GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION

TECHNICAL CENTRE, OPP-SAFDURJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 9 – AIRSPACE AND AIR NAVIGATION SERVICES STANDARDS
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Subject: **Aeronautical Station Operator – Requirement for issuing authorization.**

1. Introduction

Rule 117 of Aircraft Rules, 1937 provides that every aeronautical station operator forming a part of flight information service shall operate in accordance with the requirements specified by the Director–General.

This CAR lays down the requirements as specified in ICAO Annex-1, for issuing a certificate by air navigation service provider that authorizes an unlicensed individual to operate as an aeronautical station operator on the conditions that they meet all the requirements.

This CAR is issued under provisions of Rule 117 and Rule 133A of the Aircraft Rules 1937.

2. Applicability and Scope

This CAR is applicable to air navigation service provider for issuing the certificate for aeronautical station operator.

3. Requirements

Air navigation service provider shall ensure that before assigning duties and responsibilities as aeronautical station operator, the individual meet the following requirements.

3.1 Age

The individual carrying out duties as an aeronautical station operator shall be not less than 18 years of age.

3.2 Knowledge

The individual carrying out duties as an aeronautical station operator shall receive training from an authorised instructor and shall have demonstrated the knowledge appropriate to the privileges of an aeronautical station operator by passing a written examination in at least the following categorised subjects:

3.2.1 General Knowledge
Air traffic services provided within Indian FIRs.

3.2.2 Operational Procedures
Radiotelephony procedures; phraseology; telecommunication network.

3.2.3 Rules and regulations
Rules and regulations applicable to the aeronautical station operator.

3.2.4 Telecommunication equipment
Principles, use and limitations of telecommunication equipment in an aeronautical station.

Detailed syllabus for the aeronautical station operator knowledge examination is specified at Appendix ‘A’.

3.3 Language Proficiency

3.3.1 An individual before carrying out duties as an aeronautical station operator shall demonstrate the proficiency to speak and understand the language used for radiotelephony communication at the level specified in CAR Section ‘7’, Series ‘G’, Part ‘III’.

3.3.2 An individual proficiency shall be re-evaluated, who demonstrate proficiency below the Expert Level (Level 6) while performing as an aeronautical station operator.

3.4 Experience

For the purpose of issuance of an aeronautical station operator certificate, the individual shall have:

3.4.1 Satisfactorily completed an approved training course within the 12-month period immediately preceding application, and have served satisfactorily under a qualified aeronautical station operator for not less than 2 months; or

3.4.2 Satisfactorily served under a qualified aeronautical station operator for not less than 6 months during the 12-month period immediately preceding application.

3.5 Skill

For the purpose of issuance of an aeronautical station operator certificate, the individual shall demonstrate, or have demonstrated, competency in:

3.5.1 Operating the telecommunication equipment in use; and

3.5.2 Transmitting and receiving radiotelephony messages with efficiency and accuracy.

4. Examination

Examinations shall be conducted to test the knowledge, language proficiency, experience and skill before authorising an individual to work as aeronautical station operator.

5. Issuance of Certificate and Authorisation

5.1 A certificate shall be issued to an individual to act as an aeronautical station operator in an aeronautical station only after ensuring the compliance with the requirements laid down in this CAR.

5.2 On the job training followed by an assessment shall be conducted before utilising an aeronautical station operator to ensure that the individual is familiar with all pertinent and current information regarding the types of equipment and operating procedures used at that aeronautical station.

6. Privileges and limitations

Subject to compliance with the requirements specified in this CAR:

6.1 The privileges of the individual holding certificate as an aeronautical station operator shall be, to act as an operator in an aeronautical station for which an authorisation has been issued.

6.2 The holder before commencement of duties as aeronautical station operator, shall be familiar with all pertinent and current information.

7. Records

All records pertaining to training, experience, skill and language proficiency of all aeronautical station operators shall be maintained properly. These records are to be produced during surveillance inspections or whenever required by the Director General or its officials.

8. Surveillance

8.1 DGCA may carry out inspection/ audit of authorisation process of aeronautical station operator at any time. Records shall be provided to DGCA inspectors / auditors for desk-top audit forming part of the continuous oversight.

8.2 DGCA will inspect the authorisation process in compliance with ICAO Annex-1, Aircraft Act 1934, Aircraft Rules 1937, and applicable Civil Aviation Requirements.

9. Enforcement/ Penal Provision

9.1 If an individual fails to comply with the requirements of Aircraft Act 1934, Aircraft Rules 1937, applicable CARs or other regulations issued from time to time; or if the proficiency is found to be below the desired level, the authorisation granted to the individual shall be liable to alteration, suspension or cancellation by Air Navigation Service Provider.

9.2 In case of concealment or misrepresentation of facts to DGCA or during the training activities or during the process of issuing certificate and authorisation to an individual, if the Air Navigation Service Provider fails to comply with the requirements of Aircraft Act 1934, Aircraft Rules 1937, applicable CARs or other regulations issued from time to time; or if the proficiency is found to be below the desired level, the authorisation granted to the individual shall be liable to alteration, suspension or cancellation by Director General.

(B.S. Bhullar)
Director General of Civil Aviation

Appendix 'A'

Aeronautical Station Operator's Training Syllabus

1. General Knowledge

1.1 Classification Of Airspace: FIR, ATS airspaces, Danger areas, Restricted areas, Prohibited areas, Controlled air space.

1.2 ATS Routes: Purpose of ATS route, Composition of ATS route designator, Selection of letters, Assignment of basic designator, example of ATS routes,

1.3 Air Space Organization: Definitions, Establishment of authority, Determination of the need for air traffic services, Designation of the portions of the airspaces and controlled aerodromes where air traffic services will be provided, Classification of airspace Progressive establishment of air traffic control service, Specification for flight information region, control areas and control zone, identification of ATS routes, ATS airspace classes- services provided and flight requirements.

1.4 Air Traffic Service: Definitions, Objectives of the air traffic services, Divisions of air traffic services/establishment designation of units providing them, Air traffic control service, Area Control Service, Area navigation, flight information service, Alerting service.

1.5 Rules of the Air: Applicability of the rules of the air, Rules of the air (flight rules, visual flight rules, Instrument flight rules, System of cruising level, transition procedure.

1.6 Miscellaneous Topics: Air defence identification zones and procedures for air defence clearance, Air traffic incident , RVSM contingency procedures, air traffic services requirements for communications, Aeronautical mobile service (air- ground communications), Aeronautical fixed service (ground-ground communications), Surface movement control service, Aeronautical radio navigation service,

1.7 AIS Introduction: Objective, Responsibility of a State, Responsibilities of the Aeronautical Information Service, Functions, Exchange of aeronautical information/data, Quality System, Copyright, Cost recovery, General specifications.

1.8 Collection Of Information: Origin of Aeronautical information , Modes of Communication , Basic Reference Materials , Standards and Recommended Practices (SARPS), Procedures for Air navigation Services (PANS) ,Air Navigation Plan Publication, Handling of Permanent and Temporary Types of information.

1.9 Dissemination of Information: Integrated Aeronautical information Package, Definition of NOTAM, Information to be Promulgated by NOTAM,

Circumstances Necessitating the Issue of NOTAM, The following information shall not be notified by NOTAM, Advance Notice Requirement, Value of NOTAM, Distribution of NOTAM, Duration of NOTAM, Predetermined Distribution System for NOTAM, Promulgation of NOTAM in Series, Specification of NOTAM, Checklist of NOTAM, NOTAM Format, NOTAM Numbering, Qualifiers (Item Q), Use of the NOTAM Code and Abbreviations.

1.10 Scope of Automation: Introduction, Basic Principles, Users' Operational Requirements, Type of Information to be provided, Database, Data Base Management System (DBMS), Database Contents, Use of Automation, Basic NOTAM elements and characteristics, Retrieval and presentation to users, Format, Storage, Common set of Qualifier.

1.11 Aeronautical Information Publication (AIP): Specifications of AIP, AIP Amendments, Specifications of AIP Amendments, Checklist of AIP Amendments, AIP Supplements, Specifications for AIP Supplements, Checklist of AIP supplement, Origination of AIRAC, Schedule of AIRAC Effective Dates 2011-2016, Significant Dates, Publication Date, Use of AIRAC System during holiday periods, Exceptions, Continuity Checks, Relative Merits, Methods of disposal of NOTAM, TRIGGER NOTAM, AIP, Design Implications of AIP, Presentation of Information, Aeronautical Information Circular (AIC), Maintenance and Updating of Aeronautical information.

1.12 Pre-Flight and Post-Flight Information: Organization of Pre-Flight Information Service, Layout of an AIS Unit, Detailed information for Each Coverage Zone, Wall Displays, Self-briefing and Pre-Flight information Bulletin, Documentary and Verbal Briefing, Bulletin Types, Bulletin Format, Post-Flight information.

1.13 Meteorology and Aviation: Importance of Meteorology and Aviation, Meteorological Services to Aviation, Composition of the Atmosphere, Troposphere, Stratosphere, Upper Layers.

1.14 Meteorological Services for Aviation In India Meteorological Organizations for providing Aviation Services

1.15 Atmospheric Pressure: Definition, Aneroid Barometer, Standard Atmosphere, Datum Level Error, Temperature Error, Altimeter Settings, Flight Levels, Pressure Altitudes, Altimeter Settings, Transition Altitude, Transition Level.

1.16 Temperature: Air Temperature at the Earth's Surface, Daily Variation of Air Temperature, Inversions, Importance of Air Temperature in Aviation.

1.17 Clouds: International Cloud Classification, Brief Description of the Cloud Types, Cloud Amount, Height of Cloud Base Height, Cloud Ceiling, Formation of Clouds, Significance of Clouds to Aircrew and Aviation, Precipitation.

1.18 Thunderstorms: Conditions Favorable for Thunderstorms, Life Cycle of a Thunderstorms, Thunderstorms and Aviation, Effects of Thunderstorms on Aircraft, Thunderstorm Weather, Lighting, Thunder, Tornado.

1.19 Wind: Measurement, Characteristics of Wind Near the Surface Gusts and Lulls, Upper Winds, Significance of Winds to Aviation, High Level Winds, Jet Streams, Local Winds, ITCZ, Trade Winds.

1.20 Visibility: Definition, Air to Ground Visibility, Runway Visual Range (RVR), Instruments for Measuring Visibility, Meteorological Phenomena Affecting Visibility, Types of Fog Radiation and Advection Fog, Advection Fog, Haze, Dust Storms.

1.21 Airmasses and Fronts: Anti – Cyclone, Tropical Revolving Storm.

1.22 Aircraft Icing: Defects of Icing on Aircraft Performance, Engine Icing, Types of Icing, Hints on Flying in Icing Regions.

1.23 Weather Radar and Meteorological Satellites: Introduction, Exchange of Meteorological Messages, Meteorological Satellites, Indian Meteorological Satellites, Characteristics of Clouds.

1.24 Atmospheric Turbulence: Role of Turbulence, Mechanical Turbulence, Thermal Turbulence, Turbulence and Aviation, Turbulence within Cumuliform Clouds, Turbulence in the Vicinity Of Mountains, Artificially Induced Turbulence, Clear Air Turbulence (CAT).

1.25 Aviation MET Messages and Their Codes: Introduction, METAR, METAR Code , SPECI, SPECI Criteria, Code Format, Time of Issue, Dissemination, TAF (Terminal Aerodrome Forecast), Code Format, ROFOR, ROFOR Code, SIGMET, Offices of Issue, Frequency of Issue, Validity Period, Conditions of Issue, Content, Purpose of Issue, Dissemination, Cancellation of SIGMET message(s), Aerodrome Warning, Format and Dissemination of Aerodrome Warning, Wind Shear Warnings, Evidence of the Existence of Wind Shear shall be derived from, Format and Dissemination of Wind Shear Warning, Contents of VOLMET Broadcasts, VOLMET Service, SIGMET Service, AIRMET Information, GAMET Area Forecast .

1.26 OPMET and ROBEX: METAR ROBEX Scheme, AIREP ROBEX Scheme, TAF ROBEX Scheme, Some ROBEX Terminologies, ROBEX METAR Bulletin, Appendix - 01 Glossary & Abbreviations, Appendix - 02 Met Instruments.

2. Operational Procedures

2.1 Division Of Service: International aeronautical telecommunication service, Aeronautical Mobile Service, HF MWARA of Adjacent countries.

2.2 ICAO Radio Telephony Alphabet: Pronunciation of Numbers, transmission of Numbers, Verification of Numbers, Phraseology, Radiotelephony call signs for aeronautical stations in the aeronautical mobile service, Radio telephony call signs for aircrafts.

2.3 Categories of Messages: Flight safety messages, Meteorological messages, Flight regularity messages, Cancellation of messages, incomplete transmission, complete transmissions, Language, General Procedures, transmitting Technique.

2.4 Radio Telephony Communications Procedures: Radiotelephony procedures, Establishment of radiotelephony communications , The Radiotelephony reply procedure, Station Calling, CAIRO station replying, Inter-pilot air-to-air communication, Subsequent radiotelephony communications, Indication of transmitting frequency, As the aeronautical station operator, Kingston Clipper Three Two Five — One Eight Eight, Test procedures, Exchange of communications, Acknowledgement of receipt , Aircraft (acknowledging), Station (denoting accuracy of read back), End of conversation, Corrections and repetitions, Operations normal reports.

2.5 Network Concept: Frequency Used In Radiotelephony Network, Network And Network Areas, Principles of network operation (HF communications), Establishment of communications, Transfer of HF communications, Transfer of VHF communications, Communications failure, Receiver failure, Blind transmission, Notification of communications failure,

2.6 HF Messages Handling Transmission of ATS messages to aircraft.

2.7 SELCAL Procedure: Notification of SELCAL Codes, Pre-flight Check. Pre-flight check, Establishment of communications, En-route procedures, SELCAL code assignment to aircraft.

2.8 Distress And Urgency Radiotelephony Communication Procedures: Action by the aircraft in distress, Distress Message, Aircraft in distress , Imposition of silence, Action by all other stations , Termination of distress communication and of silence, Radiotelephony Urgency Conditions, Action by all other stations, Action by an aircraft used for medical transports.

3. Rules and Regulations

3.1 List of Documents: Relevant to HF RT ICAO Publications, AAI Publications, DGCA Publications.

3.2 Definitions: Aeronautical Mobile Service, Aeronautical station , Air ground control radio station, Aircraft station, Air - to - ground communication, Airways, Aircraft operating agency, Air-report, Altitude, Blind Transmission, Broadcast, Cruising level, Control Zone, Control area, Estimated elapsed time, Estimated time of arrival ,EOBT, Flight level, Ground - to - air communication , Height, Major world air route , Major world air route area (MWARA), Network communication, Regular station, Radiotelephony network, Read back, Reporting Point , Primary frequency, Route segment, Regional and domestic air route , Regional and domestic air route area (RDARA), Runway visual range, Secondary frequency,

Track ,Visual meteorological conditions, Recording/Logging of Air-Ground Communications

3.3 AFS Definitions, Services, Stations, Communication Methods, Types of Relay, Installations, Agencies, Miscellaneous.

3.4 Administrative Provisions Relating To the International Aeronautical Telecommunication Service, Objectives, Division of Services, Telecomm. –Charges, Hours of Services, Supervisions, Superfluous Transmission, Interference, Extension of Watch & Closing Of Watch, Use of abbreviations & Codes/Important ICAO, Annexes ,Documents, Summary.

3.5 Location Indicator: Definition, Establishment of AFS, Routing Area, Assignment of Location, Indicator, Changes in Assignment, In Location Indicators, Use of Location Indicators, Summary.

3.6 ICAO Three Letter Designators: General, Assignment of 3 Letter, Designators, Restrictions, Important 3 Letter, Designators Telephony Designators, Summary, Aeronautical Fixed Telecommunication Network-Categories of Message Categories of messages.

3.7 AFTN Message Format: Overview, Message Format ITA-2, Heading, Address, Origin, Text, Ending, Message format in IA-5.

3.8 Supervision of Traffic And Channel: Overview, Continuity of Message traffic, Misrouted message, Circuit interruption, Failure of communication, Test Procedure, Routing Diversion, Channel Continuity, check, Mutilated messages, Summary.

3.9 ATS Messages: Overview, Structuring and punctuation in ATS messages, ATS Message categories, Description of fields, Example of ATS Messages.

4. Telecommunication Equipment

4.1 COMMUNICATION SYSTEM & NAV AIDS: Basic Communication System transmitters, Channel & receives, Short Range Aids, Medium Range Aids.

4.2 Selective Calling: Introduction, SELCAL System, Model N1304A.

4.3 Wave Propagation/Limitations of Telecommunication Equipment: Factors involved in the propagation of Radio wave, Modes of propagation of electromagnetic (EM) waves, Ground waves, Sky Wave, Ionosphere effects, Ionospheric variation, Critical Frequency, Maximum Usable Frequency, Skip Distance, Multihop, Fading , Night effect for LF/MF, Use of different frequencies at different times of the day in HF.

4.4 VHF Transmitter / Receiver: DT100 Operating Modes, DT100/DR100 operating frequency band, Control indicators and connectors, Introduction

to RCAG.

4.5 Operator Position: Precondition for a Successful Operation, Power On Sequence, Display Mode, Brightness of Display, Push-To-Talk, Automatic Override Mechanism, Audio Equipment Types, Handset On/Off Hook Recognition, Ringer Indication, Touch Screen Unit, Touch Screen Overview, Telephone Communications, Telephone Stack and Function Buttons.

4.6 HF Transmitter Zenital 5kW: General description, system description, System overview, software user manual, MF/HF transmitter 5kw TCS, The transmitter states, User roles and their security level, the user interface , Local/Remote interface local interface, Log on, Main window, Front panel, Operating the system, Command window, Introduce a new channel, Select the power level, Introduce a new mode, Introduce a new audio source A or B, Change the transmitter state, Introduce a SELCAL code (Optional), Power On / Off, Emergency power off.

4.7 Non-Directional Beacon (NDB): Introduction, Principle of operation, Range, Services provided by NDB, Advantages and disadvantages of NDB.

4.8 Very High Frequency Omni range (VOR): Introduction, types of VOR, Principle of operation, Services provided by the VOR, purpose of VOR & uses, accuracy, Advantages of VOR, Disadvantage of VOR, scalloping, Doppler VOR.

4.9 Distance Measuring Equipment (DME): Introduction, DME Principles, Basic Block Diagram of DME system, Characteristic Features of the DME System , DME Channels, Twin Pulse (Pulse Pair) Technique, System timing And distance measurement, Applications of DME.

4.10 Instrument Landing System (ILS): Introduction, ILS - Ground Components and General Layout, Localizer, Coverage Range, Glide Path, Coverage Range, Markers, Locators, LP DME.