

PHYSIOLOGICAL TRAINING

WHAT IS IT?

Physiological training is a program directed toward understanding and surviving in the flight environment. It covers the problems of both high and low altitudes and recommends procedures to prevent or minimize the human factor errors which occur in flight.

WHO NEEDS IT?

The course is primarily of benefit to pilots. It is also recommended for other air crew personnel, Air Traffic Controllers, Aviation Medical Examiners and other personnel from the national aviation system.

WHERE CAN YOU GET IT?

A resident physiological training course at the FAA's Aeronautical Center in Oklahoma City is devoted entirely to the problems in civil aviation. Many military installations plus the National Aeronautics and Space Administration (NASA) in Houston, Texas, conduct a resident program for non-Government personnel.

HOW LONG IS THE COURSE?

The course takes one full day.

WHAT IS CONTAINED IN THE COURSE?

Many topics are covered. They include the environment to which the flyer is exposed each time he flies, physiological functions of the body at ground level and alteration of some of these functions by changes in the environment. The higher one flies the more critical becomes the need for extra oxygen. This need is discussed so that the trainee will understand why a pilot cannot fly safely at altitudes in excess of 12,000 feet for prolonged flight without some aid, either from supplemental oxygen or a pressurized aircraft. Both oxygen equipment and pressurization are discussed. When man is confronted with certain stressful situations, he tends to breathe too rapidly. This topic (hyperventilation) and methods of control are discussed. Ear pain on descent and other problems with body

gases and procedures to prevent or minimize gas problems are explained. Alcohol, tobacco and drugs are also discussed as they apply to flying. Pilots' vertigo is discussed and demonstrated so that the trainee will understand why a non-current instrument pilot should never attempt to fly in clouds and other weather situations where visibility is reduced. All resident courses include an altitude chamber flight where the trainee may experience his individual symptoms of oxygen deficiency as well as a decompression. This flight will demonstrate that:

1. Oxygen equipment will protect an individual from oxygen deficiency.
2. He can experience and recognize symptoms that will be the same as found in aircraft and therefore take the necessary action to prevent loss of judgment and consciousness.
3. Decompression is not dangerous provided necessary protective actions are taken afterwards.

WHAT ARE THE PREREQUISITES FOR TRAINING?

Personnel must have a valid FAA Medical Certificate. When training is to be accomplished at military facilities a training fee of five dollars is required. Also necessary is written parental consent for those under 21.

HOW DO YOU APPLY FOR TRAINING?

All requests for the training course must be coordinated with:

Physiological Operations & Training Section,
AC-143
FAA Aeronautical Center
P.O. Box 25082
Oklahoma City, Oklahoma 73125

HOW CAN YOU GET FURTHER INFORMATION:

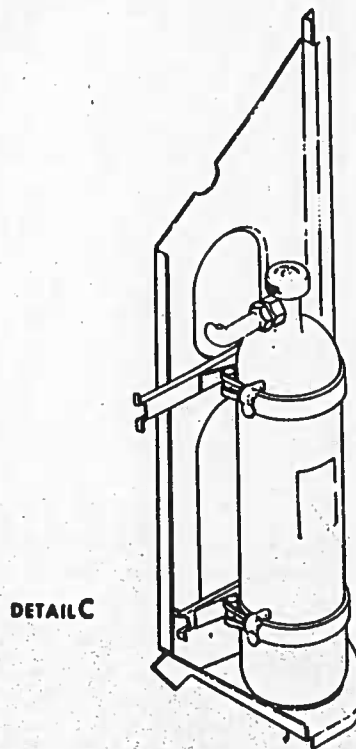
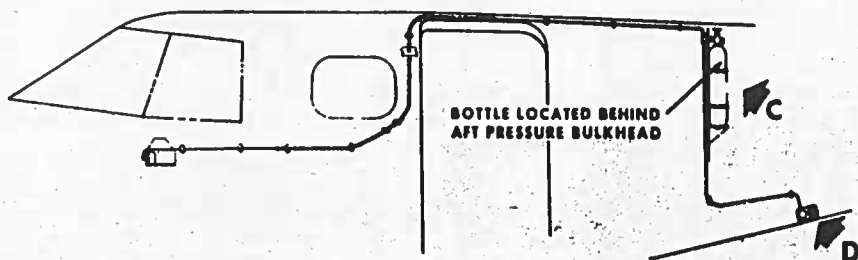
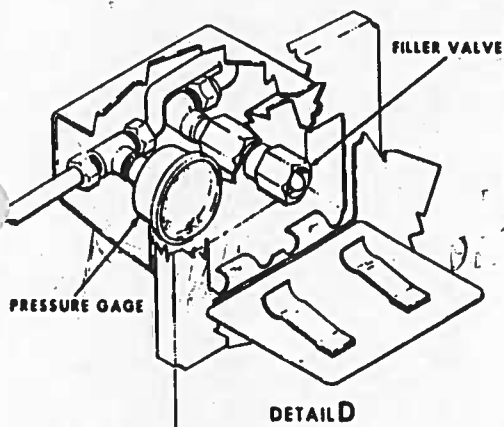
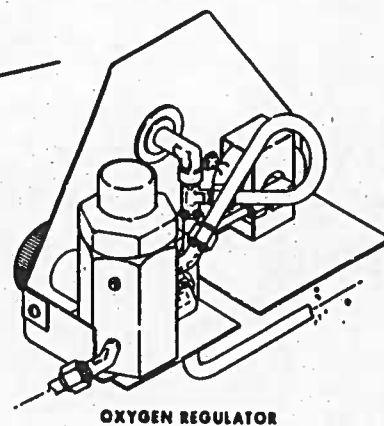
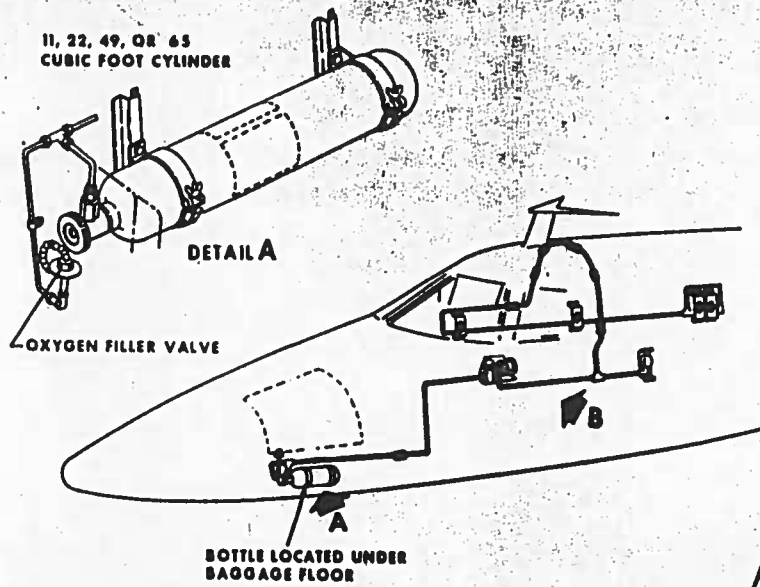
Write to the Physiological Operations and Training Section at the above address, or phone A/C 405 686-4837.

AVERAGE TIME OF USEFUL CONSCIOUSNESS

ALTITUDE	TIME
35,000 feet	1/2 to 1 minute
30,000 feet	1 to 2 minutes
28,000 feet	2 to 3 minutes
25,000 feet	3 to 5 minutes
22,000 feet	5 to 10 minutes
12,000 - 18,000 feet	30 minutes or more

**BEECHCRAFT
DUKE 60 SERIES
MAINTENANCE MANUAL**

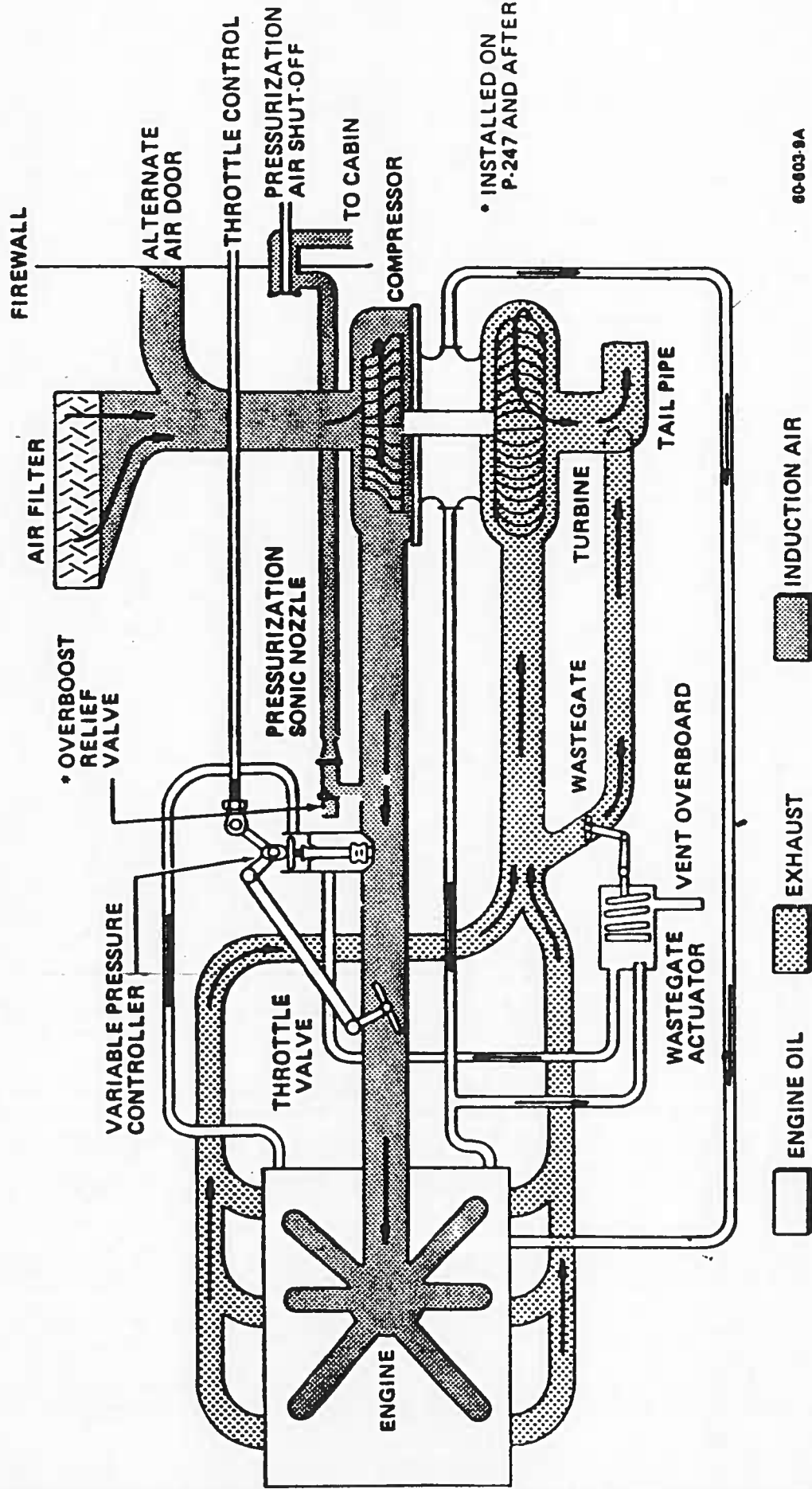
11, 22, 49, OR 65
CUBIC FOOT CYLINDER



**Oxygen System
Figure 1**

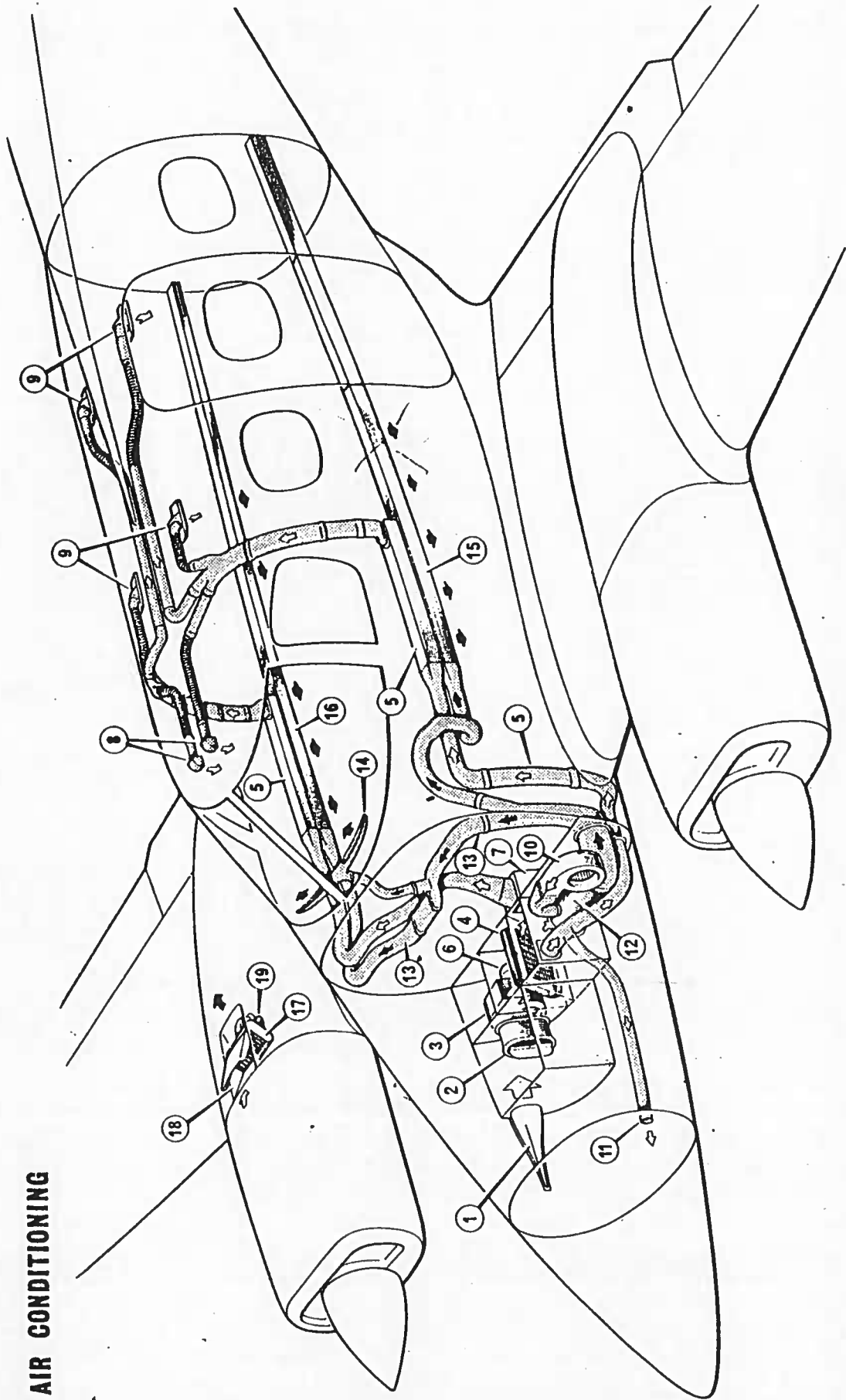
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**BEECHCRAFT
DUKE 60 SERIES
MAINTENANCE MANUAL**

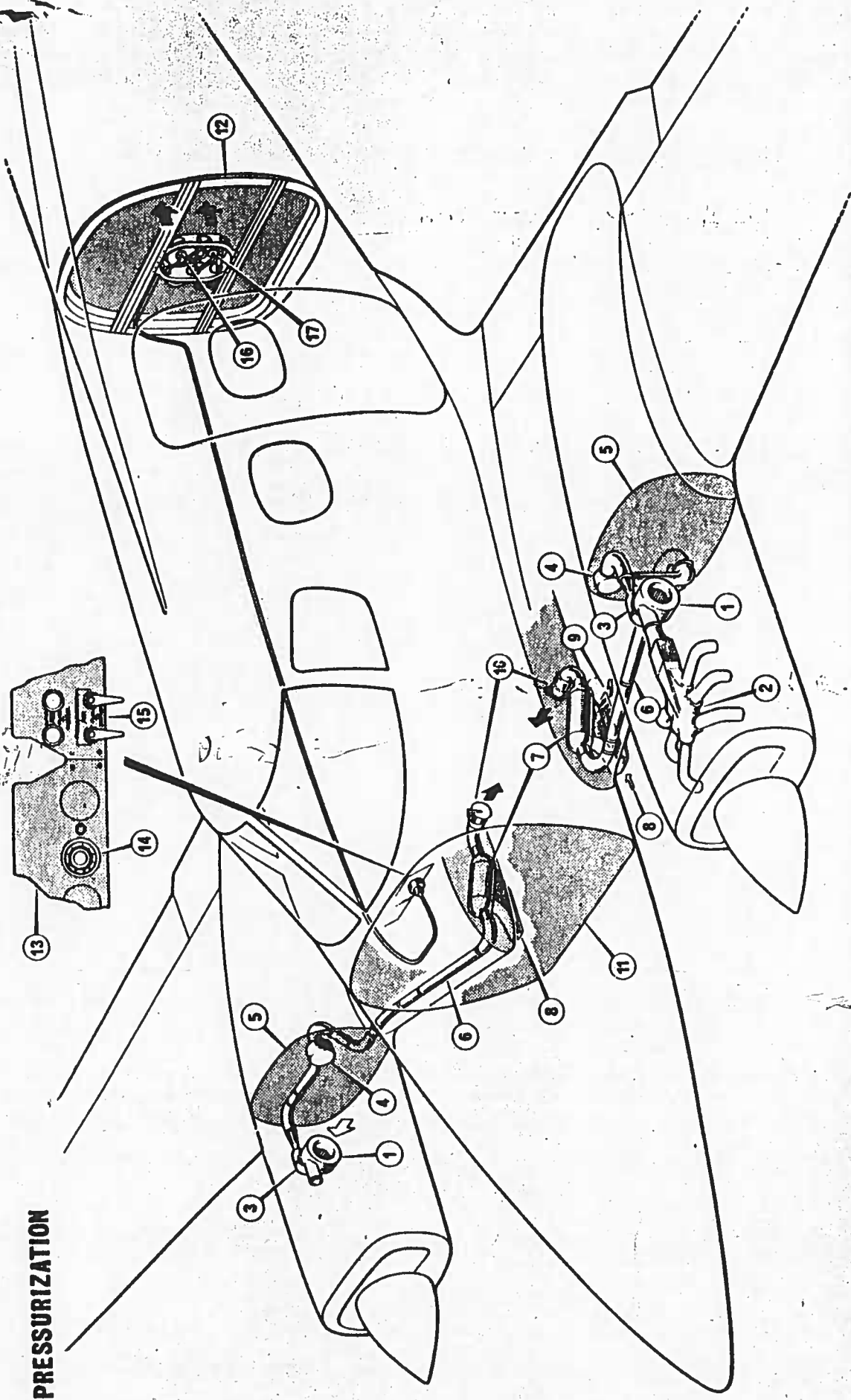


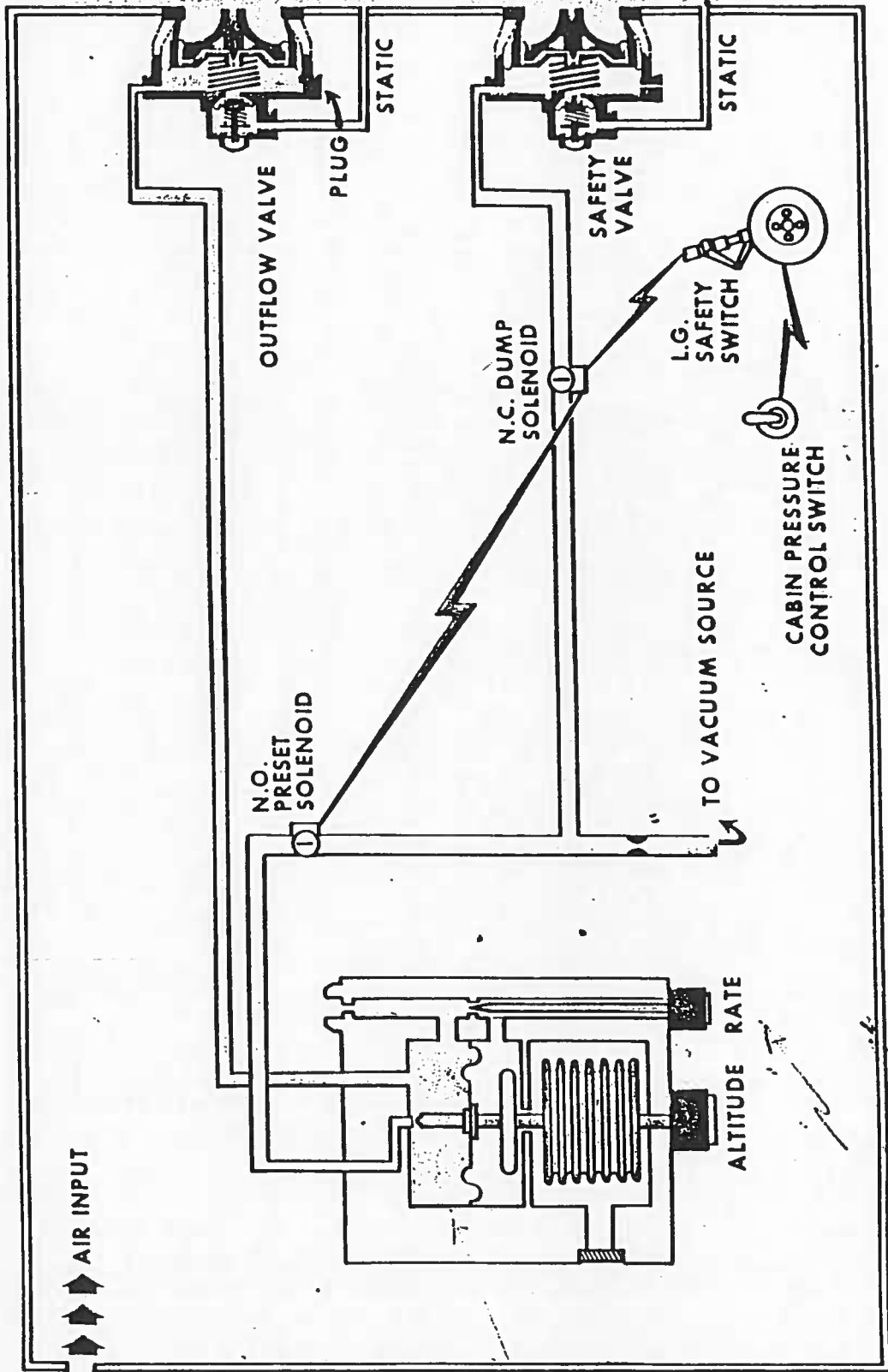
**Turbocharger System
Figure 1**

AIR CONDITIONING



PRESSURIZATION





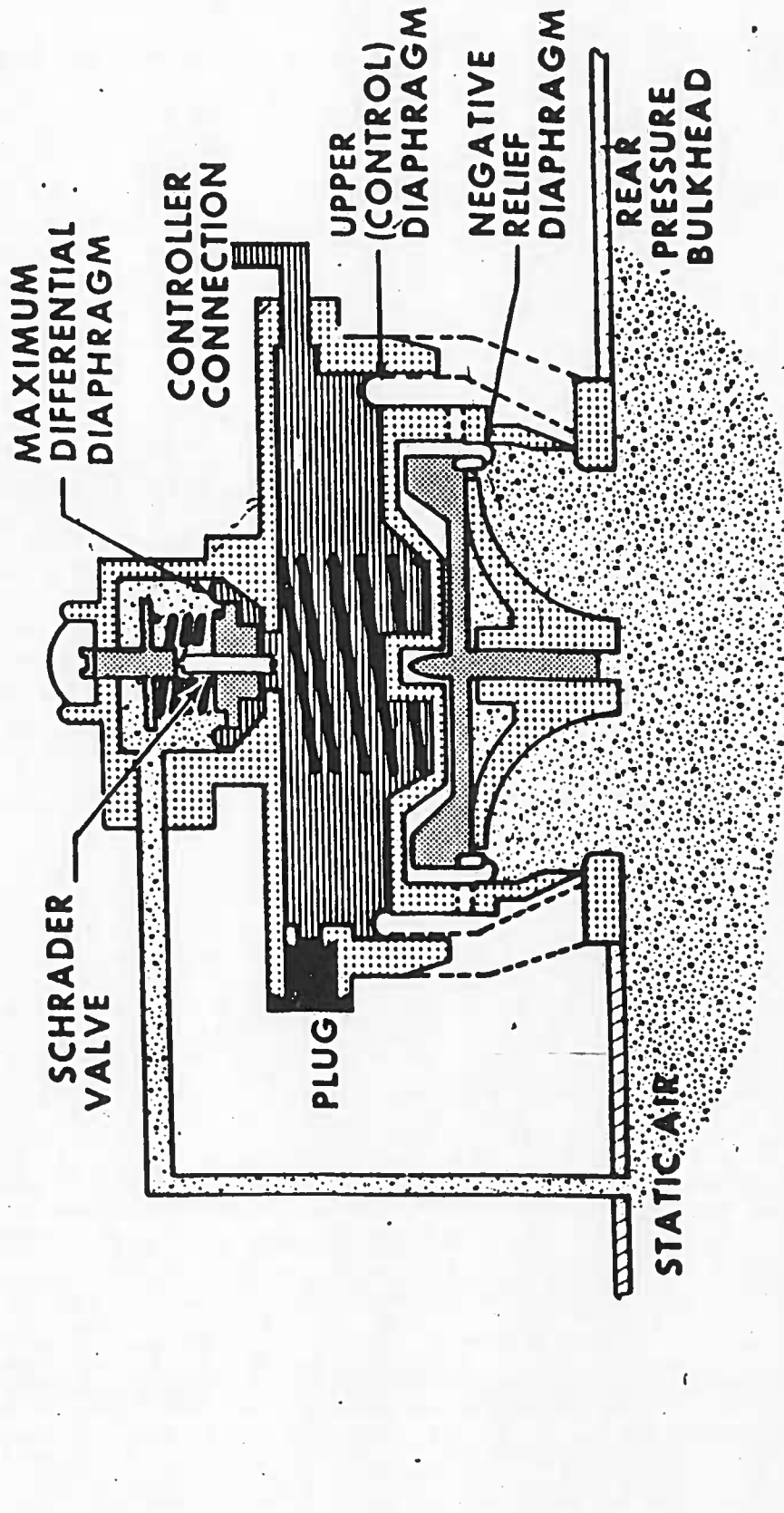
Closest Altimeter Setting	Add To Airport Elevation
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28.00 +2400
28.10 +2300
28.20 +2200
28.30 +2100
28.40 +2000
28.50 +1900
28.60 +1800
28.70 +1700
28.80	. . . . . +1600
28.90	. . . . . +1500
29.00	. . . . . +1400
29.10	. . . . . +1300
29.20	. . . . . +1200
29.30	. . . . . +1100
29.40	. . . . . +1000
29.50	. . . . . + 900
29.60	. . . . . + 800
29.70	. . . . . + 700
29.80	. . . . . + 600
* 29.90	. . . . . + 500 *
30.00	. . . . . + 400
30.10 + 300
30.20 + 200
30.30 + 100
30.40 0
30.50 - 100
30.60 - 200
30.70 - 300
30.80 - 400
30.90 - 500

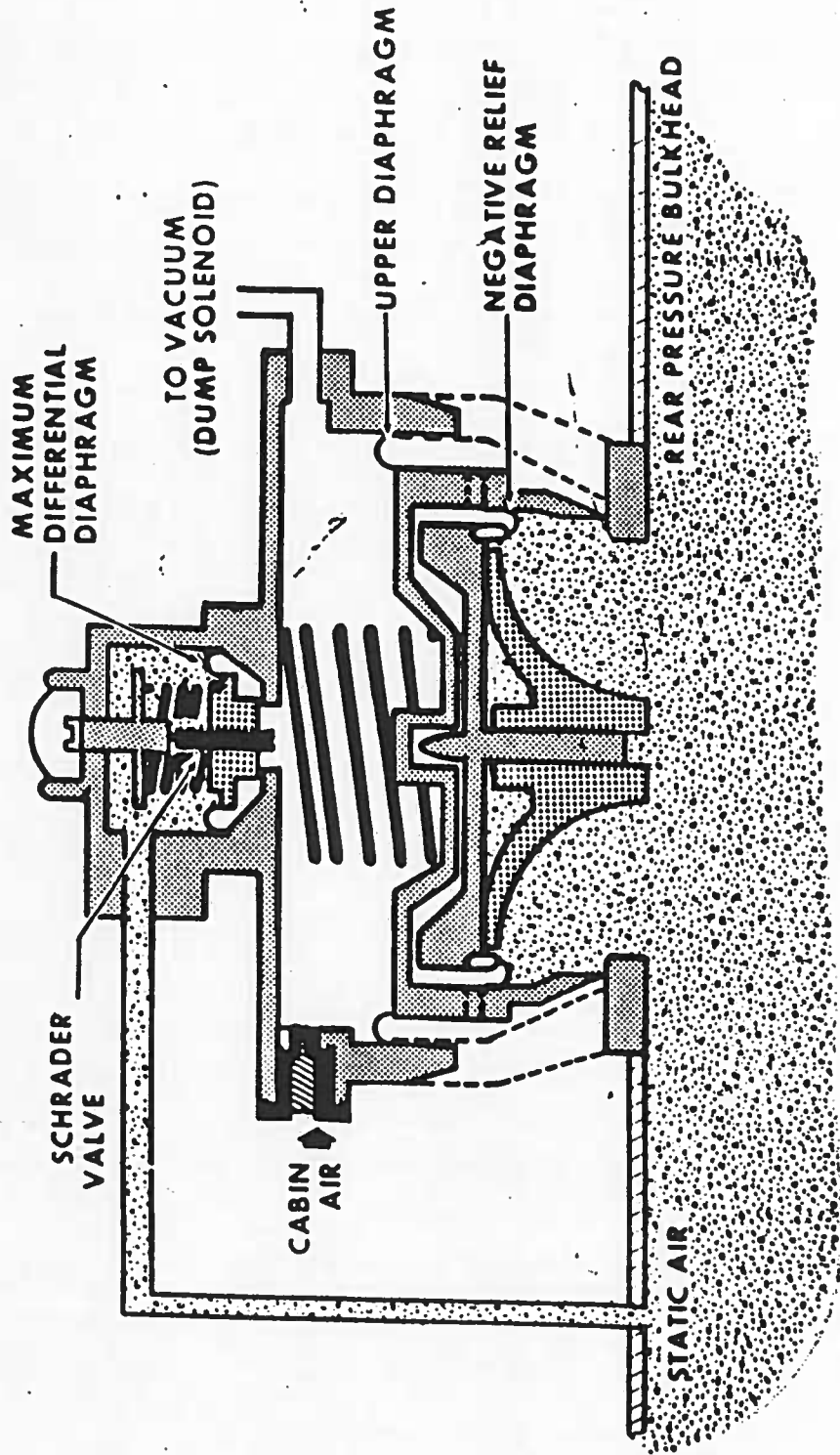
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PRESSURIZATION CONTROLLER SETTING FOR LANDING

OUTFLOW VALVE



- CONTROL PRESSURE [horizontal lines]
- CABIN AIR [white square]
- STATIC AIR [dotted pattern]



CABIN AIR 
 STATIC AIR 

SAFETY VALVE
 (SHOWN IN FLIGHT)

PULL OFF

PRESSURIZATION
AIR TEMP
PULL TO INCREASE

PRESSURIZATION
AIR
PULL TO SHUT-OFF



AVIONICS BUS



OVERVOLTAGE



AVIONICS BUS



AVIONICS BUS



CABIN TEMP



PRESS



PTOT



SURF



TEMP MODE



VENT



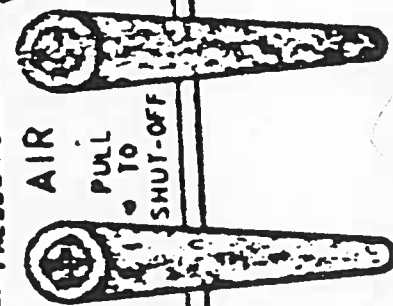
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PROP



L. WSHLD



PUSH TO RESEI

HEAT

HEAT

N. PTOT

COND

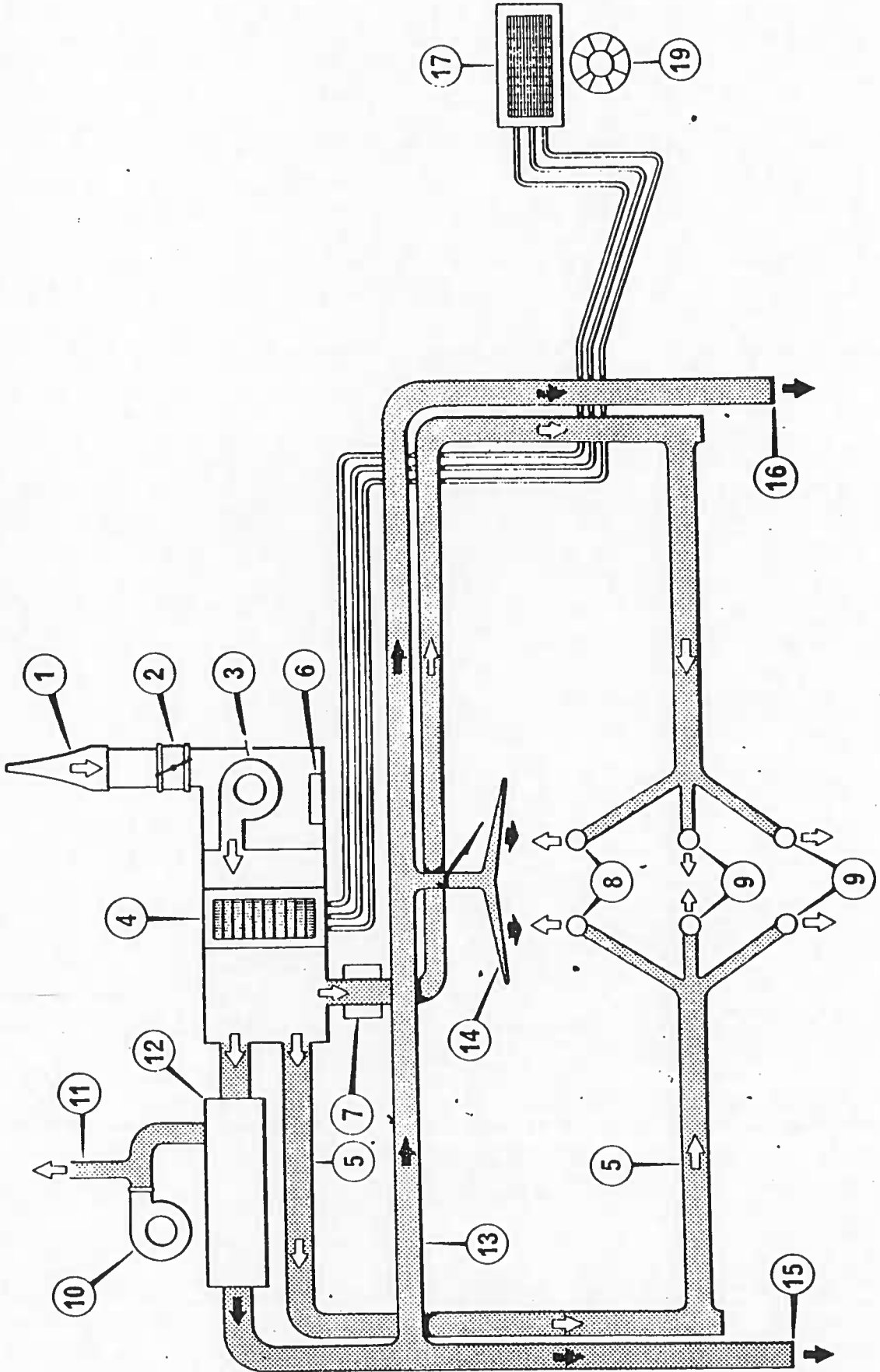
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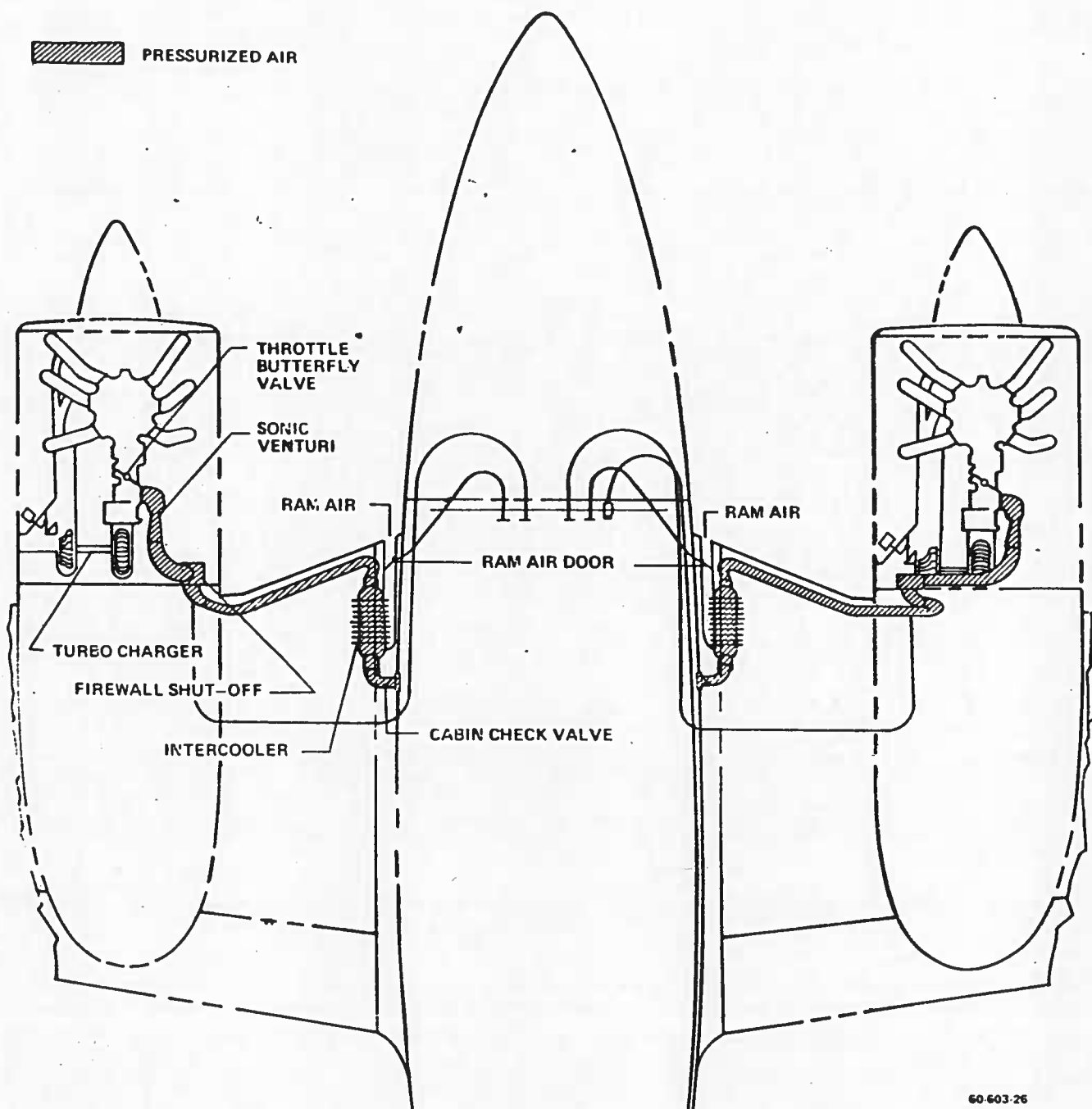
VENT

AIR

PULL TO SHUT-OFF

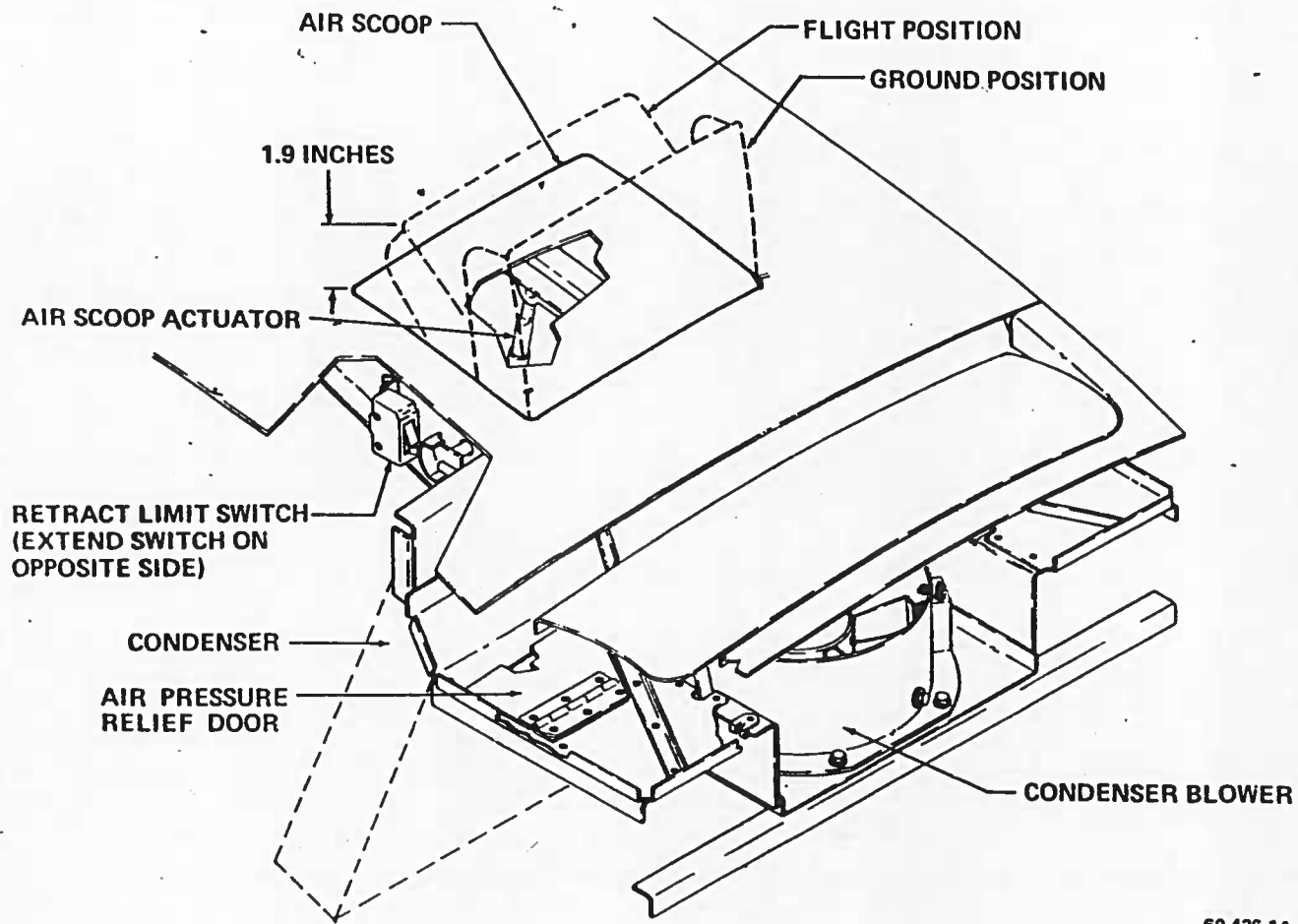
PRESSURIZATION





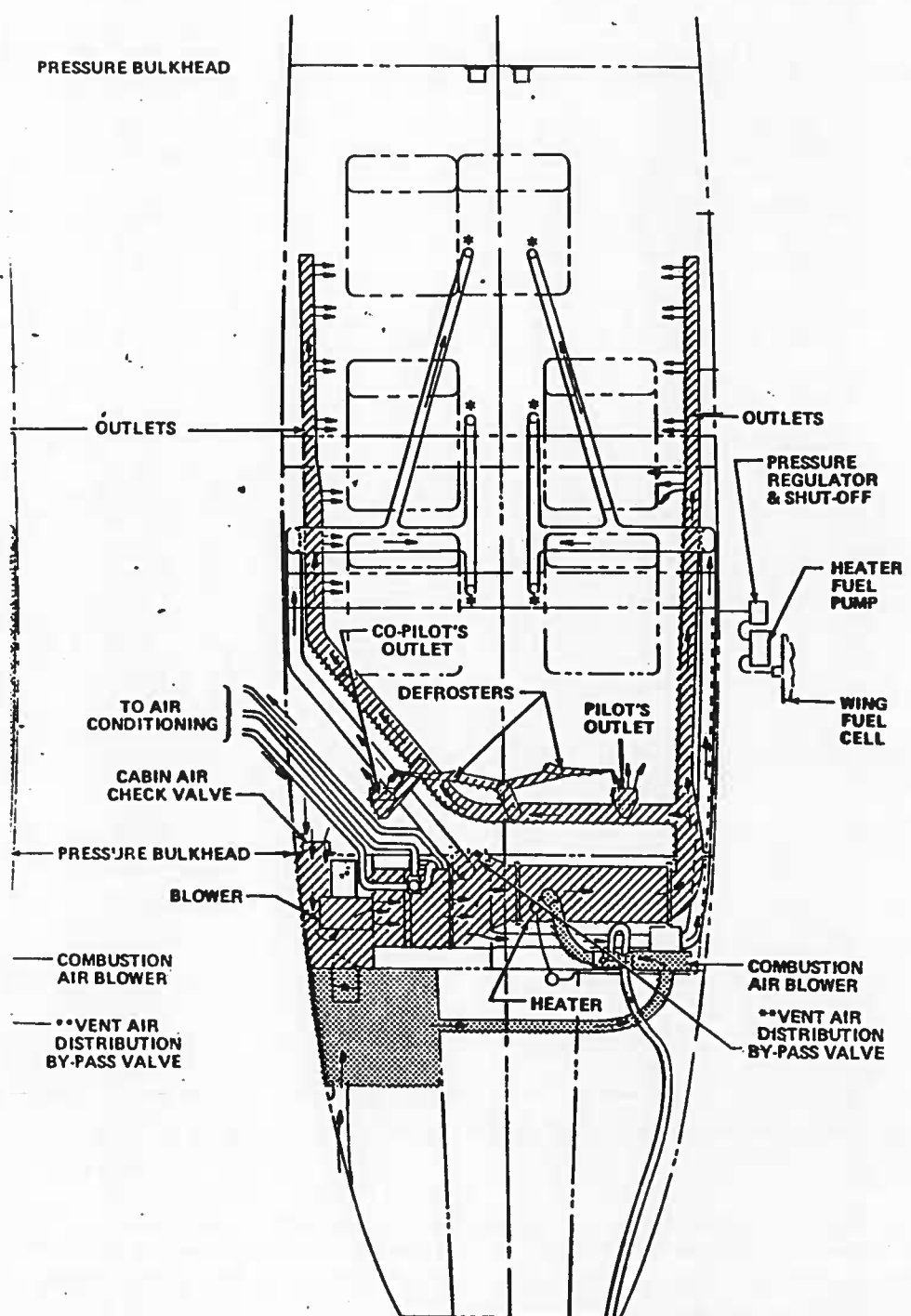
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Pressurization Distribution System
Figure 201



60-426-1A

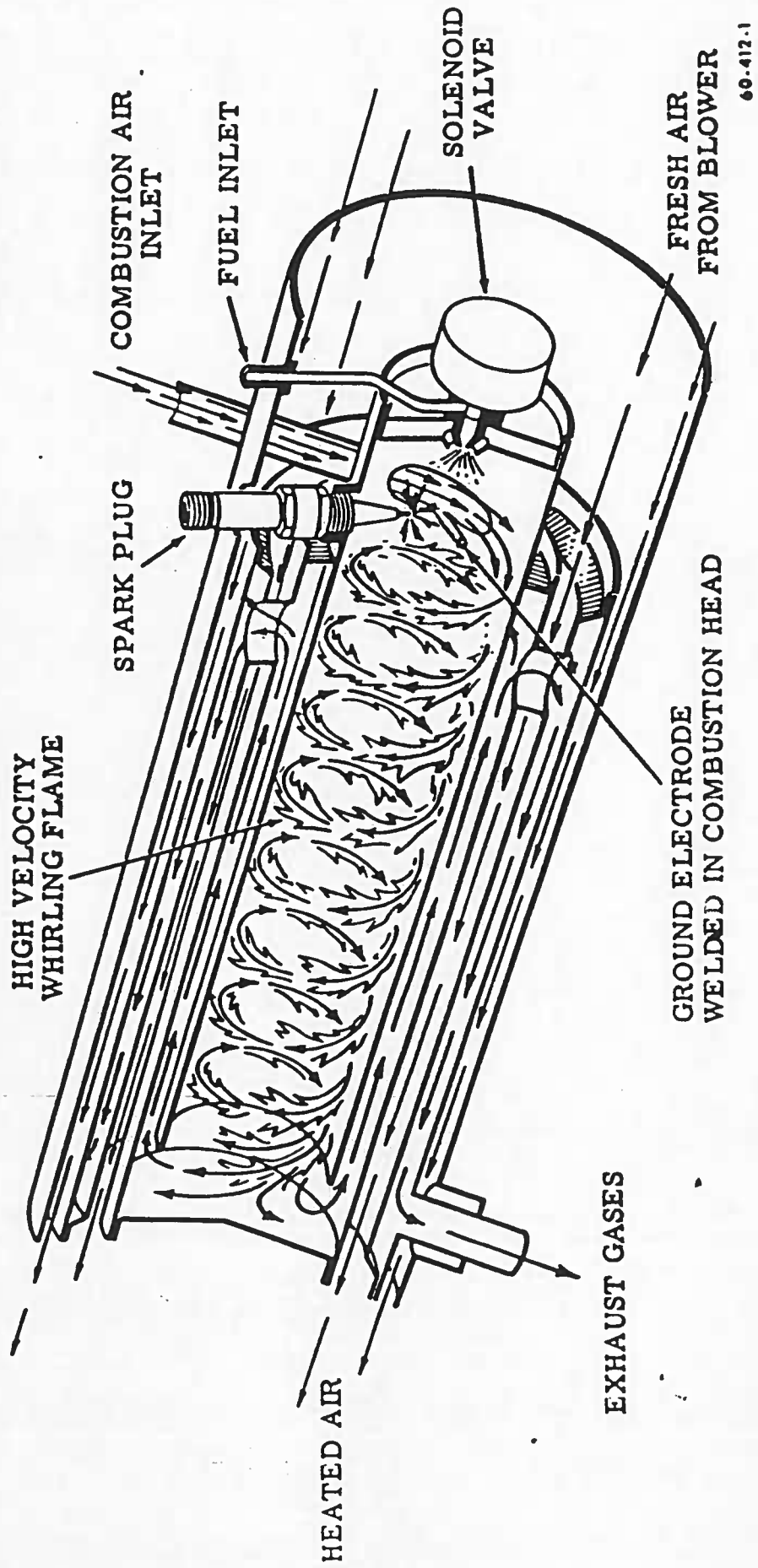
**Air Scoop
Figure 202**



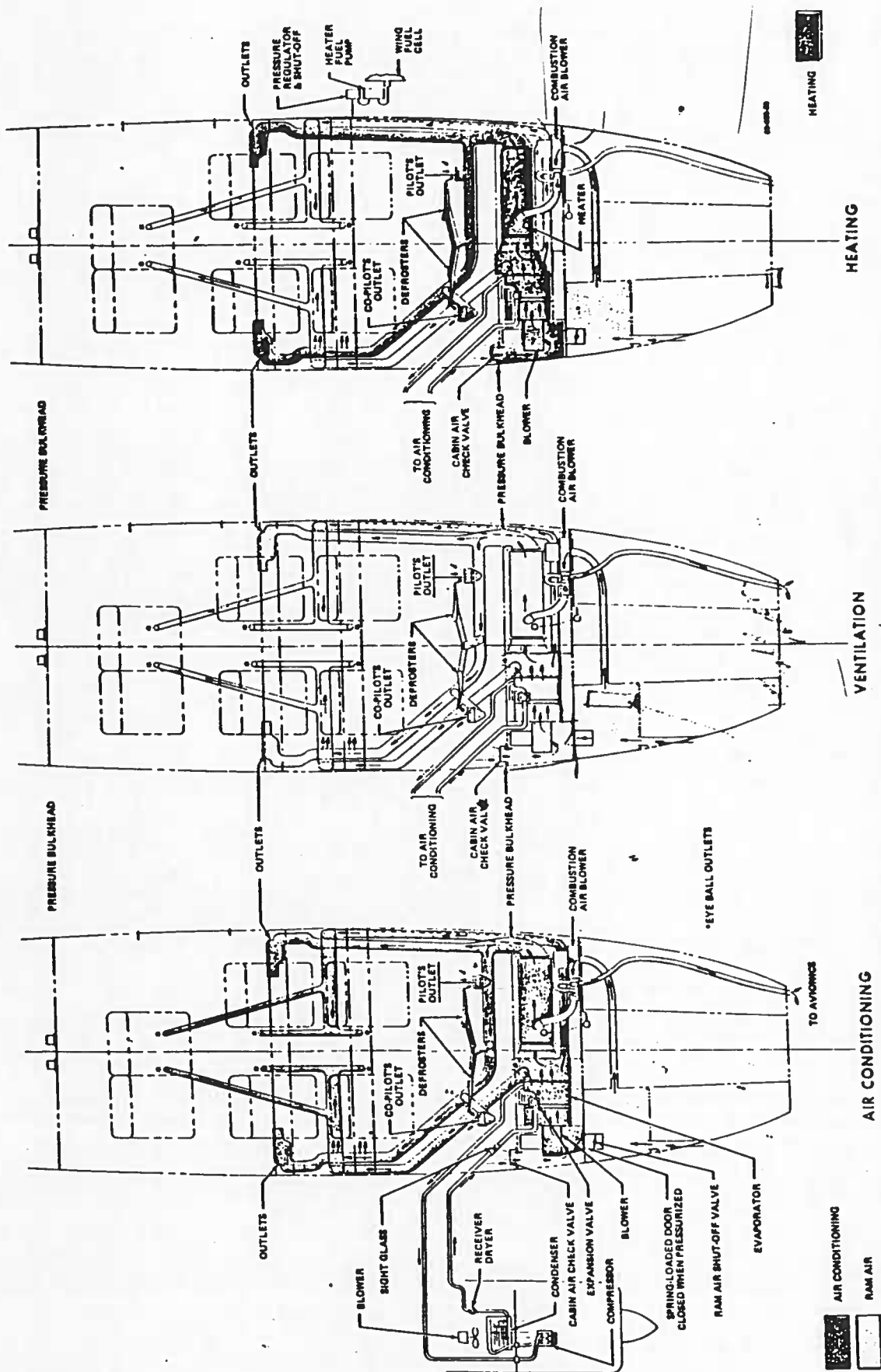
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HEATING

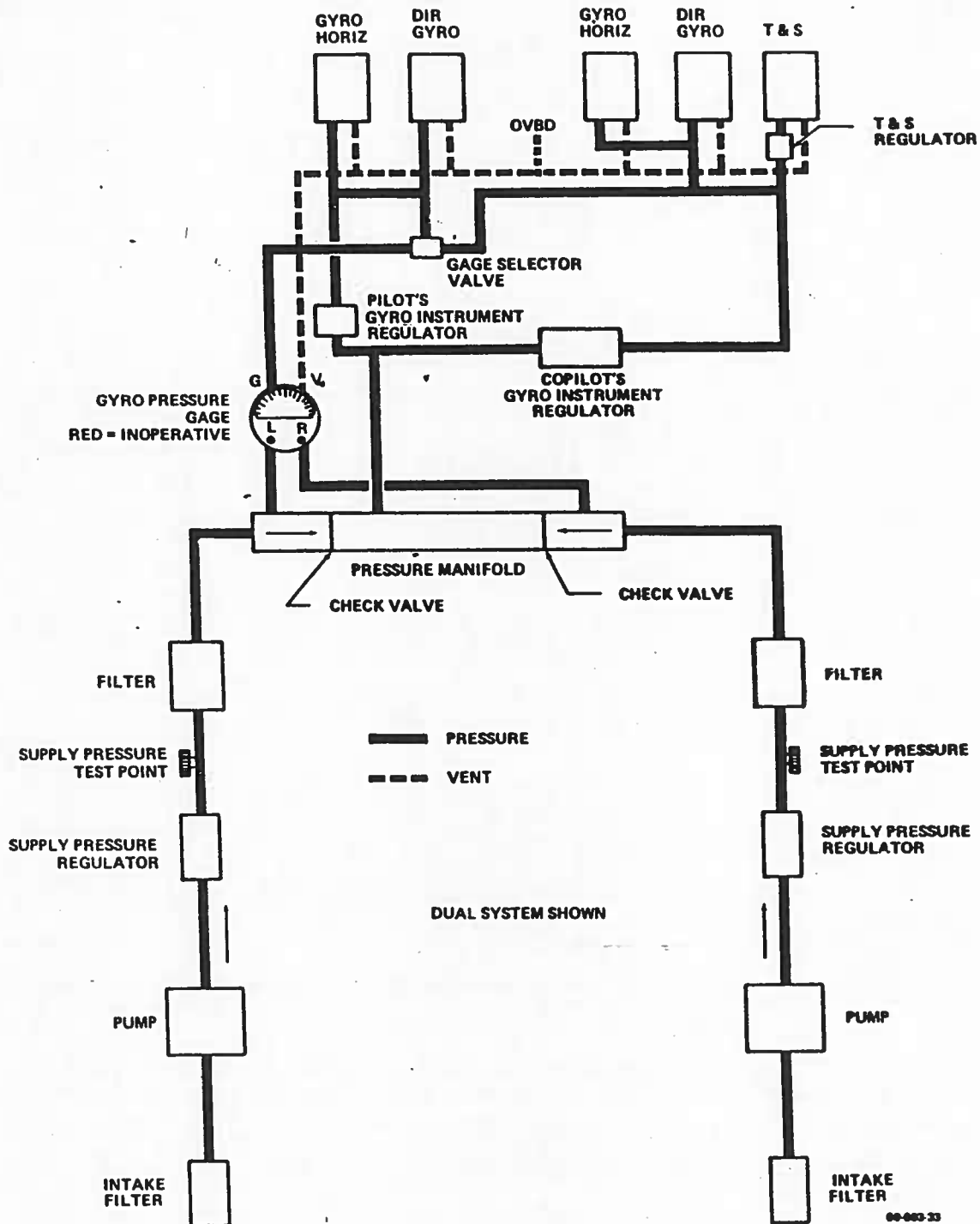


Aircraft Heater
Figure 201



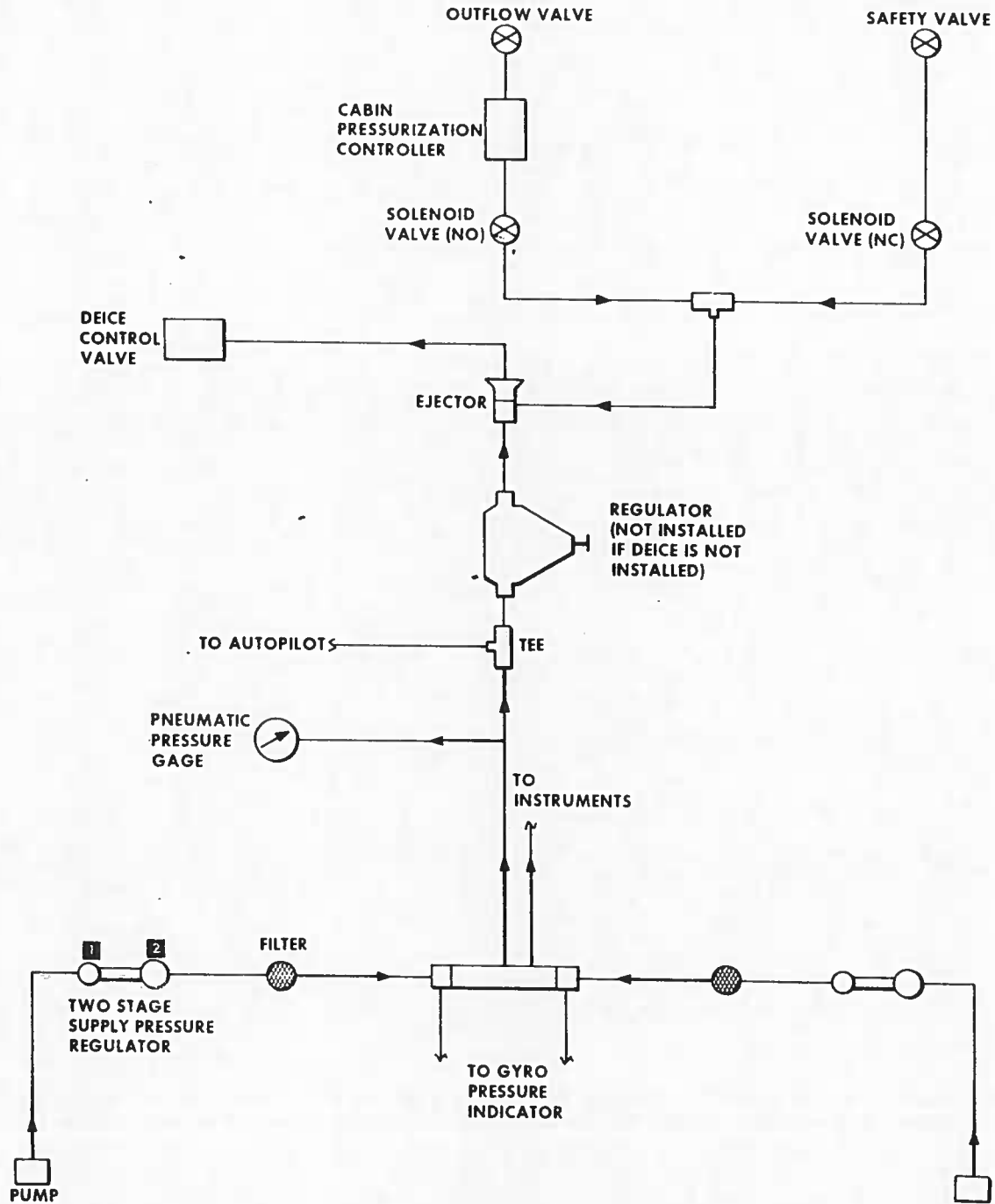
ENVIRONMENTAL SCHEMATIC

**BEECHCRAFT
DUKE 60 SERIES
MAINTENANCE MANUAL**



**Pneumatic Pressure System (P-183 and after)
Figure 202**

**BEECHCRAFT
DUKE 60 SERIES
MAINTENANCE MANUAL**



60-603-32

**Pneumatic Pressure System (Basic with Deice)
(P-308 and after)
Figure 206**