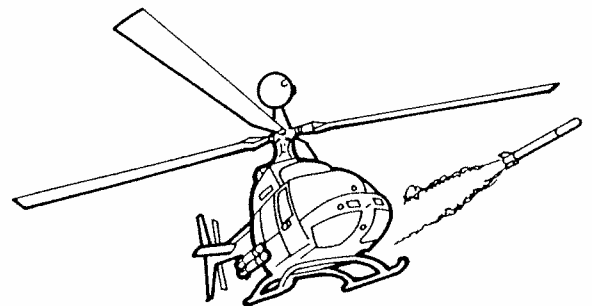
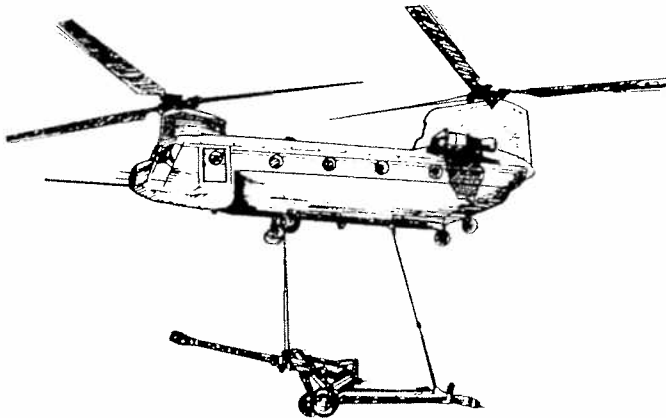
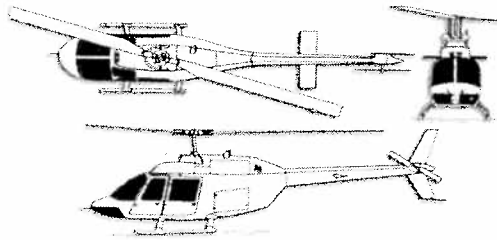


PRIMARY DIVISION

# Flight School XXI Study Guide



March 2008

## INSTRUCTIONS

This study guide is intended for the use in conjunction with the Primary Division Flight School XXI Training Program. All answers will be hand written on a separate sheet of paper.

Completion of the study guide on a daily basis is MANDATORY. The flight-training period pertinent to a given block of questions is marked at the beginning of the block, e.g. TD-11. This indicates that all questions in the TD-11 block must be completed PRIOR to your arrival on the flight line that day. Failure to complete the required study material or failure to bring the daily question study guide to the flight line will result in an unsatisfactory grade.

To minimize the time required to research each answer, the source document for the question is indicated. "FTG" indicates that answers to the questions in that group can be found in the Flight Training Guide. Other sources are self-explanatory, Operators Supplement, FM 3-04.203, FM 3-04.301, AR 95-1, AR 40-8 and the VFR Sectional.

Used properly, this study guide will enhance your knowledge and your progress. In order to ensure the accuracy and effectiveness of each question, we solicit your comments. If you have any suggestions or criticism of this study guide, please forward your comments through your Flight Commander to Primary MOI/QC.

All answers will be hand written on a separate sheet of paper. Save your answers for future reference as you study.

**FTG**

1. While performing straight and level flight, heading and airspeed are controlled by the \_\_\_\_\_ control.
2. While performing straight and level flight, the aircraft is kept in trim by use of the \_\_\_\_\_.
3. The airspeed for straight and level flight is \_\_\_\_\_ knots.
4. If the aircraft is not flying toward the desired ground reference point, a correction with the \_\_\_\_\_ control is required.
5. The desired rate of climb or descent for training is \_\_\_\_\_.
6. Prior to beginning a normal climb, you should \_\_\_\_\_.
7. The control movements required to begin a normal climb are: \_\_\_\_\_.
8. The airspeed for a normal climb is \_\_\_\_\_ knots.
9. What pedal input is required when power is increased? \_\_\_\_\_ Decreased? \_\_\_\_\_
10. To return to straight and level flight, power should be adjusted approximately \_\_\_\_\_ feet prior to the desired altitude.
11. The three categories of turn (bank) are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
12. Before beginning a turn, you should \_\_\_\_\_.
13. When performing a deceleration / acceleration, the entry airspeed is \_\_\_\_\_ and the deceleration airspeed is \_\_\_\_\_.

**OPERATOR'S SUPPLEMENT**

1. Anytime an operational limit is exceeded; an entry will be made on form \_\_\_\_\_. The entry shall state \_\_\_\_\_.
2. Minimum and maximum limits and the normal and cautionary operating range for the helicopter and its subsystems are indicated by \_\_\_\_\_.
3. Emergency steps that are underlined in the Operator's Supplement and the checklist must be performed immediately and without reference to \_\_\_\_\_.

4. The urgency of certain emergencies requires immediate and instinctive action. The most important single consideration is \_\_\_\_\_.

5. The use of the word "SHOULD" in the Operator's Supplement is used to indicate \_\_\_\_\_.

6. The use of the word "SHALL" is used only when application of a procedure is \_\_\_\_\_.

7. The use of the word "MAY" and "NEED NOT" is used only when the application of a procedure is \_\_\_\_\_.

8. Use of the word "WILL" has been used only to indicate \_\_\_\_\_.

9. **HOT START** (Chapter 9 emergency procedure)

During starting or shutdown, if TOT limits are exceeded, or it becomes apparent the TOT limits may be exceeded, proceed as follows:

a. Starter button — Press and hold until TURB OUT TEMP is \_\_\_\_\_.

b. Throttle — \_\_\_\_\_.

c. FUEL VALVE switch — \_\_\_\_\_.

d. Complete \_\_\_\_\_.

TD-12

### **FTG**

1. While maintaining airspace surveillance, call out the location of traffic or obstacles by the \_\_\_\_\_ and \_\_\_\_\_ method.

2. When flying a rectangular course, the correct airspeed is \_\_\_\_\_ Knots; the altitude should be \_\_\_\_\_ AGL.

### **NOTE: Questions 3 through 7 pertain to SEF at Altitude**

3. A Simulated Engine Failure from Altitude is initiated by the \_\_\_\_\_, by retarding the throttle to the \_\_\_\_\_ position.

4. The first control movement made upon detecting the engine failure is \_\_\_\_\_.

5. Adjust cyclic to establish airspeed between \_\_\_\_\_ and \_\_\_\_\_.

6. After selecting a suitable landing area, the P\* will callout

“a. \_\_\_\_\_ b. \_\_\_\_\_ and c. \_\_\_\_\_”.

7. Time permitting, the P\* will direct the IP to simulate setting the \_\_\_\_\_, transmit a Mayday call on \_\_\_\_\_, turn ELT on and locking the \_\_\_\_\_.

### OPERATOR'S SUPPLEMENT

1. A crew briefing shall be conducted to ensure a thorough understanding of individual and team \_\_\_\_\_.
2. Certain codes on the checklist indicate special requirements during pre-flight or cockpit procedures. Explain each code. \_\_\_\_\_.
3. List the required preflight items for Publications - Check. \_\_\_\_\_.
4. When an emergency dictates "Land as soon as practicable", extended flight beyond the nearest approved landing area \_\_\_\_\_.
5. List the steps to be performed during an EMERGENCY SHUTDOWN:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
6. Emergency exit or entrance into the TH-67 is through \_\_\_\_\_.
7. If the doors will not open, the windows should pop out if pressure is applied \_\_\_\_\_ to exit the aircraft.
8. The first aid kit is located \_\_\_\_\_.

TD-13

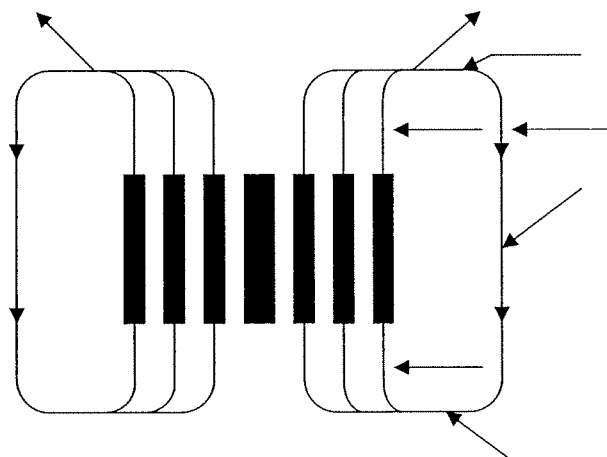
### FTG

1. While performing the before takeoff check, you note that the fuel quantity is below the quantity required for the mission. What is the correct action in this situation?
2. You should initiate an in-flight fuel consumption check within 10 minutes after \_\_\_\_\_ or \_\_\_\_\_.
3. The fuel check should be completed between \_\_\_\_\_ and \_\_\_\_\_ minutes after the initial reading.
4. After completing the fuel check, you should continue to monitor the \_\_\_\_\_ and \_\_\_\_\_ during the flight.
5. A go-around should be initiated when \_\_\_\_\_.
6. The first action to initiate a go-around is \_\_\_\_\_.

7. During a go-around, accelerate to an airspeed of \_\_\_\_\_.

## Stage Field Operations

1. Label the legs of the traffic pattern.



- A. Entry
- B. Downwind
- C. Base
- D. Final
- E. Upwind
- F. Crosswind
- G. Departure

2. Entry to the stagefield traffic pattern should be made at a \_\_\_\_\_ degree angle to the \_\_\_\_\_ of the \_\_\_\_\_ leg.

3. You are established on the entry leg to the stagefield traffic pattern. An aircraft is turning from crosswind to downwind. If a conflict exists, which aircraft has right of way?

4. The downwind leg is flown \_\_\_\_\_ to the stagefield lanes.

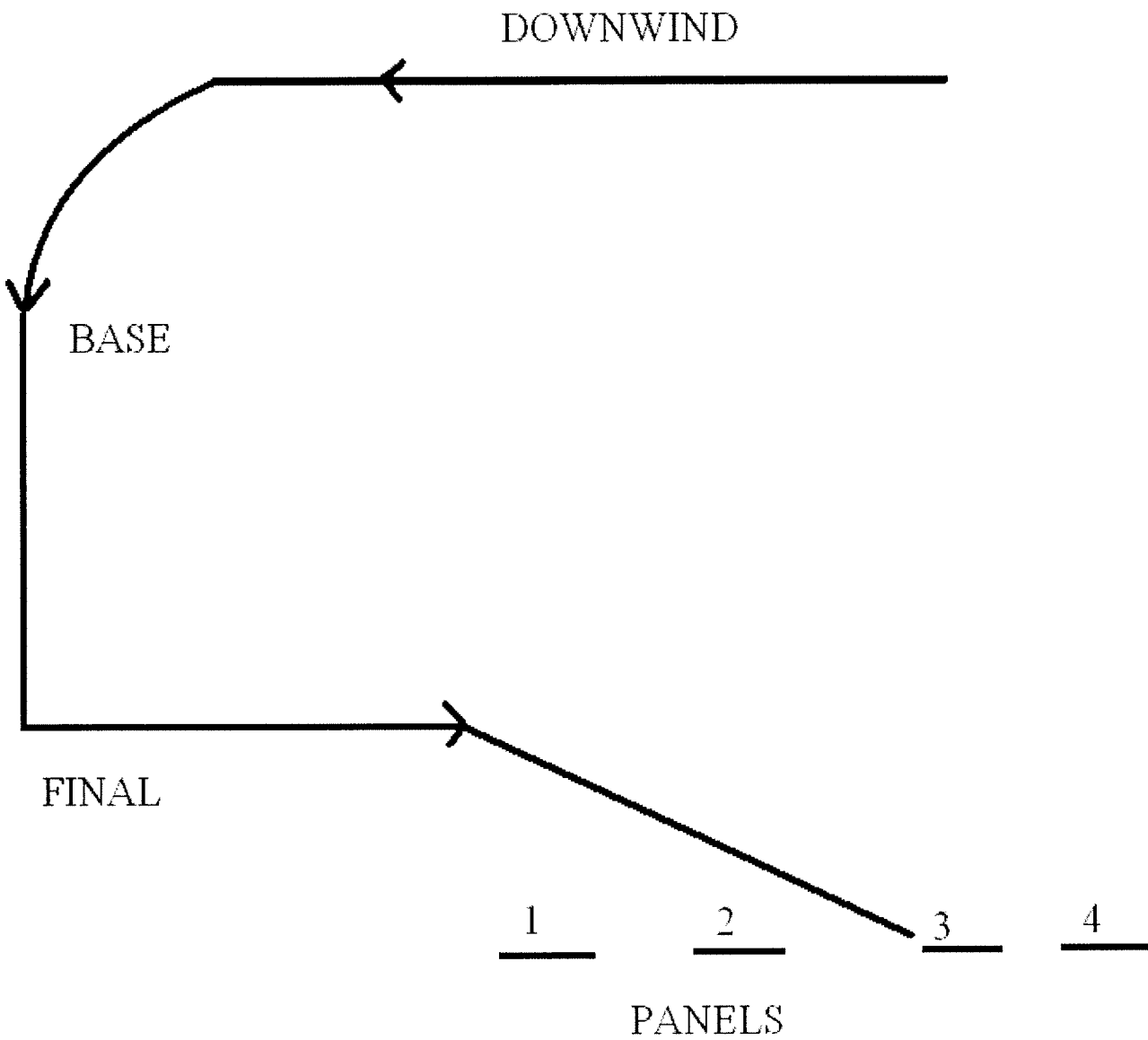
5. A Before Landing Check will be completed on the \_\_\_\_\_ leg of the traffic pattern.

6. When turning onto the base leg, you should be cautious to avoid establishing a base leg \_\_\_\_\_.

7. The descent and deceleration on base leg should be completed in the \_\_\_\_\_ of the base leg.

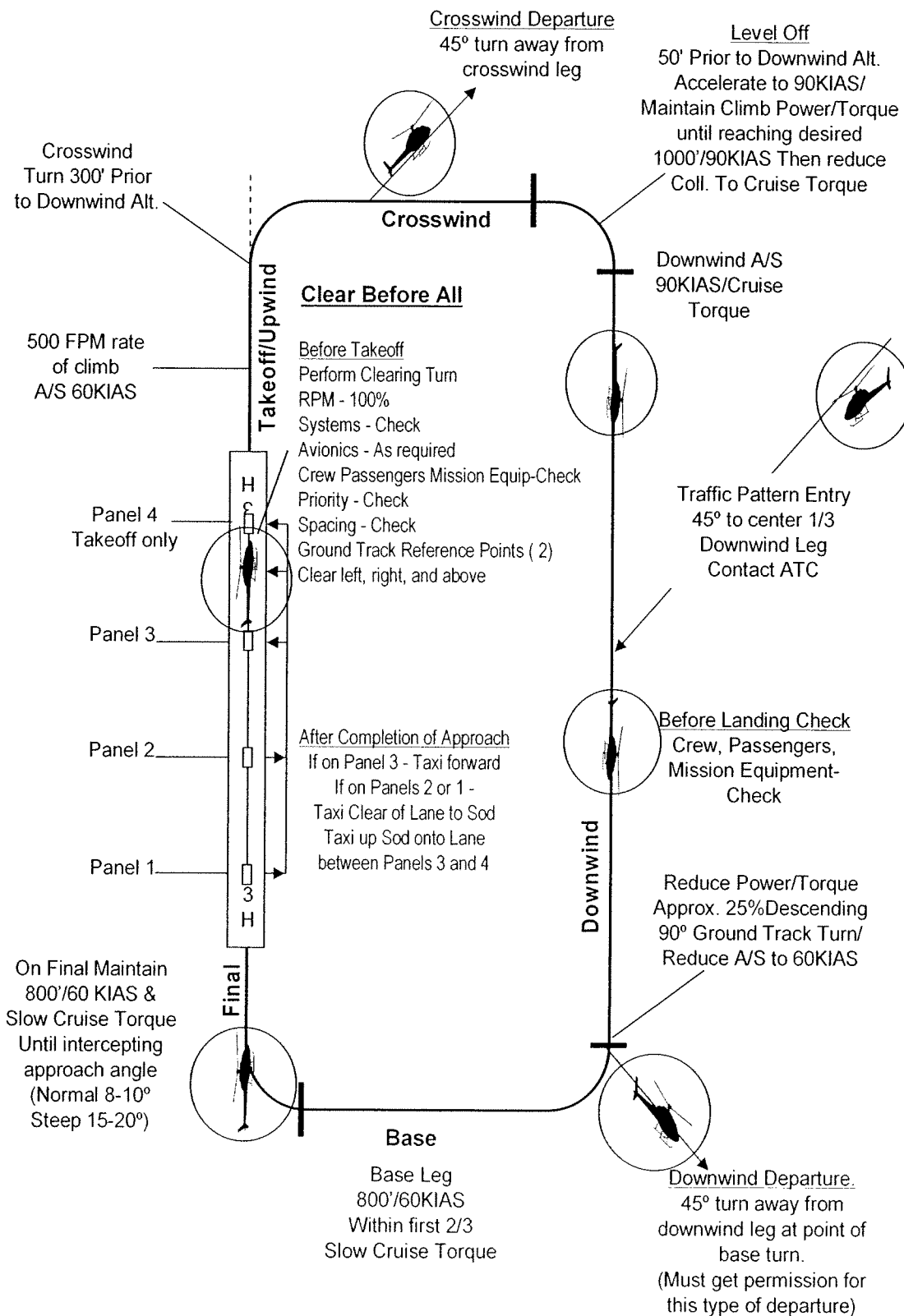
## OPERATOR'S SUPPLEMENT

1. To take fuel a sample from the fuel drain, the fuel aft and forward circuit breakers must be \_\_\_\_\_, fuel valve switch \_\_\_\_\_, and battery switch \_\_\_\_\_.
2. The airframe mounted fuel filter Test Switch illuminates the \_\_\_\_\_ caution light.
3. Limit starter time using the battery, with no rise in TOT within 20 seconds, to: \_\_\_\_\_.
4. During engine start the TOT must be at or below \_\_\_\_\_ degrees Celsius prior to opening the throttle to idle.
5. TOT limits during engine start are \_\_\_\_\_ degrees maximum, or from \_\_\_\_\_ to \_\_\_\_\_ degrees for \_\_\_\_\_ seconds.
6. During engine start, check engine oil pressure increasing by \_\_\_\_\_ percent N1.
7. The main rotor must be turning by \_\_\_\_\_ percent N1 during engine start.
8. The starter switch is released at \_\_\_\_\_ percent N1.
9. The indications of an engine power loss are: \_\_\_\_\_  
\_\_\_\_\_
10. List the steps for engine failure at a hover.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
11. List the steps for engine failure - low altitude / low airspeed or cruise.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_



PROFILE VIEW

# Traffic Pattern (Preventive Control)



**FTG**

1. While hovering, the cyclic controls \_\_\_\_\_, the collective controls \_\_\_\_\_ and the pedals control \_\_\_\_\_.
2. In hovering flight, the attitude of the helicopter is the factor, which determines \_\_\_\_\_.
3. The amount of collective required to maintain 3 feet will vary depending on \_\_\_\_\_.
4. Which control is used to correct for a right drift while hovering?
5. Which control is used if the helicopter is moving in the desired direction, but pointed in the wrong direction?
6. The proper rate of turn during a hovering turn appears to be that of a \_\_\_\_\_ (approximately 15 degrees per second).
7. After passing through ETL, initially adjust collective to \_\_\_\_\_.
8. After passing through ETL, accelerate to an airspeed of \_\_\_\_\_.
9. If a crosswind exists during the takeoff, maintain aircraft heading aligned with the ground track until reaching an altitude of \_\_\_\_\_ AGL.
10. After establishing a crab as described above, which control is used to correct for drift?  
\_\_\_\_\_
11. The turn to crosswind leg is normally begun within approximately \_\_\_\_\_ feet below downwind traffic pattern altitude.

**NOTE: Questions 12 through 17 pertains to the Performance Planning Card.**

12. The MOST ACCURATE performance data can be obtained by using \_\_\_\_\_.
13. What conditions should be used to determine predicted hover torque (OGE)?
14. Arrival data must be completed anytime the environmental conditions or load increases significantly: \_\_\_\_\_ pounds gross weight, \_\_\_\_\_ degrees Celsius or \_\_\_\_\_ feet PA.
15. The hover power check should be performed in the vicinity of \_\_\_\_\_ in the direction of \_\_\_\_\_ and at a stabilized \_\_\_\_\_ hover.
16. What type maneuvers may be performed if the hover torque noted during the hover check is less than 5% of the maximum torque allowable/available?

17. A hover power check is required prior to the first takeoff and before any takeoff following a significant increase in load or environmental conditions of \_\_\_\_ degrees Centigrade, + \_\_\_\_ feet PA, and + \_\_\_\_ pounds total weight.

## OPERATOR'S SUPPLEMENT

1. List the immediate action steps for an ENGINE COMPRESSOR STALL.
2. List the immediate action steps for ENGINE SURGES.
3. If the ENGINE SURGES cannot be controlled in step a. & b. above, the next action would be:

TD-15

## FTG

1. The normal approach angle is \_\_\_\_ to \_\_\_\_ degrees.
2. Upon reaching a normal approach angle, begin the approach by \_\_\_\_\_.
3. The "apparent rate of closure" is maintained by using the \_\_\_\_\_ control.
4. After a normal approach angle has been established, the "apparent rate of closure" should be adjusted to \_\_\_\_\_.
5. Which control is used to keep the helicopter on the proper approach angle?
6. During the latter portion of a normal approach, the helicopter may descend below the desired angle due to loss of \_\_\_\_\_.
7. The aircraft heading will be aligned with the lane during the last \_\_\_\_\_ of a normal approach.
8. Which control will be used to align aircraft heading as described in #14 above?
9. Applying too much forward cyclic during the initial portion of a normal takeoff from a hover will result in a nose low attitude and a loss of \_\_\_\_\_.
10. As the aircraft starts moving forward, adjust collective as necessary to maintain \_\_\_\_\_ feet AGL until passing through effective translational lift (ETL).

### **NOTE: Questions 11 through 16 pertain to Standard Autorotation**

11. Entry airspeed for a Standard Autorotation is \_\_\_\_\_.
12. Initiate a Standard Autorotation by smoothly reducing \_\_\_\_\_ to the full-down position while adding \_\_\_\_\_ to maintain trim, reduce \_\_\_\_\_ to the engine idle stop, and adjust \_\_\_\_\_ to attain 60 knots.

13. Call out

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

14. List the steady-state factors that must be established prior to 100 feet AGL.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

15. At approximately 50 feet, begin a deceleration and align the aircraft heading with \_\_\_\_\_.

16. Initial pitch pull altitude is approximately \_\_\_\_\_ feet AGL.

**OPERATOR'S SUPPLEMENT**

- 1. During engine start, if N1 does not reach 58% within \_\_\_\_ seconds or (\_\_\_\_ seconds below 10 degrees FAT) close throttle and \_\_\_\_\_.
- 2. If engine fails to start on third attempt, abort start and \_\_\_\_\_.
- 3. If there is a rise in TOT within the first 20 seconds, limit starter energizer time to \_\_\_\_\_.
- 4. List the steps to Engine Restart during Flight.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
- 5. What is the CAUTION associated with attempting an engine restart above 12,000 feet MSL?
- 6. Describe the correct emergency action in the event of an ENGINE UNDERSPEED.
  - a. \_\_\_\_\_

If an Underspeed results in Rotor RPM decay below minimum safe limits, the immediate action steps are:

- b. \_\_\_\_\_
- c. \_\_\_\_\_

TD-16

**FTG**

- 1. To abort a takeoff prior to reaching ETL and with the altitude still approximately 3 feet, you should:
- 2. To abort a takeoff after passing ETL and with the altitude above three feet you should:

## OPERATOR'S SUPPLEMENT

1. (Discuss with IP) During engine start, prior to advancing throttle to engine idle, you note the TOT is above 150 degrees. What action should you take?
2. During engine start, you note the following indications:  
TOT increases past 810, peaks out at 850 and then begins to decrease. How much time is allowed before the TOT must be below 810 (or you have exceeded a TOT limit?) \_\_\_\_\_.
3. (Discuss with IP) At idle, you notice that the transmission oil pressure segment light is still illuminated and the transmission oil pressure gauge indicates 20 PSI. Describe the correct actions:
4. The engine should idle between \_\_\_\_\_ and \_\_\_\_\_ percent N1.
5. (Discuss with IP) Your instructor exits the aircraft at the stagefield. While you are waiting for him to return, you notice that the engine chip detector segment light is illuminated. You should \_\_\_\_\_.
6. List the emergency procedure steps for Engine Overspeed.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

If RPM cannot be controlled by throttle adjustment:

- d. \_\_\_\_\_
  - e. \_\_\_\_\_
7. The transmission oil temperature caution panel light will illuminate when the transmission oil temperature is above \_\_\_\_\_ degrees C.
  8. The correct emergency procedure with the Transmission Oil Temperature Caution Panel Light illuminated is: \_\_\_\_\_

### **Discuss the following SOP questions with your IP:**

1. During Rapid Refueling the fireguard (right seat crewmember) will be positioned at \_\_\_\_\_ beside the refuel point fire extinguisher.
2. The back seat Crewmember will monitor the refueling operation from \_\_\_\_\_ IAW the Primary Division Training SOP.
3. Complete the following statements regarding rapid refueling procedures:
  - a. Throttle - \_\_\_\_\_
  - b. Helmet visor - \_\_\_\_\_
  - c. Landing and search lights - \_\_\_\_\_
  - d. No radio transmissions except \_\_\_\_\_
  - e. Transponder will be in \_\_\_\_\_

4. The signal for emergency shutdown for an aircraft involved with a fire or fuel leak is: \_\_\_\_\_.

TD-17

**AR 40-8**

1. After donating blood (200cc or more) aircrew members will be restricted from flying duties for \_\_\_\_\_ hours.
2. After consuming alcohol, aircrew members will not fly for a period of \_\_\_\_\_ hours and until \_\_\_\_\_.
3. Aircrews will be restricted from flying duties for \_\_\_\_\_ hours after general, spinal, or epidural anesthesia.

**AR 95-1**

1. Is the use of a homemade checklist authorized?
2. Flying time starts when a helicopter \_\_\_\_\_. Flying time ends when the aircraft has \_\_\_\_\_ and the \_\_\_\_\_ are stopped or the \_\_\_\_\_ changes.
3. Is the pilot in command authorized to waive the requirement for having a seat belt for each occupant?
4. The minimum fuel reserve for a VFR flight (at cruise) is: \_\_\_\_\_.
5. In order to file a VFR flight plan, destination weather must be equal to or greater than \_\_\_\_\_.

**OPERATOR'S SUPPLEMENT**

1. The WARNING associated with Main Driveshaft Failure states the engine must remain in operation to provide power to the tail rotor. Why?
2. What is maximum useable fuel capacity of the TH-67? \_\_\_\_\_ Gallons.
3. What emergency equipment is carried aboard the helicopter? (Do not include the ELT)
4. How does a DC electrical failure affect the anti-ice system?
5. Complete Loss of Tail Rotor Thrust will occur when \_\_\_\_\_.
6. The indications of Complete Loss of Tail Rotor Thrust are
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
7. If Loss of Tail Rotor Thrust is experienced, the helicopter may become uncontrollable if airspeed is

allowed to decrease below approximately \_\_\_\_\_ knots.

8. During Complete Loss of Tail Rotor Thrust what airspeed is recommended while enroute to a suitable landing area and during autorotational descent?

9. During Complete Loss of Tail Rotor Thrust, when landing area is reached, make an autorotational landing (THROTTLE \_\_\_\_\_).

10. The WARNING associated with Loss of Tail Rotor Thrusts states: \_\_\_\_\_

11. The NOTE associated with Loss of Tail Rotor Thrust states: \_\_\_\_\_

TD-18

### FTG

1. A hovering autorotation is initiated from an altitude of \_\_\_\_\_ feet AGL + or - \_\_\_\_\_ foot.

2. When initiating a hovering autorotation, abrupt throttle closure will cause \_\_\_\_\_.

3. During a hovering autorotation, apply pedal as necessary (normally right pedal) to \_\_\_\_\_.

4. A precautionary landing should be made whenever further flight is \_\_\_\_\_.

5. The approach angle for a precautionary landing is determined by \_\_\_\_\_.

6. Once an approach has been started (during a precautionary landing) the apparent rate of closure should be \_\_\_\_\_.

7. During a simulated engine failure at a hover, who initiates the maneuver by stating "Hovering Autorotation"?

### FM 3-04.301

1. The four major types of hypoxia are: \_\_\_\_\_

2. The four stages of hypoxia are: \_\_\_\_\_

3. The only significant effect of hypoxia in the indifferent stage occurs at about \_\_\_\_\_

4. Which type of hypoxia does smoking cigarettes cause?

5. The physiological effects of smoking include the loss of approximately \_\_\_\_\_ percent of the smoker's night vision at sea level.

6. A smoker at sea level is actually at a physiological altitude of \_\_\_\_\_ feet compared to a non-smoker.

## OPERATOR'S SUPPLEMENT

1. Define Loss of Tail Rotor Effectiveness as written in Chapter 8 of the Operator's Supplement.
2. The emergency procedure for Loss of Tail Rotor Effectiveness is:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
3. The WARNING associated with Loss of Tail Rotor Effectiveness states: \_\_\_\_\_
4. The indications of a Main Drive Shaft Failure are: \_\_\_\_\_
5. The correct emergency procedure for Main Drive Shaft Failure is:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
6. The WARNING associated with Main Drive Shaft Failure states: \_\_\_\_\_

### AR 95-1

1. List the pilot's responsibilities regarding weight and balance during preflight planning.
2. AR 95-1 stipulates that an aircraft not equipped with oxygen may fly between \_\_\_\_\_ and \_\_\_\_\_ feet for no more than one hour; no more than 30 minutes of this hour may be between \_\_\_\_\_ and \_\_\_\_\_ feet. Under no circumstances will an Army aircraft exceed \_\_\_\_\_ feet without supplemental oxygen being used.

TD-19

### FTG

1. When inbound to a stagefield, the radio procedure for initial contact will consist of \_\_\_\_\_ and will be made in the vicinity of the appropriate ACP.
2. When the stagefield tower replies, the aircraft crew will then repeat \_\_\_\_\_ and provide \_\_\_\_\_.
3. Tower will respond with
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_ and
  - d. \_\_\_\_\_

## OPERATOR'S SUPPLEMENT

1. Define Mast Bumping. \_\_\_\_\_
2. Mast Bumping may occur during: \_\_\_\_\_
3. What is the correct emergency procedure for Mast Bumping?
4. During the entry to a standard autorotation, you note that the needles are still joined after the throttle has been reduced to the engine idle position. What type malfunction has occurred?
5. The correct emergency procedure for Hot Start is:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
6. During any aircraft fire, the most important consideration is: \_\_\_\_\_
7. If a fire occurs in flight, the most important single action that can be taken by the pilot is to \_\_\_\_\_
8. After the 3<sup>rd</sup> attempt for a deceleration check, if deceleration time is not two seconds or more the aircraft shall: \_\_\_\_\_

### AR 95-1

1. How is the weather briefing void time determined for all VFR cross-country flights?
2. Each aircraft will be weighed when:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

### TD-20

### FTG

1. The correct steps to be followed in the event of an intercom failure are: \_\_\_\_\_.
2. The correct steps to be followed in the event of a radio failure are: \_\_\_\_\_.
3. You make a radio call to your stagefield tower on entry to traffic and receive no response. Subsequently you call on base and receive no response. While on final you should watch the tower for \_\_\_\_\_.

**NOTE: Questions 4 through 11 assume that you experience a radio failure while operating at a stagefield (Refer to your tower light gun signal card).**

4. On final you receive a flashing red light from tower, you should \_\_\_\_\_.
5. After taking the action in 4 above, you receive a flashing green light from tower, it means \_\_\_\_\_.
6. On final, you receive a steady green light from tower, it means \_\_\_\_\_.
7. After landing, you receive a flashing green light, it means \_\_\_\_\_.
8. While hovering, you receive a steady red light, you should \_\_\_\_\_.
9. The next signal you receive is a flashing white light, you should \_\_\_\_\_.
10. After taking the action in 9 above, you receive a flashing red light. You should \_\_\_\_\_.
11. While hovering into the parking area you receive an alternating red and green light from tower. It means \_\_\_\_\_.

**OPERATOR'S SUPPLEMENT**

1. The correct action for an Engine/Fuselage/Electrical Fire – Ground is: \_\_\_\_\_.

2. If Engine/Fuselage Fire is observed in flight, the following action should be taken:

Power on landing

- a. \_\_\_\_\_
- b. \_\_\_\_\_

Power-off landing

- a. \_\_\_\_\_
- b. \_\_\_\_\_

3. In the event of electrical fire or suspected electrical fire the emergency procedure is:

- a. \_\_\_\_\_
- b. (IFR) \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

4. While in flight, the Battery Temp caution light or Battery Hot warning light illuminates. What is the correct emergency procedure for both malfunctions?

5. To eliminate smoke and fumes from the cockpit, the emergency procedure is: \_\_\_\_\_

6. While in flight, you note that there is an increase in force required to move the flight controls and feedback forces are noticed. What has occurred? \_\_\_\_\_ What is the emergency procedure?

**FM 3-04.301**

1. If you experience middle ear discomfort during a descent, you should attempt to relieve it by \_\_\_\_\_

2. If middle ear discomfort is not relieved by the action in #1 above, you should \_\_\_\_\_

TD-21

**FTG**

1. The crew of the first aircraft discovering a mishap will orbit the area not lower than \_\_\_\_\_ feet AGL and contact \_\_\_\_\_, giving the approximate location.

2. Who has initial responsibility for security of an aircraft involved in a mishap?

3. Cairns Crash Control telephone numbers and frequencies can be found on USAAVNC Form \_\_\_\_\_

4. For a shallow approach to a run-on landing, the touchdown is preferred in the first \_\_\_\_\_ of the approach lane; the middle \_\_\_\_\_ is acceptable.

**OPERATOR'S SUPPLEMENT**

1. If the Fuel Pump segment light illuminates while in flight, you should \_\_\_\_\_

2. The Warning associated with Fuel Boost Pump failure states: \_\_\_\_\_

3. The NOTE associated with Fuel Boost Pump Failure states: \_\_\_\_\_

**FM 3-04.203**

1. The type of drag that is created as a result of the production of lift is \_\_\_\_\_

2. A force applied to a rotating body will take effect 90 degrees after application in the direction of rotation. This is called \_\_\_\_\_

3. Effective Translational Lift (ETL) occurs with the helicopter at about \_\_\_\_\_ to \_\_\_\_\_ knots.

4. Center of pressure is defined as \_\_\_\_\_

5. A chord line is \_\_\_\_\_

6. The aerodynamic center of a rotor blade is that point along the chord line where \_\_\_\_\_.
7. Relative Wind modified by induced flow is defined as \_\_\_\_\_ relative wind.
8. Lift is the component of the airfoil's Total Aerodynamic Force (TAF) \_\_\_\_\_ to the resultant relative wind.

**AR 40-8**

1. Aircrew members requiring corrective lenses in order to achieve 20/20 vision shall be restricted from flying duties unless they are \_\_\_\_\_.
2. After any immunizations, the minimum restriction from flying duty is a period of \_\_\_\_\_ hours.
3. Aircrew exhibiting symptoms of simulator sickness will be restricted from actual flight for \_\_\_\_\_ hours after full resolution of symptoms.

TD-22

**FTG**

1. During the hover power check, you note that the difference between maximum torque available and hover torque is less than 5%. What maneuvers or tasks are you authorized to perform?  
 Margin of 5% to less than 10%: \_\_\_\_\_  
 Margin of 10% to less than 15%: \_\_\_\_\_  
 Margin of 15% or more: \_\_\_\_\_
2. When using the magnetic compass to turn to a heading of North (360 degrees), you should roll out of the turn \_\_\_\_\_.
3. When using the magnetic compass to turn to a heading of South (180 degrees), you should roll out of the turn \_\_\_\_\_.
4. While flying on a heading of East or West, increasing airspeed will cause the compass to show a turn to the \_\_\_\_\_.
5. Section lines are formed so that their axes align with \_\_\_\_\_.

**OPERATOR'S SUPPLEMENT**

1. A main generator malfunction on a (VFR) TH-67 will be indicated by \_\_\_\_\_.
2. The corrective action for a main generator malfunction is
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
 If the generator is not restored or if it goes off line again, the corrective action is:
  - c. \_\_\_\_\_

- d. \_\_\_\_\_
- e. \_\_\_\_\_

3. If landing in trees is unavoidable, decelerate to minimum ground speed at \_\_\_\_\_  
Descend vertically into the trees, collective \_\_\_\_\_.

4. If Ditching - Power On becomes necessary, with power available accomplish an approach to a hover above the water and: \_\_\_\_\_.

5. If flight control malfunction is suspected, proceed as follows:

- a. \_\_\_\_\_
- b. \_\_\_\_\_

**FM 3-04.203**

1. Parasite drag is incurred from the \_\_\_\_\_.

2. Two types of airfoil are \_\_\_\_\_ and \_\_\_\_\_.

3. The type of airfoil which creates less lift at a given angle of attack is the \_\_\_\_\_.

4. Relative wind is air in motion that is equal to and opposite the \_\_\_\_\_.

5. Angle of attack is the angle measured between the \_\_\_\_\_ and \_\_\_\_\_.

6. Angle of incidence (RW) is the \_\_\_\_\_.

**FM 3-04.301**

1. The Physiological (self-imposed) stressors are:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

TD-23

**FTG**

1. While acting as student co-pilot (Buddy Rider), you will occupy the \_\_\_\_\_ seat.

2. While acting as student co-pilot, you will log \_\_\_\_\_ as your duty symbol on form 2408-12.

3. A Captain and a WO1 are flying together on a solo flight. The WO1 is in the right seat; the Captain is acting as the student co-pilot. Who is in command of the aircraft? \_\_\_\_\_ (Ask your IP

or check Copilot Statement)

4. In the event of an actual forced landing, the student co-pilot may assist in \_\_\_\_\_ and \_\_\_\_\_
5. In case of actual loss of hydraulics, the student co-pilot may assist in control inputs as required to \_\_\_\_\_
6. The student co-pilot has the responsibility to assume control of the aircraft in the event of \_\_\_\_\_ or \_\_\_\_\_
7. If the student in the right seat needs to re-adjust the pedals, the student co-pilot may assume the controls when the aircraft is \_\_\_\_\_ and the collective is \_\_\_\_\_.

### OPERATOR'S SUPPLEMENT

1. The baggage compartment will carry \_\_\_\_\_ pounds of baggage or cargo (without air-conditioning installed) and \_\_\_\_\_ pounds of baggage or cargo (with air conditioning installed locally).
2. The floor of the baggage compartment is limited to \_\_\_\_\_ pounds per square foot.
3. Components driven by the N1 Gas Producer gear train are:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
  - f.(I) \_\_\_\_\_
4. Components driven by the N2 Power Turbine gear train are:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
5. The TH-67 fuel supply system consists of \_\_\_\_\_ fuel cell.
6. If mast bumping occurs, \_\_\_\_\_
7. If the SPARE caution light illuminates, \_\_\_\_\_
8. The ENGINE ANTI-ICE ADVISORY light on indicates \_\_\_\_\_

### AR 95-1

1. Smoking is prohibited within \_\_\_\_\_ feet of an aircraft on the ground.
2. A "D" entry on the form 2408-12, flight condition block indicates that the flight was conducted between the hours of official \_\_\_\_\_ and \_\_\_\_\_.
3. PROHIBITED missions for Army aircraft are: \_\_\_\_\_

### FM 3-04.203

1. Lift is defined as that component of total aerodynamic force that acts at a \_\_\_\_\_ angle to the

- 
2. Profile Drag is incurred from \_\_\_\_\_.
  3. Induced Drag is incurred from \_\_\_\_\_.
  4. The amount of rotor coning depends on \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
  5. Rotor efficiency is increased by ground effect to a height of about \_\_\_\_\_.

TD-24

### OPERATOR'S SUPPLEMENT

1. The hydraulic pump is mounted on and driven by the \_\_\_\_\_.
2. The hydraulic solenoid valve described as "fail safe" because \_\_\_\_\_.
3. When the hydraulic filter is clogged, it will give a visual warning by \_\_\_\_\_.
4. A freewheeling unit is mounted on the engine gearbox to provide a \_\_\_\_\_ from the engine so that rotational forces of the main rotor are free to drive the transmission, tail rotor, and all transmission mounted accessories during autorotation.
5. The same fan that cools \_\_\_\_\_ oil and \_\_\_\_\_ system cools transmission oil.
6. The main drive shaft is designed to transfer power from the engine to the \_\_\_\_\_ during normal operation and from the transmission to the \_\_\_\_\_ during autorotation.
7. The XMSN OIL PRESS segment light in the caution panel will illuminate when pressure drops below \_\_\_\_\_ psi.
8. The 90-degree gearbox provides a 90-degree change of direction and \_\_\_\_\_.

### AR 40-8

1. An aviator may not fly for \_\_\_\_\_ hours after local or regional anesthesia, to include dental.
2. Aircrew members will not fly within \_\_\_\_\_ hours following SCUBA diving unless cleared by a flight surgeon.

### AR 95-1

1. Army aircraft will not be intentionally flown into \_\_\_\_\_ or \_\_\_\_\_ extreme turbulence or into known \_\_\_\_\_.
2. If you encounter severe turbulence during a flight you are required to \_\_\_\_\_.

**FM 3-04.203**

1. Three conditions are required for dynamic rollover are \_\_\_\_\_.
2. Dynamic rollover will occur if the \_\_\_\_\_ angle is exceeded regardless of corrections by the aviator.
3. List the conditions producing blade stall: \_\_\_\_\_.

**FM 3-04.301**

1. Carbon monoxide poisoning will cause which type of hypoxia?
2. Drinking alcoholic beverages will cause which type of hypoxia?
3. Which type of hypoxia may be caused by high "G" maneuvers?
4. Vestibular Illusions caused by angular acceleration stimulating the semicircular canals are called \_\_\_\_\_ illusions. Three types of this illusion that can be encountered in flight are:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

TD-25

**OPERATOR'S SUPPLEMENT**

1. What propulsion instruments are "wet line" and receive direct readings as a result of the piping installation?
2. Which component of the turn and slip indicator will show an out of trim condition?
3. What is the indication when attitude information is unreliable on the attitude indicator?
4. Engine anti-ice shall not be used in ambient temperatures above \_\_\_\_\_ degrees Celsius.
5. Engine anti-icing shall be ON for flight in visible moisture with the temperature at \_\_\_\_\_ degrees Celsius and below.
6. List the conditions that will cause the Engine Out warning light and audio alarm to activate.
7. When the Engine Out warning system is activated, a \_\_\_\_\_ audio signal is produced.
8. List the conditions that will cause the Low Rotor RPM warning light and audio to activate.

9. When the low Rotor RPM system is activated, a \_\_\_\_\_ audio signal is produced.
10. The WARNING associated with Cockpit and Cabin Door Restrictions states: \_\_\_\_\_
11. While in autorotation, airspeeds ABOVE \_\_\_\_\_ knots will (choose one) increase / decrease the rate of descent and cause low rotor RPM.
12. After a complete power loss, adjust forward airspeed to desired autorotative airspeed for existing conditions of \_\_\_\_\_ to \_\_\_\_\_ knots indicated airspeed.
13. An Engine Underspeed below \_\_\_\_\_ percent RPM results in Rotor RPM decay below minimum safe limits.
14. List the immediate action step for Engine Underspeed, if powered flight with rotor in the green can be accomplished.
  - a. \_\_\_\_\_

If Engine Underspeed occurs below 90% rotor RPM, the immediate action steps are:

- b. \_\_\_\_\_
- c. \_\_\_\_\_

TD-26

**FTG**

**NOTE: Question #1 through #5 pertain to a Standard Autorotation**

1. On final, maintain \_\_\_\_\_ knots and \_\_\_\_\_ altitude.
2. The student pilot will \_\_\_\_\_ the instructor that he is entering the autorotation.
3. Adjust cyclic to attain \_\_\_\_\_ knots during the descent.
4. By \_\_\_\_\_ feet AGL, verify \_\_\_\_\_ factors.
5. The amount of deceleration required to slow the ground speed and rate of descent will \_\_\_\_\_ with \_\_\_\_\_ conditions.

**OPERATOR'S SUPPLEMENT**

1. During HIT Checks, a difference of \_\_\_\_\_ requires an entry on form 2408-13-1. A difference of \_\_\_\_\_ requires an entry on form 2408-13-1 and is cause for grounding the aircraft.
2. Slope operation shall be limited to slopes of \_\_\_\_\_ degrees or less.

3. Caution is to be exercised for slopes greater than \_\_\_\_\_ degrees since \_\_\_\_\_
4. With a longitudinal center of gravity of 106.0 inches the lateral center of gravity limit is L \_\_\_\_\_ to R \_\_\_\_\_ inches.
5. Cargo distribution over the passenger compartment floor area shall not exceed \_\_\_\_\_ per sq. foot.
6. While in cruise flight at 1000 MSL you note a left yaw, a drop of engine RPM (N1 & N2), drop in rotor RPM, low RPM audio alarm, illumination of the low rotor RPM and engine out warning light and change in engine noise. What type of malfunction has occurred?
7. What is the correct action for Engine Failure Low Altitude?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
8. Under ideal conditions how much time is required to perform an engine restart during flight?
9. What is the CAUTION associated with Engine Restart during flight?
10. Should an engine malfunction occur during a left bank maneuver, \_\_\_\_\_ cyclic input to level the aircraft must be made simultaneously with \_\_\_\_\_.

**FM 3-04.203**

1. The no-lift areas are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
2. Dissymmetry of lift is the \_\_\_\_\_.
3. Cyclic feathering changes \_\_\_\_\_.
4. Blade coning is a result of the production of lift. The amount of coning is dependent on
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
5. Improved rotor efficiency resulting from directional flight is \_\_\_\_\_.
6. Transverse Flow Effect occurs between \_\_\_\_\_ and \_\_\_\_\_ knots.

TD-27

**THIS BRIEFING MUST BE COMPLETED PRIOR TO THE SUPERVISED SOLO FLIGHT, REGARDLESS OF TRAINING DAY**

The following procedures are unique to the supervised solo flight. Use this outline for making notes from the Flight Commander briefing, or discuss these procedures with your Flight Instructor.

1. Lane to be utilized \_\_\_\_\_
2. Landing/search light \_\_\_\_\_
3. Position lights \_\_\_\_\_
4. Commo check \_\_\_\_\_
5. Radio selector switch setting \_\_\_\_\_
6. Cockpit and cabin seat belts and equipment \_\_\_\_\_
7. Clearance for takeoff to a hover \_\_\_\_\_
8. Clearing turns \_\_\_\_\_
9. Takeoff radio call \_\_\_\_\_
10. Base leg radio call \_\_\_\_\_
11. Hover for takeoff following 1st and 2nd approach \_\_\_\_\_
12. Procedure following 3rd approach \_\_\_\_\_
13. Landing from a hover \_\_\_\_\_

**Discuss with your Instructor or Flight Commander the following procedures to be followed in the event of various malfunctions.**

1. Radio failure prior to takeoff \_\_\_\_\_
2. Radio failure on base leg (include selection of landing point and light gun signals) \_\_\_\_\_
3. Emergency/Precautionary landings \_\_\_\_\_

**Discuss reasons for and correct actions to take in the event of a go-around.**

1. Reasons for initiating a go-around \_\_\_\_\_
2. First action to initiate a go-around \_\_\_\_\_
3. Radio calls for a go-around \_\_\_\_\_
4. Ground track and altitudes to fly during a go-around \_\_\_\_\_
5. Discuss the required maneuvers for the dual flight prior to solo.

**FTG**

**NOTE: Question #1 through #6 pertains to the Simulated Maximum Performance takeoff.**

1. Takeoff power will be two-foot hover power, plus \_\_\_\_\_ % + or - \_\_\_\_\_ %. Do not exceed TOT limits.
2. The initial aircraft attitude is a \_\_\_\_\_ knot attitude.
3. Apply forward cyclic to begin accelerating to climb air speed at \_\_\_\_\_ feet AGL.
4. Begin placing the aircraft in trim at \_\_\_\_\_ feet AGL.
5. Maintain takeoff power until \_\_\_\_\_ knots prior to \_\_\_\_\_.
6. The steep approach angle is \_\_\_\_\_ to \_\_\_\_\_ degrees. (for training purposes)
7. The last \_\_\_\_\_ feet of the steep approach will be flown with the skids aligned with the lane.
8. Termination for the steep approach will be to the \_\_\_\_\_, \_\_\_\_\_ feet behind the panel.
9. During slope operations, if the cyclic or aircraft slope limitations are reached before the aircraft is firmly on the ground, the P\* will \_\_\_\_\_.
10. The P\* should depart the slope with the skids perpendicular. Avoid turning the tail \_\_\_\_\_.

**OPERATOR'S SUPPLEMENT**

1. Intentional flight into any icing conditions is \_\_\_\_\_.
2. If icing conditions become unavoidable, the pilot should turn on \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. What is the WARNING concerning Icing Conditions during landing and shutdown?
4. Intentional flight into moderate turbulence is prohibited when the report or forecast is based on aircraft above \_\_\_\_\_ pounds gross weight.
5. The minimum engine oil pressure below 78% N1 is \_\_\_\_\_.
6. The maximum transmission oil temperature at +35<sup>C</sup> OAT is \_\_\_\_\_.
7. The maximum continuous engine (N2) rpm is \_\_\_\_\_.

8. The maximum engine RPM (transient) at 32% torque and below is \_\_\_\_\_% for \_\_\_\_\_ seconds.
9. The maximum INDICATED airspeed at sea level, 20 degrees Celsius and 3250 pounds gross weight is \_\_\_\_\_.
10. The maximum load on the main generator is \_\_\_\_\_ percent.
11. While in a climb, you hear a series of loud sharp reports and a sharp rumble from the engine area. Severe engine vibrations and a rapid rise in TOT accompany these. What type of malfunction has occurred?
12. What is the correct action for the malfunction in #11 above?
13. Fuel flow information from the cruise charts is presented with the Anti-Ice and Heater systems off. If either or both systems are in use, the fuel flow will be increased by:
  - a. Anti-Ice-On, \_\_\_\_\_%
  - b. Bleed air heater-On, \_\_\_\_\_%
  - c. Both systems-On, \_\_\_\_\_%
14. You have determined from the cruise charts that planned fuel flow for today's flight is 24 gallons per hour. With the Anti-Ice and Heater ON, fuel flow will increase by \_\_\_\_\_ GPH. The new planned fuel flow is \_\_\_\_\_ gallons per hour.

TD-29

### OPERATOR'S SUPPLEMENT

1. The TH-67 for weight and balance purposes, is a Class \_\_\_\_\_.
2. When a helicopter is operated at critical gross weights, the \_\_\_\_\_ weight of each individual, plus \_\_\_\_\_.
3. If weighing facilities are not available, use the best information available to assure \_\_\_\_\_ of the helicopter.
4. The weight and balance form that is a continuous history of the basic weight and moment resulting from structural and equipment changes is the \_\_\_\_\_.
5. The weight and balance form that is a summary of the actual disposition of the load in the helicopter is \_\_\_\_\_.
6. What is the minimum crew weight required in the cockpit?
7. The helicopter center of gravity will move forward as fuel is consumed because the CG of the fuel is slightly aft of the helicopter CG and the fuel is contained \_\_\_\_\_.

8. Longitudinal center of gravity limits are from \_\_\_\_\_ to \_\_\_\_\_ inches up to 2425 pounds and \_\_\_\_\_ to \_\_\_\_\_ inches at 3200 pounds.

9. Lateral center of gravity limits are \_\_\_\_\_ inches left of helicopter centerline and \_\_\_\_\_ inches right of helicopter centerline when the longitudinal CG is 114.2 inches.

10. The lateral center of gravity limits are \_\_\_\_\_ inches left of centerline and \_\_\_\_\_ inches right of centerline when gross weight is above 3200 lbs.

11. While in straight and level flight, you note a right yaw, rapid increase in engine and rotor RPM and an increase in engine and rotor noise. What type of malfunction has occurred?

12. The correct action for the malfunction above is:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

13. If RPM cannot be controlled by throttle adjustment in the steps above then:

- d. \_\_\_\_\_
- e. \_\_\_\_\_

14. During cold temperature operation, engine oil pressure may exceed the maximum of 130 PSI. Stabilize engine at idle speed 62-64% N1 until: \_\_\_\_\_

### FM 3-04.301

1. Vestibular illusions caused from changes in linear acceleration or gravity that stimulates the otolith organs are called \_\_\_\_\_ illusions. Three types of this illusion that can be encountered in flight are:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

TD-30

### OPERATOR'S SUPPLEMENT

1. Transient power on rotor droop limit is \_\_\_\_\_ % not to exceed 5 seconds.

2. Mast bumping (flapping-stop contact) is \_\_\_\_\_

3. What factors can cause Spike Knock?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

4. Pylon Whirl is a condition that occurs after \_\_\_\_\_

5. Define Loss of Tail Rotor Effectiveness as written in Chapter 8.

6. List the three relative wind azimuth regions associated with LTE that are capable of adversely affecting aircraft controllability and dramatically increasing pilot workload. Briefly describe the tendencies the helicopter exhibits in each region.

7. What are some other factors that can significantly influence the severity of the onset of LTE?

8. In order to transmit on the UHF "Guard" frequency, you may tune the frequency manually or it may be tuned automatically when the \_\_\_\_\_ mode is selected.

**FM 3-04.301**

1. Define fatigue \_\_\_\_\_

2. The three types of fatigue are:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

**FM 3-04.203**

1. Improved rotor efficiency resulting from directional flight is called:

\_\_\_\_\_

2. Effective Translational Lift occurs at airspeeds between \_\_\_\_\_ and \_\_\_\_\_ knots.

3. What conditions must exist simultaneously for settling with power to occur?

TD-31

**FTG**

**NOTE: Questions #1 through #3 pertain to a Low Level Autorotation**

1. On base leg establish a descent which will assure constant visual contact with the \_\_\_\_\_.

2. Prior to arrival at the entry point, ensure the aircraft is \_\_\_\_\_ feet \_\_\_\_\_ and \_\_\_\_\_ KIAS, in \_\_\_\_\_, and \_\_\_\_\_ power is applied.

3. Maintain entry altitude with the \_\_\_\_\_ until the aircraft intercepts a normal autorotational \_\_\_\_\_.

## OPERATOR'S SUPPLEMENT

1. The Maximum Power Available and Continuous Power Available are based on \_\_\_\_\_ and \_\_\_\_\_ systems being off.
2. The maximum allowable gross weight at 7000 feet PA and +25 degrees Celsius is \_\_\_\_\_ pounds IGE and \_\_\_\_\_ pounds OGE.
3. The power required to hover at 2 feet, 7000 feet PA, +20 degrees and 3000 pounds gross weight is \_\_\_\_\_ %.
4. The Maximum Range Airspeed at 6000 feet PA, 0 degrees and 3200 pounds gross weight is \_\_\_\_\_ KIAS.
5. When the aircraft is on an ENGINE OPERATING LIMIT, reduce maximum torque available and continuous torque available by \_\_\_\_\_ % with anti-ice on.
6. When the aircraft is on an ENGINE OPERATING LIMIT, reduce maximum torque available and continuous torque available by \_\_\_\_\_ % with heater on.
7. Do not attempt an air start above \_\_\_\_\_ feet MSL. (TURB OUT TEMP rises too fast to control.)
8. Vne at 3000 pounds gross weight and below is \_\_\_\_\_ KIAS at sea level. Decrease Vne \_\_\_\_\_ KIAS per 1000 feet above 3000 feet density altitude.
9. Vne above 3000 pounds gross weight is \_\_\_\_\_ KIAS at sea level. Decrease Vne \_\_\_\_\_ KIAS per 1000 feet above 3000 feet density altitude.
10. While in straight and level flight the nose of the helicopter suddenly turns right with left sideslip, pedal has no effect on trim. What type of malfunction has occurred? \_\_\_\_\_

### **Reference question 12 to answer questions 13-17**

13. When a suitable landing area is reached, \_\_\_\_\_  
using an airspeed above \_\_\_\_\_.
14. If a run-on landing is possible, complete autorotational landing with a touchdown airspeed \_\_\_\_\_.
15. If a run-on landing is not possible, start to decelerate from about \_\_\_\_\_ feet, so that forward ground speed is at a minimum when the helicopter reaches \_\_\_\_\_ to \_\_\_\_\_ feet; execute the touchdown with a rapid collective pull just prior to \_\_\_\_\_ in a level attitude with \_\_\_\_\_.
16. What is the WARNING associated with the malfunction above?
17. What is the NOTE associated with the malfunction above?

**FTG**

**NOTE: Questions #1 through #5 pertain to a Standard Autorotation with 180-Degree Turn**

1. Entry altitude as directed \_\_\_\_\_ feet, entry airspeed \_\_\_\_\_ KIAS.
2. Perform a \_\_\_\_\_ knot \_\_\_\_\_ descending turn.
3. By \_\_\_\_\_ feet AGL, the turn to \_\_\_\_\_ must be complete and the aircraft \_\_\_\_\_ must be aligned with the landing area.
4. By \_\_\_\_\_ feet AGL the aircraft must be in a \_\_\_\_\_ autorotation.
5. List the requirements for a steady state autorotation:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

**OPERATOR'S SUPPLEMENT**

1. When aircraft has flown in rain, operated within \_\_\_\_\_ miles of salt water or within \_\_\_\_\_ miles of volcanic activity appropriate entries should be made on DA Form 2408-13-1 to alert maintenance.
2. If Spare Caution Light illuminates: \_\_\_\_\_.
3. What is the corrective action when the Battery Hot warning light or Battery Temp caution light illuminates (should not illuminate since SLAB battery installed)?
4. Aerobatic maneuvers are prohibited. Define aerobatic maneuvers. \_\_\_\_\_
5. VNE is \_\_\_\_\_ knots with > 85% to 100% torque applied.
6. For gross weights greater than 3000 pounds and density altitudes greater than sea level, the directional control margin may be significantly reduced while: \_\_\_\_\_
7. Intentional flight below \_\_\_\_\_ G is prohibited.
8. After reaching 100 feet during a simulated max performance takeoff, you attempt to apply pedal for trim and find that the pedals will not move. Your Hover Power check was 72% and takeoff power was 87%.
  - a. Which way will the nose turn when power is reduced? \_\_\_\_\_
  - b. Maintain control with \_\_\_\_\_ and airspeed between \_\_\_\_\_ and \_\_\_\_\_ knots.
  - c. Continue powered flight to a suitable landing area where \_\_\_\_\_
  - d. Execute a run-on landing with power and a touchdown speed which will minimize sideslip. Use

\_\_\_\_\_ and \_\_\_\_\_, as necessary, to control sideslip and heading.

**FM 3-04.301**

Motivational exhaustion is also known as \_\_\_\_\_.

TD-33

**FTG**

**NOTE: Questions #1 through #4 pertain to Perform a Hovering Autorotation**

1. Stabilize the helicopter at a \_\_\_\_\_ foot AGL Hover \_\_\_\_\_ the wind.
2. Maintain heading + or - \_\_\_\_\_ degrees.
3. Maintain position over the ground + or - \_\_\_\_\_ foot.
4. Execute a smooth and \_\_\_\_\_ descent and touchdown with no \_\_\_\_\_ or \_\_\_\_\_ drift during or after touchdown.

**OPERATOR'S SUPPLEMENT**

1. TOT of 810°C to 843°C is a \_\_\_\_\_ second transient, not to be used intentionally.
2. Intentional maneuvers beyond attitudes of +/- \_\_\_\_\_ degrees in pitch or +/- \_\_\_\_\_ degrees in roll are prohibited.
3. The maximum N1 speed is \_\_\_\_\_ % with a 15-second transient range of \_\_\_\_\_ % to \_\_\_\_\_ %.
4. You are hovering OGE at +30C, 5000 feet PA, at a gross weight of 3010 lbs. when the helicopter starts an uncommanded and rapid right yaw which does not subside of its own accord. What type of problem are you experiencing? \_\_\_\_\_
5. What is the corrective action for the situation in #4 above?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

**FM 3-04.203**

1. During hovering flight, the counterclockwise rotating, single-rotor helicopter has a tendency to drift laterally \_\_\_\_\_.
2. Define the Parallelogram Method (Vector Solution) \_\_\_\_\_

3. Relative wind moves in a \_\_\_\_\_
4. The primary means of compensating for dissymmetry of lift is: \_\_\_\_\_
5. Cyclic feathering causes attitude of the rotor disk to change but does not \_\_\_\_\_
6. TAF acts at the center of pressure on the airfoil and is normally \_\_\_\_\_

TD-34

### FTG

1. A precautionary landing should be made whenever further flight is \_\_\_\_\_
2. The approach angle for a precautionary landing will be determined by \_\_\_\_\_
3. Once the approach has been started, an apparent rate of closure should be maintained that is \_\_\_\_\_

### OPERATOR'S SUPPLEMENT

1. Determine the crosswind component for practice touchdown autorotations with a wind component of 20 knots and a crosswind direction of 40 degrees. \_\_\_\_\_
2. Are practice touchdown autorotations authorized with the crosswind component derived from #1 above? \_\_\_\_\_. Explain your answer.
3. For gross weights greater than 3000 pounds and density altitude greater than sea level, the directional control margin may be significantly reduced while hovering in winds from the right greater than \_\_\_\_\_ knots or for right sideward flight at speeds greater than \_\_\_\_\_ knots.
4. While in straight and level flight the aircraft yaws left, engine RPM increases, rotor RPM decreases, the rotor RPM warning light comes on and the low RPM audio activates. What type of malfunction has occurred? \_\_\_\_\_
5. What is the correct procedure for the malfunction in #4 above?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
6. Will step two in #5 above be performed in flight or after landing? Why (review warning)
7. While performing a standard autorotation, you note that the engine and rotor tachometer needles remain joined. You confirm that the collective is in the full down position and the throttle is at flight idle. What type of malfunction has occurred?

8. What is the correct procedure for the malfunction in #7 above?

**FM 3-04.203**

1. List the airflow in forward flight three no-lift areas.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

2. Draw the diagram showing the airflow, which causes transverse flow effect.

TD-35

**OPERATOR'S SUPPLEMENT**

1. What action, if any, is required when the engine oil temperature exceeds 107 degrees?

2. What is the WARNING associated with Complete Loss of the Rotor Thrust?

3. What is the NOTE associated with Complete Loss of the Rotor Thrust?

4. What is the WARNING associated with Loss of Tail Rotor Effectiveness?

5. While in flight the XMSN OIL TEMP segment light illuminates. You note that the transmission oil temperature is 110 and rising slowly, but the oil pressure is normal. What is the correct procedure?

6. During engine start you note that the TOT is increasing more rapidly than usual. What is the correct action if you suspect an engine hot start?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

**FM 3-04.203**

1. Explain why hovering OGE requires more power than hovering IGE?

2. Does angle of attack change between IGE/OGE hover?

3. Draw diagrams comparing the airflow and vortex patterns for IGE vs. OGE hover.

TD-36

**OPERATOR'S SUPPLEMENT**

1. You are flying cross-country at 110 KIAS. You have determined that your fuel consumption is 28

gallons per hour. The fuel flow warning illuminates. How many minutes of fuel remains until fuel exhaustion?

2. You are transporting passengers' cross-country when you encounter turbulence. You should ensure that all occupants are seated with \_\_\_\_\_.
3. If the effects of turbulence become significant, you should fly a torque value \_\_\_\_\_ in order to minimize the effects of turbulence.
4. Intentional flight into icing conditions is \_\_\_\_\_.
5. If icing conditions become unavoidable, the pilot should turn on the \_\_\_\_\_ and \_\_\_\_\_.
6. An increase in torque may be required to maintain a constant airspeed and altitude due to ice accumulation on the rotor system and possible degradation of the ability to maintain \_\_\_\_\_.
7. What precautions are recommended if a lightning strike occurs, or is expected?
8. You are flying in formation at 3500 feet AGL when the pilot of another aircraft advises you that smoke and flames are emitting from the engine compartment. You also note fuel pressure has decreased and numerous suitable forced landing areas are immediately available.

- a. \_\_\_\_\_
- b. \_\_\_\_\_

TD-37

### OPERATOR'S SUPPLEMENT

1. The fuel supply system has a max fuel usable capacity of \_\_\_\_\_ U.S. Gallons.
2. When the Fuel Low caution light illuminates, approximately \_\_\_\_\_ gallons of fuel remain.
3. The fuel flow indicating system furnishes the pilot with the following information
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_ and a low fuel warning at \_\_\_\_\_ minutes of time remaining.
4. The fuel indicating system is not a quantity-sensing device, and therefore cannot determine the amount of usable fuel in the tank. To ensure accurate readings in flight, enter maximum usable fuel as follows:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

5. When the ENGINE CHIP caution light illuminates in flight, what action should you take?
6. The battery is a vented \_\_\_\_\_ volt, 17 Ampere/Hour sealed lead acid battery (SLAB).
7. The DC loadmeter measures and indicates amperage output of the generator in percent. Loadmeter redline is \_\_\_\_\_ % maximum.

8. A no-output malfunction of the main generator will be indicated by \_\_\_\_\_ An attempt may be made to bring the generator back on line by:

- a. \_\_\_\_\_
- b. \_\_\_\_\_

If the generator is not restored, or goes off line again:

- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

9. In the event of electrical fire in flight or suspected electrical fire in flight:

- a. \_\_\_\_\_
- b. (IFR) \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

10. To eliminate any fumes resulting from the malfunction in #9 you should:

- a. \_\_\_\_\_
- b. \_\_\_\_\_

### FM 3-04.203

1. Recovery from blade stall: \_\_\_\_\_
2. List the conditions required for dynamic rollover to occur: \_\_\_\_\_

TD-38

### OPERATOR'S SUPPLEMENT

1. Will the XMSN OIL PRESS segment light illuminate if the transmission oil pressure exceeds 70 psi?
2. Can hydraulic pressure be switched off if the HYD BOOST circuit breaker is out? Explain your answer.
3. Will the ENG ANTI-ICE remain on with total electrical failure? Explain your answer:

4. The Avionics Master Switch allows radios to be turned on simultaneously if the individual radio switches are in the \_\_\_\_\_ position.
5. What is the purpose of the avionics bypass switch?
6. The fuselage consists of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ sections.
7. The engine is supported by \_\_\_\_\_ mounts on the service deck.
8. The vertical fin is installed with the leading edge \_\_\_\_\_ degrees right of center line thus reducing tail rotor thrust requirements in forward flight. At what airspeed is the tail rotor completely "off-loaded"?
9. What are the two components that receive anti-icing when the anti-ice switch is turned on?
10. While in flight you feel binding, resistance, feedback and sloppiness in the flight controls. What malfunction has occurred?
11. What is the correct procedure for the malfunction in #10 above?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
12. What is the WARNING associated with a Hydraulic Power Failure?

**FM 3-04.301**

1. Spatial disorientation is an individual's inability to determine his or her inaccurate perception of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ relative to the \_\_\_\_\_.
2. The proprioceptive system is closely associated with the \_\_\_\_\_ system.
3. Vertigo is a spinning sensation usually caused by a peripheral \_\_\_\_\_ in the inner ear.
4. The 3 types of spatial disorientation are:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
5. During flight, the \_\_\_\_\_ system is the most reliable.

TD-39

**OPERATOR'S SUPPLEMENT**

1. The fixed landing light is a 250-watt unit mounted on the forward portion of the nose and is controlled by the \_\_\_\_\_.
2. The slewable landing/searchlight is a 450-watt unit mounted directly behind the fixed landing light. The searchlight is turned on and off and stowed with the \_\_\_\_\_ switch and positioned vertically and laterally with the \_\_\_\_\_ switch.
3. The emergency locator transmitter, when activated, transmits on emergency frequencies \_\_\_\_/\_\_\_\_
4. The \_\_\_\_\_ position is normal for flight operations, and arms the emergency locator transmitter for automatic crash activation.
5. The ENG OUT warning system is activated when the N1 is below \_\_\_\_\_ % +/- 3%.
6. The LOW ROTOR warning system is activated when the rotor RPM is below \_\_\_\_\_%.
7. What conditions activate the FUEL PUMP caution light?
8. Maximum load applied to the blade tips shall not exceed \_\_\_\_\_ pounds. Maximum deflection between the flapping axis and blade tips shall not exceed \_\_\_\_\_ inches.
9. With both the Anti-Ice and Heater systems in use, the fuel flow will increase \_\_\_\_\_ %.

**AR 95-1**

1. Anticollision lights will be on \_\_\_\_\_ except when
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_ or
  - c. \_\_\_\_\_
2. Position lights will be on \_\_\_\_\_ between \_\_\_\_\_ and \_\_\_\_\_.
3. What is the minimum altitude above the surface when flying over the following areas? \_\_\_\_\_

National Parks, Monuments, Recreation Areas and Scenic Riverways administered by the National Parks Service, National Wildlife Refuges, Big Game Refuges or Wildlife Ranges administered by the U.S. Fish and Wildlife Service, and Wilderness and Primitive areas administered by the U.S. Forest Service.

**FM 3-04.203**

1. Settling With Power is a condition \_\_\_\_\_
2. The vortex ring state can be completely avoided by descending on flight paths shallower than about \_\_\_\_\_.
3. In the space below, draw the 3 diagrams detailing the various stages of settling with power.

**FM 3-04.301**

1. The four stages of hypoxic hypoxia, altitudes and oxygen percentage levels associated with each are:

- a. \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ to \_\_\_\_\_ %
- b. \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ to \_\_\_\_\_ %
- c. \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ to \_\_\_\_\_ %
- d. \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ to \_\_\_\_\_ %

**AR 95-1**

1. Aircraft crews will use oxygen on unpressurized aircraft on flights above \_\_\_\_\_ feet pressure altitude for more than 1 hour, on flights above \_\_\_\_\_ feet pressure altitude for more than 30 minutes and on flights above \_\_\_\_\_ feet pressure altitude for any period.

TD-40

**OPERATOR'S SUPPLEMENT**

- 1. The Cruise Charts are based on operation at 100% rotor/engine RPM with \_\_\_\_\_ and \_\_\_\_\_ off.
- 2. The CONT XMSN LIM line on the cruise chart is a vertical line located at 85% torque and represents \_\_\_\_\_
- 3. The 5 MIN XMSN LIM is a vertical line on the cruise chart located at 100% torque and represents \_\_\_\_\_
- 4. Operating at maximum continuous torque will cause the TOT to be at the upper limit of the green arc (\_\_\_\_\_ degrees C.)
- 5. The maximum \_\_\_\_\_ airspeed will produce the greatest flight range per gallon of fuel.
- 6. The maximum \_\_\_\_\_ airspeed will yield the greatest flight endurance since minimum torque will provide minimum fuel flow.
- 7. Determine the maximum rate of climb at maximum continuous power, anti-ice off, particle separator installed, at 70 knots, 3000 pounds gross weight, PA 2000 ft. and temperature of + 40 degrees Celsius. \_\_\_\_\_ FPM.
- 8. Which altitude would be preferable to improve fuel economy under the following conditions:  
Gross weight 3000 pounds, FAT +30 degrees Celsius, 90 Knots TAS.  
Sea level consumption rate, which is \_\_\_\_\_.  
8000 feet consumption rate, which is \_\_\_\_\_.
- 9. After completing the emergency procedure for Hydraulic Power Failure and proceeding to a landing area that will permit a run-on landing your co-pilot makes the statement that he is going to attempt to trouble-shoot the hydraulic system by returning the hydraulic switch to the on position. Are you going to allow the co-pilot to do this? \_\_\_\_\_. Explain your answer.

## PERFORMANCE PLANNING

1. Based on PA 8000 ft. and Temp 20 degrees your maximum torque available is 90%. While attempting to clear a barrier on takeoff you apply 96% torque.
  - a. Has an over torque occurred?
  - b. What TOT range would you expect?
  - c. Are you time limited in this TOT range?
  - d. What is your max airspeed at this torque?
2. If you have reached 104% torque and maintained this torque for eight seconds. What limits have been exceeded, if any?
3. Your performance planning shows a predicted hover of 64% torque at a weight of 2840 pounds. You perform a hover check and confirm the expected performance. During your mission you land and load a 230-lb. passenger. Before departing you should perform  
a \_\_\_\_\_
4. After performing the hover power check in #3 above, you note that the hover torque is now within 7% of the max torque available. What type of takeoff are you authorized to perform?
5. While performing a two-foot hover check, you note that the indicated hover torque is 88%. MAX Torque available is 100%. Is there sufficient power available to perform a simulated maximum performance takeoff? Explain.

### FM 3-04.203

1. What are the names of the three autorotative regions in forward flight?

TD-41

### VFR MINIMUMS / AR 95-1

1. State the minimum weather an ARMY AVIATOR must have under the following conditions: Daylight, in Class G airspace, at or below 1200 feet AGL, in a helicopter.
2. State the minimum weather an ARMY AVIATOR must have under the following conditions: Night, in Class G, at or below 1200 feet AGL, in a helicopter.
3. State the minimum weather an ARMY AVIATOR must have under the following conditions: Day, in Class E airspace, at any altitude above 1200 AGL, but less than 10,000 feet MSL, in a helicopter.
4. State the minimum weather an ARMY AVIATOR must have under the following conditions: Day, Class G airspace, at any altitude above 1200 feet AGL, but less than 10,000 feet MSL, in a helicopter.
5. What is the cloud clearance requirement when operating SVFR in class D airspace?

## VFR Sectional

1. The floor of Class E airspace begins above \_\_\_\_\_ feet AGL when depicted on the VFR sectional by the magenta vignette (fading).
2. Areas not tinted by the magenta vignette indicate controlled airspace above \_\_\_\_\_ feet AGL.
3. What are the cloud clearance and visibility requirements for an Army helicopter pilot flying at 500 AGL in an area shaded magenta?
4. What are the cloud clearance and visibility requirements for a helicopter pilot flying at 1400 AGL in an area shaded magenta?
5. What are the cloud clearance and visibility requirements for a helicopter pilot while operating under VFR in Class D airspace?
6. While in day conditions, flying under VFR at 3500 AGL in Class E Airspace enroute, you note that the in-flight visibility will soon deteriorate to less than 3 statute miles. What action, if any, must you take in order to continue VFR?

**NOTE: Use the New Orleans Sectional to answer the following questions.**

7. What class airspace does the blue segmented line that surrounds Dothan Airport depict?
8. What is the vertical limit of the airspace surrounding Dothan Airport?
9. Is two-way radio communications required to penetrate the blue segmented airspace surrounding Dothan Airport while operating under VFR?
10. What are the cloud clearance requirements for an ARMY Pilot flying within the blue segmented boundaries of the airspace surrounding Dothan Airport?
11. Is two way radio communication required when flying in the Class E airspace arrival extension at Dothan Airport (depicted by a magenta segmented line)?
12. When is two way radio communication required while flying in this airspace?
13. A Terminal Radar Service Area (TRSA) is depicted on the VFR sectional by: \_\_\_\_\_
14. Is it MANDATORY to contact ATC prior to penetrating the airspace within the TRSA?
15. What equipment, if any, is REQUIRED to fly through a TRSA, excluding any Class D airspace?

## OPERATOR'S SUPPLEMENT

1. The maximum \_\_\_\_\_ airspeed will yield the best fuel economy in terms of miles per gallon?

2. You are flying in visible moisture with an outside air temperature of 3 degrees. What systems will you turn on other than the pitot heater?
3. Will the use of these systems affect your performance planning? Explain.
4. Does use of anti-ice and heater affect power required to hover at a given weight? Explain.

TD-42

### VFR SECTIONAL

1. Class C airspace is depicted on the VFR sectional by: \_\_\_\_\_
2. What are the dimensions of Class C airspace?
3. Is it MANDATORY to contact ATC prior to penetrating Class C airspace?
4. What equipment, if any, is REQUIRED to operate in the Class C airspace?
5. Class B airspace is depicted on the VFR sectional by: \_\_\_\_\_
6. What equipment, if any, is REQUIRED to operate within the boundaries of Class B Airspace VFR?
7. If the mode C of your transponder is inoperative prior to your entry into Class B airspace, can you still get permission from ATC to enter? (How much notice ahead of time must you request a deviation from the Mode C requirement?)
8. What is the difference between a restricted area and a warning area?
9. What type of activity may be expected within the boundaries of a restricted area?
10. What do the large blue numbers located in the center of each block of latitude and longitude signify?
11. What is the name of the airport located at 31 degrees, 18 minutes, 31 seconds North latitude and 86 degrees, 23 minutes, 38 seconds West longitude? (New Orleans - North Sectional)  
\_\_\_\_\_
12. Using the New Orleans sectional, determine the following information regarding the airport in #17 above:
  - a. What is the field elevation?
  - b. What kind of lighting is available?
  - c. Is the runway paved?
  - d. How long is the runway?
  - e. Is a control tower located at that facility?
  - f. What frequency would you use to communicate?
  - g. Are services available?

**FM 3-04.301**

1. List three Somatogyral Illusions that may be encountered in flight.
2. List three Somatogavic Illusions that may be encountered in flight.
3. To prevent spatial disorientation, aviators should:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
4. If spatial disorientation occurs, aviators should:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

TD-43

**REGULATIONS, PUBLICATIONS, PROCEDURES**

1. What are the pilot's responsibilities in regard to DD form 365-4 as stated in AR 95-1.
2. At USAAWC, form 365-4 expires \_\_\_\_\_ days after the date of computation.
3. An aircraft whose center of gravity may readily be exceeded in a normal loading configuration is classified as a class \_\_\_\_\_ aircraft.
4. What is the weight and balance classification of the TH-67?

**OPERATOR'S SUPPLEMENT**

1. Items during preflight for the landing gear are: \_\_\_\_\_
2. Items during preflight for Hydraulic servos and flight controls (Fuselage – Cabin Right Side) are:
3. Transmission oil level during preflight should be: \_\_\_\_\_
4. What is the function of the bleed air control valve?
5. The bleed air control valve is closed by bleed air pressure, and is spring loaded to the open position. Therefore, the valve must be in the \_\_\_\_\_ position when the engine is not running.
6. What antennas are located on the fuselage top of the VFR TH-67?
7. List the gauges that are "wet" line indicators.

8. What is the WARNING listed during preflight Tailboom – Right Side?

9. What is the CAUTION listed during preflight Fuselage – Top?

10. During preflight, the Pilot Walk Around consists of:

**FM 3-04.301**

1. Extended flight at high altitude without supplemental oxygen causes \_\_\_\_\_ hypoxia.

2. The only consistent effect of hypoxia in the indifferent stage is a reduction in \_\_\_\_\_.

3. List the three types of fatigue.

4. Which type of fatigue may take several weeks of rest to recover from?

5. List the self-imposed stresses

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

7. Chronic fatigue untreated for too long is referred to as \_\_\_\_\_ also known as burnout.

**TD-44**

**FM 3-04.203**

1. Rotational relative wind, as modified by \_\_\_\_\_ equals the resultant relative wind.

2. Induced Drag is the result of \_\_\_\_\_.

3. Parasitic Drag is \_\_\_\_\_.

4. Profile drag is defined as \_\_\_\_\_.

5. The center of pressure is that point along the chord line through which \_\_\_\_\_

6. Angle of incidence is the angle between the chord line and the \_\_\_\_\_

7. Angle of attack is the angle between the chord line and the \_\_\_\_\_

8. When passing through ETL on takeoff, the nose of the helicopter tends to pitch up and roll right. What factors cause this tendency?

9. When accelerating from a stationary hover into forward flight the helicopter vibrates and develops a right rolling motion. What causes this?

10. How does the MAIN ROTOR compensate for dissymmetry of lift?

12. How does the TAIL ROTOR compensate for dissymmetry of lift?

13. (Circle the correct answer) The advancing main rotor blade flaps up. TRUE / FALSE

14. What conditions must exist for settling with power to occur?

16. What methods can be combined to recover from settling with power? Which is the preferred method?

17. Vortex Ring State can be completely avoided by descending on flight paths shallower than about \_\_\_\_\_ degrees at any speed.

18. Rotor efficiency is increased by ground effect to a height of about \_\_\_\_\_ rotor diameter.

19. Gyroscopic precession causes an applied force to take effect \_\_\_\_\_ degrees later in the \_\_\_\_\_.

20. Human factors considered in the prevention of dynamic rollover include: \_\_\_\_\_

#### **FM 3-04.301**

1. List the four types of hypoxia.

2. List the four stages of hypoxia.

3. Consumption of alcohol causes \_\_\_\_\_ hypoxia.

4. Smoking causes \_\_\_\_\_ hypoxia.

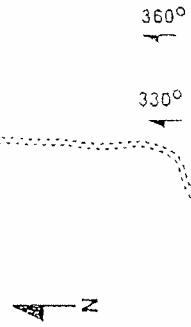
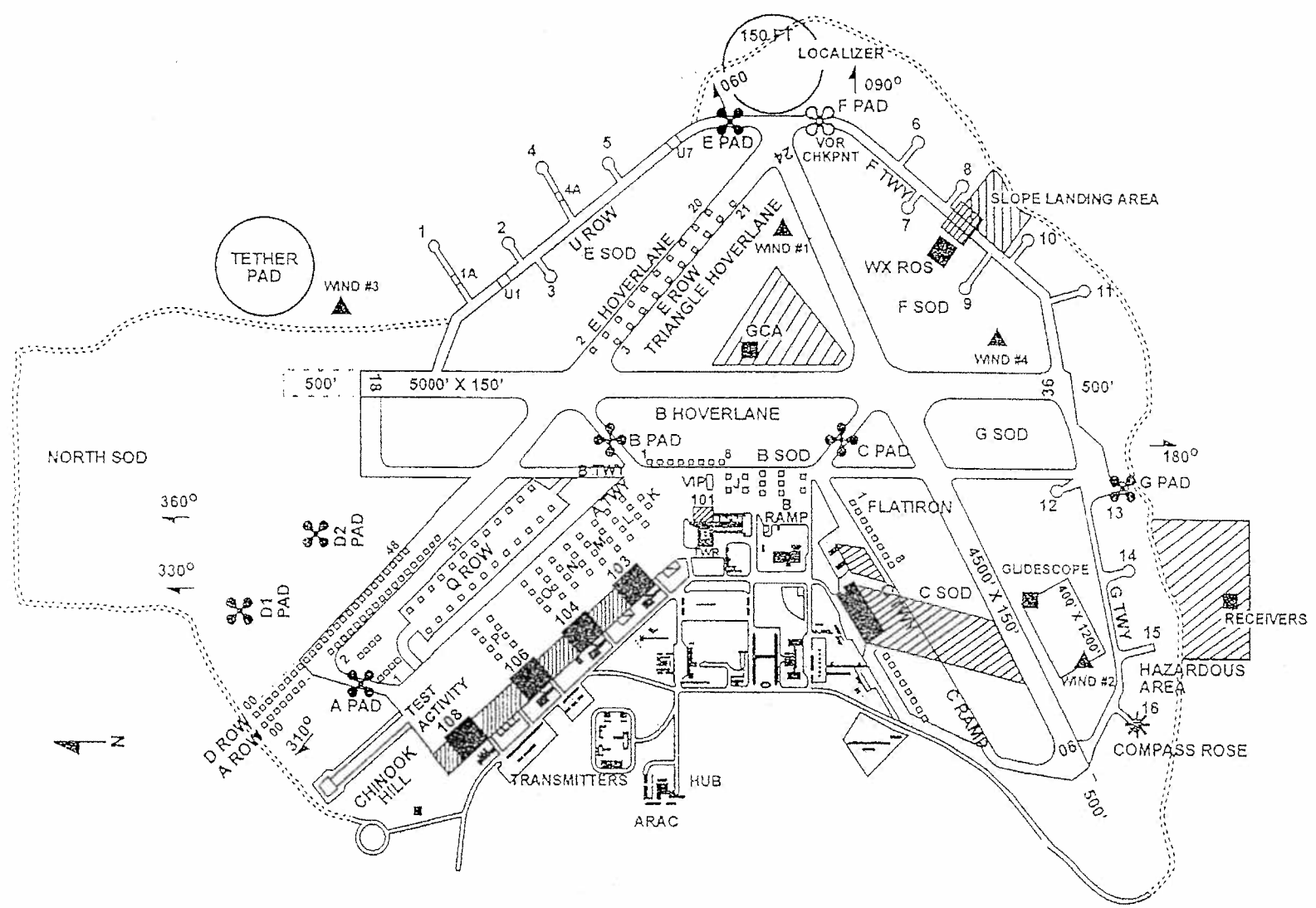
5. You feel pressure in your ears during a climb. You should attempt to relieve the pressure by \_\_\_\_\_

6. Define Spatial Disorientation \_\_\_\_\_

7. An aircrew member who donates 200 cc or more of blood will be restricted from flying duty for a period of \_\_\_\_\_ hours.

# ANNEX

## A



FIELD ELEVATION  
301'

: NOT TO SCALE

TRAFFIC PATTERNS  
 ROTARY WING - 1000  
 FIXED WING - 1800  
 OVERHEAD - 2300

○ VOR

## Guide to interpret the Fort Rucker T.V. Weather

Note: The user should understand that there is no absolute criterion for this report. The weather people use the format they feel will best serve Army Aviation and the student aviators at Fort Rucker.

Start here >      **KOZR**                      **METAR**                      **23/1555Z**  
                                 **04010G18KT**

**SCT 020 BKN 080 OVC 100**                      **10SM**  
                                 **18(64F)/06**  
                                 **ALSTG 30.09**  
                                 **PA +142**                                      **DA +647**  
                                 **RMK WND DATA ESTMD**

**56/WW**  
                                 **FCST PM**                      **Max 25C**                      **Max +300**                      **FL010 32020KTS**  
                                 **PERIOD**                      **TEMP**                      **PA**                      **WIND**

Oral briefing “Flow” is left to right, top to bottom:

“Cairns METAR report 1555 Zulu, wind 040 at 10 gust 18 knots, visibility 10 statute miles, clouds scattered at 2000, broken at 8000 and overcast at 10000, temperature 18 degrees Celsius (64 degrees Fahrenheit), dew point 6 degrees Celsius, altimeter setting 30.09, Pressure Altitude plus 142, Density Altitude plus 647, remarks wind data estimated, maximum temperature 25 degrees Celsius, maximum Pressure Altitude plus 300, forecast wind at 1000 feet is 320 at 20 knots”

### Explanation of T.V. weather:

**KOZR** = ICAO Identifier

**METAR** = METAR-hourly or SPECI-special (when needed)

**23/1555Z** = Issuance time: ALL times in UTC "**Zulu**", 2-digit date / 4-digit time

**04010G18KT** = Wind 3 digit true-north direction, nearest 10 degrees (or **Variable**); next 2-3 digits for speed (**Knots**), **Gust** and Maximum speed 10G18, 00000KT for calm, if direction varies 60 degrees or more, **Variability** added, (180V260)

**10SM** = Prevailing visibility in United States measured in Statute Miles & fractions (Below 7SM, will list reason for obstruction to visibility)

**RVR** = Distance in hundreds of feet that is measured or expected to be seen by the pilot down a designated instrument approach runway.

**R06VR/18FG** = Runway visual range is 1800 feet, the restriction to visibility is due to fog. M indicates and observed RVR value is below minimum value system can measure, P indicates and observed RVR value is above maximum value system can measure.

**SCT 020 BKN 080 OVC 100** = Cloud amounts (See Cloud data listed below, A-4)

**18(64F)/06** = Outside air Temperature, first 2 digits degrees in **Celsius**, second in “( )” is **Fahrenheit** temperature. Temperature after “/” is **dew-point**, **Minus** for temperatures below Zero (e.g., M06)

**ALSTG 30.09** = Altimeter setting indicated with 4 digits, measured in inches and hundredths

**PA +142** = **Pressure Altitude (PA)** in feet above or below the Standard Datum Plane (can be a negative figure)

**DA +647** = **Density Altitude (DA)** is **Pressure Altitude (PA)** corrected for non-standard temperature (can be a negative number)

**RMK WND DATA ESTMD** = Wind Data Estimated (measuring equipment not calibrated)

**56/WW** = Time weather observer posted report (minutes after the hour) and his/her initials.

**FCST PM** = Forecast period either **AM** or **PM** PERIOD

**Max 25C** = Maximum temperature forecast for training period (**AM** or **PM**)  
TEMP

**Max +300** = Maximum pressure altitude forecast for training period (**AM** or **PM**)  
PA

**FL WINDS** = Forecast wind at 1000 feet AGL (**AM** or **PM**)

**Intensity/Proximity**

- Light
- Moderate (no sign)
- + Heavy
- VC Vicinity

**Descriptor**

- MI Shallow
- BL Blowing
- PR Partial
- SH Showers
- BC Patches
- TS Thunderstorm
- DR Low Drifting
- FZ Freezing

**Precipitation**

- DZ Drizzle
- IC Ice Crystals
- RA Rain
- PE Ice Pellets
- SN Snow
- GR Hail
- SG Snow Grains
- GS Snow Pellets/Small Hail
- UP Unknown Precipitation

**Obscuration**

- BR Mist
- FG Fog
- FU Smoke
- VA Volcanic Ash
- DU Dust
- SA Sand
- HZ Haze
- PY Spray

**Other**

- PO Dust/Sand Whirls
- SQ Squalls
- FC Funnel Cloud or Tornado
- SS Sandstorm

## CLOUDS

---

Clouds are coded from the surface upward with coverage and a height for each cloud layer. Cloud heights are specified by a 3-digit number that is the height of the cloud above the surface in hundreds of feet - for example 080 indicates a cloud level 8000 feet above the surface, 006 indicates a cloud level 600 feet above the surface.

Cloud coverage's are specified as one of the following:

CLR = No clouds below 12000 feet at an **automated station**

SKC = No clouds at a **manned station (type we have at Cairns AAF)**

FEW = Cloud layer covering less than 2/8 of the sky

SCT = Cloud layer covering between 2/8 and 4/8 of the sky

BKN = Cloud layer covering between 4/8 and 7/8 of the sky

OVC = Cloud layer covering entire sky

VV = Clouds or weather phenomena at the surface is obscuring the sky from view. In this case, the height specified is the height that the observer can see upward into the obstruction.

