7. Throttle ..... RETARD
8. Oil Pressure..... INDICATING WITHIN 10 SEC

## Starting With External Power Source

1. Master Switch ..... OFF
2. All electrical Equipment ..... OFF
3. Terminals..... CONNECT
4. External Power Plug ..... INSERT IN FUSELAGE
5. Throttle ..... LOWEST POSSIBLE RPM
6. External Power Plug ..... DISCONNECT FROM FUSELAGE
7. Master Switch ..... ON / CHECK AMMETER
8. Oil Pressure..... INDICATING WITHIN 10 SEC

Proceed with normal start

## Starting Engine

1. Primer ..... 1-3 STROKES (COLD) 0 (HOT)
2. Starter..... ENGAGE
3. Throttle ..... ADJUST
4. Oil Pressure..... INDICATING GREEN WITHIN 10 SEC



## After Start Checks

1. Avionics and Intercom ..... ON / SET / CHECKED
2. Alternator ..... CHARGING
3. Lights ..... TAXI LIGHT ON
4. Mixture ..... LEANED
5. Throttle ..... 800 to 1200 RPM
6. Oil Pressure ..... CHECKED GREEN

## Taxi Checks

1. Brakes ..... CHECKED
2. Flight Instruments ..... TC, AH, DI AND COMPASS CHECKED

## Run Up Checks

**Do not proceed with run-ups unless the oil temperature is in the green**

1. Parking Brake ..... ON
2. Fuel Selector ..... RIGHT or FULLEST TANK
3. Mixture ..... RICH
4. Throttle ..... 2000 RPM
5. Engine Instruments ..... CHECKED GREEN
6. Magnetos ..... MAX DROP 175 RPM  
..... MAX DIFF. 50 RPM
7. Vacuum ..... 5.0" HG (+/- .1)
8. Annunciator Panel ..... PRESS-TO-TEST
9. Carburettor Heat ..... CHECK DROP
10. Throttle Idle ..... CHECKED >600 RPM
11. Throttle ..... 1000 RPM

## Before Take Off

- 12. Fuel Selector ..... RIGHT or FULLEST TANK
- 13. Flight Instruments ..... SET & CHECK
- 14. Circuit Breakers ..... IN
- 15. Throttle Friction ..... SET FIRM
- 16. Mixture ..... RICH
- 17. Master Switch ..... ON
- 18. Electric Fuel Pump ..... ON
- 19. Primer ..... IN & LOCKED
- 20. Magnetos ..... BOTH
- 21. Controls ..... FULL, FREE & CORRECT
- 22. Flaps ..... SET 0 OR 25 DEGREES
- 23. Trim Tab ..... SET T/O
- 24. Belts/Harnesses ..... FASTENED
- 25. Empty Seats ..... SEAT BELTS SNUGLY FASTENED
- 26. Doors ..... LATCHED
- 27. Departure Brief ..... COMPLETE
- 28. Take Off Safety Brief ..... COMPLETE
- 29. Parking Brake ..... OFF

## Line Up

- 1. Pitot Heat ..... A/R
- 2. Instruments ..... CHECK ALIGNMENT
- 3. Switches ..... LIGHTS / PUMPS A/R
- 4. Transponder / Trim ..... ALT / TAKE OFF
- 5. Altimeter ..... WITHIN TOLERANCE

## Rolling Checks

1. Power ..... STATIC RPM
2. Engine Instruments..... GREEN
3. Airspeed .....RISING

## After Take Off

1. Gear ..... FIXED DOWN
2. Flaps..... UP
3. Power ..... FULL
4. Temperature and Pressure Indicators..... CHECKED GREEN
5. Switches ..... OFF
6. Mixture..... FULL RICH
7. Centreline ..... ALIGNED

## Top Of Climb

1. Fuel Log ..... COMPLETE / CORRECT TANK
2. Mixture..... LEANED (AS PER POH)
3. QNH ..... AREA
4. DI / Compass..... ALIGNED
5. Cowl Flaps..... A/R
6. Aids / Audio ..... SOURCE / TUNED / IDENTIFIED / TESTED
7. Radios ..... SET / CHECKED

## Top Of Descent

1. Fuel Log ..... COMPLETE
2. Mixture..... FULL RICH
3. QNH ..... LOCAL
4. DI / Compass..... ALIGNED
5. Cowl Flaps..... A/R
6. Aids / Audio ..... SOURCE / TUNED / IDENTIFIED / TESTED
7. Radios ..... SET / CHECKED

## Pre Landing Checks

1. Brakes ..... PRESSURE CHECKED & OFF
2. Undercarriage ..... FIXED DOWN
3. Mixture ..... RICH
4. Fuel ..... ON & QUANTITY CHECKED
5. Instruments ..... ALIGNED / WITHIN TOLERANCES
6. Switches ..... LIGHTS / PUMPS A/R
7. Hatches & Harnesses ..... SECURE
8. Pilot Activated Lighting ..... AD LIGHTING CONSIDERED

## Final Checks

1. Pitch ..... FULL FINE
2. Undercarriage ..... FIXED DOWN
3. Flaps ..... A/R
4. Carburettor Heat ..... COLD
5. Check Windsock ..... CHECKED
6. Clearance ..... OBTAINED

## After Landing

1. Transponder ..... STBY
2. Electric Fuel Pump ..... OFF
3. Strobes & Landing Light ..... OFF
4. Taxi Light ..... ON
5. Mixture ..... LEANED
6. Trims ..... NEUTRAL
7. Flaps ..... RETRACTED

## Stopping Engine

1. Radios / Avionics ..... OFF
2. Electric Fuel Pump..... OFF
3. Throttle ..... 800-1000 RPM
4. Magnetos..... CHECK DROP
5. Mixture..... ICO
6. Magnetos..... OFF
7. Master Switch ..... OFF

## Securing Aeroplane

1. Parking Brake ..... SET
2. Control Wheel..... SECURE
3. Flaps..... FULL UP
4. Wheel Chocks ..... IN PLACE
5. Tie Downs & Covers ..... SECURE

## Emergency Procedures

Engine Fire During Start .....	E-1
Engine Power Loss During Take Off.....	E-1
Engine Power Loss In Flight.....	E-2
Fire In Flight .....	E-3
Spin Recovery .....	E-3

PA28-161 QRH  
PIPER WARRIOR II

BASAIR AUSTRALIA PTY LTD



## Engine Fire During Start

1. Starter..... CRANK ENGINE
2. Mixture..... IDLE CUT-OFF
3. Throttle ..... OPEN
4. Electric Fuel Pump..... OFF
5. Fuel Selector ..... OFF

Abandon if fire continues

## Engine Power Loss During Take Off

If sufficient runway remains for a normal landing:

1. Land straight ahead

If insufficient runway remains:

1. Maintain Safe Airspeed
2. Make only shallow turn to avoid obstructions
3. Flaps as situation requires

If sufficient altitude has been gained to attempt a restart:

1. Maintain safe airspeed
2. Fuel Selector ..... SWITCH TO TANK CONTAINING FUEL
3. Fuel Pump ..... ON
4. Mixture..... RICH
5. Carburetor Heat..... ON
6. Engine Gauges..... CHECK FOR INDICATION OF CAUSE OF POWER LOSS
7. Primer..... IN & LOCKED

If power is not regained, proceed with power off landing.

## Engine Power Loss In Flight

1. Fuel Selector ..... SWITCH TO TANK CONTAINING FUEL
2. Electric Fuel Pump..... ON
3. Mixture..... RICH
4. Carburetor Heat..... ON
5. Engine Gauges... CHECKED FOR INDICATION OF PWR LOSS
6. Primer ..... IN & LOCKED

If no fuel pressure indicated, check tank selector position to be sure it is on a tank containing fuel.

If Power is Restored:

1. Carburetor Heat..... OFF
2. Electric Fuel Pump..... OFF

If power is not restored prepare for power off landing & trim for 73 KIAS

Power Off Landing:

Once committed to landing

1. Ignition..... OFF
2. Master Switch..... OFF
3. Fuel Selector ..... OFF
4. Mixture..... ICO
5. Seatbelts and Harnesses..... TIGHT

## Fire In Flight

1. Source Of Fire ..... CHECK

### ELECTRICAL FIRE (smoke in cabin):

1. Master Switch ..... OFF

2. Air Vents ..... OPEN

3. Cabin Heat ..... OFF

Land as soon as practicable

### ENGINE FIRE:

1. Fuel Selector ..... OFF

2. Throttle ..... CLOSED

3. Mixture ..... ICO

4. Electric Fuel Pump ..... CHECK OFF

5. Heater and Defroster ..... OFF

Proceed with power off landing procedure

## Spin Recovery

1. Throttle ..... IDLE

2. Ailerons ..... NEUTRAL

3. Rudder ..... FULL OPPOSITE TO DIRECTION OF ROTATION

4. Control Wheel ..... FULL FORWARD

5. Rudder ..... NEUTRAL (when rotation stops)

6. Wing Flaps ..... UP (if extended)

7. Control Wheel ..... AS REQUIRED TO SMOOTHLY  
REGAIN LEVEL FLIGHT

PA28-161 QRH  
PIPER WARRIOR II

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## Abnormal Procedures

Loss Of Oil Pressure/High Oil Temp.....	A-1
Loss Of Fuel Pressure.....	A-1
Electrical Failure.....	A-1
Electrical Overload .....	A-2
Open Door.....	A-2
Engine Roughness .....	A-3
Carburetor Icing.....	A-3

PA28-161 QRH  
PIPER WARRIOR II

BASAIR AUSTRALIA PTY LTD

## Loss Of Oil Pressure / High Oil Temp

Land as soon as possible and investigate cause.

Prepare for power off landing.

## Loss Of Fuel Pressure

1. Electric Fuel Pump..... ON
2. Fuel Selector ..... CHECK ON FULLEST TANK

## Electrical Failure

ALT Annunciator Light Illuminated:

1. Ammeter.....CHECK TO VERIFY INOP. ALT

If Ammeter Shows Zero:

1. ALT Switch .....OFF

Reduce electrical loads to a minimum:

2. ALT Circuit Breaker ..... CHECK & RESET AS REQUIRED
3. ALT Switch ..... ON

If power not restored:

1. ALT Switch .....OFF

### NOTE

If alternator output cannot be restored, reduce electrical load and land as soon as practicable.

## Electrical Overload

ALT OVER 20 AMPS ABOVE KNOWN ELECTRICAL LOAD

1. ALT Switch ..... ON
2. BATT Switch.....OFF

If alternator loads are reduced:

1. Electrical Loads ..... REDUCE TO MINIMUM

Land as soon as practical.

If alternator loads are not reduced:

1. ALT Switch .....OFF
2. BATT Switch.....A/R

## Open Door

To close door in flight:

1. Slow aeroplane to 89 KIAS
2. Cabin Vents ..... CLOSED
3. Storm Window ..... OPEN
4. If Upper Latch is Open..... LATCH
5. If Side Latch is Open ..... PULL ON ARMREST WHILE MOVING LATCH HANDLE TO LATCHED POSITION
6. If Both Latches are Open ..... LATCH SIDE, then LATCH TOP



## Engine Roughness

1. Carburetor Heat..... ON

If roughness continues for 1 minute:

1. Carburetor Heat.....OFF
2. Mixture.....ADJUST FOR MAX SMOOTHNESS
3. Electric Fuel Pump..... ON
4. Fuel Selector ..... SWITCH TANKS
5. Engine Gauges..... CHECK
6. Magneto Switch ..... “L” then “R” then “BOTH”

<b>NOTE</b>
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If operation is satisfactory on either one, continue on that magneto at reduced power and full “RICH” mixture to first airport. Prepare for power off landing.

## Carburetor Icing

1. Carburetor Heat..... ON
2. Mixture.....ADJUST FOR MAX SMOOTHNESS

PA28-161 QRH  
PIPER WARRIOR II

BASAIR AUSTRALIA PTY LTD

## Supplemental Information

Basair SOP .....	S-1
Passenger Brief .....	S-1
Take-Off Safety Brief .....	S-1
Departure And Approach Brief .....	S-1
Sample Passenger Brief .....	S-2
Standard Flow Procedure .....	S-3
Aircraft Summary .....	S-4
Cruise Performance .....	S-5

PA28-161 QRH  
PIPER WARRIOR II

BASAIR AUSTRALIA PTY LTD

## Basair SOP

### PASSENGER BRIEF

- No smoking in aircraft
- Proper use and adjustment of seat belts
- Location and proper operation of emergency exits
- Location of life jackets, first aid kits and fire extinguishers, and if required, survival kits and life rafts.
- Requirement of a passenger occupying a control seat, not to interfere with the controls during the flight
- Operation of ventilation system
- Proper stowage of passengers' carry on items during critical phases of flight
- Seat backs must be upright for take-off and landing
- Mobile phones and electronic devices must be off at all times

### TAKE – OFF SAFETY BRIEF

- If there is an engine failure, fire or abnormality whilst on the runway I will close the throttle and brake as required
- If there is an engine failure or major abnormality shortly after take-off with sufficient runway or overrun remaining, I will lower the nose, select full flap, land and brake as required
- If the engine fails with insufficient runway or overrun, I will lower the nose, maintain (...) knots (best glide speed), select a suitable field 30 degrees either side of the nose, extend flaps as required and land.
- I will only turn back to the runway if I am at 1000 feet AGL or on the downwind leg

### DEPARTURE AND APPROACH BRIEF

- Charts
- Terrain
- Weather
- Operational considerations
- Any additional items you deem are threats

## SAMPLE PASSENGER BRIEF

“Welcome aboard your flight, my name is \_\_\_\_\_ your pilot.

Today you’ll be flying in a \_\_\_\_\_.

Our aeroplane has \_\_\_\_\_ doors. You can close the door by \_\_\_\_\_.

If you need to open the door, such as in the unlikely event of an emergency, you can open the door by \_\_\_\_\_. To adjust your seat, there will be a lever underneath the seat.

Each seat in the aeroplane is equipped with an adjustable seatbelt. Fasten your seatbelt by inserting the clasp into the buckle. Pull the shoulder harness over your shoulder and clip it on to the clasp. You can adjust the seatbelt at any time by pulling the strap. You can undo your seatbelt by lifting the flap. Please ensure that you wear your seatbelt throughout the flight. Please ensure that all bags or loose items are either placed on the rear seat or in the baggage compartment and secured.

You can adjust the VENTILATION OUTLETS AND CONTROLS by \_\_\_\_\_.

Please do not touch any part of the dashboard or controls and please keep your feet away from the pedals.

Please note that smoking on board the aeroplane is not permitted at any time.

In the unlikely event of an emergency, please exit the aeroplane and leave any luggage behind. We will meet at the rear of the aeroplane.”

Where applicable – show use

Lift Vest

Lift Raft

ELT

Oxygen

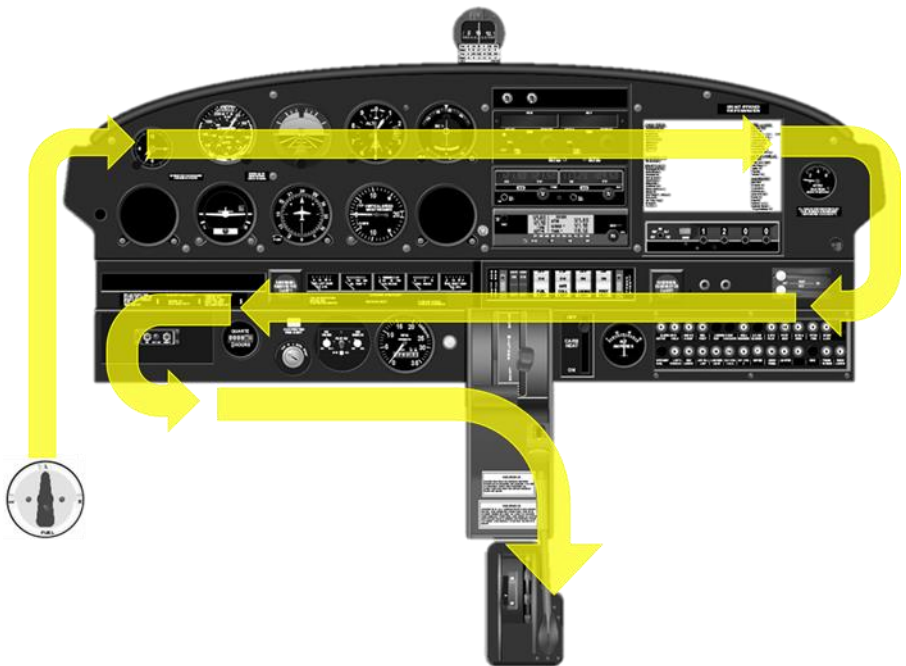
“Our destination for today’s flight is \_\_\_\_\_ and our Estimated Time of Arrival is \_\_\_\_\_. The weather for our flight today is expected to be \_\_\_\_\_.

Please sit back, relax and enjoy your flight.”

## Standard Flow Procedure

Below is an illustration of the standardised flow employed for *do and check* operations.

Abnormal and emergency procedures are conducted as a *check and do* system.



## Aircraft Summary

1. Engine ..... Lycoming O-320-D2A 160 HP

### Airspeeds

2. Never Excess Speed (Vne)..... 160 KIAS  
3. Max. Structural Cruise (Vno)..... 126 KIAS  
4. Manoeuvring Speed (Va) ..... 111 KIAS  
5. Max. Flap Extended (Vfe) ..... 40° flap, 102 KIAS  
6. Max. crosswind component take-off and landing ..... 17 Kts

### Fuel & Oil

7. Oil Capacity ..... 7.6 Litres (8 Quarts)  
8. Main Tanks ..... Total 189 Litres  
..... Usable 181 Litres

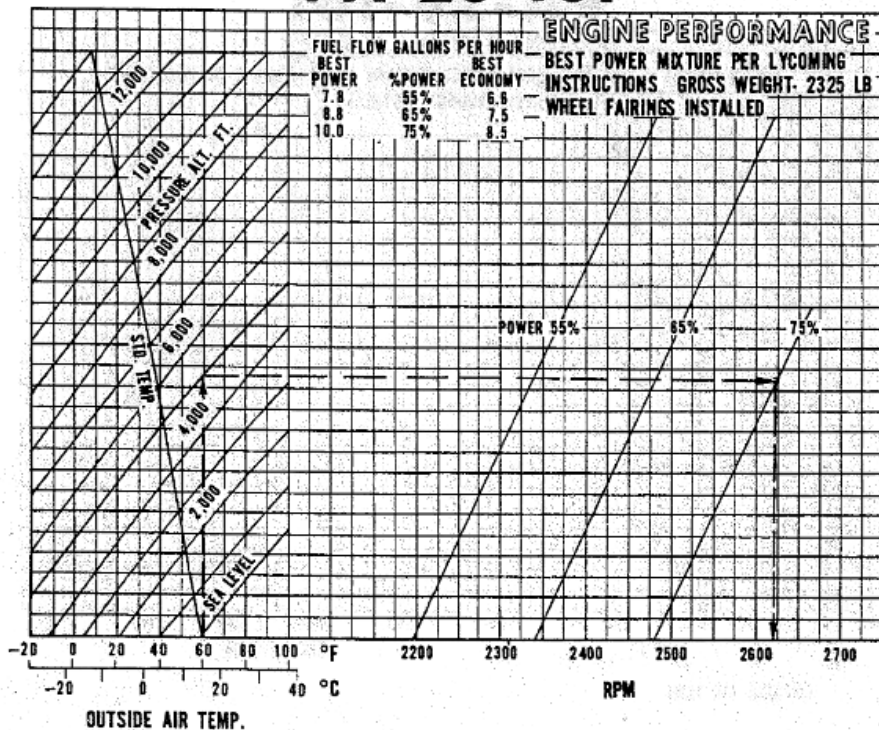
### Weight & Balance

9. Max. Take-Off Weight (MTOW) ..... 1055 kg  
10. Max. Landing Weight (MLW) ..... 1055 kg  
11. Basic Empty Weight..... Refer to AFM



## Cruise Performance

# PA-28-161



Example:

- Cruise pressure altitude: 5000 ft.
- Cruise OAT: 60°F
- Cruise power: 75%
- Engine RPM: 2620