NAVAL AIR TRAINING COMMAND

NAS CORPUS CHRISTI, TEXAS

CNATRAINST 3740.9D
16 SEP 2003

CHIEF OF NAVAL AIR TRAINING

CARRIER QUALIFICATION INSTRUCTION

2003

DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
CNATRA
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CNATRA INSTRUCTION 3740.9D

Subj: CNATRA CARRIER QUALIFICATION INSTRUCTION (SHORT TITLE - CNATRA CQ INSTRUCTION)

Ref: (a) NAVAIR 00-80T-105, CV NATOPS
(b) NAVAIR 00-80T-104, LSO NATOPS
(c) NAVAIR A1-T-45AB-NFM-000 T-45 NATOPS
(d) OPNAVINST 3710.7S, NATOPS General Flight and Operating Instructions
(e) OPNAVINST 4631.2D, Management of Department Airlift Assets
(f) OPNAVINST 3750.6R, Naval Aviation Safety Program
(g) COMNAVAIRFOR 3740.2, Procedures Concerning CQ/Refresher Operations
(h) COMNAVAIRFOR 1520.6, Landing Signal Officers
(i) NETC 3710 SER N78A/012, NAVY/USAF Carrier Landing Flight Program
(j) CNATRAINST 3750.23L, NATRACOM Aircraft Mishap and Hazard Reporting
(k) CNATRAINST 1500.4F, Naval Aviator Training and Administration Manual
(l) Memorandum of Understanding 01-02 between USAF AETC and CNATRA

1. Purpose. To implement the Chief of Naval Air Training (CNATRA) plan for conducting carrier qualification on board Fleet Aircraft Carriers (CVs) by the Naval Air Training Command. Carrier qualifications will be conducted in accordance with references (a) through (l). This instruction has been substantially revised and should be read in its entirety.

2. Cancellation. CNATRAINST 3740.9C.

3. Definitions. Due to the numerous acronyms and abbreviations, a list of definitions of terms is found on page v.

4. Forms. The LSO Training Record, CNATRA 3740/4; and the LSO Trend Analysis Summary, CNATRA 1542/106 are obtained from CNATRA (N1221). The DD Form 1898, Avfuels Intro-Plane Contract Sales Slip, and DD 1348, Requisition Form are obtained through normal supply channels.

5. Reports. The reporting requirements in references (f) and (j) have Report Control Symbols (RCSs): OPNAV 3750-19, Naval Aviation Hazard Report; RCS OPNAV 3750-20, Naval Aircraft Mishap Report; and RCS OPNAV 3752-1, Naval Aircraft Mishap Investigation Report (MIR).

WILLIAM H. CAREY
Chief of Staff

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RECORD OF CHANGES			
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1	2 March 2004	3, II-3	Incorporated
2	15 Dec 2004	3-4, i-ii, I-2, II-1, II-3, II-4, II-6, III-3, VIII-4	Incorporated
3	17 Jun 2005	3-4, I, II-1, II-4, III-4	Incorporated
4	6 January 2006	3-4, I, iii-iv, II-4, II-6, II-10, II-12, II-14, III-3	Incorporated
5	19 Jun 2012	3, II-1, II-2	Incorporated

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CNATRA CARRIER QUALIFICATION INSTRUCTION

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DEFINITIONS OF TERMS AND ACRONYMS

ACLS - Automatic Carrier Landing System

ACP - Allied Communications Publication

ADDU - Additional Duty

ADIZ - Air Defense Identification Zone

ADTC - Armament Development and Test Center

AETC - Air Education and Training Command (USAF)

AIMD - Aircraft Intermediate Maintenance Department

AMB - Aircraft Mishap Board

APC - Area of Positive Control

ARSA - Airport Radar Service Area

ARTCC - Air Route Traffic Control Center

ATC - Air Traffic Control

ATCAA - Air Traffic Control Assigned Airspace

ATCF - Air Traffic Control Facility

ATF - Aviation Training Form

ATIS - Automatic Terminal Information Service

ATO - Air Transportation Officer

ATP - Allied Tactical Publication

Auxiliary ATF - Utilized in special cases where a down is given, but the remainder of the ATF is not graded

BARO - Barometric Altimeter

Bingo - Minimum fuel required for safe divert to nearest divert field.

Bolter - Aircraft touches down but does not arrest.

BRC - Base Recovery Course – Ship's Heading

BSN - Billet Sequence Number

BUPERS - Bureau of Personnel

CARQUAL - Carrier Qualifications

Carrier Training Plan - CNATRA input to ship's Air Plan consisting of all CNATRA training events.

CATCC - Carrier Air Traffic Control Center

CCA - Carrier-Controlled Approach

CDI - Collateral Duty Inspector

Charlie - Term used to direct flights into the carrier landing pattern

CHINFO - Chief of Information

CINCLANT - Commander in Chief Atlantic

CINCLANTFLT - Commander in Chief Atlantic Fleet

Clara - Pilot does not have visual glideslope and/or line up information from the FRESNEL lens.

CMS - Contract Maintenance Support

CNATRA - Chief of Naval Air Training

CNAVRES - Commander Naval Reserve Forces

CNET - Chief of Naval Education and Training

COD - Carrier Onboard Delivery – C-2

COMNAVAIRFOR - Commander Naval Air Force

COMNAVAIRLANT - Commander Naval Air Force, Atlantic

COMNAVAIRPAC - Commander Naval Air Force, Pacific

COMTRAWING - Commander Training Air Wing

CQ - Carrier Qualification

CQFP - Carrier Qualification Flight Procedures

CV - Multipurpose Aircraft Carrier

CVN - Nuclear-powered Multipurpose Aircraft Carrier

DET - Detachment

DLQ - Deck Landing Qualifications

DQ - Disqualification

EP - Emergency Procedures

EPR - Engine Pressure Ratio

FACSFAC - Fleet Air Control and Surveillance Facility

FAM - Familiarization Flight

FCLP - Field Carrier Landing Practice

FITC - Flight Instructor Training Course

FLOLS - Fresnel Lens Optical Landing System

FOD - Foreign Object Damage

FRS - Fleet Readiness Squadron

FTI - Flight Training Instruction

FY - Fiscal Year

GCA - Ground-Controlled Approach

GOMEX - Gulf of Mexico

GOVAIR - Government Aircraft

GSE - Ground Support Equipment

GTF - Go to Fleet – Category of instructor completing tour of duty and rotating to a fleet squadron for the first time.

HLT - Helicopter Landing Trainer

HOLDOWN - Bingo + 300 lbs

HTDP - Hook Touchdown Point

IAS - Indicated Airspeed

IFF - Identification Friend or Foe (system)

IFLOLS - Improved Fresnel Lens Optical Landing System

IFR - Instrument Flight Rules

IMC - Instrument Meteorological Conditions

IMN - Indicated Mach Number

INMARSAT - International Maritime Satellite

IP - Instructor Pilot

IUT - Instructor Under Training

JANAP - Joint Army-Navy-Air Force Publication

JBD - Jet Blast Deflector

JP - Jet Propulsion (fuel)

JTTU - Jet Transition Training Unit – Category of an already winged aviator going through the Strike Syllabus as a student.

KT or KTS - Knot or Knots

LOI - Letter of Instruction

LSE - Landing Signal Enlistedman

LSO - Landing Signal Officer

MAF - Maintenance Action Form

MOVLAS - Manually Operated Visual Landing Aid System

MRT - Military-Rated Thrust

MSL - Mean Sea Level

NA - Naval Aviator

NALO - Naval Air Liaison Officer

NATOPS - Naval Aviation Training and Operating Procedures Standardization

NATRACOM - Naval Air Training Command

NAVAID - Navigational Aid

NAVAIRLOGOFF - Naval Air Logistics Office

NORDO - No Radio

NOTAM - Notice to Airmen

NSN - National Stock Number

NTP - Naval Telecommunications Publication

NWP - Naval Warfare Publication

NWS - Nosewheel Steering

OIC - Officer-in-Charge

OLS - Optical Landing System

OP - Operation

OPAREA - Operating Area

OPLAN - Operations Plan

PAO - Public Affairs Officer

PIREP - Pilot Report

PLAD - Plain Language Address Directory

PMCF – Post Maintenance Check Flight

POL - Petroleum, Oil and Lubricants

POT - Plane Old Telephone

PPH - Pounds Per Hour

PRD - Projected Rotation Date

PWO - Pattern Waveoff

RADALT - Radar Altimeter

RATCC - Radar Air Traffic Control Center

RECCE - Reconnaissance

Re-Qual - Student who disqualified on previous boat.

ROCC - Range Operation Control Center

RPIO - Registered Publications Issuing Office

RTB - Return to Base

RTF - Return to Fleet – Category of fleet-experienced instructor completing instructor tour and rotating back to fleet squadron (flying billet).

SAR - Search and Rescue

SDO - Squadron Duty Officer

SERGRAD - Selectively Retained Graduate – Category of instructor rotating to a tour of instructing immediately following tour as a Student Naval Aviator.

SHIPDET - Ship Detachment

SHOREDET - Shore Detachment

SNA - Student Naval Aviator

SUPO - Supply Officer

T/G - Touch and Go

TACAN - Tactical Air Navigation (system)

TRARON - Training Squadron

TRAWING - Training Air Wing

TRSA - Terminal Radar Service Area

VFR - Visual Flight Rules

VMC - Visual Meteorological Conditions

VOD - Vertical Onboard Delivery - Helicopter

WOD - Wind Over the Deck

WX - Weather

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CHAPTER I

BASIC PLAN AND CONCEPT OF OPERATIONS

100. General. Undergraduate Pilot Training requires an introduction to carrier aviation for Student Naval Aviators (SNAs). This instruction details the procedures and limitations for the carrier qualification (CQ) of SNAs within the guidelines of references (a) through (l) and under the cognizance of the Chief of Naval Air Training (CNATRA). The Landing Signal Officer (LSO) Naval Aviation Training and Operating Procedures (NATOPs) Manual lists carrier landing qualification and refresher requirements for Naval Aviators.

101. Specifics. Naval Air Training Command (NATRACOM) Carrier qualifications shall be governed by this and the Commander Naval Air Forces CQ instructions.

NOTE: NATRACOM CQ requires some deviation from normal carrier air wing launch and recovery doctrine. These differences are outlined in this instruction.

102. Execution. Conduct CQ operations in accordance with this and other CNATRA instructions, current CNATRA Letters of Instruction (LOIs), operating schedules promulgated by CNATRA and requirements coordinated by COMNAVAIRLANT and COMNAVAIRPAC. Coordinating instructions are as follows:

a. Carrier qualifications for student naval aviators and flight instructors are performed utilizing fleet carriers as coordinated by CNATRA in accordance with this instruction.

b. Air operations shall be conducted in accordance with the current edition of reference (a), COMNAVAIRFOR CQ instructions, and as modified by this instruction.

c. FRS/Fleet CQ should not be scheduled in conjunction with CNATRA CQ. CNATRA aircraft shall not CQ simultaneously with FRS or Fleet aircraft.

d. CNATRA CQ shall not be conducted in temperatures requiring anti-exposure suits.

103. Administration and Logistics

a. Administrative and Operational reports are required in accordance with Chapter VIII of this instruction.

b. Logistic support is required in accordance with Chapter IV of this instruction.

c. TRAWINGs shall submit CQ rosters to CNATRA and fleet CV Air Operations (formatted in accordance with Chapter VII of this instruction) at the Presail Conference or as directed by CNATRA in the LOI.

104. Command and Signal

a. Communications shall be in accordance with Chapter VII of this instruction.

b. CNATRA Headquarters is in Building 1, Naval Air Station, Corpus Christi, Texas 78419.

c. The aircraft carrier commanding officer is in tactical command of all aircraft operating from the carrier.

d. Any difficulties concerning CQ operations, safety, or coordination that cannot be resolved on the scene shall be referred to CNATRA for decision and resolution.

105. Carrier Operations

a. In accordance with ref (g), the CNATRA LSO shall provide the CV(N) Strike Operations Officer with the CNATRA Training Plan.

b. To ensure that the availability of adequate rest exists for flight deck personnel, CNATRA Training Plans should not exceed 12 hours in length.

c. A Letter of Instruction (LOI) for each operating period shall be published by CNATRA. Scheduling and completion priorities shall be determined no later than the Presail Conference.

d. For combined detachment, CNATRA shall task a TRAWING to designate a Ship and Shore Detachment Officer in Charge.

A) e. CNATRA CQ operations shall not be conducted using waist catapults. Waist catapults may be used to launch diverting aircraft if required.

106. FCLP Facilities

a. On combined CQ detachments, refresher FCLPs may be conducted on a case-by-case basis only if expiration of currency is the result of ship or weather delays. Units are therefore encouraged to arrive fully field qualified.

b. If refresher FCLPs are required while on a combined CQ detachment, the OIC or his representative shall schedule FCLP periods at an adequate location. Scheduling conflicts and FCLP priority shall be determined by the respective Force LSO.

A) c. Arresting gear must be rigged and in battery at a suitable divert field within 30 NM of the FCLP field.

CHAPTER II

OPERATIONAL REQUIREMENTS, PROCEDURES AND LIMITATIONS

200. Introduction. Carrier qualification requirements are directed by reference (b), COMNAVAIRFOR Instructions, NATRACOM Curricula and Flight Training Instructions. This instruction focuses on the requirements, procedures and limitations that are used to train Student Naval Aviators, Jet Transition Aviators, NATRACOM LSOs, CQ Instructors, and other pilots undergoing undergraduate Carrier Qualification.

201. Waiver Authority. Under unusual circumstances, a waiver of the restrictions and limitations imposed by this and other CNATRA instructions may be desired. Except where specific waiver authority is delegated within this instruction, waivers must be approved by the Chief of Naval Air Training (CNATRA) and the CO of the carrier.

202. Authorized Personnel. The following personnel are authorized for fixed-wing CQ or rotary-wing DLQ:

a. Student Naval Aviators.

b. LSOs receiving initial or refresher training.

c. Instructors Under Training.

d. Helicopter SAR detachment's initial or refresher training.

e. Other personnel when approved by the Chief of Naval Air Training or higher authority.

203. General Instructions and Standard Operating Procedures

a. FCLP. All Strike SNA/Naval Aviators (NAs) shall be field qualified IAW ref (b) using the Improved Fresnel Lens Optical Landing System (IFLOLS). The controlling LSO shall be responsible for changing the Basic Angle as required for FCLPs. In order to standardize field lens settings, all NATRACOM LSOs shall use a field lens setting of 3.25.

b. CNATRA Carrier Qualification (CQ) Requirements

(1) CQ operations for Student Naval Aviators shall be in accordance with the Naval Air Training Command curriculum. Hot seat evolutions are authorized. SNAs shall have an arrested landing prior to being considered for a hot seat evolution.

(2) Other Naval Aviators, such as Instructors Under Training (IUTs), Lead/Safes, and foreign military pilots, should receive instruction and qualification based upon previous flight experience and applicable instructions.

c. Pilot Performance. The performance of pilots during carrier qualification must be closely observed. Instructors and Instructors Under Training may be controlled by any NATRACOM-qualified LSO. The authority to certify a pilot as "qualified" rests with the controlling LSO; however, disqualification may be directed by the controlling LSO, TRAWING LSO, CNATRA LSO, or the Commanding Officer of the carrier. Non-fleet experienced IUTs shall not be controlled by an unfamiliar LSO at the ship. Squadron LSOs shall be assigned a class of SNAs and be responsible for conducting and debriefing the majority of his/her classes, FCLP periods, and act as controlling LSO aboard ship for his/her class. The cognizant TRAWING LSO or the CNATRA LSO shall act as controlling LSO in the unlikely event that the squadron LSO is not aboard when his/her class arrives.

d. LSO Qualification. TRAWINGs shall have qualified LSOs on board during the period of CQ. LSOs shall be qualified in accordance with ref (b), ref (h), and this instruction. An appropriate number of LSOs for each type aircraft shall be provided by each squadron involved with CQ. Landing Signal Enlistedmen (LSEs) for helicopter qualification shall be provided by the carrier.

e. LSO Facilities and Equipment. The Improved Fresnel Lens Optical Landing System (IFLOLS) shall be used for all fixed-wing carrier qualifications. In case of an IFLOLS casualty, a Manually Operated Visual Landing Aid System (MOVLAS) "talk down" may be used to recover aircraft. MOVLAS shall not be used to conduct NATRACOM CQ.

f. Lead/Safe Pilots. Lead/Safe pilots are responsible for the conduct and safety of the flight to and from the carrier. The Lead/Safe pilot shall advise and update the Air Boss if conditions do not warrant commencement or continuation of CQ operations. Prior to entering the CQ pattern, he/she shall return the flight to a shore station if, in his/her opinion, weather conditions, flight fuel status, or in-flight emergencies so require. Once the flight enters the CQ pattern, primary responsibility for the safety of the flight lies with the Commanding Officer of the carrier. Lead/Safe pilots shall continue to monitor student fuel states and position in the CQ pattern, primarily upwind, and advise the Air Boss if an unsafe situation develops. When the flight leaves the CQ pattern, the responsibility for safety of flight once again lies with the Lead/Safe pilot. Except in an emergency situation, Lead/Safe pilots shall limit the size of their flights to four aircraft.

g. Lead/Safe Requirements. To perform the duties of a NATRACOM Lead/Safe, a pilot must possess good judgment and operational carrier experience. Only fleet carrier-experienced aviators with 100 or more arrested landings shall be used as Lead/Safe pilots. Prospective Lead/Safe pilots shall not complete initial CQ in the T-45 until after the required training for Division Lead is complete and they are designated a CNATRA Division Lead. At the discretion of the TRAWING Commander, Wing-Qualified LSO's may complete initial CQ any time after completion of the NATOPS Stage of the IUT curriculum. Lead/Safe requirements for SNA CQ shall be as follows:

(1) Lead/Safe pilots shall be current in accordance with Table II-1.

(2) A single-ship weather reconnaissance (RECCE) shall launch as required prior to the first student launch of the day. This weather RECCE should normally function as a Lead/Safe after the arrival of student aircraft.

(3) CQ Pattern Lead/Safe requirements.

(a) One Lead/Safe required for 1-3 SNAs. Two Lead/Safes required for 4-6 SNAs.

(b) A third safety pilot shall launch to arrive overhead the ship 30 to 45 minutes (as required by the ship) after the first scheduled student ramp time.

204. General SNA Operating Limits and Emergency Procedures

a. Brief time should be scheduled 2.5 hours prior to takeoff for SNAs. After the second CQ flight brief, SNAs may be scheduled to brief less than 2.5 hours prior to takeoff as necessary.

b. A maximum of 3 1/2 hours total flight time (to commence at takeoff and terminate with engine shutdown) is permitted during any one carrier qualification flight. SNA crew rest aboard CV is 10 hours from debrief to brief vice the 12 hours required when shore-based.

c. A maximum of 5 hours total flight time is permitted during any one day.

d. A maximum of two carrier qualification flights with three man-ups per day is permitted.

e. CNATRA limits SNAs to six arrestments per day. The CNATRA LSO may authorize SNAs to a maximum of 10 arrestments in 1 day. IUTs are limited to 10 arrestments per day. For CQ current instructors, there is no operational limit.

f. For CQ: Case II penetrations to the ship are authorized under the following conditions:

(1) Penetration shall be led by a qualified Lead/Safe.

(2) Penetration shall be performed with no more than two aircraft in a flight.

(3) Cloud tops shall not be in excess of 15,000 feet.

(4) Minimum ceiling of 1500 feet and minimum visibility 5 NM in the carrier control zone. Weather requirements at the ship can be waived by the CV Commanding Officer with CNATRA's concurrence to no lower than 1000/5 with the following restrictions:

i. The maximum number of aircraft in the pattern is reduced from six to four.

ii. If weather prohibits two lead/safes from operating within sight of the ship, the maximum number of aircraft in the pattern is reduced to three.

iii. The spin pattern is closed.

iv. Lead/safe aircraft may not operate below 1000 feet.

(5) SNAs shall not be launched into the carrier pattern with less than bingo plus 300 lbs.

(6) SNAs shall not be launched to home base with less than bingo for that field plus 600 lbs. If a student is diverted with less than bingo plus 600 lbs, a lead/safe shall be directed to escort the SNA to the divert field.

205. Carrier Landing Requirements

a. CNATRA carrier landing requirements are shown in table II-1 below. (R

Table II-1

Carrier Landing Requirements

	Notes	T&G Trap
SNA	1,2,3,4	4/10
IUT	1,5	2/6
LSO IUT	1,5	2/10
Qualified Pilot Currency (LSO/Lead/Safe)	6,7	Refer to ref (b)

NOTES:
(1) If a student becomes critically low on fuel, tower may postpone one of the two initial touch and goes and trap the SNA to avoid bingo. Student shall then be given remaining touch and goes (T/Gs) if required after refueling.
(2) Partially qualified SNAs not having a trap that same day require a touch and go before their next trap.
(3) FCLP Currency for SNA - FCLP warmup is required if more than 2 days have elapsed between the CQ field qualification and the first carrier landing. FCLP warmup required every 2 days thereafter. A touch and go or trap at the ship constitutes the applicable warmup requirement.
(4) After the completion of six arrested landings and upon the recommendation of the controlling LSO, the CNATRA LSO may approve up to a maximum of ten arrested landings in 1 day for initial CQ.
(5) Non-fleet experienced IUT/IP shall receive FCLP within 3 days of CQ. Fleet-experienced IUT/IP should FCLP within 5 days of CQ. The CNATRA LSO may approve up to a ten-day delay between FCLP and IUT/IP CQ.
(6) Pilots shall have a trap within 14 days to be current. Prior to achieving currency, lead/safe duties may be performed if an FCLP has been flown within 10 days. For Lead/safes/LSO's who have a trap within 59 days, refer to reference (b).
(7) Refresher qualification - Pilots must refresh if they have not trapped within the last 14 days. Required number of refresher landings are prescribed by ref (b) and shall be preceded by an FCLP period within the preceding 10 days. If greater than 12 months has passed since last trap, refer to the IUT requirement.

b. Pilots who are carrier qualified in either model of the T-45 may be carrier qualified in another model by completing the following requirements:

(1) Log 15 hours in model

(2) Complete a CQ simulator

(3) Complete 4 FCLP periods

(4) Complete 6 arrested landings

c. For pilots who are carrier qualified in both models of the T-45, FCLP landings may be flown in either model and shall satisfy CQ preparation requirements for both models. Additionally, carrier landings in either model shall satisfy currency requirements for both models.

206. Weather Minimums. NATRACOM weather minimums are shown in table II-2 below. Fleet CQ weather minimums are as directed by references (a) and (b) and applicable COMNAVAIRFOR instructions.

Table II-2

CNATRA Weather Limits

	Point of Departure	Enroute	CV	Bingo	Divert
SNA	VFR (2)	VFR on Top (4) (below 15,000)	1500/5 (1) (3) (6) (7)	VFR (5)	IFR
IUT/LSO	IFR	IFR	700/3 (7)	TACAN Mins (5)	IFR

NOTES:

(1) A definite horizon is required for student CQ training and is defined as "an obvious line delineating sky and water."

(2) Student solo flight may be launched for an on top rendezvous with weather between 500-2 and VFR with the expressed consent of the squadron commanding officer or combined CQ Det OIC.

R) (3) SNA shall land prior to sunset. 30 minutes prior to sunset, all SNAs shall remain on deck at the CV(N) or be directed to divert.

(4) Flight leaders are prohibited from leading a division formation into IMC conditions with students as wingmen except in emergency situations.

(5) Student bingo field shall be VFR (the airfield should be accepting visual approaches). Instructor Bingo WX shall not be less than TACAN circling mins.

(6) Weather requirements at the ship can be waived by the CV Commanding Officer with CNATRA's concurrence to no lower than 1000/5 with a maximum of four aircraft in the pattern. If this waiver is granted, the following conditions apply:

a. The spin pattern is closed.

b. Lead/safes shall operate no lower than 1000'. If conditions prohibit two lead/safes from operating within sight of the carrier, the maximum number of aircraft in the pattern is reduced to 3.

(7) Case III operations are not authorized for SNA's. Due to the lack of PALS and CILS in the T-45 aircraft, case III operations should not be conducted unless required to launch and recover aircraft from the beach.

207. Wind and Deck Limitations for Fixed-Wing Aircraft. CNATRA wind and deck limitations for fixed-wing aircraft are shown in Table II-3 below.

Table II-3

Wind and Deck Limitations for Fixed-Wing Aircraft

	Wind Over Deck			Deck Pitch
	Max CQ (1)	Optimum	Min CQ (2)	
SNA	35 kt	25 kt	20 kt	5 ft Ramp Movement
IUT GTF L/S	35 kt	25 kt	20 kt	6 ft Ramp Movement

NOTES:

(1) The maximum crosswind component for all CQ is 7 knots.

(2) Consult applicable Aircraft Recovery Bulletins (ARBs).

208. Bingo Considerations and Limitations. CNATRA bingo considerations and fuel states are listed in Tables II-4 through II-7 below. Sufficient fuel for flight to an alternate field that satisfies alternate criteria listed in ref (d) shall be added to the bingo states if Visual Flight Rules (VFR) conditions do not exist at the bingo field. Instrument Flight Rules (IFR) bingo fuel figures shall be used when weather at the primary bingo requires an instrument approach (not for SNAs). BINGO FUEL IS AN EMERGENCY SITUATION. Aircraft reaching this state shall immediately report "bingo," squawk 7700, and shall normally be diverted to the bingo airfield, unless well established in the groove, hook down, and under LSO control. In this case only, an approach may be continued with immediate bingo departure if not arrested (trapped). In all cases a Lead/Safe pilot shall be dispatched to escort student pilots on a bingo. SNAs who are bingoed shall commence the bingo profile and shall not be told to join on a Lead/Safe. Once the SNA is well established on his bingo profile, the escorting Lead/Safe will join the SNA and assume the lead. The intent is to avoid a circling joinup which wastes precious fuel once bingo fuel has been reached by the SNA.

a. If NATRACOM aircraft are below bingo, the Commanding Officer of the carrier shall decide whether to have the aircraft bingo with available fuel, remain in the pattern, or set up for a controlled ejection.

b. Flight from the carrier to the bingo field may be made under Instrument Meteorological Conditions (IMC) by students, IUTs, and instructors, provided the flight is conducted in accordance with air traffic control procedures.

c. Maximum Bingo range for CNATRA CQ is 120 miles.

d. Operations at distances over 90 NM allow limited time for aircraft entering the pattern to perform two T/Gs and one trap prior to reaching student bingo fuel states. Any delays encountered once aircraft have "Charlied" must be closely monitored to avoid multiple student bingos. Postponing one touch and go should be considered if any delays are anticipated.

e. Lead/Safe pilots shall use STUDENT bingo fuel requirements while operating as a Lead/Safe. Once student bingo fuel is reached, the Lead/Safe should be trapped or diverted. Lead/Safes should not perform Lead/Safe duties when their aircraft is below SNA bingo as this does not allow sufficient fuel margin to effect flight leader joinups, etcetera, and returns to the divert airfield. Lead/Safes shall update fuel states with Air Boss every 15 minutes and inform the Air Boss when they are approaching the SNA bingo fuel state. Once alleviated of their Lead/Safe responsibilities by the Air Boss, they shall use NATOPS bingo. The pilot is responsible for arriving on deck with applicable NATOPS requirements.

f. Arresting Gear must be rigged and in battery at the bingo field. A T-45 Training Qualified LSO shall be on station any time SNA's are conducting CQ operations.

Table II-4
T-45 SNA BINGO FUEL REQUIREMENTS

NO WIND

R)

Distance (NM)	Clean	Gear Down/Flaps Down	Holddown Gear Down/Flaps Up
20	0.7	0.9	0.8
30	0.7	1.1	0.9
40	0.8	1.3	1.0
50	0.9	1.5	1.1
60	0.9	1.7	1.2
70	1.0	1.9	1.3
80	1.0	2.1	1.4
90	1.1	2.3	1.5
100	1.2	2.5	1.6
110	1.2	2.7	1.7
120 (max)	1.3	2.9	1.8
130	1.3	N/A	1.9
140	1.4	N/A	2.1

NOTE:
(1) These fuel figures based on 550# reserve overhead bingo field.
(2) Based on sea level figures of 250 KTS. Bingo aircraft shall climb to altitude, and follow NATOPS bingo profiles as closely as possible.
(3) Add 300# for IFR or night, or if the weather is questionable.

Table II-5
T-45 LEAD/SAFE, IUT, LSO BINGO FUEL REQUIREMENTS

R)

Distance (NM)	Clean	Gear Down/Flaps Down	Holddown Gear Down/Flaps Up
20	.4	.6	.5
30	.5	.8	.6
40	.6	1.0	.7
50	.6	1.2	.8
60	.7	1.4	.9
70	.7	1.6	1.0
80	.8	1.8	1.1
90	.8	2.0	1.2
100	.9	2.2	1.4
110	1.0	2.4	1.5
120	1.0	2.6	1.6
130	1.1	2.8	1.7
140	1.1	N/A	1.8

NOTE:

(1) These fuel figures are based on sea level cruise, 300# reserve overhead bingo field.

209. Helicopter Deck Landing Qualifications

a. General. Under normal circumstances, helicopter deck landing qualification occurs on the helicopter landing trainer (HLT). Utilization of a fleet aircraft carrier for deck landing qualification occurs when the HLT is unavailable. This portion of the instruction establishes the general guidelines for helicopter deck landing qualification of NATRACOM pilots and student naval aviators. NATRACOM helicopters shall follow procedures outlined in current FTIs and the CNATRA DLQ OPLAN for all practice landings. Use of the Optical Landing System (OLS) approach shall be reserved for marginal weather or emergency approaches only.

b. Responsibilities

(1) The CV/CVN Commanding Officer of the carrier shall:

(a) Designate helicopter landing spots in accordance with the ship's flight deck plan.

(b) Maintain a refueling capability for helicopters using gravity and pressure-type fueling.

(c) Maintain not less than four LSEs aboard to carrier qualify NATRACOM helicopters.

(2) Commander, TRAWING FIVE, shall:

(a) Provide maintenance personnel and peculiar support equipment for helicopter CQ.

(b) Provide deck handling equipment to allow "down" helicopters to be readily moved on the flight deck or hangar deck.

210. CNATRA Operating Limitations for Helicopters. CNATRA operating limitations for helicopters are shown in Table II-6 below.

Table II-6
CNATRA OPERATING LIMITATIONS FOR HELICOPTERS

Weather					
Point of Departure	En Route	CV	Bingo	Divert	Max Dist To Bingo
VFR	VFR	VFR	VFR	VFR	VFR
Wind Over Deck					
Max	Max DLQ	Optimum	Min DLQ	Min	Deck Pitch
40 KT	30 KT	20 KT	10 KT	0	3 FT

211. CNATRA Bingo Requirements for Helicopters. CNATRA bingo requirements for helicopters are shown in Table II-7 below.

Table II-7
TH-57C Bingo Requirements

Distance To Bingo Field (NM)	Total Fuel (GALS)
20	26
30	29
40	32
50 (max for all flights)	35
60	38
70	41
80	44

NOTES:

(1) Add 10 gals for IFR Operations.

(2) Based on 20 gals on arrival at bingo field (NPA).

(3) Fuel requirements may be increased at the discretion of the flight leader if the bingo field has less than 3000-3 or adverse headwinds exist.

(4) Fuel flow based on 30 gals/hour.

(5) Increase all bingo figures by 10 gals with single fuel boost pump failure.

212. Training Carrier Holding Procedures. During carrier qualifications, mixed types and numbers of aircraft in proximity to the carrier are not unusual. To provide safe and adequate control, the following procedures are established for NATRACOM aircraft during carrier qualifications. Carrier Air Traffic Control Center (CATCC) shall issue holding instructions as flights check in with Marshal. Altitude assignments shall be made according to recovery order (event number) and shall be made in sufficient time to allow aircraft to be at their assigned altitudes 10 miles prior to pattern entry.

213. Case I Holding Procedures

a. Jets. "Port Holding Pattern" (Case I overhead jet holding pattern) is a left-hand, 5-mile diameter pattern tangent to the ship's Base Recovery Course (BRC), with the ship in the three o'clock position of the holding pattern. Altitude is assigned by CATCC or Air Officer.

b. Carrier Onboard Delivery (COD)/Vertical Onboard Delivery (VOD)/Helicopters. "Starboard Holding Pattern" is a right-hand race track pattern between 045 degrees and 135 degrees relative for props and 045 degrees and 110 degrees relative for helicopters; COD altitude is 500 feet and VOD/helicopters altitude is 300 feet or below.

214. Case II Holding Procedures

a. Jet and Turboprop Aircraft

(1) The primary Tactical Air Navigation (TACAN) marshal fix is the 180-degree radial relative to the final bearing, a distance of 1 mile for every 1000 feet of altitude plus 15 miles (angels + 15); base altitude shall be assigned by Marshal; in no case shall the base altitude be lower than 6000 feet.

(2) The overhead marshal stack should be utilized if the ship's TACAN is inoperative or if geographical circumstances dictate. Aircraft may be marshaled individually or in flights. CATCC shall, equipment permitting, provide radar coverage with all penetrating A/C and, as much as possible, provide assistance and monitor altitudes. Overhead marshal shall be on the 020 course inbound relative to the BRC (or 030 course inbound relative to the final bearing).

(3) For aircraft proceeding inbound to the ship below an overcast layer, CATCC shall issue holding instructions to remain below the overcast at least 15 NM from the ship at a minimum altitude of 1,000 feet. THE WEATHER MINIMUM FOR THE CEILING IN THIS CASE IS 1500 FEET (CAN BE WAIVED BY CV COMMANDING OFFICER WITH CNATRA'S CONCURRENCE TO DESCEND NO LOWER THAN 800 FEET WITH A MINIMUM CEILING OF 1000 FEET). A minimum of 30 degrees between holding radials shall be used.

b. Helicopter. The primary TACAN marshal is the 110-degree radial relative to the Final Bearing at a distance of 1 mile for every 500 feet of altitude, starting at 1000 feet and 5 miles.

215. Training Carrier Approach Procedures. In the interest of safety, the following are adopted as standard approach procedures and criteria for NATRACOM aircraft during carrier qualifications. The carrier Air Operations Officer shall determine the type of approach and required control based on weather in the approach area and at the ship. (Radar approaches or CV-1 and CV-3 approach plates from reference (a) shall be used for Case II and III operations). Figure II-1 depicts the CNATRA Case I Stack and Figure II-2 depicts the CNATRA Case I Holding Pattern and Break Entry.

a. Case I, Visual Descent-Approach. A ceiling of 3000 feet and 5 miles visibility within the Carrier Control Zone is required for Case I operations. This approach may be utilized when it can be anticipated that flights will not encounter IMC at any time during the descent, break, and final approach. The Lead/Safe pilot retains responsibility for proper navigation and separation from other aircraft.

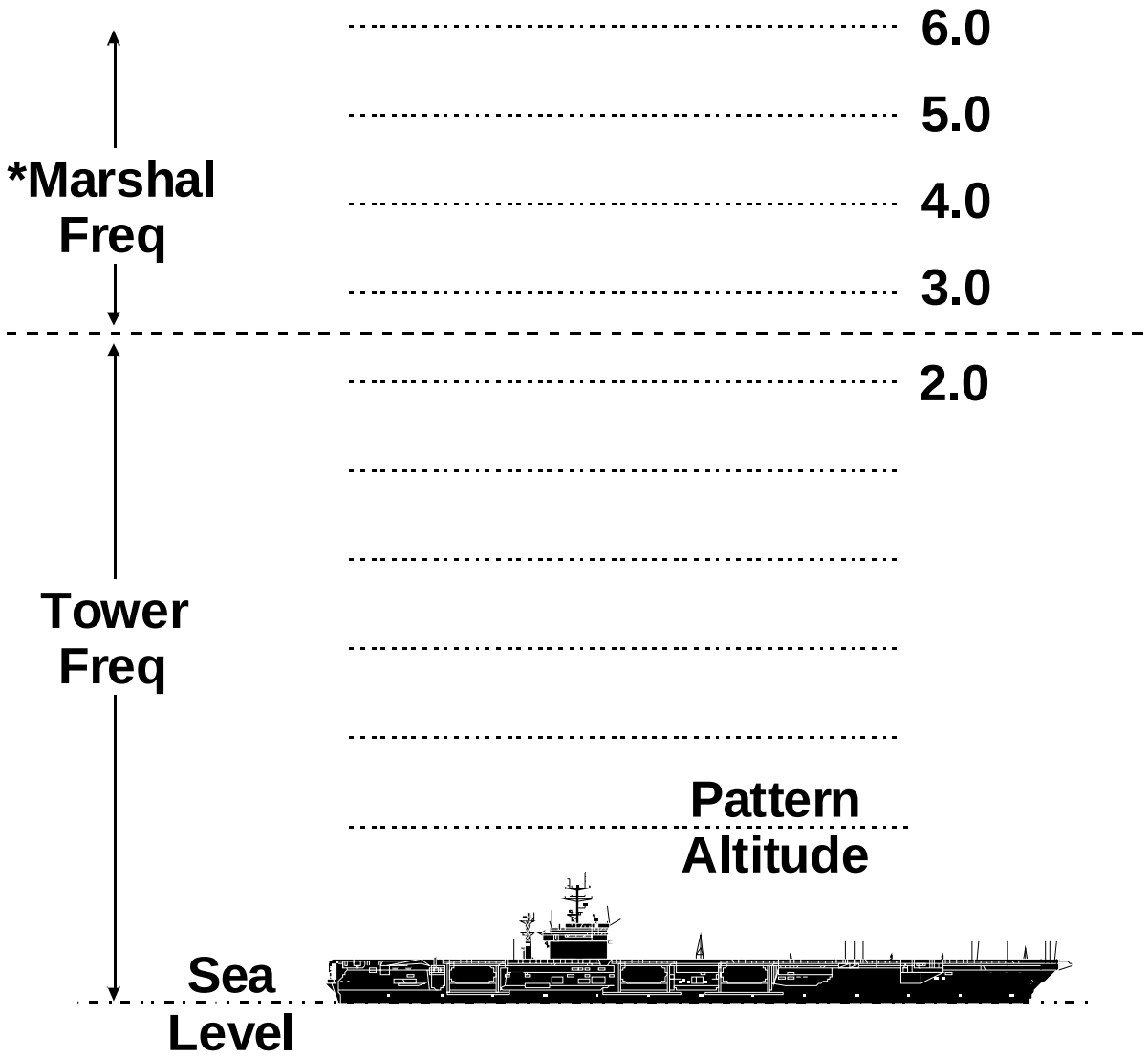
(1) Holding. Aircraft entering Case 1 holding shall be assigned altitudes 6500 feet Mean Sea Level (MSL) and above when under marshal control within 10 NM of ship and can expect holding altitudes from 1500 to 5500 feet MSL when under tower control. Once established in holding, VMC flights should be switched to Tower frequency for check-in. Flights that are unable to report "see you" by 5 NM shall so advise and anticipate the initiation of Case II procedures or divert. Flights shall be established at their assigned altitude 10 NM prior to entering the port holding pattern. Entry shall be tangential with wings level. To minimize delay: once established overhead, flights should be handed off from CATTC to tower as soon as possible.

(2) Descent/Approach. When given either a change in holding altitude or signal "Charlie," Flight Leaders shall remain overhead until approaching a position abeam the carrier, then proceed outbound 210 degrees relative to the BRC to at least 7 NM from the ship before vacating their previous altitude (see figure II-2). They shall position their flight to be at the new assigned pattern altitude outside 7 NM from the ship. Flights proceeding into the break shall be established wings level 5 NM astern the ship. Flights given signal "Charlie" are expected to fully comply with these procedures and shall not circumvent the normal Case I descent pattern or in any other way violate reference (a) during pattern entry. In the event of a spin, flight leaders shall initiate a climb at the bow to 1200 feet and remain within 3 NM of the ship, descending astern the ship to arrive at 800 feet at the 3-mile initial. Flight leaders report "spin 90" during the last 90 degrees of turn. THE 1500 SAFE AND THE SPINNING FLIGHT LEAD SHALL TAKE EXTRA CARE TO REMAIN CLEAR OF EACH OTHER.

NOTE: When weather or OPAREA restrictions restrict altitude usage above 6000 feet, flights may be marshaled as per paragraph 214.a.(3). On receipt of signal "Charlie," the flight leader shall proceed inbound on the assigned holding radial and intercept the 10-mile arc to the BRC and proceed inbound to the pattern.

R)

CNATRA CQ CASE 1 STACK



** Once established with a "see you" call, flights should be switched to tower frequency. Flight leaders should check in with number in flight and low state.*

Figure II-1

CNATRA CQ CASE 1 HOLDING PATTERN AND BREAK ENTRY

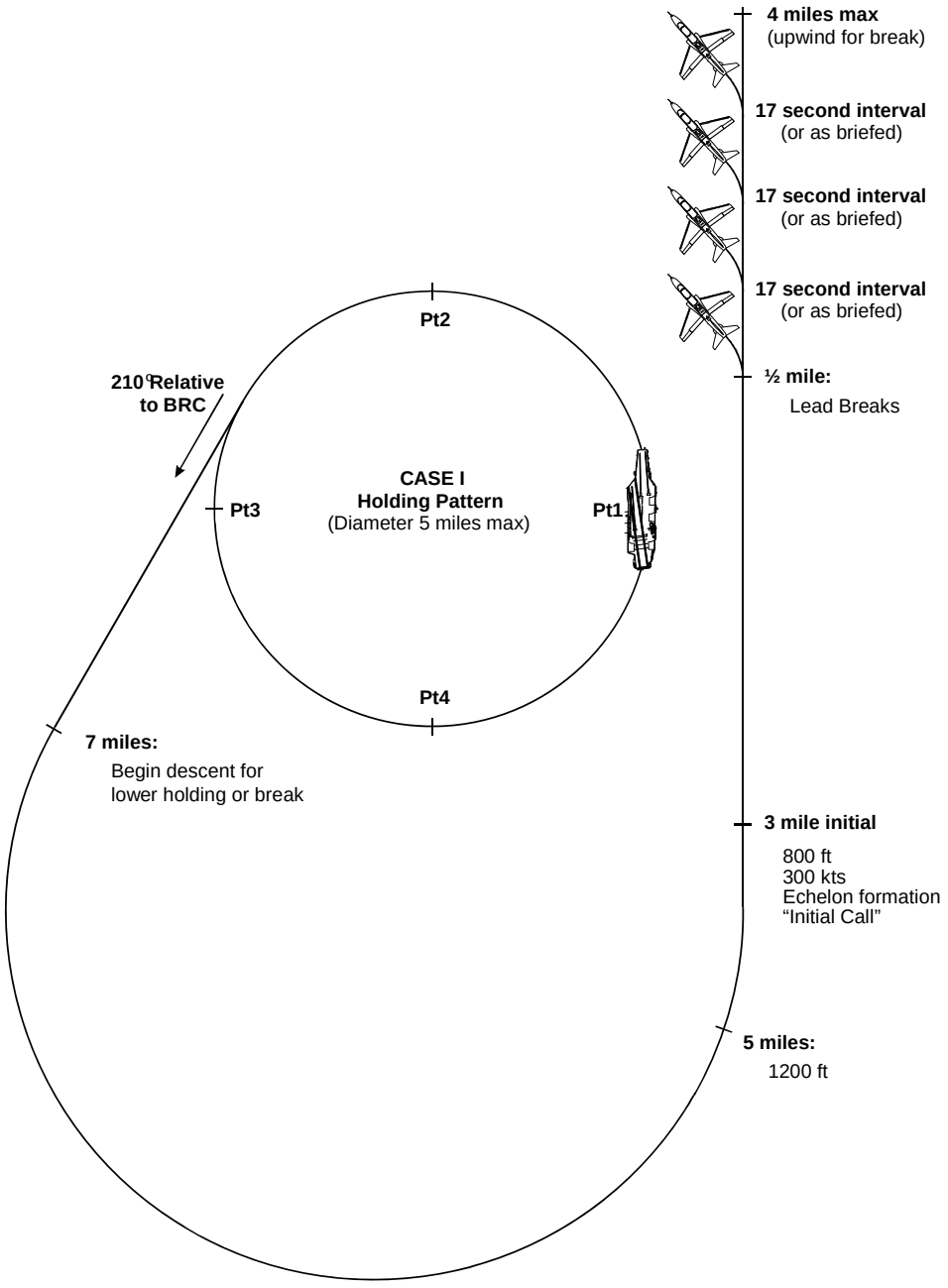


Figure II-2

(3) Break Entry and Subsequent Lead Holding Assignment. All flights shall report 3 miles and proceed as directed. Figure II-3 depicts Case I Lead/Safe departure procedures following break entry into the pattern.

(a) T-45 Flights. T-45 leads shall enter at 300 knots and break at 1/2 to 1 mile; fuel permitting, the lead shall then execute a touch and go, accelerate and clean up maintaining 500 feet upwind to 7 NM and climb overhead to assigned altitude as described above. Under normal circumstances, the leads shall be assigned the following altitudes after student drop-off:

R) 2000, 3000, and 4000.

NOTE: If weather dictates, Tower may hold a maximum of two Lead/Safe singles at the same altitude. Tower shall assign one of the Leads as primary "hawk." The second aircraft shall fly loose wing until told to assume "primary hawk" or divert.

b. Case II, Controlled Descent-Visual Approach. This approach shall be utilized when the ceiling is less than 3000 feet but not less than 1500 feet (1000 feet for IUT or IP refresher). Close control shall be utilized until the flight is inside 10 NM and reports the ship in sight.

c. If IMC is encountered, the Lead/Safe shall bring each SNA down individually, while his remaining SNAs continue to marshal as assigned. Penetration shall not be made unless the pattern is clear. After dropping off the SNA, Lead/Safe shall either (1) receive vectors to pick up the remaining SNA/s, (2) recover, or (3) depart on the BRC for remarshaling. Aircraft shall penetrate to 1200 feet until reaching 10 NM from the carrier. At this point, clearance to descend to 800 feet is authorized. At no time shall a flight be cleared below 800 feet. When within 10 NM with the ship in sight, flights shall report "see you." At this time, the flight shall be instructed to switch to tower and proceed as in Case I. If a flight does not have the ship in sight at 5 miles, both aircraft shall be vectored to VMC on top for holding/divert. If two-way radio communications are lost after commencing the approach, maintain last assigned altitude and continue inbound on the CV-1 approach squawking 7600. If ship is not in sight at 5 NM, mark overhead and proceed outbound 360 degrees relative to the final bearing. After 5 NM, climb on divert/bingo profile.

d. Case III, Controlled Descent-Approach. This approach shall be utilized in accordance with reference (a) when the ceiling is less than 1000 feet and/or the visibility is less than 5 miles. Only fleet experienced pilots shall be authorized to approach the ship during Case III conditions. Weather minimums for experienced pilots is 700/3 or TACAN minimums.

LEAD/SAFE DEPARTURES AFTER BREAK

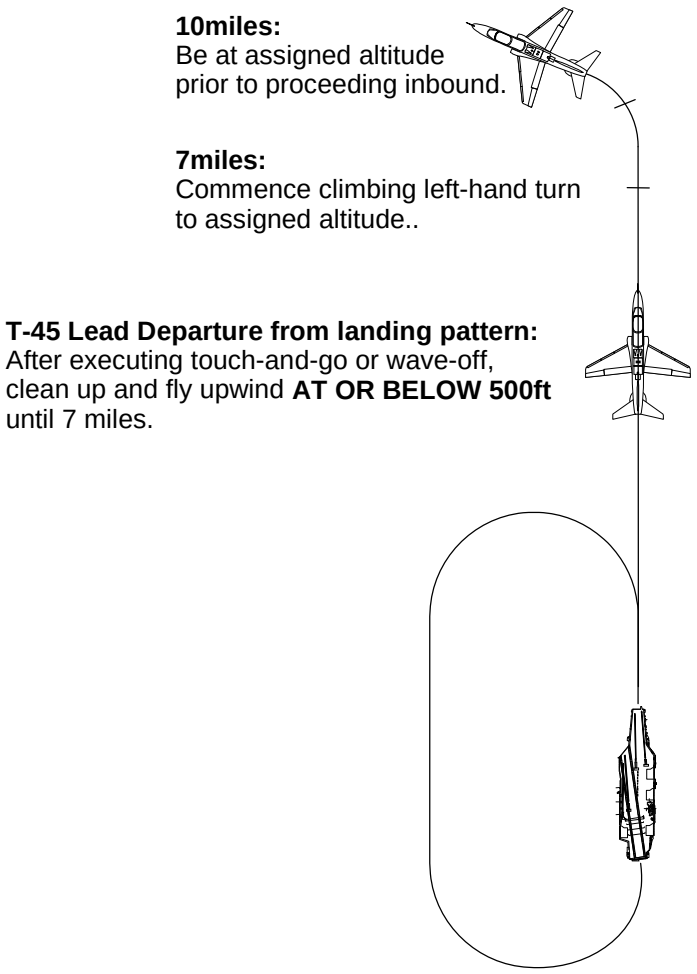


Figure II-3

216. Training Carrier Departure Procedures. To provide a safe, orderly flow of traffic departing the carrier, the following procedures are established as standard for NATRACOM aircraft during carrier qualifications. Figure II-4 depicts Case I SNA departure procedures after CQ completion.

A) aa. All CNATRA aircraft that are directed to depart the landing pattern from the catapult during Case I and Case II operations shall execute a clearing turn. Clearing turns will only be executed after a positive climb rate is established. Clearing turns shall be made using a 20-degree angle of bank turn for 20 degrees of heading change. Once wings level after the clearing turn, gear and flaps may be retracted. The aircraft will level off at 500 feet AGL and the turn will be reversed once the aircraft is clean using a 20-degree angle of bank turn to parallel the BRC.

a. Students are permitted to return to home base single ship. If departing for an unfamiliar field, a Lead/Safe escort is required and the following procedures shall be used: (1) After completion of carrier qualification and refueling as necessary, the tower shall designate a Lead/Safe to join on and shall inform the student of the Lead/Safe altitude and position. (2) After launch, the student shall proceed straight ahead to 7 miles at 500 feet where a left turn shall be made back toward the training carrier and a climb commenced to rendezvous with the Lead/Safe at the assigned altitude. The Lead/Safe shall keep the student informed of his progress in the circle, if necessary. (3) After completion of rendezvous, the flight shall be switched to departure frequency once clear of the overhead stack. FOR THE PURPOSES OF THESE PROCEDURES, AN UNFAMILIAR FIELD IS DEFINED AS ONE FOR WHICH A DETAILED COURSE RULES BRIEF HAS NOT BEEN GIVEN (e.g., MacDill AFB when operating in the Key West OPAREA).

b. Case II departures for SNA's. After completion of carrier qualifications and refueling as necessary, the tower shall provide departure information, designate a Lead/Safe pilot to join on and inform the student of the Lead/Safe position and altitude. After launch, continue straight ahead at 500 feet to 7 miles where a turn shall be made in the shortest direction on the 10 NM arc to intercept the departure radial. A TACAN rendezvous shall be effected VFR ON TOP on the departure radial at a distance of angels plus five miles. Students shall report, "Airborne," "Arcing," and "Outbound." After completion of rendezvous, the flight shall be switched to the appropriate controlling agency.

c. Bingo Aircraft. Aircraft which reach bingo fuel state shall immediately bingo. When instructed, bingo aircraft shall clean up as directed by the Air Officer, commence a climb, then turn to the bingo heading and return to the bingo field at optimum bingo profile in accordance with type aircraft operating parameters (Note - students must be briefed to comply with the bingo profile, but should remain heads up and not risk midair collision with another aircraft during their departure). Student bingo fuel requirements are predicated on a sea level bingo, enabling a student bingo to be flown at any altitude. A Lead/Safe shall be designated by the Air Officer to join and escort the bingo. When entry into Class "A" airspace is necessary, the bingo aircraft shall notify CATCC of the desired altitude. CATCC shall then direct the bingo aircraft to contact center and notify Air Traffic Control (ATC) of desired bingo altitude. When operating and communicating with an ATC facility, the term "Emergency Fuel" shall be used in lieu of the term "bingo."

d. Helicopters. After completion of deck qualifications, the flight shall join on the flight leader in the port or starboard holding pattern, as directed, and depart. Helicopter CASE I and CASE II departures shall be provided with departure instructions and pigeons by the tower.

e. Identification Friend or Foe (system) (IFF)/Selective Identification Feature (SIF). Squawk IFF/SIF codes as assigned.

CASE 1 SNA DEPARTURE

If diverted to unfamiliar field, SNA's turn back to ship at assigned altitude to join lead.

If steer to familiar field, depart *single ship*.

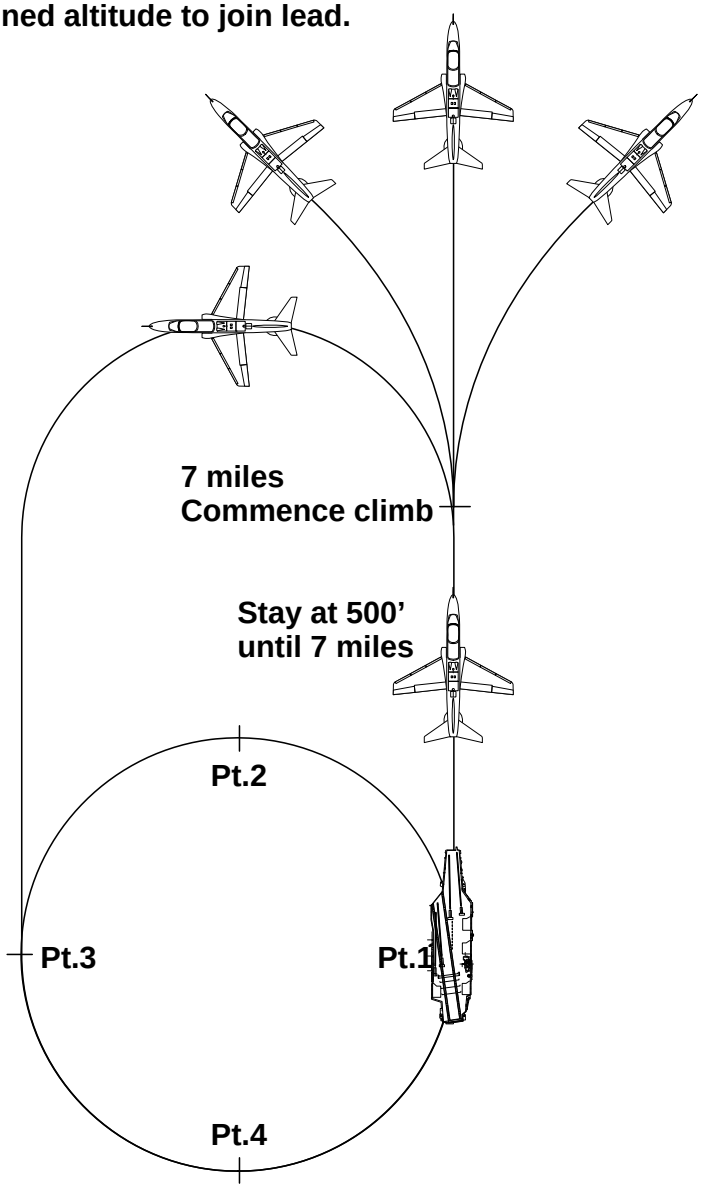


Figure II-4

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CHAPTER III

THE NATRACOM LSO

300. General. This chapter provides NATRACOM LSOs with an overview of what they can expect during their tour and allows LSOs to gain a basic knowledge of NATRACOM CQ. This chapter is required reading for all NATRACOM LSOs.

301. Training LSO Designation. Training LSO Designation reflects the individual's ability to administer, instruct, and supervise initial in-type carrier qualification for a specific aircraft. The process of obtaining the Training designation in the Training Command is designed for three workup periods. The workups include an observation period, an instruction/CQ period, and a qualification period. These periods may be combined, based on performance, to complete training in two workup periods. Normally this means that by the fourth to sixth month in the squadron, the LSO should have completed these requirements. The LSO School's Fleet Readiness Squadron (FRS)/NATRACOM Formal Ground Training is a prerequisite for Training LSO designation.

302. The Observation Period. During the observation period, the LSO shall observe an entire workup cycle including lectures, FCLPs, and two days of CQ at the ship.

303. The Instruction/CQ Period. The second workup consists of the new LSO assisting in all phases of the CQ stage. This shall include waving students and IUT/lead safes both at the field and at the ship. Additionally, the LSO shall undergo carrier qualification himself (FCLPs and 10 traps). The CQ Stage Head shall ensure new LSOs are scheduled through the IUT syllabus to make CQ possible in this time frame.

304. The Qualification Period. The qualification period is the final phase of LSO training. The new LSO shall be tasked to instruct a class of students to include FCLPs and associated lectures and conduct initial CQ. He shall be the controlling LSO with the Squadron or Wing LSO monitoring his performance. Prior to commencing this last period, an "open-book" quiz covering all procedures and appropriate publications (Appendix A) should be administered. This quiz should be informal in nature; however, it should be reviewed in detail in order to ensure adequate knowledge and standardization.

305. Training LSO Designation. Successful completion of all the above requirements and completion of the LSO school FRS/NATRACOM Formal Ground Training Course (#D-2G-0003) earns the LSO the NATOPS designation of "Training LSO." The TRAWING LSO shall document all training information in the CNATRA 3740/4, LSO Training Record (Appendix A). Squadrons shall not operate with less than three designated Training LSOs. The senior squadron LSO shall initiate the qualification paperwork in accordance with reference (b). Once designated, the new LSO shall be fully qualified for training students in the CQ arena. CNATRA shall forward the approval letter to Chief of Naval Personnel (PERS-433A) for inclusion in the LSO's service record. If any major deviations to this training program are anticipated, the TRAWING and CNATRA LSO shall be consulted to ensure effectiveness is not lost.

306. NATRACOM LSO Organization. Under the CNATRA LSO are the respective TRAWING LSOs for each Jet Training Base. The individual Squadron LSOs with their assistants and the LSOs under training (Selectively Retained Graduate (SERGRAD) LSOs) round out the organization. The LSO organization is relatively simple and communication in most cases should be through the chain of command.

307. Selectively Retained Graduate (SERGRAD) LSOs. SERGRAD LSOs under training are those individuals who demonstrate the ability and enthusiasm to become qualified LSOs. They are selected from volunteers and are eligible for obtaining a "Field Designation" as outlined in reference (b). They shall have at least one year of their tour remaining to commence training and are encouraged to participate in field and ship waving of IUTs and Lead/Safes. Once Field-designated, SERGRAD LSOs may conduct FCLPs for IPs. When waving at the ship, they shall be backed up by a qualified LSO and shall only wave IPs.

308. NATRACOM Squadron LSOs. NATRACOM Squadron LSOs are fleet-experienced LSO's. The Training LSO designation shall be used to determine operational seniority at the squadron level unless modified by the squadron CO. The senior Squadron LSO shall normally hold the title of "CQ Stage Head." The responsibilities of the Squadron LSO are as follows:

a. Train student pilots and instructors for initial day carrier qualification.

b. Conduct training in readiness for training carrier operations.

c. Train subordinate LSOs within his command, including SERGRAD pilots on board who are designated LSO trainees.

309. TRAWING LSOs. TRAWING LSOs are usually selected from the more senior squadron LSOs by the TRAWING commander or in some cases may be ordered in by BUPERS. A TRAWING LSO is operationally senior to all other LSOs in that TRAWING. Assignment to a TRAWING LSO billet is recognition of an LSO's experience, judgment, and superior performance in subordinate positions. The TRAWING LSO shall be a Wing-designated LSO and should be Training-designated for all carrier aircraft in his TRAWING. The responsibilities of the TRAWING LSO are as follows:

a. Establish and administer a training LSO program.

b. Conduct aircrew training and readiness for CQ operations within his respective TRAWING.

c. Monitor TRAWING's FCLPs and carrier qualifications.

d. Submit the quarterly LSO Training Status Matrix in accordance with reference (b).

310. CNATRA LSO. The Senior Training Command LSO is the CNATRA LSO. This billet is a LCDR, post-CAG LSO billet at NAS Corpus Christi. The responsibilities of the CNATRA LSO are as follows:

a. Guidance and administration of CQ program and LSO policy.

b. CQ/FCLP operating procedures and standardization.

c. Monitoring the manning, selection, training, and qualification of all training command LSOs to ensure the highest standards of LSO readiness and training are maintained.

311. The IUT Syllabus. The IUT syllabus is standardized throughout the training command. CQ Stage Heads shall ensure that their new LSOs are brought to the attention of the scheduling officer so a proper training plan can be implemented which accounts for CQ detachments. Once NATOPS qualification flights commence, the LSO should begin observing the CQ program. The NATOPS syllabus is followed by the IUT syllabus, which shall be in conjunction with CQ training qualification requirements.

312. Student Preparation for FCLP. LSOs should routinely brief non-CQ instructors of expected student landing performance for various flight stages prior to CQ to ensure that proper emphasis is applied as the student progresses. Good landing habit patterns from Familiarization (FAM) on through the other stages are critical to the success of the student. The number of landings performed in each stage prior to the FCLP workup should be maximized.

313. FCLP/CQ Grades. Grades for ATFs are decided by comparing a student's landing grade performance with the overall average as well as trends. Other items such as headwork, field entry, procedures, and response to LSO also affect the final grade given. Generally, students should show improvement throughout FCLPs. The following applies:

a. Grades for actual carrier-landing flights are especially critical because they are weighted at 50 percent of the total CQ stage grade. Each net above (or below) is equivalent to approximately three aboves (or belows) during FCLPs. A student can more than compensate for his poor FCLP performance by doing well at the ship. In addition, the senior LSO should construct a grading matrix to ensure grades reflect preestablished standards of performance.

b. LSO grading for approaches should be the same as in the fleet. Attempts to lower standards because of experience level must be avoided.

c. The CNATRA 1542/106, LSO Trend Analysis Summary is completed when students finish actual carrier landing flights. It should be filled out completely with a comprehensive writeup concerning the student's tendencies and performance. This is particularly important since this form goes to the FRS LSO and is the primary indicator of the student's CQ performance in the NATRACOM. Additionally, all FCLP and carrier landings will be entered into APARTS and on completion of CQ, APARTS data shall be forwarded to the LSO School IAW reference (g).

314. Qualification Criteria. In addition to the specific items contained in the CQ ATFs, all of the following criteria shall be used in making the qualification determination.

a. Student displays no dangerous tendencies.

b. Student demonstrates steady or improved performance during FCLP/ship qualification period.

c. Student responds adequately to the LSO.

d. Student demonstrates adequate knowledge of deck procedures.

e. Student requires minimum LSO assistance during final two approaches/landings.

f. Student is predictable and prepared for CQ at the FRS.

g. Student has a 60 percent or better boarding rate.

h. Student finishes with a CQ minimum grade point average of 2.5. Qualification of students with less than 2.5 may be given on the recommendation of the TRAWING LSO with the approval of the CNATRA LSO or his designated representative based on overall improving trends. Additionally, a student with a 2.5 or better may be disqualified by anyone in the chain of command for not meeting any one of the criteria listed above. In this case, the chain of command consists of the controlling LSO, the squadron CQ Stage Head, the TRAWING LSO, the CNATRA LSO, and the Captain of the ship. The following carrier/FCLP landing grading values are used by NATRACOM: (R (R (R

OK	- 5.0 points	PWO	- 2.0
OK	- 4.0	OWO	- 2.0 / 1.0 (depending on circumstances)
(OK)	- 3.0	WO	- 1.0 (TECHNIQUE)
B	- 2.5	C	- 0.0
-	- 2.0		

i. If a student is a requalification (requal) (disqualified at the ship during a previous CQ period), the SNA must show an improving trend with solid ("fair" or better) passes toward the end of the requal period. Above average performance (2.5 GPA) is required to qualify on a second attempt. A third attempt to qualify must be approved by CNATRA. The TRAWING LSO shall actively monitor the progress of all requals in his air wing. It is the Squadron CO's responsibility to inform Bureau of Personnel (BUPERS) of a CQ requal status when detailing for Aviation Assignment (typically via the CO's Appraisal of FRS Preparedness section of the student's Stage Grades summary). (R

315. Initial Paperwork/Qualification Roster, FCLP Schedule

a. Each bounce period should have a group of five (desired) to seven (maximum) students. FCLPs will directly affect the number of other sorties a squadron will be able to fly each day during the bounce.

b. The TRAWING LSO shall be responsible for setting up the FCLP schedule and distributing it to squadron Operations Officers. Changes to the FCLP schedule must be approved by the TRAWING LSO.

c. The Qualification Roster should be submitted at least a week prior to the first day of FCLPs. The format for the qualification roster is described in detail in Chapter VIII of this instruction. The roster is distributed

to the TRAWING with sufficient copies so that they can be forwarded to CNATRA, the carrier, Air Operations, and the detachment OIC (usually submitted at the Presail Conference).

d. The Qualification Roster is used by the ship to keep track of all touch-and-go and arrestment requirements for students, IUTs, lead/safes, and LSOs. Not only must the Qualification Roster be accurate, but it must be in the correct format EXACTLY AS DEPICTED IN CHAPTER VIII of this instruction. The TRAWING LSO, carrier Air Operations Officer, and CNATRA LSO should be advised of any changes, such as field disqualifications, etcetera.

A) e. Prior to the commencement of CQ operations, pilot readiness shall be certified and submitted to CNATRA IAW reference (b).

316. Procedures Aboard Ship. One "wing-qualified" LSO shall be assigned to walk aboard to wave the initial COD, if required. Remaining LSOs shall COD/VOD (helicopter) aboard or fly out with a Lead/Safe. The TRAWING LSO shall establish priorities for flying aboard in the COD. He shall be informed as to the number of LSOs and writers requiring transportation from each squadron. The highest priority goes to squadrons that are expected to have the first overhead times; however, he should ensure that at least one LSO from each squadron is aboard. The following applies:

a. When reporting aboard, LSOs should first check in with Air Operations.

b. Air Operations should be advised of any changes in the Qualification Roster. After obtaining a stateroom (through the Ready Room or wardroom office), LSOs shall advise the SDO of their location and telephone number. LSOs are responsible for keeping abreast of changes in the Air Plan.

c. LSOs shall man the platform 15 minutes prior to their overhead. If the platform is crowded, the senior LSO shall determine who is not needed and clear the platform as necessary. LSOs not actively waving aircraft must remain behind the LSO Jet Blast Deflector (JBD) while on the platform.

317. LSO Platform Organization and Recovery Management. There shall always be a controlling LSO and a qualified backup LSO during CQ operations. When platform space is available, a writer for each squadron is desired to minimize confusion. Additionally, the CNATRA LSO or TRAWING LSO shall be present and be ultimately responsible for the conduct of operations on the platform. The following also applies:

a. When there is more than one squadron in the pattern, the controlling LSO should listen to the qualification number of each student at the abeam position. This is important to ensure that the correct squadron LSO has the pickle when his student is on the ball. LSOs should confirm the gear-and-hook call made by the hook spotter for aircraft at the abeam position. If you can't hear the hook spotter, tell him/her to speak up. Unless it's an emergency, students shall not be told to drop their hooks after the ball call.

b. Everyone on the platform should be behind the JBD except the controlling and backup LSOs. Professional conduct on the platform is an absolute requirement when aircraft are in the pattern.

c. Prior to each aircraft landing, the backup LSO shall check winds, basic angle, hook to ramp, hook touchdown point, aircraft gear and lens setting, and deck status. Additionally, he shall keep the PLAT in his scan for the entirety of each pass and make timely lineup calls if needed, particularly at the ramp.

d. The following platform procedures shall be performed by all NATRACOM LSOs:

(1) Prior to commencing flight operations:

(a) Check the following equipment for proper operation:

1. Fresnel lens - Cut and waveoff lights, cleanliness, and intensity

2. Radios - Transmit and receive

3. External speaker - Volume intensity

4. Relative wind indicator

5. Plat cross hairs - Check for proper alignment

6. Windscreen cleanliness

7. Sound-powered phones - (Phone talker check)

8. Hot Line

9. Lens Basic Angle setting (as determined by winds)

10. Hook touchdown point set correctly.

(b) Ensure platform is properly manned with Hook Spotter, Phone Talker, and LSOs. Set limit of number of personnel allowed on platform.

(c) Assess and make recommendations to the Air Boss based on the following conditions:

1. Deck motion

2. Wind velocity and direction

3. Weather, particularly cloud decks, and visibility.

(d) Check in with the Air Boss to report "platform manned and ready."

(e) Brief the following responsibilities:

1. Waveoff responsibility/window

2. LSO calls

3. Aircraft configuration

4. Monitor pattern

5. Monitor the aircraft during rollout/bolter for rotation, speedbrakes, etc.

6. Prior to debriefing a student, ensure no aircraft are in the wires or on the CAT.

7. Backup LSO monitor conditions and status of the following before each aircraft lands:

a. Proper Basic Angle selected

b. Proper Hook Touchdown Point indicated

c. Proper Hook-to-Ramp indicated

a. Proper Lens selected

e. Arresting Gear set

f. Winds

g. Deck Status.

8. LSO Writer should strive to write legibly and include on cover page: date, time, weather conditions, deck configuration, and other pertinent information.

9. Other Platform LSOs shall:

a. Monitor recovery conditions

b. Adjust lens intensity as necessary

c. Handle phone calls/trouble calls

d. Call deck as described in ref (b)

e. Monitor deck status and landing area.

10. The Phone Talker and Hook Spotter shall:

a. Give loud and clear arresting gear and foul/clear deck calls.

b. Check and report aircraft configuration no later than the 180.

(2) Immediately following flight operations:

(a) Check the grades and comments.

(b) Ensure the lens is off prior to securing the platform.

(c) Ensure that the Phone Talker and Hook Spotter secure all platform equipment.

(d) Review QUALIFICATIONS/DISQUALIFICATIONS and remaining requirements with Air Operations and Ship Det OIC.

(e) Brief oncoming LSOs of existing conditions.

(f) Prepare AirOps summary.

318. Forms Due After CQ. Two forms are due after CQ. (1) The first is the ATF. Grades for the ATF should be standardized for the actual performance during qualification. Comments should indicate any specific tendencies. Remember ship grades count 50 percent, so they have a great effect on the overall CQ Stage grade. Advanced ATFs should be completed as soon as possible; CNATRA is normally awaiting these grades so that composite scores may be determined and the placement process begun. (2) The second is the CNATRA 1542/106, LSO Trend Analysis Summary. It contains a listing of each pass at the ship as graded by the LSO. A good writeup is critical. This form is forwarded to the student's FRS LSO.

319. Walk-Aboard/Walk-Off LSO. The TRAWING responsible for running the detachment shall provide a wing-qualified LSO for CNATRA walk-on/-off. This LSO shall be utilized only in support of CNATRA operations. AIRLANT/AIRPAC shall provide for walk-on/-off LSO duties for at-sea requirements not involving CNATRA operations that exceed three days.

320. NATRACOM Waving Concepts

a. Students perform as students and not as fleet-experienced pilots. Do not assume that corrections routinely handled by fleet pilots will be made by students.

b. Procedures/rules must be adhered to when working with students. Students cannot be led to believe that numbers ('9' altitude, 'X' altitude, etcetera) are "approximate;" they are the gospel.

c. Students who do not respond to the LSO shall be identified and counseled immediately.

d. Poor Pattern - emphasize absolute numbers all the way around. Have an assistant monitor the pattern carefully and criticize as required. Students cannot master the glideslope until the pattern and start are squared away. A poor pattern is invariably the result of a slow or fixating scan.

e. Power Control - every correction requires a recorrection. Students consistently make a power correction and then wait to see what happens--when it does, it's too late resulting in a deviation to the other side (i.e., fast to a slow, H to a LO). Stress a power reference point and the ability to make small, timely power corrections.

f. SNA Glideslope Tolerance – don't ever let a student be satisfied with half-ball high or low. Get on him right away. Students need to be constantly aware that if it's not in the center, it's not right. Brief the concept of ball flying as akin to formation flight. The same techniques are used to keep the aircraft in the proper position.

g. Lineup - lack of lineup training always shows up at the ship. LSOs tend to give it low priority during FCLPs. Test lineup calls during FCLPs need to be given frequently and during all phases of the pass. A test lineup call shall be given at least once each FCLP period.

h. Test Waveoff - students shall receive one test waveoff per FCLP period to check reaction and technique. Watch for a common tendency to overrotate on the waveoff.

i. Waveoff up the angle - unless directed to "waveoff up the starboard side."

j. Waveoff - at the boat, all waveoffs shall be given with waveoff lights and the verbal "waveoff" call. The combined waveoff (oral and visual) yields a quicker reaction time.

k. Pattern waveoffs are a must. Letting a pilot continue a gross Overshooting Start (OSX) or clara High/Low (H/LO) pass invites pilots to accept low standards. Additionally, by continuing these passes, the student, at best, shall receive a "No Grade." The pattern waveoff has a 2-point value just as the No Grade, but allows the student to fly another pass with hopefully better results. This philosophy also applies at the field. ONE WAVEOFF FOR POOR PATTERN WORK IS WORTH A THOUSAND DEBRIEFS.

l. For carrier landings, **always, always, always**: Military-Rated Thrust (MRT)/speed brakes in on touchdown, no exceptions!

m. Review and use standard LSO phraseology at the field and ship. Listen to and evaluate yourself on the Pilot's Landing Aid Television (PLAT) after a recovery, you'll be surprised at what you see, hear, and learn.

n. Lineup at the ship - square it away early; waiting until the aircraft crosses the ramp is too late. Students must be informed of their position relative to centerline once they roll out in the groove. Students' efforts to place the aircraft on centerline can be particularly difficult when there is little wake behind the carrier. If a student does not respond to advisory or directive lineup calls, he should be waved off, unless doing so is unsafe. Lineup deviations can be tracked most effectively by the backup LSO. Historical data continues to confirm the importance of the backup LSO's inputs in correcting lineup deviations, particularly at the ramp. CNATRA's policy is that backup LSOs shall inform the controlling LSO of the aircraft's position relative to centerline throughout the pass, scan the PLAT as aircraft crosses the ramp, and transmit lineup calls as required.

o. Airspeed control - the student knows that if he doesn't fly the aircraft on speed, we won't take him. One waveoff is worth a thousand debriefs.

p. Late waveoffs for a high-in-close at the ramp underlined (HIC-AR) can result in a dangerously long bolter and should be avoided by initiating a timely waveoff. For high gliding come downs at the ramp, timely power calls should be used. Any time waveoff lights come on, a verbal "waveoff" call shall accompany them.

q. Unless an emergency, no "hook down" calls shall be given after the ball call.

r. Catapult technique and Cat Grip use: Proper briefing is important. Good airwork at the end of the stroke should be emphasized.

s. Be flexible during CQ; don't be afraid to send a student home so he can settle down, get debriefed, and come out the next day. If time allows, another option is to take the student out of the jet for a quick debrief prior to resumption of CQ.

t. Bottom Line - LSOs stress that the ball must be in the center, with the aircraft on speed and ON CENTERLINE. Be demanding, be tough, put the pressure on students during FCLPs, and then tell them what a great job they've done and that they're ready for the boat. Peak their confidence at the boat brief. Set the example for students to follow - be a role model through professionalism.

321. Notes for LSOs on Lead/Safe Pilots

a. NATRACOM's training LSOs are tasked with ensuring the Lead/Safe program is vital, current, and standardized. An effective training program is the key for maintaining quality and safety in the CQ environment.

Prospective Lead/Safe pilots shall be familiar with all CQ procedures for their type aircraft. The following specific chapters for this instruction apply:

(1) Chapter Two

(2) Chapter Three

(3) Chapter Four

(4) Appendix B - Briefing Guides

(5) Appendix C - NATRACOM Aircraft Information

b. The squadron CQ phase head shall also ensure:

(1) That Lead/Safe Pilots are fleet carrier experienced with a minimum of 150 traps. CNATRA approval is required for use of lead/safes with less than 150 traps.

(2) That qualifying of Lead/Safes includes an examination covering all procedures required to lead a group of students to/from the ship.

(3) That Lead/Safes maintain ship/FCLP currency in accordance with this instruction.

(4) That Lead/Safes have participated in a Lead/Safe brief prior to each CQ Detachment.

(5) That Lead/Safes are demanding during FCLP DEMO flights, especially when instructing proper pattern procedures.

(6) That Lead/Safes set the tone for the day's CQ; during the briefs, all bases must be covered in a timely and professional manner.

(7) That Lead/Safes transmit Pilot Reports (PIREPS) to the Air Boss concerning deteriorating weather conditions. Lead/Safes are responsible for notifying the ship when weather or other conditions are unsat for student operations. Observations at pattern altitude may vary greatly from those on deck.

(8) That Lead/Safe pilots fly a tight holding pattern about the ship and position themselves close to low state aircraft. Generally speaking Lead/Safes should position themselves forward of the bow. Be aggressive and take charge when the situation calls for it.

CHAPTER IV

LOGISTICS PLAN

400. Logistic Support

a. While operating in their respective operating areas, each TRAWING commander shall be responsible for the logistic support of subordinate squadrons.

b. Each TRAWING shall establish and provide the following when designated to provide logistic support for fleet commands or other NATRACOM units:

(1) Local VFR/IFR course rules lectures.

(2) Frequency cards for local area operations including navigational aids (NAVAIDS).

(3) Handouts of:

(a) Commonly used base telephone numbers

(b) General mess meal hours

(c) Club hours

(d) Snack bar hours

(e) Navy Exchange hours

(f) Local uniform regulations

(g) Off-limit areas or establishments

h) Information considered of general interest and value to visiting units

(i) MWR hours (gym, weight rooms, etceteras)

401. Logistic Support Aboard Ship. During CQ, each TRAWING may be tasked with providing maintenance personnel and equipment to support operations. CNATRA shall designate which TRAWING shall provide the necessary support for each type aircraft and assign the CNATRA OIC/Rep.

402. Support Requirements and Logistic Requests. When assigned to operate out of their local areas, TRAWINGs shall notify the host command of logistic requirements. The following message format shall be sent thirty days prior to commencement of operations:

FROM	COMTRAWING OR SQUADRON//JJJ//
TO	HOST UNIT//JJJ//
INFO	CNATRA CORPUS CHRISTI TX//N33//
	WING OF HOST UNIT
	PARENT UNIT IF HOST COMMAND OF OTHER THAN NATRACOM, I.E., COMNAVAIRPAC, COMNAVAIRLANT, ETC.

MSGID/GENADMIN
SUBJ/CARRIER QUALIFICATION PERIOD OF DATES, LOGISTIC SUPPORT
REF/A/RMG/CNATRA/DTG//
REF/B/DOC/CNATRA/-//
NARR/REF A IS CNATRA LOI X-XX. REF B IS CNATRAINST 3740.9D, ETCETERA//
RMKS/1. REQUEST THE FOLLOWING LOGISTIC SUPPORT FOR SUBJ CQ.

A.	BILLETING	OFFICER/ENLISTED/MALE - FEMALE
B.	FUEL	TYPE/ESTIMATED QUANTITY IN GALS
C.	OXYGEN	TYPE/QUANTITY
D.	VEHICLES	TYPE/QUANTITY
E.	WORKING SPACES	TYPE/USAGE INTENDED
F.	TELEPHONES	IF OTHER THAN CAN BE NORMALLY EXPECTED
G.	LINE SPACE	IF OTHER THAN CAN BE NORMALLY EXPECTED
H.	HANGAR SPACE	IF OTHER THAN CAN BE NORMALLY EXPECTED
I.	LIAISON OFF	RANK, NAME, UNIT PHONE NO.
J.	K, L, MISC	I.E., CQ BRIEF, FREQUENCY CARDS, COURSE RULES LECTURE, GSE, ETC.//

403. Airlift Requests. Carrier qualification detachments shall normally require support airlifts outside the ability of the TRAWING. When scheduling permits, airlift requests must be submitted in accordance with reference (e) within 14 working days prior to movement. The TRAWING assigned command and control shall submit airlift requests to Naval Air Logistics Office (NAVAIRLOGOFF), INFO CNATRA and other need-to-know addressees.

CHAPTER V

BILLET DESCRIPTION AND RESPONSIBILITIES

500. CNATRA Ship-Based Detachment Operations Onboard the Carrier. The following personnel with billet descriptions and responsibilities are listed:

a. Shipboard Detachment OIC

(1) The point of contact for all NATRACOM administrative and operational issues regarding the general execution of the CQ plan.

(2) Supervises all operations and maintenance relating to the NATRACOM presence aboard the ship.

(3) Responsible for NATRACOM spaces and all NATRACOM personnel.

(4) Functions as the link between ship and shore operations (may represent shore detachment in case of lost communications with the beach).

(5) Functions as liaison between ship detachment personnel and ship's CO/XO.

b. CNATRA or Designated TRAWING LSO. Authorized direct liaison with the Commanding Officer. He shall:

(1) Ensure that operations are conducted in accordance with this instruction and the LOI. Shall establish priorities, resolve conflicts, and take other actions as necessary to ensure the efficient completion of the CARQUAL requirements.

(2) Keep LSOs appraised of operating schedule.

(3) Ensure the LSO platform and equipment are operational.

(4) Have authority over embarked NATRACOM LSOs.

(5) Have primary responsibility for determining an unacceptable final approach, and under supervision of the Air Officer, responsibility for the visual control of all fixed-wing aircraft approaches after the 180^{o} position.

(6) Keep the number of people on the LSO platform to a minimum consistent with safety and operational requirements.

c. Maintenance Detachment Coordinator. Each detachment shall have a contract maintenance coordinator (CNATRA DET Production Officer) who shall:

(1) Be responsible for the berthing and location of all maintenance personnel in the detachment and report to the CNATRA OIC for all matters relating to NATRACOM aircraft maintenance while on board. (Specific maintenance requirements shall be addressed in the respective CQ LOI.)

(2) Be accountable to the Air Officer and Aircraft Handling Officer for all required maintenance functions aboard ship.

(3) Brief the Aircraft Handling Officer on “one-time shot to the beach” aircraft. Final authority to launch aircraft with malfunctions which preclude continued CQ rests with the carrier's Commanding Officer via the Air Officer.

(4) Keep Air Operations appraised of aircraft maintenance problems.

(5) Keep senior CNATRA representative appraised of all maintenance and logistic functions and requirements.

d. Squadron LSO. Each squadron shall provide qualified LSOs to control that squadron's students. The LSO shall:

(1) Provide carrier qualification rosters.

(2) Complete FCLP training to his satisfaction prior to commencing ship qualifications.

(3) Qualify the assigned students aboard ship in a safe and efficient manner.

(4) Keep Air Operations advised of his whereabouts at all times. Additionally, he shall ensure that he is posted on the muster board in Air Operations upon arrival and removed from the board upon departure.

(5) Keep Air Operations advised of student qualification status at the completion of each overhead period.

(6) Report all qualification/disqualification results to Air Operations Officer and CNATRA Ship Det OIC immediately following each CQ period.

(7) Notify squadron CO/OIC when students require refresher FCLPs prior to CQ.

e. Walk-Aboard LSO. Wave initial COD.

f. Walk-Off LSO. Wave the final phase of NATRACOM aircraft and COD operations and remain aboard as directed by the OIC. If the carrier will remain at sea for more than 3 days after the completion of NATRACOM CQ, arrangements for a COMNAVAIRLANT/ COMNAVAIRPAC LSO to cover requirements for the ship should be made.

501. Chain of Command. Figure V-1 delineates the chain of command for ship detachment.

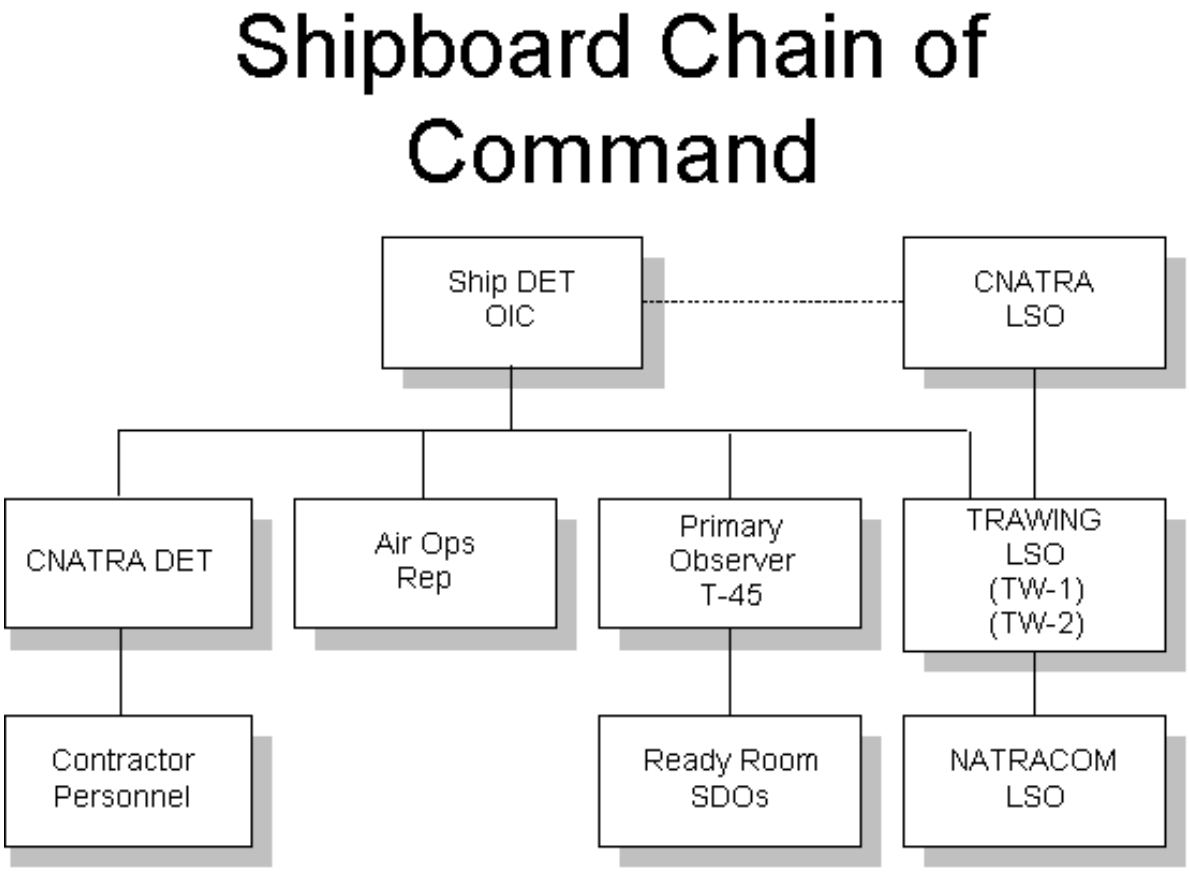

Figure V-1

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CHAPTER VI

COMBINED DETACHMENT CARRIER OPERATIONS

600. General. Combined CNATRA CQ detachments are required. Advanced planning must be conducted in order to preclude any loss of available deck time.

601. Purpose. To minimize the impact of operations away from geographical areas and facilities normally associated with CNATRA CQ operations.

602. Concept of Operations and Coordinating Instructions

a. An LOI shall be published by CNATRA for each operating period. Format is contained in paragraph 802. The detachment shall be set up to operate on the squadron concept. The TRAWING designated by CNATRA for command and control of the shore detachment shall coordinate with Contract Maintenance to provide ship- and shore-based maintenance detachments.

b. The **MINIMUM** number of aircraft provided by each air wing for all CQ detachments is listed below. Increased numbers of aircraft may be required. The CNATRA LSO shall coordinate with the TRAWING Operations officers to determine the number of additional aircraft required for each detachment.

TW-1	16
TW-2	16
Total	32

c. As the direct representative of the Chief of Naval Air Training, the Shore Detachment OIC shall have the overall responsibility and authority for the detachment.

d. For billeting planning, personnel strengths are 100 officers and 75 enlisted/Contract Maintenance Support (CMS).

e. To the maximum extent practical, commercial air transport shall be used for transportation to and from detachment sites. If DOD airlift is utilized, airlift schedules shall be promulgated by the TRAWING assigned Command and Control. All units shall be notified by message of airlift schedules.

f. TRAWINGs shall submit CARQUAL requirements to the carrier, INFO CNATRA (N333) via email message 30 days prior to the detachment, in accordance with paragraphs 801 and 804 of this instruction. CQ Rosters shall be submitted in accordance with paragraphs 801 and 805 of this instruction.

g. The CNATRA Rep, Shore Detachment OIC, Ship OIC, Shore Detachment Operations Officer, Ship Detachment Liaison Officer, Shore Maintenance Officer (MO), and CNATRA LSO shall brief the ship on specific NATRACOM requirements during the Presail Conference.

h. Each designated student and instructor shall receive detailed briefings on course rules and facilities at the support base and all possible bingo fields.

i. The carrier shall conduct a presail brief approximately 7-10 days prior to getting underway during which face-to-face briefs concerning load aboard, Air Operations, and flight deck procedures are conducted.

j. Personal protective gear shall be provided by the individual's squadron for the shore detachment. All required shipboard personal protective gear and flotation equipment shall be provided by the TRAWING assigned ship maintenance in the LOI.

k. Supply support shall be in accordance with Chapter IV of this instruction.

l. Aircraft mishap reports, RCS OPNAV 3750-19, 3750-20, and 3752-1, and investigations shall be in accordance with references (f) and (j).

(1) The Shore Detachment OIC shall be responsible for submitting the initial mishap report, RCS OPNAV 3750-20, and making the initial telephone reports.

(2) For purposes of mishap identification and Aircraft Mishap Board (AMB) appointment responsibility, an aircraft involved in a mishap which is flown by a pilot from a TRAWING/Squadron different from the TRAWING/Squadron assigned as the aircraft reporting custodian shall be considered to have been transferred to the unit to which the pilot is assigned.

(3) The CNATRA Shore Detachment shall have a standing Aircraft Mishap Board (AMB) appointed for the purpose of performing initial investigating responsibilities until relieved by the AMB of the appropriate unit.

m. Qualified Post Maintenance Check Flight (PMCF) pilots shall be authorized to perform any required PMCF.

n. During CQ operations: CNATRA shall provide fleet CVs with all appropriate catapult equipment including T-Bars (holdback fittings). CNATRA shall liaison with the fleet CV to ensure an adequate supply is in place prior to commencement of CQ.

o. CQ Petroleum, Oil, and Lubricants (POL) Accounting

(1) Squadrons providing aircraft for each CQ Detachment shall provide the host TRAWING with the following documents at the beginning of each detachment:

(a) Two each, DD Form 1898 (Avfuels Into-Plane Contract Sales Slip) per aircraft type for collection of fuel charges at the detachment location and aboard the carrier.

(b) Two each, DD Form 1348 (Department of Defense Single Line Item Requisition Form) for collection of charges involving oxygen and nitrogen servicing at the detachment base.

NOTE: If the detachment calendar dates are expected to include the 10th, 20th, or 30th of the month, the requirement for each type of document is doubled to facilitate accounting procedures at the detachment base and aboard the carrier.

(2) The Shore Detachment host TRAWING is responsible for collecting the DD1898 and DD1348 from each participating squadron and delivering same to the detachment base and carrier. The Shore Detachment host TRAWING shall pick up the completed and unused documents from the detachment base and the Ship Detachment host TRAWING shall pick up the documents from the carrier at the end of the detachment. One working day after return from the detachment, both host TRAWINGs shall release a message identifying each DD1898 by document number, the annotated gallonage and total cost to each cognizant squadron. Charges for oxygen and nitrogen are not to be annotated on the message. Accordingly, all documents (both completed and unused) shall be forwarded by mail to the cognizant squadron.

p. When CQ detachments straddle the end of the month, senior squadron maintenance representatives shall be responsible for closing out 3M data by the morning of the first day of the month and mailing that data to the parent squadron on the same afternoon.

603. Detachment Organization

a. Shore-based Chain of Command in accordance with Figure VI-1.

b. Shipboard Chain of Command in accordance with Figure V-1.

604. Billet Descriptions and Responsibilities

a. CNATRA Representative

(1) Schedule CNAP/CNAL CVs for NATRACOM CQ.

(2) Assign Shore detachment command and control to one TRAWING.

(3) Ensure compliance with the areas of this instruction that are applicable to current operations.

(4) Provide CNATRA with a daily update on the status of operations.

(5) Monitor departure of aircraft, personnel, and equipment from detachment base.

(6) Maintain constant liaison with CNATRA DET Maintenance Officer.

(7) Attend Presail Conference.

(8) CNATRA's direct representative. Responsible for resolving disputes between TRAWINGs, host bases, and CV if detachment OIC is unable to solve issue.

b. Shore Detachment OIC (Squadron CO or XO)

(1) Be responsible to CNATRA for the successful completion of the assigned detachment.

(2) Oversee logistics requirements during CARQUAL period.

(3) Publish standards of appearance and conduct for all detachment personnel.

(4) Attend the Presail Conference.

(5) Work directly with the CNATRA Representative on all matters pertaining to shore-based maintenance, administration, operations, and safety.

(6) Set up the Shore Detachment in accordance with this instruction.

(7) Coordinate and supervise shore-based operations and maintenance in accordance with this instruction and the LOI.

(8) Monitor FCLP requirements and currency rules as outlined in Table II-1 in paragraph 205.

(9) Prepare an End of Detachment CQ report in accordance with paragraph 810 of this instruction and send to CNATRA (N33) with copies to other participating TRAWINGs.

(10) Provide to the Air Operations Officer of the training carrier a daily flight schedule (deliver via first available COD).

(11) Provide fleet CV augment personnel as required (including Squadron Duty Officers (SDOs), Air Operations representative, and Tower representatives.)

(12) Establish CNATRA Detachment Plain Language Address Directory (PLAD) for applicable host air station.

c. Shore Detachment Assistant OIC. Shall assist the Shore Detachment OIC as required.

d. Shore Detachment Operations Officer

(1) Coordinate and supervise flight training in accordance with this instruction and the LOI.

(2) Establish and maintain liaison with local operations (base operations, ATC, Fleet Area Control and Surveillance Facility (FACSFAC), communications division, tower, etcetera) prior, during, and upon completion of the detachment.

(3) Publish a detachment frequency plan using the ship's communication plan and detachment area frequencies as necessary.

(4) Provide adequate briefing areas (dry erase board, local area map, bingo field information) and all necessary publications (i.e., references (a), (b), and (c), CNATRA CQ instruction, reference (g), host base operations manual).

(5) Coordinate scheduling and publish a daily flight schedule. Ensure CNATRA Daily CQ Summary (paragraph 809) and daily SITREP are completed and delivered to CNATRA daily.

(6) Monitor weather and bingo field conditions and ensure operations are conducted within limits established in this instruction and current directives.

(7) Ensure all participating pilots receive course rules brief from the support base. This brief should include, as a minimum, coverage of warning areas, airspace restrictions, FCLP facilities, and FAA procedures peculiar to the area.

(8) Ensure availability of a minimum of one T-45C and one T-45A LSO for FCLP.

e. Assistant Shore Detachment Operations Officer/Schedules Officer

(1) Assist the Shore Detachment Operations Officer in the performance of his duties.

(2) Prepare a daily flight schedule for the Combined Detachment.

f. Shore Detachment Administrative/Billeting Officer

(1) Coordinate and schedule arrival/departure times for TRAWINGs.

(2) Arrange for berthing, messing, transportation, and administrative support requirements at the host support, bingo, and/or FCLP base.

(3) Publish uniform requirements for airlift and support bases.

(4) Preposition an adequate number of vehicles for immediate use on arrival of the detachment:

(5) Publish liberty restrictions for the support bases.

(6) Arrange for message pickup, delivery, and releasing authority.

(7) Set up bus schedules for quarters, mess facilities, and hangar spaces as required.

(8) Maintain a copy of this instruction and supporting references.

(9) Arrange for early and late meals as required.

(10) Prior to detachment arrival, inspect assigned spaces for adequacy (working and living) and ensure telephones are installed (at least two DSN capable).

(11) Publish a room assignment/telephone number list of all officers and key maintenance personnel.

(12) Print and distribute a daily flight schedule as required by operations (copy to the carrier via first available COD/Lead/Safe/E-mail).

(13) Ensure all shore detachment personnel are briefed on working hours, transportation, billeting, security, and food service.

g. Shore-Based Contractor in Charge

(1) Be responsible to the Shore Detachment OIC for all maintenance policies and procedures common to the T-45.

(2) Initiate advance liaison with the supporting Aircraft Intermediate Maintenance Department (AIMD), Ground Support Equipment (GSE), and Supply Departments.

(3) Coordinate supply packup kits between participating TRAWINGs.

(a) One packup kit for each activity.

(b) Packup kit to be prepared by activity's Supply Department.

(4) Be involved in all predetachment planning.

(5) Maintain constant coordination with CNATRA DET personnel.

h. Contractor Responsibilities

(1) Ensure all aircraft are fully carrierized (with the exception of tires) prior to home field departure and not due for scheduled maintenance during the detachment.

(2) Coordinate composition of the shore maintenance detachment to ensure adequate talent, Collateral Duty Inspector (CDI), and qualifications.

(3) Be responsible for an active Tool/FOD Control Program.

(4) Ensure aircraft radios are channelized as required by operations.

(5) Ensure FCLP/bingo detachments, if required, are properly manned and equipped.

(6) Be involved in all predetachment planning.

(7) Certify aircraft as safe for flight after corrective maintenance.

(8) Deal directly with shore establishment for billeting and transportation arrangements.

i. CNATRA DET. Monitor shore/ship contractor performance.

j. Shore-Based Detachment Aviation Safety Officer

(1) Be responsible to the Detachment OIC for compliance with and enforcement of safety instructions pertaining to aircraft maintenance and operations.

(2) Be responsible for expeditiously providing parent squadrons with information relating to aircraft incidents and ground and flight accidents.

(3) In the event of an aircraft accident, assist the ship/parent squadron with the preparation of required reports.

k. Senior Shore-Based LSO

(1) Ensure FCLP is scheduled as required to maintain currency.

(2) Be responsible for conducting refresher FCLP.

l. Ship Detachment Maintenance Coordinator

(1) Be responsible for enlisted/CMS berthing and muster requirements during at sea operations.

(2) Assume custody of shipboard supply packup kit.

(3) Report to the Shipboard OIC for all matters relating to NATRACOM aircraft maintenance while onboard.

(4) Work closely with Aircraft Handling Officer on all required maintenance functions aboard ship.

m. Ship Detachment OIC (CDR Billet)

(1) Be responsible to CNATRA for the successful completion of the assigned detachment.

(2) Oversee shipboard logistics during CARQUAL period.

(3) Manage Shipboard operations, Ready Room, berthing, and attendant activities.

(4) Comply with the requirements and restrictions of this instruction.

(5) Attend the Presail Conference.

(6) Work directly with the CNATRA Representative on all matters pertaining to ship-based maintenance, administration, operations, and safety.

(7) Set up the ship detachment in accordance with this instruction.

(8) Coordinate and supervise ship-based operations and maintenance in accordance with this instruction and the LOI.

(9) Monitor FCLP rules and currency restrictions as outlined in Table II-1 in paragraph 205.

(10) Prepare an End of Detachment CQ Summary report in accordance with paragraph 810 of this instruction and send to CNATRA (N33) with copies to other participating TRAWINGs.

(11) Provide the Strike Operations Officer with the next day's requirements.

(12) Provide fleet CV augment personnel as required (watch standers, SDOs, Tower representative, Air Operations representative). All primary observers and TAD personnel should be provided by the coordinating TRAWING if feasible.

n. Shipboard LSO (CNATRA LSO)

(1) Supervise and monitor the performance of assigned squadron LSOs.

(2) Ensure compliance with specific requirements of this instruction.

(3) Advise the Shipboard OIC and Air Officer when weather, deck, or equipment conditions preclude operating within safe limits.

o. Primary Observers (Experienced T-45 IP qualified as lead/safe)

(1) Advise the Air Officer on all matters of aircraft operations.

(2) Provide current copies of NATOPS manuals and pocket checklist to Primary and Air Operations.

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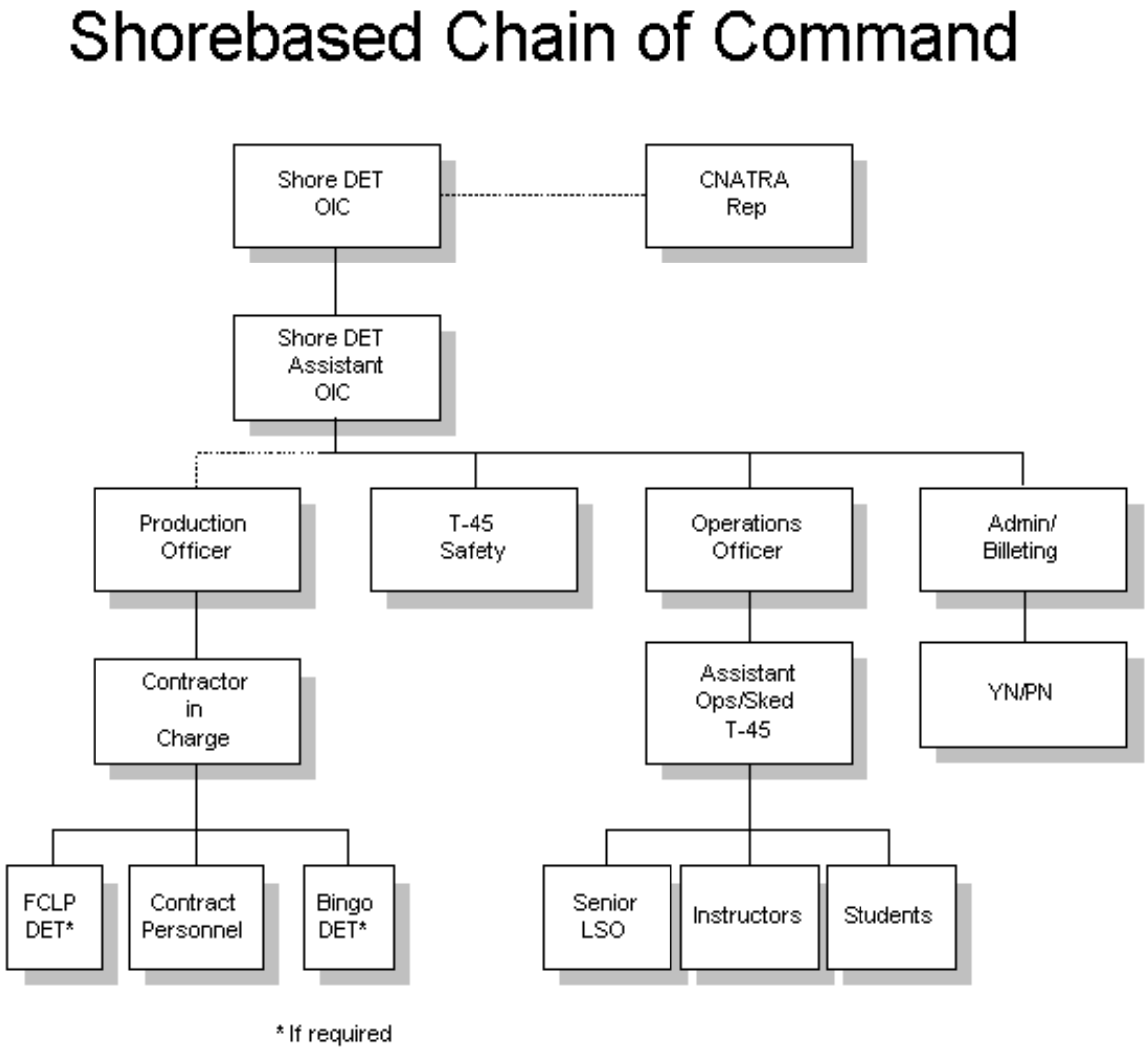
Shorebased Chain of Command
Shore DET OIC
CNATRA Rep
Shore DET Assistant OIC
Production Officer
T-45 Safety
Operations Officer
Admin/ Billeting
Contractor in Charge
Assistant Ops/Sked T-45
YN/PN
FCLP DET*
Contract Personnel
Bingo DET*
Senior LSO
Instructors
Students
* If required

Figure VI-1

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CHAPTER VII

COMMUNICATIONS

700. Effectiveness. Communications shall be in accordance with the current edition of Naval Warfare Publication (NWP) 16 and appropriate Joint, Allied, and Navy Department publications. NWP 16 is effective as applicable to the existing situation unless modified or amplified by this chapter.

701. Call Signs, Address Groups, and Routing Indicators. Call signs, address groups, and routing indicators shall be those assigned by Joint Army-Navy-Air Force Publications (JANAPs), Allied Communications Publications (ACPs), and appropriate directives from higher authority.

702. Frequencies

a. Frequency assignment request procedures are contained in the effective edition of Annex J to Naval Telecommunications Publication (NTP)-6 or Annex E to ACP-190.

b. Requests for additional frequencies shall be submitted to CNATRA. Such requests shall include appropriate information as required by NTP-6 or ACP-190.

c. INMARSAT, POTS, and cellular phone frequencies for each det shall be provided in the CQ LOI.

d. E-mail accounts shall be set up immediately upon CV check-in by shipboard OIC.

703. Aircraft Identification. All NATRACOM aircraft shall, to the maximum extent possible, use “CD” and the three-digit side number (i.e., “CD 124,” etcetera) as their call signs when doing CARQUALS.

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CHAPTER VIII

ADMINISTRATIVE AND OPERATIONAL REPORTS

800. General. The NATRACOM CQ schedule operates typically on a six- to eight-week cycle, resulting in approximately six to eight decks per year. This schedule is determined primarily on the basis of available CQ deck times as they fit with NATRACOM's needs.

801. CQ Report Time Line. The CQ turn-around cycle is marked by the publishing of a number of critical schedules, LOIs, and reports. The following is an example of a typical CQ time line:

CQ minus 35 days:	CNATRA CQ LOI (paragraph 802)
	TRAWING Ship/Shore detachment LOI (paragraph 803)
CQ minus 30 days:	Trap Requirements (estimated) messages (paragraph 804)
	Presail, Guard Shift message for detachments
	HF Frequency Request Message if required
CQ minus 3 days:	Clean bird, Hoist point message (paragraph 805)
CQ minus 1 day:	First overhead message (paragraph 806)
	Aircraft fly off for detachment
Last Day of Detachment:	Guard Shift Message for detachments
End of CQ + 7:	End of CQ Period Summary (paragraph 807)
End of CQ + 30:	End of Detachment Reports (paragraph 808)

802. CNATRA CQ LOI. CNATRA shall publish an LOI by message for each period of carrier qualification training in the following format:

FROM CNATRA CORPUS CHRISTI TX//N3//
TO USS CARRIER
PARTICIPATING TRAWINGS//00//
PARTICIPATING FLEET SQUADRONS//00//
PARTICIPATING NASs//00//
INFO SENIOR COMMANDS//00//
PARTICIPATING TRARONS//00//

UNCLAS //N03740//

MSGID/GENADMIN/CNATRA N3//
SUBJ/CNATRA CQ LOI X-XX//
REF/A/DOC/CNATRA/-//
AMPN/REF A IS CNATRAINST 3740.9C, ETC.//
RMKS/1. SCHEDULE OF OPERATIONS
2. COMMUNICATIONS
3. GENERAL INSTRUCTIONS
4. COORDINATING INSTRUCTIONS
5. SUPPORT REQUESTS//

803. TRAWING SHIP/SHORE DET LOI. The Detachment OIC shall publish a CNATRA CQ Shore Detachment LOI by message for each period of carrier qualification training in the following format:

FROM TRARON XXX

TO APPROPRIATE TYCOM
PARTICIPATING NASs
PARTICIPATING TRAWINGs
NAVAIRLOGOFF NEW ORLEANS LA

INFO CNO
NETC
SUPPORTING VR SQUADRON
PARTICIPATING TRARONs

UNCLAS //NO3740//

SUBJ/CNATRA CQ SHORE DETACHMENT NAS XX, (DATE OF Operations) OPERATIONS LOI//

REF/A/RMG/CNATRA/DTG//
REF/B/DOC/CNATRA/-//
NARR/REF A IS CNATRA CQ LOI XX-XX AND REF B IS CNATRA CQ INSTRUCTION 3740.9B//
RMKS/1. IAW REFS A AND B, ORIG WILL PROVIDE SHORE COMMAND AND CONTROL FOR SUBJ DETACHMENT. UN DIR ALL PROVISIONS OF REFS A AND B SHALL BE STRICTLY ADHERED TO AND ATTENTION OF ALCON IS ACCORDINGLY INVITED.
KEY STAFF PERSONNEL ARE:

OIC	CDR XXXXXXXX	PH #
ASST OIC	CDR XXXXXXXX	PH #
CNATRA REP	CDR XXXXXXXX	PH #
AIR OPERATIONS	CDR XXXXXXXX	PH #
T-45 OPERATIONS	LCDR XXXXXXX	PH #
SAFETY OFFICER	LCDR XXXXXXX	PH #
MAINTENANCE OFFICER	CWO XXXXXXXX	PH #
AIRLIFT COORDINATOR	LT XXXXXXXXX	PH #
BILLETING OFFICERS	LT XXXXXXXXX	PH #
	LT XXXXXXXXX	PH #

2. SCHEDULE OF EVENTS
ADVANCE PARTY ARRIVAL
MAINT PERS/SHORE STAFF WALK-ABOARD STAFF ARRIVAL
AIRCRAFT AND LEAD/SAFE ARRIVAL
FIRST TRAWING SNA/IUT ARRIVAL
COURSE RULES BRIEF
NON-CQ PILOTS AND SNA'S DEPARTURE
SHIP DETACHMENT STAFF AND MAINT PERS, LSO, AND PRI-FLI REPS WALK ABOARD
SHIP U/W
GENERAL CQ SCHEDULE FOR TRAWINGS, INCLUDING AIRLIFT ARRIVALS AND DEPARTURES, COURSE RULES BRIEFS, AND LSO COD RUNS.
AIRCRAFT FLYOFF
APPROPRIATE CNATRA PERSONNEL COD OFF SHIP
SHORE OPERATIONS/MAINT PERS DEPART

3. OPERATIONAL NOTES:

A. FLY-IN WINDOW.
B. EACH TRAWING LSO SUBMIT UPDATED QUALIFICATION ROSTER TO RESPECTIVE CNATRA SHORE DETACHMENT OPERATIONS ON ARRIVAL. ENSURE ANY IUT/STAN REQUIREMENTS ARE LISTED. IDENTIFY FCF PILOTS.
C. EACH SQDN LSO SUBMIT UPDATED ROSTER TO USS SHIP AIROPS ON ARRIVAL ONBOARD.
D. REQUEST EACH TRAWING OIC REPORT TO RESPECTIVE SHORE-BASED DETACHMENT OIC/AOIC UPON ARRIVAL.
E. EACH TRAWING DESIGNATE AIRLIFT COORDINATOR/POC WHO WILL REMAIN AT HOME BASE FOR CONTACT FROM CNATRA DETACHMENT STAFF FOR ENTIRE DETACHMENT.
F. CNATRA AIRLIFT COORD AND DETACHMENT OIC SHALL BE ONLY POCS FOR NALO CONCERNING AIRLIFT SCHEDULES/CHANGES.
G. AIRLIFT INFO SEPCOR.
H. TRAWING DETACHMENT OICS ENSURE INDIVIDUALS WHO COMPLETE CQ ARE AVAIL FOR NEXT AIRLIFT HOME AND ENSURE RESPECTIVE DETACHMENT OPERATIONS ROSTERS UPDATED DAILY.
I. OPTIMIZE FCLP TO MAXIMIZE 48-HR CURRENCY WINDOW.
J. FREQ PLAN PROVIDED AT COURSE RULES BRIEF. CNATRA BASE RADIO FREQS ARE - XXXX.
K. TRAWING IN CHARGE TO PROVIDE BEACH DETACHMENT LSOS/WRITER AND T-45 PRI-FLI WATCHES.

4. SAFETY NOTES:

A. TRAWING DETACHMENT/OIC'S BRING PRE-MISHAP PLANS AND SEQUENCE NUMBERS FOR OPREP MESSAGES.
B. CNATRA SHORE DETACHMENT OIC RESPONSIBLE FOR SUBMITTING INITIAL MISHAP REPORT AND INITIAL TELEPHONE REPORTS.
C. STRESS FOD AWARENESS, TAXI INTERVAL, TAILPIPE COURTESY, MAX RPM IN LINE, WINGMAN LOST SIGHT PROCEDURES, DURING EVERY BRIEF.
D. ALL AIRCREW MUST BE TOTALLY FAMILIAR AND COMPLY WITH LOCAL AREA COURSE RULES AND WARNING AREA RESTRICTIONS DURING ENTIRE DETACHMENT.
E. TRAWINGS ENSURE ALL LEAD/SAFES ARE TOTALLY FAMILIAR WITH REF B.

5. ADMINISTRATIVE NOTES:

A. MINIMUM NUMBER OF LEAD/SAFES PER TYPE OF A/C PER TRAWING RECOMMENDED.
B. ENLISTED DETACHMENT REQUIREMENTS.

6. FATHERHOOD//

804. Qualification Rosters/COMNAVAIRLANT (Fleet Deck) Requirements Request Message. Participating TRAWINGs and fleet units shall ensure that qualification rosters are forwarded to CNATRA and the training carrier in the following format to arrive no later than the Presail Conference. The senior TRAWING/fleet unit representatives shall hand carry qualification rosters aboard the training carrier and deliver them to the Air Operations office. The Detachment OIC is responsible for ensuring the Air Operations officer has a consolidated qualification roster.

					T/G						TRAPS										TOTAL	
SQUAD	QUAL #	PILOT	Series	CAT	1	2	3	4	T/G	To Go	1	2	3	4	5	6	7	8	9	10	TRAPS	To Go
			T-45A	SNA					0	4											0	10
			T-45A	SNA					0	4											0	10
			T-45A	SNA					0	4											0	10
			T-45A	SNA					0	4											0	10
			T-45A	SNA					0	4											0	10

NOTES:

#1 - Students and all other aviators shall be listed in order of CQ-priority with requals listed first.

R) #2 - Qualifying aviators shall be listed in order of priority using squadron designation letter plus two-digit number beginning with 01. Assign pilots as follows:

SNA	01-39
IUT's	40-49
Lead/Safes	50-69
LSOs	70-79
Squadron XO/CO	98/99
WING CO	100-200

Unit designation letters are as follows:

TRAWING ONE-	Alpha
TRAWING TWO-	Bravo
CNATRA	Charlie
VT-7	Golf
VT-9	Tango
VT-21	Echo
VT-22	Foxtrot

805. Clean Bird Messages. All TRAWINGs/squadrons shall submit via message a clean bird message to include:

a. FOD free check.

b. Hoist point check.

c. Side numbers are applied to aircraft in accordance with the current revision of reference (l).

d. Ensure all metal hook ID plates are removed.

806. Daily Overhead Message. The training carrier is responsible for publishing the daily flight schedule. This schedule shall be prepared at the end of each day's operations for the following addressees by priority message:

a. For Action

(1) CNATRA Detachment (when applicable)

(2) Participating NASs

(3) Participating TRARONs

(4) Participating fleet squadrons

b. For Information

(1) CNATRA (N3, N33)

(2) Participating TRAWINGs

(3) Info NASs

(4) Assigned Air Defense Identification Zone (ADIZ) Control Units

807. End of CQ Period Summary. At the completion of each CQ period, the detachment OIC or training carrier Air Operations department shall forward a CQ period Summary Report.

808. End of CQ Detachment Reports. At the conclusion of each detachment, the Shore Detachment OIC and Ship Detachment OICs shall send an end of detachment report to CNATRA (N33), with info copies to the applicable TRAWINGs. Format listed below:

a. Sequence of Events

b. SHOREDET: Operations CQ Sortie Summary
SHIPDET: Qualification/Currency Summary (see above)

c. Operations Input

d. Maintenance Input

e. Administrative Input

f. General Comments/Lessons Learned

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CHAPTER IX

CNATRA ORIENTATION FLIGHTS DURING CARRIER QUALIFICATION OPERATIONS

901. Authority. Ref (d) requires CNET approval for CNATRA orientation flights involving shipboard catapults and/or arrested landings. Reference (i) delegates approval authority for these flights to CNATRA.

902. Purpose. To provide exposure to the carrier environment. To the maximum extent possible, this exposure should include a carrier arrestment, tour of key carrier spaces (LSO platform, PRIFLY, CATCC, etc.), and a catapult launch.

903. Eligibility. To be eligible for a back seat CNATRA CV orientation flight, personnel must meet all of the following criteria:

a. Satisfy eligibility requirements and flight prerequisites set forth in reference (d).
b. Have completed required ejection seat training.
c. Have flight gear issued and fitted by qualified CNATRA parachute riggers.
d. Have written approval from CNATRA. Written requests for approval should be submitted to CNATRA N33 no later than ten days prior to flight.

904. Limitations

a. No more than four orientation flight requests will be approved on any carrier qualification detachment.
b. CNATRA authorizations for CV orientation flights are one-time flight authorizations. Only one orientation flight may be flown per authorized individual, regardless of the flight duration or amount of exposure to the carrier environment. Cancelled orientation sorties may be rescheduled at the discretion of the detachment OIC.
c. Flights shall be flown only with CNATRA lead/safe qualified instructor pilots who have completed one day landing in the previous 14 days.
d. Orientation flights shall be conducted on a noninterference basis with no additional sorties or cost to CNATRA.
e. Orientation flights shall not be conducted on the final day of scheduled carrier qualifications/proficiency operations.
f. In addition to the provisions of this instruction, orientation flights for USAF AETC Instructor Pilots shall be governed by ref (l).
g. Student Naval Aviators (SNAs) are not eligible for orientation flights during CQ operations. However, SNAs who are in the CQ phase or have completed the CQ phase may be flown to or from the carrier in the back seat of CNATRA aircraft at the discretion of the CNATRA detachment Officer in Charge (OIC).

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APPENDIX A
SAMPLE NATRACOM LSO TRAINING MATERIAL

LSO QUIZ

1. Ship weather minimums for student CQ are _____ feet and ___ miles visibility.

2. Once student aircraft are in the pattern, the carrier CO may waiver weather minimums to _____ feet and _____ miles visibility.

3. Minimum WOD for CQ is ___ kts.

4. Maximum crosswind component for CQ is $^{+}$___ kts.

5. The normal basic lens angle used on the carrier is ____ degrees.

6. List CQ qualification criteria.

7. Field-qualified SERGRAD LSOs can wave warmup student FCLP flights. T/F

8. In preparation for CQ, a basic angle of ____ should be used during FCLPs.

9. The maximum amount of flight time a student may fly in one day is _____ hours.

10. Circle the following standard LSO calls.

    a. "Left for lineup"
    b. "Easy with it"
    c. "You're high, work it down"
    d. "Power back on"
    e. "Hold it up there"
    f. "Keep your turn in"
    g. "You're low"
    h. "Fly the ball"
    i. "A little come left"
    j. "A little power to catch it"
    k. "Scan the lens"

11. Maximum student flight time for one CQ flight is ___ hours.

12. Deck movement limitations for SNAs is ___ feet.

13. Students are limited to _____ CQ flights in any one day.

14. Ten feet is the minimum static/dynamic H/R for normal operations. T/F

15. If a student remains hook-up throughout the approach turn on a pass that should be hook-down, but you don't catch it, it is OK to tell him to drop the hook after he rolls into the groove. T/F

16. If the carrier CO has authorized case II operations and the weather is 1200/7, how many aircraft are allowed in the spin pattern at one time?

17. For SNAs, "Check your lineup" is an appropriate call if the student is off centerline at the start. T/F

18. If you are on the platform with a pickle in your hand and an aircraft in the groove and you hear someone yell, “waveoff!”, you should

a. Look around, figure out who yelled, and determine if they are credible to make that call or not, and then decide whether or not to wave off the aircraft.

b. Completely disregard the call and continue waving the aircraft based on what you see.

c. Wave the aircraft off immediately and talk about it afterwards as necessary.

19. A Squadron-Qualified LSO who earns a Training Qualification is qualified to recover a C-2 as the walk-aboard or walk-off LSO. T/F

20. It is appropriate to routinely use waveoff lights to get an aircraft to power up on touchdown. T/F

ANSWERS

1. 1500, 5.
2. 1000, 5.
3. 20.
4. 7.
5. 3.5.
6. 2.4 gpa, 50% boarding rate, no unsafe tendencies, improving performance, safe deck procedures, predictability, good response to LSO, and minimal assistance during final landings.
7. T.
8. 3.25.
9. 5.
10. b,d,f,g,h,i.
11. 3.5.
12. 5.
13 2.
14. T.
15. F.
16. 0.
17 F.
18. c. In the NATRACOM, it is NEVER necessary to second guess a "wave off" call, no matter who makes it.
19. F.
20. F

.

CNATRA CQ LEAD STANDARDIZATION EXAM

NAME _____

DATE _____

1. A CQ brief is conducted ____ hours prior to takeoff.

2. Takeoff no later than ____ minutes prior to your scheduled ramp time.

3. Arrive overhead the ship at your overhead time, which is ____ minutes prior to ramp time.

4. If the weather is 2200 overcast at the CV, a qualified division lead can lead a three-plane into the overhead as long as one student is on each wing during IMC penetration. T/F

5. Students may have a maximum of ____ CQ flights and ____ manups per day. A maximum of ____ hours (from takeoff to engine shutdown) are allowed per CQ flight, and a maximum of ____ hours are allowed per day.

6. The weather criteria for SNA CQ is:

DEPARTURE: ____

EN ROUTE: ____

SHIP: ____ with no more than ____ planes in the pattern.

BINGO: ____

DIVERT: ____

7. When arriving VFR at the ship, be at your assigned holding altitude prior to ____ DME. Once established, a descent for lower altitude assignment or "Charlie" shall be made 210 degrees relative to the BRC ____ of abeam and outside of____ NM of the ship. Plan to be at ____ feet at ____ NM of the ship coming into the break.

8. Case 2 primary marshal fix is the 180 radial relative to the expected final bearing at a distance of 1 NM for every _____feet of altitude plus ____ miles, (angels + ____). In no case shall the altitude be lower than ____ feet.

9. A lead/safe may bring a maximum of ____ SNAs down Case II.

10. The Lead shall break no earlier than ____ NM past the bow with ____ seconds interval for dash two and ____ seconds for subsequent aircraft.

11. Leads should primarily position themselves <u>ahead of/behind</u> the ship once established in holding following SNA dropoff.

12. The primary responsibilities of the Lead Safe are:

a.
b.
c.
d.

13. Student Bingo is based on a ____ kt, ____ (alt) profile and puts the aircraft on deck with ____ #s fuel.

14. If you are a backup event, you should:

a. Wait until the ship calls for you before you preflight and manup.

b. Have all jets preflighted immediately following the brief; have SNAs stand by at their recall.

c. Have all jets preflighted and have SNAs remain in the Ready Room until relieved by the next event, canceled or called by the ship.

15. If below ____ altitude and within ____ DME, all flights should be on tower frequency.

16. Case I overhead holding pattern is a ____-hand _____mile holding pattern ____ to the ship's BRC with the ship at the ____ position in the circle.

17. When the boss calls “Charlie,” a time limit for ramp arrival is implied. T/F

18. All flights shall call a 3-NM initial. T/F

19. When in the spin pattern a “spin 90” call shall be made at the 90 position. T/F

20. For NATRACOM CQ, the spin pattern terminates:

a. At the stern
b. At the 3-NM initial

21. Proper break IAS is ____.

22. Proper abeam distance is ____.

23. Out of the break, the lead shall stay clean/dirty up (circle one) and proceed to the proper abeam.

24. After completion of initial touch and go, (or off the cat after getting fuel), the lead shall clean up and climb to assigned holding altitude:

a. immediately.
b. 3 miles ahead of the ship.
c. 5 miles ahead of the ship.
d. 7 miles ahead of the ship.

25. Lead/safes can be utilized for lead/safe duties during student overheads until reaching NATOPS Bingo. T/F

26. Lead/safes should inform the boss concerning his own fuel state upon reaching STUDENT HOLDDOWN. T/F

27. If the boss needs to assign two leads to the same altitude, he will assign one lead as “primary hawk” and the other lead should position his aircraft in trail behind the “primary hawk.” T/F

28. The first student launch of the day will not launch until hearing from the weather recce. T/F

29. SNAs may launch prior to sunrise to make their overhead. T/F

30. When entering the port holding pattern, flights may approach the pattern and enter tangentially from any direction. T/F

ANSWERS

1. 2.5
2. 30
3. 15
4. F
5. 2, 3, 3.5, 5
6. DEPARTURE: 500/2
   EN ROUTE: VFR ON TOP (Below 15K)
   SHIP: 1500/5, 6
   BINGO: VFR
   DIVERT: IFR
7. 10, AFT, 7, 800, 3
8. 1000, 15, 15, 6000
9. 1
10. 1/2, 10, 15
11. Ahead
12. Monitor pattern
    Monitor fuel states
    Monitor weather
    Hawk bingo/emergency aircraft
13. 250, Sea Level, 550
14. c
15. 6000, 10
16. Left, 5, Tangent, 3 O'Clock
17. F
18. T
19. T
20. b. In other words, a spin should result in a break re-entry at the initial, not the stern.
21. 300 KIAS
22. 1.0 to 1.1
23. Dirty up
24. d
25. F
26. T
27. T
28. T
29. F
30. T

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LSO TRAINING RECORD

NAME	PRD
INITIAL FORMAL GROUND TRAINING	
DATE OF FIELD QUAL	
DATE OF SQUADRON QUAL	
DATE OF WING QUAL	
AIRCRAFT QUALIFIED TO WAVE: F-18, F-14, T-2, E-2, EA-6, S-3, T-45, C-2	
FORMER SQUADRON / ACFT	
DATE OF OBSERVATION PERIOD	
DATE OF INSTRUCTIONAL / CQ PERIOD	
FRS / TRACOM FORMAL GROUND TRAINING	
TRACOM LSO GUIDE REVIEWED	
CV NATOPS REVIEWED	
CQ FTI REVIEWED	
LSO TRAINING LECTURE	
LSO TRAINING QUIZ	
DATE OF TRAINING LSO QUALIFICATION / DESIGNATION LETTER	
Remarks:	

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CNATRAINST 3740.9

LSO TREND ANALYSIS SUMMARY

NAME		RANK	SSN	DATE
SHIP	CV	CONTROLLING LSO		QUALIFICATION DATE
APPROACHES	ARRESTS	T & G		TWO
WOFD	BOLTERS		HOOK SKIP BOLTERS	

GRADE	COMMENTS	WIRE	REMARKS
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			

AVERAGE NUMERICAL GRADE SCORE:

SIGNATURE OF LSO	SQUADRON

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APPENDIX B
CARRIER QUALIFICATION BRIEFING GUIDES

T-45A/C
CARRIER QUALIFICATION BRIEFING GUIDE

The following items will be briefed by the flight lead for all TS CQ-25X/ADV-17X flights. The brief will be conducted 2.5 hours prior to scheduled takeoff time.

1. Flight Call Sign

2. Lineup

3. Walk, Manup, Takeoff, and "Charlie" Times

4. Weather
   a. Departure
   b. En route
   c. Ship
   d. Divert field
   e. Bingo field

5. Fuel Requirements

6. Communication Plan

7. Preflight. Perform normal preflight paying extra attention to the following items:
   a. Carrierization card in A.D.B. (Empty Wt)
   b. Tire pressure
   c. Launch bar
   d. Holdback assembly
   e. Landing gear - proper servicing, security
   f. Tailhook – security, greased
   g. Tailhook snubber pressure - 950 psi plus or minus 50 psi
   h. Cockpit
      (1) Instruments secure - both c/p
      (2) No loose gear, minimum pubs/gear in cockpit.
      (3) Check cat grip
      (4) Rear cockpit - Harness locked; "Soloized."

8. Ground Procedures

   a. Marshal (normally in chocks)
   b. Radio checks (check appropriate channelization)
   c. Taxi (bumpier due to carrier pressure)
   d. Alignment

9. Enroute

   a. Takeoff and departure - IFR/VFR clearance/Rdv
   b. Enroute to ship
   c. Check in with Marshal giving lineup, qual number, low fuel state and "ANGELS."
   d. Hold as assigned.
   e. Smash lightoff/antiskid-off/hook bypass switch-carrier/SAHRS-DG

10. Fuel Management
    a. Individual pilot responsibility

b. Note bingo distance, bearing, and fuel required.
c. Holddown: Bingo + 300 lbs
d. Maximum trap weight 13,360 lbs

11. Approaches to the Ship
    a. Case I (wx 3000/5)
        (1) Flight will descend from holding IAW CV NATOPS/CNATRA CQ OP plan.
        (2) Be at 1200 feet at 7 NM, descend to the initial: 800 feet at 3 NM. Flight lead will call "3 miles."
        (3) Concentrate on good formation.
        (4) Lead breaks 10 seconds or not later than 1/2 NM upwind, two uses a 10-second interval, three/four use 15-second intervals (17 seconds if interval is hookdown).
        (5) Spin procedures: initiate at the bow, climb to 1200 feet, and remain within 3 NM and reenter for the break. Call "spin 90."
    b. Case II (wx 1500/5. Tops not above 15,000 feet).
        (1) Marshal as assigned; angels + 15 = DME
        (2) Students may penetrate in section only on an instructor's wing. Lead may break up the division for individual holding.
        (3) 250-knot descent, S/B out, 4-6000 FPM.
        (4) Lead will call "platform" at 5000 feet (approximately 20 NM) and shallow rate of descent to 2000 FPM (minute-to-live rule).
        (5) If not VFR or ship is not in sight at 800 feet and 5 NM, climb straight ahead on the BRC to visual conditions on top of cloud layer.
        (6) Ship in sight - call "see you" and switch tower. Enter normal break; 800 feet, 300 KTS.

12. Carrier Pattern
    a. Pilot-controlled pattern
    b. Break
        (1) 800 feet AGL, 300 KTS, with each succeeding A/C at a 15-second interval (20 seconds if hookdown)
        (2) Level break on the instruments.
        (3) Descend to 600 feet when downwind.
    c. Downwind
        (1) Landing checks - harness locked, antiskid off, anti-smash light off, and hook up/down
        (2) AOA check
        (3) Report abeam with qual number, gear, flaps full, fuel state, qual number. Qual number only will be reported on subsequent passes.
    d. Approach Turn
        (1) Abeam position. Lead should set proper distance abeam (1 to 1.1 NM).
        (2) Turn abeam LSO platform.
        (3) 90-degree position: 450 feet AGL.
        (4) 45-degree position: 325 - 375 feet AGL.
        (5) Cross wake at 300 - 350 feet AGL.
        (6) Do not look for ball early.
        (7) Ball acquisition - check VSI and adjust (500-600 FPM).
        (8) Radar altimeter no lower than 300 feet without a ball.
        (9) Fly the numbers - will appear close and steep.
    e. Glideslope
        (1) Work for good start.
        (2) Call the ball: side number, Goshawk ball, fuel state, and qual number.
        (3) Meatball, lineup, angle of attack
        (4) Fly the ball all the way to touchdown. Landing should be a surprise. MRT and S/B retracted on touchdown.
        (5) Stress lineup with recorrections to touchdown.
        (6) Do not spot the deck.
        (7) Never accept a low ball.

f. Waveoffs
(1) Mandatory.
(2) Straight ahead (up the angle) unless otherwise directed.
(3) Do not overrotate - hold 17 units AOA/landing attitude.

g. T/G or Bolter
(1) MRT, S/B in, rotate, and climb.
(2) Turn to parallel BRC (10 degrees to the right).
(3) If necessary, ask for interval.
(4) First aircraft to the bow has priority.

h. Downwind
(1) Turn with interval at 7 o'clock hookdown/9 o'clock hookup.
(2) Fly instruments - scan altitude, heading, and abeam distance.
(3) Reciprocal of BRC, 1 - 1.1 NM abeam.

13. Deck Procedures

a. Arrestment
(1) Fly the ball to touchdown - be surprised.
(2) MRT speed brakes in on touchdown - do not reduce power until engine is at MRT and aircraft stops (no cuts).
(3) Yellow shirt director at 1 o'clock - watch signals (off brakes, pull back, raise hook).

b. Leaving landing area
(1) Use NWS.
(2) Follow taxi director – exactly, discuss signals.
(3) Foul line, slippery deck.

c. Taxi to JBD
(1) Route and placement of director.
(2) Notify tower if fuel is at or below holddown. If anticipating a delay that will put you below holddown, notify the tower.
(3) Takeoff checklist prior to crossing JBD (full flaps, 3-1/2 degrees noseup trim, BARO altimeter should read 60 feet).
(4) Weight board/signals (500-lb increments).
(5) Stop and notify tower if you lose sight of your director or you are unsure who your director is.

d. Catapult procedures
(1) Watch the director.
(2) Taxi slowly. Extend launch bar when directed. Use high gain NWS only when directed (+/- 20 degrees, low gain not available). Brake as directed.
(3) Taxi slowly into holdback - avoid pushback.
(4) Tension/signal
a MRT - Retract launch bar when signaled. Use cat grip/check gauges/instruments.
b Heels on deck - off brakes!
c Wipe out controls (including rudder).
d Head against seat.
e Salute Cat Officer.
(5) Suspend
a Prior to salute - shake head “no” and broadcast, “suspend, suspend!”
b After salute - same, but be ready to go.
c Remain at MRT until Cat Officer moves in front of A/C with “throttle back” signal.
(6) Catapult techniques
a Hold stick lightly - allow it to come back aft during the stroke, then set 8-10 degrees attitude as aircraft becomes airborne.
b Scan ADI, AOA, airspeed. Do not over or under rotate. Elevator trim will rotate the aircraft to the proper climbing attitude. AOA will initially be approximately 19 units but will accelerate to 17 units quickly. Check heading, BRC, airspeed, and interval. Lower hook if required.
(7) Catapult malfunctions
a Cold/soft shot.
b Broken holdback.
c Hangfire.

14. Refueling Procedures
    a. Locations.
    b. Pushback procedures.
    c. Signals for chocks and chains.
    d. Canopy closed.
    e. Purple shirt refueling signals.
    f. Cut signal at 3000 lbs (or as directed by Air Boss).
    g. Call "side number, up and ready (gross weight)."
    h. Mask on prior to being broken down.

15. Aircraft Man-up
    a. Cold start/Flight deck
        (1) Location of aircraft (obtained from flight deck control, escort required).
        (2) Preflight - same as before.
        (3) Beware of intakes, exhausts and props!
        (4) Avoid landing area if ops in progress.
        (5) Same start, checks, etcetera. (Start on yellow shirt signal only.)
        (6) No hook check if tail over water until A/C pulls forward.
        (7) Call "side number, up and ready, gross weight."
    b. Hot switches
        (1) Aircraft chocked and chained.
        (2) Seat safed and parking brake set.
        (3) Throttle friction on.
        (4) Leave all electrical equipment on.
        (5) Unstrap, lengthen lap straps, seat up, and rudder pedals outward.
        (6) Open canopy on signal, ensure intake screen in place.
        (7) Debrief oncoming pilot.

16. Normal Departure Procedures
    a. Case I
        (1) Straight ahead at 500 feet to 7 NM at 300 KIAS or as directed by tower. All Rdvs will be at 250 KTs/within 5 NM.
        (2) Turn shortest direction to field and climb. Stay away from overhead marshal stack (remain outside of 10 NM).
        (3) Contact departure when directed.
    b. Case II
        (1) Straight ahead at 500 feet to 7 NM at 300 KIAS or as directed by departure.
        (2) At 7 NM, turn in appropriate direction onto the 10 NM arc and intercept the departure radial outbound.
        (3) If joining other aircraft, execute TACAN rendezvous (VFR on top) on departure radial at a distance of angels plus 15 miles.
        (4) All aircraft shall report airborne, arcing, and outbound. Remain VMC established outbound on departure radial.

17. Bingo Procedures
    a. Be prepared to bingo.
    b. Update bingo info as provided by tower.
    c. Notify tower when at bingo – don't wait to be asked. This is an Emergency Procedure!
    d. Immediately turn to bingo heading and clean up (including hook).
    e. Reselect SLV mode and cross check with the wet compass.
    f. Accel to 307 KIAS - level.
    g. Commence MRT climb to predetermined altitude (as per PCL Bingo Chart).
    h. Don't wait for safety pilot to join.
    i. Switch to departure and tune in bingo TACAN. Squawk 7700.
    j. Go IMC if necessary to preserve profile.
    k. Discuss coordination with Approach Control (emergency fuel).
    l. Discuss recoveries - downwind or base leg entry, VFR straight-in, min fuel GCA.
    m. Heads up for other aircraft.

n. Land on speed.
o. Remember carrier tire pressure.
p. Check hookup, antiskid on and anticollision lights on.

18. Emergencies/Safety of flight
a. Takeoff abort.
b. NORDO - fly aircraft first, check fittings and switches.
(1) Fly normal pattern; watch for cut lights; waveoff if directed. Succeeding cut lights are calls for power.
(2) Clean up; proceed to 7 NM at 500 feet; climb overhead ship (1500 feet or VMC), expect to be joined by (or join) lead/safe.
(3) If bingo fuel - BINGO!
(4) Require immediate landing: landing light. Emergency only. LSO will use cut lights to roger ball.
c. Loss of NAVAIDS.
d. Lost plane.
e. Lost sight/inadvertent IMC.
f. Down plane/SAR.
g. Bird strike.
h. Midair.
i. Brake failure.
(1) Airborne - probable steer and short field arrest.
(2) On deck - drop hook and transmit to tower.
j. Landing gear malfunctions, probable steer.
k. Flameout - airborne and during cat shot.
l. Blown tire.
m. Hydraulic failure - discuss dirty bingo.
n. Launch bar light/launch bar down airborne.
o. Accel light.
p. Brake pressure light.
q. System failure.
r. Low altitude ejection (clean and dirty).

19. Miscellaneous
a. NATOPS and other QOD
b. Yellow sheets – "A" for ship ops, log traps, cats, T/Gs, bolters, field landing.
c. Hop isn't over after last trap. (Final cat shot, formation, field landing, etc.); ensure hookup after final CAT.
d. Reputation is earned around the ship - be professional and alert.

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APPENDIX C
NATRACOM CQ AIRCRAFT INFORMATION

T-45A/C GOSHAWK

1. Dimensions:

Wing Span	30 ft 10 inch
Height	13 ft 6 inch
Length	39 ft 4 inch
Hook-to-eye	12.0 ft

2. Aircraft Weight:

Basic	10,403 lbs
Total fuel	3,012 lbs
Max trap fuel	2,947 lbs
Max trap gross weight	13,360 lbs

3. Fuel Statistics:

Carqual pump	3,012 lbs
Fuel per pass	150 lbs
Divert fuel (above Bingo)	600 lbs
Fuel flow on deck	600 lbs/hr
Bingo fuel (see Chapter II)	

4. Shipboard Operational Considerations:
   a. No barricades
   b. Full-flap landing
   c. Full-flap takeoff
   d. Catapult and trap at full fuel
   e. Canopy windspeed limitation 35 knots. With wind in excess of 20 knots, it is recommended that the nose of the aircraft be pointed into the wind if possible.
   f. Full-time nose wheel steering except with the launch bar down.
   g. Self-starting
   h. On board oxygen system (OBOGS)
   i. On catapult launch with the aircraft at MRT, the catapult officer will give the launch bar retract signal.
   j. Tie down requirements as follows:
      (1) Normal weather, 6 chains
      (2) Moderate wind to 60 knots, 12 chains
      (3) Heavy weather, 18 chains
   k. Antiskid off for carrier operations
   l. Pump to full bag of gas after 1st trap for bingo considerations. Hot refueling limit is 2800 lbs.

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APPENDIX D

STRIKE & AIR OPERATIONS
CQ PLANNING FACTORS

Overhead Holding

- Air Boss has overhead up to 5.5K for holding. Boss must ensure Air Operations does not bring aircraft into his airspace without first notifying the Boss.
- If the Air Boss needs higher than 5.5K, then it must be coordinated with Air Operations.
- Holding altitudes under tower control are 1.5, 2.5, 3.5, 4.5, 5.5.
- When aircraft spin, the Boss shall give them a heads-up call that aircraft are holding at 1.5 (or lowest Lead).
- If two aircraft must be held at the same altitude due to WX, etcetera, one should be assigned one-mile trail with the forward aircraft utilized as the primary hawk. If preferable, the aircraft may also be joined up, the lead being the primary hawk.

Leads

- Students in a nonbingo, nonemergency can go home themselves to a familiar field if they have bingo fuel for that field plus 600 lbs.
- Students shall be pumped 600 lbs for T-45 above bingo **FOR THE FIELD TO WHICH THEY ARE BEING LAUNCHED** when launched home.

Weather

- The minimum weather to have NATRACOM CQ at the ship is 1500/5; can be waived by ship's commanding officer with CNATRA's concurrence to 1000/5.
- Max CQ wind is 35 knots.
- Downwind recovery should only be used in an emergency.
- T-45s can be worked to 120 miles from the bingo field.
- The winds must be within 7-knot crosswind component.
- The first aircraft launched to the ship for the day shall be a single lead and shall be the WX recce. The weather recce should be trapped and heavy pumped, then used as a lead safe.

SAR

- One SAR helicopter shall be airborne and a second aircraft shall be in a 30-minute alert status during all carrier air operations.

Hot Seat Evolutions

- Students shall have an arrested landing prior to being considered for a hot seat evolution.

Items to Watch

- The upwind pattern must be continuously watched as students will cut each other out. The Boss and Leads should keep track of who is in the pattern. While six aircraft are allowed in the pattern at one time, fewer aircraft in the pattern reduces fuel consumption per pass and aids in keeping SNA aircraft within sight of the tower. Four aircraft airborne in the pattern at one time is considered optimum for CNATRA CQ.

- It is not desirable to spin divisions of SNA's. Tower should hold the CATS when a division is "charlied" to allow the division lead the opportunity to break at 0.5 to 1 NM upwind.

- The Boss must watch the students in the break for loss of altitude. It is not uncommon to see students descending toward the water out of the break.

- Students have to be watched on deck to make sure they are following their directors. Flight directors should be briefed that students may not understand or follow their directions.

- All cat shots must be watched closely, especially the first shot for each student.

- Lead/Safe fuel states must be monitored closely.

- Ensure students on a bingo clean up and turn towards bingo field promptly.

- Keep aircraft in the spin pattern advised of the lowest holding Lead/Safe to avoid midair potential.

APPENDIX E

T-45 BLOWN TIRE CONSIDERATIONS

The following items, **at a minimum**, shall be briefed prior to attempting to recover a T-45 with a blown tire.

1. Field Arrestment

(a) Confirm blown tire(s), flap setting, hook position, fuel state, Hyd 1 pressure, antiskid off. Confirm all emergency procedures complete.

(b) Winds and runway: ensure crosswind on good tire side. If >5 kts on blown tire side, a tailwind recovery may be preferred.

(c) Arresting gear and lens location.

(d) Approach and pattern.

(e) LSO talkdown voice calls.

(f) Touchdown procedures (MRT, S/B's in, positive rotation) and importance of rudder inputs (full rudder opposite blown tire).

(g) Bolter procedures.

(h) Waveoff procedures.

(i) Arrestment.

(j) Loss of control/ejection.

2. Ship

(a) Confirm blown tire(s), flap setting, hook position, fuel state, Hyd 1 pressure, antiskid off. Confirm all emergency procedures complete.

(b) WOD (from ARB's, nominally 20-35 kts).

(c) Pattern and approach.

(d) Importance of glideslope control.

(e) LSO voice calls.

(f) Touchdown procedures (MRT, S/B's in, positive rotation) and importance of rudder inputs (full rudder opposite blown tire).

(g) Bolter procedures.

(h) Waveoff procedures.

(i) Arrestment.

(j) Loss of control/ejection.

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