

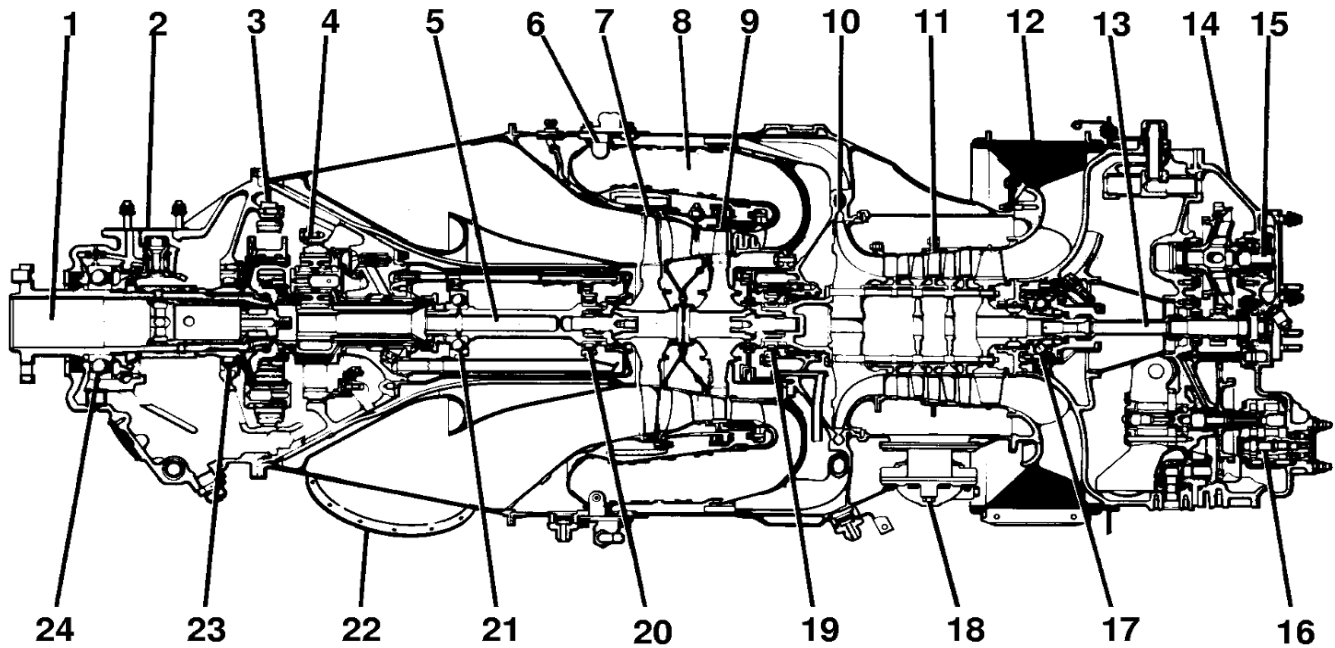
POWER PLANT - DESCRIPTION AND OPERATION
(PT6A-114/PT6A-114A)

1. General

- A. Power plant installed in Model 208 Series airplanes is a Pratt and Whitney Aircraft of Canada, Ltd., Model PT6A-114 (600 SHP) gas turbine engine. Airplanes 20800277 and On, Airplanes 208B0179 thru 208B2196, and 208B2198 thru 208B4999, and 208B0001 thru 208B0178, incorporating SK208-80, have a PT6A-114A (675 SHP) gas turbine engine is installed.
- B. The engines use a three-stage axial, single-stage centrifugal compressor, driven by a single-stage turbine (free turbine). A second single-stage turbine, counter rotating with first, drives propeller through a reduction gearbox. Fuel is sprayed into an annular combustion chamber by 14 individually removable fuel nozzles mounted around the gas generator case. An ignition unit and two spark igniter plugs are used to start combustion. A hydro-pneumatic fuel control unit (FCU) schedules fuel flow to maintain power setting selected by the power control lever. Propeller speed remains constant at any selected propeller control lever position through action of a propeller governor. When engine power lever is moved aft into beta range (reverse), maximum propeller speed is limited by pneumatic section to propeller governor.
- C. Refer to Figure 1 for an illustration of engine components. Refer to Figure 2 for an engine air flow diagram.

Figure 1 : Sheet 1 : Engine Components

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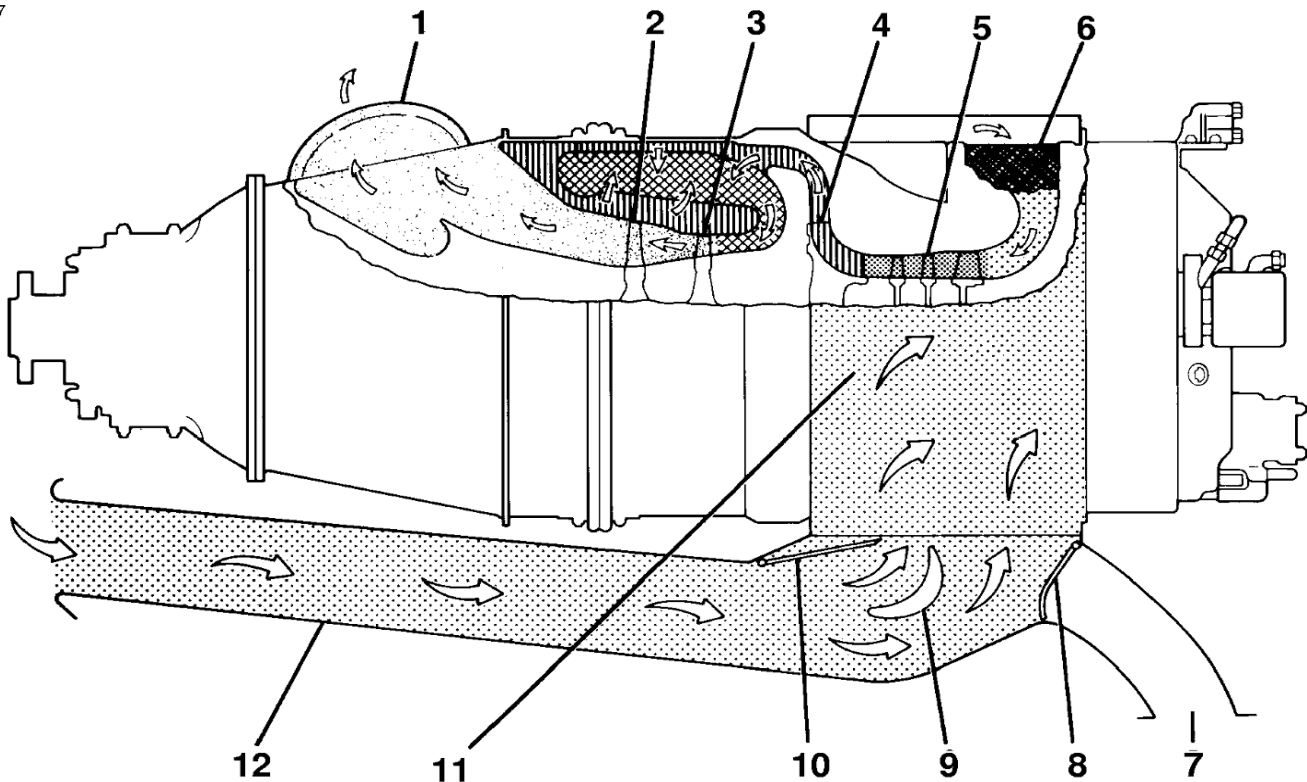


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|---|-----------------------------------|
| 1. PROPELLER SHAFT | 13. ACCESSORY GEARBOX DRIVE SHAFT |
| 2. PROPELLER GOVERNOR DRIVE PAD | 14. ACCESSORY GEARBOX COVER |
| 3. SECOND STAGE PLANETARY GEAR | 15. STARTER-GENERATOR DRIVE SHAFT |
| 4. FIRST STAGE PLANETARY GEAR | 16. OIL SCAVENGE PUMP |
| 5. POWER TURBINE SHAFT | 17. NUMBER 1 BEARING |
| 6. FUEL NOZZLE | 18. COMPRESSOR BLEED VALVE |
| 7. POWER TURBINE | 19. NUMBER 2 BEARING |
| 8. COMBUSTION CHAMBER | 20. NUMBER 3 BEARING |
| 9. COMPRESSOR TURBINE | 21. NUMBER 4 BEARING |
| 10. CENTRIFUGAL COMPRESSOR IMPELLER | 22. EXHAUST OUTLET |
| 11. AXIAL-FLOW COMPRESSOR IMPELLERS (3) | 23. ROLLER BEARING |
| 12. COMPRESSOR AIR INLET | 24. THRUST BEARING |

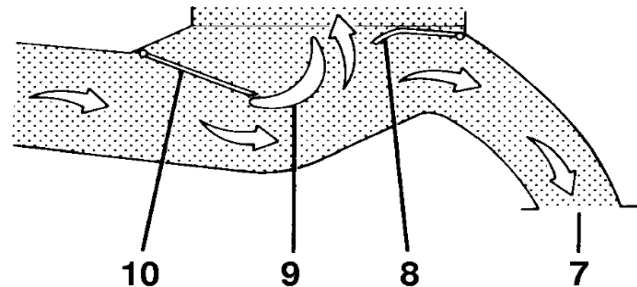
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Figure 2 : Sheet 1 : Engine Air Flow

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NOTE: ABOVE VIEW SHOWS INERTIAL SEPARATOR IN NORMAL POSITION. AUXILIARY VIEW SHOWS INERTIAL SEPARATOR IN BYPASS POSITION.

**CODE**

-  RAM AIR
-  RAM AIR COMPRESSED WHILE FLOWING THROUGH THREE STAGES OF AXIAL-FLOW IMPELLERS
-  RAM AIR COMPRESSED WHILE FLOWING THROUGH CENTRIFUGAL IMPELLERS
-  COMPRESSED AIR INJECTED WITH FUEL AND IGNITED
-  BURNED FUEL-AIR MIXTURE IS EXPANDED AND DRIVES COMPRESSOR TURBINE AND POWER TURBINE, AND IS THEN EXHAUSTED

- 1. PRIMARY EXHAUST PIPE
- 2. POWER TURBINE
- 3. COMPRESSOR TURBINE
- 4. CENTRIFUGAL IMPELLER
- 5. AXIAL-FLOW IMPELLERS (3)
- 6. ENGINE AIR INLET
- 7. INERTIAL SEPARATOR OUTLET
- 8. INERTIAL SEPARATOR REAR VANE
- 9. INERTIAL SEPARATOR AIRFOIL
- 10. INERTIAL SEPARATOR FRONT VANE
- 11. INDUCTION AIR INLET PLENUM
- 12. INDUCTION AIR INLET DUCT

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