

AIRCRAFT INSPECTION, MAINTENANCE AND REPAIR

DETAILED SYLLABUS

OBJECTIVES

It aims at enabling the student to understand inspection, maintenance practices for different parts of aircraft.

UNIT- I INTRODUCTION OF TYPES OF AIRCRAFT INSPECTION AND DOCUMENTATION

Importance & purpose of aircraft inspection & Documentation- Inspection of aircraft for heavy landing- Tyres, landing gear equipment- Bird strikes: Extent of damage, assessment of repairs to be done- Familiarization with aircraft documents ATA100 Specifications- Lay out and contents of aircraft maintenance manual, Structural repair manual, Illustrated parts catalogue, Airworthiness directive, service bulletins, Maintenance planning documents /inspection schedule.- Entries to be made in aircraft log book: change of parts, fuel/ oil replenishment

UNIT- II AIR CONDITIONING, PRESSURISATION, EQUIPMENT AND FURNISHINGS

Air conditioning and pressurization, Discussion on importance and purpose, Inspection of structure in Air-conditioning bay, Installation of air-conditioning components, Security of air-conditioning components, Pneumatic leak check, Oil level check for ACM, Compressor Freon gas level check- EQUIPMENT AND FURNISHINGS, Basic inspection of equipment and furnishing, Installation of passenger and crew seats, safety harness, Operational check and inspection of life jacket and life raft, Inspection of fire bottle and portable oxygen bottle in the cabin, Presence of emergency equipment

UNIT- III FIRE DETECTION & EXTINGUISHING SYSTEM, ICE & RAIN PROTECTION SYSTEM

FIRE DETECTION & EXTINGUISHING SYSTEM- Fire detection and extinguishing system- importance and purpose- Inspection of fire and smoke detection components,- Inspection of fire extinguishing system components for condition and Security- Types of fire: Explanation on solid liquid & gaseous fire purpose and uses of ground fire- extinguishers and extinguishing agents. Aircraft fire extinguisher with typical markings- ICE & RAIN PROTECTION SYSTEM

Ice and Rain protection - Importance of inspection, Inspection of components of pneumatic de- icing system, Inspection of thermal de-icing system, Inspection of wind screen de-icings system, Inspection of anti icing system, Ice detection system for condition and security

UNIT- IV INSPECTION OF AIRCRAFT SYSTEMS

FLIGHT CONTROL SYSTEMS, Flight control system – Importance and purpose, Inspection of, Control cables for wear, Linkages for correct sense of operation, Play due to wear, Condition of control surfaces for de-lamination and damage, travel and neutral portion check of control surfaces. AIRCRAFT FUEL SYSTEM, Aircraft fuel system – Introduction & importance of inspection and types of fuel, Precaution during Aircraft fuelling and defueling, Inspection of fuel leak, Aircraft fuel tank contamination check, Inspection of filters for contaminations, External inspection of fuel system, Fire hazard, static electricity and its effect- HYDRAULIC SYSTEM, Importance of Hydraulic system inspection., Inspection of condition of hydraulic lines, Internal leak check of hydraulic components, Flow rate check, Precaution while servicing of hydraulic system- AIRCRAFT OXYGEN SYSTEM, Inspection of components and pipe lines for conditions and security, Leak check of oxygen system, Precaution to be observed while working with oxygen system

UNIT- V INSPECTION OF AIRCRAFT STRUCTURES, AIRCRAFT POWER PLANTS and LANDING GEAR SYSTEM

Inspection of, Nacelles /pylon attachment fittings, fillets/fairings, stabilizers (Vertical, Horizontal) for condition & Security, windows for crazing chips and cracks, static dischargers, doors for condition, security and doors warning system- Inspection of, Ignition system components for condition and functional check, thrust reverser system for leak, oil system for leak, component chip detector and filter check- Functional check of engine indication instruments- Power supply equipment -electric, pneumatic, air starting, air-conditioning, and hitting units- Precaution while servicing of aircraft oil system- Landing gear system – Importance of inspection- Inspection of, landing gear system components for condition and Security, Inspection of structures in the wheel well area, Pressure Vs Extension of shock strut, Wheel brakes for wear and over heat condition, Tyres for condition and wear, correct pressure inspections.- Consequences of over inflation and under inflation of aircraft landing gear type

UNIT- VI TOWING, MOORING, WEIGHING AND LEVELLING OF AIRCRAFT

Procedures following during towing, mooring, weighing and levelling of aircraft

TEXT BOOKS AND REFERENCES

1. Michael J Kroes , William A Watkins , Frank Delp , Ronald Sterkenburg “Aircraft Maintenance and Repair”, Seventh Edition, 1 Jun 2013
2. FAA ‘S “ Aviation Maintenance Technician’s Handbook” (AC-65-9A)
3. FAA’S “ Civil Aircraft Inspection Procedure” CAIP-459 VOL-II