

PREPARED	NAME L. Pazmany	4-30-74	PAZMANY AIRCRAFT CORPORATION — SAN DIEGO — CALIFORNIA —	MODEL NO.	PL-1 PL-2
			OPERATING LIMITATIONS		

SPINS : THE NATIONALIST CHINESE AIR FORCE (TAIWAN) CONDUCTED EXTENSIVE SPIN TESTS WITH ONE OF THE 58 PL-1 AIRPLANES ALREADY BUILT AND IN SERVICE. THIS AIRPLANE WAS SPECIALLY INSTRUMENTED AND PREPARED FOR THESE TESTS INCLUDING THE INSTALLATION OF A SPIN CHUTE ATTACHED TO THE TAIL CONE.

TEST RESULTS : (Direct translation from Chinese Air Force Report) —

AFTER REVIEWING AND STUDYING THE TEST REPORT, WE FOUND THAT EVEN WITH REDUCED FUEL, REMOVED BALLAST, ADDED VENTRAL FIN TO ACHIEVE BETTER IYMP (INERTIAL YAWING MOMENT PARAMETER), C.G. AND TDPF (TAIL DAMPING POWER FACTOR); THE SPIN CHARACTERISTICS OF PL-1 (AND PL-2) STILL DIFFERS GREATLY FROM OTHER AIRPLANES FOR THE FOLLOWING REASONS :

- 1) — SPIN IS DIFFICULT TO ENTER: THE PILOT MUST ACHIEVE COMPLETE STALL AND MAINTAIN BACK PRESSURE ON THE CONTROL STICK IN THE DIRECTION OF SPIN, UNTIL AUTO-ROTATION OCCURRED. OTHERWISE, THE AIRPLANE WILL RECOVER FROM SPIN AUTOMATICALLY. AT PARTIAL STALL, OR WITH LESS THAN 1/4 FUEL IN WING TIP TANKS, THE SPIN BECOMES A SPIRAL DIVE, NOT REAL SPIN.
- 2) — PARTICULAR SPIN PATTERN: FIRST, IT IS QUITE SLOW AND STARTS WITH A SIDE SLIP. WHEN THE NOSE IS DOWN 75° TO THE GROUND, THE SPIN BEGINS. AT THE END OF 2nd TURN, THE DIVE ANGLE INCREASES. THE RATE OF ROTATION IS UP TO 360°/SEC. RADIUS IS ABOUT 1/2 WING SPAN. AT 3rd TURN, THE NOSE STARTS TO RISE, AND THE SPIN FLATTENS. AT 8th TURN, THE SPIN IS COMPLETELY FLAT. INDICATED AIR SPEED IS AS LOW AS 25 MPH. THE SPIN TURNS INTO A SLIGHT YAWING SIDE TURN (SIMILAR TO TURNS WITH EXCESS RUDDER). SPIN RATE IS REDUCED TO LESS THAN 180°/SEC. AT THE 9th TURN, THE ENGINE CAN STOP. DURING THE FLAT SPIN THE "g" LOADS ARE NOT UNCOMFORTABLE.

SPIN RECOVERY:

- 1) — PUSH CONTROL STICK FORWARD QUICKLY, AILERONS NEUTRAL, AND THEN NEUTRAL STABILATOR.
- 2) — CONVENTIONAL RECOVERY OF "FIRST RUDDER AGAINST SPIN AND THEN CONTROL STICK FORWARD" — CAN RECOVER FROM SPIN IN THE 1st TURN, WHEN THE NOSE IS STILL DOWN. AFTER 3 TURNS WHEN ENTERING A FLAT SPIN, THIS RECOVERY PROCEDURE WOULD ADVERSELY INCREASE THE RISE OF THE NOSE AND GO INTO A FLAT SPIN.
- 3) — TENDENCY TO GO INTO A FLAT SPIN COULD BE NOTICED BY THE INCREASE IN CONTROL STICK PRESSURE, TIMELY CORRECTION CAN LEAD TO RECOVERY. WHEN FLAT SPIN IS FULLY DEVELOPED, THE CONTROLS ALONE WILL NOT RECOVER FROM THE SPIN.

CONCLUSIONS AND SUGGESTIONS :

- 1) — PROHIBIT SPINS WITH THE PL-1 and PL-2
- 2) — BECAUSE IT IS DIFFICULT TO ENTER SPINS, WHEN THE FUEL QUANTITIES IN BOTH WING TANKS ARE SAME, THERE SHOULD BE NO FEAR OF STALLS OR ENTERING SPINS WHILE PERFORMING AEROBATICS.
- 3) — FROM EXPERIENCE, WHEN THE AIRCRAFT IS STALLED IN AN INVERTED POSITION, IT WILL AUTOMATICALLY TURN TO A NORMAL POSITION (POSITIVE "g" LOADS).
- 4) — WHEN A SPIN IS STARTED ACCIDENTALLY, THE PILOT SHOULD REDUCE POWER, RELEASE BACK PRESSURE IN THE CONTROL STICK AND WITH NEUTRAL STABILATOR, THE AIRPLANE WILL AUTOMATICALLY DIVE OUT OF THE SPIN.

NOTICE —

- 1) — WHEN ENTERING A SPIN FROM INVERTED POSITION, A SUDDEN PUSH OF THE CONTROL STICK COULD LEAD TO AN "OUTSIDE SPIN". THIS SHOULD NEVER BE DONE. THE CONTROL STICK SHOULD BE LET LOOSE AND THE AIRPLANE WILL RECOVER BY ITSELF.
- 2) — THE PL-1 RUDDER, DUE TO THE FRICTION OF THE NOSE GEAR, CAN NOT RETURN TO A CENTERED POSITION BY ITSELF. MUST USE FOOT PRESSURE TO CENTER IT.

WHEN CONTINUING SPIN, AND IF THE PILOT DOES NOT FEEL NEGATIVE "g" LOADS, SHOULD PUSH THE CONTROL STICK ALL THE WAY FORWARD AND MAINTAIN AILERONS AND RUDDER NEUTRAL. WHEN A DIVE IS REACHED AND THE SPINNING HAS STOPPED, PULL THE STICK GENTLY.

IF IT IS NOT POSSIBLE TO OBTAIN A DIVE, AND SPIN CONTINUES, AND IF ALTITUDE PERMITS, THE PILOT SHOULD KEEP TRYING THE PREVIOUS PROCEDURE. IT MAY REQUIRE 10 TURNS TO RECOVER FROM THE SPIN.

3000 ft. IS THE LOWEST HEIGHT FOR PARACHUTE JUMPING. AFTER ENTERING A DEVELOPED FLAT SPIN, AND WHEN THE CANOPY IS LOCKED IN THE OPEN POSITION, THERE IS NO PROBLEM OF PARACHUTING.

FUEL LEVEL IS NOT AN ABSOLUTE FACTOR, ALTHOUGH LOW FUEL CONDITION MAKES IT DIFFICULT TO ENTER A SPIN, SHOULD NOT BE TRIED. IF A SPIN HAS BEEN STARTED WITH FULL FUEL TANKS, THE AIRPLANE CAN BE RECOVERED IF CORRECTIVE MEASURES ARE APPLIED IN TIME.

ABOVE TEST RESULTS ARE NOW INCLUDED IN THE PILOT'S HANDBOOK.