Air Service Training (Engineering) Ltd

- Mike Haufe IEng AMRAeS
- Training Manager

Air Service Training (Engineering) Ltd

The ‘Full-Service’ Aeronautical Engineering Training Provider

EASA CAA Part-66 Aircraft Engineering Licence

Air Service Training (Engineering) Ltd

Company History

- **Formed 1934**
- **Over its 79 Year history AST has held Approvals from ARB, CAA, EASA**
- **Trained over 15,000 Engineers from over 140 Countries**
- **The UK's Premier Independent Approved Training Provider**

Air Service Training (Engineering) Ltd

Capabilities

Approved under EASA Part 147 Regulations

Training and Examinations to meet the Knowledge Requirements

Part 66 Aircraft Engineering Maintenance Licence

Available A & B Categories

Air Service Training (Engineering) Ltd

Capabilities

Category B Certifying Technician

- B1.1 - Aeroplanes Turbine Engine
- B1.2 - Aeroplanes Piston Engine
- B1.3 - Helicopters Turbine Engine
- B1.4 - Helicopters Piston Engine
- B2 - Avionic

Air Service Training (Engineering) Ltd

Part 66 Licensing Routes

Ab-Initio (Basic) Course

Air Service Training (Engineering) Ltd

Category B

Ab-Initio (Basic) Course:

- **Minimum 2400 hours tuition**
- **40% Practical** skills development
- Examinations given by approved School
- **Minimum of 2 Years maintenance experience** following successful graduation

Air Service Training (Engineering) Ltd

AST Approved Course

- **Category B = 89 Training Weeks (Including 8 weeks On the Job Training)**

BASIC KNOWLEDGE REQUIREMENTS

MODULE 01 – All Students

- **Mathematics**

Arithmetic

Algebra

Geometry

$$4^{1/2} = \sqrt{4} = 2$$

$$6.25^{1/2} = \sqrt{6.25} = 2.5$$

BASIC KNOWLEDGE REQUIREMENTS

MODULE 02 – All Students

- **Physics**

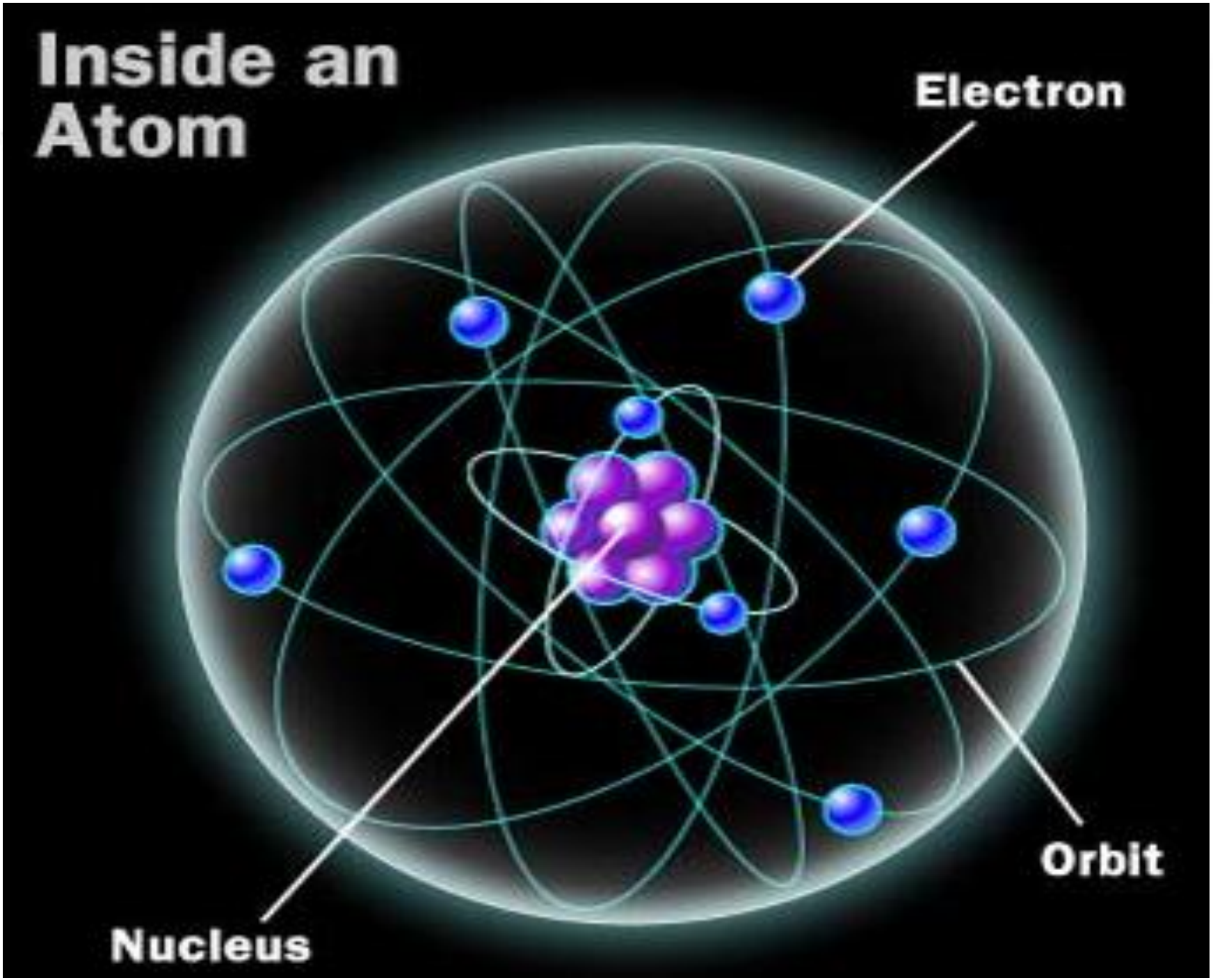
Matter

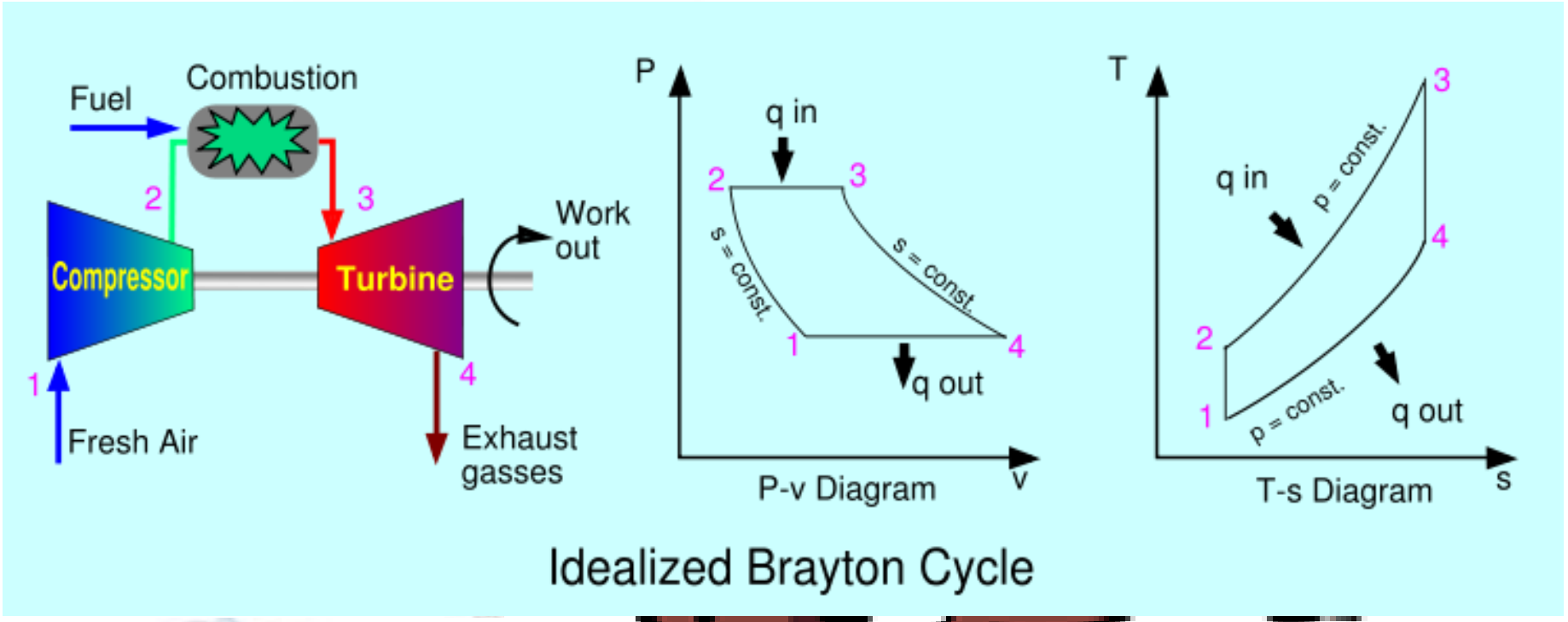
Mechanics

Thermodynamics

Optics (Light)

Wave Motion & Sound


Inside an Atom
Electron
Orbit
Nucleus



Idealized Brayton Cycle

BASIC KNOWLEDGE REQUIREMENTS

MODULE 03 – All Students

Electrical Fundamentals

Electron Theory
Static Electricity & Conduction
Electrical Terminology
Generation of Electricity
DC Sources of Electricity
DC Circuits
Resistance & Resistors
Power
Capacitance & Capacitors
Magnetism
Inductance & Inductors
DC Motor Generation
AC Theory
Resistance, Capacitive & Inductive Circuits
Transformers
Filters
AC Generators
AC Motors


ESD WB 012

BASIC KNOWLEDGE REQUIREMENTS

MODULE 04 – All Students

Electronic Fundamentals

Semiconductors **4 – B1**

Diodes

Transistors **4 – B2**

Integrated Circuits

Printed Circuit Boards

Servomechanisms


LANDING GEAR CIRCUIT

BASIC KNOWLEDGE REQUIREMENTS

MODULE 05 – All Students

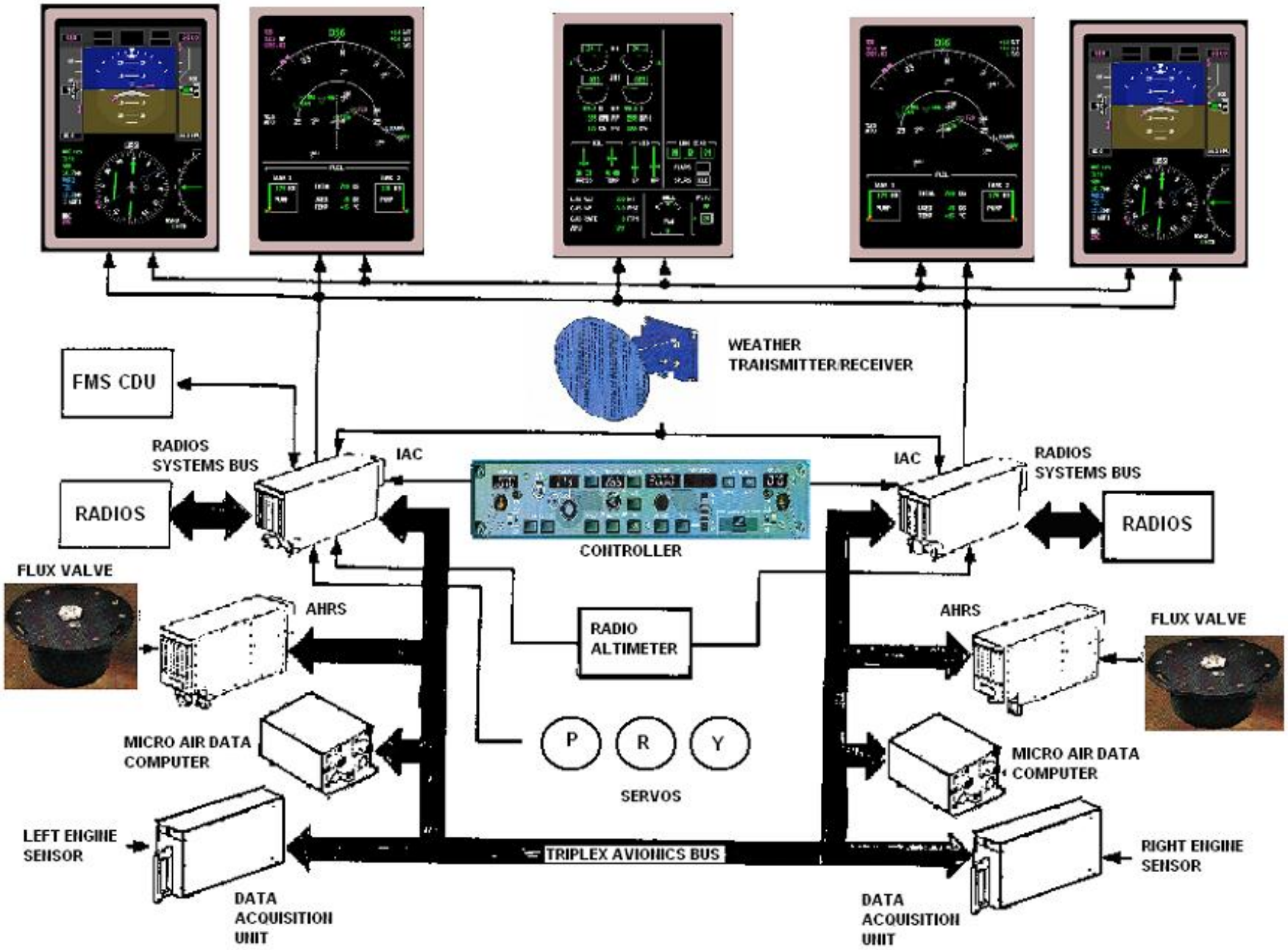
5 – B1

Digital Techniques

5 – B2

Electronic Instrument Systems
Numbering Systems
Data Conversion
Data Buses
Logic Circuits
Basic Computer Structure
Microprocessors
Integrated Circuits
Multiplexing

Fibre Optics
Electronic Displays
Electrostatic Sensitive Devices
Software Management Control
Electromagnetic Environment
Typical Electronic / Digital Systems


WEATHER
TRANSMITTER/RECEIVER
FMS CDU
RADIOS
SYSTEMS BUS
IAC
IAC
RADIOS
SYSTEMS BUS
RADIOS
CONTROLLER
FLUX VALVE
AHRS
RADIO
ALTIMETER
AHRS
FLUX VALVE
MICRO AIR DATA
COMPUTER
P
R
Y
SERVOS
MICRO AIR DATA
COMPUTER
LEFT ENGINE
SENSOR
TRIPLEX AVIONICS BUS
RIGHT ENGINE
SENSOR
DATA
ACQUISITION
UNIT
DATA
ACQUISITION
UNIT

BASIC KNOWLEDGE REQUIREMENTS

MODULE 06 – All Students
Materials & Hardware

Aircraft Materials – Ferrous

Aircraft Materials – Non-Ferrous

Aircraft Materials – Composite & Non-Metallic

Corrosion

Fasteners

Pipes & Unions

Springs

Bearings

Transmissions

Control Cables

Electrical Cables & Connectors

B1 Level

BASIC KNOWLEDGE REQUIREMENTS

MODULE 07 – All Students

Maintenance Practices

Safety Precautions
Workshop Practices
Tools
Avionic Test Equipment
Engineering Draw
Fits & Clearances
Electrical Cables & Connectors
Riveting
Pipes & Hoses
Springs

Bearings
Transmissions
Control Cables
Material Handling
Brazing Soldering
Weight & Balance
Aircraft Handling & Storage
Disassembly, Inspection
Repair & Assembly
Abnormal Events
Maintenance Procedures

B1 Level

BASIC KNOWLEDGE REQUIREMENTS

MODULE 08- All Students

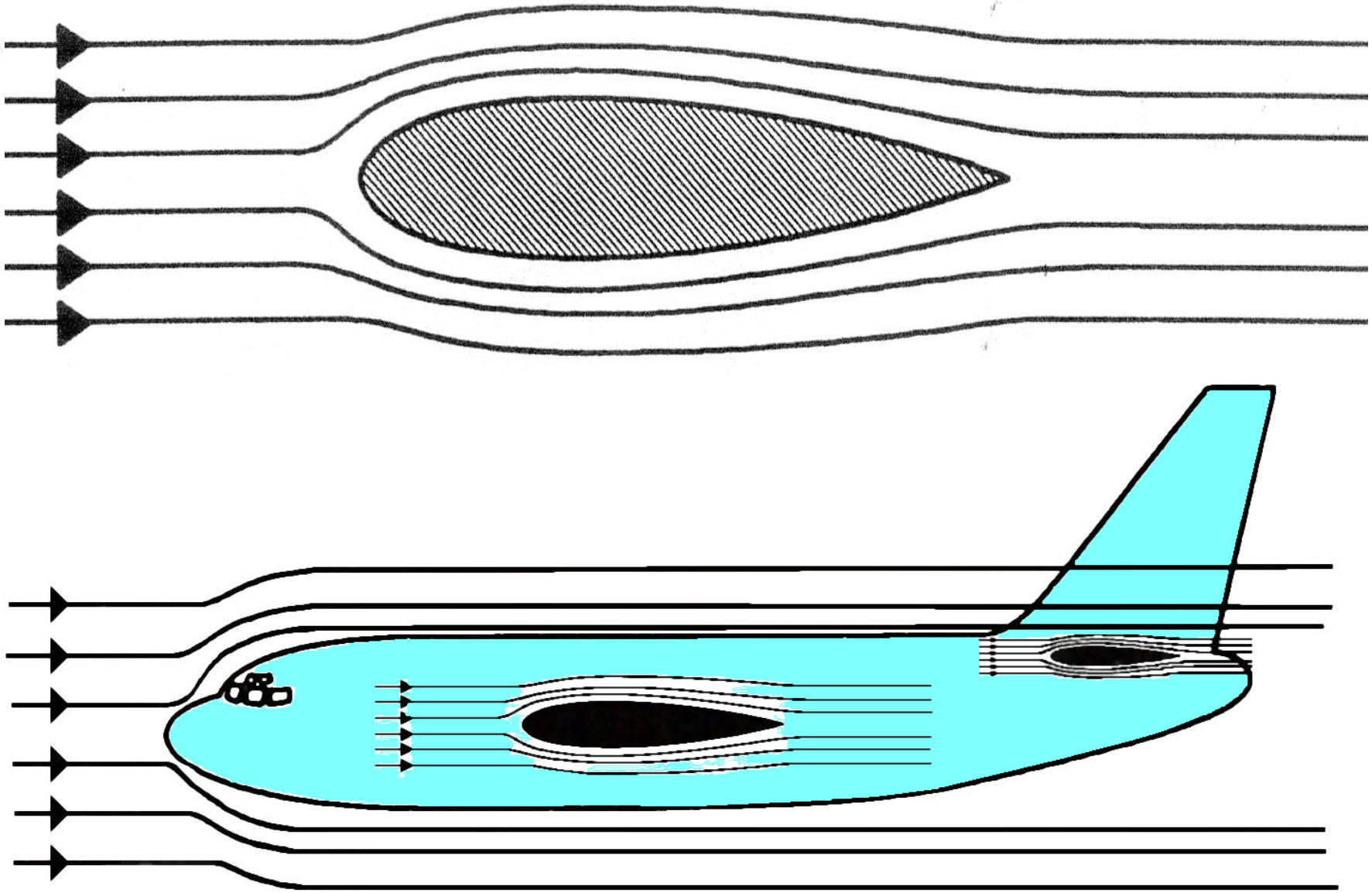
Basic Aerodynamics

Physics of the Atmosphere

Aerodynamics

Theory of Flight

Flight Stability & Dynamics



BASIC KNOWLEDGE REQUIREMENTS

MODULE 09 – All Students

Human Factors

General – Needs & Murphy's Law

Human Performance & Limitations

Social Psychology

Factors Affecting Performance

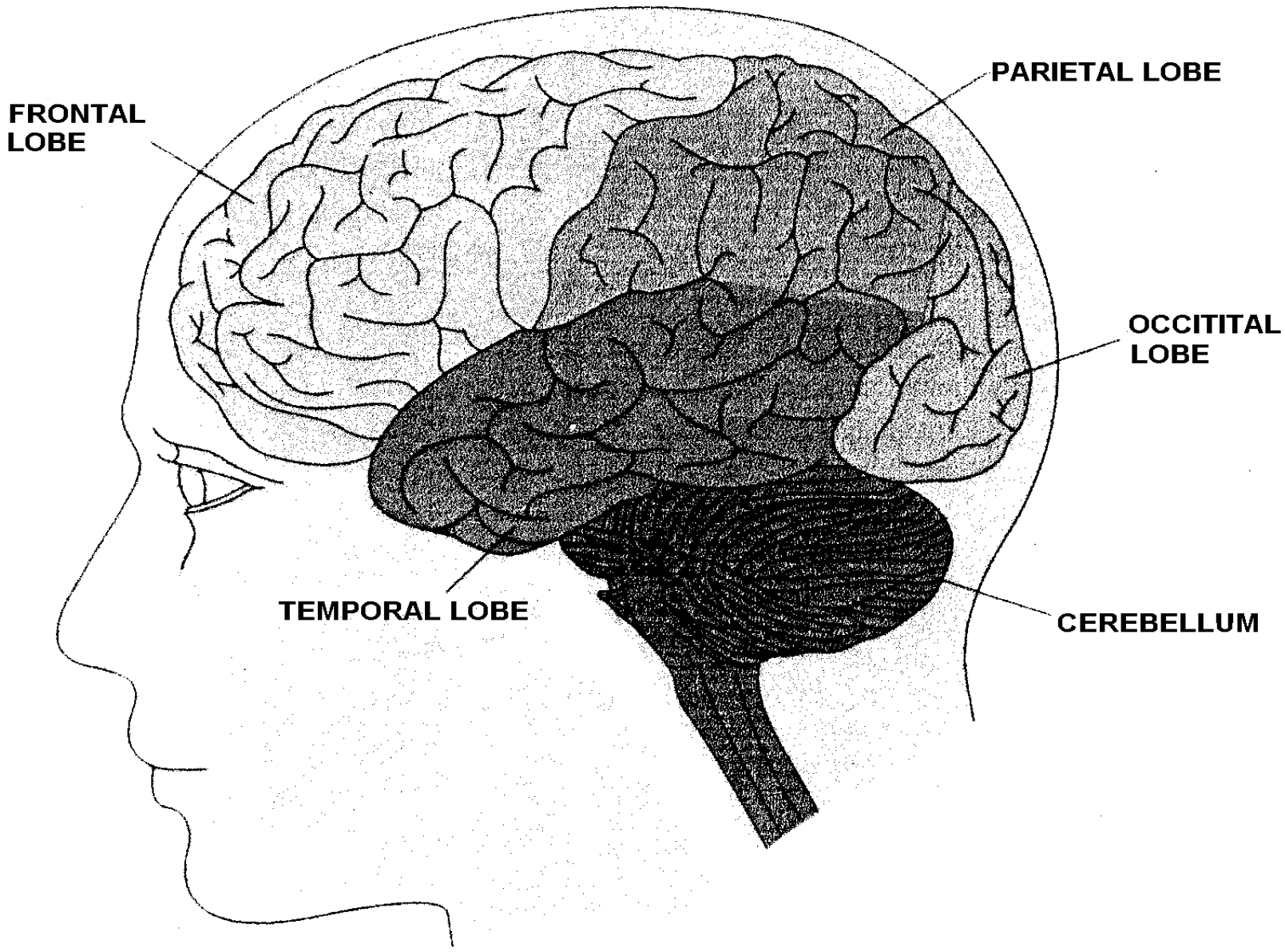
Physical Environment

Tasks – Physical / Repetitive

Communication

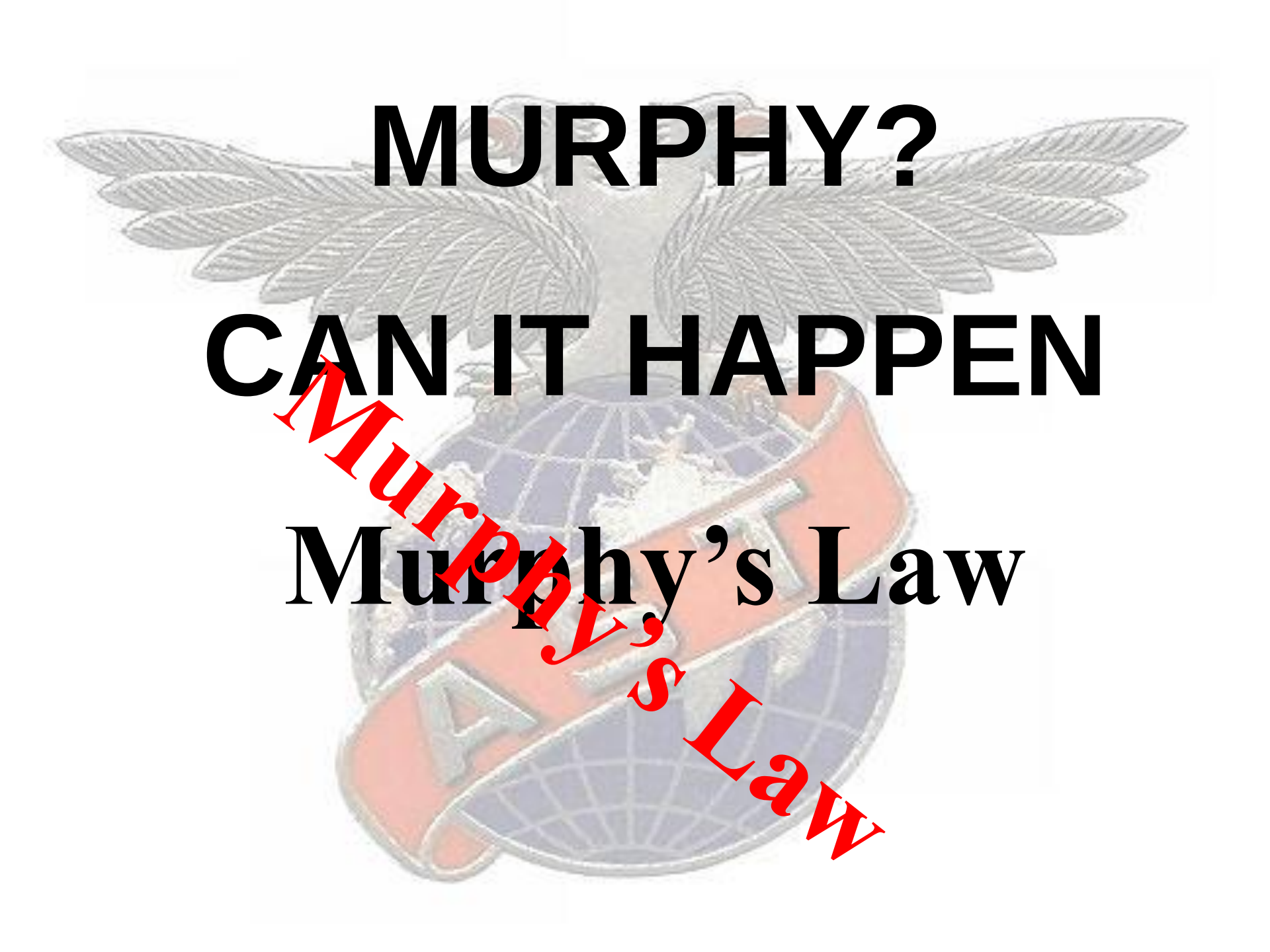
Human Error

Hazards in the Workplace


FRONTAL LOBE
PARIETAL LOBE
OCCITITAL LOBE
TEMPORAL LOBE
CEREBELLUM

MURPHY?

CAN IT HAPPEN



Murphy's Law

BASIC KNOWLEDGE REQUIREMENTS

MODULE 10 – All Students

Air Legislation

Regulatory Aviation Framework

EASA

CAA

Certifying Staff

Approved Maintenance Organisations

Commercial Air Transport (JAR-Ops)

Aircraft Certification

Part-66 Part-21 Part-145 Part-M Part-147

Maintenance Programs

EASA

CAA

CERTIFIED

AIRWORTHINESS

FORM 1

APPROVAL

RELEASE TO SERVICE

BASIC KNOWLEDGE REQUIREMENTS

MODULE 11 AEROPLANE – B1.1 Only

Aerodynamics, Structures & Systems

Theory of Flight

Airframe Structures

Air Conditioning & Pressurisation

Instruments & Avionic Systems

Electrical Power

Equipment & Furnishings

Fire Protection

Flight Controls

Fuel Systems

Hydraulic Power

Ice & Rain Protection

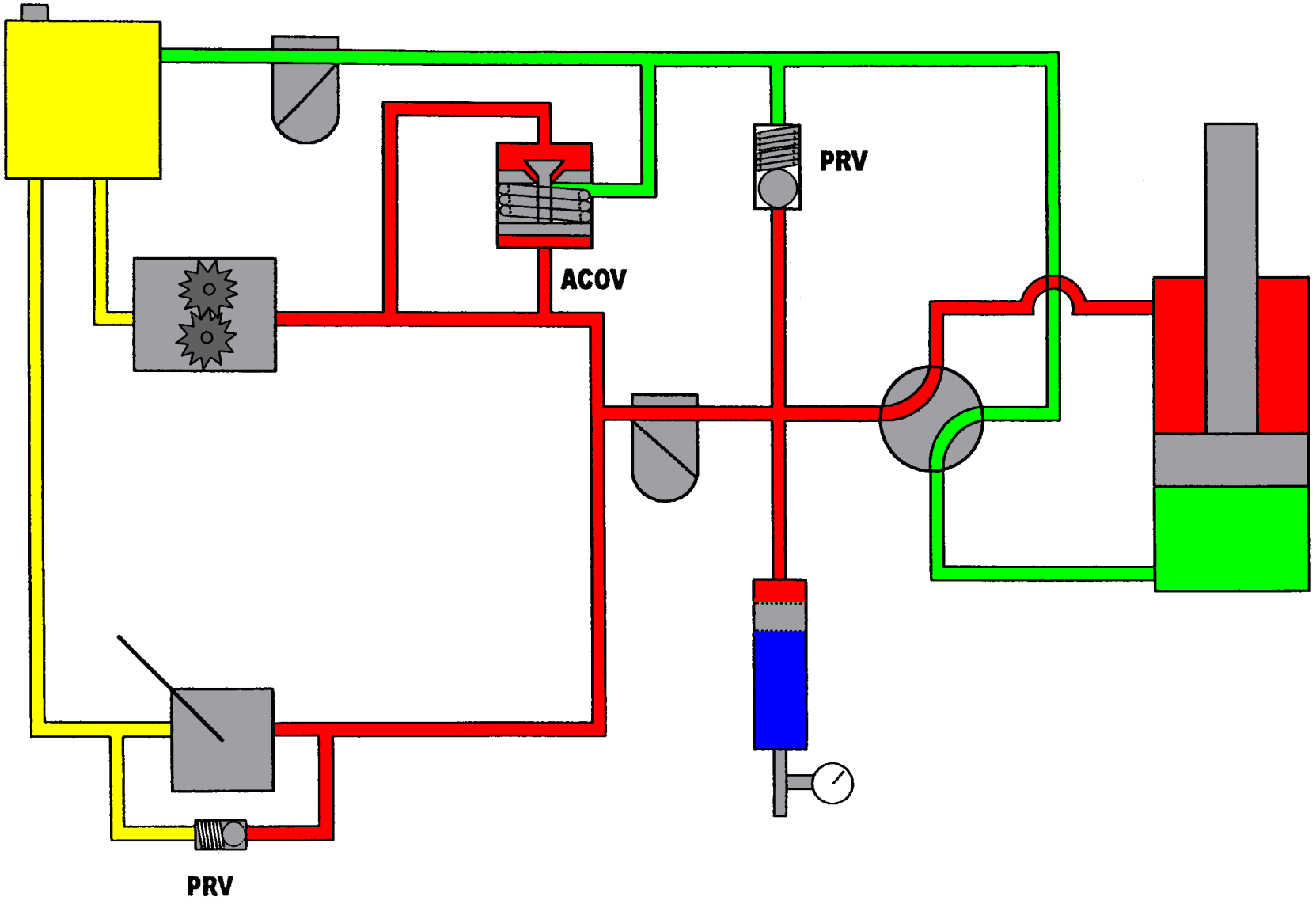
Landing Gear

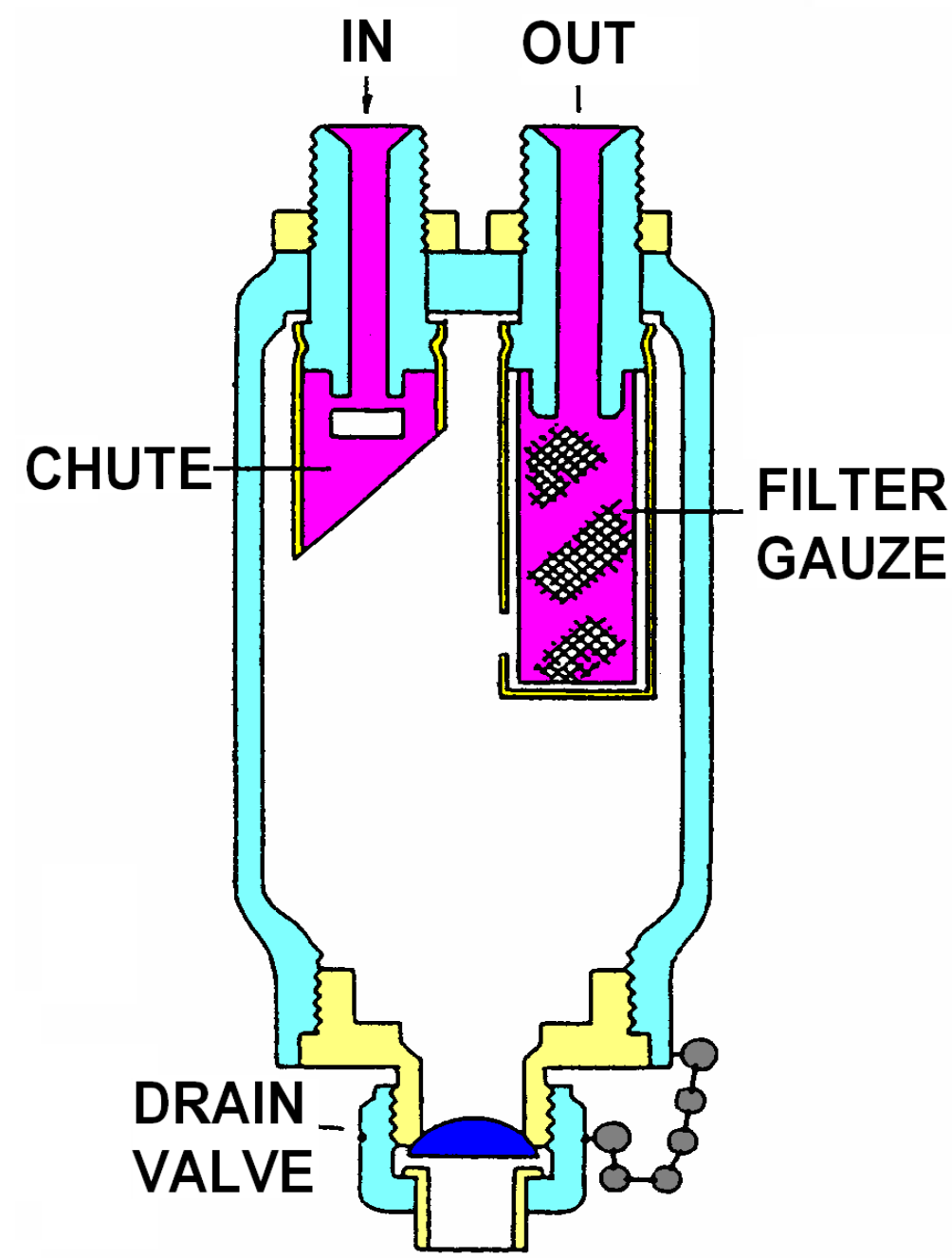
Lights

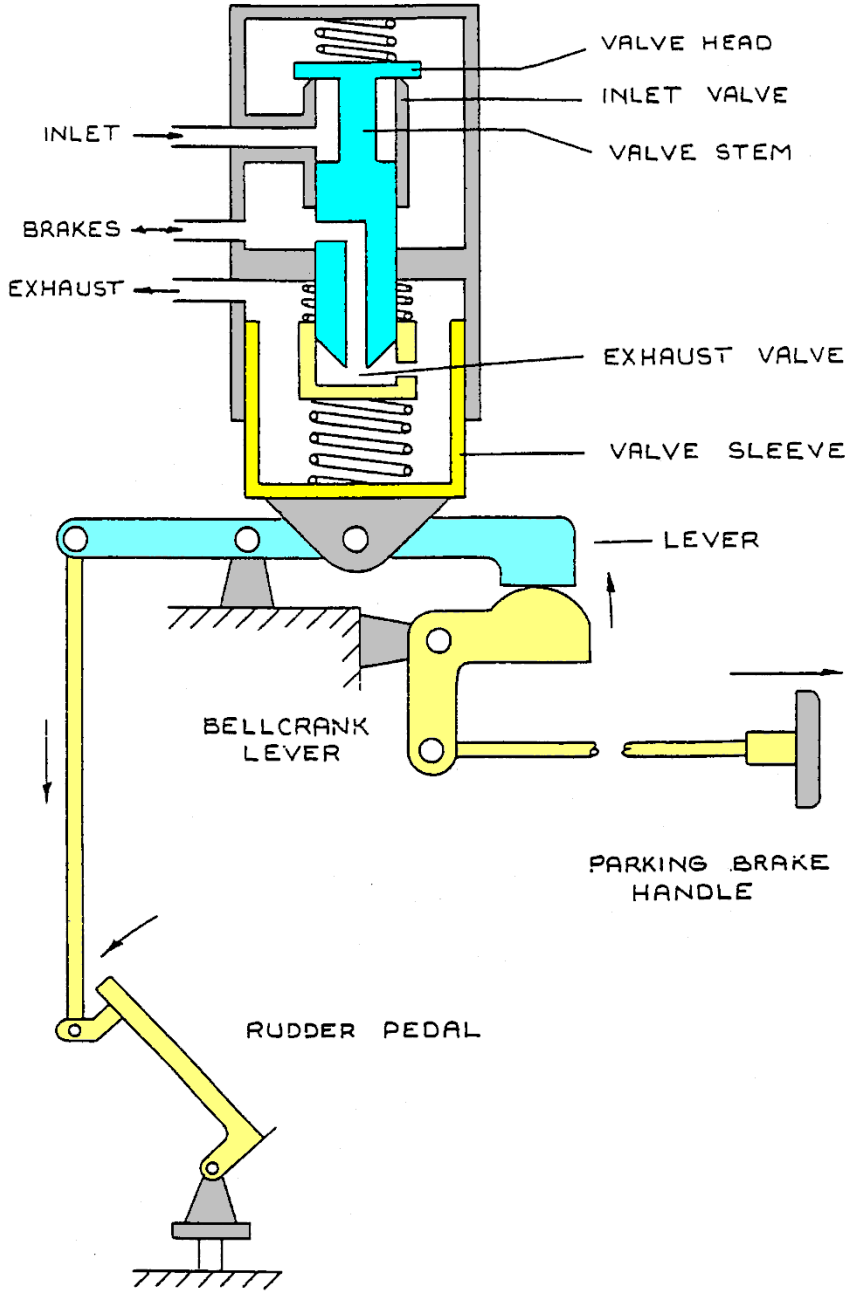
Oxygen

Water & Waste

On Board Maintenance Systems


PRV
ACOV
PRV


IN
OUT
CHUTE
FILTER GAUZE
DRAIN VALVE


VALVE HEAD
INLET VALVE
VALVE STEM
INLET
BRAKES
EXHAUST
EXHAUST VALVE
VALVE SLEEVE
LEVER
BELLCRANK LEVER
PARKING BRAKE HANDLE
RUDDER PEDAL

BASIC KNOWLEDGE REQUIREMENTS

MODULE 12 HELICOPTER – B1.3 Only

Aerodynamics, Structures & Systems

Theory of Flight

Flight Control Systems

Blade Tracking & Vibration

Transmissions

Airframe Structures

Air Conditioning

Instruments / Avionic Systems

Electrical Power

Equipment & Furnishings

Fire Protection

Fuel Systems

Hydraulic Power

Ice & Rain Protection

Landing Gear

Lights

Pneumatic / Vacuum

BASIC KNOWLEDGE REQUIREMENTS

MODULE 13 AVIONIC – B2 Only

Aerodynamics, Structures & Systems

Theory of Flight

Structures

Autoflight

Communications / Navigation

Electrical Power

Equipment & Furnishings

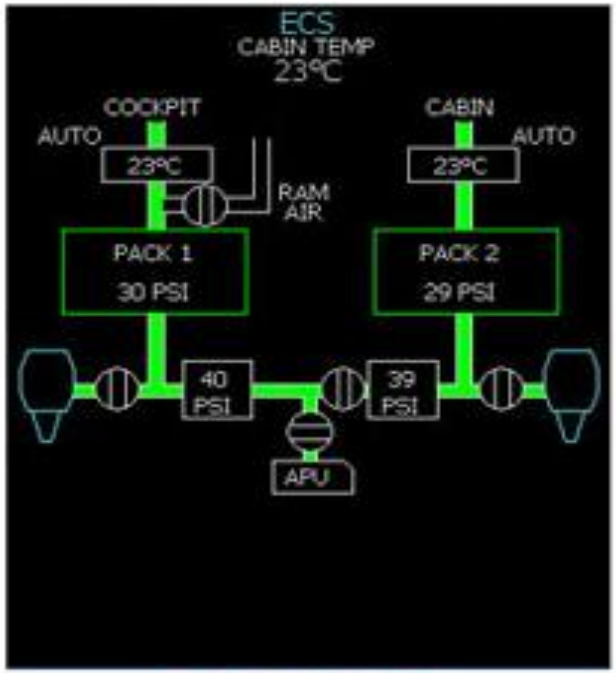
Flight Controls

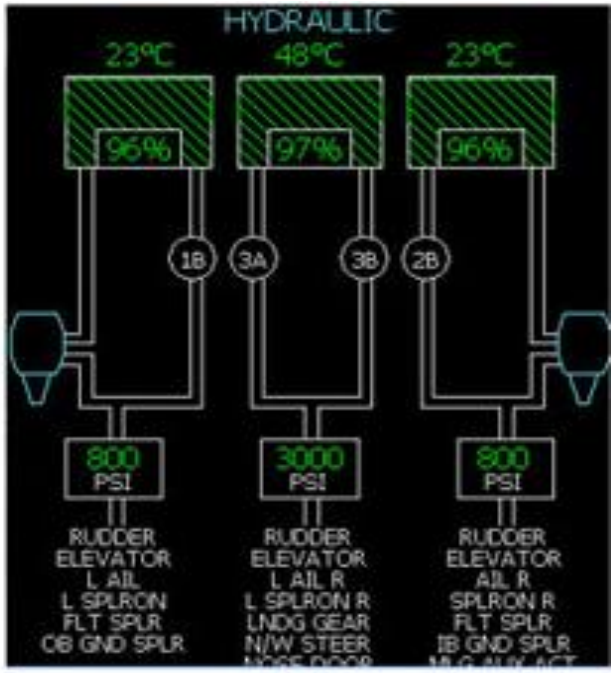
Instrument Systems

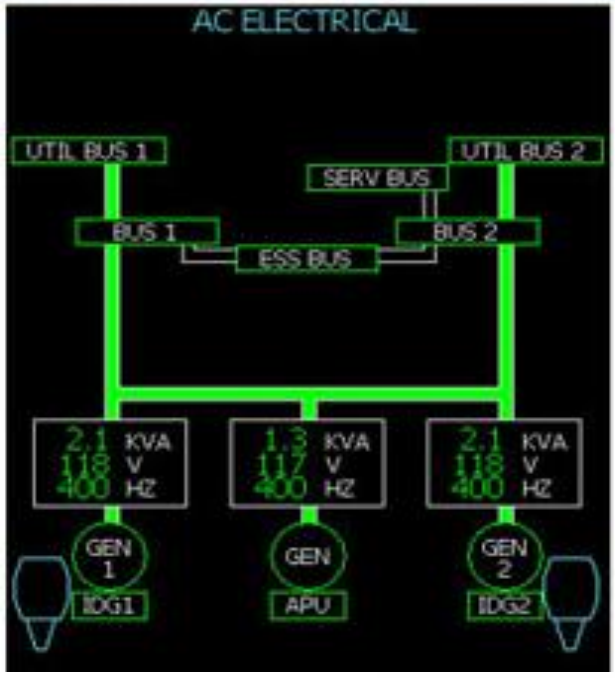
Lights

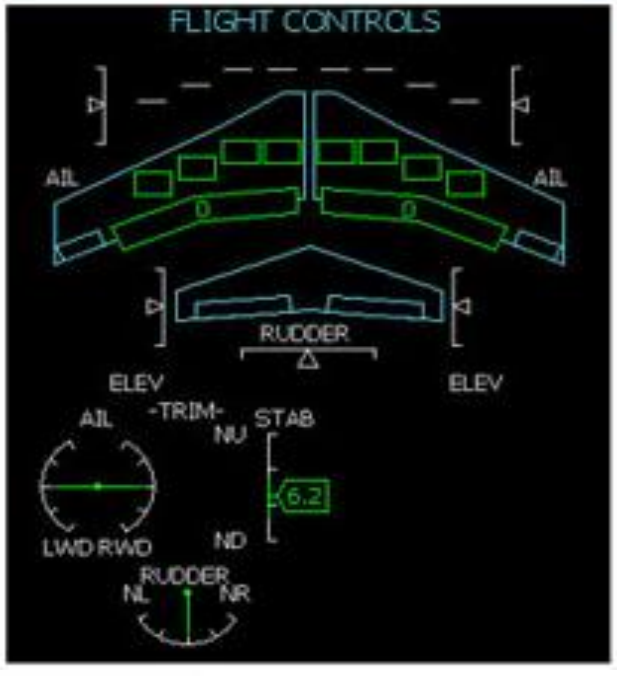
On Board Maintenance Systems


PARKING BRAKE ON
L 10TH SOV CLSD
R 10TH SOV CLSD
L 14TH SOV CLSD
R 14TH SOV CLSD
FLT NO.
AIL
-TRIM-
STAB
NU
6.2
ND
LWD
RWD
RUDDER
NL
NR
OXY 1670
C TEMP 23°C
C ALT 435
RATE 0
DELTA P 0.0
LDG ELEV 0
APU
100
737
RPM
EGT
BRAKE TEMP
01
01
01
01
DOOR OPEN


ECS
CABIN TEMP
23°C
COCKPIT
AUTO
23°C
RAM
AIR
CABIN
AUTO
23°C
PACK 1
30 PSI
PACK 2
29 PSI
40
PSI
39
PSI
APU


HYDRAULIC
23°C
48°C
23°C
96%
97%
96%
1B
3A
3B
2B
800
PSI
3000
PSI
800
PSI
RUDDER
ELEVATOR
L AIL
L SPLRON
FLT SPLR
OB GND SPLR
RUDDER
ELEVATOR
L AIL R
L SPLRON R
LNDG GEAR
N/W STEER
RUDDER
ELEVATOR
AIL R
SPLRON R
FLT SPLR
IB GND SPLR


AC ELECTRICAL
UTIL BUS 1
UTIL BUS 2
SERV BUS
BUS 1
BUS 2
ESS BUS
2.1 KVA
118 V
400 HZ
1.3 KVA
117 V
400 HZ
2.1 KVA
118 V
400 HZ
GEN 1
IDG1
GEN
APU
GEN 2
IDG2


FLIGHT CONTROLS
AIL
AIL
RUDDER
ELEV
ELEV
AIL
-TRIM-
NU
STAB
6.2
ND
LWD
RWD
RUDDER
NL
NR


DOORS
PASSENGER
SERVICE
AVIONICS
EMER
EMER
CARGO


ACTIVE FLT PLAN 1/7
SPD CMD
TENTS 1320Z
300/.75M
032° 25.9NM
270↑ CLB
PRYSO 1335Z
300/FL180A
042° 116NM
GUP 1351Z
.79M/FL450
◂DEPARTURE
PERF PLAN▸

BASIC KNOWLEDGE REQUIREMENTS

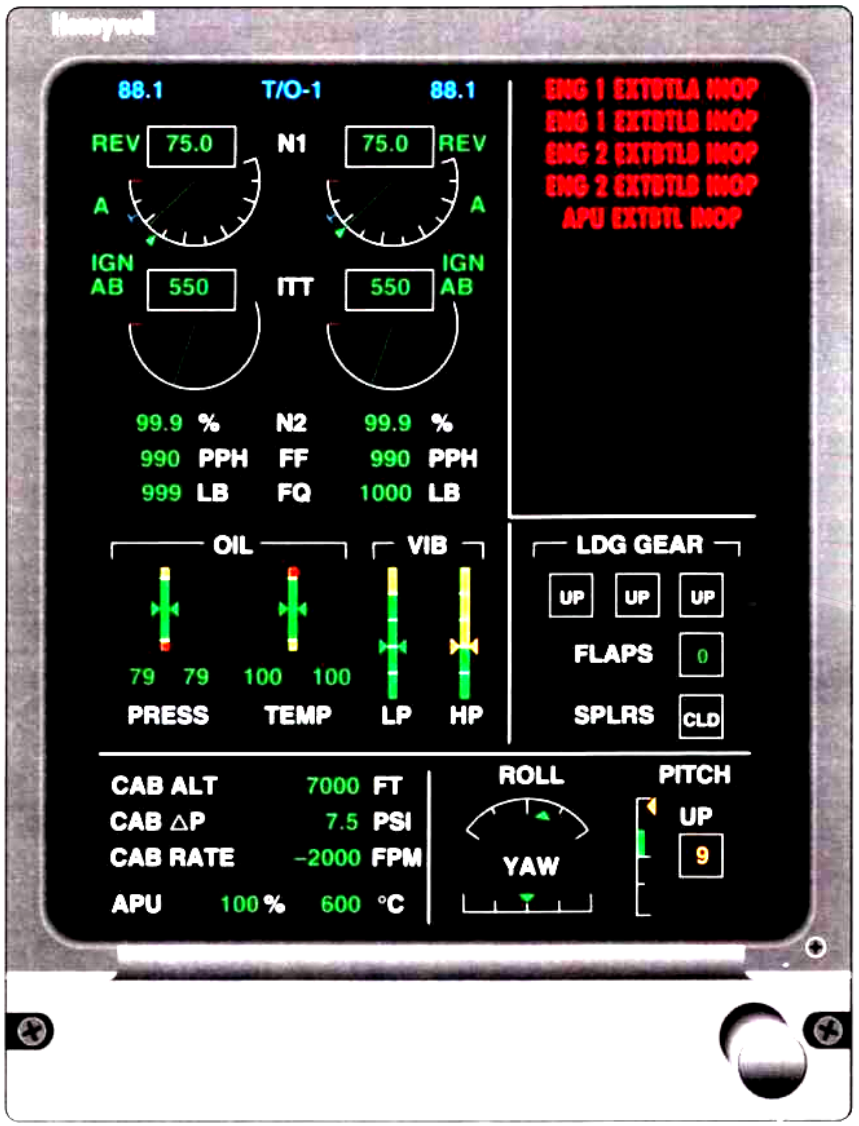
MODULE 14 AVIONIC – B2 Only

Propulsion

Turbine Engines

Engine Indicating Systems

Gas Turbine Engines



EICAS

BASIC KNOWLEDGE REQUIREMENTS

MODULE 15 B1.1 & B1.3 Only

Gas Turbine Engines

Fundamentals

Engine Performance

Engine Intakes

Compressors

Combustion Systems

Turbines

Exhaust

Bearings & Seals

Lubricants & Fuels

Lubrications Systems

Fuel Systems

Air Systems

Starting & Ignition Systems

Engine Indicating Systems

Power Augmentation

Turbo-Propeller Engines

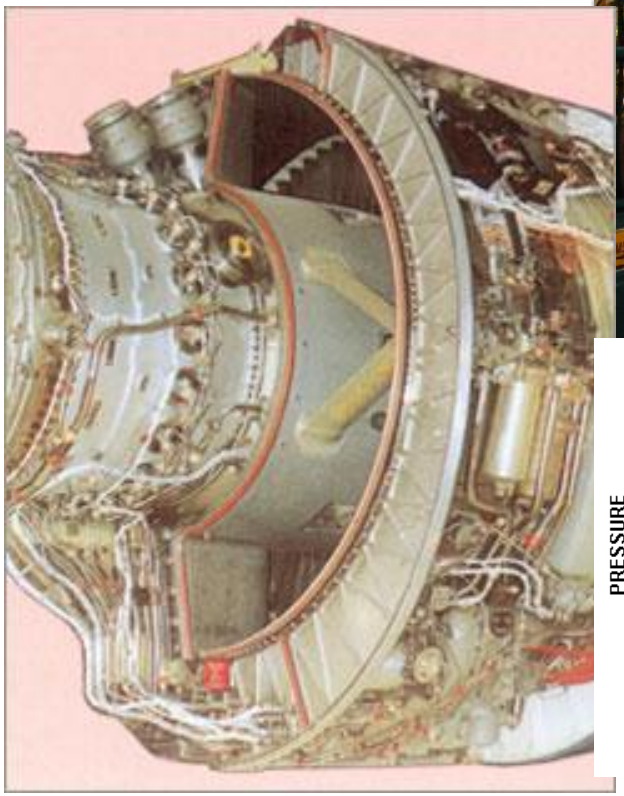
Turbo-Shaft Engines

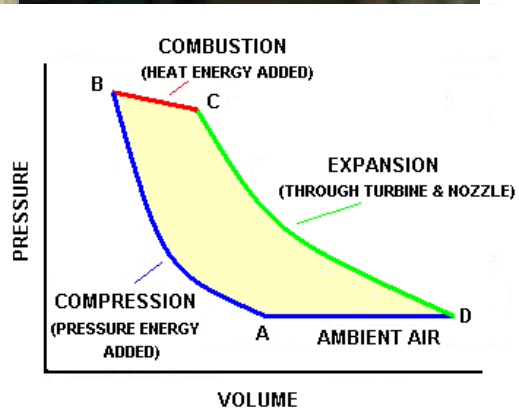
Powerplant Installation

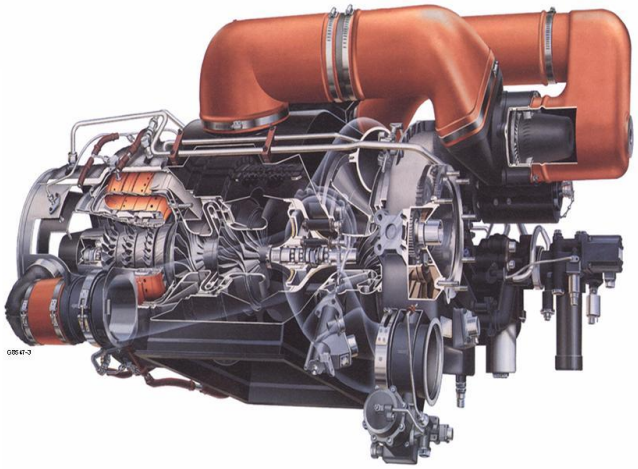
Fire Protection Systems

Engine Monitoring & Ground Operations

Engine Strorage & Preservation




COMBUSTION
(HEAT ENERGY ADDED)
B
C
EXPANSION
(THROUGH TURBINE & NOZZLE)
PRESSURE
COMPRESSION
(PRESSURE ENERGY ADDED)
A
AMBIENT AIR
D
VOLUME



BASIC KNOWLEDGE REQUIREMENTS

MODULE 17 B1.1 Only

Propellers

Fundamentals

Construction

Pitch Control

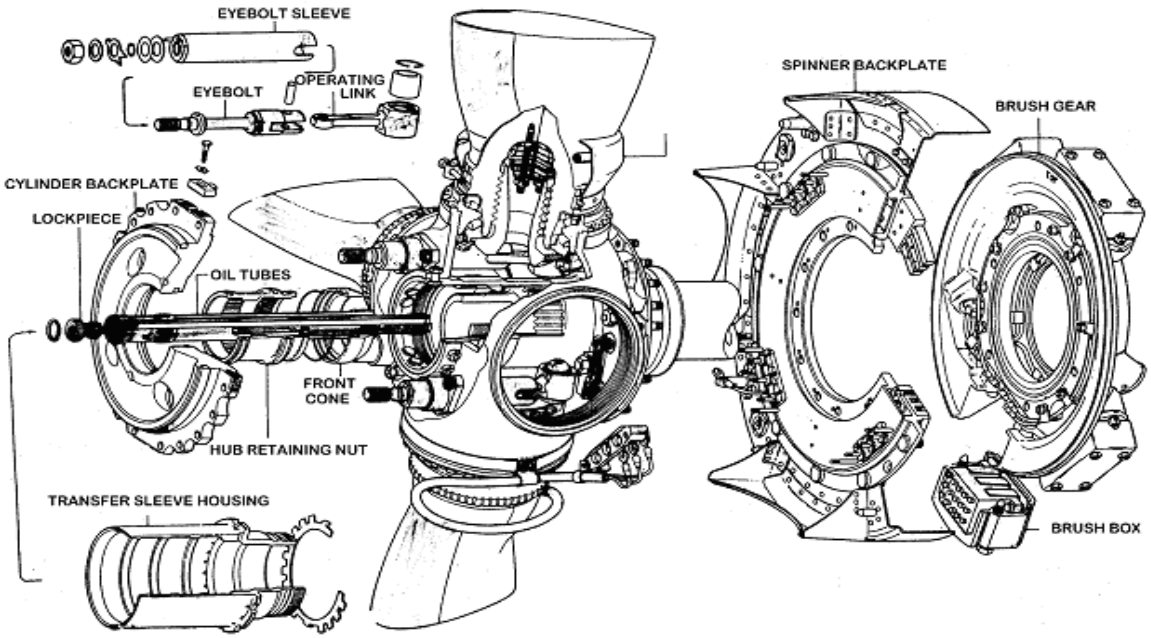
Synchronising

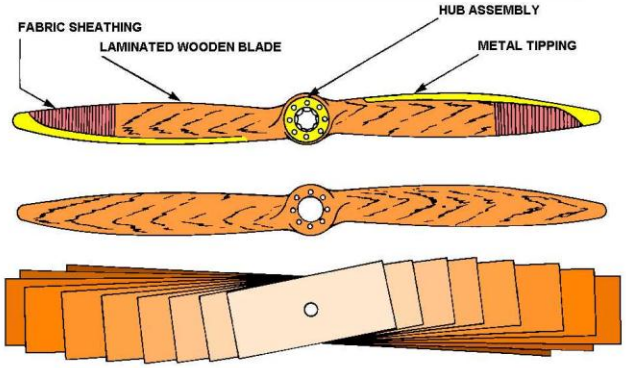
Ice Protection

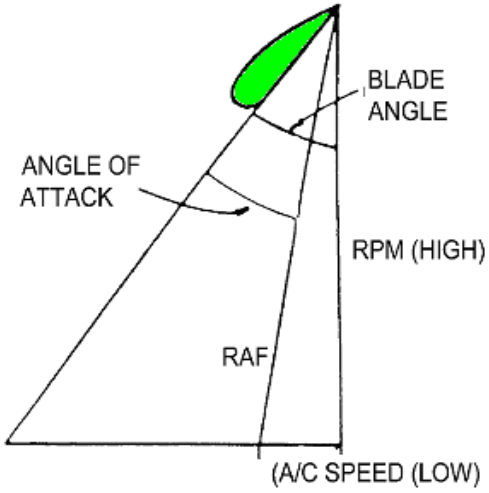
Propeller Maintenance

Storage & Preservation

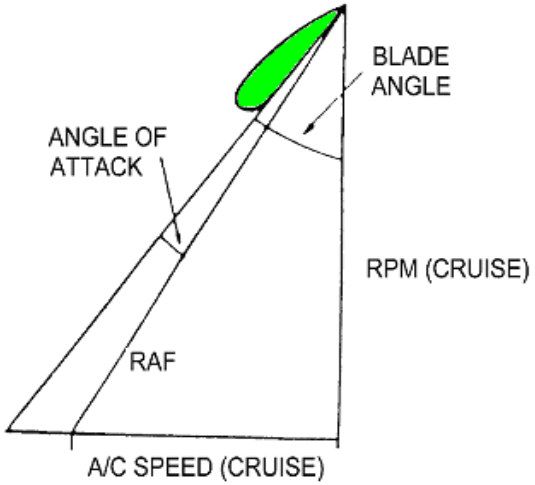

FIRE EXIT



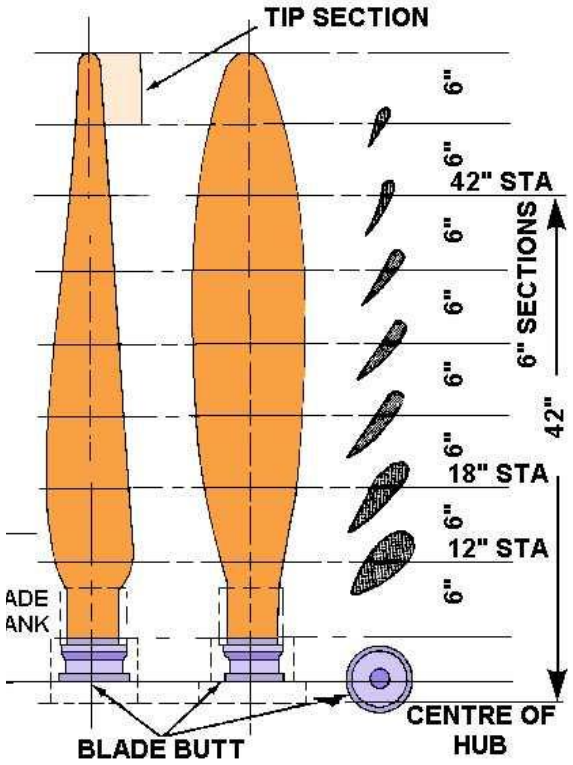




TAKE OFF



CRUISE




NAL FLYING
TORY CENTRE

Class

- Attendance
- Discipline
- Subject Programming
- Assessments
- Examinations
- Holidays
- Visits

Class Attendance

Theory – Keilir

- **09:00 to 16:30**

- Lunch
  - **12:15 to 13:15**
- Morning & Afternoon Breaks
  - **At Discretion of Lecturer**

Class Attendance

Practical

- **09:00 to 16:30**

- Lunch
  - **1 Hour**
  - **At Discretion of Lecturer**
- Morning & Afternoon Breaks
  - **At Discretion of Lecturer**

Class Discipline

- Punctual (On-Time)
- Attendance Register
- Reason for Lateness / Absence
- Mobile Phones / i-pods **OFF**
- Notes, Pens, Note Paper
- Practical – Safety Clothes & Equipment

Class Mentor / Leader

- Mentor / Nominated Lecturer
- Class Leader

Class Programming

- Modules / Sub-modules
- 30 Hours per Week
- Theory – **am / pm / all day**
- Practical – **all day**
- Subject to Change
- Notice Board

Class Assessments

- Theory - Formative
  - Multi-Choice-Answers
  - Open Questions
  - Group-work
- Practical
  - Development Tasks
  - Formal Tasks

Class Examinations

- Multi-Choice-Answers
- Essays
- **75%** Pass Required
- After Completion of Full Module
- Revision and Exam Prep
  - After Class
- Exam Re-Takes – Directed by Training & Exam Manager

Class – Visits / Holidays

- As Directed by Programme
- 2 Weeks Summer (June / July / August
- Last 3 Weeks December
- 1 Day Visits Possible
- Some Self Study Periods


ANY
QUESTIONS
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