



DEPARTMENT OF THE NAVY  
COMMANDER  
TRAINING AIR WING FIVE  
7480 USS ENTERPRISE STREET SUITE 205  
MILTON, FLORIDA 32570-6017

IN REPLY REFER TO  
COMTRAWINGFIVEINST 3710.15  
N7  
3 May 16

COMTRAWING FIVE INSTRUCTION 3710.15

Subj: TRAINING AIR WING FIVE ROTARY-WING CHECKLIST STUDY GUIDE

Ref: (a) NAVAIR 01-H57BC-1

Encl: (1) TH-57B Checklist Study Guide

1. Purpose. Enclosure (1) is provided to aid Student Naval Aviators (SNAs) and Instructors Under Training (IUTs) in basic cockpit checklist procedures necessary to successfully operate the TH-57B during Cockpit Procedure Trainers (CPTs), and to standardize the method by which Training Air Wing (TRAWING) FIVE aircrews perform normal checklists. Where any ambiguity in procedure or verbal response exists, refer to reference (a).
2. Scope. This instruction is applicable as a study aid for all TRAWING FIVE simulator and flight operations in the TH-57B. It is not to be used during any graded simulator event or used in-flight.
3. Action. This directive is effective upon receipt. All pilots operating TRAWING FIVE TH-57 aircraft shall comply with this guide. Submit recommended changes to Commander, Training Air Wing FIVE, Attn: TH-57 Standardization.

  
M. T. MURRAY

Distribution:  
COMTRAWINGFIVEINST 5216.1U  
List II (a-c, f, i, m-p, h)

TRAWING FIVE  
TH-57B  
CHECKLIST STUDY GUIDE  
ADVANCED ROTARY FLIGHT TRAINING



TH-57 "Sea Ranger"



MAY 2016

---

Commander, Training Air Wing FIVE (CTW-5)

NAS Whiting Field, Milton, FL

COMTRAWINGFIVEINST 3710.15

Enclosure (1)

# Training Air Wing FIVE TH-57B Checklist Study Guide

## General

This checklist guide is for study purposes ONLY. It is NOT to be used during any graded event within the simulator or aircraft. It is highly recommended to study with this guide and use it as a reference until you can efficiently use the NATOPS Pocket checklist by itself. The TW-5 Checklist Study Guide reflects TH-57B NATOPS checklist procedures, Contact FTI and TW-5 Rotary-Wing Operating Procedures (RWOP) including local radio calls.

Student Naval Aviators (SNAs) and Instructors Under Training (IUTs) shall bring the following items for all Contact/NATOPS scheduled events:

- a. Gloves and Kneeboard.
- b. TH-57 NATOPS and Pocket Checklist (PCL).
- c. Contact Flight Training Instruction (FTI).
- d. TRAWING FIVE TH-57 In-Flight Guide (IFG).
- e. Required pubs/charts for route of flight.

## HOW TO USE THIS CHECKLIST GUIDE

This checklist guide is intended to assist SNAs/IUTs in preparation for advanced flight training at TW-5, specifically for the TH-57B Cockpit Procedures Trainer (CPT) events and TH-57B Contact events, by providing checklist standardization and call-outs for all pilots. The checklist procedures outlined in this guide are to be used during day, VFR, Dual Contact flights. Refer to the TW-5 RWOP for night, SVFR, and solo requirements. **Checklist items for the TH-57C have been omitted.** SNAs/IUTs are expected to memorize all required crew and radio communications during Contact simulator and flight events. The SNA/IUT is expected to study and chair-fly with this checklist guide until all actions and verbalizations can be performed while referencing only the TH-57 NATOPS PCL.

The challenge and response format within this guide is widely used in the aviation industry and is primarily designed to increase Crew Resource Management (CRM) between the SNA/IUT and Instructor Pilot (IP) as well as ensure each step of the checklist is completed by both crew members. Not every step requires a dual response however each pilot, regardless of which seat they occupy, must ensure each step of the checklist has been accomplished. Although it is ultimately the IP's responsibility to ensure all checklist items are properly completed, this does not take any responsibility away from the SNA/IUT. SNAs/IUTs must demonstrate good CRM when challenging their IP if a checklist step has been executed improperly or inadvertently skipped. When a checklist item requires both crew members to respond, the SNA/IUT **will not** proceed to the next item until the IP responds. This will ensure items are being checked properly by both crew members.

To properly utilize the checklist, the IP will initiate the CHALLENGE (left column) which is **printed in italics with "quotation" marks**. The SNA will perform the ACTION (middle column with amplifying instructions and notes) and reply with the appropriate RESPONSE (right column). Responses **printed in bold CAPS within "quotation" marks** will be stated by the SNA. When an IP response is required, it is printed in *non-bold italics* within "quotation" marks. When an action involves a "Check" of the position or setting of a movable control or switch, the SNA is expected to touch or look at that item to aid in verification of its position or setting, and if necessary, change its setting or position to make it consistent with the prescribed response.

The challenges appear just as they are listed within the TH-57 NATOPS. There are many acronyms used within the checklist. In some cases it is an acceptable practice to verbalize the actual name while calling out the challenge. For example, BAT Switch = Battery, GEN Switch = Generator, INST LT = Instrument Lights, STBY ATT IND Switch= Standby Attitude Indicator.

It is important that both crewmembers remain cognizant of the checklist status as the checklists are being completed. For this reason, except as noted, the commencement of a checklist is announced "PRE-TAKEOFF CHECKLIST." If a checklist is interrupted, that interruption is announced (i.e. "Holding the PRE-TAKEOFF CHECKLIST"). Completion of a checklist is announced (i.e. "PRE-TAKEOFF CHECKLIST Complete").

This guide contains NORMAL procedures and communications phrases. Instructions and communication phrases associated with the EMERGENCY procedures performed during Contact simulator events are found in the TH-57 NATOPS Flight Manual, Contact FTI, and TW-5 RWOP.

Once the rotor is turning, a qualified helicopter pilot or pilot under instruction (SNA/IUT) must be at the controls. The pilot at the controls must keep both feet on the pedals and a grip on the cyclic stick with either hand. Guard the collective with your leg, and the free hand is used to execute the checklist.

As you prepare for your Contact simulator events, there are several keys to success. Study with others in your class to the maximum extent possible, and study in a physical reproduction of the cockpit to the maximum extent possible. While rote memorization of required actions, responses, and communications is imperative, it is not enough to prepare you to perform in the simulator or helicopter. The only way to be **smooth**, **timely** and **accurate** in the completion of checklists is to know and understand the checklists and also build muscle memory by executing those checklists in the cockpit. Practice in available CPTs, OFTs, or pre-flight helicopters in the hangars.

The Preflight Inspection is not included with this guide but will be conducted per the PCL on the aircraft. Refer to NATOPS Chapter 7 for more information.

**“Prestart Checklist”**

<b><u>CHALLENGE</u></b>	<b><u>ACTION</u></b>	<b><u>RESPONSE</u></b>
1. “Pedals”	Utilize star wheel and adjust In/Out to proper position.	“ADJUSTED”
2. “Seatbelt & Inertial lock”	Lap belt will be low across lap and tightened. Shoulder straps will be tightened underneath the LPU and strap adjusters will be approximately level with collarbone. Ensure proper function of inertial reel lock.	“CHECK, FASTENED, AND ADJUSTED”
3. “Flight controls”	Check as follows:  Cyclic: cockpit wipe out in a box pattern, watching blades respond.  Pedals: check for full throw of each.  Collective: move full up and full down. Raising collective without hydraulic boost causes the cyclic to move forward (“coupling”).  Check for binding on all controls.  <i>Note: There is no requirement to tell the IP to watch their knees since the IP initiated the control check with the challenge.</i>	“FREE AND COUPLED”
4. “Searchlight”	Check in the OFF (center) position.  <i>Note: The aft position is the stow position.</i>	“OFF”
5. “Lower Circuit Breakers”	Check both in (left C/B is mode C of the transponder, right C/B is the torque gauge).	“IN”
7. “Avionics”	Check UHF, VHF, transponder OFF.	“OFF”
9. “Engine Anti-icing”	Check in the OFF (aft) position.	“OFF”
10. “Hydraulic System”	Check HYDRAULIC SYSTEM switch in the ON (forward) position.	“ON”
12. “Instruments”	Check gauge indications in a static condition.	“STATIC CHECK. ALL GAUGES ZERO, CLOCK WOUND, CORRECT TIME, OAT IS__°C.”
13. “Radar Altimeter”	Check DH bug set to minimum altitude.	“SET”
14. “ECS”	Check the three-way AIR COND/OFF/FAN switch in the OFF (center) position.	“OFF”

15. "Overhead switches"	Check all overhead switches to the <u>aft</u> position.  <i>Note: Center is OFF for the GEN switch. Two other switches, the position lights 'BRIGHT/DIM' and 'STEADY/FLASH' switches, do not have an OFF position.</i>	"OFF"
16. "Overhead Circuit Breakers"	Check all upper C/Bs pushed in and no white exposed.	"IN"
17. "Instrument Lights"	Check "clicked" off.	"OFF"
19. "Cabin Heat Valve"	Not installed in CPTs, but in the aircraft is found on the upper panel, aft and to the right of the upper C/Bs. Check it in the OFF (counterclockwise) position.	"OFF"
20. "Cockpit Lights"	Check the rheostat in the OFF (counterclockwise) position.	"OFF"
22. "Anti-Collision Lights"	Move ANTI COLL LT switch to the ON position.	"ON"
23. "Position Lights"	Check POS LT switch in the OFF position.	"OFF"
24. "Helmets"	If not already done previously, put on helmet and ensure ICS cord connected.	"ON"
25. "Battery"/"GPU"/ "Battery Cart"	Move battery switch to the ON position if not using GPU. Otherwise give the Plane Captain the signal to plug in and power up the GPU/Battery Cart.	"ON __ VOLTS"
26. "ICS"	Check ICS operation using first detent on trigger switch or footswitch. If good ICS is not established, troubleshoot the system. Ensure the volume knob on the ICS panel is turned up (as well as the volume knob on the CPT headset). Ensure that the ICS cord in the cockpit is plugged into the proper socket for pilot or co-pilot.	"ICS CHECK" " <i>Loud and clear</i> " "I READ YOU THE SAME"
27. "Aud/Mute Switch"	Move switch to the Audio (up) position, listen for the beeping ENG OUT tone, then back down to Mute.	"AUD THEN MUTE"
28. "Fire Detector Test"	Push the FIRE DET TEST button and look at the Caution Panel for the red ENG FIRE warning light. Release the button when the light is observed.	"TEST"

29. "Caution Light Test"	Check for the following five lights on the caution panel: GEN FAIL, HYDRAULIC PRESSURE, TRANS OIL PRESSURE, ENG OUT, ROTOR LOW RPM.	"FIVE NORMAL"
	Push the CAUTION LT TEST button and hold it for at least two seconds, observe all caution lights and the CLEAR CHIP button illuminated.	"FULL PANEL"
	Release the CAUTION LT TEST button. All caution lights should extinguish except for the five normal caution/warning lights, three chip caution lights and the CLEAR CHIP button. Wait for the chip lights to extinguish.	"CONTINUITY CHECK"

30. "Fuel quantity" Check. "CHECK, \_\_ GALLONS"

**"Prestart Checklist Complete"**

**"Start Checklist"**

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
1. "Force Trim"	Check Force Trim Switch in the ON (forward) position.	"ON"
2. "Twist Grip"	Check the twist grip full open, idle, and closed.	"CLOSED"
3. "Fuel Valve"	Check Fuel Valve Switch in the ON position, guard in place and fuel pressure is 4-30 psi.	"ON, FUEL PRESSURE IN THE GREEN"
4. "Battery Switch"	Move the battery switch to BAT for a GPU start (confirm in BAT position for battery start). Battery switch remains OFF for a battery cart start.	"ON" for a GPU/battery start "OFF" for a battery cart start
5. "Rotors"	Ensure Rotors are at the 90/270 position, no tie downs are attached to ends	"CLEAR RIGHT, NO TIEDOWN" <i>"Clear left, no tie-down"</i>
6. "Fireguard"	Give engine start signal to the Plane Captain and await his acknowledgement.	"SET"
7. "Engine Start"	Complete the engine start sequence as follows:	
a.	Uncover the engine starter switch. Pick a whole number on the clock on which you intend to engage the starter.	"TELL ME IF THE ROTORS AREN'T TURNING BY 25% Ng, STARTING ON THE __"
b.	Engage starter and check voltmeter for a minimum of 17 volts.	"STARTER ON, __ VOLTS"

- c. Verify TOT is less than 150 degrees C. If the engine had been running in the last few hours, the TOT may be above 150 degrees C before engaging the starter, but it should decrease as the compressor draws ambient air into it. **“TOT LESS THAN 150”**
- d. Twist grip – Rotate to flight idle (away from you) at the appropriate Ng for the OAT past the idle position until the IDLE REL button pops up, then back to the idle position. **“TWIST GRIP FLIGHT IDLE AT \_\_\_ % Ng”**
- Note: If OAT is above 7°C, rotate twist grip to flight idle at 15% Ng. If OAT is at or below 7° C, rotate twist grip to flight idle at 13% Ng.*
- Place thumb on the engine IDLE REL button in case of an abort start. Do not place your thumb on the engine IDLE REL button while introducing fuel; place it only after the twist grip has been opened and the button has popped up.
- e. Observe engine light-off (an increase in TOT), normally immediately after introducing fuel. It is accompanied by a noticeable increase in engine noise, Ng, and Nf/Nr. In the actual aircraft, the rotor will be turning by this point. Monitor TOT, and abort start if any of the following criteria are met: **“LIGHT OFF, MONITOR TOT”**
- (1) No light-off within a few seconds of introducing fuel.
  - (2) An excessive rise in TOT, TOT rapidly accelerating through 840 degrees C, or battery stabilized below 17 volts on starter engagement (possible Hot Start).
  - (3) Rotor not turning by 25% Ng.
  - (4) Illumination of ENG FIRE warning light or “lazy eight” signal from Plane Captain (Emergency Shutdown).
  - (5) Ng rises slowly and stabilizes below 58% (Hung Start).
  - (6) Starter limit reached prior to Ng reaching 58% or above.
  - (7) Transmission oil pressure is not indicated by 30% Nr.
- Note: The scale on the TOT gauge expands after 700°C, so a slight jump in the TOT needle is expected as TOT passes 700°C. When TOT peaks and decreases toward normal idle temperature (~500°C), check engine and transmission oil pressures.*

- |  |  |  |
|--|--|--|
| f.   | Engine and transmission pressures should be rising.  | <b>"ENGINE AND TRANSMISSION OIL PRESSURES RISING"</b>  |
| g.   | Starter switch – OFF at 58% Ng. Close cover on starter switch to secure the starter after Ng reaches 58%. Engine should stabilize with Ng at 63+/-1%. Note the time (for one minute stabilization prior to opening the twist grip).  | <b>"STARTER OFF, TIME IS ___"</b>  |
| 8. "Engine/<br>Transmission Oil Pressures" | Engine oil pressure is typically near 130 psi at this point, even though the minimum pressure at idle is 50 psi. On the first start on a cold day, the oil pressure may exceed red line, up to 150 psi however, it must decrease below 130 psi before moving the twist grip past flight idle. Transmission oil pressure must show a positive indication, although it does not need to be above the normal in-flight minimum of 30 psi at this point. Illumination of the TRANS OIL PRESS caution light, while not typical, is acceptable at this point. In cold weather, transmission oil pressure up to 70 psi is acceptable following a cold start however, it must return below 50 psi before moving the twist grip past flight idle. | <b>"ENGINE OIL PRESSURE IN THE GREEN"</b> (Ng will be below 79%, min oil pressure is 50 psi so it can actually be in the yellow arc) <b>"TRANSMISSION OIL PRESSURE"</b> either <b>"IN THE GREEN"</b> or <b>"NORMAL FOR THIS PHASE"</b> (above 0 psi) |
| 9. "Position Lights"                       | Check in the OFF position.   | <b>"OFF"</b>   |
| 10. "Battery switch"                       | Battery is turned on at this point if a Battery Cart was used for the start.   | <b>"ON"</b>  |
| 11. "GPU/Battery Cart"                     | If GPU is used, give the signal to remove the electrical cable. If battery cart is used, signal for removal, if required.  | <b>"REMOVED"</b><br>or<br><b>"NOT USED"</b>  |
| 12. "Aud/Mute Switch"                      | Move switch to the Audio position.   | <b>"AUD"</b>   |
| 13. "Instruments"                          | Check for normal indications. Nf and Nr are not "in the green" but should be normal, joined up between 60%-70%. If starting in cold weather, and engine and transmission oil pressures were higher than normal on start, they should be back in normal limits before continuing with the Pre-Takeoff Checklist. Transmission oil temp should be at least 15°C. If the above conditions are not met because the engine or transmission oil is still cold, allow the engine to idle until engine and transmission temperatures and pressures are normal.   | <b>"CHECKED"</b>   |
| 14. "Caution Panel"                        | Check for normal lights for this stage. GEN FAILURE and ROTOR LOW RPM are normally on but TRANS OIL PRESS may also be on if press has not risen to 30 psi.   | <b>"CHECK FOR NORMAL CAUTION LIGHTS"</b>   |

**“Start Checklist Complete”**

**“Pretakeoff Checklist”**

<b><u>CHALLENGE</u></b>	<b><u>ACTION</u></b>	<b><u>RESPONSE</u></b>
<b>1. “Twist Grip”</b>	<p>Scan gauges.</p> <p><i>CAUTION: Do not exceed flight idle until transmission oil temperature is at least 15°C, transmission oil pressure is 50 psi or below, engine oil pressure is below 130 psi, and one minute of idle dwell time has elapsed since starter switch moved to the OFF position.</i></p> <p><i>CAUTION: If the engine has been shut down for more than 15 minutes, failure to stabilize at idle speed for 1 minute may result in turbine damage.</i></p> <p>Slowly rotate twist grip to 70% Ng.</p>	<p><b>“GREEN, GREEN, ABOVE 15°C, AND 1 MINUTE”</b></p> <p><b>“70% Ng”</b></p>
<b>3. “Main Gen Switch”</b>	<p>Move GEN switch to the RESET (aft) position, then to ON (forward) position, and observe indications.</p>	<p><b>“RESET, THEN ON, GENERATOR LIGHT OUT, AND RISE IN VOLTS AND LOAD”</b></p>
<b>4. “Battery Cart”</b>	<p>If battery cart is still connected, signal for removal. Remove, as required.</p>	<p><b>“REMOVE, AS REQUIRED”</b></p>
<b>8. “Avionics”</b>	<p>UHF to BOTH, VHF to ON, and transponder to STANDBY.</p>	<p><b>“ON”</b></p>
<b>9. “Loadmeter”</b>	<p>Check loadmeter gauge below 50%. If above 50%, monitor the loadmeter, and avoid engaging the ECS until below 50%. Generator load should decrease as battery recharges, and current flow from the generator to the battery drops off. In no case should the loadmeter read above 70%.</p>	<p><b>“CHECK BELOW 50%”</b></p>
<b>10. “ECS”</b>	<p>Do not engage the ECS if the loadmeter indicates greater than 50%. When below 50%, select AIR COND, OFF or FAN. If Cabin Heat is desired, select ECS to FAN/HI and open the Cabin Heat valve on the overhead console. If windscreen is fogged up, the Defog Blower may be engaged.</p>	<p><b>“ON”, “OFF” or “FAN” as appropriate</b></p>

**11. "Flight controls"**

- |           |  |   |
|-----------|--|---|
| <b>a.</b> | Ensure the rotor arc is clear prior to moving the rotor disk. Personnel may be inside the rotor arc during the check as long as they remain close to the fuselage.   | <b>"CLEAR RIGHT"</b><br><i>"Clear Left"</i> |
| <b>b.</b> | <p>(1) Force Trim check. Cyclic FT button - Depress. Check for cyclic freedom of movement by moving cyclic in an "X" pattern. Do not displace the cyclic more than 2 inches from center to avoid contacting the static stops.</p> <p>(2) Cyclic FT button- Release, move cyclic in a "+" pattern. You should feel force gradient as cyclic is displaced. When pressure is relieved, cyclic should return to its trimmed position. Check the tip-path for proper deflection as the cyclic is moved.</p> |   |
| <b>c.</b> | <p>Guard the collective with your leg and turn the FORCE TRIM switch to the OFF position.</p> <p>(1) Check for freedom of movement in cyclic and pedals. To avoid yawing on spot, do not displace pedals more than 2 inches.</p> <p>(2) Collective check. Raise collective 1 – 2 inches, check for any binding, and listen for the Low Nr audio tone (steady tone). Return collective to full down position.</p>   | <b>"FORCE TRIM – OFF"</b>                   |
| <b>d.</b> | Guard the collective with your leg and turn the HYDRAULIC SYSTEM switch to the OFF position  | <b>"HYDRAULICS OFF, LIGHT ON"</b>           |
| <b>e.</b> | <p>HYDRAULIC PRESSURE caution light should illuminate. Check for freedom of control movement by moving cyclic in an "X" pattern. Raise the collective approximately 2 inches and return it to the full down position. Control movement will require more force than with the boost on and some feedback will be felt in the controls.</p> <p>Guard the collective with your leg and turn the HYDRAULIC SYSTEM switch to the ON position.</p>   | <b>"HYDRAULICS ON, LIGHT OUT"</b>           |
| <b>f.</b> | Guard the collective with your leg and   | <b>"FORCE TRIM ON. CONTROL"</b>             |

	turn the FORCE TRIM switch to the ON position.	<b>CHECK COMPLETE"</b>
<b>14. "Engine Anti-Icing"</b>	<p>Check as required. When ground OAT is 10°C or higher, the check is not required.</p> <p>When ground OAT is less than 10°C, note TOT, turn ANTI-ICE switch to the ON position and verify rise in TOT. Turn ANTI-ICE switch to the OFF position and verify decrease in TOT.</p> <p><i>Note: A normal rise is ~ 10-15 degrees C.</i></p>	<p><b>"OFF"</b></p> <p><b>"ANTI-ICE ON, RISE IN TOT. ANTI-ICE OFF, DECREASE IN TOT"</b></p>
<b>15. "Pitot Heat"</b>	<p>Check as required. When ground OAT is 10°C or higher, the check is not required.</p> <p>When ground OAT is less than 10°C, move left pitot heat switch to HEAT (forward) position and confirm rise in load. Move left pitot heat switch to OFF (aft) position and confirm decrease in loadmeter. Repeat for right pitot heat switch.</p> <p><i>Note: A normal rise is ~ 3%.</i></p>	<p><b>"OFF"</b></p> <p><b>"PITOT HEAT ON, RISE IN LOADMETER. PITOT HEAT OFF, DECREASE IN LOADMETER"</b></p>
<b>16. "Cargo Hook"</b>	<p>Check as required. Cargo hooks are removable, and are not installed in every aircraft.</p>	<b>"NOT REQUIRED"</b>
<b>17. "Twist grip"</b>		<b>"GAUGES AND CAUTION LIGHTS NORMAL"</b>
<b>a.</b>	Check instrument panel.	
<b>b.</b>	Signal to Plane Captain.	
	<p><i>Note: NATOPS specifies signaling the Plane Captain only <u>two</u> times during the checklist: 1. When first starting to ensure he is set for the start and 2. The very first time bringing the collective to full open to verify that a satisfactory leak check has been completed prior to accelerating the engine to full open. There is no other NATOPS requirement to signal the Plane Captain when opening the twist grip.</i></p>	
<b>c.</b>	After advising the co-pilot, begin to open the twist grip. While opening the twist grip, torque will approach 40%, but then decrease as the rotor speeds	<b>"TWIST GRIP FULL OPEN, NOT TO EXCEED 40% TORQUE"</b>

up. Exceeding 40% torque on engine run-up may cause engine chugging or compressor stall. Continue until twist grip is full open and then check Nf/Nr. If it is not 100%, use the GOV RPM INC/DECR switch to adjust the power turbine speed to 100%.

- d. Ensure twist grip is full open and scan Nf/Nr guage and ensure 100%. **“FULL OPEN”**

**18. “Deceleration and Flight Idle”**

*Note: IP will take the controls to perform the deceleration check for the left twist grip. Deceleration check repeated for both twist grips.*

- a. Note the second hand on the clock or count the seconds to verify the Ng deceleration time from 100% Nr to 65% Ng is not less than 2 seconds. Left seat pilot rotates twist grip to idle to check idle detent. ROTOR LOW caution light should illuminate at 90 +/- 3% Nr. Nf and Nr should remain married as they decrease to normal idle. **“Flight Idle”**  
(Note Ng deceleration time from 100% Nr to 65% Ng)
- b. Check Ng 63 +/-1% **“Ng stabilized \_\_%”**
- c. Rotate twist grip full open. **“TWIST GRIP FULL OPEN, NOT TO EXCEED 40% TORQUE”**
- d. Verify Nf/Nr. **“Nf/Nr 100%”**
- e. Repeat step a. for rotating the right twist grip to flight idle. **“FLIGHT IDLE”**
- f. Check Ng 63 +/-1% **“Ng STABILIZED \_\_%”**

**“COMM/NAV Checklist”**

This checklist is part of the "Pre-takeoff Checklist." It is listed separately here for ease of use. The letters used for steps in the checklist correspond to those in the NATOPS manual. Steps for the TH-57C are omitted. Refer to FTI for TH-57C procedures.

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
20. "COMM/NAV Equipment"		
a. "Clock"	Set current time and wind until light tension is felt.	"SET AND WOUND"
c. "Attitude Gyro"	Pull out on knob on front of indicator until gyro cages and set mini aircraft on horizon, if necessary.	"CAGED"
d. "BAR ALT"	Set Barometric Alt to 177'.	"SET TO FIELD ELEVATION"
e. "RMI"	<p>Ensure Free/Slave switch is in the SLAVE (forward) position and the needle is aligned with the index mark in the small window. Verify the RMI is within 10 degrees of the <u>corrected</u> wet compass (correction from the compass deviation card applied).</p> <p>If not in agreement, turn off Landing Light and Searchlight, ECS (Air Conditioning), Pitot Heat, and Defog Blower (L.A.P.D.), and check again. If still off, put slave switch in FREE (aft) position and adjust with clockwise/counterclockwise toggle switch. On the compass slaving panel observe the small window and check that the white needle is aligned with the white horizontal line. Move the switch from FREE back to SLAVE. Turn LAPD items back on as required.</p>	"SLAVED AND ALIGNED"
g. "Rad Alt"	<p>Test Radar Altimeter as follows:</p> <p>(1) Set bug to 25 ft.</p> <p>(2) Press TEST button. Needle should rise to 50 ft. +/-5 ft. with an OFF flag.</p> <p>(3) Release. As needle drops past DH bug, DH light should illuminate and tone should sound. OFF flag should disappear behind the mask.</p>	"TEST AND SET"

	(4) Push DH button. The warning light and tone should cease. Set bug to zero.	
<b>h. "VHF"</b>	<p>Test as follows:</p> <p>Begin on Audio Control Panels.</p> <p>(1) Select mixer switches #1 and #2 (up), and de-select all others (down) for both pilot and co-pilot.</p> <p>(2) Switch Transmit Selector to #2 (VHF transmit) for both pilots</p> <p>(3) Disable squelch by pulling <u>out</u> on the ON/OFF/VOLUME knob and use the background static to adjust volume.</p> <p>(4) Tune the VHF Standby frequency to 121.95 (Instructor Common) and push the white USE button to select the freq, swapping it to the left side.</p> <p><i>Note: With the non-volatile memory, the frequencies may already be set. However, knobs and USE button should still be manipulated to verify operational status.</i></p> <p>(5) Tune the VHF Standby frequency to 124.85 (PNS Approach).</p> <p>(6) Each pilot squeezes the ICS/RADIO trigger to the second (radio) detent, independently, looking for "T" to appear on the display.</p> <p>(7) Switch Transmit Selector to #1 (UHF transmit) for both pilots.</p>	<b>"TEST AND SET"</b>
<b>i. "VOR"</b>	<p>(1) Tune the VOR Standby frequency to 108.8 (SAUFLEY VOR) and push the white USE button to select the freq, swapping it to the left side.</p> <p>(2) Tune the VOR Standby frequency to 110.55 (South Whiting Localizer).</p> <p><i>Note: With the non-volatile memory, the frequencies may already be set. However, knobs and USE button should still be manipulated to verify operational status.</i></p>	<b>"TUNE AND SET"</b>
<b>l. "Transponder"</b>	<p>(1) Turn selector to TEST, look for all 8s, modes, carets(^), then set back to STDBY.</p> <p>(2) Push and release EMER button. Beacon code should reset to 7700.</p>	<b>"TEST AND SET"</b>

(3) Set in local outbound beacon code (squawk) of 0100 by adjusting digit over caret, then pushing button to move caret.

n. "UHF"

*Note: There are two UHF models. Version 1 incorporates toggle switches, a toggle READ switch, and a rotary brightness test. Version 2 incorporates knobs, a push-button brightness test, a rotary brightness knob, and the READ function can be tested by rotating the left rotary knob to the READ position.*

"TEST AND SET"

(1) Turn squelch switch to the OFF (down) position, adjust volume, then turn squelch switch to the SQL (up) position.

(2) Select GUARD mode. Display should read 243.0

(3) Select MANUAL mode. Move the frequency selectors and confirm that they work properly. Set as desired.

(4) Select PRESET mode. Turn Channel Selector knob to your Base freq. (Ch-5 for HT-8, Ch-6 for HT-18, Ch-7 for HT-28, Ch-8 for HITU)

(5) Push the READ switch (or rotate the knob to READ). Display should show correct Base frequency.

*Note: Checking the switch in BOTH is not IAW the Instrument FTI P. 2-7 and there is no reason to check it since the pilot set it to BOTH when first turned on.*

(6) Turn BRIGHT/DIM knob full clockwise or push the brightness test button and check for all 8s. Set brightness to desired level.

**“Pretakeoff Radio Calls”**

At this point, the pretakeoff checklist is paused to perform appropriate calls and obtain ATIS.

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
1. “Switch to Base”	Call outbound to base.	HT-8: Ch-5, “EIGHTBALL BASE, EIGHTBALL____ OUTBOUND, TO _____(site), WITH _____(student’s last name)” HT-18: Ch-6, “SKEDS, FACTORYHAND ...” HT-28: Ch-7, “LUCKY BASE, LUCKY ...”
2. “Switch to ATIS”	Ask co-pilot to switch to Ch-1 for ATIS. When copying ATIS, maintain a grip on the cyclic with either hand and guard collective position by leaning your left leg against it.  a. Update the altimeter setting in the Bar Alt prior to switching to Ground Control.	
3. “Switch to Ground”	Switch to Ch-3 for Ground Control. Do not call Ground Control until takeoff checklist is complete	

**“Pretakeoff Checklist Continued”**

The Hydraulics Check is part of the “Pretakeoff Checklist” as a daggered item. It is expected that the IP initiate the Hydraulics Check and the SNA perform the check from memory.

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
21. “Hydraulics Check”	<i>Note: Exercise extreme caution when moving controls since Nf/Nr is 100%.</i>  1. Check the collective full down with friction removed.  2. Check the twist grip full open, Nf/Nr 100%.  3. Turn FORCE TRIM switch OFF.  4. Turn the HYDRAULIC SYSTEM switch OFF.  Check Aircraft Clear	“COLLECTIVE FULL DOWN, FRICTION REMOVED”  “FULL OPEN, Nf/Nr 100%”  “FORCE TRIM OFF”  “HYDRAULICS OFF”  “CLEAR RIGHT” “Clear Left”

**5. CYCLIC:**

Check the cyclic centered with the friction removed and then check cyclic in an "X" pattern (approximately 1 inch). Center cyclic.

**6. COLLECTIVE:**

Check for normal operations by increasing collective slightly (no more than 2 inches). Repeat three times checking for binding. Return to full down position.

7. Turn the HYDRAULIC SYSTEM switch to the ON position.

**"HYDRAULICS ON"**

8. Turn FORCE TRIM switch to the ON position.

**"FORCE TRIM ON"**

9. Set cyclic and collective friction as desired.

**"HYDRAULICS CHECK COMPLETE"**

**"Pretakeoff Checklist Complete"**

**"Takeoff Checklist"**

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
1. "Twist Grip"	Check the twist grip full open, Nf/Nr 100%.	<b>"FULL OPEN, Nf/Nr 100%"</b>
2. "Instruments"	All instruments should now be in the normal or green range.	<b>"CHECKED WITHIN LIMITS"</b>
3. "Caution Lights"	Scan the caution panel. There should be no lights illuminated.	<b>"CHECKED"</b>
4. "Force Trim"	Ensure Force Trim switch is in the ON position.	<b>"ON"</b>
5. "Engine Anti-Icing"	Check Anti-Ice is in the appropriate position for OAT.	<b>"OFF" or "ON"</b>
6. "Pitot Heat"	Check Pitot Heat is in the appropriate position for OAT.	<b>"OFF" or "ON"</b>
7. "Shoulder Harness"	Ensure Shoulder Harness is in the locked (forward) position.	<b>"LOCKED ON THE RIGHT"</b> "Locked on the left"
8. "Doors"	Check Cockpit doors are secured.	<b>"SECURED ON THE RIGHT"</b> "Secured on the left"
9. "Crew and passengers"	If crew or passengers are onboard, they will respond, "Secured."	<b>"NONE"</b>

**“Takeoff Checklist Complete”**

**“Takeoff Radio Calls”**

Radio calls are examples and may need to be modified for specific events. Refer to the RWOP for further guidance.

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
	Ensure UHF radio is on preset #3.	<b>“SOUTH GROUND, EIGHTBALL/FACTORYHAND/LUCKY __, TAXI VFR TO SPENCER/PACE, 4+00, 3 SOULS, FROM __ (parking spot), WITH INFORMATION __.”</b>
	Signal to Plane Captain with a thumbs up indicating you are ready for takeoff. Taxi to the appropriate hold short line for your departure:	
	200 ft prior to hold short	<b>“SWITCH TO TOWER” (Ch-4)</b>
	Approaching the hold short	<b>“SOUTH TOWER, EIGHTBALL/FACTORYHAND/LUCKY __ HOLDING SHORT OF SPOT __, ABLE/BAKER DEPARTURE.”</b>
	When cleared by Tower for takeoff, complete the takeoff checks with the “4 Ts”: Time, Tank, Transponder, and Torque. Torque is checked when stabilized in a five-foot hover over the takeoff spot, with the nose aligned with the direction of the departure.	<b>“TIME IS __, FUEL __ GALLONS, SWITCH TRANSPONDER TO ALTITUDE, AND TORQUE IN A HOVER IS __%”.</b>
	<i>Note: At the discretion of the IP, the SNA may task the IP to complete the “4Ts.”</i>	

**“Inbound Radio Calls”**

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
	After departing OLF call your Base, get ATIS, Squawk 0400 inbound, and then switch to Tower (BAST).	<b>“SOUTH TOWER, EIGHTBALL/FACTORYHAND/LUCKY __, POINT WHISKEY, INFORMATION __”</b>
	Tower will respond with “Roger __ (callsign), report Igor.”	<b>“SOUTH TOWER, EIGHTBALL/FACTORYHAND/LUCKY __, POINT IGOR FOR SPOT 1”</b>

Tower will respond with "Report left downwind," "Report left base," or "Report one mile final" as appropriate for requested landing spot and runway in use.

**"SOUTH TOWER,  
EIGHTBALL/FACTORYHAND/LUCKY  
\_\_, WILCO"**

**"Landing Checklist"**

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
1. "Twist Grip"	Check the twist grip full open, Nf/Nr 100%.	<b>"FULL OPEN, Nf/Nr 100%"</b>
2. "Shoulder Harness"	Check harness locked.	<b>"LOCKED ON THE RIGHT"</b> <i>"Locked on the left"</i>
3. "Crew/passengers"	If crew or passengers are onboard, they will respond, "Secured."	<b>"NONE"</b>
4. "Rad Alt"	Have co-pilot ensure Radalt is set to zero.	<b>"SET TO ZERO"</b>
5. "Landing Light and Searchlight"	Ensure both are secured.	<b>"OFF"</b>

**"Landing Checklist Complete"**

**"Landing Radio Calls"**

<u>CHALLENGE</u>	<u>ACTION</u>	<u>RESPONSE</u>
	When in position	<b>"SOUTH TOWER, EIGHTBALL/FACTORYHAND/LUCKY__ LEFT BASE/DOWNWIND/ONE MILE FINAL FOR SPOT 1"</b>
	Tower will clear you to land to a spot or runway.	<b>"CLEARED TO LAND SPOT 1"</b>
	When clear of the spot:	<b>"SWITCH BUTTON 3 AND TRANSPONDER TO STBY"</b> <b>"SOUTH GROUND, LUCKY __, CLEAR OF SPOT __ FOR MY LINE"</b>

**“Shutdown Checklist”**

<b><u>CHALLENGE</u></b>	<b><u>ACTION</u></b>	<b><u>RESPONSE</u></b>
2. “Hydraulics Check”	Complete in same manner as pretakeoff hydraulics check.	“HYDRAULICS CHECK COMPLETE”
3. “Twist Grip”	Rotate to Flight Idle, then check position of second hand on the clock. Time for 2 minutes. If TOT was not stabilized during the last 30 seconds of the 2 minutes wait longer than the 2 minutes until at least 30 seconds of stabilized TOT is achieved.	“FLIGHT IDLE ON THE ___”
4. “Engine Anti-Icing”	Ensure Anti-Ice switch is in the OFF position.	“OFF”
5. “Landing Lights/Searchlights”	Ensure Landing Light and Searchlight are both in the OFF position.	“OFF”
8. “Pitot Heat”	Ensure both Pitot Heat switches are in the OFF position.	“OFF”
9. “Defog Blower”	Ensure Defog Blower switch is in the OFF position.	“OFF”
10. “Cabin Heat Valve”	Ensure Cabin Heat Valve is OFF. Contact base.	“OFF” HT-8: Ch-5, “EIGHTBALL BASE, EIGHTBALL___ IN THE BOX ___ (number of sorties) COMPLETE” HT-18: Ch-6, “SKEDS, FACTORYHAND ...” HT-28: Ch-7, “LUCKY BASE, LUCKY ...”
12. “Avionics”	Switch Transponder, VHF, UHF to the OFF positions.	“OFF”
<i>After 2 min at flight idle and TOT stable for at least 30 seconds:</i>		
14. “ECS”	Switch ECS to the OFF position.	“OFF”
15. “Aud/Mute Switch”	Move Aud/Mute switch to the MUTE position.	“MUTE”
16. “Main Gen”	Move Main Gen Switch to the OFF position, and the warning light should come on.	“OFF, LIGHT ON”
17. “Position Lights”	Ensure POS LT switch is in the OFF position.	“OFF”

- |                             |   |                      |
|-----------------------------|---|----------------------|
| 17. "Position Lights"       | Ensure POS LT switch is in the OFF position.  | "OFF"                |
| 18. "Twist Grip"            | <p>Give the Plane Captain the shutdown signal prior to securing the twist grip. Close the twist grip while monitoring Nf/Nr and TOT. Be prepared for POSTSHUTDOWN FIRE.</p> <p><i>Note: Securing the engine with the fuel shutoff valve may prevent engine light-off on subsequent start.</i></p> | "CLOSED, GOOD SPLIT" |
| 19. "Anti-collision lights" | Move ANTI COLL LT switch to the OFF position.   | "OFF"                |
| 21. "Overhead Switches"     | <p>Check all overhead switches are in the <u>aft</u> position.</p> <p><i>Note: Center is off for the MAIN GEN switch. Two other switches, the position lights 'BRIGHT/DIM' and 'STEADY/FLASH' switches, do not have an OFF position.</i></p>  | "OFF"                |
| 22. "Battery"               | Once TOT has stabilized below 400 degrees C and Ng 0%, move BATT switch to the OFF position.  | "OFF"                |

**"Shutdown Checklist Complete"**

LEAVE NO PERSONAL ITEMS OR EQUIPMENT (FOD) IN THE COCKPIT!