HISTORY

FROM ANOTHER VIEWPOINT

JAN 8 1957  FIRST T-37 SPIN ACCIDENT

APRIL 1957  PHASE VIII TEST T-37A (PROJECT PALM) FOUND T-37 UNSATISFACTORY FOR TRAINING STUDENTS

AUG 1957  CESSNA TESTS NO. 368. TESTS TO DEFINE AGGRAVATED SPIN - INDICATED NEED FOR PREVENTIVE DEVICES.

OCT 1957  CESSNA TEST NO. 374. SPIN TESTS TO EVALUATE EFFECTS OF (1) FUEL UNBALANCE, (2) ENGINE RPM, (3) CONTROL POSITIONS. CESSNA TEST NO. 460. SPIN TEST TO DETERMINE EFFECT OF FUEL UNBALANCE ON AGGRAVATED SPIN.

DEC 1957  CESSNA TEST NO. 373. AGGRAVATED SPIN TESTS WITH 13 DIFFERENT SPIN STRAKES AND NOSE FINS
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>JAN 1958</td>
<td>CESSNA TEST NO. 375 ADDITIONAL TESTS WITH NUMEROUS SPIN PREVENTIVE DEVICES. NO DEVICE WAS FOUND ACCEPTABLE TO USAF.</td>
</tr>
<tr>
<td>OCT 1958 - APR 1959</td>
<td>ACCIDENT NO'S. 1, 2, AND 3</td>
</tr>
<tr>
<td>JUNE 1959</td>
<td>CAPT. DON P. HILL MADE A THOROUGH INVESTIGATION OF SPINS AND SPIN PROCEDURES. FLIGHT MANUAL ADEQUATE BUT CONSIDERED INSUFFICIENT IN DETAIL.</td>
</tr>
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<td>JULY 1959 - JAN 1961</td>
<td>ACCIDENT NO'S. 4 TO 10.</td>
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<td>JAN 1961</td>
<td>B/GEN HILGER (ATC) SENT LETTER TO AFLC REQUESTING T-37 BE MODIFIED TO IMPROVE SPIN CHARACTERISTICS OR SIMPLIFY SPIN RECOVERY PROCEDURE.</td>
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</table>
MARCH 1961  T-37 FLIGHT MANUAL CHANGED TO INCORPORATE CAPT. HILL'S FINDINGS

MAY/JUNE 1961  ACCIDENT NO'S. 11, 12, 13

JUNE 1961  SPIN CONFERENCE CALLED BY HQ ATC AND INCLUDED 26 INSTRUCTORS FROM SEVEN ATC BASES AND HQ ATC. PROGRAM TO CHECK OUT SPIN INSTRUCTORS AT EACH ATC BASE.

JULY 1961  ACCIDENT NO. 14

AUG 1961  SPIN QUALIFICATION PROGRAM - FOUR INSTRUCTORS AT EACH UPT BASE WERE SPIN QUALIFIED BY ATC STAN/EVAL.
OCT 1961  QUALITATIVE SPIN EVALUATION REQUESTED BY GEN HILGER
IN JAN 1961, WAS COMPLETED AT EAFB BY AFFTC - DEVELOPED
SINGLE SPIN RECOVERY FOR USE UNDER ANY SPIN CONDITION.

OCT 1961  MAJ. GEN MOONEY (ATC VICE COMMANDER) DISSATISFIED WITH
QUALITATIVE SPIN EVALUATION AND REQUESTED AFLC MODIFY
THE T-37 TO IMPROVE SPIN CHARACTERISTICS.

NOV 1961  B/GEN CULBERTSON (AFSC) VIGOROUSLY OPPOSED TO CHANGING
THE FLIGHT CHARACTERISTICS OF THE T-37 - SUPPORTED THE
SINGLE RECOVERY PROCEDURE.
DEC 1961  ATC REBUTTAL - MAJ. GEN. MOONEY STATED SINGLE RECOVERY PROCEDURE STILL TOO COMPLICATED FOR STUDENT IN PRIMARY TRAINING. REQUESTED ADDITIONAL TESTS FOR CONFIGURATION CHANGE AND/OR INSTALLATION OF SPIN CHUTE.

JAN 1962  AFSC REBUTTAL - B/GEN CULBERTSON COULD SEE NO REASON FOR PROPOSED CONFIGURATION CHANGE AND TURNED THE MATTER OVER TO MAJ. GEN. COOPER HQ AFSC.

JAN 1962  AFSC COMPARED CESSNA'S PROPOSED MANUAL CHANGE WITH AFFTC REPORT AND FOUND SEVERAL MISLEADING AND ERRONEOUS STATEMENTS.
<table>
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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>JAN 1962</td>
<td>ACCIDENT NO'S. 15, 16</td>
</tr>
<tr>
<td>JAN 1962</td>
<td>SYLLABUS CHANGE - STALL MANEUVERS PROHIBITED DURING STUDENT SOLO FLIGHTS.</td>
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<tr>
<td>FEB 1962</td>
<td>SAFETY SUPPLEMENT - CESSNA REVISED AND REWORDED</td>
</tr>
<tr>
<td></td>
<td>FLIGHT MANUAL TEXT ON SPIN CHARACTERISTICS AS</td>
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<td></td>
<td>A RESULT OF AFSC'S EVALUATION IN JAN 1962 AND</td>
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<td></td>
<td>ISSUED IT TO THE FIELD AS A SAFETY SUPPLEMENT</td>
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</tbody>
</table>
MARCH 1962 SPIN DEMONSTRATION RIDE BECAME PART OF INSTRUCTOR QUALIFICATION PROGRAM

MAY 1962 FLIGHT MANUAL CHANGE - SPIN INFORMATION AND SINGLE SPIN RECOVERY PROCEDURE CONTAINED IN THE SAFETY SUPPLEMENT INCORPORATED IN THE BASIC FLIGHT MANUAL.

MAY 1962 INVERTED SPIN INCIDENT - FOUR UNSUCCESSFUL RECOVERIES USING SINGLE SPIN RECOVERY PROCEDURE. RECOVERY MADE BY USING FULL ANTI SPIN RUDDER
JUNE 1962  SPIN SURVEY - MOST WINGS REPORTED NO DIFFICULTY WITH SINGLE RECOVERY PROCEDURE - ONE BASE REPORTED A PROBLEM WITH TWO INVERTED SPINS AND ONE ERECT ACCELERATED SPIN.

JULY 1962  SPIN INCIDENT - DIFFICULTY GETTING RECOVERY USING SINGLE RECOVERY PROCEDURE.

AUG 1962  SPIN ACCIDENT NO. 17 FROM INTENTIONAL ACCELERATED SPIN DEMONSTRATION.
AUG 1962 - 1965  SPIN ACCIDENT NO'S. 18, 19, 20, 21

AUG 1965  GEN. MOMYER DIRECTED DELETION OF INVERTED SPINS FROM THE SPIN QUALIFICATION PROGRAM AND UPT SYLLABUS.

AUG 1965  GEN. MOMYER REQUESTED FACTORS WHICH JUSTIFIED CONTINUATION OF SPIN TRAINING.
FACTORS SUPPLIED BY B/GEN LINDLEY (DSC/OPS) GENERAL MOMYER CONCURRED COMPLETELY

OCT 1965  SPIN ACCIDENT NO. 22
OCT 1965

NEED FOR INVERTED SPIN TRAINING RE-EVALUATED AT THE DIRECTION OF B/GEN LINDLEY (DCS/OPS).

COL. FORD (DIR FLY TNG) REAFFIRMED - NO REQUIREMENT.

JUNE 1966

NAVY SPIN SIMULATION PROGRAM WAS INVESTIGATED AND FOUND TO BE UNACCEPTABLE FOR PRIMARY STUDENT TRAINING.

JULY 1966

SPIN PREVENTION PROCEDURE EVALUATION - AFTER FLIGHT TESTS, NO CHANGES WERE RECOMMENDED TO THE SPIN PREVENTION PROCEDURES WITH REGARDS TO ENGINE ACCELERATION NOISE AND FLAME OUTS.
NOV 1966

SPIN PREVENTION PROCEDURE CHANGE BECAUSE OF SEVERAL ENGINE FLAME OUTS AS POWER WAS ADDED TO 100 PERCENT DURING SPIN PREVENTION.

NOV 1966

CHANGE IN MAXIMUM FUEL LOAD ALLOWED FOR PERFORMING INTENTIONAL SPINS.

AUG 1967, MAR 1968

ACCIDENT NO'S. 23 24

SEPT 1967

COMPREHENSIVE INVESTIGATION INTO PURPOSE OF SPIN STRAKES BY CAPT. LYDICK ATC/PIT INSTRUCTOR.
APRIL 1968

REESE AFB ACCIDENT INVESTIGATION BOARD RECOMMENDED THAT ATC ELIMINATE SPINS FROM STUDENT TRAINING AND MAKE THEM A DEMONSTRATION ONLY. TAC DID NOT CONCUR AND RECOMMENDED TO AIR FORCE THAT STUDENT PROFICIENCY IN NORMAL SPIN RECOVERIES BE RETAINED IN THE STUDENT TRAINING PROGRAM. AFIG AT NORTON ALSO RECOMMENDED A CONTINUATION OF SPIN TRAINING IN ATC
OCT 1968 - DEC 1969  
ACCIDENT NO'S. 25, 26, 27, 28 - ON ACCIDENT NO. 28, INSTRUCTOR WAS HOLDING PRO SPIN CONTROLS WHEN A/C CRASHED IN INVERTED SPIN.

DEC 1969  
ATC MESSAGE DIRECTED ALL T-37 PILOTS MUST RECEIVE SPIN DEMONSTRATION RIDE DURING THEIR INITIAL QUALIFICATION/REQUALIFICATION TRAINING.

DEC 1969  
ATC REQUESTED AFSC CONDUCT QUALITATIVE SPIN EVALUATION TO DETERMINE IF AIRFRAME, AVIONIC AND ENGINE MODIFICATIONS SINCE 1961 AFFECTED SPINS/ACCELERATED SPINS AS WELL AS SINGLE RECOVERY PROCEDURE.
MARCH/APRIL 1970  ACCIDENT NO'S. 29 AND 30
                BOTH SOLO STUDENTS

APRIL 1970  QUALITATIVE SPIN EVALUATION COMPLETED -
            RESULTS PUBLISHED

MAY 1970  SAFETY SUPPLEMENT -
           NEW SINGLE SPIN RECOVER PROCEDURE
           SPECIAL EMPHASIS ON CORRECTLY DETERMINING
           DIRECTION OF ROTATION

SEPT 1970  ATC STAN/EVAL NEWSLETTER EMPHASIZED USE OF
           TURN NEEDLE TO DETERMINE SPIN DIRECTION
1971

NO SPIN ACCIDENTS

JULY 1972

SPIN POLICY - ATC STAN/EVAL DISAPPROVES A REQUEST TO DELETE THE SPIN DEMONSTRATION RIDE FOR NEW INSTRUCTORS PRIOR TO FLYING WITH UPT STUDENTS.

AUG/DEC 1972

ACCIDENT NO'S 31 AND 32.

SEPT 1972

INCIDENT - INSTRUCTOR WAS UNABLE TO RECOVER AIRPLANE UNTIL CANOPY JETTISONED FOR EJECTION. AIRCRAFT LATER FLOWN BY ATC STAN/EVAL AND NO ABNORMAL SPIN CHARACTERISTICS WERE FOUND.
<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>DEC 1972</td>
<td>ATCM 51-4 CHANGE - SLOW FLIGHT PROHIBITED DURING SOLO STUDENT FLIGHT.</td>
</tr>
<tr>
<td>JAN 1973</td>
<td>HQ ATC/DOV SEMINAR - AIRCRAFT AND SPIN ACCIDENTS/INCIDENTS WERE DISCUSSED.</td>
</tr>
<tr>
<td>JAN 1973</td>
<td>REVIEW OF T-37 SPIN TRAINING PROGRAM - THE NEED FOR SPIN TRAINING WAS REVALIDATED.</td>
</tr>
<tr>
<td>APR 1973</td>
<td>FOUR LEARNING CENTER PROGRAMS INCORPORATED INTO SYLLABUS REQUIRED BY ALL IP'S AND T-37 STUDENTS PRIOR TO SOLO.</td>
</tr>
</tbody>
</table>
DEC 1973  A COMMAND SURVEY FOR PERIOD 1 JULY '73 TO
15 NOV '73 INDICATED NUMEROUS INADVERTENT SPINS
REINFORCING THE REQUIREMENT FOR A STRONG SPIN
PROGRAM.

APR 1975  BRIEFED GEN McKEE ON CURRENT SPIN PROGRAM. HE
EMPHATICALLY CONCURRED WITH THE PROGRAM AND
EMPHASIZED THE NEED TO CONTINUE THE TRAINING.

JULY 1982  FLIGHT MANUAL REVISION - FOURTH SPIN MODE,
INVERTED ACCELERATED.
SPIN CHARACTERISTICS INFLUENCE

- COST OF TESTING
- TRAINING SYLLABUS
- POOR SPIN CHARACTERISTICS - BAND AID FIXES
  CONTINUOUS TESTING
  FLIGHT MANUAL CHANGES
- CONFIDENCE IN AIRCRAFT
DURING DEVELOPMENT OF T-37

- ALL AVAILABLE TOOLS OF THAT DAY WERE USED
- TECHNOLOGY NOT AS ADVANCED AS TODAY
  - NO ROTARY BALANCE/SPIN PREDICTIONS
  - SIMULATION POOR 25 YEARS AGO