

C-20 T&R MANUAL

CHAPTER 2

C-20 CREW CHIEF

	<u>PARAGRAPH</u>	<u>PAGE</u>
PROGRAMS OF INSTRUCTION (POI) FOR BASIC, TRANSITION, CONVERSION AND REFRESHER CREW CHIEF	200	2-3
GROUND TRAINING COURSES OF INSTRUCTION.	210	2-3
SQUADRON LEVEL TRAINING	211	2-3
FLIGHT SIMULATOR TRAINING	212	2-3
FLIGHT TRAINING FOR BASIC, TRANSITION, CONVERSION AND REFRESHER CREW CHIEF	220	2-3
SIMULATOR TRAINING.	230	2-4
FLIGHT/SIMULATOR PERFORMANCE REQUIREMENTS	240	2-4
MISSION CAPABLE TRAINING	241	2-5
MISSION READY TRAINING	242	2-9
MISSION QUALIFICATION TRAINING.	243	2-9
FULL-MISSION QUALIFICATION TRAINING	244	2-9
INSTRUCTOR AND SPECIAL FLIGHT/SIMULATOR PERFORMANCE REQUIREMENTS	250	2-10
SPECIAL TRAINING	251	2-10
ORDNANCE REQUIREMENTS	260	2-11

FIGURES

2-1	MOS 6246 REFLY INTERVAL, MISSION READINESS PERCENTAGE	2-12
2-2	MOS 6246 CREW CHIEF FLIGHT UPDATE CHAINING	2-13

*** * N O T E * ***

Aircrew coordination will be briefed for all flights and aircrew positions.

CHAPTER 2

C-20 CREW CHIEF

200. PROGRAMS OF INSTRUCTION (POI) FOR BASIC, TRANSITION, CONVERSION AND REFRESHER CREW CHIEF

1. Prerequisite. Completion of an aviation flight physical and Aircrew Candidate School.

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
4	Aircrew Candidate School	Pensacola, FL
4	Init. Grnd Scol/Flt Sim/Maint Trng	CACT
1-3	Ground Training	MCAF/VR-51
4-16	Flight Training	MCAF/VR-51

210. GROUND TRAINING COURSES OF INSTRUCTION

<u>COURSE</u>	<u>ACTIVITY</u>
Aircrew Candidate School	Pensacola, FL
G-IV Maintenance Initial	Savannah, GA

211. SQUADRON LEVEL TRAINING

General Aircraft Description
 Aircraft Emergency Systems
 Personal Flying Equipment Requirements
 Phase Examinations
 NATOPS Open and Closed Book Examinations

212. FLIGHT SIMULATOR TRAINING

<u>STAGE</u>	<u>FLIGHTS</u>	<u>HOURS</u>	<u>PERCENT</u>
Familiarization	2	5.0	25.0

220. FLIGHT TRAINING FOR BASIC, TRANSITION, CONVERSION AND REFRESHER CREW CHIEF

1. Mission Capable Training

	<u>FLIGHTS</u>	<u>HOURS</u>	<u>PERCENT</u>
Basic Qualification	-	-	25.0
Familiarization	13	26.0	30.0
Mission Capable Check	1	2.0	5.0
Total for Phase	14	28.0	60.0

2. Mission Ready Training

	<u>FLIGHTS</u>	<u>HOURS</u>	<u>PERCENT</u>
Overwater Procedures	2	12.0	15.0
Total for Phase	2	12.0	15.0
Accumulation	16	40.0	75.0

3. Mission Qualification Training

	<u>FLIGHTS</u>	<u>HOURS</u>	<u>PERCENT</u>
Cargo Operations	<u>2</u>	<u>12.0</u>	<u>20.0</u>
Total for Phase	<u>2</u>	<u>12.0</u>	<u>20.0</u>
Accumulation	18	52.0	95.0

4. Full-Mission Qualification Training

	<u>FLIGHTS</u>	<u>HOURS</u>	<u>PERCENT</u>
VIP Procedures	<u>1</u>	<u>6.0</u>	<u>5.0</u>
Total for Phase	<u>1</u>	<u>6.0</u>	<u>5.0</u>
Accumulation Total for Basic, Transition, Conversion and Refresher Crew Chief	19	58.0	100.0

230. SIMULATOR TRAINING. Familiarize all crew chiefs with the C-20 normal cockpit procedures, crew coordination, systems operations and limitations, emergency procedures and to introduce instrument flight procedures and VFR scan patterns. Flights duplicate those outlined in C-20 pilot simulator training.

240. FLIGHT/SIMULATOR PERFORMANCE REQUIREMENTS

1. General

a. The time required to train a crew chief will vary depending on previous experience. All training will be conducted in conjunction with operational flights, test flights, and/or pilot training flights.

b. Minimum crew will consist of a pilot, copilot, crew chief instructor (CCI), and crew chief under instruction (CCUI).

c. Flights annotated with an "N" shall be flown at night with the intent that these night flights will be flown at least 30 minutes after official sunset. Flights annotated with "(N)" may be flown at night.

d. All flights annotated with an "E" shall be evaluated per T&R Manual, Administrative, Chapter 4, Paragraph 4004.3.b.

e. Once qualified, a crew chief who has not flown during the last six months will be required to complete the entire syllabus.

2. Syllabus Assignment. Basic, transition, and conversion crew chiefs will be required to fly the entire syllabus.

3. Refly Interval. Figure 1-1 shows reflly interval and Mission Readiness Percentage for MOS 60XX.

4. Aircrew Evaluation Flights. All crew chiefs are required to have a NATOPS evaluation form filled out annually upon completion of the following:

a. NATOPS Check (RQD-600).

b. Any flight in the mission qualification, mission ready, or full mission qualification phase as recommended by the Squadron Standardization Board.

5. Aircrew Coordination. Aircrew coordination shall be briefed for all flights and/or events.

241. MISSION CAPABLE TRAINING1. Familiarization

a. Purpose. To familiarize the CCUI with the C-20 aircraft. Instruction will emphasize adherence to NATOPS procedures, operation of aircraft systems, and aircraft servicing.

b. Crew Requirement. TAC/T2P-T3P/CCI/CCUI.

c. Flight Training. (14 Flights, 28.0 Hours).

FAM-1002.0T,C,R 1 ACFT

Goal. Introduce the CCUI to the C-20G aircraft.

Requirement. Crew brief/debrief. Check/verify aircraft status. Crew Chief duties and responsibilities. Preflight/Postflight. Checklist procedures. Emergency procedures. Location and use of survival equipment. CAS/Annunciator indications. Emergency Exits and entrance. Emergency equipment and oxygen use. Takeoff emergencies. Miscellaneous in-flight malfunctions. APU malfunctions. Jump seat duties. Loadmaster responsibilities. Flight Attendant responsibilities.

FAM-1012.0T,C,R 1 ACFT

Goal. Review previous instruction and introduce the electrical system.

Requirement. Electrical System Operation. EPMP operation and associated indications. Battery integrity check. Emergency/Abnormal Procedures: Alternator/Converter Failure (dual and single), APU in-flight operation (ELWS), L-R/APU Failed BRG, L-R/APU ALT HOT, L-R Converter HOT/FAN FAIL, TRU HOT/FAIL, L-R AC/DC Power Fail, Essential AC/DC BUS FAULT, Battery only operation/SEP operation, BATT 1-2 Charger Fail, EPMP Power Fail. Jump seat duties. MEL (Chapter 5). Limitations (Chapter 4). Perform and discuss cards. ACT: Adaptability and flexibility.

FAM-1022.0T,C,R 1 ACFT

Goal. Review previous instruction and introduce hydraulic systems.

Requirement. Hydraulic System (general operation). Engine driven hydraulic pumps. Auxiliary/Utility pumps. Normal start indications. Emergency/Abnormal Procedures: Comb Hyd Fail message, Flt Hyd Fail message, Dual Hyd system Failure, Flt/Comb/Util Hyd Fluid Hot message, partial flap landing, T/R unlock or deploy in-flight, Yaw Damper failure. Cargo door operation. Jump seat duties. MEL. Limitations. Perform and discuss cards. ACT: Leadership. Hydraulic system servicing (ground support equipment/engines running).

FAM-1032.0T,C,R 1 ACFT

Goal. Review previous instruction and introduce the landing

gear system.

Requirement. Landing Gear (general operation). Brakes/Anti-skid operation. Nutcracker system. Emergency Procedures: Anti-skid fail message, Brake fail message, Anti-skid offbraking, Hot brakes, Brake Pedal message, Multiple brake fail messages, Alternate Braking, Landing Gear Failure to Extend, Landing Gear Retraction Following Alternate Gear Extension, Landing Gear Failure to Retract, Partial Gear Landing, Tire Failure, Nose Wheel Steering Failure, Nutcracker System Failure, Nose Gear Shimmy. MEL. Limitations. Jump seat duties. Perform and Discuss cards. ACT: Assertiveness. Tire/Strut servicing.

FAM-104

2.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce the fuel system.

Requirement. Fuel System (general operation). Fuel Balancing procedures. Emergency/Abnormal Procedures: Fuel Boost Pump Failure, Failure of Two Boost Pumps on one side, Fuel Level Low Message, L/R Fuel Press Low message, L/R Fuel Filter message, L/R Main Fuel Fail, L/R ALT Fuel Fail, Minimum Fuel Go-Around, Suction Feed. Jump seat duties. MEL. Limitations. Perform and Discuss cards. ACT: Adaptability/Flexibility. Fuel System Servicing (Pressure Fueling, Gravity Fueling, Defueling).

FAM-105

2.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce the flight control system.

Requirement. Flight Controls (general operation). Single Rudder Limit/Rudder Limit message. Flap/Stabilizer operation. Emergency/Abnormal Procedures: Flight Control Runaway to Hardover Position, Immovable Flight Controls, Manual Flight Controls, Stall Barrier Malfunction, Ground Spoiler Failure, Runaway Electrical Elevator Trim, MACH Trim Compensation Failure, Failure of Stabilizer/Flap Interconnect, Wing Flap-Alternate Operation, Undesired Flap Movement, ACFT CONFIG Message. Jump seat duties. MEL. Limitations. Perform and Discuss Cards. ACT: Decision Making. Aircraft Towing Procedures.

FAM-106

2.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce pneumatic system, anti-ice system, and pitot/static system.

Requirement. Pneumatic System, Wing and Cowl Anti-Ice System, and Pitot/Static System (general operation). Emergency/Abnormal Procedures: Pylon Hot message, AFT Equipment Hot message, L/R Bleed Air Hot message, L/R Bleed Air Pressure HI message, L/R Wing Hot message, L/R Wing Temp LOW message, L/R Cowl A/I OVHT message, L/R Cowl PRESS LOW message, Pitot Heat Fail message, Standby Pitot Heat Fail message, TAT/SAT Probe Heat Failure, Windshield Heat Failure, Windshield Crack/Failure. Jump seat duties. MEL. Limitations. Perform and Discuss Cards. ACT: Mission Analysis.

FAM-1072.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce the air conditioning system and the pressurization system.

Requirement. Air Conditioning Operation. Pressurization Operation. Emergency/Abnormal Procedures: Rapid Decompression/Emergency Descent, Loss of Automatic Pressurization Control, Pressurization System-Rate Limiting, Cabib DFRN 9.6/9.8 message, Cabin Pressure Low message, Cool TURB HOT message, Air Conditioning Smoke, Smoke and Fume Evacuation, DU 1-2-3-4-5-6 HOT, DU 1-2 FAN Fail, SG 1-2-3 HOT, IRS 1-2 FAN Fail, AHRS COOL Fail. Oxygen System Operation/Duration Charts. Use of Portable Oxygen. Jump seat duties. MEL. Limitations. Perform and Discuss Cards. ACT: Situational Awareness. Oxygen System Servicing.

FAM-1082.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce the Tay 611-8 Engines.

Requirement. Engines and related systems. Emergency/Abnormal Procedures: Engine emergency after V1, In-Flight Eng Shutdown checklist, Engine Failure, Single Engine Approach, Single Engine Go-Around, Dual Engine Failure, Dual Engine Out Landing Procedures, Air Start Immediate/Normal, Start Valve Failure to Open, Engine Failure to Start, HOT Start, Start Valve Failure to Close, Engine Vibration on the Ground, Engine Synchronizer Failure, Approach Idle System Failure, L/R Oil Pressure Low message, L/R Oil Filter Bypass message. Jump seat duties. MEL. Limitations. Engine Oil Servicing (Normal/Emergency).

FAM-1092.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce the APU/Engine Fire Warning and Fault tests.

Requirement. APU Fire Warning Test. Engine Fire and Fault Test. Emergency/Abnormal Procedures: APU Fire, Engine Fire on the Ground, Engine Fire, Severe Vibration, or Separation, L/R Engine HOT Message, L/R Pylon HOT message, Engine Warning System Malfunction, Fire Detection System Fault, Smoke/Flame Detect message, Fire in the Cabin or Cockpit Area, Smoke and Fume Evacuation, AFT LAV Smoke Annunciator, smoke removal from the baggage compartment or lavatory. Jump seat duties. MEL. Limitations. Performance (General, Takeoff, and Climb). Observe Form F Preparation.

FAM-1102.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce APU operation.

Requirement. APU Operation (Normal). Emergency/Abnormal Procedure: APU Fire, APU Alternator Failure, APU ALT BRG FAIL, APU ALT HOT, APU MASTER WARNING, APU EXCEEDENCE, APU In-Flight Operation (Alternate Electrical Source), Electrical Load Warning System, E-BATT DISCH, E-BATT FAIL. Cold Weather Operations. Cross Wind Landings. Performance: Range Systems,

Endurance. Use of Survival Equipment. Cargo Door Operation. Perform Form F. MEL. Limitations. APU Oil System servicing.

FAM-111 2.0 T,C,R 1 ACFT

Goal. Review previous instruction and introduce the Flight Management System (FMS).

Requirement. FMS Operation (Normal). Display Switching/Symbol Generator Control Check. Abnormal/Emergency Procedures: Autopilot Malfunction, Autothrottle Malfunction, Display System Failure, AFGCS Failure, Review all DAU CAS messages, review all FGC CAS messages, Review all IRS/NAV CAS messages, In-Flight Communications Failure, Anti-Hijacking Procedures. Overwater Procedures. Performance: Descent, Landing. Hot Weather/Desert Operations. Wind Shear/Micro Burst/Turbulence Procedures. Volcanic Ash Avoidance. MEL. Limitations. Perform Form F. Potable Water System servicing. Waste Disposal System servicing.

FAM-112 2.0 T,C,R 1 ACFT

Goal. Prepare CCUI for NATOPS Check Flight.

Requirement. Aircraft Servicing. Daily/Turnaround/Special Inspections. APU/Engine Systems/Operations. Weight and Balance. Cockpit Discipline/Jump Seat Duties. Checklists: Normal/Emergency/Abnormal. Critical Action Items. Fire Detection/Extinguishing. Electrical Systems. Lighting Systems. Fuel System. Pneumatic System. Air Conditioning System. Cabin Pressurization System. Ice/Rain Protection Systems. Hydraulic Systems. Flight Controls. Landing Gear/Brakes. Oxygen system. Cargo System. Performance. Flight Management System. Minimum Equipment list (MEL). Limitations. ACT (Seven Skills).

2. Crew Chief Check

a. Purpose. To demonstrate the CCUI's ability to meet NATOPS evaluation criteria for crew chief and to ensure the CCUI has attained a high degree of proficiency and knowledge of all aircraft systems as well as the requisite level of Aircrew Coordination Training.

b. Crew Requirement. TAC/T2P-T3P/CCI/CCUI.

c. Prerequisite. NATOPS Open and Closed book exams.

d. Flight Training. (1 Flight, 2.0 Hours).

CK-120 2.0 T,C,R E 1 ACFT

Goal. NATOPS check.

Requirement. CCUI to demonstrate the ability to meet NATOPS qualification per NATOPS evaluation criteria. CCUI will demonstrate a high degree of proficiency and knowledge of the aircraft systems covered in all previous instruction to a NATOPS Evaluator. Individual may fly as a qualified crew chief after completing flight CK-120, while completing the remainder of the flight syllabus.

242. MISSION READY TRAINING1. International/Overwater Procedures

a. Purpose. To instruct the CC on the C-20G mission with regard to long range international and overwater flights.

b. Crew Requirement. TAC/T2P-T3P/CCI/CCUI.

c. Flight Training. (2 Flights, 12.0 Hours).

NAV-200/201 6.0 T,C,R 1 ACFT

Goal. Introduce CC to international/long range C-20G flight operations.

Requirement. CC to participate in a multiple leg, long range, overseas logistics flight with a RON. Review flight planning and aircraft servicing for an international flight.

243. MISSION QUALIFICATION TRAINING1. Cargo Operations

a. Purpose. To introduce the CC to cargo operations and the various types of aircraft cargo configuration rigs.

b. Crew Requirement. TAC/T2P-T3P/CCI/CCUI/L.

c. Flight Training. (2 Flights, 12.0 Hours).

CL-300/301 6.0 T,C,R 1 ACFT

Goal. Introduce the CC to cargo load operations and the different types of cargo rigs.

Requirement. Review load planning, cargo rigs, weight and balance, cargo loading systems and equipment, cargo door usage. Crew chief will participate in the cargo loading of the C-20G aircraft with a qualified loadmaster.

244. FULL-MISSION QUALIFICATION TRAINING1. Preflight and Code 7 Procedures

a. Purpose. To introduce the CC to the proper preflight set up of the aircraft and the procedures for carrying passengers who are Code 7 or above.

b. Crew Requirement. TAC/T2P-T3P/CCI/CCUI/L.

c. Flight Training. (1 Flight, 6.0 Hours).

VIP-400 6.0 T,C,R 1 ACFT

Goal. The CC will participate in a flight carrying a passenger that is a Code 7 or above.

Requirement. Emphasis will be on VIP preflight planning, VIP aircraft configuration, and VIP procedures.

250. INSTRUCTOR AND SPECIAL FLIGHT/SIMULATOR PERFORMANCE REQUIREMENTS

1. Instructor Under Training (IUT)

- a. Purpose. To qualify a CC as an instructor on the C-20G aircraft.
- b. Crew Requirement. TAC/T2P-T3P/CCI/CCIUT.
- c. Prerequisite. Recommendation from the Pilot Standardization Board.
- d. Flight Training. (3 Flights, 6.0 Hours).

IUT-500 2.0 T,C,R 1 ACFT

Goal. The CCIUT will observe a CCI train a CCUI.

Requirement. The CCIUT will observe a CCI train a CCUI on a syllabus training flight.

IUT-501 2.0 T,C,R 1 ACFT

Goal. The CCIUT will demonstrate the ability to instruct a CCUI on a syllabus training flight. The instructor under training will demonstrate the required knowledge of aircraft systems, normal procedures, abnormal/emergency procedures, limitations, and Aircrew Coordination Training.

Requirement. CCIUT will demonstrate the ability to instruct a CCUI.

IUT-502 2.0 T,C,R 1 ACFT

Goal. CCI qualification/standardization flight.

Requirement. Demonstrate the requisite knowledge, instructional ability and standardization expected of a CCI.

251. SPECIAL TRAINING1. Annual NATOPS Evaluation Flight

- a. Purpose. To conduct annual NATOPS evaluation flight. Flights flown in this stage are evaluation flights.
- b. Crew Requirement. TAC/T2P-T3P/CCI/CC.
- c. Prerequisite. Reference the C-20G NATOPS Flight Manual, OPNAVINST 3710.7_, and applicable publications.
- d. Flight Training. (1 Flight, 2.0 Hours).

RQD-600 2.0 E 1 ACFT

Goal. Annual NATOPS Evaluation.

Requirement. Proficiency as a C-20G crew chief in all aspects of the aircraft and its mission.

260. ORDNANCE REQUIREMENTS. Not applicable.

C-20 T&R MANUAL

	103	3.0	*	4.0	X	X	X	1 ACFT
	104	3.0	*	4.0	X	X	X	1 ACFT
	105	3.0	*	4.0	X	X	X	1 ACFT
	106	3.0	*	4.0	X	X	X	1 ACFT
	107	3.0	*	4.0	X	X	X	1 ACFT
	108	3.0	*	4.0	X	X	X	1 ACFT
	109	3.0	*	4.0	X	X	X	1 ACFT
	110	3.0	*	4.0	X	X	X	1 ACFT
	111	3.0	*	4.0	X	X	X	1 ACFT
	112	3.0	*	5.0	X	X	X	1 ACFT
CK	120	3.0	*	7.0	X	X	X	1 ACFT
MISSION READY TRAINING								
NAV	200	6.0	3	7.5	X	X	X	1 ACFT
	201	6.0	3	7.5	X	X	X	1 ACFT
MISSION QUALIFICATION TRAINING								
CL	300	6.0	3	10.0	X	X	X	1 ACFT
	301	6.0	3	10.0	X	X	X	1 ACFT
FULL-MISSION OUALIFICATION TRAINING								
VIP	400	6.0	C	5.0	X	X	X	1 ACFT

Figure 2-1.--MOS 6246 Refly Interval, Mission Readiness Percentage.

CREW CHIEF FLIGHT UPDATE CHAINING

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
CK	120	100,101,102,103,104,105,106,107,108,109,110,111,112
NAV	210	200
CL	301	300

Figure 2-2.--MOS 6246 Crew Chief Flight Update Chaining.