

NAVAL AIR TRAINING COMMAND



NAS CORPUS CHRISTI, TEXAS

CNATRAINST 3740.9F
24 Nov 15

CHIEF OF NAVAL AIR TRAINING



CARRIER QUALIFICATION INSTRUCTION

2015



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CHIEF OF NAVAL AIR TRAINING
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Subj: CNATRA CARRIER QUALIFICATION INSTRUCTION (SHORT TITLE -
CNATRA CQ INSTRUCTION)

Ref: (a) NAVAIR 00-80T-105
(b) NAVAIR 00-80T-104
(c) NAVAIR A1-T-45AC-NFM-000
(d) OPNAVINST 3710.7U
(e) OPNAVINST 4631.2D
(f) OPNAVINST 3750.6R
(g) COMNAVAIRFOR 3740.1A
(h) COMNAVAIRFOR 1520.6B)
(i) CNATRAINST 3750.23M
(j) CNATRAINST 1542.167
(k) CNATRAINST 1542.176
(l) CNATRAINST 1542.169
(m) CNATRAINST 1500.4G
(n) COMTRAWINGONEINST 3710.15D/COMTRAWINGTWOINST 3710.13G
(o) MOU 2009-01 between USAF AETC, CNATRA, and USMC TECOM
(p) OPNAVINST F3100.6J

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

2. Cancellation. CNATRAINST 3740.9E

3. Action. This instruction is effective upon receipt. No changes will be made without written authorization by CNATRA.

4. Forms. The CNATRA-GEN forms required by this directive are available on the CNATRA website at <https://www.cnatra.navy.mil/pubs/forms.htm>. These forms may be saved to your computer and filled out prior to printing or printed blank. The forms shall not be altered or modified. If changes are desired, a change request shall be submitted to CNATRA. The POC for this instruction is the CNATRA LSO, N72, DSN 861-1334.

5. Reports. The reporting requirements in references (f) and (i) 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).



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Chief of Staff

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ABBREVIATIONS

The following is a list of terms and acronyms used in the instruction:

ACP	-	Allied Communications Publication
ADB	-	Aircraft Discrepancy Book
ADIZ	-	Air Defense Identification Zone
AETC	-	Air Education and Training Command (USAF)
AIMD	-	Aircraft Intermediate Maintenance Department
AMB	-	Aircraft Mishap Board
ATC	-	Air Traffic Control
ATF	-	Aviation Training Form
BARO	-	Barometric Altimeter
Bingo	-	An order to proceed and land at the field specified, utilizing a bingo profile.
Bolter	-	Aircraft touches down but does not arrest.
BRC	-	Base Recovery Course - Ship's Heading
BUPERS	-	Bureau of Personnel
Carrier control zone	-	The airspace within a circular limit defined by 5 miles horizontal radius from the carrier, extending upward from the surface to and including 2500 feet.
CARQUAL	-	Carrier Qualifications
CATCC	-	Carrier Air Traffic Control Center
CDI	-	Collateral Duty Inspector
Charlie	-	Signal for aircraft to land aboard the ship.
Clara	-	A pilot transmission indicating the pilot does not have the visual landing aid (ball) in sight.
Clara lineup	-	A pilot transmission indicating the pilot does not have a usable lineup reference.
CMS	-	Contract Maintenance Support
CNATRA	-	Chief of Naval Air Training

CNET	-	Chief of Naval Education and Training
COD	-	Carrier Onboard Delivery
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
CVN	-	Nuclear-powered Multipurpose Aircraft Carrier
CVOIC	-	Ship detachment Officer in Charge
DET	-	Detachment
DLQ	-	Deck Landing Qualifications
FACSFAC	-	Fleet Air Control and Surveillance Facility
FAM	-	Familiarization Flight
FCLP	-	Field Carrier Landing Practice
FOD	-	Foreign Object Damage
FRS	-	Fleet Replacement Squadron
FTI	-	Flight Training Instruction
GCA	-	Ground-Controlled Approach
GSE	-	Ground Support Equipment
Hold Down	-	Amount of fuel at which point refueling is required if aircraft is on the flight deck.
IAS	-	Indicated Airspeed
IFF	-	Identification Friend or Foe (system)
IFLOLS	-	Improved Fresnel Lens Optical Landing System
IFR	-	Instrument Flight Rules
IMC	-	Instrument Meteorological Conditions
INMARSAT	-	International Maritime Satellite
IP	-	Instructor Pilot
IUT	-	Instructor Under Training

JANAP	-	Joint Army-Navy-Air Force Publication
JBD	-	Jet Blast Deflector
KTS	-	Knots
LOI	-	Letter of Instruction
LSE	-	Landing Signal Enlistedman
LSO	-	Landing Signal Officer
MOVLAS	-	Manually Operated Visual Landing Aid System
MRT	-	Military-Rated Thrust
MSL	-	Mean Sea Level
NALO	-	Naval Air Liaison Officer
NATOPS	-	Naval Aviation Training and Operating Procedures Standardization
NATRACOM	-	Naval Air Training Command
NAVAID	-	Navigational Aid
NORDO	-	No Radio
NTP	-	Naval Telecommunications Publication
NWP	-	Naval Warfare Publication
NWS	-	Nose Wheel Steering
OIC	-	Officer in Charge
OLS	-	Optical Landing System
OP	-	Operation
OPAREA	-	Operating Area
OPLAN	-	Operations Plan
PLAD	-	Plain Language Address Directory
PMCF	-	Postmaintenance Check Flight
POL	-	Petroleum, Oil and Lubricants
PWO	-	Pattern Waveoff
RECCE	-	Reconnaissance
Regual	-	Student who previously disqualified
RTF	-	Return to Fleet

SAR	-	Search and Rescue
SDO	-	Squadron Duty Officer
SERGRAD	-	Selectively Retained Graduate
SHIPDET	-	Ship Detachment
SHOREDET	-	Shore Detachment
SNA	-	Student Naval Aviator
T/G	-	Touch and Go
TACAN	-	Tactical Air Navigation (system)
TRARON	-	Training Squadron
TRAWING	-	Training Air Wing
VFR	-	Visual Flight Rules
VMC	-	Visual Meteorological Conditions
VOD	-	Vertical Onboard Delivery
WOD	-	Wind Over the Deck
WX	-	Weather

CHAPTER I

CONCEPT OF OPERATIONS

100. General. This instruction details the procedures and limitations for the carrier qualification (CQ) of Student Naval Aviators (SNA) within the guidelines of references (a) through (p) and under the cognizance of the Chief of Naval Air Training (CNATRA). The Landing Signal Officer (LSO) 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 instruction and the Naval Air Force CQ instruction.

NOTE: NATRACOM CQ requires some deviation from normal carrier airwing launch and recovery procedures. 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 Commander, Naval Air Force.

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), (g), (h), and as modified by this instruction.

103. Administration and Logistics

a. CNATRA shall designate a TRAWING to provide a Shore Detachment Officer in Charge and an Afloat Officer in Charge.

b. CNATRA shall publish a Letter of Instruction (LOI) for each operating period.

c. The CNATRA LSO shall provide the CVN Strike Operations Officer with the CNATRA Training Plan which should not exceed 12 hours in length on any given day.

d. TRAWINGS shall submit CQ rosters to the CNATRA LSO formatted in accordance with Chapter VII of this instruction.

e. TRAWINGS shall publish a Letter of Instruction which specifies that particular wing's personnel and operational plan.

f. Administrative and operational reports are required in accordance with Chapter VII of this instruction.

g. Logistics support is required in accordance with Chapter VI of this instruction.

104. Command and Signal

a. Communications shall be in accordance with Chapter II 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 shall be referred to the detachment OIC for decision and resolution.

CHAPTER II

OPERATIONAL REQUIREMENTS, PROCEDURES AND LIMITATIONS

200. Introduction. Carrier qualification requirements are directed by references (b), (g), (h), 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, and Lead/Safe Instructors undergoing Carrier Qualification.

201. Waiver Authority. Under unusual circumstances, a deviation or 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:

- a. Student Naval Aviators.
- b. LSOs receiving initial or refresher training.
- c. Fleet carrier-experienced Instructors Under Training (IUTs).
- d. Other personnel who have been approved by CNATRA or higher authority.

203. General Instructions and Facility Requirements

a. CNATRA CQ Requirements

(1) CQ operations for Student Naval Aviators shall be in accordance with the T-45 Pilot Training curricula.

(2) Other Naval Aviators, such as IUTs, Lead/Safes, and foreign military pilots, should receive instruction and qualification based on previous flight experience and applicable instructions. Any pilot in this category that has logged fewer than 100 carrier arrestments must have TRAWING Commander's endorsement and CNATRA N7 approval prior to CQ-8x.

b. Pilot Performance. 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.

c. LSO Qualification. LSOs shall be qualified in accordance with references (b) and (h) and this instruction.

d. Facilities and Equipment

(1) FCLP Facilities:

(a) The Improved Fresnel Lens Optical Landing System (IFLOLS) shall be used for all field carrier landing practice (FCLP) flights.

(b) The controlling LSO shall be responsible for changing the basic angle as required for FCLPs. In order to standardize field lens settings, a field lens setting of 3.25 should be used (NAF El Centro excluded).

(c) On CQ detachments, refresher FCLPs will be conducted if currency has expired or is about to expire due to ship or weather delays; however, units should arrive fully field qualified.

(d) The OIC or his representative shall schedule refresher FCLP periods at an adequate location.

(e) Arresting gear shall be rigged and in battery at a suitable divert field within 30 NM of the FCLP field.

(2) Carrier Facilities:

(a) In the event of an IFLOLS casualty, an LSO "Talk Down" may be used to recover aircraft if unable to divert. Use of the Manually Operated Visual Landing Aid System (MOVLAS) during CQ is prohibited.

204. CNATRA CQ Operational Limitations and Requirements

a. Ashore brief time should be scheduled 2.5 hours prior to takeoff for SNAs. After the initial CQ flight brief, SNAs may be scheduled to brief less than 2.5 hours prior to takeoff as necessary. CQ briefs aboard the ship should be scheduled 1.5 hours prior to takeoff. All CQ briefs will be conducted by a qualified Lead/Safe, Lead/Safe IUT, or LSO.

- b. SNA crew rest aboard the carrier is 10 hours from debrief to brief.
- c. On detachment, SNAs are limited to two FCLP/CQ (CQL) flights and three manups per day (waiverable to three FCLP/CQ (CQL) flights and four manups per day with the expressed consent of the squadron Commanding Officer or designated authority and CNATRA OIC).
- d. For SNAs, a maximum of 3.5 hours total flight time (to commence at takeoff and terminate with engine shutdown) is permitted during any one CQ flight.
- e. For SNAs, a maximum of 5 hours total flight time is permitted during any one day.
- f. CNATRA limits SNAs to six arrestments per day. The CNATRA LSO may authorize SNAs to a maximum of 10 arrestments in one day. IUTs are limited to 10 arrestments per day. For CQ current instructors, there is no operational limit.
- g. Minimum Lead/Safe requirements with SNAs in the CQ pattern are as follows:
 - 1-3 SNAs: One Lead/Safe required.
 - 4-6 SNAs: Two Lead/Safes required.
- h. Hot-seat evolutions are authorized. SNAs shall have an arrested landing prior to being considered for a hot-seat evolution on the carrier.
- i. Waist catapults shall not be utilized by SNAs during CNATRA CQ. Waist catapults, however, may be used to launch Lead/Safe pilots or diverting aircraft flown by Lead/Safe pilots or LSOs, if required.
- j. SNAs shall not be launched into the carrier pattern below holddown.
- k. SNAs shall not be diverted to the shore detachment location with less than bingo for that field plus 600 lbs on deck/500 lbs airborne.
- l. SNAs shall remain on deck at the CVN or be diverted 30 minutes prior to sunset.

m. Instructors shall remain on deck at the CVN or be diverted no later than sunset.

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

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

p. All NATRACOM aircraft shall, to the max extent possible, use "CD" and the three-digit side number (i.e. "CD 124") as their call sign during CARQUALS for all controlling agencies except the ship.

205. Landing Requirements. CNATRA carrier landing requirements are shown in below.

Table II-1



**Carrier
Landing Requirements**

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

NOTES:

- (1) If an SNA/IUT becomes critically low on fuel, tower may postpone one of the two initial touch and goes and trap the aircraft to avoid bingo. The SNA/IUT shall then be given remaining T/Gs after refueling, if required.
- (2) Partially qualified SNAs are required to have at least one T/G prior to the first carrier arrestment of the day.
- (3) FCLP currency for SNAs: FCLP warmup is required if:
 - (a) the current Julian date is more than 3 days after the Julian date of the last FCLP period.
 - (b) the current Julian date is more than 3 days after the Julian date of the last Carrier Landing or T/G.
 If SNAs are delayed on the carrier due to weather, the CNATRA LSO may waive the FCLP requirement to no more than three no-fly days since last carrier landing with concurrence from the CNATRA OIC.
- (4) After the completion of six arrested landings and on the recommendation of the controlling LSO, the CNATRA LSO may approve up to a maximum of ten arrested landings in one day for initial SNA CQ.
- (5) Non-fleet experienced IUTs shall receive an FCLP period within three days of CQ. Fleet-experienced IUTs shall FCLP within five days of CQ. The CNATRA LSO may approve up to a ten-day delay between FCLP and IUT CQ.
- (6) FCLPs shall be performed within ten days of recurrency. Prior to achieving currency, Lead/Safe duties may be performed. Lead/Safes and LSOs who are not current may fly with a NATOPS-qualified pilot in their back seat for essential transportation to/from the ship or for mission essential duties such as standardization check flights.

206. Weather Minimums. CNATRA weather minimums are shown in table II-2 below.

a. A single-ship weather reconnaissance (RECCE) flight shall launch as required prior to the first student launch of the day. This weather RECCE will normally function as a Lead/Safe after the commencement of SNA CQ.

b. Flight leads are prohibited from leading a division or light division of students into IMC conditions except in emergency situations.

Table II-2



CNATRA CQ Weather Limits

	Departure Field	Enroute	CVN	Bingo	Divert
SNA	1000/3 (2)	VFR on Top	1500/5 (1) (3) (4)	1000/3	1000/3
LD/SAFE	IFR	IFR	1000/5	TACAN circling	IFR
LSO/IUT			(4)	Mins	

NOTES:

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

(2) Student solo flights may be launched with departure field weather between 500/2 and 1000/3 with the expressed consent of the squadron Commanding Officer or designated authority and CNATRA OIC.

(3) Weather requirements at the ship can be waived by the CVN Commanding Officer with CNATRA CVOIC concurrence to no lower than 1000/5. If this waiver is granted, the following conditions apply:

- a. The maximum number of aircraft in the pattern is reduced from six to three.
- b. The spin pattern is closed.
- c. Lead/Safe aircraft shall not operate below 1500 feet.

(4) Case III operations are not authorized for CQ. Case III operations shall not be conducted unless required to launch and recover LSO and Lead/Safe aircraft. Case III minimums are 700/3.

207. Wind and Deck Limitations. Wind and deck limitations for CNATRA aircraft are shown in Table II-3 below.

Table II-3				
				
Wind and Deck Limitations for CNATRA Aircraft				
	Wind Over Deck (1)			Deck Pitch (2)
	Max CQ Wind	Optimum	Min CQ Wind	
SNA/IUT	35 kt	25 kt	20 kt	+/- 3 ft Ramp Movement
LD/SAFE LSO	35 kt	25 kt	20 kt	+/- 5 ft Ramp Movement
NOTES:				
(1) The maximum crosswind component for all CQ is 7 knots.				
(2) The CNATRA LSO shall observe the frequency and magnitude of the deck movements and advise the tower on any degradation to training or increased safety risk.				

208. Bingo Limitations and Considerations. CNATRA bingo fuel states are listed in Tables II-4 and 5 below.

Table II-4



T-45 SNA BINGO FUEL REQUIREMENTS

Distance (NM)	Clean	Gear Down/Flaps Down	Holddown (Gear Down/Flaps Up)
20	0.7	0.9	1.0
30	0.7	1.1	1.0
40	0.8	1.3	1.1
50	0.9	1.5	1.2
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

NOTES:

- (1) Fuel figures based on 550# reserve overhead bingo field.
- (2) Based on sea level figures. Bingo aircraft shall climb to altitude and follow NATOPS bingo profiles.
- (3) Add 300# if bingo field weather is below minimum vectoring altitude but greater than or equal to 1000/3.
- (4) Holddown (based on Gear Down/Flaps Up bingo fuel) shall never be less than clean bingo + 300#.

Table II-5



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

Distance (NM)	Clean	Gear Down/Flaps Down	Holddown (Gear Down/Flaps Up)
20	0.4	0.6	0.7
30	0.5	0.8	0.8
40	0.6	1.0	0.9
50	0.6	1.2	0.9
60	0.7	1.4	1.0
70	0.7	1.6	1.0
80	0.8	1.8	1.1
90	0.8	2.0	1.2
100	0.9	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

NOTES:

- (1) Fuel figures based on 300# reserve overhead bingo field.
- (2) Based on sea level figures. Bingo aircraft shall climb to altitude and follow NATOPS bingo profiles.
- (3) Add 300# if bingo field weather is below minimum vectoring altitude but greater than or equal to TACAN circling mins.
- (4) Holddown (based on Gear Down/Flaps Up bingo fuel) shall never be less than clean bingo + 300#.

Bingo fuel is an emergency situation. Aircraft reaching this fuel state shall immediately report "bingo," squawk 7700, and can expect to 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 followed by an immediate bingo departure if not arrested. For student bingos, a Lead/Safe shall be designated by Tower/Departure to join and escort the bingo. Bingo aircraft should turn in the shortest direction to the bingo heading and commence a climb on the bingo profile outside seven miles or as directed by Tower/Departure. Bingo aircraft should be cognizant of other aircraft overhead the ship during their departure to minimize the risk of a midair collision.

- a. T-45 bingo fuel requirements are predicated on a sea level bingo, allowing the bingo to be flown at any altitude.
- b. If entry into Class "A" airspace is necessary, the bingo aircraft and/or Lead/Safe shall notify the controlling FACSFAC of the desired altitude prior to handoff from the Warning Area.
- c. When operating and communicating with an ATC facility, the term "Emergency Fuel" shall be used in lieu of "bingo."
- d. 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.
- e. SNAs directed to bingo shall not be told to join on a Lead/Safe. Once the SNA is established on the bingo profile, the escorting Lead/Safe will join the SNA and assume the lead in the wingman position. The intent is to avoid a circling joinup which wastes fuel once a bingo fuel state has been reached by the SNA.
- f. If necessary, bingo profiles may be flown in Instrument Meteorological Conditions (IMC) provided the flight is conducted in accordance with ATC procedures.
- g. Maximum bingo range for CNATRA CQ is 120 miles. To ensure maximum efficiency and safety for CQ operations, bingo ranges of less than 90 NM are recommended. Operations at distances in excess of 90 NM from the bingo field allows for limited opportunity for aircraft entering the pattern to perform two T/Gs and one trap prior to reaching student bingo fuel state. Postponing one T/G should be considered if any delays are anticipated.
- h. Arresting gear shall be rigged and in battery at the bingo field. A Training-qualified LSO shall report on station at the bingo field no less than 15 minutes prior to commencement of SNA CQ operations. The bingo field LSO will remain on station until all SNA CQ operations aboard the ship are complete.

209. Carrier Holding and Approach Procedures. 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. Figure II-1 depicts the CNATRA CQ Case I Stack and Figure II-2 depicts the CNATRA CQ Case I Holding Pattern and Break Entry. Figure II-3 depicts the CNATRA CQ Case II Marshal Holding and Recovery.

a. Case I: A ceiling of 3000 feet and 5 miles visibility within the Carrier Control Zone (CCZ) is required for Case I operations. This recovery 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 I holding shall be assigned altitudes 6000 feet Mean Sea Level (MSL) and above when under Marshal control within 10 miles of the ship. Flights shall be established at their assigned altitude 10 NM prior to entering the port holding pattern. To minimize delay, flights should be handed off from Marshal to Tower as soon as possible. Flight leaders should check in with number in flight and low state to Tower.

(2) Descent/Approach. When given either a change in holding altitude or signal "Charlie," Flight Leads shall remain overhead until approaching point three, then proceed outbound 210 degrees relative to the BRC before vacating their previous altitude (see figure II-2). Flight leads should remain within 10 miles if descending from low holding. Flights proceeding to the initial should be established wings level 5 NM astern the ship at 1200 ft and proceed to the 3 NM/800 ft initial.

(3) Spin/Break Entry. All flights shall report the initial and proceed as directed. In the event of a spin, flight leads 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 the 3 NM/800 ft initial. All SNAs will remain with the flight lead on the spin. Flight leads report "spin 90" during the last 90 degrees of turn. The Lead/Safe at 2000 feet and the spinning flight lead shall take extra care to remain clear of each other. Flight leads shall break at 300 knots no earlier than one mile upwind. The lead will normally be hook down in order to hot pump prior to assuming Lead/Safe duties overhead. If directed to be hook up, the lead shall execute a touch and go, accelerate and cleanup maintaining 500 feet upwind to 7 NM and climb overhead to assigned altitude. Under normal circumstances, the

leads shall be assigned the following altitudes after student dropoff:

2000, 3000, 4000, 5000

NOTE: If weather dictates, Tower may hold a maximum of two Lead/Safes at the same altitude. Tower shall assign one of the Leads as "primary hawk." The second A/C shall fly cross-circle or joined in TAC Wing and keep sight of the primary until told to assume "primary hawk" or divert. Lead/Safes shall not operate below 1500 feet. If Lead/Safes are required to be held above the overcast without visual reference to the pattern, the maximum number of aircraft in the pattern is reduced from six to three.

CNATRA CQ CASE I STACK

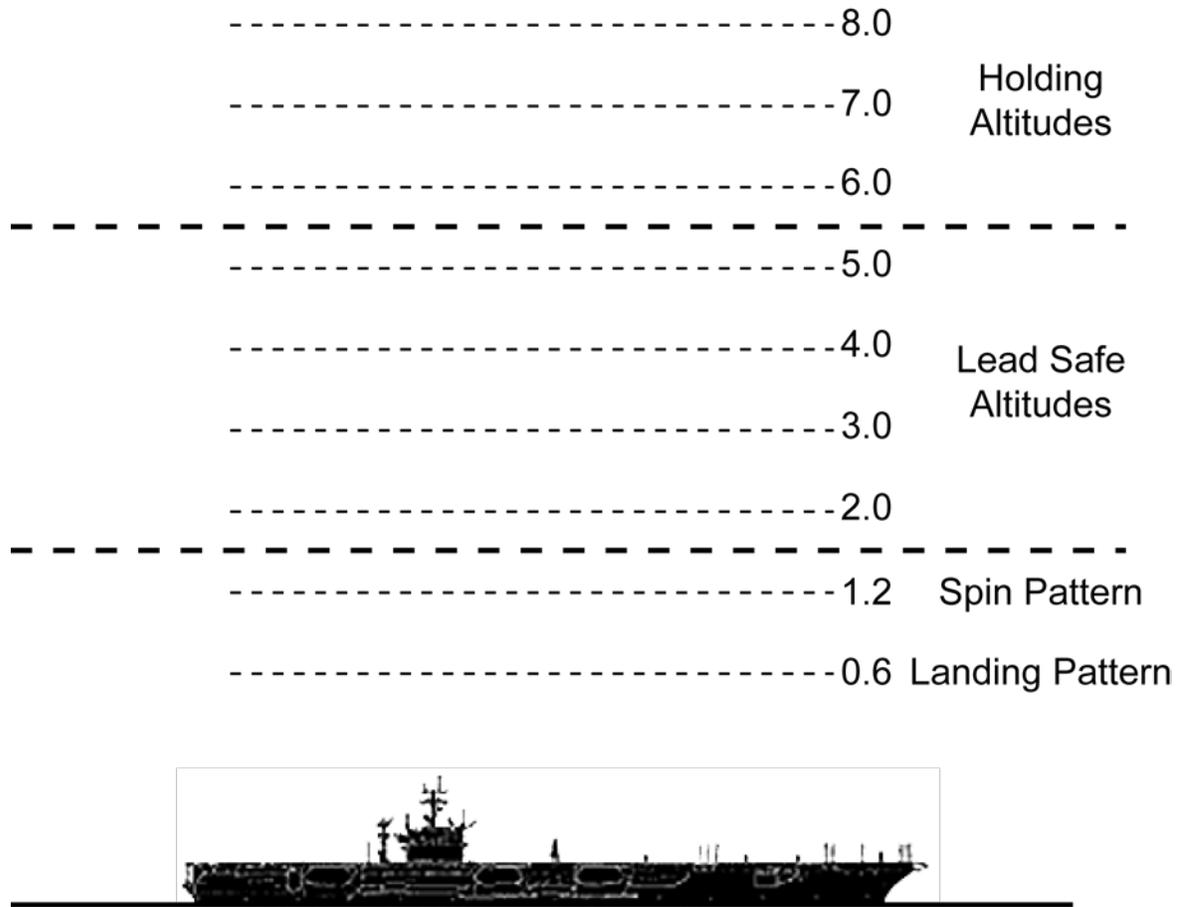


Figure II-1

b. Case II: A ceiling of 1500 feet and 5 miles visibility within the CCZ is required for Case II operations. Case II Weather requirements can be waived by the CVN Commanding Officer with CNATRA CVOIC concurrence to no lower than 1000/5 with the following restrictions:

- The maximum number of aircraft in the pattern is reduced from six to three.
- The spin pattern is closed.
- Lead/Safe aircraft shall not operate below 1500 feet.

(1) Holding. Marshal procedures will be conducted as per reference (a). The preferred marshal fix for NATRACOM is the 180-degree radial relative to the BRC. A holding altitude and distance (angels + 15) shall be assigned by CATCC. In no case shall the holding altitude be less than 6000 feet. The overhead marshal stack can be utilized if flight conditions and geographical circumstances dictate. CATCC shall, equipment permitting, provide radar coverage with all holding aircraft and, as much as possible, provide assistance and monitor altitudes.

(2) Penetration. Refer to Figure II-3. Case II penetrations to the ship are authorized under the following conditions:

- (a) The flight shall be led by a qualified Lead/Safe.
- (b) The penetration shall be performed with no more than two aircraft in a flight.

For division operations, the following will apply: The Lead/Safe will check in with Marshal and receive holding instructions for each wingman in the flight. The Lead/Safe will detach dash 3 and 4 of the division at their assigned holding altitudes and penetrate with dash 2. After dropping off dash 2 in the pattern, the Lead/Safe will either (1) recover (2) divert or (3) depart on the BRC and receive vectors to pick up another SNA from Marshal. Each SNA will be brought down individually by a Lead/Safe while the remaining SNAs continue to hold as assigned. Any Lead/Safe present may be utilized to recover SNAs from Marshal.

(3) Descent/Approach. 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 and with the ship in sight, flights shall report "see you" and proceed to the initial. If the flight does not have the ship in sight by 5 miles, both aircraft shall be vectored to VMC on top for holding/divert.

NOTE: Aircraft operating overhead for Lead/Safe duties under Tower control shall contact Marshal for recovery if unable to maintain VMC to the initial.

CNATRA CQ CASE II MARSHAL HOLDING & RECOVERY

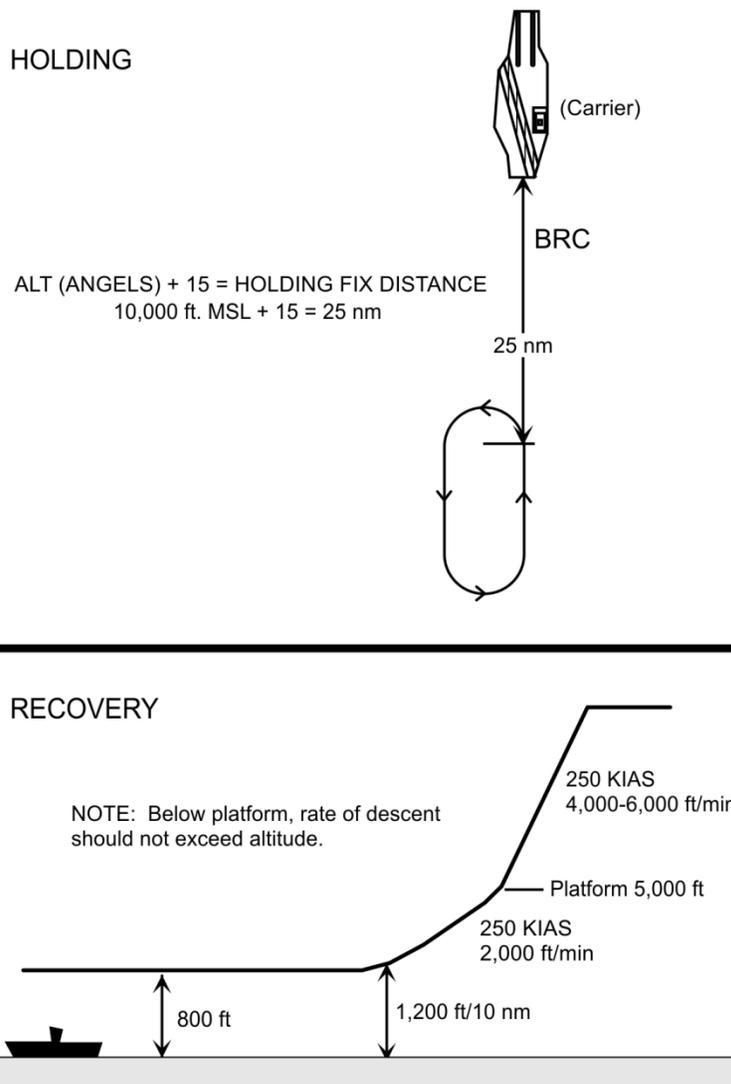


Figure II-3

c. Case III: 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. Due to the lack of PALS and ICLS in the T-45 aircraft, case III operations shall not be conducted unless required to launch or recover LSO and Lead/Safe aircraft. Case III operations for SNAs and case III CQ are not authorized. Weather minimums for case III are 700/3.

210. 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/II departure procedures.

Students are permitted to return to home base single ship. The Tower will inform the SNA of their divert airfield destination. If departing for an unfamiliar field (defined as one for which a detailed course rules brief was not given), a Lead/Safe escort is required. If it is determined that a student should be led home by a Lead/Safe, Tower will designate a Lead/Safe pilot and inform the student of the Lead/Safe position and altitude. A joinup can be affected overhead or on a TACAN radial.

a. Clearing Turns. 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 shall only be executed after a positive climb rate has been established.

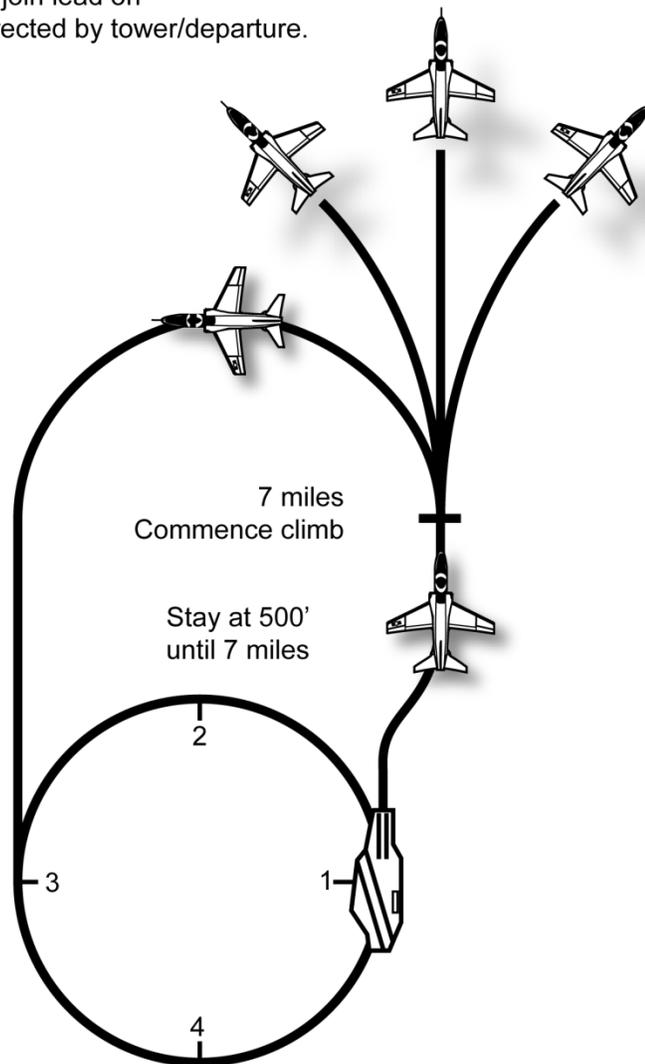
b. Case I Departure. After launch, execute a clearing turn and parallel the BRC heading at 500 feet AGL and 300 KTS to 7 miles. Contact Departure and commence a VFR climb to remain outside of 10 miles.

c. Case II Departure. After launch, execute a clearing turn and parallel the BRC heading at 500 feet AGL and 300 KTS to 7 miles. Contact Departure and turn in the shortest direction on the 10-NM arc to intercept the departure radial or heading provided by Departure. Once established on the departure radial/heading, climb and report "VMC on top" to Departure.

d. Case III Departure. If required, this departure shall be flown in accordance with reference (a) by LSO and Lead/Safe aircraft only.

CNATRA CQ CASE I/II DEPARTURE

If diverted to an unfamiliar field,
SNAs turn back to ship at assigned
altitude to join lead or join lead on
departure radial as directed by tower/departure.



Note: For Case II departures, arc at 10 miles and intercept
the departure radial outbound climbing to "VFR on top."

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 Syllabus. The Training LSO Designation reflects the LSO'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 two or three workup periods. The workups include a T-45 carrier qualification period, an LSO observation period, and a final LSO qualification period. Carrier qualification and the observation period may be combined into one period based on performance. Normally this means that by the sixth to eighth month in the squadron, the LSO should have completed the training requirements. The Training LSO syllabus shall be standardized throughout the Training Command. CQ stage heads shall ensure that their new LSOs are brought to the attention of the operations officer so a proper training plan can be implemented. After completion of the NATOPS (NA) flights in the IUT syllabus, the LSO should begin observing the CQ program. The LSO School's Fleet Replacement Squadron (FRS)/TRACOM Formal Ground Training is a prerequisite for Training LSO designation and should be completed prior to the final qualification period.

a. The Carrier Qualification Period. Requirements for carrier qualification are specified in reference (b).

b. The Observation Period. The LSO IUT shall observe all CQ lectures, a minimum of 2 Day and 1 Night FCLP periods (including OLF operations if available), and two days of SNA CQ at the ship.

c. The Training Period. The training period is the final phase of LSO training. The new LSO IUT shall be tasked to instruct a class of students to include FCLPs, associated lectures, and CQ. The LSO IUT shall be the controlling LSO with the squadron CQ Stage Head or Wing LSO monitoring his/her performance. A comprehensive written examination covering all aspects of waving in the NATRACOM shall also be administered

during the training period. An example is represented in Appendix A.

d. TRAWING LSO Recommendation. Once all training period requirements are accomplished, the respective TRAWING LSO shall assess the LSO's performance. The TRAWING LSO shall either recommend the LSO for a Training LSO designation or establish a plan for additional LSO training requirements. The Training LSO designation shall not be granted without TRAWING LSO approval.

e. Training LSO Designation. The squadron CQ Stage Head 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 for inclusion in the LSO's service record. If any deviations to this training program are anticipated, the TRAWING LSO and CNATRA LSO shall be consulted to ensure standardization is not lost.

302. NATRACOM LSO Organization. Under the CNATRA LSO are the respective TRAWING LSOs for each Wing. The individual Squadron LSOs, LSO IUTs, and Selectively Retained Graduate (SERGRAD) LSOs round out the organization.

a. SERGRAD LSO. 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 six months 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 Training LSO and shall only wave IPs.

b. Squadron LSO. NATRACOM Squadron LSOs are fleet-experienced LSOs. Squadrons shall not operate with less than three designated Training LSOs. Reference (b) outlines the recommended minimum LSO requirement per squadron. 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:

(1) Train student pilots and instructors for initial day carrier qualification in the T-45.

(2) Conduct aircrew training and readiness for TRACOM carrier operations.

(3) Train subordinate LSOs within the command, including SERGRAD pilots on board who are designated LSO Trainees.

(4) Recommend, supervise, and conduct training of squadron Lead/Safes.

(5) Maintain the squadron LSO Training Matrix in accordance with reference (b).

(6) Submit certification of FCLP performance IAW reference (b) prior to CQ operations.

c. TRAWING LSO. TRAWING LSOs are selected from the senior squadron Training LSOs by the TRAWING Commander. A TRAWING LSO is operationally senior to all other LSOs in the 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 designated Training LSO with significant experience in T-45 carrier operations. The responsibilities of the TRAWING LSO are as follows:

(1) Establish and administer a Training LSO program.

(2) Act as Lead/Safe Program Manager for the TRAWING.

(3) Monitor TRAWING FCLPs and carrier qualifications.

(4) Submit the quarterly LSO Training Matrix to the LSO School in accordance with reference (b).

d. CNATRA LSO. The Senior Training Command LSO is the CNATRA LSO. This is a LCDR billet located at NAS Corpus Christi, TX. It is preferred, but not required, to be a post CAG LSO billet. Past TRACOM experience as the TRAWING LSO is required for non-CAG LSO candidates. If not actively waving, refresher training at the LSO School is required prior to assuming the CNATRA LSO position. The responsibilities of the CNATRA LSO are as follows:

(1) Guidance and administration of CQ programs and LSO policy.

(2) CQ/FCLP operating procedures and standardization.

(3) Monitor manning, selection, training, and qualification of Training Command LSOs to ensure the highest standards of LSO readiness and training are maintained.

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

304. CQ Planning, Initial Paperwork, FCLP Scheduling

a. An appropriate number of Training qualified LSOs shall be provided by each squadron involved with CQ. A single Training LSO should not be assigned more than eight SNAs during a single CQ detachment. Squadron LSOs that are assigned to wave a class are responsible for conducting and debriefing the majority of FCLP periods and act as the controlling LSO aboard ship for that class.

b. The TRAWING LSO shall be responsible for coordinating squadron FCLP schedules. Any changes to the FCLP schedule should be approved by the TRAWING LSO.

c. Each FCLP period shall have no more than six aircraft in the pattern (day) and five aircraft (night). FCLPs will directly affect the number of other sorties a squadron will be able to fly each day. The TRAWING LSO should communicate FCLP requirements with the squadrons' Operations Officers prior to publishing the FCLP schedule.

d. Per reference (b), the controlling LSO for CNATRA FCLP events must hold a Wing LSO or Training LSO Qualification. For a Wing Qualified LSO to control SNA FCLP events, he/she must have completed the Carrier Qualification Period (paragraph 301.a) of the Training LSO syllabus.

e. 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. Individual Squadron Qualification Rosters should be submitted to the TRAWING LSO a week prior to the first day of FCLPs. The format for the qualification roster is described in Chapter VIII of this instruction. The CNATRA LSO will ensure that a combined CNATRA Qualification Roster is submitted to the CVOIC and the ship.

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

a. For FCLP events in the FCL and CQL stage, the SNA shall achieve a GPA of 2.5 or higher on the check flight. The student should be able to demonstrate the ability to fly a consistent approach turn to arrive at a good start. The student should also be able to demonstrate an understanding of proper power corrections and effective ball and lineup control. If upon completion of the check flight in either stage (FCL4490 or CQL4390), the controlling LSO is not satisfied with the student's progress, he or she will award the UNSAT and the SNA will proceed to a Progress Check. It should be stressed that a weak performance in the FCL stage will not benefit the student in the Advanced Phase of training.

b. If the student does not have the controlling LSO's faith and confidence to safely CQ, that student shall not be brought to the boat despite production or timing issues that may be in consideration.

c. For the ship CQL check flight, LSO grading for approaches should be the same as in the Fleet.

306. CQ Qualification Criteria. In addition to the specific items contained in the CQL 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 carrier 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 CQ minimum grade point average (GPA) is 2.5. Qualification of students with less than a 2.5 GPA may be given on the recommendation of the TRAWING LSO with the approval of the CNATRA LSO based on overall improving trends. Additionally, an SNA 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 TRAWING LSO, the CNATRA LSO, and the CO of the ship. The following FCLP/CQ landing grade values are used by NATRACOM:

OK	- 5.0 points	PWO	- 2.0
OK	- 4.0	-B	- 2.0
(OK)	- 3.0	OWO	- 2.0/1.0 (depending on circumstances)
B	- 2.5	WO	- 1.0 (Technique)
-	- 2.0	C	- 0.0
- i. IUT CQ minimum grade point average is 2.75 with a 75% boarding rate.
- j. A student or IUT receiving a cut pass will be immediately sidelined and debriefed. Further carrier qualification for that detachment will be determined by the respective TRAWING LSO and CNATRA LSO.
- k. For requalification (disqualified at the ship during a previous CQ period), the SNA must attain a minimum GPA of 2.5 with a 60% boarding rate and show an improving trend with consistent "fair" or better passes throughout the requal period. A third attempt to qualify must be approved by CNATRA.

307. LSO Procedures Aboard Ship

a. The TRAWING responsible for running the CNATRA CQ detachment shall provide a Training Qualified LSO for walk-on/walk-off duties. This LSO shall be utilized only in support of CNATRA operations to wave the initial T-45s, and CODs as required. The LSO will walk on or COD aboard prior to CNATRA operations to relieve the AIRLANT/AIRPAC LSO, as appropriate. AIRLANT/AIRPAC will normally provide for walk-on/off LSO duties for at-sea requirements following CNATRA operations that exceed three days.

b. When reporting aboard, the CNATRA LSO or senior LSO should check in with Air Operations, Strike Operations, the Air Boss, and the CO of the ship. Air Operations should be advised of any changes in the Qualification Roster.

c. LSOs shall advise the ship SDO of their location and telephone number. LSOs are responsible for keeping abreast of changes to the Airplan.

308. LSO Platform Organization and Recovery Management

a. Minimum personnel requirements on the LSO platform during case I, II, and III recoveries are outlined in reference (b). A writer for each squadron and deck caller is also desired for all recovery operations. 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:

b. LSOs shall man the platform 15 minutes prior to the overhead. If the platform is crowded, the senior LSO shall determine who is not needed and clear the platform as necessary.

c. When there is more than one squadron in the pattern, the controlling and backup LSO should listen to the qualification number of each student at the abeam position to ensure that the correct squadron LSO has the pickle when his/her student is on the ball. Additionally, non-fleet experienced IUTs should be controlled by a familiar LSO at the ship.

d. The backup LSO shall confirm the gear and hook call made by the hook spotter for aircraft at the abeam position. Other than emergency situations, students shall not be told to drop their hooks after the ball call.

e. LSOs should refrain from debriefing students until after the aircraft exits the landing area, and before they approach the catapult.

f. LSO writers should write legibly and include all pertinent information. Also, they shall confirm the aircraft side number upon landing rollout to ensure proper accounting of each arrested landing.

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

h. Prior to commencing flight operations, the senior LSO on the platform shall:

(1) Check the following equipment for proper operation:

(a) IFLOLS - Functionality of cut and waveoff lights, cleanliness, and intensity.

(b) Appropriate lighting facilities (centerline, landing area, and deck status lights).

(c) Radios - Transmit and receive

(d) Relative wind indicator

(e) Sound-powered phones (Phone talker check)

(f) Windscreen operation/cleanliness

(g) Escape net condition and evacuation route

(h) Platform safety equipment

(i) PLAT/ILARTS on and adjusted

(2) Ensure platform is properly manned with Hook Spotter, Phone Talker, and LSOs.

(3) Assess and make recommendations to the Air Boss based upon the following conditions:

(a) Deck motion

(b) Weather and environmental conditions (ceiling, visibility, and winds).

(4) Report "LSO platform manned and ready."

i. Immediately following flight operations, the senior LSO shall:

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

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

(3) Check the grades and comments.

j. At the end of each day, the CNATRA LSO shall:

(1) Review qualifications/disqualifications and remaining requirements with Air Operations, Strike Operations, and CVOIC.

(2) Prepare CQ summary and send end-of-day report.

309. Reports Due After CQ. The SNA's performance during carrier qualification shall be documented after the completion of CQ. A comprehensive writeup detailing the SNA's tendencies and performance during CQ shall be annotated on their CQL check flight ATF along with the student's GPA and boarding rate. In addition, trend analysis information and pass comments shall be included in the student's ATJ. The SNA's performance review and trend analysis is particularly important since this information is forwarded to the FRS LSO and is the primary indicator of the student's CQ performance in the NATRACOM. ATFs should be completed as soon as possible after the CQ detachment.

310. NATRACOM Waving Concepts

a. Students perform differently from fleet-experienced pilots. Do not assume that corrections routinely handled by fleet pilots will be made by students. Students or IUTs who do not respond to the LSO shall be identified and counseled immediately.

b. Pattern - Emphasize absolute numbers all the way around. Monitor the pattern carefully during FCLPs and debrief deviations 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.

c. Power Control - Every correction requires a recorection. Students consistently make a power correction and then wait to see what happens. By that time, it's too late resulting in a deviation to the other side (i.e., fast-to-slow, H-to-LO, etc.). Stress a power reference point and the need to make small, timely, three-part power corrections.

d. Glideslope Control - Don't let a student be satisfied with a high or low start. Emphasize the importance of a centered ball start in order to proactively control the glideslope.

e. Airspeed/AOA control - The student needs to understand the importance of flying the jet on-speed. No grades and waveoffs should be used in FCLPs to drive the point home.

f. Lineup - At the ship, students must be informed of their position relative to centerline once they roll in the groove. Failure to get the students on centerline early will affect their glideslope control. If a student does not respond to informative, advisory, or directive lineup calls, he/she should be waved off early to avoid an unsafe situation. Lineup deviations are tracked primarily by the backup LSO. He/she shall keep the PLAT in his/her scan for the entirety of each pass and make timely lineup calls as needed, particularly at the ramp. Lineup control should be emphasized during FCLPs. Test lineup calls during FCLPs need to be given frequently and during all phases of the pass. A test lineup shall be given at least once each FCLP period.

g. Waveoff - Watch for the common tendency to overrotate or underrotate on the waveoff. At the ship, all waveoffs shall be given with waveoff lights and a verbal "waveoff" call. The combined waveoff (oral and visual) yields a quicker reaction time. An aircraft that is excessively high in close to at the ramp can result in a dangerously long bolter and can be avoided by initiating a timely waveoff. For high gliding comedowns at the ramp, timely power calls should be used to avoid damage to the aircraft. All waveoffs are up the angle unless directed to "waveoff starboard side." Proper waveoff technique shall be

taught during FCLPs. A test waveoff shall be given at least once each FCLP period.

h. Pattern waveoff - It is crucial to monitor the final portion of the approach turn. Letting a pilot continue a gross angling approach (AA), overshooting start (OSX), or "clara" high/low pass invites pilots to accept low standards. If in the opinion of the backup or controlling LSO, the deviation is excessive, an immediate pattern waveoff should be directed. Following the waveoff, ensure the student is given adequate direction as to waveoff starboard side or up the angle.

i. Proper foot positioning on landing should be emphasized during FCLPs. At the ship, actuation of brakes upon touchdown without anti-skid protection may result in blown tire(s) and is especially dangerous on a touch and go or bolter.

j. For carrier landings, stress military-rated thrust (MRT)/speed brakes in on touchdown, no exceptions!

k. Review and use standard LSO phraseology at the field and ship.

l. Be flexible during CQ; if a student is struggling, consider shutting them down on the carrier for a quick debrief prior to the resumption of CQ. If time and operations allow, send the student back to the beach so they can settle down, get debriefed, and come out the next day.

m. Bottom Line - Be demanding, be tough, put the pressure on students during FCLPs. Ensure that all carrier procedures and expectations have been covered in the FCLP briefs and the students are ready to go to the ship by the field check ride. Set the example for students to follow - be a role model through professionalism.

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CHAPTER IV

THE NATRACOM LEAD/SAFE

400. General

This chapter provides an overview of the requirements, training, responsibilities, and fundamentals of a NATRACOM Lead/Safe.

401. Lead/Safe Operational Considerations

a. 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. Any fleet carrier-qualified pilots with 100 or more, but fewer than 150 arrested landings require approval by their respective TRAWING Commander on a case-by-case basis prior to beginning any portion of the Lead/Safe IUT syllabus. Any fleet carrier-qualified pilots with less than 100 arrested landings require TRAWING Commander's endorsement and CNATRA N7 approval prior to beginning any portion of the Lead/Safe IUT. 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 LSOs in the IUT for Training LSO designation may complete initial CQ any time after the NATOPS Stage of the IUT curriculum. International military flight instructors are also eligible to participate in the Lead/Safe program provided they have met the above requirements.

b. TRACOM CQ is a dynamic and challenging environment for both students and instructors alike. Lead/Safes perform a crucial role in being the eyes and ears overhead the ship backing up the Tower with the conduct of the pattern and CQ. Lead/Safes are responsible for safely leading students to and from the ship and ensuring their safe entry into the landing pattern. Lead/Safes also ensure student emergency aircraft are safely escorted to the proper divert field.

(1) The Lead/Safe pilot shall advise and update the Tower if conditions do not warrant commencement or continuation of CQ operations. Prior to entering the CQ pattern, the Lead/Safe 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/Safes shall continue to monitor student fuel states and position in the CQ pattern, weather permitting, and advise the Tower 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.

(2) Lead/Safe responsibilities overhead are based on SNA bingo fuel requirements. Lead/Safes should be "charlied" or diverted upon reaching the student bingo fuel state. Lead/Safes should not perform Lead/Safe duties when their aircraft is below student bingo as this does not allow sufficient fuel margin to effect flight joinup and return to the divert airfield. Lead/Safes shall update fuel states with the Tower every 15 minutes and advise when they are approaching the SNA bingo fuel state.

c. Appendix F details Lead/Safe fundamentals and operational considerations.

402. Training. As the Wing Lead/Safe Program Manager, the TRAWING LSO shall ensure the Lead/Safe program is current and standardized. An effective training program is the key for maintaining quality and safety in the CQ environment. The squadron CQ Phase Head shall ensure that all Lead/Safe training is standardized and conducted in accordance with references (j), (k), and (l) and ensure the appropriate simulator and flight events are scheduled.

a. Lead/Safe IUTs will be selected as any other Advanced Phase instructor. Past fleet experience, landing performance, and instructional acumen should all be considered. The squadron CQ Phase Head shall provide the Standardization Officer with any previous background information required in order to determine eligibility as a Lead/Safe IUT. The TRAWING LSO shall be included in the approval process for all prospective Lead/Safe IUTs and Lead/Safe "S" designations.

b. In addition to the requirements of references (j), (k), and (l), a comprehensive written examination covering all aspects of CNATRA CQ and CV NATOPS shall be administered during the IUT period and subsequently during annual standardization flights. An example is represented in Appendix A.

c. Lead/Safe pilots shall be familiar with all TRACOM CQ procedures. The following specific chapters of this instruction apply:

- (1) Chapter Two
- (2) Chapter Three
- (3) Chapter Four
- (4) Appendix B - Briefing Guide
- (5) Appendix C - NATRACOM CQ Aircraft Information
- (6) Appendix D - Strike and Air Ops CQ Planning Factors
- (7) Appendix E - T-45 Blown Tire Considerations
- (8) Appendix F - Lead/Safe Fundamentals

d. Requirements for carrier qualification are specified in reference (b). Prospective Lead/Safe pilots shall demonstrate sufficient competency during their initial carrier qualification in the T-45. They shall obtain a minimum of 2.75 GPA and 75% boarding rate in order to be considered for Lead/Safe training. Upon successful completion of these requirements, the IUT will be considered carrier-qualified and can continue follow-on Lead/Safe training. When conducting additional carrier qualifications in different models of the T-45, these GPA and boarding rate requirements will apply.

403. Lead/Safe Currency

a. Lead/Safes should attend at least one carrier qualification detachment every six months in order to maintain phase and carrier qualification currency.

b. Lead/Safes who fail to maintain Lead/Safe currency and have not had an arrested landing in more than one year are required to obtain CNATRA approval prior to requalification. Lead/Safe personnel who have been in a deployed status are exempt from this rule. Normal CQ requalification requirements apply per reference (b).

404. Lead/Safe Standardization Pilots. Lead/Safe Standardization (S) pilots shall be selected based on experience and proven safe and professional performance as a Lead/Safe. Before being considered for Lead/Safe "S" designation, the Lead/Safe shall participate in a minimum of three carrier qualification detachments and shall complete a minimum of 10 flights as a qualified Lead/Safe. At least one of the required 10 Lead/Safe flights should be flown as the Weather Recce.

CHAPTER V

SHIP DETACHMENT OPERATIONS

500. Billet Descriptions and Responsibilities. The following personnel with billet descriptions and responsibilities are listed:

a. Shipboard detachment OIC (CVOIC). This billet shall be held by a qualified Lead/SAFE and should be an 0-5. He/She shall:

(1) Meet the following minimum qualification requirements:

(a) Serve a minimum of one full day as CVN CATCC rep under instruction.

(b) Serve one full detachment as CV OIC under training, shadowing a qualified CV OIC.

(c) Serve one full detachment under observation of a qualified CV OIC.

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

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

(4) Be responsible for NATRACOM spaces and all NATRACOM personnel.

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

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

(7) Be responsible for all NATRACOM administrative and operational issues regarding the general execution of the CQ plan.

(8) Work directly with the CNATRA LSO and CNATRA QA representative on all matters pertaining to ship-based maintenance, administration, operations, and safety.

b. CNATRA LSO or designated TRAWING LSO. Authorized direct liaison with the Carrier Commanding Officer. He/She shall:

(1) Attend the Presail Conference or appoint a representative to attend in his/her place.

(2) Ensure that operations are conducted in accordance with this instruction and the ship's LOI.

(3) Establish priorities, resolve conflicts, and take other actions as necessary to ensure the safe and efficient completion of the CARQUAL requirements.

(4) Keep LSOs apprised of operating schedules.

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

(6) Have authority over embarked NATRACOM LSOs.

(7) Aid in the visual control of all fixed-wing aircraft approaches after the 180° position and in determining an unacceptable final approach.

(8) Update the CNATRA Airplan daily and liaise with Strike Operations to ensure the Airplan is properly scheduled.

(9) Keep Air Operations and CVOIC advised of student qualification/disqualification results and submit a CQ summary at the end of each fly day.

(10) Advise the Air Officer when weather, deck, or equipment conditions preclude operating within safe limits.

c. Ship Detachment Maintenance Coordinator. Each detachment shall have a contract maintenance coordinator who shall:

(1) Be responsible for the berthing and location of all maintenance personnel on the ship detachment.

(2) Report to the CNATRA CVOIC for all matters relating to NATRACOM aircraft maintenance while on board.

(3) Assume custody of shipboard supply pickup kit.

(4) Advise the Aircraft Handling Officer of all required maintenance functions aboard ship.

(5) 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 Commanding Officer via the Air Officer and CVOIC.

(6) Ensure CNATRA QA representative is apprised of all maintenance and logistic functions and requirements.

d. TRAWING LSO. Each Wing shall provide an LSO to supervise their respective squadron LSOs and students. This LSO shall:

(1) Provide the CNATRA LSO with current carrier qualification rosters.

(2) Ensure that the squadron LSOs are trained and current.

(3) Back up the controlling LSO during student CQ operations. The TRAWING LSO may also allow Training-qualified LSOs to Back up under direct supervision.

(4) Observe/Supervise IUT and recurrency carrier qualifications.

(5) Submit required CQ summaries to the CNATRA LSO and AIROPS at the end of each fly day for their respective wing.

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

(1) Provide updated carrier qualification rosters to the TRAWING LSO.

(2) Ensure FCLP training is complete and satisfactory prior to commencing ship qualifications.

(3) Submit certification of FCLP performance (Safe for CQ letter) IAW reference (b) prior to CQ operations.

(4) Evaluate the assigned students and IUTs aboard ship in a safe and efficient manner.

(5) Notify detachment OIC/CVOIC when students require refresher FCLPs prior to CQ.

f. Walk-On LSO. The lead squadron for each CQ detachment will provide a Training Qualified LSO to walk on the ship or COD aboard prior to commencement of CNATRA CQ. If the LSO arrives via the COD, CNAL or CNAP will provide an LSO to wave that COD. The LSO shall:

(1) Upon arrival on the ship, ensure Air and Strike Operations have their contact information and berthing location.

(2) Wave the CODs carrying CNATRA personnel and the initial NATRACOM aircraft.

g. Walk-Off LSO. The lead squadron for each CQ detachment will provide a Training Qualified LSO to walk off or helo off the ship after CNATRA CQ is complete. The LSO shall wave the final phase of NATRACOM aircraft and COD operations, and remain aboard as directed by the CVOIC and Strike Operations Officer until relieved by another LSO (if required).

h. Primary Observer/Tower Representatives. Each TRAWING will provide a NATOPS-qualified Instructor Pilot to assist the CVOIC and Air Officer in all matters of aircraft operations and the conduct of CNATRA CQ in Primary. Their responsibilities include:

(1) Provide assistance to Lead/Safes and students in the event of emergencies, malfunctions, or resolving administrative issues.

(2) Ensure directives from the CVOIC and schedule changes are communicated to the CATCC Representative and the shore detachment.

(3) Assist in tracking student and IUT CQ requirements.

(4) Ensure Primary is manned 30 minutes prior to the commencement of flight operations.

(5) Provide current copies of a T-45 NATOPS manual and pocket checklist to Primary.

i. CATCC/Air Operations Representative. The lead squadron for the CQ detachment shall provide a qualified Lead/Safe pilot to act as a liaison to the ship's Air Operations Officer. Their responsibilities include:

(1) Assist the CVOIC in the conduct of flight operations in CATCC/Air Operations.

(2) Act as the primary line of communication between the CVOIC and the shore detachment. Advise the shore detachment OIC of any maintenance, administrative, or operational issues and any real-time schedule changes.

(3) Advise the Air Operations Officer on the CNATRA CQ concept of operations and regulations outlined in this instruction.

(4) Assist Air Operations in tracking CQ requirements.

(5) Ensure CATCC is manned 30 minutes prior to the commencement of flight operations.

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

Shipboard Chain of Command

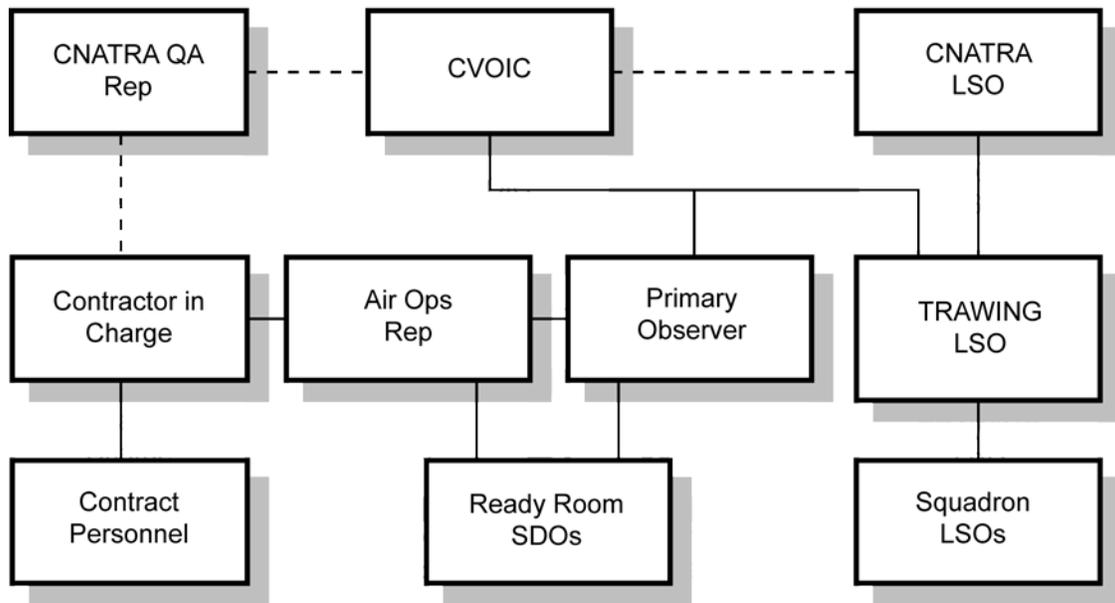


Figure V-1

CHAPTER VI

SHORE DETACHMENT OPERATIONS

600. General. CNATRA CQ is a dynamic evolution requiring extensive planning, close coordination, and efficient execution. The Shore Detachment OIC, CVOIC, and CNATRA LSO are responsible for ensuring all aspects of planning and execution are completed. Advanced planning must be conducted in order to preclude any loss of available deck time.

601. Purpose. To thoroughly plan and efficiently execute carrier qualifications involving TW-1 and TW-2 at locations away from home bases.

602. Concept of Operations and Coordinating Instructions

a. An overall LOI shall be published by CNATRA for each operating period. Format is contained in paragraph 702. TRAWINGS will publish their own LOI regarding their respective personnel and operations. The detachment shall be set up to operate on the squadron concept.

NOTE: The maximum number of Lead/Safes authorized per TRAWING for each detachment is fourteen.

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 TRAWING 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. A TRAWING/Squadron will be designated by CNATRA as the lead for the shore detachment. 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. Each TRAWING is responsible for arranging billeting for their personnel. For billeting planning, overall personnel strengths are 100 officers and 75 Contract Maintenance Support.

e. TRAWINGS shall submit CARQUAL requirements to the CNATRA LSO via email message 21 days prior to the detachment. Final CQ rosters shall be submitted in accordance with paragraph 704 of this instruction.

f. A CQ Presail Conference will be conducted by the ship approximately two to three weeks prior to getting underway. During this meeting, briefs detailing detachment coordination and expectations are conducted. The CNATRA LSO shall inform the ship of specific NATRACOM requirements prior to the Presail Conference.

g. Each student and instructor shall receive required briefings on course rules, facilities at the shore detachment location, and all possible bingo fields. This brief should include, at a minimum, coverage of Warning Areas, airspace restrictions, FCLP facilities, and FAA procedures peculiar to the area.

NOTE: Depending on individual detachment base and FACSFAC requirements, course rules briefings may be administered by the respective TRAWINGS at their home bases. Only approved course rules briefings authorized by the cognizant base or FACSFAC shall be utilized.

h. If DOD airlift is utilized, airlift schedules shall be promulgated by the respective TRAWING desiring DOD airlift. All units shall be notified by message of airlift schedules.

i. Aircraft mishap reporting and investigating shall be conducted in accordance with references (f), (i), and (p).

(1) The Shore Detachment OIC shall ensure required voice, message and safety reports (WESS Initial Notification, OPREP/CNATRA/CNAP voice reports, OPREP-3 message, etc.) are submitted in accordance with references (f), (i) and (p).

(2) Specific responsibility for reporting and investigating aviation mishaps (i.e. TRAWING Commander or squadron CO) is per the combined detachment section of reference (i).

(3) The CNATRA Shore Detachment shall have a standing Aircraft Mishap Board (AMB) appointed for the purpose of performing initial investigating responsibilities. Those members may be relieved by the AMB of the unit responsible for reporting and investigating the mishap.

(4) In the event of a mishap on or around the carrier, the shore-based ASO and AMB shall be transported to the ship as soon as possible to commence the investigation.

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. Shore Detachment OIC (Squadron CO or XO)

(1) CNATRA's direct representative. Responsible to CNATRA for the successful completion of the assigned detachment. Also responsible for resolving disputes between TRAWINGS, host bases, airfields, and the ship.

(2) Set up the shore detachment in accordance with this instruction.

(3) Provide a shore-based detachment Aviation Safety Officer.

(4) Provide fleet CVN augment personnel as required (including CVOIC, CATCC representative, and Squadron Duty Officers (SDOs)).

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

(6) Work directly with the CNATRA Detachment Representatives on all matters pertaining to shore-based maintenance, logistics, and administration.

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

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

(9) Publish liberty restrictions for the support bases.

(10) Prepare an end of detachment CQ After Action Report in accordance with paragraph 707 of this instruction. The report shall be published via message within fourteen days of det completion.

b. CNATRA LSO

(1) Coordinate CVN scheduling with CNAP/CNAL for NATRACOM CQ.

(2) Provide detachment request messages as required to host installation. Format example is contained in paragraph 703.

(3) Attend Presail Conference or designate a TRAWING representative if unable to attend.

(4) Publish the CNATRA LOI for each detachment.

(5) Coordinate all COD/VOD transportation to and from the ship for detachment personnel.

(6) Coordinate shipboard billeting for all military personnel and CNATRA QA representative.

(7) In consultation with the Shore Detachment OIC and squadron representatives, create and promulgate the Airplans for the detachment. Brief the CVN Strike Operations Officer and Air Operations Officer as to the requirements and CNATRA CQ concept of operations.

(8) 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.

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

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

(11) Is ultimately responsible for conduct on the LSO platform and over embarked NATRACOM LSOs.

(12) Aid in the visual control of all fixed-wing aircraft approaches after the 180° position and in determining an unacceptable final approach.

(13) Ensure the LSO platform and equipment are operational and keep the number of people on the LSO platform to a minimum consistent with safety and operational requirements.

c. Shore Detachment Assistant OIC. The Lead TRAWING/Squadron will appoint a CNATRA CQ experienced IP for this position. He/She is responsible for the overall detachment and logistical planning, detachment scheduling and execution, and wrap-up of the det. The TRAWING not designated as the lead will appoint a detachment CQ Det Coordinator to assist the Lead AOIC in the execution of these responsibilities. Where so indicated, the respective TRAWING Det Coordinator(s) will ensure specific actions are complete. Detachment AOIC/Coordinator responsibilities include:

(1) Arrange for berthing, transportation, and administrative support requirements at the detachment location.

(2) Preposition an adequate number of vehicles for immediate use upon arrival of the detachment.

(3) Establish and maintain liaison with local operations (base operations, ATC, FACSFAC, communications division, Tower, etc.) prior to, during and upon completion of the detachment.

(4) Prior to detachment arrival, inspect assigned spaces for adequacy (working and living) and ensure telephones are installed and internet access is available.

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

(6) 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, host base operations manual).

(7) Coordinate scheduling and publish a daily flight schedule. Distribute a daily flight schedule to detachment lodging locations, cognizant base operations, and to the CVOIC/CNATRA LSO via email/POTS line.

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

(9) If required, ensure all designated students and instructors receive the course rules brief from the detachment base and participating FACSFAC.

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

d. Shore-Based Contractor in Charge

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

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

(3) Coordinate supply pack-up kits between participating TRAWINGS.

(a) One pack-up kit for each activity.

(b) Pack-up kit to be prepared by activity's Supply Department.

(4) Be involved in all pre-detachment planning.

(5) Maintain constant coordination with CNATRA DET personnel.

e. Maintenance Contractor Manager

(1) Ensure all participating aircraft are not due for scheduled maintenance during the detachment.

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

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

(4) Coordinate directly with shore establishment for billeting and transportation arrangements.

(5) Provide required protective gear and flotation equipment to shipboard personnel.

(6) Collect fuel and nitrogen receipts from shore detachment and deliver to respective TRAWING supply department at home station.

(7) Review and submit clean bird, HAZMAT, and SE requirements as applicable to CNATRA DET QA for naval message release NLT seven working days prior to beginning of detachment.

f. CNATRA DET Personnel

(1) Monitor shore contractor performance.

(2) Keep shore detachment OIC informed on contractor maintenance/personnel issues and requirements of the contract.

(3) Ensure CNATRA Det chain of command is informed on maintenance issues and detachment progress.

(4) Monitor arrival/departure of aircraft, personnel and equipment to/from detachment site.

(5) Act as liaison between site/base personnel and contractor for any facility/equipment concerns.

(6) Ensure submittal of required naval messages in support of detachment sites.

(7) Ensure contractual compliance through direct surveillance.

g. 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 units with information relating to aircraft incidents, ground and flight accidents.

h. Shore-Based Field LSO

(1) Ensure FCLPs are scheduled to maintain SNA and IP currency.

(2) Be responsible for conducting refresher FCLP.

(3) Ensure the emergency divert field is ready to recover emergency aircraft and all Field LSO Checklist items (Appendix E) are completed.

605. Supply/Logistics

a. During CQ, each TRAWING will be tasked with providing maintenance personnel and equipment to support operations. CNATRA will assign the CNATRA QA Representative to oversee contractor performance and handle logistical/supply issues.

b. When operating out of a military installation, support requirements and logistic requests shall be submitted in accordance with paragraph 703 of this instruction.

606. Chain of Command

Shore-based Chain of Command

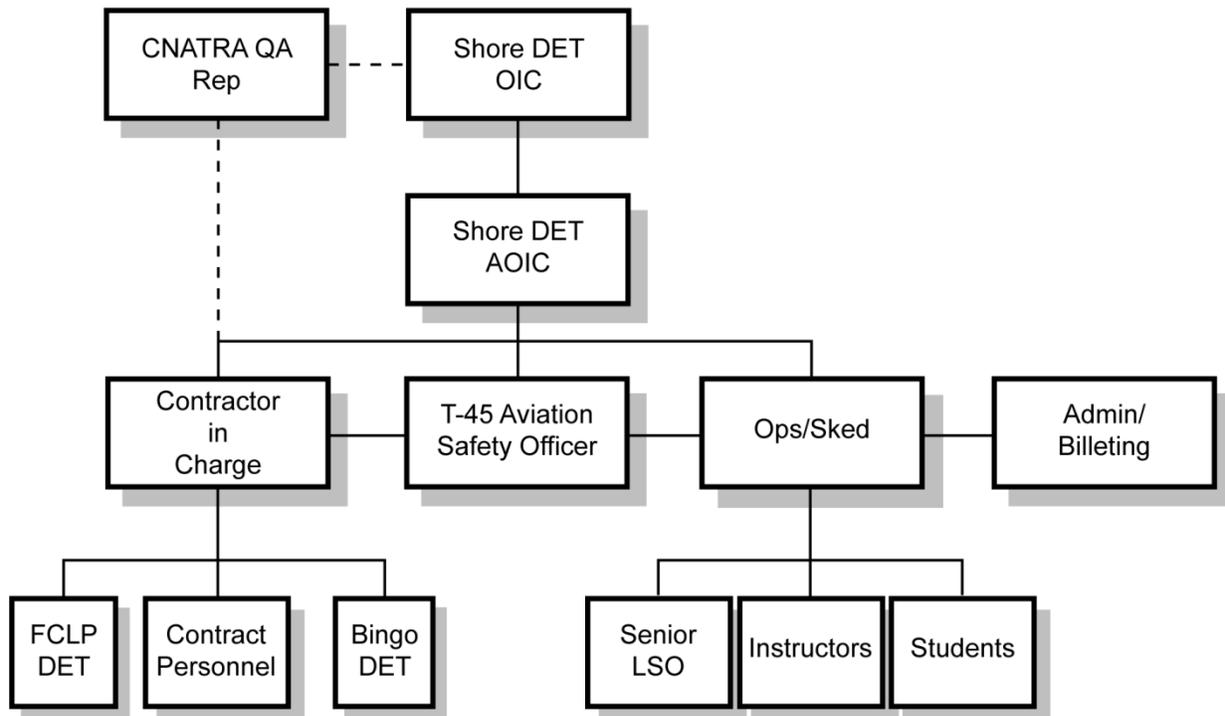


Figure VI-1

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CHAPTER VII

ADMINISTRATIVE AND OPERATIONAL REPORTS

700. General. The NATRACOM CQ schedule operates typically on a six-to-eight week cycle, resulting in approximately eight detachments per year. This schedule is determined primarily on the basis of east and west coast CVN availability and NATRACOM requirements.

701. CQ Report Timeline. 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 timeline:

CQ minus 35 days: CNATRA CQ DET REQUEST message, if required (paragraph 703)

CQ minus 14 days: TRAWING rosters finalized (paragraph 704)

CQ minus 7 days: CNATRA CQ LOI (paragraph 702)/Final trap requirements to the ship (paragraph 704)/Maintenance Clean Bird, Hoist Point message to ship (paragraph 705)/TRAWING CQ Detachment LOI signed

End of CQ + 7 days: TRAWING CQ Summary Report (paragraph 706)/End of CQ Detachment Summary Report (paragraph 707)/Bravo Zulu message to CVN

702. 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
TO USS CARRIER
PARTICIPATING TRAWINGS//00//
COMNAVAIRPAC SAN DIEGO CA//00//
COMNAVAIRLANT NORFOLK VA//00//
PARTICIPATING NASs//00//
INFO USS CARRIER
SENIOR COMMANDS//00//
PARTICIPATING TRARONS//00//
UNCLAS //N03740//
MSGID/GENADMIN/CNATRA//

SUBJ/CNATRA CQ LOI X-XX//
REF/A/DOC/CNATRA/-//
AMPN/REF A IS CNATRAINST 3740.9F, ETC.//

- RMKS/1. SCHEDULE OF OPERATIONS
2. COMMUNICATIONS
3. GENERAL INSTRUCTIONS
4. COORDINATING INSTRUCTIONS
5. SUPPORT REQUESTS//

703. CNATRA Detachment Request Message. CNATRA shall provide a Detachment Request Message when required by the host installation in the following format:

FROM CNATRA CORPUS CHRISTI TX
TO PARTICIPATING INSTALLATION
PARTICIPATING TRAWINGS//00//
COMNAVAIRPAC SAN DIEGO CA//00//
COMNAVAIRLANT NORFOLK VA//00//
PARTICIPATING NASs//00//
INFO USS CARRIER
SENIOR COMMANDS//00//
PARTICIPATING TRARONS//00//

UNCLAS //N03120//
SUBJ: DEPLOYMENT SUPPORT REQUEST
MSGID/GENADMIN/CNATRA//

RMKS/

1. UNIT: CHIEF OF NAVAL AIR TRAINING (CNATRA)
BRANCH OF SERVICE: USN
UNIT LOCATION: CORPUS CHRISTI TX
DETACHMENT DATES: xx-xx - xx-xx
AIRCRAFT: 40 T-45 AIRCRAFT
PURPOSE OF DETACHMENT: CARRIER QUALIFICATION
TASKING AUTHORITY: CNAP/CNAL/CNATRA
2. SE Requested
READ IN THREE COLUMNS:
NOMEN QTY UTILIZATION
3. Sorties
Date Type Sorties Est. Gallons of Fuel
4. Vehicles Requested
READ IN THREE COLUMNS:

NOMEN QTY UTILIZATION

5. Billeting

Total Officers: 100
Total Enlisted: 0
Total Contract Maintainers: 75 (require govt. billeting)
E7 and Above: 160

6. Point of contact and DSN telephone. PRIMARY POC/LCDR CNATRA LSO/CNATRA LSO/361-xxx-xxxx/CNATRALSO@NAVY.MIL//

704. Qualification Rosters and Requirements. Participating TRAWINGS shall ensure that qualification rosters are forwarded to CNATRA in the following format to arrive no later than 14 days prior to hook down. The CNATRA LSO shall ensure delivery to the CVN Strike Operations and Air Operations Officers. The CNATRA LSO is responsible for ensuring the Air Operations Officer has a consolidated qualification roster.

SQUAD	QUAL #	PILOT	SYL	Series	SER	T/G						TRAPS										TOTAL					
						1	2	3	4	T/G	To Go	1	2	3	4	5	6	7	8	9	10	TRAPS	To Go				
			STK	T-45C	USN					0	4														0	10	
			STK	T-45C	USN					0	4															0	10
			STK	T-45C	USN					0	4															0	10
			STK	T-45C	USN					0	4															0	10
			STK	T-45C	USN					0	4															0	10

NOTES:

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

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
IUTs 40-49
Lead/Safes 50-69
LSOs 70-89
Squadron XO/CO 98/99
Wing Commander 100-200

Squadron 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

705. Clean Bird Message. TRAWINGs shall ensure a clean bird message is submitted NLT 7 days prior to CQ to include:

- a. FOD free check.
- b. Hoist point check.
- c. Side numbers of participating aircraft.
- d. Ensure all metal hook ID plates are removed.

706. TRAWING CQ Summary Report. Each TRAWING LSO shall submit via email a CQ Summary Report in the following format:

SNA																																								
Qual #	Name	GPA	B/R	Status	SVC	Det FCLP Periods	TRAPS	T/G	B/WO	Comments																														
	TOTAL SNAs	GPA	B/R	CV DQ	FLD DQ																																			
IUT																																								
Qual #	Name	GPA	B/R	Status	SVC	Det FCLP Periods	TRAPS	T/G	B/WO	Comments																														
	TOTAL IUTs	GPA	B/R	CV DQ	FLD DQ																																			
Comments:																																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 15%;">Student</th> <th style="width: 15%;">IUT</th> <th style="width: 15%;">Lead/Safe</th> <th style="width: 15%;">LSO</th> <th style="width: 15%;">Totals</th> </tr> </thead> <tbody> <tr> <td>Traps:</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>T&G:</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bolters:</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Qualified:</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												Student	IUT	Lead/Safe	LSO	Totals	Traps:						T&G:						Bolters:						Qualified:					
	Student	IUT	Lead/Safe	LSO	Totals																																			
Traps:																																								
T&G:																																								
Bolters:																																								
Qualified:																																								

707. End of CQ Detachment Report. At the conclusion of each detachment, the Shore Detachment OIC shall send an end of detachment summary report via message to all involved units and commands. Format listed below:

```

FROM TRARON XX
TO CNATRA CORPUS CHRISTI TX(uc)
INFO USS CARRIER
PARTICIPATING INSTALLATION
PARTICIPATING NASs//00//
COMTRAWING ONE MERIDIAN MS(uc)
COMTRAWING TWO KINGSVILLE TX(uc)
TRARON TWO ONE KINGSVILLE TX(uc)
TRARON TWO TWO KINGSVILLE TX(uc)
TRARON SEVEN MERIDIAN MS(uc)
TRARON NINE MERIDIAN MS(uc)
NAS KINGSVILLE TX(uc)
NAS MERIDIAN MS(uc)
NAS DET AIRSTATION(uc)
UNCLASSIFIED FOUO//
MSGID/GENADMIN/TRARON /xx-xx/month//

```

SUBJ/CNATRA CQ END OF DETACHMENT REPORT xx-xx month year//
REF/A/DESC:CNATRAINST 3740.9F/CNATRA CQ/YMD:xxxxxxxx// POC/DET
OIC/CDR/TRARON /LOC:NAS TRACOM /TEL: /E-MAIL: //
GENTEXT/REMARKS/1. IAW REF (A), THE FOLLOWING INFORMATION IS
SUBMITTED:

A. DETACHMENT SEQUENCE OF EVENTS:

B. SHORE DET: OPS CQ SORTIE SUMMARY:

	TYPE	SORTIES	HOURS
TW-1	CQ	xx	xxx
TW-1	FCLP	xx	xxx
TW-2	CQ	xx	xxx
TW-2	FCLP	xx	xxx

SHIP DET: QUALIFICATION/CURRENCY SUMMARY:

	TRAPS	SNA	Q/DQ/INC	IUT
TW-1	xxx		xx/x/x	x
TW-2	xxx		xx/x/x	x
TOTAL:	xxx		xx/x/x	x

C. OPS INPUT:

D. MAINTENANCE/FACILITIES INPUT:

E. ADMINISTRATIVE INPUTS:

F. GENERAL COMMENTS/LESSONS LEARNED:

CHAPTER VIII

CNATRA CARRIER ORIENTATION FLIGHTS

800. Authority. Reference (d) delegates approval authority for these flights to CNATRA.

801. 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.

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

a. Satisfy eligibility requirements and flight prerequisites set forth in references (d), (l) and (o).

b. Applicable passenger categories are described in reference (n). Written requests for approval should be submitted to CTW-1/CTW-2 no later than twenty days prior to flight.

803. Limitations

a. No more than six orientation flight requests will be approved on any carrier qualification detachment.

b. CNATRA authorizations for CVN orientation flights are one-time flight authorizations. Cancelled orientation sorties may be rescheduled at the discretion of the Shore Detachment OIC.

c. Flights shall be flown only with qualified Lead/Safe pilots who are in the 14-day currency window per reference (b).

d. Orientation flights shall be conducted on a not-to-interfere basis with other training requirements and with no additional sorties or cost to CNATRA.

e. Orientation flights shall not be conducted on the final day of scheduled carrier qualification operations.

CNATRAINST 3740.9F
24 Nov 15

f. Student Naval Aviators are not eligible for orientation flights during CQ operations; however, SNAs who have completed the CQ phase or day one requirements may be flown to or from the carrier in the back seat of CNATRA aircraft at the discretion of the CNATRA detachment OIC.

Appendix A

NATRACOM LSO AND LEAD/SAFE TRAINING MATERIAL

Sample LSO Exam

1. Field-qualified SERGRAD LSOs can wave warmup student FCLP flights. T/F
2. In preparation for CQ, a basic angle of _____ should be used during FCLPs.
3. The carrier CO, with CVOIC concurrence may waiver case II weather minimums to _____ feet and _____ miles visibility.
4. Minimum WOD for CQ is _____ knots.
5. Maximum crosswind component for CQ is _____ knots.
6. The normal basic angle used on the carrier is _____ degrees.
7. List CQ qualification criteria.
8. Ship case II weather minimums for student CQ are _____ feet and _____ miles visibility.
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. "You're lined up left."

- 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. On detachment, students are limited to _____ CQL flights in any one day (without a waiver).
14. Ten feet is the minimum static/dynamic H/R for normal operations. T/F
15. If a student remains hookup throughout the approach turn on a pass that should be hook-down, it is OK to tell him to drop the hook after he rolls into the groove. T/F
16. Maximum WOD for CQ is _____ knots.
17. For SNAs, an FCLP warmup is required if more than ___ days have elapsed between the CQ field qualification and the first carrier landing.
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 Training Qualified LSO is required to be the walk-on/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. F.
2. 3.25.
3. 1000, 5.
4. 20.
5. 7.
6. 3.5.
7. 2.5 GPA, 60% boarding rate, no unsafe tendencies, improving performance, safe deck procedures, predictability, good response to LSO, and minimal assistance during final landings.
8. 1500, 5.
9. 5.
10. b, d ,f, g ,h, i.
11. 3.5.
12. +/-3 ft.
13. 2.
14. T.
15. F.
16. 35.
17. 2.
18. c.
19. T.
20. F.

CNATRAINST 3740.9

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, E-2, EA-6, 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:	

CNATRA 3740/4 (Rev. 10-13)

CNATRAINST 3740.9

LSO TREND ANALYSIS SUMMARY				
NAME		RANK		DATE
SHIP		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	

CNATRA 1542/106 (Rev. 10-13)

SAMPLE LEAD/SAFE EXAM

1. The initial CQ brief is conducted _____ hours prior to takeoff.
2. Full divisions should take off _____ minutes apart.
3. Plan to arrive overhead the ship with no less than _____ lb of fuel.
4. If the weather is 2200 overcast at the CVN, 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. On detachment, students may have a maximum of _____ CQL flights and _____ manups per day (without a waiver). 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 minimum Weather criteria for SNA CQ is (without waivers):

DEPARTURE:

EN ROUTE:

SHIP:

BINGO:

DIVERT:

7. When arriving VFR at the ship, be at your assigned holding altitude prior to _____ DME. Once established, a descent for a lower altitude assignment or "Charlie" shall be made from point _____. Plan to be wings level at _____ NM behind the ship and report the initial at _____ feet and _____ NM.
8. Case II primary marshal fix is the 180 radial relative to the BRC at a distance of 1 NM for every _____ feet of altitude plus _____ miles. 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 upwind with a _____-second interval for subsequent aircraft.
11. Leads should primarily position themselves ahead of/behind the ship for Lead/Safe duties.
12. The primary responsibilities of the Lead/Safe are:
 - a. Monitor pattern.
 - b. Monitor fuel states.
 - c. Monitor weather.
 - d. Escort bingo/emergency aircraft.
 - e. Bag as many traps as possible.
 - f. All of the above except e.
13. Student Bingo is based on a _____ (alt.) profile and puts the aircraft on deck with _____ #s fuel.
14. If you are a Late/Safe Spare, you should:
 - a. Wait until the ship calls for you before you preflight and manup.
 - b. Hang out in the ready room until you find out a student has fallen out of a previous division.
 - c. Walk and manup with first division and be ready to fill in if a lead jet goes down or take a student that falls out of a division.
15. If below _____ altitude and within _____ DME, all flights should be on tower frequency.
16. Case I overhead holding pattern is a _____-hand _____ mile circle with the ship at point _____ on 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.
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 _____ knots.
22. Proper abeam distance is _____ NM.
23. Leads should switch their flight to the Lead/Safe common frequency in the auxiliary radio within _____ miles of the carrier.
24. After the 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 overhead should update the Tower every _____ minutes with fuel state.
27. If the boss needs to assign two leads to the same altitude, he will assign one lead as "primary" and the other lead should position his aircraft in TAC Wing or cross-circle from the "primary" lead. T/F
28. The weather recce should plan to be overhead _____ minutes prior to the first launch.

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. 15.

3. bingo+600.

4. F.

5. 2, 3, 3.5, 5.

6. DEPARTURE: 1000/3

ENROUTE: VFR ON TOP

SHIP: 1500/5

BINGO: 1000/3

DIVERT: 1000/3

7. 10, 3, 5, 800, 3.

8. 1000, 15, 6000.

9. 1.

10. 1, 17.

11. Ahead of.

12. f.

13. Sea Level, 550.

14. c.

15. 6000, 10.

16. Left, 5, 1.
17. F.
18. T.
19. T.
20. b.
21. 300.
22. 1.0 to 1.1.
23. 20.
24. d.
25. F.
26. 15.
27. T.
28. 15.
29. F.
30. T.

APPENDIX B

BRIEFING GUIDE

T-45 CARRIER QUALIFICATION BRIEF

1. Lineup/Qual Numbers
2. Flight Call Sign/Clearance
3. Times
 - a. Walk
 - b. Manup
 - c. GTS Start (Takeoff - 15 min)
 - d. Takeoff (dependent on ship's position)
 - e. Overhead/Charlie
4. Weather
 - a. Departure
 - b. Enroute
 - c. Ship
 - d. Divert field
 - e. Bingo field
5. Waypoint Plan
6. Communication Plan. Radio 1/Radio 2
7. Preflight. Perform normal preflight, paying extra attention to the following items:
 - a. Carrierization card in ADB
 - 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 +/- 50
 - h. Cockpit
 - (1) Instruments secure - both c/p
 - (2) No loose gear, minimum pubs/gear in cockpit
 - (3) Check cat grip
 - (4) Rear cockpit Soloized
8. Ground Procedures
- a. Steam Ingestion Bleed Valve Checks
 - b. Comm checks (check appropriate channelization)
 - c. Marshal (normally in chocks)
 - d. Taxi
 - (1) 300-foot centerline/150-foot staggered
 - (2) Bumpier due to carrier pressure tires
9. Enroute
- a. Takeoff and departure
 - b. IFR/VFR clearance/Rendezvous
 - c. Enroute to ship - Feet Wet Checklist
 - (1) Anti-skid Switch - Off

- (2) Lights - Off
 - d. Strike Check-in
 - (1) Number in flight
 - (2) Position
 - (3) Low Fuel State
 - e. Marshal Check-in
 - (1) Position
 - (2) Altitude
 - (3) Low fuel state
 - (4) Line-up
 - (5) Qual numbers
 - (6) Marshal will pass
 - (a) Case Recovery
 - (b) Type Recovery
 - (c) Expected BRC/Final Bearing
 - (d) Bingo/hold-down numbers for IP/Students
 - f. Hold as assigned
10. Fuel Management
- a. Individual pilot responsibility.
 - b. Note bingo distance, bearing, and fuel required.
 - c. Hold-down: Gear down/flaps up Bingo numbers, but not less than Clean Bingo + 300 pounds.

11. Approaches to the Ship

a. Case I (WX 3000/5)

(1) Holding

(a) #1 Radio - Marshal or Tower Frequency depending on altitude.

(b) Formation Considerations

(c) Lead/Safe common in #2 radio.

(2) Signal "Charlie" from Tower, flight will descend from holding IAW CV NATOPS/this instruction.

(a) Depart low holding at PT 3 on a heading 210° relative to BRC.

(b) SNAs hook up for first two passes unless otherwise directed.

(3) Wings level at 1200 feet/5 NM, then descend to the initial.

(4) Initial

(a) 800 feet at 3 NM/300 knots.

(b) Flight lead will call "initial."

(5) FTI Formation

(6) Lead breaks not sooner than 1 NM upwind; wingmen use 17-sec interval.

(7) Ensure BRC in course window

(8) Spin procedures

(a) Initiate spin no later than the bow.

(b) Climb to 1200 feet/stay within 3 NM.

(c) Flight lead calls "spin 90."

(d) Descend to 800-feet for break

(e) Spin pattern has priority over break traffic.

b. Case II (WX 1500/5 waiverable to 1,000/5 by CVN CO)

(1) Marshal as assigned: DME = angels + 15

(2) Only sections may penetrate IMC. Lead may break up the division for individual holding.

(a) Dash 2 will normally remain with lead.

(b) Dash 3 and 4 will be dropped off at marshal altitude and proceed to holding point. Expect another lead to join to lead them on the CV-1 into the break.

(3) Descend at 250 knots, S/B out, 4000-6000 FPM.

(4) Lead will call "Platform" at 5000 feet and shallows rate of descent to 2000 FPM.

(5) When ship in sight, lead will call "See you at DME" and switch to Tower frequency; enter normal break (800 feet/300 knots).

(6) If not VMC or ship is not in sight by 800 feet/5 NM, report to App (BTN 15), proceed on BRC, and stand by for vectors.

12. CV Pattern

a. Pilot-controlled Pattern

b. Break

(1) 800 feet AGL/300 knots.

(2) Lead - no earlier than one mile upwind.

(3) Wing - 17 seconds after lead.

(4) Level break on the instruments.

(5) Descend to 600 feet when on downwind.

c. Downwind

(1) Landing checklist - Harness: Check, Anti-skid: Off, Hook: Up, for two touch-and-goes (unless directed otherwise).

(2) RADALT: set to 380 feet/450 feet.

(3) AOA/airspeed/fuel state cross check

(4) Abeam, call "Qual number, Abeam."

d. Approach Turn

(1) Abeam position. Lead should set proper distance abeam (0.9 to 1.1 NM). Use TACAN DME on downwind for backup.

(2) Turn when you first see white of the round down.

(3) 90-degree position: 450 feet AGL.

(4) 45-degree position: 375 feet AGL.

(5) Do not look for or fly the ball too early.

(6) Ball acquisition - check VSI and adjust (500-600 FPM).

(7) No lower than 300 feet without a ball.

(8) Fly the numbers - Avoid looking outside the cockpit early in the approach turn. You will appear high and tight.

e. In the Groove

(1) Work to a good start.

(2) Call the ball: "Side number, Goshawk ball, fuel state, and qual number."

(3) Meatball, line up, angle of attack.

(4) Fly the ball all the way to touchdown. Landing should be a surprise.

(a) MRT and S/B in upon touchdown.

(b) MRT until a complete stop.

(5) Line-up corrections all the way to touchdown.

(a) Meatball is inaccurate unless you are on centerline.

(b) Watch large line-up corrections IC-AR

(6) Do not spot the deck.

(a) Do not look at the wires or back of the ship.

(b) Always keep your scan moving.

(7) Rules to live by

(a) Never accept a low ball or lead a low.

(b) Do not recenter a high ball in close.

(c) Do not take your own waveoff unless it's an emergency or no "roger Ball."

f. LSO Calls

(1) Advisory

(2) Informative

(3) Imperative

g. Waveoffs

(1) Mandatory.

(2) Straight ahead (up the angle) unless otherwise directed.

(3) Do not overrotate - hold 17 units AOA/maintain landing attitude (if slow). Do not nose down.

h. Touch and Go or Bolter

(1) MRT, S/B in, rotate, and climb to 600 feet.

(2) Turn to parallel BRC at the bow.

(3) If necessary, ask for interval.

(4) First aircraft to the bow has priority.

i. Downwind

(1) Turn with interval at 7 o'clock.

(2) Fly instruments - scan altitude, heading, and abeam distance.

(3) Reciprocal of BRC, 0.9 - 1.1 NM abeam.

(4) TACAN Gouge

(a) Bearing 30° DME: 2.0

(b) Bearing 45° DME: 1.4

(c) Abeam DME: 0.9-1.1

j. Delta Pattern

(1) "Easy" - Gear and flaps down, S/B in, 150 knots.

(2) "Clean" - Max endurance (~200 knots, maintain interval).

(3) First aircraft abeam after "Charlie" call commences the approach turn.

13. Deck Procedures

a. Arrestment

- (1) Fly the ball to touchdown.
- (2) MRT, S/B in on touchdown all the way to a complete stop.
- (3) Yellow shirt director at 1-2 o'clock
 - (a) Watch for signals (off brakes, pull back, raise hook).
 - (b) Use power (not brakes) to stop backward motion on pull back.

b. Leaving the landing area

- (1) Use high gain NWS.
- (2) Taxi director signals - above and below waist.
- (3) Follow taxi director
 - (a) Don't rush, slow down.
 - (b) If unsure of signal, STOP and ask Tower.
 - (c) Keep head out of cockpit while taxiing.
- (4) After first arrestment on the first day, expect to hot pump/top off fuel.
- (5) Notify Tower/deck personnel if fuel is at or below hold down after subsequent arrestments.

c. Taxi to JBD

- (1) Route and placement of director.
- (2) Takeoff checklist prior to crossing JBD.

(a) Full flaps, 3-1/2 degrees noseup trim, RADALT set to 40 feet.

(b) Baro Altimeter should indicate approximately 60 feet.

(3) Weight board/signals (500-lb increments). Expect to roger weight board approaching the catapult.

(4) Stop if you lose sight or are unsure who your director is.

d. Catapult procedures

(1) Follow the aircraft director.

(2) Taxi slowly.

(3) Extend launch bar when directed.

(a) Use high gain NWS only when directed (± 20 degrees, low gain not available).

(b) DO NOT lower launch bar prior to rogering a correct weight board.

(4) Taxi slowly into holdback fitting; update BRC; may require 90 percent RPM to taxi forward to set launch bar once holdback is attached.

(5) Tension signal (after signal, aircraft director will pass you off to catapult officer).

(a) Remain at IDLE.

(b) Heels on deck - Off brakes!

(6) Runup signal

(a) MRT - use cat grip.

(b) Retract launch bar (when at MIL).

(c) Wipeout controls/rudder pedals (check gauges/instruments).

(d) Head against seat.

(e) Salute Catapult Officer - ensure heels on deck.

(7) 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 Catapult Officer gives "throttle back" signal.

(8) Catapult techniques

(a) Hold stick lightly - allow it to come back aft during the stroke, set 10-12 deg attitude as the A/C flies away, but don't overrotate.

(b) Scan ADI, AOA, airspeed. Proceed upwind and look for interval. Minimum of 1 NM before turning downwind if only A/C in pattern.

14. Refueling Procedures

- a. Locations.
- b. Review Push-Back procedures.
- c. Signals for chocks and chains.
- d. Canopy closed.
- e. Purple shirt refueling signals.
- f. Cut signal at 3000 pounds. Monitor engine page.
- g. Call "side number, up and ready, gross weight."

h. Mask: On, Takeoff checklist complete, prior to being broken down.

15. Aircraft Manup

a. Cold start/Flight deck

(1) Location of A/C (obtained from flight deck control, escort required).

(2) Preflight - same as before (don't hang into net to do preflight).

(3) Beware of intakes, exhausts, and props!

(4) Avoid landing area if ops in progress.

(5) Same start, checks, etc. (Start on yellow shirt signal only.)

(6) Alignment procedures.

(7) No hook check if tail over water until A/C pulls forward.

(8) Call "side number, up and ready, gross weight."

b. Hot switches

(1) Aircraft chocked and chained.

(2) Seat safed and parking brake set.

(3) NWS-OFF

(4) Throttle friction on.

(5) Leave all electrical equipment on.

(6) Unstrap, loosen waist straps, seat up, and rudder pedals extended.

(7) Upon signal from PC and intake FOD screen in place, Canopy - Open.

(8) Debrief oncoming pilot after switch.

16. Normal Departure Procedures

a. Case I

(1) Perform clearing turn.

(2) Maintain 500 feet to 7 NM at 300 KIAS, then climb and turn on course (shortest direction to divert); stay outside of 10 DME while climbing.

(3) Contact Departure

(4) If directed to join on a Lead/Safe, Tower will pass appropriate information.

(a) 250-knot rendezvous.

(b) Reselect Aux radio for coordination.

(5) Do not exit Warning Area until two-way comm established with FACSFAC.

(6) Complete fuel dry checks.

b. Case II

(1) Perform clearing turn.

(2) Contact Departure.

(3) Maintain 500 feet to 7 NM at 300 KIAS, then turn in shortest direction on the 10 DME arc, proceed outbound and climb on the departure radial/heading from Departure.

(4) Rendezvous (if directed by Tower).

(a) VFR on top

(b) TACAN Rendezvous

(5) Mandatory reports

- (a) "Airborne"
- (b) "Arcing"
- (c) "Outbound"
- (d) "VMC on top"

17. Bingo Procedures

- a. Be prepared to bingo at all times.
- b. Update bingo info as provided by Tower.
- c. Notify Tower when at bingo fuel state - This is an Emergency Procedure!
- d. Turn to bingo heading and clean up (including hook).
- e. Accelerate to 300 KIAS - level (clear pattern/initial/overhead stack).
- f. Switch to Departure, if required, and commence MRT climb to predetermined altitude outside seven miles or when cleared by Tower/Departure (PCL Bingo Chart/kneeboard).
- g. Don't wait for safety pilot to join. Lead/Safe will run you down.
- h. Dial up bingo field TACAN. Squawk 7700.
- i. IMC as necessary to preserve profile.
- j. Contact FACSFAC/Approach Control. Lead/Safe may coordinate if applicable; relay emergency fuel situation.
- k. Complete feet dry checklist.
- l. Determine best pattern entry - downwind or base leg entry, VFR straight-in, min fuel GCA.
- m. Heads up for other A/C.
- n. Land on speed.

o. Remember carrier-pressurized tires; plan full runway rollout.

18. Emergencies

a. Aborts.

b. NORDO - fly A/C first, then check fittings and switches.

(1) Fly normal pattern; watch for cut lights; waveoff as directed. Subsequent cut lights: Power.

(2) Remain in the pattern until you trap or are joined by a Lead/Safe.

(3) If bingo fuel - BINGO!/Squawk 7700.

(4) If require immediate landing, turn landing light on. 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. Landing gear malfunctions (probable steer).

j. Brake failure.

(1) Airborne - probable steer and short field arrestment.

(2) On deck - drop hook and transmit to Tower.

k. Catapult Emergencies.

(1) Cold, soft, holdback failure, hang fire, suspend

- (2) Launch bar warning light/launch bar down airborne
 - (3) Accel caution light
 - (4) Brake Pressure caution light
 - l. Flameout (during catapult/airborne).
 - m. Blown tire/smoked tire.
 - n. Hydraulic failure - dirty bingo.
 - o. System failure.
 - p. Ejection - Flight deck/low altitude.
19. Miscellaneous
- a. NATOPS/QOD
 - b. TIMS/Yellow sheets
- (1) All paperwork is completed at shore detachment site.
If RON, keep a record of day one numbers.
- (2) Log traps, cats, touch and goes, bolters, and field landing.
- c. Flight isn't over until you are out of the aircraft, the paperwork is done, and you have reported to the SDO.
 - d. Reputation is earned around the ship - be professional and alert. Have Fun!

APPENDIX C

NATRACOM CQ AIRCRAFT INFORMATION

T-45C GOSHAWK

1. Dimensions:

Wing Span	30 ft 10 inch
Height	13 ft 5 inch
Length	39 ft 4 inch
Hook-to-eye	12 ft 0 inch

2. Aircraft Weight:

Basic (two aircrew)	10,560 lbs
Total fuel	2,975 lbs
Max trap fuel	2,800 lbs
Max trap gross weight	13,360 lbs

3. Fuel Statistics:

Maximum Hot Pump Qty	3,000 lbs
Fuel per pass	150 lbs
Divert fuel - on deck (above Bingo)	600 lbs
Divert fuel - airborne (above Bingo)	500 lbs
Fuel flow on deck	600 lbs/hr
Bingo fuel (see Chapter II)	

4. Shipboard Characteristics and Considerations:

- a. No barricades.
- b. Full-flap landing.
- c. Full-flap takeoff.
- d. Catapult and trap at full fuel.
- e. Canopy should not be operated or allowed to remain open in side winds exceeding 45 knots.
- f. Full-time nose wheel steering except with the launch bar down.

- g. Self-starting.
- h. On-board oxygen system (OBOGS).
- i. Mode 2/SINS not installed.
- 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. Normal overnight complement: 18-20 jets
- m. Ensure familiarization with crane-off procedures and appropriate straps and equipment aboard.

APPENDIX D

STRIKE AND AIR OPERATIONS
CQ PLANNING FACTORS

1. Strike Operations

a. Airplan Constructs

(1) SNAs require four touch and goes/10 traps to qualify. Maximum six traps per day. Two days minimum to CQ.

(2) Day one of CQ involves LSO drop-off/Lead/Safe and IUT CQ followed by student training. Students from the last CQ period of the day will remain onboard overnight and commence CQ from the ship the next morning. The process starts over with new SNAs arriving in the afternoon.

(3) Preferred CQ flight period is 4.0 to 4.5 hours. Two per day.

(4) Limitations/Preferences

(a) No more than nine students should normally be worked at one time for Case I or six students for Case II.

(b) Goal is to get two touch and goes, six traps the first day, but one touch and go, four traps is the minimum.

(c) 15-minute separation for incoming divisions. This allows for students to perform the required touch and goes prior to the first trap.

(d) First two divisions consist of four aircraft (one Lead/Safe instructor and three students). Third division is a light division or full division depending on time constraints.

(e) Late/Safes are required for any students that fall out of preceding divisions due to maintenance delays. First Late/Safe of that period is a turning spare, second Late/Safe will be launched regardless.

(f) 4.0 to 4.5 hour CQ period is based on normal recovery winds and operations in our normal op areas. Sunrise/sunset times, low winds, positioning from bingo/diverts, weather, shipboard issues (catapults/wires stripped) and type-model-series of SAR helo will affect this plan.

(5) Reset time between periods is one-hour minimum. Reset time enables CNATRA contract maintenance 3.5 hours turnaround time for the aircraft to depart the ship in the morning and return back overhead in the afternoon.

(6) Average SNA hourly trap count is 20.

(7) A Weather Recce is required prior to commencement of morning operations to assess bingo/divert weather and enroute conditions. Normally launched from the beach detachment location, the WX Recce will assume Lead/Safe duties upon arrival at ship. That aircraft will be recovered after Lead/Safes from the carrier are launched and are in position. In the event that the shore-based WX Recce is delayed, a Lead/Safe from the ship can be launched to fulfill those duties.

b. Airspace/Seaspace considerations

(1) Maximum distance from bingo field is 120 NM; however, optimum position for the ship from the bingo field is 60 to 90 NM. Distances greater than 90 NM will slow operations due to higher bingo potential and increased refueling (holddown) requirements.

(2) Bingo fields are required to have arresting gear in battery, an instrument approach (either TACAN, ILS or PAR), and a field LSO on station.

2. Air Operations

a. Overhead Holding

(1) Lead/Safe altitudes under Tower control are usually 2.0, 3.0, and 4.0.

(2) Holding altitudes for divisions are 6.0 and above.

(3) Charlie call. Plan for approximately 7-10 minute delay for divisions established overhead to enter the break.

(4) Only one Lead/Safe should be assigned per altitude. If only one altitude is workable below the overcast, two Lead/Safe aircraft can be held at the same altitude (no lower than 1500 feet), one shall be assigned "primary hawk" by Tower. The second aircraft can be cross-circle or joined in TAC Wing.

(5) The CVOIC will manage Lead/Safes with the Tower to ensure adequate numbers overhead with the number of students being worked and that sufficient fuel states are maintained.

b. Pattern

(1) Minimum break distance upwind is one mile for Lead/Safe while leading students. Tower should monitor SNAs in the break for loss of altitude.

(2) It is not desirable to spin divisions of students due to their limited fuel endurance and touch and go requirements; however, if a spin is required, the entire division will spin.

(3) Tower should advise aircraft in the spin pattern of the lowest holding Lead/Safe to avoid midair potential.

(4) Students cannot depart and reenter by themselves. If required, a Lead/Safe will be directed to assist the student back to the initial.

(5) Minimum distance upwind for SNAs to turn downwind is one mile.

(6) The pattern must be continually monitored upwind as students will cut out their interval. The Tower and Lead/Safes should work together to manage 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.

(7) Lead/Safes are there to assist the tower in pattern management and assist bingo/emergency aircraft.

(8) Delta easy should be done at pattern altitude. Delta clean should be at 1000 feet, weather permitting.

c. Departures

(1) Students in a non-bingo, nonemergency can divert from the pattern by themselves to a familiar field if they have bingo fuel for that field plus 500 pounds. Lead/Safes are required to escort SNAs if diverted with less than 500 pounds above bingo.

(2) Students shall not be launched to return to the shore detachment location with less than 600 pounds above bingo for that location.

d. Bingo/Emergencies

(1) When a student is directed to bingo, Tower will inform the student of the direction and distance to the bingo field and assign a Lead/Safe to assist.

(2) Students may be directed to bingo or divert from any position in the pattern. Ensure students on a bingo clean up and turn towards the bingo field promptly.

e. General

(1) On the student's first day of CQ, two touch-and-go landings are required unless fuel or aircraft issues dictate only one touch-and-go. On subsequent days, students shall have at least one touch and go prior to the first arrestment of the day.

(2) Students cannot commence CQ from the boat. Their first day shall be started from the shore detachment location in order to fulfill all training requirements.

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

(4) Students shall be sidelined/hot pumped after their 1st trap on day one for bingo considerations. Hot refueling limit is 3000 pounds.

(5) Catapult operations can be conducted from either the topside or ICCS position. SNAs must be monitored closely on cat shots, especially the first shot for each student.

(6) SNAs should be watched closely while taxiing on deck to make sure they are following their directors.

f. Weather

(1) The minimum weather to conduct TRACOM CQ at the ship is 1500/5, which can be waived by the ship's Commanding Officer with CVOIC concurrence to 1000/5.

(2) Recovery Winds

(a) Optimum WOD is 25 knots.

(b) Min WOD is 20 knots.

(c) Max CQ WOD is 35 knots.

(d) No more than 7 knots crosswind.

(e) Use of downwind recoveries shall be limited in use and only when there is a maximum of 5 knots natural wind component.

(3) During Case II conditions, a maximum of six students will normally be worked with no more than four aircraft in the pattern at one time. The CVOIC may adjust the number of aircraft in the pattern based on weather conditions.

(4) Case III - Students are not authorized to conduct CQ operations in Case III conditions. LSOs and Lead/Safes can be launched and recovered Case III if fuel or weather conditions dictate. Note the T-45 is not equipped with any shipboard precision landing equipment. The approach will be a PALS Mode III approach.

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APPENDIX E

FIELD LSO PROCEDURES

Field LSO Checklist

1. Determine status of arresting gear on all runways; determine amount of time to reregister arresting gear after use.
2. Determine status of radio equipment:
 - a. Check for proper operation/frequencies set.
 - b. Ensure a discrete LSO/GCA/TWR frequency is used.
 - c. Inquire about backup radios in the event of primary failure.
3. Determine status of LSO vehicle:
 - a. Vehicle location/operability. Backup vehicle?
 - b. Are you driving or is someone driving you?
 - c. Determine best route to active/emergency runway. Be familiar with all local procedures. Consider a trial drive to waving location. Inspect/adjust lens if installed.
4. Brief/review with tower personnel and ground support personnel on T-45 procedures for recovering emergency aircraft:
 - a. What requires a trap.
 - b. Towing/taxi requirements and procedures.
 - c. Status of ground towing equipment.
 - d. Pass your recall and location on the field to base personnel.
5. Determine weather conditions at the bingo field; keep shore OIC and ship (if able) informed as to the current and forecasted weather conditions.

6. Weather minimums are 1000/3 for SNAs and TACAN mins (no less than circling mins) for IUT and Lead/Safe.

7. Notify Shore OIC and ship (if able) that the Field LSO is on-station and ready to receive aircraft; ensure Shore detachment and ship have your recall numbers (cell and base ops number).

After Recovery of Aircraft

1. Notify Shore OIC and ship (if able) of aircraft safe on deck.
2. Determine if field remains suitable divert for CQ operations.
3. Determine plan for diverted student and Lead/Safe.

Field LSO Minimum Equipment

1. NATOPS checklist
2. Portable VHF radio
3. Copy of blown tire 10-line brief
4. Copy of CQ smart pack
5. Recall numbers for shore detachment and ship.

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 from the good tire side. Landing with crosswinds from the blown tire side is not recommended. If crosswind is from the blown tire side, a tailwind recovery may be preferred.

- (c) Arresting gear and lens location.
 - (d) Pattern and approach.
 - (e) LSO talkdown voice calls.
 - (f) Touchdown procedures (MRT, speed brakes in, rudder to counter swerve, positive rotation).
 - (g) Bolter procedures.
 - (h) Waveoff procedures.
 - (i) Arrestment.
 - (j) Loss of control/ejection.
2. Ship Arrestment (Not recommended per NATOPS. If attempted, LSO may consider adjusting the touchdown point by targeting the 2-wire to increase the probability of a successful trap.)
- (a) Confirm blown tire(s), flap setting (full flaps), hook position, fuel state, Hyd 1 pressure, antiskid off. Confirm all emergency procedures complete.
 - (b) WOD.
 - (c) Pattern and approach.
 - (d) Importance of glideslope and lineup control.
 - (e) LSO voice calls.
 - (f) Touchdown procedures (MRT, speed brakes in, rudder to counter swerve, positive rotation).
 - (g) Bolter procedures.
 - (h) Waveoff procedures.
 - (i) Arrestment.
 - (j) Loss of control/ejection.

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APPENDIX F

LEAD/SAFE FUNDAMENTALS

1. General Lead/Safe Responsibilities

- a. Safety of flight to and from the carrier.
- b. Give thorough CNATRA STAN CQ brief.
- c. Advise and update the Tower on weather conditions.
- d. Monitor SNA fuel states and position in the pattern, weather permitting.
- e. Advise Tower and/or direct action if an unsafe situation develops.
- f. Monitor Bingo/Divert SNA departure from pattern. Ensure they deconflict with other aircraft in the pattern or at the initial.
- g. Escort Bingo/Emergency SNA to the beach.

2. Brief

- a. As per the CNATRA STAN (utilize the CNATRA shore or embarked PowerPoint brief, as appropriate).
- b. Cover all topics in a timely and professional manner. During SNA CQ, Lead/Safe IUTs are authorized to conduct briefs with a Lead/Safe Standardization pilot observing.
- c. Ensure the SNAs know their requirements for the day and flight time/manup limitations.

3. WX Recce

- a. Verify distance to ship from divert.
- b. Bases? Tops? Sections versus Divisions? Pass recommendations to CNATRA base.
- c. Overfly divert to verify field status and weather. Ensure Field LSO is on station.

d. Climb to bingo altitude once distance is known and check winds.

e. Ship may request recce of other areas for better weather. Plan to be overhead at least 15 minutes prior to first launch.

4. Division Takeoff Time

a. Verify ship's position prior to walking via POTS line or email.

b. First division per wave takeoff time = $\text{Distance}/4 + 10 \text{ min.}$

(1) Assumes 4 NM/minute (approx 12 units).

(2) If late, speed up if fuel available (i.e., able to show up overhead with at least Bingo + 600 pounds), and Strike/Marshal is telling you "expect charlie on arrival."

c. If an SNA's jet goes down.

(1) Lead/Safe shall not delay take-off due to SNA jet issues.

(2) SNA should go in the next available division.

(3) If next available division is full, SNA should go with the Late/Safe.

(4) SNAs should have each division lead and Late/Safe information including side number and TAC frequency.

5. Division Timing

a. The goal is to have three new SNAs in the break every 15 minutes. Hence, for follow-on divisions:

(1) If each division is flying 4 NM/min and the division/flight preceding...

(2) ...had 3 students, take off 15 minutes later.

(3) ...had 2 students, take off 10 minutes later.

(4) ...had 1 student, take off 5 minutes later.

b. If unable to make an on-time departure or make your ramp time, advise CNATRA base and follow-on divisions.

c. If late, do not buster to make the assigned ramp time and then end up with less than bingo + 600 pounds overhead.

6. Enroute

a. Inform divisions behind you of ship's position and your speed.

b. Keep apprised of your fuel and timing.

c. Complete Feet Wet Checks and confirm students complete.

d. Relay any weather updates to CNATRA base.

e. Stay in high holding if told to "Max Conserve."

7. 20 Miles from Ship

a. Switch division to Lead/Safe common and check in. Deconflict with other divisions overhead.

b. Time the flight's descent appropriately.

c. As soon as you see the ship, advise Marshal "see you at...", may be able to switch btn. 1 early and "Charlie."

8. "Charlie." Once you get the call from the Boss:

a. Commence the flight from point 3. Make a commencing call on Lead/Safe common and start descent. Penetrate 210° relative to BRC.

b. Turn to arrive wings level at 5 miles behind the ship.

c. Don't go outside 10 miles from low holding unless SOF dictates.

d. Report 3-mile initial to Tower.

e. Should not take more than 7 minutes to be in the break.

9. Spinning

- a. Be extremely precise and smooth.
- b. Spin at the bow.
- c. Don't confuse depart and reenter with spinning.
- d. Don't balloon - potential for a midair with Lead/Safe at 2000 feet.
- e. Make sure the students come with the lead; review hand signals/radio calls in the brief.
- f. Remember - even if directed, don't spin 2; Dash 3 student is not allowed to lead anything.

10. Lead/Safe Stack - Case I

- a. Holding Altitudes - 2000, 3000, 4000, 5000; unless WX dictates otherwise.
- b. CVOIC/Boss will manage:
 - (1) 2000 feet Lead/Safe; primary control of upwind pattern.
 - (2) 3000 feet Lead/Safe - back up other Lead/Safe (cross circle), watch A/C coming off the catapult, make sure they don't cut out interval.
 - (3) 4000 feet Lead/Safe.
 - (a) Max Endurance.
 - (b) Stay just outside of pattern.
 - (c) Maintain big picture.
- c. If told to "hawk" - Lead/Safe in best position, not necessarily lowest altitude, should take the hawk unless directed by the Tower.

d. WX considerations:

(1) 3000-ft layer, still Case I.

(2) TAC Wing or other Lead/Safe on deck/above the layer?

(3) Only one Lead/Safe at each altitude preferred for safety of flight. If two at same altitude, no lower than 1500 feet. No Lead/Safes lower than 1500 feet.

11. Lead/Safe Stack - Case II

a. Penetrate layers with sections only

(1) Once in comms with Marshal, descend through layers under Marshal control. Let them deconflict flights, don't try to do it on Lead/Safe common.

(2) No heavy sections/No light divisions!

b. Options: Depends on WX at the field and at ship. Beach OIC/CVOIC will coordinate.

(1) Lead/Safes bring out single students in sections (preferred).

(2) "Bucket brigade" possible with Case II holding (not preferred). Lead/Safes drop off dash 3/4 in holding. Penetrate with dash 2. Other Lead/Safes are sent to marshal to lead dash 3/4. Ship will need to be close to beach and bingo field for this method to work.

c. Overhead Stack - If only one altitude workable below the layer:

(1) One Lead/Safe below the layer (preferred) with other Lead/Safes above the layer or alert on deck.

(2) Two Lead/Safes at the same altitude (no lower than 1500 feet), can be in TAC Wing or cross circle.

(a) Bottom line, only one Lead/Safe is actually doing the job. The second is responsible for safe separation. Make sure you define roles over the radio. Also, don't work TAC Wing too low. Advise Tower if WX precludes this method.

(b) Third and fourth Lead/Safes should be above the layer, on deck, or part of the bucket brigade.

12. Lead/Safe Comm

- a. Clear, concise, and directive.
- b. Don't wait for the Tower. Make the call if required.
- c. Good Calls:

(1) "at xx DME, continue upwind. You're cutting out your interval."

(2) "at xx DME, turn."

(3) "approaching the bow, you're wide."

- d. Bad calls/technique:

(1) "turn."

(2) "number one upwind, turn."

(3) "back to the right/left" without a direction of who you are referring to.

(4) "Level your wings."

13. Bingo

a. The Bingo should be taken by the Lead/Safe who is in the best position, not necessarily the one at the bottom of the stack; communicate with each other and tell the Boss who has the Bingo, unless the Bingo has been specifically assigned to someone by Tower.

- b. If directed to bingo, go to the designated bingo field.

c. Direct the student onto the bingo profile. Advise them to "Reselect the back radio and switch to TAC-X, accelerate to XXX knots, turn to heading YYY, Squawk EMERG, climb to ZZ,ZZZ feet. Feet dry checks!"

d. Do:

- (1) All radio calls and coordination with ATC.
- (2) Call bingo tower ASAP to let them know you are inbound with a bingo and whether or not you need an LSO.
- (3) Coordinate with the LSO on the radio, if required.
- (4) Tell approach when you plan to descend so they can coordinate your descent.

e. Do Not:

- (1) Make the SNA join on you or level off to stay VMC.
- (2) Lead the student into the break or direct them to go into the break. Student should be doing a visual straight-in, downwind entry, etc.
- (3) Allow ATC to level you off at a lower altitude than the profile or ask you to deviate from the heading.

14. Lead/Safe Gotcha's

- a. Being late - Make your ramp time!
- b. Not having pattern SA when divisions are at the initial/coming into the break (Lead/Safes should help out leads at initial with interval).
- c. Watch your abeam distance and set the students up properly.
- d. Don't go long in the groove; there is no Top-10 patch for CNATRA Lead/Safes:
 - (1) Be safe, fly a cresting ball.
 - (2) MRT/Speed brakes in on touchdown.
 - (3) Fair is acceptable. No grades/cut passes are not!
 - (4) Don't be at idle when you touch down trying to catch the 4(3) on the fly. Bolters are acceptable.

e. Proper clearing turns.

(1) Get the jet flying, then turn.

(2) 20° AOB for 20° HDG change.

f. Give extra interval for a student in the pattern; shoot for 1+15 at a minimum because they are going to be TWA, Deep 90, LIG, etc.

g. Be smart on conserving gas overhead the ship.

h. Bring an overnight bag; everyone is eligible.

i. Be ready to conduct AM boat brief if you stay overnight.

j. Bring your pubs (plates and smart packs).

k. Keep Lead/Safe common chat on BTN 17 clean.

15. Late/Safe

a. Responsible for taking any stragglers that could not launch with previous divisions.

b. Walk and manup with the first division and be ready if a lead jet goes down. That Lead/Safe will then become the Late/Safe.

c. Do not launch until the last division of SNAs has launched (could be a division from the other TRAWING)!

d. First Late/Safe of a period - "Late/Safe Spare" - Only launch if a student falls out of the previous division. Then you will take them to the boat. Stay manned up until last division is airborne.

e. Second Late/Safe of a period:

(1) Wait to launch until the last student launches.

(2) Unlike the Late/Safe spare, launch as a single even if all students got off the deck. You will be needed as the fourth Lead/Safe overhead.

(3) If jet is down for maintenance, get another jet and go late.

(4) If you cannot make it for any reason, let the OIC/ship know. They may hold over an earlier Lead/Safe as a spare.

16. Guest Rider Considerations

a. If you are not comfortable flying guest riders, let your detachment OIC/AOIC know early, not five minutes prior to the brief time.

b. Ensure back seater is familiar with the following items:

(1) Strap-in Procedures/Proper leg position.

(2) Cockpit switches to watch for: Manual Fuel/Antiskid Switch/Engine Switch, etc.

(3) Comm/ICS use and adjustment.

(4) Seat height and rudder pedal adjustment; feet off brakes on catapult and trap!

(5) Lead/Safe workload.

(6) Overnight gear.

(7) Flight deck safety/FOD concerns.

(8) Mask on while taxiing on flight deck.

(9) Ejection procedures.

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