



APS EMERGENCY MANEUVER TRAINING

Training Mission Exercises

URT 1: Upset Recovery Training

WARM UP AND NEW WORK

- 1 **Dutch Roll Demonstration** (*Show adverse yaw from ailerons*)
 - 80 kts, idle, lock rudders in place, roll back & forth showing adverse yaw
 - 80 kts, idle, roll back & forth about a point using coord rudder
- 2 **Climbs & Descents**
- 3 **Steep Turns** (*Proper Bank, Back Pressure & Power to keep level turn*) *Emphasize G-load required*
 - 45 ° Bank 360 ° Turn Left (1.4 G's)
 - 60 ° Bank 360 ° Turn Right (2 G's)
- 4 **Slow Flight** (@ 70 kts. Pitch to control A/S. Power to control Altitude – approx 13 in M.P. Rt Rudder to ctr ball)
- 5 **Standard Stalls** (**Push, Power, Rudder, Roll, Climb**)
Emphasize “Say & Do” recoveries
 - **Power Off** (*Look over nose, and at wingtip to see AOA*)
 - **Power On** (*About 20 in. MP. & 20° AOB*)
 - **Secondary Stalls**
- 6 **Full Stall Exercise (Falling Leaf)** *Emphasize lateral instability & required rudder & then AOA recovery*
- 7 **Zoom Maneuver (Flight Below 1G Stall Speed)** – *Note A/S well below Vs but not stalled. Emphasize continuous light-G push*
- 8 **Aerobatics**
 - **11: Aileron Roll** (*Push before rolling – very important*)
 - **12: Loop** (*Feel for G's, Where to Look for Horizon*)
 - **13: Inverted Flight** (*Note Push to fight trim*)

URT 2: Upset Recovery Training

REVIEW

- 1 **Practice 1 X Power Off Stall** *Emphasize “Say & Do” (Look over nose, and at wingtip to see AOA)*

NEW WORK

- 2 **Roll Damping Demonstration** (*Show differ betw Positive & Negative Roll Damping*)
 - **Level cruise**, Bump Stick, notice roll stops (Pos)
 - **Hold in Power-Off stall**, pop rudder, notice roll continues until break AOA (Neg)

Stalls (**Push, Power, Rudder, Roll, Climb**)

- 3 **Steep Turns to Accelerated Stalls** (90 kts, cruise pwr, 60-70 AOB level)
- 4 **Proper Slipping Technique** (80 kt idle pwr descent)
Emphasize ball should be to low wing
 - **Forward slip**
 - **Sideslip**
- 5 **Slipping Turn Stall** 80 kt idle pwr descent in a turn or straight ahead entry) *Emphasize “Say & Do” recovery*
- 6 **Skidding Turn Stall** (*Idle pwr, 80 kts turning base to final Push inside rudder & note ball to high wing*) *Emphasize “Say & Do” recovery. No Split-S on recovery!*
- 7 **Aerobatics**
 - **Split S** (100 kts, idle, roll & pull, note alt lost)
 - **Cuban 8** (std, emphasize push and roll)

DEMONSTRATION

- 8 **Power-Off Approach Demo**
 - **Overhead profile** *emphasizing High Key, Low Key, Final Key*
 - **Departure profile** *but too low to return to runway*



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URT 3: Upset Recovery Training

REVIEW (Push, Power, Rudder, Roll, Climb)

- 1 Stalls (One or two each) *Emphasize Say & Do recoveries*
 - Slipping Turn Stall (*Idle pwr, 80 kts*)
 - Skidding Turn Tfc Ptn (*Idle pwr, 80 kts turning base to final*)

NEW WORK (Push, Power, Rudder, Roll, Climb)

- 2 Overbank to Spiral Dive – (*120 kts, 60° 2G steep turn, increase bank 10 degrees without pulling*)
- 3 Unusual Attitudes *Emphasize Say & Do recoveries*
 - Overbank Nose Low (*demo then do X2*)
 - Nose High (*demo X2, then do X2, easy to difficult*)
 - Random High/Low Eyes Open & Closed
- 4 Wake Turbulence Recoveries Surprise them! Say & Do
 - Approach Profile (*100 kt snap roll to inverted*)
 - Departure Profile (*100 kt snap roll & hold rudder until they recover*)
- 5 Control Loss Recoveries (Push, Power, Rudder, Roll, Climb)
 - Rudder – *120 kts, feed full rudder, turn with aileron, note slipping condition*
 - Aileron – *120 kts, guard aileron and prevent turn, use rudder for rolling, note slipping condition*
 - Elevator – *120 kts, use power for pitch control*

AEROBATICS

- 6 Hammerhead (*std, emphasize vertical zero G, no stall*)
Emphasize correlation of rudder usage in the recovery stage of the hammerhead to both Stall and Spin Recoveries
- 7 Cuban-8 (*std, emphasize push and roll*)

ON RTB

- 8 Power Off Approach (*Look for airspd cntl, coord turns, and using High Key / Low Key*)

OTHER PRACTICE (Time Permitting)

- 9 Aerobatics (Loop, Roll, Cuban-8, Hammerhead)

SPIN 1: Spin Recovery Training

REVIEW (Push, Power, Rudder, Roll, Climb)

- 1 Stalls (One each) *Emphasize Say & Do recoveries*
 - Slipping Turn Stall (*Idle pwr, 80 kts*)
 - Skidded Turn Stall (*Idle pwr, 80 kts turning base to final*)
- 2 Unusual Attitude Review
 - Various *Emphasize Say & Do recoveries*
 - Nose Low, Over Bank Nose Low
 - Nose High, Over Bank Nose High
 - Wake Turbulence Upset

NEW WORK

- 3 Incipient Spin Entries – (Push, Power, Rudder, Roll, Climb) *Emphasize proper push to stop negative roll damping*
 - Slipping Turn Stall
(*Same entry but hold controls in stall for $\frac{3}{4}$ turn then call recover*)
 - Skidded Turn Stall
(*Same entry but hold controls in stall for $\frac{3}{4}$ turn then call recover*)
- 4 Normal Upright Spin Entries – (Power, Aileron, Rudder, Elevator, Rudder, Elevator)
 - Left Spin (*Demo then x2. Idle pwr, stick and rudder at first stall indication*) *Emphasize Say & Do PARE recovery*
 - Right Spin (*x2*) *Emphasize determining spin direction and Say & Do PARE recovery*
 - Stall/Spin Differences Demo (*Enter steady spin then let go of controls. Note spin continues unlike stall.*) *Emphasize importance of proper spin recovery.*

OTHER PRACTICE (Time Permitting)

- 5 Aerobatics (Loop, Roll, Hammerhead, Cuban-8)



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Training Mission Exercises

SPIN 2: Spin Recovery Training

REVIEW

- 1 Unusual Attitude Recovery Review
 - Nose High / Over Bank Nose Low
 - Wake Turbulence Setup
- 2 Stall -
 - Skidding Turn Stall (*Idle pwr, 80 kts on downwind, 30° bank base turn, Note ball to high wing*)
Emphasize “Say & Do” recovery. No Split-S on recovery!
- 3 Incipient Spin Entry –
 - Slipping Turn Stall (*Same entry but hold controls in stall for ¾ turn then call recover*)
- 4 Normal Upright Spin Entries
 - 1 x Left (*Idle pwr, stick and rudder at first stall indication*) Emphasize Say & Do PARE

NEW WORK

- 5 Aggravated Upright Spin Entries
 - Left Upright Spin Demo (*Once in spin, show effects of pwr, ailerons, elevator*) Emphasize PARE
- 6 Normal Inverted Spin Entries
 - Left or Right Demo (*80 kts roll inverted and push until stall then full rudder*) Emphasize PARE recovery & determining spin direction
 - Left or Right Entry Emphasize Say & Do PARE
- 7 Inadvertent / Unintentional Spin Entries:
 - Slip or Skid Trn Stall to a Spin
 - Hammerhead to Upright Spin
 - Hammerhead to Inverted Spin
 - Slip or Skid Trn Stall to Inverted Spin

IRT 1: Instrument Recovery Training

1 BASICS

- Climbs & Descents
(Climb at Best Rate 105kts)
 - Steep Turns (*Bank, Back Pressure & Power for level turn*)
 - 45° Bank 360° Turn Left (*1.4 G's*)
 - 60° Bank 360° Turn Right (*2 G's*)
- Slow Flight
(@ 70 kts. Pitch to control A/S. Power to control Altitude – approx 13 in M.P. Rt Rudder to ctr ball)
- Basic Stalls
(Push – Power – Rudder – Roll – Climb)
 - Power Off (*Use AI only – not VFR*)
 - Power On (*About 20 in. MP. Right rudder to coordinate*)

2 ADVANCED AI USAGE

- Aerobatics
(Introduction to advanced AI usage)
 - Wing Over Exercise (*45-60 degrees of bank*)
 - Aileron Roll (*Unload before rolling, note nose drop*)
 - Loop Demo x2 (*Take foggles off to watch AI*)

3 ADVANCED STALLS

- (Push – Power – Rudder – Roll – Climb)
- Accelerated (*90 kts, full power*)
 - Slipping Turn Tfc Ptn (*Idle pwr, 80 kts on downwind, 30° bank base turn*)
 - Skidding Turn Tfc Ptn (*Idle pwr, 80 kts turning onto the localizer, 30° bank base turn*)

4 UNUSUAL ATTITUDES (Push Power Rudder Roll Climb)

- Overbank to a Spiral Dive) – (*120 kts, 60° 2G steep turn, increase bank 10 degrees*)
- Unusual Attitudes
 - Overbank Nose Low (*2 X easy to difficult*)
 - Nose Low (*2 X easy to difficult*)
 - Nose High (*2 X easy to difficult*)
 - Random High/Low
- Wake Turbulence Recoveries
(*100kts final, snap to inverted: Push – Power – Rudder – Roll - Climb*)