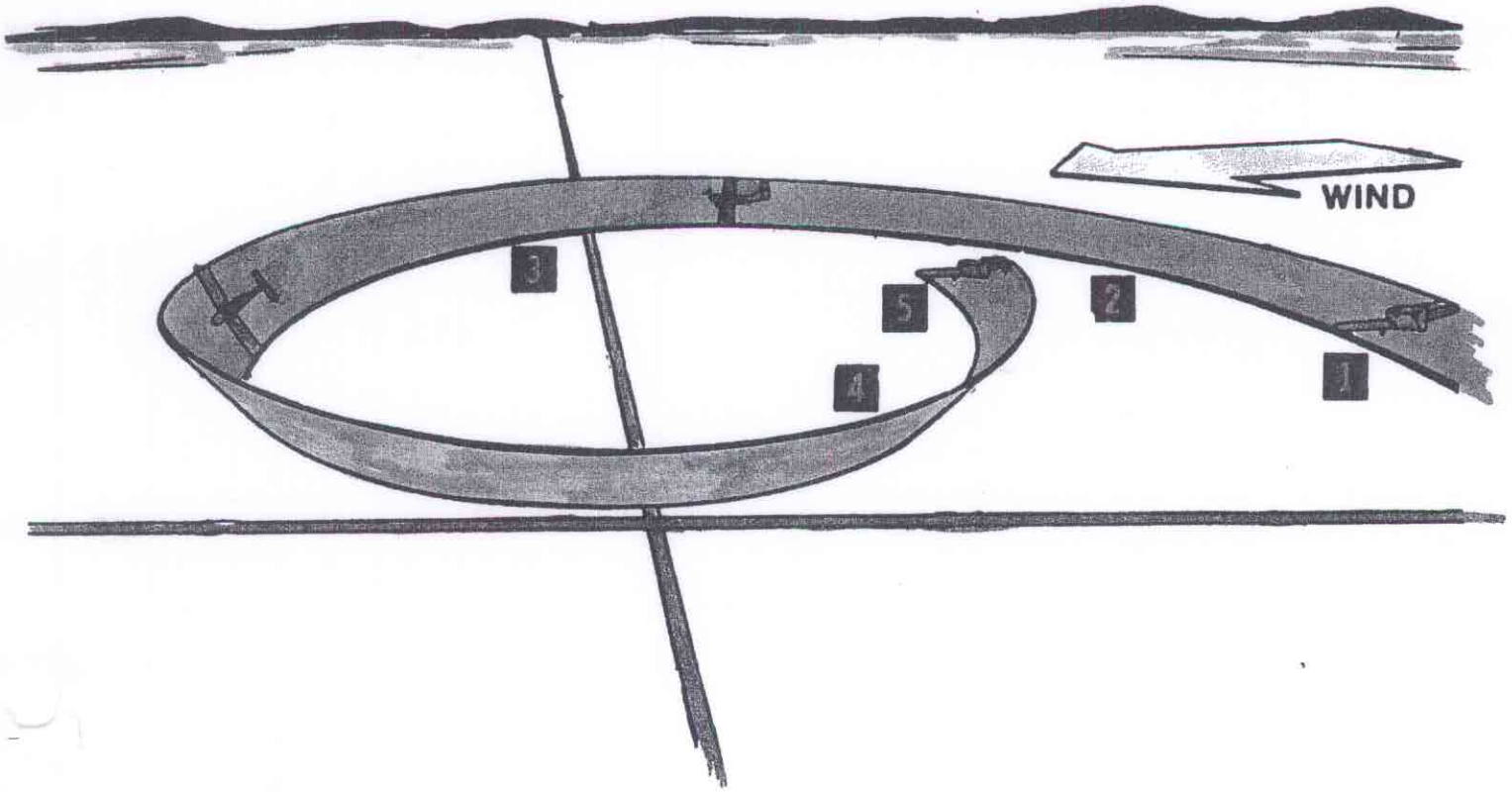
WIND DRIFT CIRCLE Altitude _____ Airspeed _____

NTRY: Pick point or intersection, enter abeam

1. Bank angle — As desired
2. Turn — Begin abeam reference
3. Bank angle — Maintain constant for full circle
4. On roll-out — Note direction of drift from reference point
5. Wind direction — Blowing across reference in drift direction

DON'T FORGET TO CLEAR!



LESSON RECTANGULAR PATTERN STUDENT DATE

OBJECTIVE

★ TO DEVELOP ONE'S SKILL IN PLANNING & FOLLOWING A PATTERN OVER THE GROUND COMPENSATING FOR WIND DRIFT AT VARYING ANGLES

ELEMENTS

★ ALTITUDE .
DETERMINING - WIND DIRECTION
ENTRY - DOWN WIND
CRABBING & CORRECTION
BANK ANGLE & STARTING TURNS

FTH 134

SCHEDULE

★

PRE-FLIGHT DISCUSSION	:20
INSTRUCTOR DEMO	:15
STUDENT PRACTICE	:25
POST-FLIGHT	:10
TOTAL	1:10

INSTRUCTOR'S ACTIONS

★ ORAL DESCRIPTION OF ELEMENTS & COMMON ERRORS:

1. HOW TO SELECT A SUITABLE ALTITUDE
2. HOW TO SELECT A SUITABLE GROUND REFERENCE WITH CONSIDERATION GIVEN TO EMERGENCY LANDING AREAS
3. ORIENTATION, DIVISION OF ATTENTION, AND PLANNING
4. CONFIGURATION AND AIRSPEED PRIOR TO ENTRY
5. RELATIONSHIP OF A RECTANGULAR COURSE TO AN AIRPORT TRAFFIC PATTERN
6. WIND DRIFT CORRECTION
7. HOW TO MAINTAIN DESIRED ALT, A/S, AND DISTANCE FROM GROUND REFERENCE BOUNDARIES
8. TIMING OF TURN ENTRIES AND ROLLOUTS
9. COORDINATION OF FLIGHT CONTROLS
10. INSTRUCTOR DEMO

STUDENTS'S ACTIONS

★ DISCUSS QUESTIONS, LISTEN, AND TAKE NOTES

COMPLETION STANDARDS

★ ONE SHOULD DEMONSTRATE THE ABILITY IN MAINTAINING ORIENTATION

A/S +/- 10 Kts
ALT +/- 100 ft.
HDG +/- 10° IN MAKING NECESSARY CORRECTIONS FOR WIND DRIFT
BANK - AVOID MORE THAN 45°

COMMON ERRORS

★ FAILURE - TO MAINTAIN DESIRED TRACK AND TO STOP TURNS ON NECESSARY HDG, TO MAINTAIN ALT OR A/S; SELECTION OF A GROUND REFERENCE WHERE THERE IS NO SUITABLE EMERGENCY LDG AREA W/IN GLIDING DISTANCE

Both Directons.

Is a Practice Maneuver Keeping = Distance from All Sides of a Rectangular Area, Like a Field, While Holding Altitude & Airspeed Constant.

LATTER ADD Climb & Decent TO SIM PATTERN.

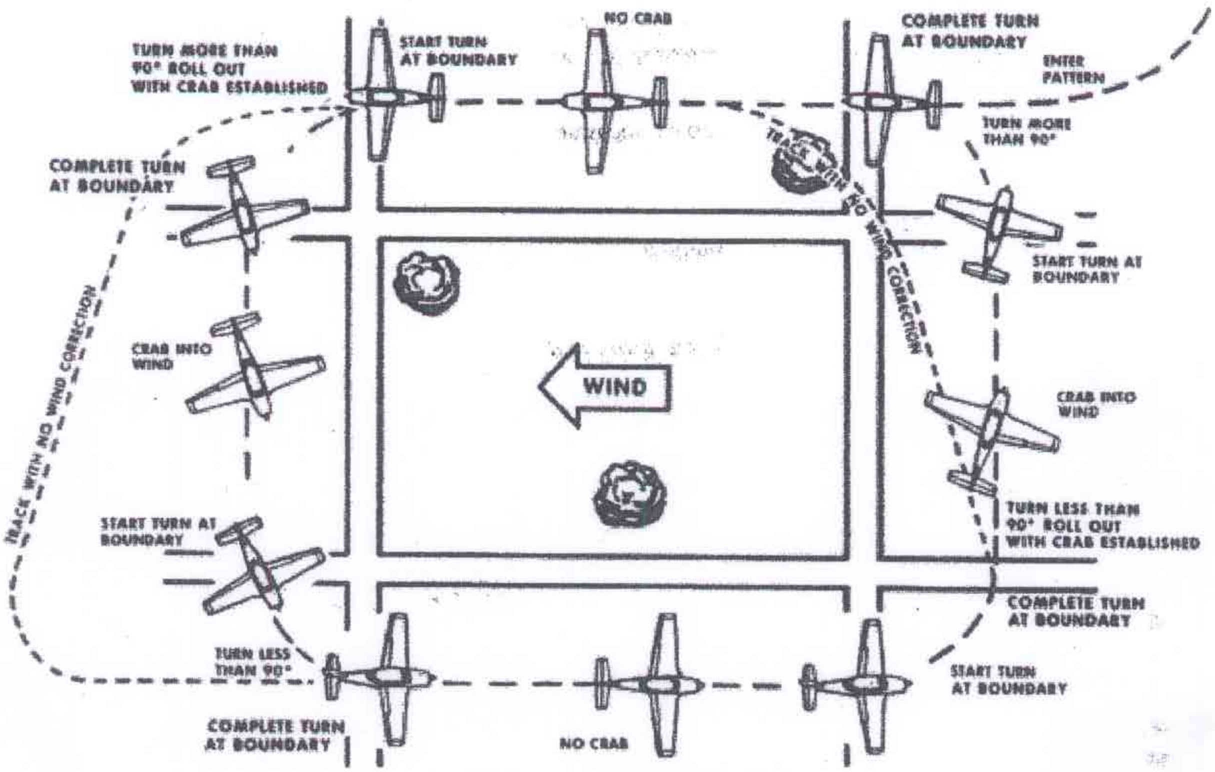


Figure 11-4 Rectangular Course

Why : To develop Coordination Btwn Flt Controls & Gnd. Ref. Pt.; Division of Attention Btwn the Flt Path & Gnd. Ref. Pt. While Watching for Traffic; And to Recognize & Correct for Wind Drift

How To Do It:

PTS

±100 ft

±10 kts

1. Point:
   Not in a Congested Area, Easy to Identify
   Emergency LDG Area, Pick out visual Ref. Points.
2. Altitude:
   600 ~~1,000' AGL~~ 1,000' AGL
3. Set Up: 18 2400 120 mph
   Clearing Turns, ~~Speed 90 knots~~, A-GUMPS
4. Wind:
   Trees, Smoke, ATIS, Water, Wind-Drift Circle.
5. Entry:
   Begin Down-Wind ABEAM a ¼ - ½ mi. Away From Ref. Pt.
6. Remember:
   Faster GS => Steeper the Bank And The Slower GS => Shallower the Bank.

7. Finally:
   a. Scan for Traffic
   b. Keep Altitude Constant
   c. Stay Coordinated

…d START by Banking the A/C in a Bank Steep Enough To Get To The Next Point. (a) What Happens to the GS & Why: (b) What If's

Cross to upwind - med bank — Up to cross - Shallow to med / less than 90°

decrease & shallow, cross to down wind - Increase & steeper more than 90°

less than 90° Down to Cross - Decrease to med - more than 90°

LESSON TURNS AROUND A POINT **STUDENT** _____ **DATE** _____

OBJECTIVE

TO DEVELOP THE ABILITY TO SUB-CONSCIOUSLY CONTROL THE A/C WHILE DIVIDING ATTENTION BETWEEN THE FLT PATH AND THE GROUND REFERENCE POINT &WATCHING FOR TRAFFIC.

ELEMENTS

PLANNING
COORDINATION
AIRSPEED
ALTITUDE
VARYING BANK TO CONTROL RADII OF A TURN

SCHEDULE

Pre-flight discussion	**:20**
Instructor's Demo	**:15**
Student Practice	**:25**
Post-flight discussion	**:15**
Total Time	**1:15**

EQUIPMENT

HANDOUT AND MODEL AIRPLANE, FTH 137

INSTRUCTOR'S ACTION

ORAL DESCRIPTION OF THE ELEMENTS & COMMON ERRORS:

1. **How to select a suitable altitude.**
2. **How to select a suitable ground reference point with consideration given to emergency landing areas.**
3. **Orientation, division of attention, and planning.**
4. **Configuration and airspeed prior to entry.**
5. **Entry technique.**
6. **Wind drift correction.** 1 Crab.
7. **How to maintain desired altitude, airspeed, and distance from reference point.**
8. **Coordination of flight controls.** Slip & Skid.
9. **Instructor's Demo.**

STUDENT'S ACTION

DISCUSS QUESTIONS, LISTEN, AND TAKE NOTES

COMPLETION STANDARDS

ONE SHOULD MAINTAIN ORIENTATION BETWEEN THE AIRPLANES CONTROL AND GROUND-TRACK, AND MAINTAINS COORDINATED FLIGHT WHILE CORRECTING FOR WIND-DRIFT, AND ADJUSTS POWER TO MAINTAIN AIRSPEED.
ALT +/- 100' **A/S +/- 10 knots**

Is a Circling Maneuver of 2 / more Complete Circles Keeping = Distance fm. a Gnd. Ref. Pt. Using a B/A of ≈ 45 ° While Maintaing a Constant Alt.

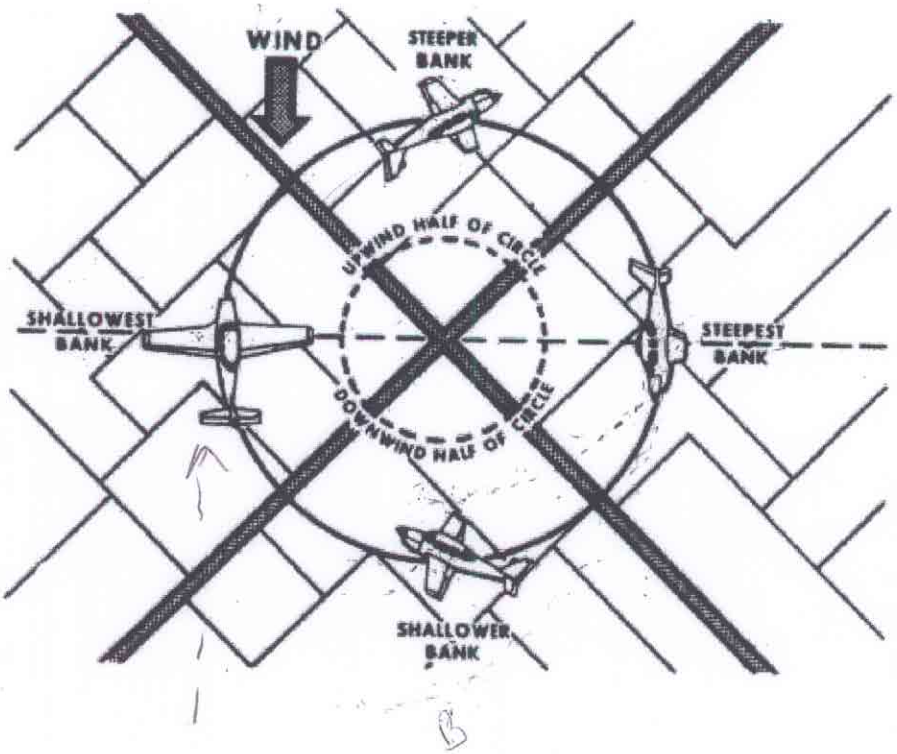


Figure 11–6 Turns Around a Point

PTS
+/ 100 FL
+/ 10 kts

Why : To develop Coordination Btwn Flt Controls & Gnd. Ref. Pt.; Division of Attention Btwn the Flt Path & Gnd. Ref. Pt. While Watching for Traffic; And to Recognize & Correct for Wind Drift Slipping / Skidding Errors

How To Do It:

1. Point:
   Not in a Congested Area, Easy to Identify
   Emergency LDG Area, Pick out visual Ref. Points.
2. Altitude:
   600 - 1,000' AGL
3. Set Up: 18 2400 120
   Clearing Turns, ~~Speed 90 knots~~, A-GUMPS
4. Wind:
   Trees, Smoke, ATIS, Water, Wind-Drift Circle.
5. Entry:
   Begin Down-Wind ABEAM a ½ mi. Away From Ref. Pt.
6. Remember:
   Faster GS => Steeper the Bank And The Slower GS => Shallower the Bank.
7. Finally:
   a. Scan for Traffic
   b. Keep Altitude Constant
   c. Stay Coordinated

Will START by Banking the A/C in a Bank Steep Enough To Get To The Next Point. (a) What Happens to the GS & Why: (b) What If's

LESSON S - TURNS STUDENT DATE

OBJECTIVE

★ TO DEVELOP THE STUDENTS SKILL IN PLANNING & FOLLOWING A PATTERN OVER A ROAD OR LINE COMPENSATING FOR WIND DRIFT AT VARYING ANGLES OF BANK.

ELEMENTS

★ ALTITUDE CONTROL
DETERMINING WIND DIRECTION
SELECTING SUITABLE SITE
CRABBING & CORRECTION
BANK ANGLE

IFTH 136

SCHEDULE

★

PREFLIGHT DISCUSSION	=>	:10
DEMONSTRATION INSTRUCTOR	=>	:20
STUDENT PRACTICE	=>	:25
POST FLIGHT CRITIQUE	=>	:10
TOTAL TIME	=>	1:05

INSTRUCTOR'S ACTIONS

★ ORAL DESCRIPTION OF ELEMENTS & COMMON ERRORS:

1. HOW TO SELECT A SUITABLE ALTITUDE
2. HOW TO SELECT A SUITABLE GROUND REFERENCE LINE WITH CONSIDERATION GIVEN TO EMERGENCY LDG AREAS.
3. ORIENTATION, DIVISION OF ATTENTION, AND PLANNING
4. CONFIGURATION AND AIRSPEED PRIOR TO ENTRY
5. ENTRY TECH.
6. WIND DRIFT CORRECTION
7. TRACKING OF SEMICIRCLES OF EQUAL RADII ON EITHER SIDE OF THE SELECTED GROUND REFERENCE LINE
8. HOW TO MAINTAIN DESIRED ALT AND A/S
9. TURN REVERSAL OVER THE GROUND REF. LINE
10. COORDINATION OF FLIGHT CONTROLS
11. INSTRUCTOR DEMO

STUDENTS'S ACTIONS

★ DISCUSS QUESTIONS, LISTEN, AND TAKE NOTES

COMPLETION STANDARDS

★ ONE SHOULD MAINTAIN ORIENTATION BETWEEN THE AIRPLANES CONTROL AND GROUND TRACK AND MAINTAINS COORDINATED FLIGHT

PRIVATE LIMITATIONS:
* ALT +/- 100 FEET
* A/S +/- 10 kts

COMMON ERRORS

★ DISORIENTATION, POOR PLANNING, FAULTLY COORDINATION, FAILURE TO MAINTAIN ALT & A/S INADEQUATE COMPENSATION FOR WIND EFFECT

Is a Series of Semicircles Keeping = Distance / Radii on Each Side of a Straight Line, Holding Altitude Constant.

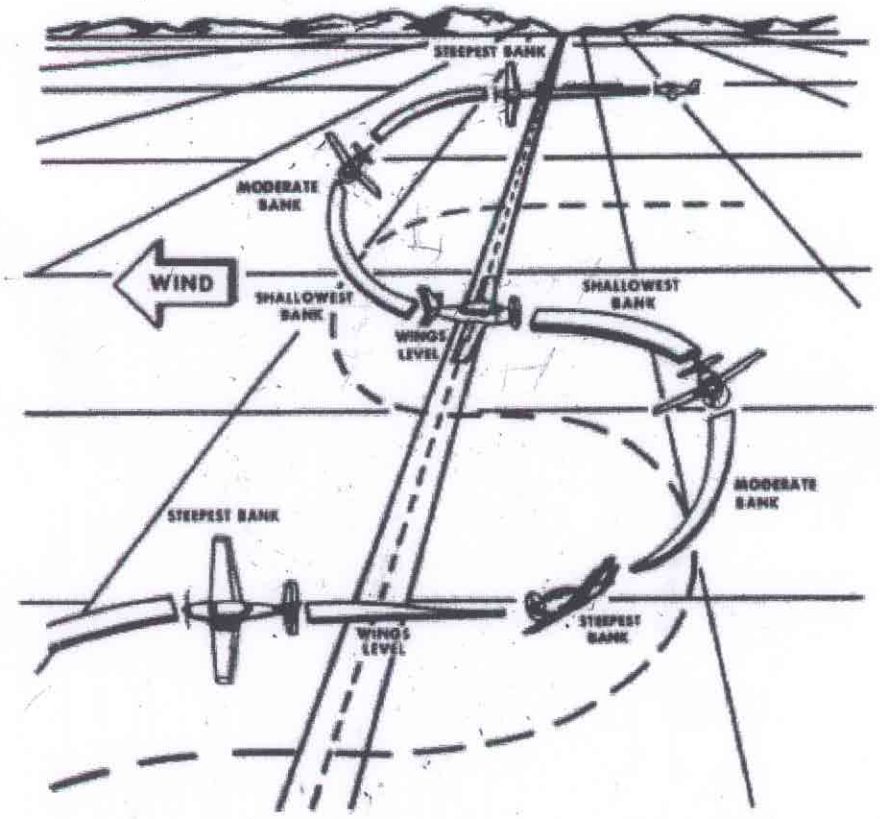


Figure 11-5 "S"-Turns Across a Road

Why : To develop Coordination Btwn Flt Controls & Gnd. Ref. Pt.; Division of Attention Btwn the Flt Path & Gnd. Ref. Pt. While Watching for Traffic; And to Recognize & Correct for Wind Drift

How To Do It:

PTS

Enter 600-1000 AGL

maintain ±100ft ±10 kts

1. Wind:
   Trees, Smoke, ATIS, Water, Wind-Drift Circle.
2. Point
   Not in a Congested Area, Easy to Identify
   Emergency LDG Area, Pick out visual Ref. Points.
3. Altitude:
   600- 1,000' AGL
4. Set Up: 18 2400 120mph
   Clearing Turns, ~~Speed 90 knots~~, A-GUMPS
5. Entry:
   Begin Down-Wind ABEAM The ROAD.
6. Remember:
   Faster GS => Steeper the Bank And The Slower GS => Shallower the Bank.

7. Finally:
   a. Scan for Traffic
   b. Keep Altitude Constant
   c. Stay Coordinated

Will START by Banking the A/C in a Bank Steep Enough To Get To The Next Point. (a) What Happens to the GS & Why: (b) What If's

What If's - ① wings level 84 rd. - shallow at too quickly, tail will skid even

must judge ground speed because → ② Wings level after rd. - to steep, shallow at too slowly

LESSON EIGHTS ON-PYLONS STUDENT DATE

OBJECTIVE

★ TO DEVELOP ONE'S FEEL FOR VARYING CONTROL FORCES, AND THE ABILITY TO PLAN AND REMAIN ORIENTED WHILE MANEUVERING THE PLANE WITH POSITIVE, ACCURATE CONTROL. IT REQUIRES CONSTANTLY CHANGING CONTROL PRESSURES NECESSITATED BY CHANGING COMBINATIONS OF CLIMBING AND DESCENDING TURNS AT VARYING A/S. THIS MANEUVER IS OFTEN USED TO DEVELOP AND DEMONSTRATE THE PILOT'S MASTERY OF THE PLANE IN MAXIMUM PERFORMANCE FLIGHT SITUATIONS.

ELEMENTS

★ PIVOTAL ALT
CLEARING AREA
ENTRY
SELECTING PYLONS
AIRCRAFT CONFIGURATION
ADJUSTING PIVOTAL ALT

INSTRUCTOR'S ACTIONS

★ ORAL DESCRIPTION OF ELEMENTS & COMMON ERRORS:

1. HOW TO DETERMINE THE APPROXIMATE PIVOTAL ALTITUDE.

FORMULA: PIVOTAL ALTITUDE = $\frac{\text{GROUND SPEED(knots)}^2}{15}$ TAS A/S $(\text{mph})^2$ -> IN POH 11.3

RULE OF THUMB FOR PIVOTAL ALT: 90 Kts X 6 = 540'
100 Kts X 7 = 700' 110 Kts X 8 = 880'

2. HOW TO SELECT SUITABLE PYLONS WITH CONSIDERATION GIVEN TO EMERGENCY LDG AREAS
3. ORIENTATION, DIVISION OF ATTENTION, AND PLANNING
4. CONFIGURATION AND A/S PRIOR TO ENTRY
5. RELATIONSHIP OF GROUNDSPEED CHANGE TO THE PERFORMANCE OF THE MANEUVER
6. PILOT'S "LINE-OF-SIGHT" REFERENCE TO THE PYLON
7. ENTRY TECHNIQUE
8. TECH. FOR MAINTAINING "LINE-OF-SIGHT" ON THE PYLON
9. TIMING OF TURN ENTRIES AND ROLLOUTS
10. HOW TO CORRECT FOR WIND DRIFT BETWEEN PYLONS
11. COORDINATION OF FLIGHT CONTROLS
12. INSTRUCTOR DEMO

STUDENTS'S ACTIONS

★ LISTEN, TAKE NOTES, AND ASK QUESTIONS

COMPLETION STANDARDS

★ HOLDS PYLON USING APPROPRIATE PIVOTAL ALT AVOIDS SLIPS & SKIDS THROUGHOUT THE MANEUVER MAINTAINS COORDINATED FLIGHT THROUGHOUT THE MANEUVER SELECTS SUITABLE PYLON THAT WILL PERMIT; APPROXIMATELY 3-5 sec. OF STRAIGHT AND LEVEL FLIGHT BETWEEN THE PYLONS
DOES NOT EXCEED MAX. BANK OF 40° AT STEEPEST POINT

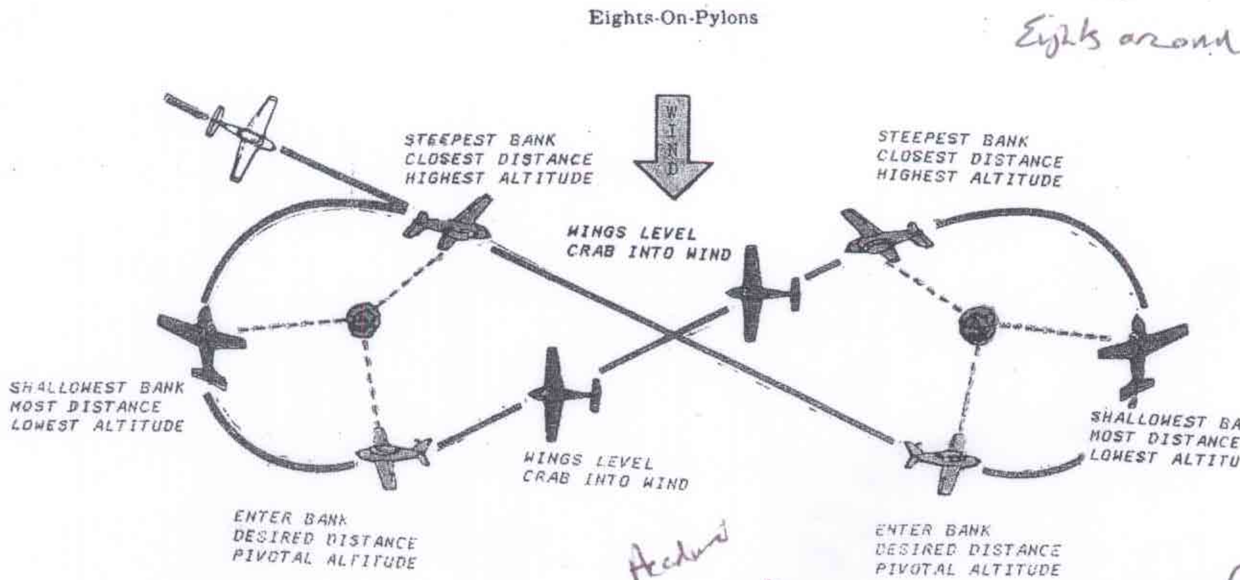
COMMON ERRORS

★ UNCOORDINATED FLIGHT - IMPROPER USE OF RUDDER & DIST. BETWEEN PYLONS AND ADJUSTING PIVOTAL ALT TOO RAPIDLY ALSO FIXATING ON PYLONS NOT SCANNING FOR TRAFFIC

EIGHTS ON PYLONS

Is a Figure "8" flown around "2" Gnd Ref. Points Keeping the wing tip constantly aligned with each Gnd Ref. Point.

Eights on ← Same distance
vs
Eights around ← Don't care about distance



Accelerate to crosswind to downwind

PTS
- enters appropriate altitude / airspeed
- Bank Ltd 30°-40°
- applies correction so pivotal reference line remains on pylon

Why : To develop Orientation, Division of Attention, and Planning and Coordination, and Correct for wind Drift.

w to do it:

1. Wind:
   Trees, Smoke, ATIS, Water, Wind-Drift Circle.

2. Point:
   Not in a Congested Area, Emergency LDG Area,
   Pick 2 visual Ref. Pt. Approx. ½ mile Apart.

   Pre maneuver ✓ list

3. Speed:
   90 knots. / 120 mph — 18'/2400'/120'

4. Altitude:
   Pivotal Altitude Def: marked altitude which wing tips pivots around ground reference pt
   Using TAS A/S $(mph)^2 / 15$ -> [redacted]
   Using G S $(knots)^2 / 11.3$

5. Setup: 18 2400 120mph
   Clearing Turns, ~~Speed 90~~ kts, A-GUMPS.

   → Based on ground speed
   Pivotal Altitude
   GS ↑ PA ↑
   GS ↓ PA ↓
   (fixed throttle setting)

6. Entry:
   Begin Down-Wind ABEAM Ref. Point

7. Remember:
   KEEP Pylons 3 - 5 seconds apart
   If wing is BEHIND ref. Point, then DESCEND because your high / slow
   If wing is AHEAD of ref. Point, then CLIMB because your low / fast

8. Finally:
   Scan for Traffic.
   Stay Coordinated.

Start by Banking the A/C in a Bank Steep enough to get to the next point. (a) What Happens to the GS & Why: (b) What If's
Note - Try 30-40° First.

Obj: get wing on that 1st point again