CHAPTER 3

TRANSITION

SECTION A - GENERAL INFORMATION

3-1. SYNOPSIS.

The transition phase of training will include all of the basic maneuvers the H-3 is capable of performing. It is very important that you study hard and do well in this phase because all future training depends on what you learn here. The academic portion of this phase is concerned with the procedural knowledge you will need to perform in the simulator and aircraft. The simulator lessons are intended primarily to give you hands-on procedural practice for transition maneuvers. It is realized that without external visual cues, VFR maneuver proficiency cannot be attained in the simulator; emphasis therefore, will be on procedures. Transition training in the aircraft is designed to be the culmination of all previous training. In the aircraft, you will be required to perform all maneuvers to the required course proficiency.

SECTION B - ACADEMIC LESSONS

3-2. MODULE T-1, Hovering Maneuvers. (0.4 Hour)

a. Objective (Standard - D). Answer questions pertaining to hovering maneuvers IAW TO 1H-3(C)E-1:

(1) Takeoff to a hover.

(2) Hovering turns.

(3) Side/back flight.

(4) Landing from a five-foot hover.

(5) Crosswind landing from a five-foot hover.

b. Student Requirements and Tips:

(1) Prerequisite Training.

(2) Assignment. Read Supplemental Information.

c. Source Reference. TO 1H-3(C)E-1, Section II, Flight Manual.

d. Supplemental Information:

(1) Takeoff to a Hover:

(a) Required:

1 Before Takeoff Checklist.

2 Vertical ascent to a stable five-foot hover.

3 Constant heading.

(b) Analysis. The basic takeoff is nothing more than lifting the helicopter from the surface and establishing a hover. While still on the ground, adjust speed selectors to maximum and then monitor N_r for droop during liftoff. As collective pitch is increased for the initial liftoff of each flight, flight control inputs should be particularly smooth. Excessive or exaggerated inputs as the aircraft breaks ground and is brought to a hover should be detected and the cause, such as wind, aircraft loading, etc., ascertained immediately. Maintain heading by use of the tail rotor pedals and maintain position by use of the cyclic stick. Increase collective pitch slowly until the left main gear is approximately five feet above the surface. Establish a stable hover, compare actual power required to hover with computed power required to hover, check engine instruments, flight controls and CG trim.

(2) Hovering and Hovering Turns:

(a) Required:

1 Speed selectors - Maximum. For extended hovering, set speed selectors at 103% N_r in a five-foot hover. *(Do not droop below 100% N_r.)*

2 Constant altitude - five feet.

3 Constant position.

4 Constant rate of turn.

(b) Analysis:

1 All hovering will be accomplished at five feet above the ground. The hover position must be maintained by use of

collective for altitude, tail rotor pedals for establishing or changing heading, and the cyclic to maintain attitude. Allow the AFCS to maintain aircraft heading.

2 Hovering turns will be practiced at normal hovering altitude and a constant rate of turn. *(Hovering turns should not exceed a rate of 360 degrees in 15 seconds.)* The aircraft should be pivoted about the cockpit. Additionally, 360 degrees hovering turns will not be practiced when winds exceed 20 knots. (Approximately 8 lbs of tail rotor pedal pressure is required to override the AFCS during turns.)

(3) Sideward and Backward Flight:

(a) Required:

1 Speed selectors - Maximum. For extended hovering, set speed selectors at 103% N_r in a five-foot hover. *(Do not droop below 100% N_r.)*

2 Constant altitude - five feet.

3 Constant rate of movement.

4 Maneuvers should be performed at a relative ground speed of five knots.

5 Sideward flight is limited to 35 KTS and rearward flight is limited to 30 KTS.

(b) Analysis. Establish the aircraft in a five-foot hover and insure the area is clear in the direction of intended flight. Control the ground speed and the ground track by use of the cyclic. Maintain heading by use of the tail rotor pedals and control altitude with collective pitch.

(4) Landing from a Hover:

Required:

1 Stable hover, altitude five feet.

2 Constant heading and position.

(5) Crosswind landing from a hover:

(a) Required. The procedures are the same as for "Landing from a Hover" except more cyclic control will be required to compensate for the crosswind.

(b) Analysis. While maintaining a steady hover, slowly decrease collective pitch, making corrections in heading and attitude while descending vertically. When landing, concentrate on slowly lowering collective as the landing gear touches the ground. Maintain the required attitude with cyclic. It should be noted that because of aircraft rigging, the helicopter will normally land on the left gear first. Use wheel brakes to stop forward motion.

3-3. MODULE T-2, VFR Takeoffs. (0.5 Hour)

a. Objective (Standard - D). Answer questions pertaining to requirements and procedures for VFR takeoffs IAW TO 1H-3(C)E-1:

(1) Normal takeoff from a hover.

(2) Maximum performance takeoff.

(3) Running takeoff (simulated heavy weight).

b. Student Requirements and Tips:

(1) Prerequisite Training. Complete Academic Module T-1.

(2) Assignment. Read Supplemental Information.

c. Source Reference. TO 1H-3(C)E-1, Section II, Flight Manual.

d. Supplemental Information:

(1) Normal takeoff from a hover:

(a) Required:

1 Torque 20% Q above hover power, a maximum of 103% Q with both engines operating, or rotor droop to 100% N_r.

2 N_r 100% minimum.

(b) Analysis. A 90 degree clearing turn may be performed to clear to the rear and side of the aircraft before making the takeoff. Initiate the takeoff by lowering the nose slightly. Maintain hover altitude while accelerating through translational lift (approximately 20 KIAS). Once through translational lift, smoothly and steadily increase collective pitch until N_r droops to 100%, torque reaches 103%, or torque reaches hover +20%, whichever occurs first.

CAUTION. Do not droop the N_r below 100%.

Adjust cyclic to maintain the desired pitch attitude (approximately five degrees nose low). The desired pitch attitude should result in arriving at 80 KIAS and approximately 200 feet AGL simultaneously. After passing 100 feet AGL and 70 KIAS, accomplish the After Takeoff Checklist. As you approach 80 KIAS, raise the nose slightly (approximately 3-5 degrees nose high) to maintain 80 KIAS in the climb until the desired altitude is reached. Normally, a climb to 300 feet AGL will be accomplished before turning crosswind. The AFCS will generally maintain heading and thus minimize rudder applications required during takeoff. However, the pilot must monitor the pedals to insure proper operation of the heading hold feature of the AFCS. Upon approaching the desired altitude, select a predetermined level off lead point on the altimeter. Usually, 10% of the vertical velocity can be used although this will vary depending on gross weight of the aircraft. Smoothly lower the nose to a 90-KIAS pitch attitude and when at cruise airspeed and altitude, set cruise power (torque) and N_r (103%).

NOTE. Do not exceed engine limits specified in TO 1H-3(C)E-1.

The procedure for a crosswind takeoff is essentially the same as those for other takeoffs. However, in order to maintain the desired ground track during crosswind takeoffs, the wing low or crab method will be used.

(2) Normal takeoff without a hover:

(a) Required:

1 Before Takeoff Checklist.

2 Torque 20% Q above hover power or a maximum of 103% Q with both engines operating.

3 N_r 100% minimum (speed selectors set at maximum).

(b) Analysis. Smoothly and steadily increase collective pitch until reaching 20% torque above that required to hover, until N_r droops to 100% or torque reaches 103%, whichever occurs first. As the aircraft leaves the ground establish a takeoff altitude (approximately 5° nose low) and accelerate to 80 KIAS. Thereafter a normal climbout will be accomplished.

(3) Maximum performance takeoff:

(a) Required:

1 Before Takeoff Checklist.

2 Torque 30% above hover power or a maximum of 103% Q with both engines operating.

3 50 KIAS at 200 feet AGL.

4 N_r 100% minimum (speed selectors set at maximum).

(b) Analysis. Check to insure the area is clear. Smoothly and steadily increase collective pitch until reaching 30% torque above that required to hover, torque reaches 103% or until N_r droops to 100%, whichever occurs first.

(4) Limited power takeoff (simulated heavy weight/high altitude):

(a) Required:

1 Before Takeoff Checklist.

2 MAX Q not to exceed 103%.

3 50 KIAS at 200 feet AGL.

4 N_r 101% minimum in 5 foot hover.

NOTE. Do not hesitate to beep speed selectors to maximum should it be necessary.

As the aircraft becomes airborne, establish a slight nose low attitude. The proper takeoff attitude should result in arriving at 50 KIAS at 200 feet above the ground. After reaching 200 feet AGL, lower the nose to increase airspeed. After passing 70 KIAS, perform the After Takeoff Checklist and continue accelerating to 80 KIAS. When 80 KIAS is obtained, reduce collective to approximately 20% Q above hover power and accomplish a normal climbout.

NOTE. This is a practice/transition maneuver. When conditions dictate the employment of an actual maximum performance takeoff, maximum power should be used for all takeoffs from remote/confined areas until obstacles are cleared and climb airspeed attained. However, during upgrade training and evaluation flights, maximum power may be simulated. It must be understood by all crew members that this is a simulated power restriction and any delay in applying maximum power (if the situation dictates) may jeopardize safe obstacle clearance. When operating at or near maximum power, it is imperative that the crew monitor the rotor RPM and engine performance instruments to prevent exceeding operating limits or drooping the rotor RPM. When obstacle clearance is of primary concern, the pilot's attention will be concentrated outside the aircraft. Under these conditions, the crew must assist the pilot in identifying unsafe or potentially hazardous conditions.

(5) Running takeoffs (simulated heavy weight):

(a) Required:

1 Before Takeoff Checklist.

2 Torque 10% Q below hover power (simulated maximum).

3 Airspeed 50 KIAS.

4 N_r 100% minimum (speed selectors set at maximum).

(b) Analysis:

1 To simulate maximum operating conditions, available power will be restricted to hover power minus ten percent torque. For an actual running takeoff, maximum available power would be used.

2 Align the aircraft with the center line of the runway. Move the cyclic forward (avoid hitting the droop stops) and simultaneously increase torque to 30% and allow the aircraft to accelerate to approximately 30 KIAS. At this point, smoothly increase torque to 10% less than that required to hover at 5 feet, and move the cyclic back to neutral, or slightly aft of neutral, and fly the helicopter off the runway. Once airborne, parallel the runway at five feet while accelerating to 50 KIAS. Terminate the simulated maneuver upon reaching 50 KIAS and execute a normal climbout.

NOTE. Under actual conditions of extreme gross weight/density altitude, it may be necessary to accelerate to best climb speed prior to initiating a climb.

CAUTION. The H-3 has a tendency to clear the ground in a slightly nose down attitude. Care should be exercised to avoid striking the nose wheel or refueling probe on the ground.

(5) Running takeoff (minimum roll):

(a) Required:

1 Before Takeoff Checklist.

2 Torque - 10% below hover power (simulated maximum).

3 Airspeed 50 KIAS.

4 N_r - Maximum.

(b) Analysis:

1 Another type of running takeoff is the minimum roll. This type of takeoff would be used if a running takeoff was required from an unprepared area. To simulate maximum operating conditions, available power will be restricted to hover power minus 10% torque.

NOTE. For an actual minimum roll running takeoff, maximum power would be used.

2 Align the aircraft with the runway. To prevent forward roll, you may use a slight amount of aft cyclic for aerodynamic braking and wheel brakes. Just prior to takeoff, move the cyclic as far forward as possible without hitting the droop stops. Increase collective slowly until the aircraft becomes light on the gear, simultaneously release the brakes and slowly continue to increase the collective to arrive at simulated maximum power (hover power minus 10%) as soon as possbile after release of brakes. Just prior to liftoff, return the cyclic to approxi-

mately neutral and allow the aircraft to fly off the runway. Once airborne maintain runway heading and accelerate to 50 KIAS as in the running takeoff (simulated heavy weight) procedure. The simulated maneuver will be terminated upon reaching 50 KIAS and a normal climbout will be accomplished. Increase airspeed to 80 KIAS and proceed as in a normal takeoff.

NOTE. Under actual conditions of extreme gross weight/density altitude it may be necessary to accelerate to climb airspeed prior to initiating a climb.

CAUTION. Avoid sudden and/or large cyclic inputs to avoid hitting the droop stops or blade to fuselage contact.

(6) Marginal power takeoff:

(a) Required:

1 Before takeoff Checklist.

2 Torque required to hover at 5 feet (simulated maximum).

3 Airspeed 50 KIAS.

4 N_r - Maximum.

(b) Analysis:

1 A marginal power takeoff may be necessary if you are limited by power and the area is not suitable for a running takeoff. Accomplish takeoff from a hover using no more power than that required for a five-foot hover.

2 The takeoff is started from a five-foot hover with power limited to hover power. Very slowly apply forward cyclic and smoothly obtain translational lift. After passing through translational lift, continue to accelerate while paralleling the ground at five feet until reaching 50 KIAS and then proceed as in a normal takeoff.

NOTE. Under actual conditions of marginal power, a running takeoff on a runway would be the safest takeoff. If a runway is not available, and a takeoff must be made, consideration should be given to making the takeoff from the ground (this will enhance the takeoff profile by using maximum ground effect for additional acceleration/climb performance). Also, under extreme conditions, paralleling the ground at 1 to 3 foot hover height should increase aircraft performance in obtaining translational lift (as opposed to flying a higher hover height).

CAUTION. As the aircraft leaves the ground effect, it may have a tendency to settle back into the ground. If this settling appears to be excessive, do not hesitate to pull in additional power. AVOID GROUND CONTACT.

3-4. MODULE T-3, VFR Climb and Traffic Pattern. (0.4 Hour)

a. Objective (Standard - D). Answer questions pertaining to a VFR climb and traffic pattern IAW TO 1H-3(C)E-1.

b. Student Requirements and Tips:

(1) Prerequisite Training. Complete Academic Module T-2.

(2) Assignment. Read Supplemental Information.

c. Source Reference. TO 1H-3(C)E-1, Section II.

d. Required Materials/Equipment. TO 1H-3(C)E-1CL-1.

e. Supplemental Information. Prior to entering the traffic pattern, determine the landing direction and complete the Descent Checklist. The downwind leg will be flown at 500 feet and 90 knots. Airspeed will be reduced to 70 knots and altitude decreased to 300 feet while truning to base leg. All legs of the traffic pattern represent ground tracks and should be maintained by the "crab" method. Complete the Before Landing Checklist on the downwind leg. During the final approach, prior to descent, recheck the landing gear and "beep" the speed selectors to maximum. The crab or slip method may be used on final approach except below 100 feet AGL when the wing low (slip) method will be used.

3-5. MODULE T-4, VFR Approaches. (0.6 Hour)

a. Objective (Standard - D). Answer questions concerning the requirements and procedures for VFR approaches IAW TO 1H-3(C)E-1:

(1) Normal approach to a hover.

(2) Normal approach to a touchdown.

(3) Shallow approach to a running landing.

(4) Steep approach to a hover.

(5) Steep approach to a touchdown.

(6) VASI approach.

(7) Turning approach.

b. Student Requirements and Tips:

(1) Prerequisite Training. Complete Academic Module T-3.

(2) Assignment. Read Supplemental Information.

c. Source Reference. TO 1H-3(C)E-1, Section II.

d. Supplemental Information. During the final approach phase, recheck the landing gear and beep the speed selectors to maximum N_r.

(1) Normal approach to a hover:

(a) Required:

1 Descent Checklist.

2 Before Landing Checklist.

3 Recheck gear and beep speed selections to MAX.

4 30 Degree Apparent angle.

5 Initiate approach at 70 KIAS and 300 feet.

6 Rate of descent - 500 FPM maximum.

NOTE. For student training, the speed selectors will be beeped to MAX N_r on all approaches (exception - it is optional on instrument approaches and running landings to a hard surface runway).

(b) Analysis. During the turn to final, which should be a level turn, recheck to insure the aircraft is at 70 KIAS and 300 feet above the ground, then complete the landing check. When the 30° angle of approach point is reached, lower the collective to establish a descent. Adjust the pitch attitude to insure a decrease in forward speed during the approach (approximately seven degrees nose-up, 10-30% torque). Vary power and pitch to arrive simultaneously at zero ground speed and zero rate of descent over the spot of intended landing at five feet above the ground in a near level attitude. If excessive ground speed is present at the end of the approach, do not place the aircraft in a nose high attitude close to the ground. Come to hover beyond the spot or make a go-around.

CAUTION. At 15 degrees nose-up attitude, the tail pylon will contact level ground on landing. Do not exceed 12 degrees nose-up attitude at the point of ground contact.

(2) Normal approach to a touchdown:

(a) Required:

1 Descent Checklist.

2 Before Landing Checklist.

3 Recheck gear and beep speeds to MAX.

4 30 degree apparent angle.

5 Initiate approach at 70 KIAS and 300 feet.

6 Rate of descent - 500 FPM maximum.

(b) Analysis. The only difference between this approach and the normal approach to a hover is the last few feet. As the spot of intended landing is reached, a slight decrease in collective will allow the aircraft to touchdown. Maintain a near level attitude. Upon touchdown, decrease collective, center the cyclic and apply wheel brakes, if necessary. The maximum power used on this approach should not exceed the power required to maintain a five-foot hover.

CAUTION. Do not use excessive aft cyclic stick pressure in an attempt to stop the aircraft from rolling forward after touchdown.

(3) Shallow approach to a tunning landing:

(a) Required:

1 Descent Checklist.

2 Before Landing Checklist.

3 Recheck gear and beep speeds to MAX.

4 10 degree apparent angle.

5 Initiate approach at 70 KIAS and 300 feet.

6 Touchdown at approximately 30 KIAS.

(b) Analysis. Accomplish the shallow approach in the same manner as the normal approach except decrease approach angle to 10 degrees. (The approach may be initiated while on base leg; however recheck gear and beep speed selectors to MAX prior to reducing power.) As the approach point is reached, reduce collective and dissipate the air speed gradually throughout the approach so that the landing can be accomplished while maintaining

translational lift. Establish the desired track over the ground and use the tail rotor pedals to maintain heading. Eliminate all side drift before touchdown. As the aircraft approaches the ground, increase the collective pitch to reduce the rate of descent and cushion the landing. Touchdown at approximately 30 KIAS in a near level attitude (approximately four degrees nose high). As the wheels contact the ground, slowly reduce collective to a minimum, lower the pitch attitude carefully to avoid dropping the nose gear, and then brake the aircraft to a full stop.

NOTE. Do not exceed 40 knots ground speed during touchdown.

(4) Steep Approach:

(a) Required:

1 Descent Checklist.

2 Before Landing Checklist.

3 Recheck gear and beep speed selectors to maximum.

4 Maximum N_r.

5 45 degree apparent angle.

6 Initiate approach at 50 KIAS and 300 feet.

7 Rate of descent - 500 FPM maximum (300 FPM maximum last 200 feet of approach).

(b) Analysis. After the turn to final, recheck gear, beep speed selectors to maximum and decrease air speed from 70 to 50 knots. Accomplish the steep approach in the same manner as the normal approach except for approach angle of 45 degrees. The ground speed will be slower initially and should gradually decrease throughout the approach. All major corrections in ground speed, rate of descent and angle of approach should be made in the first 100 feet of the approach. The loss of translational lift will occur at a higher altitude and the application of collective will be required much sooner than on the previous approaches. Descent should not exceed 500 FPM throughout the approach or 300 FMP during the last 100 feet.

(5) VASI Approach. The visual approach slope indicator is a set of twelve lights units with two rows of three on each side of the approach side of the runway. When the aircraft is high, the pilot sees all white lights; on the desired glide path he sees red over white and when the aircraft is too low only red lights will be visible.

(6) Turning Approach.

(a) Required:

1 Descent checklist.

2 Before landing checklist.

3 Recheck gear and speed selectors to maximum.

4 Rate of descent - 500 FPM maximum. "(300 FPM maximum during the last 100 feet of the approach)."

(b) Analysis. The turning approach allows the pilot to maneuver the helicopter to avoid obstacles or when a straight in approach is not practical. Entry airspeed/altitudes may vary depending on circumstances. Normally 300 feet and 70 KIAS is used for a 90° turning approach and 500 feet and 90 KIAS is used for a 180° turning approach. Airspeed should be 60 KIAS minimum until on final.

(7) Multiple Takeoffs/Landing Procedures (including touch and go landings). On training flights where multiple landings are accomplished, and where no change in aircraft configuration from that prior to landing is made, only the applicable items of the Before Takeoff Checklist are required for the subsequent takeoff. If a configuration change is made, a seat change is necessary, a walkaround inspection is made, or a crew member departs from or returns to the aircraft for sling hook-up, etc., the Before Takeoff Checklist will be accomplished, and the crew and passengers confirmed, READY FOR TAKEOFF.

3-6. MODULE T-5, Night Flight. (0.4 Hour)

a. Objective (Standard - D). Answer questions concerning the special requirements for night flying:

(1) Preflight requirements.

(2) Use of interior lighting.

(3) Use of exterior lighting.

(4) Compensate for the lack of visual cues.

b. Student Requirements and Tips:

(1) Prerequisite Training. Complete Academic Module T-4.

(2) Assignment. Read Supplemental Information.

c. Source Reference. TO 1H-3(C)E-1, Flight Manual, Section IV, Light Equipment and Section IX, Night Flying.

d. Supplemental Information:

(1) Preflight Inspection. Complete the Preflight Checklist with special emphasis placed on proper operation of lighting systems to include cabin, cockpit and all external lights. Defects which would be obvious during daylight can be overlooked at night. The switch located on each Emergency Exit light should be placed in the ARM position while accomplishing the interior inspection.

NOTE: Each crew member must have an operable flashlight.

(2) Taxiing. Landing and searchlights may be used for taxiing. Use common sense in the operation of the lights so as not to interfere with the vision of other pilots who may be operating in close proximity. A common tendency in night taxiing is excessive taxi speed.

(3) Hovering. Turn on the landing and/or searchlight to illuminate the area in front of the helicopter. Move the light to different positions and determine the best position for you. You will practice constant altitude hovering, hovering turns and landings from a hover. Use all lights initially, then practice the maneuvers with any combination of one or more lighting systems. You must pick references to assure zero drift over the ground during hovering and landing.

(4) Takeoff. For takeoff, position the landing and searchlight beam well out in front of the helicopter and check the takeoff flight path for obstacles. Slowly move forward and adjust your lights to get the most beneficial use from them. Using normal procedures, establish an 80 knot climb and move your landing or searchlight down into an autorotative position (approximately 45 degrees). After attaining at least 100 feet and 70 knots airspeed, perform the After Takeoff Checklist. Turn off the landing and floodlight upon reaching a safe altitude. Searchlight should be left on to reduce mid-air potential.

(5) Approach. After turning on final approach, complete the landing check and turn on your landing, search and floodlight to illuminate the landing area. Your altitude and ground speed will be difficult to determine. A crosscheck of the altimeter, vertical velocity indicator, and airspeed indicator will give you trend information to prevent large errors in ground speed and angle of approach. As you approach the landing spot, adjust power and attitude as necessary to set up your rate-of-closure to complete the approach to a five-foot hover.

(6) Landing. Landing from a hover and running landings will be accomplished using normal procedures.

CAUTIONS.

1. One of the dangers of night flying is spatial disorientation. This results from conflict between the indications shown by the flight instruments and the pilot's sensations - each telling him a different story about the attitude of his aircraft. If you become spatially disorientated, immediately go on instruments.

2. The flight control servo switches are located next to the landing light extend/retract switch. Care must be exercised to avoid turning off a flight control servo system during night operations.

NOTES.

1. Do not sacrifice aircraft control to operate the lights.

2. Helicopters modified with the controllable searchlight mounted in the battery compartment door also have a control operation reversal. Therefore, the operation of the landing and searchlight controls may be opposite.

3. Only verbal emergency procedures will be practiced at night. In case an actual emergency exists, follow the procedures outlined in Section III of the Flight Manual.

4. Helicopter pilots will use landing, search and floodlights (if installed) for all landings after official sunset unless atmospheric conditions present a hazard.

3-7. MODULE T-6, Albuquerque International Airport Familiarization. (0.3 Hour)

Objective (Standard - A): Be familiar with the layout of Albuquerque International Airport and the hazards in the local area.

3-8. T-SEM, Transition Seminar. (2.0 Hours)

a. Objective (Standard - X): Discuss and answer questions concerning the transition phase of training.

b. Student Requirements and Tips:

(1) Prerequisite Training. All transition academic modules.

(2) Assignment. Review the transition phase and be prepared to discuss any transition procedure/maneuver.

c. Source Reference: TO 1H-3(C)E-1.

SECTION C - SIMULATOR LESSONS

3-9. SIMULATOR LESSON ST-1. (2.0 Hours)

a. Objectives:

(1) See Figure 4-18.

(2) You will be required to combat the following emergency situations:

(a) Single engine failure.

(b) Engine shutdown and restart inflight.

(c) Auxiliary tank release.

(d) Single engine approach and landing.

(e) Single engine go-around.

b. Student Requirements and Tips:

(1) Prerequisite Training. Academic Modules P-2, P-4, P-16, P-23, T-1 thru T-4, I-8, I-12, and Simulator Lesson SP-1.

(2) Assignment. Review the applicable maneuver parameters.

c. Source Reference. TO 1H-3(C)E-2, Flight Manual.

d. Instructor Guidance. This lesson may be combined with SI-2 if student proficiency warrants.

SECTION D - AIRCRAFT LESSONS

3-10. AIRCRAFT LESSON T-1. (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss the following single engine emergency prodedures:

(a) Power checks.

(b) Accel/Decel checks.

(c) APU limitations/fire.

(d) Approach and landing.

(e) Go-around.

b. Student Requirements and Tips:

(1) Prerequisite Training. Simulator Lesson ST-1 and Academic Modules P-11, P-13 and T-6.

(2) Assignments:

(a) Review Academic Modules T-1 thru T-4.

c. Source Reference. TO 1H-3(C)E-2, Flight Manual.

3-11. AIRCRAFT LESSON T-2. (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss the following emergency procedures:

(a) Single engine failure.

(b) Inflight shutdown and restart.

(c) Auxiliary tank release.

b. Student Requirements and Tips.

Prerequisite Training. Aircraft Lesson T-1 and Academic Module P-1.

c. Source Reference. TO 1H-3(C)E-1, Flight Manual.

3-12. AIRCRAFT LESSON, T-3. (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss the following emergency procedures:

(a) Two engine failures.

(b) Autorotations.

b. Student Requirements and Tips. Prerequisite Training: Simulator Lesson SP-2 and Aircraft Lesson T-2.

c. Source Reference. TO 1H-3(C)E-1, Flight Manual.

3-13. AIRCRAFT LESSON, T-4, (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss:

(a) Landing gear failure.

(b) Tail rotor failure.

(c) Turning approaches.

b. Student Requirements and Tips. Prerequisite Training: Academic Modules P-19, P-20 and Aircraft Lesson T-3.

c. Source Reference. TO 1H-3(C)E-1, Flight Manual.

3-14. AIRCRAFT LESSON, NT-5. (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss AFCS malfunctions.

b. Student Requirements and Tips:

(1) Prerequisite Training. Academic Module T-5 and Aircraft Lesson T-3.

(2) Assignments:

(a) Review Academic Module T-5.

(b) Read supplemental information.

c. Source Reference. TO 1H-3(C)E-1, Flight Manual.

d. Supplemental Information:

(1) Night flying is an important phase of helicopter training. The transition from day to night flying is in many ways similar to instrument flying. The H-3 night maneuvers will be accomplished using the same requirements and analysis as used for day maneuvers.

(2) Insure that your anti-collision lights, position lights, landing lights, and spotlight are working properly before any night flight.

(3) One of the dangers of night flying is spatial disorientation. This results from conflict between indications shown by the flight instruments and the pilot's sensation - each telling him a different story about the attitude of the aircraft. If you become spatially disoriented immediately go on instruments and notify your instructor. Continue flying the aircraft unless the instructor takes control.

3-15. AIRCRAFT LESSON, T-6. (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss any emergency procedures covered so far.

b. Student Requirements and Tips:

(1) Prerequisite Training. Aircraft Lesson T-4.

(2) Tips. This lesson should be used to practice the maneuvers that you need to "polish up" for the transition check. Review the parameters (airspeeds, altitudes, power settings, etc.) for all the maneuvers and critique yourself throughout the flight.

c. Source Reference. TO 1H-3(C)E-1, Flight Manual.

3-16. AIRCRAFT LESSON, TC-1. (1.5 Hours)

a. Objectives:

(1) See figure 3-1.

(2) Be prepared to discuss any emergency procedures covered so far.

b. Student Requirements and Tips:

(1) Prerequisite Training. Transition Seminar and Aircraft Lesson T-6.

(2) Tips. This evaluation lesson is more than an evaluation of your performance, it also serves as an evaluation of the training program and standardization. Do not be overly concerned if the flight examiner takes notes throughout the flight; he may be writing good comments.

TEST COURSE

COURSE NUMBER	H3P1	DESIGNATION	H-3 (TRANS/INSTM) (AIRCRAFT)								TRAIN
FLIGHT TIME	HOURS	1	1	1	1	1	1	1	1	1	
	TENTHS	5	5	5	5	5	5	5	5	5	
LESSON	PHASE/SUBJECT	T	T	T	T	NT	T	TC	I	IC	
	NUMBER	1	2	3	4	5	6	1	1	1	
FLIGHT PREPARATION		2	3	3	3	3	3	3	3	3	
PREFLIGHT/ENGINE START		2	2	3	3	3	3	3	3	3	
TAXI		1	1	2	2	3	3	3	3	3	
COCKED NOSEWHEEL RECOVERY		D									
TAKEOFF TO HOVER		2	2	3	3	3	3	3			
HOVERING MANEUVERS: Turns		2	2	3	3	2	3	3			
Sideward/Backward Flight		2	2	3	3	2	3	3			
Crosswind Takeoff/Landing		1	2	2	3	2	3	3			
LANDING FROM A HOVER		2	2	3	3	3	3	3			
TAKEOFFS: Normal From Hover		1	2	3	3	3	3	3			
Normal Without Hover		1	1	2	3	2	3	3			
Max Performance				1	2	2	3	3			
Normal Running		1	2	2	3	3	3	3			
Min Roll Running				2	3*						
Marginal Power					2		3*				
TRAFFIC PATTERN		1	1	2	3	3	3	3			
APPROACHES: Normal To Hover		1	1	2	2	2	3	3			
Normal To Touchdown			1	1	2	2	3	3			
Shallow To Running		1	2	2	3	3	3	3			
Steep To Hover			1	1	2	2	3	3			
Steep To Touchdown				1	2	2	3	3			
Turning					2		3	3			
SINGLE ENGINE APPROACH/LANDING			1	2	2		3	3			
AUTOROTATIONS: Straight Ahead				1	2		3	3			
90° Turning				1	2		#	#			
180° Turning					1		2				
AFCS/SERVO OFF APPROACH/LANDING				1	2		3	3			
USE OF AIRCRAFT LIGHTS						3					
INSTRUMENTS: Cockpit Check									3	3	
Basic									3	3	
ITO									3	3	
Holding									3	3	
VOR Approach									3	3	
TACAN Approach									3	3	
PAR									3	3	
ILS									3	3	
Missed Approach									3	3	
Landing									3	3	
Circling Approach									3		
COMMUNICATIONS		1	2	3	3	3	3	3	2	3	
AFTER LANDING PROCEDURES		2	2	3	3	3	3	3	3	3	
CHECKLISTS		2	2	3	3	3	3	3	3	3	
CREW COORDINATION		1	2	3	3	3	3	3	2	3	
ABNORMAL/EMERGENCY PROCEDURES		2	2	2	3	3	3	3	3	3	
AIRMANSHIP		S	S	S	S	S	S	S	S	S	

NOTE:

\# *Every effort should be made to reach a "3" RPL; however, "2" is satisfactory.*

Figure 3-1. H-3 (Tran/Instm)(Aircraft) - CPTS