DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO 80% LOADS/G0959	B. FLIGHT NO/DATA POINTS 50/PER TIS	C. DATE 5 JAN 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8706/17.5	I. WEATHER 20SCT/40
J. TO TIME/SORTIE TIME 1055/0.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/12G16
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW MOSS/G+9	O. CHASE TO TIME/SORTIE TIME 1055

4. PURPOSE OF FLIGHT/TEST POINTS

INVERTED FUEL SYSTEM CHECKOUT
80% LOADS (INVERTED)

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:

Air abort due to instrumentation parameter 742 inoperative. No flight test data obtained.

On the ground, gusty wind conditions caused fluctuations in the #1 engine (RPM, EGT, fuel flow) which were elimated by selecting manual fuel control. The #2 engine, which has the MOD record 6 ECU, operated normally.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

LFETS FORM 245 PREVIOUS EDITION IS OBSOLETE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO 80% LOADS/G0966	B. FLIGHT NO/DATA POINTS 51/PER TIS	C. DATE 7 JAN 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8706/17.52	I. WEATHER 5SCT/25
J. TO TIME/SORTIE TIME 1200/0.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 320/02
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW MOSS/HERRING	O. CHASE TO TIME/SORTIE TIME 1200

4. PURPOSE OF FLIGHT/TEST POINTS

1. INVERTED FLIGHT SYSTEMS CHECK
2. 80% INVERTED LOADS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

1. The inverted systems checks were completed to a maximum of 13 seconds. The left engine started to roll back at that point. The left engine fuel pump inlet pressure (FPIP) dropped every time we went less than zero "G". The right engine (FPIP) only dropped momentarily, and then stayed normal.
2. During negative "G" push overs both engines started to roll back after 8-9 seconds of negative "G's".
3. In all cases of zero or negative "G's" the oil pressure dropped to zero and stayed at zero until positive "G's" were restored. The left oil pressure returned to normal almost immediately after positive "G". The right engine oil pressure was very slow to recover. The last time we went to negative "G" the right engine oil pressure stayed at zero, consequently, the engine was shut down after 48 seconds. A single engine landing was made.
4. The engine roll back is not connected to the FPIP according to preliminary results.
5. The right engine oil pump apparently cavitated under negative "G". It will be replaced.
6. Two data points for inverted flight loads were completed 15,000 ft 147 KIAS and 196 KIAS to approximately one negative "G".
7. The sensitive "G" meter which is a repeater or the meter at the A/C C.G. was approximately .5 "G" in error.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

ENGINEERING ADDENDUM TO FLIGHT 51 IFTR FOR AIRCRAFT 84-0493

By: 1LT Paul Gambacorta, T-46A Subsystems

RESULTS OF TEST:

1. A closer look of the negative g pushdown maneuvers on flight 51 indicates that the engines did not rollback, as originally assumed, but that the throttles were retarded during the recovery from the maneuver. However, there were no throttle or power lever angle parameters available on this flight to verify retarding the throttles. Therefore, the actual engine rollback which occurred during the 20 second negative g inverted flight test point was compared to the decrease in engine rpm during the pushdowns and indicated that the engines did not rollback during the pushdown maneuvers.

2. An actual rollback occurred on the left engine during an attempted 20 second inverted flight test. This left engine rollback is believed to be the result of a malfunctioning fuel tank boost pump. With the aircraft established in negative g flight, the left engine rollback started 12 seconds after the aircraft first obtained negative g's and 8 seconds after the left fuel pump inlet pressure dropped to 0 psi. This rollback was characterized by the core rpm dropping below idle (approx 50 percent). Therefore, an actual engine rollback would not occur until 12 seconds of negative g's and would be characterized by the engine rpm dropping below idle.

3. The engine characteristics during the pushdown maneuvers do not reflect the characteristics of the inverted flight rollback. Pushdowns were first conducted at 145 KIAS and no rollback characteristics were observed. The pushdowns conducted at 196 KIAS showed the drop in rpm during the recovery of the maneuver and after a return to positive g conditions. In addition, all recoveries were performed after the aircraft was in negative g's for less than 9 seconds and fuel pump inlet pressures of the left fuel feed system 0 psi for less than 6 seconds, whereas during the inverted flight the rollback did not occur until 12 seconds of negative g's and 8 seconds of 0 psi fuel pump inlet pressure. Finally, engine core rpm did not go below 65 percent during the pushdown recoveries as compared to an rpm drop below 50 percent for the inverted flight engine rollback.

4. In conclusion, when comparing the actual engine rollback experienced during the inverted tests with the rpm drop during the pushdown maneuvers, what was first interpreted as an engine rollback is actually a result of retarding the throttles during the recovery to remain within the current airspeed limits of the aircraft. No significant change in engine rpm during the recoveries of pushdowns at 145 KIAS indicates that retarding the throttles was not required to remain within airspeed limits at this test point. Finally, the pushdown recovery procedure of retarding the throttles was confirmed by the pilots.

RECOMMENDATION:

Provide the throttle position during flight tests. This can be obtained by instrumentation or through increased communication between the pilot and test conductor.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS GRD.1 TEST	C. DATE 8 JAN 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG	I. WEATHER
J. TO TIME/SORTIE TIME	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS
M. CHASE ACFT/SERIAL NO	N. CHASE CREW	O. CHASE TO TIME/SORTIE TIME

4. PURPOSE OF FLIGHT/TEST POINTS

MANUAL MODE GROUND STARTS AFTER DE-ENRICH SYSTEM INSTALLED

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

1. Both engines were started in auto mode. Both starts were normal using external electrical power.
2. Both engines were started in manual mode. Both starts were identical to the auto mode starts. The enrich botton was not required for either start.

6. RECOMMENDATIONS

Continue airstarts in manual mode to determine envelope.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS GRD.2 TEST	C. DATE 9 JAN 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS CALM/59 F
M. CHASE ACFT/SERIAL NO	N. CHASE CREW	O. CHASE TO TIME/SORTIE TIME

4. PURPOSE OF FLIGHT/TEST POINTS

THE PURPOSE OF THIS TEST WAS TO DEMONSTRATE SUCCESSFUL BATTERY START CAPABILITY WITH EXTERNAL ELECTRICAL POWER ASSIST. THE STARTING SYSTEM WAS MODIFIED SO THAT IGNITION NOW OCCURS BEFORE FUEL IN THE START SEQUENCE.
MAKE BATTERY STARTS UNTIL THE BATTERY GETS TOO WEAK TO START THE ENGINE. THE IGNITION BEFORE FUEL FCD WAS COMPLETED.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

1. A fully charged battery was used to start the test.
2. The GTEC torque measurement system was hooked up to the left engine plus normal engine instrumentation. All starts were on the left engine using the battery only.
3. 17 successful ground starts were made. The maximum ITT in all cases was 710 degrees to 715 degrees. The start times were initially between 30 and 35 seconds. Starting with the 12th start the time started to increase until the 17th start was 43 seconds. Five minutes was used between starts, consequently, all starter/generator temperatures were very low.
4. The 18th start was not successful. The light off was very smooth even though the rate of acceleration was very slow. In fact, all light off's were smooth partially due to the mod for ignition before fuel. The tail pipe was wiped out between starts to get rid of the drained fuel. This start resulted in a fast rise in ITT with low RPM, consequently, the engine was shut down at approximately 725 degrees and 20% core RPM.

6. RECOMMENDATIONS

Initiate battery starts on all T-46 aircraft.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G0971	B. FLIGHT NO/DATA POINTS 152/PER TIS	C. DATE 12 JAN 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SCHULZ	H. START UP GR WT/CG 8887/19.7	I. WEATHER 200SCT/85
J. TO TIME/SORTIE TIME 1500L/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW EDMONDSON/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1500L/1.3

4. PURPOSE OF FLIGHT/TEST POINTS
IOT&E/FLUTTER SYSTEM FUNCTIONAL

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:
Flutter system inoperative - that portion not accomplished.
Accelerated stall warning very subjective. Some airframe buffet noted prior to stall, but the exact onset point difficult to pin point. A slight vibration in the stick was noted just prior to actual stall, believed to be feedback from disturbed airflow over the elevator.

MAJ SCHULZ:
TAKEOFF - I attempted to rotate at 95 KIAS, but didn't get the nose up until 102 KIAS.
HEAVY WEIGHT PATTERNS & LANDINGS - Speedbrake configuration was 35 degrees on the sides and 43 degrees on top. Using side speedbrakes only on a three degree glide path at 110 KIAS (no flaps) required a low power setting. Using all three speedbrakes helped somewhat. During the simulated single engine overhead pattern (20 degree flaps, speedbrakes when landing was assured) it was difficult to slow from 130 KIAS to 110 KIAS on final due to lack of drag. Alternate gear extensions took a long time.
DEPARTURE - Climb to 11,500' was easy but climb rate was slow at higher altitudes (approximately 700 fpm above 20,000' MSL).
ACCELERATED STALLS - Performed at 11,500' MSL (200 KIAS) and 30,000' MSL (180 KIAS). The aircraft gave sufficient warning before the stall under these conditions. There was no "hitch" in stick movement during these maneuvers. (This is not the same aircraft the hitch was previously reported on).
AEROBATICS (200 KIAS + MIL POWER) - All aerobatics were done at approximately 27,000' MSL. Aileron rolls, lazy eights, and unusual attitude recoveries were easy to accomplish. I got very low on energy at the top of the barrel roll, and the chandelle. I doubt if they could be accomplished at this altitude with any lower entry airspeed or power setting.
LIGHT WEIGHT PATTERNS - Very similar to heavy weight patterns. On one pattern we broke three quarters of the way down the runway, started the alternate gear

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6. RECOMMENDATIONS

Reduce drag for cruise and area work. Increase it for pattern work.

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extension three fourths of the way through the break, and got safe gear indications as we arrived at the perch. The flaps did not provide any noticeable drag during patterns and landings. In general, the aircraft needs more drag in the pattern. During overhead (1,000' AGL), it was difficult to slow from 130 KIAS to 110 KIAS on final. During the normal overhead pattern (1,500' AGL), 3 speed-brakes out, 20 degree flaps), I could not slow to final approach airspeed until crossing the threshold.

SIMULATED SINGLE ENGINE GO AROUND - Military power arrested the descent with the gear down, three speedbrakes out and flaps up. Temperature was approximately 63 degree F.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AIRSTARTS/G0975	B. FLIGHT NO/DATA POINTS 153/PER TIS	C. DATE 13 JAN 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8883/19.7	I. WEATHER 20SCT/85
J. TO TIME/SORTIE TIME 1505/1.3 HRS	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 040/02
M. CHASE ACFT/SERIAL NO A37/310	N. CHASE CREW MAUER/RICHE	O. CHASE TO TIME/SORTIE TIME 1505/1.3 HRS

4. PURPOSE OF FLIGHT/TEST POINTS

MANUAL MODE ENGINE AIR STARTS WITHOUT FUEL ENRICHMENT

5. RESULTS OF TESTS *(Continue on reverse if needed)*

This was an extremely successful mission. Eleven successful air starts were made on the left engine and only one attempt at the highest altitude (25,000 ft) and lowest airspeed (110 KIAS) was unsuccessful. The following table is a summary of the test results:

ALTITUDE FEET	AIRSPEED KIAS	EFCU MODE	PEAK ITT DEG C	TIME SEC
10,000	200	AUTO	640	20
10,000	200	MANUAL	560	25
10,000	110	MANUAL	640	25
15,000	200	AUTO	620	25
15,000	200	MANUAL	620	24
15,000	110	MANUAL	640	25
20,000	150	AUTO	710	--
20,000	150	MANUAL	690	25
20,000	150	MANUAL	725	25
25,000	150	AUTO	700	30
25,000	150	MANUAL	777	25
*25,000	*110	*MANUAL	*780	*18

*ABORTED START

In the way of background, manual mode ECU starts in the past have resulted in over-temperature (T4.5) on start both on the ground and in the air. To correct this design fault, fuel enrichment was deactivated for this test but only in manual mode. Enrichment was still available in the AUTO mode. Ground starts in manual mode without enrichment appear to have a significantly lower (100 degree C) peak temperature. This could be a durability improvement and easily implemented by crew procedure. Even the lower altitude airstarts appear cooler without

(continued on next page)

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

enrichment but as altitude is increased the peak temperatures in manual mode (no enrichment) begin to match that of the auto mode (with enrichment).
The results of this test suggest that manual mode airstarts without enrichment should be implemented into production. Also the altitude envelope for doing manual mode starts without enrichment be limited to 20,000 feet. At 25,000 feet, the peak temperatures are so close to the maximum limit that operationally this altitude may not be useful. Although a manual mode start was successful at 150 KIAS and 25,000 feet, the peak temperature was only 4 degree C below the limit. At 110 KIAS and 25,000 feet, the peak temperature was aborted at 780 degree C because it appeared it might exceed the 781 degree limit.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR1/G0976	B. FLIGHT NO/DATA POINTS 154/PER TIS	C. DATE 14 JAN 87
D. FRONT COCKPIT (Left Seat) SCHULZ	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT (Right Seat) CLINCH	H. START UP GR WT/CG 8887/19.7	I. WEATHER 200SCT/85
J. TO TIME/SORTIE TIME 2236/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 030/01
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW SHAWLER/G+9	O. CHASE TO TIME/SORTIE TIME 2236/1.1

4. PURPOSE OF FLIGHT/TEST POINTS

TR-1

5. RESULTS OF TESTS (Continue on reverse if needed)

ENGINE START (BATTERY)

	LEFT	RIGHT
	32 SEC 705 DEG	23 SEC 670 DEG

TAKEOFF - I attempted to rotate at 90 KIAS. I was able to set and hold a pitch attitude, and the aircraft lifted off at approximately 100 KIAS.
HEAVY WEIGHT - SIMULATED SINGLE ENGINE GO AROUND - With one throttle at idle and one at military, three speedbrakes out (35 degree sides, 43 degree top), gear down and flaps up, the aircraft could maintain 110 KIAS and level flight, but would not climb. The OAT was 50 degree F.
ACCELERATED STALLS (180 KIAS, 3g) - At 17,000 feet we performed accelerated stalls in left and right turns. All stalls broke to the right. Stall warning was sufficient under these conditions on five out of six stalls, but on one stall to the left with a fairly rapid application of back pressure, there was almost no warning.
POWER ON STALLS - No stall warning. All stalls broke to the right, and recovery was easily accomplished, although on one recovery we experienced two secondary stalls. On subsequent recoveries I had to reference angle of attack to avoid this.
TRAFFIC PATTERN STALLS (Break, nose low final turn, nose high final turn, flare) - Except on the break stall, there was no stall warning. Stall recovery was not difficult, but these maneuvers are hard to evaluate due to lack of stall warning. Students are taught to initiate recovery at the first indication of a stall in this series.
AEROBATICS - Lazy eight, aileron roll, barrel roll, and chandelle were easy to perform between 16,000' MSL and 22,000' MSL using Military power and 220 KIAS for entry. Remaining in an Air Training Command area (simulated) was no problem. 95% core was also sufficient power for the lazy eight at this altitude.
RECOVERY - At 150 KIAS and 16,000' MSL, we performed an alternate gear extension, which required 49 seconds from the time I pulled the alternate gear extension

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6. RECOMMENDATIONS

Increase drag in the pattern, and decrease it in cruise and area work.

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handle. With this configuration (gear down, two side speedbrakes at 35 degree), 120 KIAS, and idle power, we saw an 1800 fpm rate of descent.

PATTERNS AND LANDINGS - I did not notice much difference between heavy weight and light weight patterns. In general, the aircraft handled well in the pattern, although lack of drag made it difficult to slow from 130 KIAS (final turn) to 110 KIAS (on final).

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DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER SYS CHECK/G0981	B. FLIGHT NO/DATA POINTS 155/PER TIS	C. DATE 16 JAN 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MINK	H. START UP GR WT/CG 8887/19.69	I. WEATHER 30SCT/25
J. TO TIME/SORTIE TIME 0942/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 100/05
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW SHAWLER/HERRING	O. CHASE TO TIME/SORTIE TIME 0942/1.8

4. PURPOSE OF FLIGHT/TEST POINTS

TR-1
FLUTTER SYSTEM CHECKOUT
ACCELERATED STALL WARNING INVESTIGATION

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:
Flutter system operation appeared satisfactory. Burst frequency typically stable within .10 to .15 Hz approximately 5-10 seconds into burst. Occasional deviations outside this range. System is capable of being operated single-pilot provided frequency stabilization is not degraded.
Several accelerated stalls accomplished, 3 to 4 g's, 180 to 220 KIAS, 11,500 to 26,000 ft Hp. A slight increse in airframe buffet prior to stall, but no indication of imminent stall occurence.
MAJ MINK:
1. During heavyweight simulated single engine pattern, full power was required to maintain 120 KIAS on downwind with gear extended.
2. Lower cockpit temperature was significantly lower than the rest of the cockpit during flight.
3. Gear handle in right cockpit would not raise the gear on several occasions.

6. RECOMMENDATIONS

Investigate proper distribution of environmental control air flow.
Stronger connection needed between gear handles.

COMPLETED BY	SIGNATURE	DATE

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DAILY/INITIAL FLIGHT TEST REPORT

1. AIRCRAFT TYPE	2. SERIAL NUMBER
T46	492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO ELEC LOADS/G0990	B. FLIGHT NO/DATA POINTS 157/PER TIS	C. DATE 21 JAN 87
D. FRONT COCKPIT *(Left Seat)* MOSS	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MANKE	H. START UP GR WT/CG 8776/19.7	I. WEATHER CLR/50
J. TO TIME/SORTIE TIME 1336/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

ELECTRICAL LOADS TEST

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:

The mission was flown as planned.

During the various phases of generator cycling and generator-out maneuvers, there were no anomalies noticeable to the pilots. However, when turning the right generator on, the left generator light would normally flicker several times before going out.

During the fuel low level test point, the fuel quantity indicated approximately 30 lbs short during rapid decelerations. Effect of pitch attitude was minimal.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

FORM 325 PREVIOUS EDITIONS OBSOLETE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO STALL WARNING/G0991	B. FLIGHT NO/DATA POINTS 52/PER TIS	C. DATE 21 JAN 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8711/17.5	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1005/1.2	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW RICHE/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1005/0.6

4. PURPOSE OF FLIGHT/TEST POINTS

STALL WARNING EVALUATION

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:
The 1 "G" stalls at 7500 feet were all completed at idle and PLF in all configurations; clean, gear, gear and flaps and PA.
The remainder of the card was not flown due to the chase aircraft abort.
The results showed the stick shaker to work properly, but the warning was much too early in all configurations, approximately 30 knots.
The intensity of the stick shaker may be too high depending upon how often it is activated. Controlling the aircraft with the stick shaker on is not a problem.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

AFFTC FORM MAR 84 365 PREVIOUS EDITION IS OBSOLETE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO STALL WARNING/G0993	B. FLIGHT NO/DATA POINTS 53/PER TIS	C. DATE 22 JAN 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MINK	H. START UP GR WT/CG 8731/17.26	I. WEATHER 120SCT/85
J. TO TIME/SORTIE TIME 1426/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 060/01
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW EDMONDSON/G+9	O. CHASE TO TIME/SORTIE TIME 1426/1.2

4. PURPOSE OF FLIGHT/TEST POINTS

STALL WARNING EVALUATION:

16 STALLS AT 7500 FT Hp, 30,000 FT Hp, 110 KIAS, IDLE/PLF

WIND UP TURNS AT 10,000 FT Hp, 200 KIAS, 150 KIAS, 125 KIAS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:

Artificial stall warning system never activated. Vane was moved to the full aft position for this flight. No "Hitch" observed at 30,000 ft Hp - corrective action was 1) move a cable bundle and 2) increase gap in the mechanism. Flight was uneventful.

MAJ MINK:

VOR voice volume was excessive with the VOR intercom volume knob turned all the way down.

At 28,000 - 30,000 ft environmental control would surge the cabin altitude from 15,000 to 13,000 ft whenever air was pumped into cockpiit to attain the selected temperature (auto mode).

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO ELEC LOADS/G0995	B. FLIGHT NO/DATA POINTS 159/PER TIS	C. DATE 23 JAN 87
D. FRONT COCKPIT (Left Seat) RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT (Right Seat) GAMBLE	H. START UP GR WT/CG 8885/19.7	I. WEATHER 50SCT/50
J. TO TIME/SORTIE TIME 0925/2.1	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 210/16G20
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

ELECTRICAL LOADS AT: 25,000 Ft Hp, 205 KIAS
37,000 Ft Hp, 115 KIAS
LOW LEVEL FUEL QUANTITY INVESTIGATION

5. RESULTS OF TESTS (Continue on reverse if needed)

MAJ RICHE:
All electrical loads tests complete. After sustained flight above 30,000 ft, it appeared that the aileron forces had increased noticeably. (115 KIAS, 37,000 ft, -45 to -47 deg C)
During first fuel quantity test point (120 KIAS, 10 deg dive for 10 sec, max power, then return to level flight) no fuel quantity fluctuations were observed. (Fuel approximately 220 lbs). During second test point (power approach configuration, idle power 15 deg dive for 10 seconds from 195 KIAS) a 75 lb decrease was observed. Quantity stabilized at 170 lbs during idle power descent, power approach configuration, 140 KIAS, 8.9 deg nose low. It did not change until braking on landing rollout, and reached a low of 120 lbs.
Automatic temperature controller (ECS) caused fluctuation in cabin altitude, plus/minus 1000', while attempting to maintain temperature. In the manual mode, airflow was steady - no fluctuations.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

AFFTC FORM MAR 84 365 PREVIOUS EDITION IS OBSOLETE

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DAILY/INITIAL FLIGHT TEST REPORT

1. AIRCRAFT TYPE	2. SERIAL NUMBER
T46	493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS	C. DATE
TR2/G1007	55/PER TIS	26 JAN 87
D. FRONT COCKPIT (Left Seat)	**E. FUEL LOAD**	**F. JON**
MINK	1240	2591A0
G. REAR COCKPIT (Right Seat)	**H. START UP GR WT/CG**	**I. WEATHER**
EDMONDSON	8705/17.57	120SCT/85
J. TO TIME/SORTIE TIME	**K. CONFIGURATION/LOADING**	**L. SURFACE CONDITIONS**
1241/0.5	PER TIS	010/03
M. CHASE ACFT/SERIAL NO	**N. CHASE CREW**	**O. CHASE TO TIME/SORTIE TIME**
N/A	N/A	N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TR-2 TRAINING FLIGHT FOR MAJ MINK

5. RESULTS OF TESTS *(Continue on reverse if needed)*

This mission was terminated early with an inflight emergency for hydraulic failure. After approximately 15 minutes of flight, the landing gear and flaps were lowered with normal indications. The speedbrakes were then extended, and the failure occurred. Cockpit indications were (in order of recognition): A master caution light blinking; a hydraulic pressure annunciator light; and both hydraulic pressure indicators heading for zero. The pressure bounced off zero and backed up to 500 or so before they started to flicker up and down. There was enough residual pressure to raise the speedbrakes and flaps. The pressure continued to jump above zero intermittently and rudder boost pressure could be felt to come on and off during the landing. Both engines were shut down immediately after stopping the aircraft at the end of the runway. Approximately 15 minutes of operating time was used on the engines following the failure until the engines were shut down. The cause of failure was determined to be a steel hydraulic tube that broke. This tube was a high pressure line, and it cracked in half underneath a swedge fitting at the exit side of the hydraulic flow transmitter. Although the in line transmitter is not production representative, this type swedge fitting on steel lines is common throughout the aircraft.

No training was accomplished.

A battery engine start was made, right engine first with the following results:

	LEFT	RIGHT
Time To Peak T4.5	47 Sec	29 Sec
Peak T4.5 (Deg C)	670	700

Both engine starts were accompanied by a loud retort or bang. These banging starts can't be good for the engines.

6. RECOMMENDATIONS

Investigate the cause of this fourth hydraulic failure in T-46A S/N 84-0493.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO STALL WARNING/G1011	B. FLIGHT NO/DATA POINTS 56/PER TIS	C. DATE 28 JAN 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* CLINCH	H. START UP GR WT/CG 8737/17.17	I. WEATHER 20SCT/50
J. TO TIME/SORTIE TIME 1442./1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 280/20
M. CHASE ACFT/SERIAL NO T33/83TB	N. CHASE CREW SHAWLER/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1442/1.5

4. PURPOSE OF FLIGHT/TEST POINTS

STALL WARNING EVALUATION

5. RESULTS OF TESTS *(Continue on reverse if needed)*

COL EDMONDSON:

Mission terminated early for right "engine hot" light. Conditions: 30,000 ft, 150 KIAS, MIL Power. Max temp seen in cockpit was 790 degrees. (Left engine at same time indicated 98% core, 97% FAN, 760 degrees PAL) At approximately 7000 ft right throttle was slowly readvanced to MIL and max temp seen was 760 degrees.

STALL TEST RESULTS: 7500 FT

	FLAPS	GEAR	S.B.	PWR	KIAS WARN	KIAS STALL	KIAS DELTA SPEED
Clean	0	Up	Ret	Idle	106	97	9
Clean	0	Up	Ret	PLF	105	96	9
T.O.	0	Down	Ret	Idle	104	96.5	7.5
T.O.	0	Down	Ret	PLF	103	95	8
G.A.	20	Down	Ret	Idle	99	92.5	6.5
G.A.	20	Down	Ret	PLF	98	93	5
APPR	20	Down	Ext	Idle	100	93	7
APPR	20	Down	Ext	PLF	99	92.5	6.5
			15,000 FT				
Clean	0	Up	Ret	Idle	104	98	6
Clean	0	Up	Ret	PLF	103	98	5
T.O.	0	Down	Ret	Idle	103.5	98	4.5
T.O.	0	Down	Ret	PLF	102	97	5
G.A.	20	Down	Ret	Idle	97	95	2
G.A.	20	Down	Ret	PLF	96.5	94	2.5
APPR	20	Down	Ext	Idle	98	96	2
APPR	20	Down	Ext	PLF	96	94	2

COL EDMONDSON'S COMMENTS:

It appears the stall warning with flaps up is possibly a little too much warning i.e comes on a little too early. With flaps down it looks pretty good.

(continued on next page)

6. RECOMMENDATIONS

1. Continue stall warning investigations.
2. Investigate methods of increasing warm air flow to cockpit floor.
3. Investigate reason for engine overtemp.

COMPLETED BY	SIGNATURE	DATE

COL CLINCH'S COMMENTS:

1. Stall warning intensity is good. Do not like step function characteristic of the warning. However, would rather see a gradually increasing warning to max amplitude or frequency just before stall.
2. Lack of heat distribution to the feet. Started getting cold passing 25,000 ft. Rest of cockpit was comfortable. Temp rheostat was about one to two o'clock.
3. Landing in strong winds with significant crosswind component was easy. Aircraft is exceptionally stable on the ground in these relatively strong winds.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1010	B. FLIGHT NO/DATA POINTS 160/PER TIS	C. DATE 28 JAN 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8892/19.6	I. WEATHER 40SCT/25
J. TO TIME/SORTIE TIME 0815/1.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 240/07
M. CHASE ACFT/SERIAL NO T33-83TB	N. CHASE CREW EDMONDSON/G+9	O. CHASE TO TIME/SORTIE TIME 9815/1.4

4. PURPOSE OF FLIGHT/TEST POINTS

FLUTTER SYSTEM CHECK OUT AND PHASE I REVISIT

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

1. All data points were completed at approximately 11,500 ft.
   A. 248 KIAS; SAS OFF; wing and tail auto sweeps 5-10 Hz and 10-60 Hz
   B. 279 KIAS; SAS OFF; wing and tail auto sweeps 5-10 Hz and 10-60 Hz
   C. 279 KIAS; SAS OFF; tail bursts 14.4, 15.2, 19.6 and 21.0 Hz
   D. 228 KIAS; SAS ON; tail sweep auto, 5-10 and 10-60 Hz. Bursts at 15.0, 14.2, 19.4, 20.6 and 19.2.
   E. 248 KIAS; SAS ON; tail sweep auto, 5-10 and 10-60 Hz. Bursts at 15.0, 19.2, 20.0 and 14.8.
2. The flutter excitation system worked very well and was operated as a one man system. The calibration of the digital meter was off at some points by 1 to 2 counts, but stabilized very responsibly on frequency. The digital meter appears to have a different calibration for the auto mode than burst mode. This is repeatable so it should not be a problem.
3. It appears we are ready for Phase II.

6. RECOMMENDATIONS

Proceed to Phase II.

COMPLETED BY	SIGNATURE	DATE

AFFTC FORM MAR 84 365 PREVIOUS EDITIONS OBSOLETE

MVE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR2/G1012	B. FLIGHT NO/DATA POINTS 161/PER TIS	C. DATE 28 JAN 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8705/17.57	I. WEATHER 20SCT/50
J. TO TIME/SORTIE TIME 1148/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 280/15G20
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TR-2 (INSTRUMENTS)

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:

This was an instructional sortie for Maj Gamble. The CDI would drift randomly with either VOR or ILS frequencies set in. No apparent reason for the incorrect display. GSI indicated correctly. Battery start-normal.

MAJ GAMBLE:

T-1 was relatively stable during instrument approach work in light to moderate turbulence. Aircraft very stable in pitch but heading tends to wander in choppy air. SAS off for entire flight with no apparent impact on handling characteristics.

Performance of T-1 during simulated single engine approach and missed approach was marginal. Very high power settings required for glide path control and could only get 200-300 fpm climb during single engine missed approach.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR2/G8559	B. FLIGHT NO/DATA POINTS 162/PER TIS	C. DATE 28 JAN 87
D. FRONT COCKPIT *(Left Seat)* MINK	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8705/17.57	I. WEATHER 30SCT/50
J. TO TIME/SORTIE TIME 1507/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 200/14G22
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TR-2 TRAINING QUALIFICATION SORTIE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ MINK:

VOR course guidance was erratic and unreliable on 114.5, 116.4, 110.1, and 109.1. At times the indications were steady and reliable, but at other times both the CDI and bearing pointer were both erratic and unreliable.

Overall the aircraft is a stable instrument platform, but has limited speed stability at speeds below 150 KIAS requiring a rapid instrument crosscheck for precise instrument aircraft control. This characteristic will require additional student training time over the current ATC syllabus.

6. RECOMMENDATIONS

Continue investigating methods of improving speed stability.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR1/G1013	B. FLIGHT NO/DATA POINTS 163/PER TIS	C. DATE 29 JAN 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8887/19.69	I. WEATHER 250BKN/25
J. TO TIME/SORTIE TIME 0927/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TRAINING SORTIE NUMBER ONE FOR CAPT MANKE

A. PATTERNS AND LANDINGS
B. STALLS-CLEAN AND P.A.
C. LIGHT AEROBATICS
D. ALTERNATE GEAR EXTENSION
E. ABNORMAL FLIGHT RECOVERIES

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MANKE:
Mission complete. All test points flown.
Battery start: Left 30 Sec/720 degrees
Right 22 Sec/665 degrees

Alternate gear extension:	Airspeed	150 KIAS	Main:	34 Sec.
	Altitude	10,000 Ft	Nose:	47 Sec.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

PREVIOUS EDITION IS OBSOLETE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR2/G7085	B. FLIGHT NO/DATA POINTS 164/PER TIS	C. DATE 29 JAN 87
D. FRONT COCKPIT *(Left Seat)* CAMPANO	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8887/19.69	I. WEATHER 120SCT/25
J. TO TIME/SORTIE TIME 1317L/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 030/01
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TRAINING MISSION 2: INSTRUMENT PROF

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ CAMPANO:

Instrument displays (VOR, ILS, LOC) continue to be unstable. VOR and LOC courses and bearing pointer fluctuated throughout all maneuvering/approaches. Only ILS glideslope seemed accurate. This problem seems unique to T-1.

SSE approaches were flown at Palmdale and Edwards. With gear down and zero flaps could maintain FAF altitude and 120-110 Kts. Yaw was not difficult to control. SSE go-around showed 100 FPM climb with gear down. Improved to 400-500 FPM after raising gear and maintaining 120 Kts.

During instrument radar downwinds, we used 160-150 KIAS for maneuvering. The gear warning horn, as designed, continually came on since gear was not down. Recommend studying possible operational procedural change to a higher recommended instrument maneuvering speed (170 KIAS-180 KIAS).

Speed stability during approaches (150-110 KIAS) was lacking. Had to crosscheck airspeed indicator an abnormal amount of time to maintain accurate speeds especially at lower range). There just is not an adequate feel in the stick for changes that occur in airspeed on final, etc. Could trim to a speed but deviations above/below were not easily recognizable to the pilot without looking at indicator.

ENGINE START INFO:

ENGINE	START TIME	STOP TIME	START TEMP	TIME TO START
LT	1301 L	1450 L	710 DEG*	33 SECONDS
RT	1302 L	1455 L	740 DEG	25 SECONDS

*Had bang on start. Engine peaked at 710 degrees twice during start, once at 29 seconds and then at 33 seconds.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

File 0-2

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO QUAL CHECK/G8561	B. FLIGHT NO/DATA POINTS 58/PER TIS	C. DATE 30 JAN 87
D. FRONT COCKPIT *(Left Seat)* CAMPANO	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8705/17.57	I. WEATHER 120BKN/25
J. TO TIME/SORTIE TIME 1226/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 220/11G18
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

QUALIFICATION FLIGHT INSTRUMENT APPROACHES/MANEUVERS. NORMAL, SSE AND NO FLAP PATTERN/LANDINGS AND AREA WORK

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ CAMPANO:
Overall instrument displays (VOR, LOC, ILS) were very solid during all approaches/maneuvering. VOR and LOC appeared very accurate throughout flight. Speed stability, although positive, does not provide enough feedback to pilot during precise airspeed maneuvering (i.e. approaches, etc.)
No flap patterns without any speedbrake are flyable but require close attention to pitch/power control to keep airspeed/glideslope. Need more drag for this approach to be reasonably flown by primary students.
1000' AGL overhead patterns seem easier to fly than 1500' AGL. I would recommend this as normal operation.
Overall instrument platform was solid in respect to heading and altitude control (airspeed control an acception as noted above).
One g configured stalls at 13,000-15,000' had reasonable warning, three to six kts. Accelerated stall (180 - 100 KIAS) had natural warning prior to stall (shaker did not come on). Had shaker activate only on one landing (a slight balloon) from a no flap approach. This scenario was not unacceptable as airspeed was lower than normal for no flap landing.
Intensity of stick shaker is good. Would be more desirable to have a variable/step-up in intensity as pilot enters deeper into stall.
SHAWLER:
The stick shaker came on during two landings out of 11. Both were no flap. I think the stick shaker system is very close to optimium at the present time. It provides adequate warning at low altitude under all conditions including accelerated stalls at the lower airspeeds. As speed increases the natural stall warning is adequate.

6. RECOMMENDATIONS

Get more pilot opinions as to the adequacy of the current configuration stall warning system.

COMPLETED BY	SIGNATURE	DATE

AFFTC FORM 365

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AIRCRAFT DELIVERY	B. FLIGHT NO/DATA POINTS 4	C. DATE 30 JAN 87
D. FRONT COCKPIT *(Left Seat)* SCHULZ	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG	I. WEATHER 5000SCT-10,000BKN
J. TO TIME/SORTIE TIME 1154L/2.3	K. CONFIGURATION/LOADING CLEAN	L. SURFACE CONDITIONS
M. CHASE ACFT/SERIAL NO T33-83TB	N. CHASE CREW MARTINEZ/UNDERWOOD	O. CHASE TO TIME/SORTIE TIME 1154/2.3

4. PURPOSE OF FLIGHT/TEST POINTS

FERRY FROM FARMINGDALE NY TO EDWARDS AFB CA
DEPARTURE FROM SEYMOUR JOHNSON AFB AT 1654 Z
TO DOBBINS AFB AT 1910 Z
FL 200

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Attached documents are:
AF Form 70
CAPT MOSS:
The morning takeoff was delayed due to weather at Seymour Johnson AFB. The aircraft exhibited a new and unusual ground handling characteristic: during taxiing, when the throttles are advanced slightly above idle, the engines will accelerate to a higher RPM, but at a delayed rate. This time delay for acceleration is mirrored by another time delay when the throttles are retarded to idle. These time delays produce surprising engine surges at very inopportune times, i.e. when the aircraft is close to other aircraft, objects, and personnel on the ramp.
In flight, the aircraft performed admirably. All the navigation avionics performed very well. The transponder, however, was transmitting the wrong mode 3 code, and mode C was inoperative.
From an operational standpoint, changing the transponder codes was unnecessarily laborious because the push-buttons could only be advanced to larger numbers, and not reduced to lower numbers.
Because a rotary UHF/VHF selector knob is used to select UHF vs VHF transmissions, some radio transmissions were inadvertently sent out on the wrong frequency. A three-position mike button on the throtte quadrant would solver that problem (neutral-off, forward-UHF, and aft-VHF).
The map case cover is too large and bulky. It is extremely difficult to open the case. A fabric or redesigned case cover could solve the problem. The size of the map cases is outstanding however.

6. RECOMMENDATIONS

A) Modify the engine fuel controls so that there is less lag in the engine accelerations and decelerations. In addition, the idle RPM trim adjustments should be eliminated - idle power on the ground in close quarters to other aircraft and obstructions is no place for the aircraft's idle RPM to be hanging of its own accord.

(continued on next page)

COMPLETED BY	SIGNATURE	DATE

B) Change the machanization of the 4096 coded transponder so that the mode 3 codes can be changed easier. They should be able to be advanced and retarded.
C) Incorporate a three position microphone button on the throttles to select the UHF vs VHF transmittions instead of the rotary selector knob on the dash panel.
D) Redesign the map case in order to make it easier to open and close in-flight. The problem now is that the oxygen hose, comm cord, utility light, and canopy locking handle are binding against it.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AIRCRAFT DELIVERY	B. FLIGHT NO/DATA POINTS 5	C. DATE 30 JAN 87
D. FRONT COCKPIT *(Left Seat)* SCHULZ	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 1635L/1.3	K. CONFIGURATION/LOADING CLEAN	L. SURFACE CONDITIONS
M. CHASE ACFT/SERIAL NO T-33/N83TB+N84TB	N. CHASE CREW EDMONDSON/MARTINEZ	O. CHASE TO TIME/SORTIE TIME 1635L/1.3 + 1.3

4. PURPOSE OF FLIGHT/TEST POINTS

FERRY FROM FARMINGDALE NY TO EDWARDS AFB CA
DEPARTURE FROM DOBBINS AFB AT 2135 Z
TO COLUMBUS AFB AT 2250 Z

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:
An attempt was made to start the engines with the tail facing into a 15 kt wind. This caused excessive smoke to enter the cockpit, and the start was aborted. Once the aircraft was turned to face the wind, the No. 1 engine started normally. During start of the No. 2 engine (with No. 1 at idle) the No. 1 engine ITT climbed to 775 degrees. This was assumed to be due to the load on the No. 1 generator.
After engine start, with the Bleed Air Switches - ON and the ECS - OFF, the canopy would not close normally. The canopy finally closed on the third attempt, after turning off the Bleed Air Switches.
The rest of the mission proceded uneventfully.

6. RECOMMENDATIONS

A) Place a note in the DASH 1 warning of smoke in the cockpit and inadvisability to start the engines with the exhause facing a wind.
B) Investigate the source of the canopy malfunctions - failure to close and lock properly.

COMPLETED BY	SIGNATURE	DATE

file OFS-1
DK

T-46A
FLIGHT 7 MISSION CARD
SUMMARY

MISSION OBJECTIVES

1. Handling qualities at 7,500 ft
2. Speed stability at 15,000 ft
   a. Accel/decel 130-250 kias
   b. Speed brakes out Vmax determination

MISSION PROFILE

1. Control room - at RMCC

2. Crew - Mr. Martinez (Pilot) L/C Edmondson (Co-pilot)

3. Rotate at 94 kias

4. Climb to 7,500 ft per climb schedule

5. 7,500 ft
   225 KIAS, Pace, HQ block mvrs

6. Climb to 15,000 ft per climb schedule
   Accel/Decel - 130 - 250 KIAS
   Speed brakes out accel - 130 - Vmax

7. Descend to 7,500 ft
   175 KIAS, pace, HQ block mvrs
   130 KIAS, pace, HQ block mvrs
   130 KIAS, PA config, pace, HQ block mvrs
   110 KIAS, PA config, pace, HQ block mvrs

8. RTB 300 #'s bingo

9. ILS, touch & go landings, full stop

FLIGHT 8 MISSION SUMMARY

file OPS-1
DK

MISSION OBJECTIVES

1. Envelope expansion to 40,000 ft
2. Accelerated/1G stalls - 25,000 & 35,000 ft
3. Speed stability - 35,000 ft 150 KIAS
4. Handling qualities - 25,000 ft - 150 KIAS, .5M
   35,000 ft - 150, 130 KIAS

MISSION PROFILE

1. Control room - RMCC
2. Crew - L/C Edmondson (Pilot), Mr. Martinez (2nd Pilot)
3. Rotate at 95 KIAS
4. Climb to 25,000 ft 170 KIAS/.5M
5. 25,000 ft
   150 KIAS, pace, HQ block mvrs
   .5M, pace, HQ block mvrs
6. Stall Tests - 25,000 ft
   1 G stall
   Accelerated stall
7. Climb to 35,000 ft per climb schedule
8. 35,000 ft
   130 KIAS, pace, HQ block mvrs
   Speed stability - 150 KIAS
   1 G stall
9. Climb to 40,000 ft
   Qualitative HQ evaluation - damper on/off
10. RTB 300 lbs bingo
11. Formation flying HQ on descent
12. Touch & go landings, full aft stick

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FERRY	B. FLIGHT NO/DATA POINTS 8	C. DATE 31 JAN 87
D. FRONT COCKPIT *(Left Seat)* MINK	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG	I. WEATHER VMC
J. TO TIME/SORTIE TIME 2130Z/1.5	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS STRONG WINDS
M. CHASE ACFT/SERIAL NO T33/N83TB,T33/N84TB	N. CHASE CREW MARTINEZ/WOOLEY	O. CHASE TO TIME/SORTIE TIME 2130/1.5-1.5

4. PURPOSE OF FLIGHT/TEST POINTS

FERRY FROM FARMINGDALE NY TO EDWARDS AFB CA
DEPARTURE FROM DYESS AFB TX AT 2130 Z
TO EL PASO TX AT 2302 Z
FL 160

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:

This was my first flight in the production aircraft. A few of the things I noticed to be different than the test aircraft or unexpected were:

A. On engine start with external electrical power the aircraft generators did not come on the line automatically. Throttles were advanced above idle, but the increased RPM did not bring either generator on line. Each had to be reset with the cockpit switch before it came on. (Start times were 25 seconds and peak T4.5 temperature on start was 760 and 690 degree C.)

B. The taxi speed at idle power with ambient temperatures about 50 degree F was quite satisfactory both at full fuel weight and light fueling weight (approximately 300 lbs) at the end of the mission.

C. The climb performance is noticeable better than the test aircraft.

D. The canopy will not fully close or lock when lowered with the bleed air and ECS on. This was written up on the acceptance flight and corrected at the plant.

E. The cockpit layout is much better than the test aircraft. The forward visibility is greatly improved without the test instruments on top of the glare shield. The ECS/Bleed Air Control Panel is still located in a difficult to see position under the center throttle levers which I do not like. The map storage compartments have a flimsy lid that will be easily damaged, and appears to hang up on the right ejection seat. There is still no bulk head coverings in the cockpit, that is, the fuseage stringers and formers are exposed as are electrical wire bundles. Some type upholstery should cover these exposed areas. The cockpit circuit breakers are now located between the pilots, just at shoulder height, and would be very difficult to reach if required to do so once the pilot is strapped in.

F. Cruise performance is slightly better than the FSD aircraft. On this leg at 16,000 ft the indicated airspeed was 225 knots, at 94% core RPM with an indicated fuel flow of 310 pph on each engine.

G. Handling qualities are the same as the FSD aircraft, including takeoff. Landing touchdown speeds seem a few knots slower than the FSD aircraft.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

file 4 OBS-1
JHC

T-46A MISSION SUMMARY
FLIGHT #9

OBJECTIVES:

1. Quick look OT&E evaluation
2. Engine airstart familiarization 15,000 ft
3. Handling qualities - 7,500 ft
4. Speed stability

PROFILE:

1. Mission Control at CTF
2. Crew: Maj. Hansen (Aircraft Commander), LtC Clinch (AFOTEC)
3. (Clinch) Take-off 1.1Vs
4. (Clinch) Climb constant A/S 170 KIAS
5. 7,500 ft
   Handling qualities block mvrs
   Speed stability - 150 KIAS, 200 KIAS
   1 g trim data - gear down, flaps = 20, SB = in
6. (Clinch) Climb constant A/S 170 KIAS
7. 15,000 ft
   (Clinch) Traffic pattern stalls
   (Clinch) Lazy 8
   Lateral trim check
   Bank-bank rolls
   (Clinch) Engine airstarts 150 KIAS AND VMAX
   Speed brake out trim check 225, 200, 175, 150 AND 130 KIAS
   (Clinch) Aux landing gear familiarization 110 KIAS
8. (Clinch) Descent
   (Clinch) Formation flying evaluation
9. (Clinch) RTB, ILS, touch and goes
10. (Clinch) Full stop landing

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS 9	C. DATE 1 FEB 87
D. FRONT COCKPIT *(Left Seat)* MINK	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 0907/1.2	K. CONFIGURATION/LOADING CLEAN	L. SURFACE CONDITIONS CALM 33 DEG F
M. CHASE ACFT/SERIAL NO T33/N83TB + N84TB	N. CHASE CREW MARTINEZ/EDMONDSON	O. CHASE TO TIME/SORTIE TIME 0907L/1.2 + 1.2

4. PURPOSE OF FLIGHT/TEST POINTS

FERRY FROM FARMINGDALE NY TO EDWARDS AFB CA
DEPARTURE FROM EL PASO IAP AT 1607 Z
TO WILLIAMS AFB AT 1720 Z
FL 16,000

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:
Encountered difficulty closing the canopy with the Bleed Air Switches - ON and the ECS - OFF.
Enroute portion went uneventfully.
The ECS outlets in the cockpit cannot be turned off. This makes the folding/unfolding of maps, placement of approach plates very difficult. It would make things much easier if the airflow could be shut off at the exit ports in the cockpit (individually) so that they would not interfere with the pilot's management of his maps.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS	C. DATE
BLEED AIR/G8562	165/PER TIS	2 FEB 87
D. FRONT COCKPIT (Left Seat)	**E. FUEL LOAD**	**F. JON**
MOSS	1240	2591A0
G. REAR COCKPIT (Right Seat)	**H. START UP GR WT/CG**	**I. WEATHER**
MARTINEZ	8908/19.4	CLR/85
J. TO TIME/SORTIE TIME	**K. CONFIGURATION/LOADING**	**L. SURFACE CONDITIONS**
1344/1.8	PER TIS	CALM
M. CHASE ACFT/SERIAL NO	**N. CHASE CREW**	**O. CHASE TO TIME/SORTIE TIME**
N/A	N/A	N/A

4. PURPOSE OF FLIGHT/TEST POINTS

BLEED AIR TESTS. VARYING ECS MODES, TEMP SETTINGS, AND DEFOG POSITION THROUGH A MATRIX OF AIRSPEEDS, ALTITUDES AND SINGLE ENGINE FLIGHT.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:
All test points were successfully accomplished. However, the aircraft was leveled off at 33,000 ft Hp instead of 35,000 ft due to a lack of sufficient climb capability.
During the line-up check before takeoff, the aircraft brakes (from the single pilot) could not hold the aircraft still with both engines at maximum power. This was most probably due to the large and unnatural brake pedal deflection angle.
During the final test points, 5,000 ft Hp and Vmax (250-279 KIAS), a high frequency, low amplitude vibration of the aircraft was felt. It had similar characteristics to the "aileron buzz" of a T-33. We could not identify the location of the vibration. The available recorded data is being analyzed for evidence of flight control instability.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

E

FLIGHT REPORT ADDENDUM FOR IFTR165

During T-1 flight number 165, an unidentifiable vibration (buzz) was felt by the pilots when at low altitude and high speed (8,000 ft Hp/250-279 KIAS). Following this flight, the on board data were analyzed to determine the source of the vibration.

The parameters normally used for flutter analysis were not activated for this flight, therefore less than optimum secondary parameters were used instead. These parameters were:

Airspeed
Longitudinal Stick Position
Longitudinal Stick Force
Nz Body
Pitch Angle
Lateral Tab Position
Elevator Tab Position
Left Rudder Position
Right Rudder Position
Aileron Tab Position (Left)
Aileron Tab Position (Right)
Left Aileron Position
Right Aileron Position
Lateral Stick Position
Lateral Stick Force
Alpha
Beta
Elevator Position

Analyzing the data from the above parammeters showed no sign of vibration or aerodynamic instability. This analysis was, however, inconclusive because the 10 Hz data sampling rate would not reveal a high frequency (50-70 Hz) vibration. Therefore, the data was not completely conclusive. However, the aircraft has flown since with no pilot write up of the problem.

T-1 is now entering the Phase II flutter program. These flights are being conducted with adequate instrumentation and real time data analysis to identify characteristics of flutter onset. Therefore, successful accomplishment of Phase II flutter will adequately investigate the situation if a problem exists.

Recommendation:
Continue with the Phase II flutter program as planned.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

File 02

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO STALL WARNING/G1024	B. FLIGHT NO/DATA POINTS 60/PER TIS	C. DATE 3 FEB 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MARTINEZ	H. START UP GR WT/CG 8735/17.2	I. WEATHER 40SCT/45
J. TO TIME/SORTIE TIME 1038/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 190/07
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/G+9	O. CHASE TO TIME/SORTIE TIME 1038/1.5

4. PURPOSE OF FLIGHT/TEST POINTS
STALL WARNING SYSTEM EVALUATION

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:
This was an excellent mission in that all the planned data were gathered, and the results looked to be very good. The following data are tabulated cockpit readings that were hand recorded by the pilots for the one G unaccelerated test points.

ALTITUDE (FEET)	CONFIGURATION	POWER SETTING	WARNING (KIAS)	STALL (KIAS)	FUEL (LBS)	DELTA (KIAS)
7,500	CLEAN	IDLE	104.5	97.0	1040	7.5
7,500	CLEAN	PLF	103.5	95.5	1020	8
7,500	TAKEOFF	IDLE	104.0	96.0	1010	8
7,500	TAKEOFF	PLF	102.5	94.5	1000	8
7,500	GO AROUND	IDLE	98.5	92.0	980	6.5
7,500	GO AROUND	PLF	97.0	91.5	950	5.5
7,500	APPROACH	IDLE	99.0	92.5	940	6.5
7,500	APPROACH	PLF	97.5	91.5	900	6.0
15,000	CLEAN	IDLE	102.5	97.5	850	5
15,000	CLEAN	PLF	102.0	96.5	830	5.5
15,000	TAKEOFF	IDLE	101.5	96.5	810	5.0
15,000	TAKEOFF	PLF	101.0	96.0	800	5.0
15,000	GO AROUND	IDLE	96.5	94.0	780	2.5
15,000	GO AROUND	PLF	96.0	93.0	760	3.0
15,000	APPROACH	IDLE	97.5	95.0	745	2.5
15,000	APPROACH	PLF	96.0	93.5	730	2.5
25,000	CLEAN	IDLE	101	98	640	3
25,000	CLEAN	PLF	100.5	98	620	2.5

(continued on next page)

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

These data indicate the margin of warning decreases with increasing altitude and also with flaps down. At 7,500 feet, with flaps up (clean and takeoff configurations) the margin of warning is about 8 knots, but with flaps down 20 degrees (go around and approach configuration) the margin is about 6 knots. The margins decrease to about 5 knots flaps up and 3 knots flaps down at 15,000 feet. These margins appear quite satisfactory for these altitudes for an unaccelerated stall. In the landing pattern the warning system tends to come on a little premature with flaps up, but with flaps down it is very good. The flaps up landing may need a little subjective evaluation by the OT&E pilots; it is close. The warning at altitude (higher Mach number) appears satisfactory for operational use. The accelerated warning appears satisfactory at 10,000 feet at lower Mach numbers, but at higher altitudes and Mach it does not activate before stall. This may be ok since there is some natural warning at the higher Mach numbers. Overall the system looks very promising, and I recommend it be incorporated on P-1 as soon as possible.

File 02

DAILY/INITIAL FLIGHT TEST REPORT

1. AIRCRAFT TYPE	2. SERIAL NUMBER
T46	493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO NEG LOADS/G1028	B. FLIGHT NO/DATA POINTS 61/PER TIS	C. DATE 5 FEB 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG 8714/17.46	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1010/1.3	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 250/04
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW MOSS/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1010/1.3

4. PURPOSE OF FLIGHT/TEST POINTS

INVERTED SYSTEM CHECKS AND INVERTED LOADS. BOTH OIL PUMPS ON T-2 HAD BEEN INSPECTED.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

The aircraft, fuel system and oil systems all worked as they should. No problems. The inverted flight loads were accomplished to 80% at 15,000 ft, 145 KIAS, 196 KIAS and 247 KIAS; 25,000 ft, 118 KIAS, 158 KIAS, 201 KIAS and 240 KIAS; 8,000 ft, 167 KIAS and 224 KIAS.

COL EDMONDSON.

The abrupt control inputs test technique should be discontinued. The abrupt input technique at high dynamic pressure can result in loads in excess of 1.0 g's beyond what the cockpit G meters can register. This puts the pilot in a position of not being in control of the test. He has to make the input in the blind and hope it does not exceed a limit. The slow, smooth push and pull technique is very controllable and leaves the pilot in no doubt as to what G level is achieved.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO QUAL CHECK/G7093	B. FLIGHT NO/DATA POINTS 13/PER TIS	C. DATE 5 FEB 87
D. FRONT COCKPIT *(Left Seat)* MINK	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 7493/20.29	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1510/1.3	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 050/15
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

INITIAL QUALIFICATION FLIGHT CHECK FOR MAJOR MINK

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

1. Flight flown as briefed until second touch and go landing. After touchdown after throttle movement to max the right engine did not respond at all. The right engine remained at idle. A full stop landing was made. The engine remained at idle during taxiing in, and was the same in auto or manual mode.
2. The lateral control forces are slightly lower on P-1 than the test aircraft.
3. The ECS system has more noise on P-1 than the test aircraft, and generally after throttle movements or selecting temperature changes.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR2/G7092	B. FLIGHT NO/DATA POINTS 12/PER TIS	C. DATE 5 FEB 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MARTINEZ	H. START UP GR WT/CG 7493/20.29	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1229/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 250/06
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TRAINING SORTIE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Flight training sortie completed. Flight time 1.5.

6. RECOMMENDATIONS

SIGNATURE

8

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO QUAL CHECK/G7091	B. FLIGHT NO/DATA POINTS 11/PER TIS	C. DATE 5 FEB 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* MARTINEZ	H. START UP GR WT/CG	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 0920/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 250/04
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

T-46 QUALIFICATION/INSTRUMENT EVALUATION FOR MAJOR GAMBLE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

1. P-1 performance is noticeably improved over the heavier T-1 and T-2.
2. During a simulated single engine go-around at 120 KIAS and clean, I maintained 1,000 FPM rate of climb.
3. Touchdown speeds were approximately 85 KIAS.
4. The ECS airflow is very noisy.
5. Rotation rates and stick forces seemed to be better than T-1 and T-2.

6. RECOMMENDATIONS

SIGNATURE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

MDE file 0-2

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FORM/G1029	B. FLIGHT NO/DATA POINTS 62/PER TIS	C. DATE 6 FEB 87
D. FRONT COCKPIT *(Left Seat)* MOSS	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MARTINEZ	H. START UP GR WT/CG 8705/17.57	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 0918/1.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 040/15
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

FORMATION W/AC 492
- FORMATION TAKEOFF
- WINGWORK
- TRAIL
- ECHELON
- FORMATION LANDING

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:

95% RPM was used for formation takeoff, this however, was way too low, resulting in a takeoff roll of a little over 5,000 ft. Suggest a higher power setting than 95%.

Handling characteristics in formation flight were good. Two minor drawbacks were the slow engine response and the apparent high frequency response in the longitudinal axis. This apparent high frequency response led to a slightly elevated pitch sensitivity which was exacerbated at elevated g loadings.

Proper formations references are going to take some time to figure out. There is a trade off between the wingman staying back enough to be comfortable and forward enough for both pilots in the lead aircraft to see the wingman.

A note on the stall warning system. Wing trail was flown through a very large spectrum of g, airspeed, AOA, roll rates, rudder inputs, and pitch attitudes - all of which were flown using only outside visual cues. The combination of natural stall warning (high airspeed, high g) and artificial stall warning (low airspeed, low g) always provided sufficient AOA and stall proximity awareness. It worked beautifully.

6. RECOMMENDATIONS

1) Fly more formation.
2) Don't change the stall warning.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO 80% LOADS/G1030	B. FLIGHT NO/DATA POINTS 63/PER TIS	C. DATE 6 FEB 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* CAMPANO	H. START UP GR WT/CG 8703/17.6	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1348/1.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 060/8G28
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW MARTINEZ/G+9	O. CHASE TO TIME/SORTIE TIME 1348/1.5

4. PURPOSE OF FLIGHT/TEST POINTS

80 PERCENT LOADS AND QUALITATIVE EVALUATION OF STALL WARNING SYSTEM

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:

The loads tests on this mission consisted of two distictly different test techniques: Pull ups to positive g and roll over at less than one g. The pull ups went just fine, but the roll overs did not work worth a hoot. First the good news, pull ups. Symmetrical pull ups were performed at:

15,000 Feet - 120 KIAS (.24M) Flaps 20 Deg To +1.5 g's
160 KIAS (.32M) Flaps 20 Deg To +2.5 g's
25,000 Feet - 120 KIAS (.30M) Flaps 20 Deg To +1.5 g's
160 KIAS (.40M) Flaps 20 Deg To +2.5 g's
248 KIAS (.60M) Clean & SB's Out To +4.0 g's
8,000 Feet - 115 KIAS (.20M) Flaps 20 Deg To +1.5 g's
160 KIAS (.28M) Flaps 20 Deg To +2.5 g's

All these above data points were flown quite well with smooth air and should give good information. In addition to the smooth pull ups an abrupt elevator control input was made at each test condition. The technique used here was to make a large fast aft stick movement to move the elevator to a large angle TEU before the aircraft could respond by developing any pitch change or normal acceleration. This worked quite well. The part that did not work well was the roll over. This technique included a 180 degree roll starting wings level upright at zero g's and completing the point inverted at minus .8g's using full lateral stick deflection. This mmaneuver was approached cautiously because it is very dynamic, and the rolling negative limit is 1.0 g's which is only .2 g's away from the target test value. After practicing the roll over at less than full deflection and well below the target g levels, confidence was gained to start the test at 20,000 feet and 229 KIAS (.50M). The first full aileron deflection roll over resulted in more negative g's than anticipated so that the maneuver was aborted approaching minus one g. The cockpit sensitive g meter indicated the max negative g to be 1.2. The ship set indicated a max of 1.0 while the ground station reported minus 1.4. When the maneuver was aborted, positive g was applied and roll rate arrested so that the peak g which may

(continued on next page)

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

have exceeded 1.0 was at or near no roll rate which has a limit of minus 1.94 g. The maneuver was not repeated for obvious reasons and should not be until we figure out how to accomplish the test in a more controlled fashion.

The stall warning system worked great! On two landings a slight bounch on touchdown resulted in the shaker coming on at just the right time. During one final turn, heavy weight, flaps up, the pilot got a little slow and slightly over shot final resulting in the shaker coming on in the turn to final. Again the condition seemed just right.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO QUAL CHECK/G7094	B. FLIGHT NO/DATA POINTS 167/PER TIS	C. DATE 6 FEB 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8887/19.69	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1201/1.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 040/19G27
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

INSTRUMENT AND QUALIFICATION CHECKRIDE
INSTRUMENT APPROACHES
INSTRUMENT AREA WORK
VFR TRAFFIC PATTERNS
SIMULATED EMERGENCIES

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MANKE:
Test card flown as briefed. Mission complete. The T-46 is a good instrument platform with the following exceptions: Precise instrument flying is much more difficult in light turbulence conditions. Yaw damper was off. VOR and ILS are intermittent/unusable on Test Aircraft #1. Lack of feel in the stick with an airspeed charge (speed stability) is relatively unforgiving when pilot's attention is diverted from the normal instrument crosscheck. The Vertical Velocity Indicator is somewhat small, making it hard to adjust your rate of descent precisely on instrument approach finals.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO TR-2	B. FLIGHT NO/DATA POINTS 168	C. DATE 6 FEB 87
D. FRONT COCKPIT *(Left Seat)* SCHULZ	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8887/19.69	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 1445/1.5	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS 060/20
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

TR-2
INSTRUMENT APPROACHES
INSTRUMENT AREA WORK
VFR TRAFFIC PATTERNS
SIMULATED EMERGENCIES

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ SCHULZ:
Test card flown as briefed. Mission complete.
Pitch rate on rotation was rapid. Course indications on all approaches were intermittent, and the CI "wandered" back and forth. Speed stability could be better, but except for that, the aircraft is a good instrument platform. More drag in the pattern would be helpful. Landings were easy.

6. RECOMMENDATIONS

Increase drag in the pattern and improve speed stability.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G7098	B. FLIGHT NO/DATA POINTS 15/PER TIS	C. DATE 11 FEB 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG 7493/20.29	I. WEATHER 40SCT/15
J. TO TIME/SORTIE TIME 0948/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 180/05
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OT&E VFR NAVIGATION

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ GAMBLE:

1. Smooth rotation at 90 KIAS with nosewheel lifting off at approximately 100 KIAS. No apparent overrotation tendancy.
2. Noisy air flow from ECS surging is annoying to pilots.
3. No. 2 engine oil pressure indication fluctuates rapidly plus or minus 2 PSI.
4. During engine starts, generators won't come on line without manually resetting.
5. No. 1 engine start was irregular. Pilot's impression was that it started, blew out and started again.
6. Elevator trim rate is much too slow.
7. Cruise performance data for flight follows:

ALTITUDE	4,500 MSL	5,500 MSL	7,500 MSL	11,000 MSL
N1(PERCENT)	68/69	69/69	68/68	71/71
N2(PERCENT)	86/86.5	86.5/86.5	86/86	86.5/87
FF(PPH)	270/280	260/270	240/250	240/240
KIAS	205	202	195	185

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

mDE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1037	B. FLIGHT NO/DATA POINTS 169/PER TIS	C. DATE 11 FEB 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG 8693/22.1	I. WEATHER 40SCT/15
J. TO TIME/SORTIE TIME 0940/0.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 180/05
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW MARTINEZ/G+9	O. CHASE TO TIME/SORTIE TIME 0940/0.4

4. PURPOSE OF FLIGHT/TEST POINTS
FLUTTER PHASE I REVISIT

5. RESULTS OF TESTS *(Continue on reverse if needed)*
SHAWLER:
The mission was aborted due to TM problem. No data acquired.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER	B. FLIGHT NO/DATA POINTS 170/PER TIS	C. DATE 11 FEB 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* MATTHES	H. START UP GR WT/CG 19.24/8888	I. WEATHER SCT/BRK LAYERS
J. TO TIME/SORTIE TIME 1520/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 270/06
M. CHASE ACFT/SERIAL NO T33/N84TB	N. CHASE CREW MOSS/G+9	O. CHASE TO TIME/SORTIE TIME 1520/1.5

4. PURPOSE OF FLIGHT/TEST POINTS

FLUTTER PHASE I REVISIT

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

1. SAS ON FLUTTER POINTS COMPLETED AT 11,500 FT, 270 KIAS AND 279 KIAS
   - Tail Sweeps 5-10 Hz, 10-60 Hz and 10-25 Hz
   - Tail Bursts at 270 KIAS 7.4, 9.5, 14.6 and 19.6
   - Tail bursts at 279 KIAS 9.6, 14.6 and 19.3
2. The SAS ON envelope is now the same as SAS OFF.
3. Auto sweeps completed at 30,000 ft, 219 KIAS/.60M
   - Wing 5-10 Hz and 10-60 Hz
   - Tail 5-10 Hz, 10-60 Hz and 12-22 Hz
4. The Flutter excitation system worked very well.
5. All the flutter testing was accomplished by one pilot.

6. RECOMMENDATIONS

Proceed to Phase II.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1039	B. FLIGHT NO/DATA POINTS 171/PER TIS	C. DATE 12 FEB 87
D. FRONT COCKPIT *(Left Seat)* MOSS	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* N/A	H. START UP GR WT/CG 8685/22.2	I. WEATHER 50SCT/50
J. TO TIME/SORTIE TIME 1507/1.0	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/08
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW SHAWLER/G+9	O. CHASE TO TIME/SORTIE TIME 1507/0.9

4. PURPOSE OF FLIGHT/TEST POINTS
PHASE II FLUTTER 30,000 FT Hp, M = 0.60 THROUGH 0.75

5. RESULTS OF TESTS *(Continue on reverse if needed)*
CAPT MOSS:
The mission was aborted due to the stratus clouds which peaked at 30,000 ft. There was insufficient vertical room above the cloud layer to properly attain the test conditions.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT

1. AIRCRAFT TYPE	2. SERIAL NUMBER
T46	596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AVIONICS/G7101	B. FLIGHT NO/DATA POINTS 17/PER TIS	C. DATE 12 FEB 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG 7493/20.29	I. WEATHER 100SCT/50
J. TO TIME/SORTIE TIME 1030/1.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 120/08
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW MARTINEZ/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1030/1.0

4. PURPOSE OF FLIGHT/TEST POINTS

AVIONICS
GEAR WARNING SYSTEM EVALUATION
TACAN EVALUATION
TACAN IFF INTERFERENCE EVALUATION
OT&E
AUX LANDING GEAR EVALUATION
TRIM EVALUATION
PATTERNS AND LANDINGS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MANKE:

1. Gear Warning System works as advertised in the flight manual. System activates at 155 KIAS/10,000 ft MSL/and 90.5 percent N2. System resets and silences perfectly.
2. TACAN checks against ground checkpoints were excellent. TACAN and IFF showed no interference.
3. AUX Landing Gear extends slightly faster at higher speeds. Yawing the aircraft significantly speeds up the extension times on the mains only.

		MAIN	NOSE
10,000 FT	180 KIAS	26 SEC	30 SEC
	150 KIAS	33 SEC	35 SEC
	120 KIAS	35 SEC	42 SEC
	120 KIAS	10 SEC	40 SEC (with yaw and pitch inputs)

**Outboard gear doors can be seen from the cockpit using the mirrors when gear is extended.

4. Trim Evaluation - 10,000 Ft 240 KIAS
Elevator - full nose up or down - stick forces are getting heavy (25-30 lbs) but still controllable.
Aileron - full right/left - very little authority and very slow rate. The aircraft does roll in proper direction.

6. RECOMMENDATIONS

1. Install straight stick in P-1.
2. Install frost fittings on lap belt.
3. Increase lateral trim rate and authority.

COMPLETED BY	SIGNATURE	DATE

AFFTC FORM MAR 84 365 PREVIOUS EDITION IS OBSOLETE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS 64	C. DATE 13 FEB 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* GAMBLE	H. START UP GR WT/CG 8707	I. WEATHER 40SCT/100 BKN
J. TO TIME/SORTIE TIME 1335L/.7	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS 210/22G28
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

FORMATION FLIGHT WITH T-46, 5596 (P-1)

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ GAMBLE:

Short mission due to weather.

1. Cross cockpit visibility while flying wing position is marginal.
2. No apparent handling differences with SAS on vs SAS off.
3. Speedbrakes work great as an aid to maintaining position or stopping during rejoins.
4. No noticeable pitch sensitivity during wingwork.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS 20	C. DATE 13 FEB 87
D. FRONT COCKPIT *(Left Seat)* CAMPANO	E. FUEL LOAD 1200	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MARTINEZ	H. START UP GR WT/CG 7493/20.29	I. WEATHER 40SCT 100BKN
J. TO TIME/SORTIE TIME 1336L/0.7	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS WINDS 210 22G28
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OT&E FORMATION WITH AIRCRAFT 493. INTERNAL TAKEOFF, WINGWORK, PITCH-OUT/REJOIN, FORMATION TRAIL. OVERHEAD PATTERNS.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ CAMPANO:
Due to deteriorating weather, mission was terminated early. Gusty winds prevented formation takeoff and approach/landing. Mission flown in low altitude block (below 10,000 feet).

1. Cross-cockpit visibility is limited due to canopy bow. Possible recommendation would be to remove metalic tape for windshield heat from along canopy bow and put on bottom of glareshield if possible.
2. Rearward visibility very poor; especially when monitoring wingmen during rejoins/trail. Mirrors do not cover enough rearward area.
3. Wingwork up to 250 KIAS and 3 G's showed no pitch/lateral control problem, while on wing. (SAS was OFF for entire flight)
4. Cross-cockpit fingertip visibility is lacking. Cross-cockpit view from lead to wingmen is very limited annd mirrors do not help much.
5. Curved stick needs changing.
6. ECS problem continues. (See earlier reports)
7. Overall, aircraft seems to be a solid formation training platform.
8. Engine response adequate.
9. Speedbrakes very effective when needed to slow down/maintain position.

6. RECOMMENDATIONS

Continue OT&E evaluations.

COMPLETED BY	SIGNATURE	DATE

8

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AVIONICS/G7102	B. FLIGHT NO/DATA POINTS 19/PER TIS	C. DATE 13 FEB 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 7493/20.19	I. WEATHER 50SCT/50
J. TO TIME/SORTIE TIME 0924/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 210/18G24
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

AVIONICS TESTS
TACAN TESTS
UHF TESTS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MANKE:

1. ENGINE START - Attempted an APU assisted start on #1 engine with direct 18 kt tailwind. Within 10 seconds of start button activation, the engine lit and blew out three times. Start was aborted. Aircraft was towed and turned into the wind. Then aircraft started normally on battery with the headwind.
2. TACAN - TACAN worked excellent on all channels tested (111, 74, 94 and 23) up to 124 NM. MINA (channel 98) was intermittent.
3. UHF - UHF worked excellent on 287.2 (mission freq) up to 124 DME at 35,000 feet. Additionally, we were able to contact Mather Command Post (321.0 at 180 NM).

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

mjE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLYING QUAL/G7103	B. FLIGHT NO/DATA POINTS 65/PER TIS	C. DATE 17 FEB 87
D. FRONT COCKPIT *(Left Seat)* ETTINGER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 8728/17.68	I. WEATHER 50SCT/80
J. TO TIME/SORTIE TIME 1340/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 350/02
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW MOSS/HERRING	O. CHASE TO TIME/SORTIE TIME 1340/1.6

4. PURPOSE OF FLIGHT/TEST POINTS

HANDLING QUALITIES AND DEMO FOR COL ETTINGER, AFFTC VICE COMMANDER

5. RESULTS OF TESTS *(Continue on reverse if needed)*

SHAWLER:

1. Pitch doublet stick fixed, and stick free; yaw/roll doublet, damper off; and yaw doublet, damper on were completed at:

7,500 ft	110 KIAS PA
	122 KIAS CR
	170 KIAS PA
	172 KIAS CR
11,000 ft	245 KIAS CR
25,000 ft	122 KIAS CR
	250 KIAS CR
27,500 ft	175 KIAS CR
35,000 ft	124 KIAS CR
	175 KIAS CR

(Accomplished at 34,000 ft .54M)

2. Portions of the demo card were completed by Col Ettinger.

A. Nose wheel steering a little sensitive.

B. Rotation forces high on takeoff.

C. Good stall characteristics with good warning both natural (accelerated) and artificial one "G".

D. Loved the cockpit.

E. Easy to land and almost impossible to foul up. Flew a right hand pattern and liked visibility.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AVIONICS/G1056	B. FLIGHT NO/DATA POINTS 22/PER TIS	C. DATE 18 FEB 87
D. FRONT COCKPIT *(Left Seat)* SCHULZ	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG 7493/20.29	I. WEATHER 60SCT 100BKN/30
J. TO TIME/SORTIE TIME 1327/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 340/08G16
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

AVIONICS - PRIMARY OBJECTIVE WAS TO DETERMINE THE THRESHOLD OF RECEPTION RANGE FOR THE MARKER BEACON SIGNAL. OTHER OBJECTIVES TO EVALUATE THE VOR VS TACAN CORRELATIONS AND GLIDESLOPE AND LOCALIZER, RECEPTION CHARACTERISTICS WITH CHANGES IN AIRCRAFT ATTITUDE AND RELATIVE BEARING.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Not all test points were accomplished, other test points had to be modified because of broken ceiling at 10,000 feet, and traffic pattern saturation at Palmdale Airport. Significant pilot comments were:

CAPT MOSS:

1. Correlation between the VOR and TACAN bearing pointers was excellent in 1 g level flight. However, in a 30 degree bank turn, there was a 5 degree relative bearing difference. In a 60 degree bank turn, this difference increased to 10 degrees. The HSI "OFF" flag for the right-seat pilot comes into view any time there is more than 1.3 g's on the aircraft.
2. The radio mute switch on the control stick is ineffective. It reduces the incoming transmissions by an apparent 10-20 percent, which is not sufficient for the pilot's normal voice to overcome.
3. During taxiing, the FFR engines exhibited a surge when power was increased slightly above the idle stop. This surge unexpectently increased the engine thrust to a level above what was desired. Within a second or two of this surge, the power decreased to the level originally selected by the pilot.
4. During the flight, while cruising at 15,000 ft MSL, a rather loud whining sound was heard coming apparently from the rear part of the canopy, between the ejection seats. In an attempt to isolate the problem the ECS switch was turned OFF. The whining sound did not disappear. What did happen however, was the cabin altimeter rapidly rose to the aircraft altitude - contrary to the flight manual claim that the cabin maintains pressurization for a long time following a loss of pressurization air.The use of a rotary selector switch for selecting UHF vs VHF transmissions continues to be cumbersome.
5. The gear warning horn activation criteria is annoying. It is designed to come on at 155 KIAS. However, when trying to fly on radar downwind at 150 KIAS, with plus or minus 10 knot gusts, the gear warning horn is constantly cycling ON and OFF.

(continued on next page)

6. RECOMMENDATIONS

2. Recommend increasing the effectiveness of the pilot's mute switch.
3. Recommend eliminating this undesirable surge characteristic from the FFR engine.
4. Recommend making the throttle microphone button a three-way switch: Forward = UHF; Neutral = OFF; Aft = VHF transmissions.

(continued on next page)

COMPLETED BY	SIGNATURE	DATE

Attempts to silence the horn are futile since it rearms itself once the airspeed is increased.
MAJ SCHULZ:
TAKEOFF - I attempted to rotate at 80 KIAS. The nose came up at 92 KIAS. Pitch rate was rapid.
AREA WORK - Instrument aileron rolls, wingovers, and arcing were all relatively easy to accomplish. Heading control during the vertical S was especially easy.
PATTERNS AND LANDINGS - I flew patterns at 500 ft AGL, 1000 ft AGL, and 1500 ft AGL. The aircraft handled well, but it needs more drag to help slow from 130 KIAS to 110 KIAS on final. Landings were not difficult, but the aircraft tended to float.
GENERAL COMMENTS - The air conditioning was very noisy. The gear handle lights were difficult to see. The comm mute switches on both sticks reduced the volume of transmissions by only 10-20 percent rather than the desired 50 percent.

Recommendations continued:
5. Recommend using a schedule similar to the T-38: where the horn activates at 150 KIAS when slowing down, but will not extinguish itself until accelerating through a higher airspeed, 160 KIAS.

MDC

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1055	B. FLIGHT NO/DATA POINTS 21/PER TIS	C. DATE 18 FEB 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 7493/20.29	I. WEATHER 100SCT/35
J. TO TIME/SORTIE TIME 0847/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 320/03
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS
OT&E SIMULATED EMERGENCY PROCEDURES PROFILE

5. RESULTS OF TESTS *(Continue on reverse if needed)*
SHAWLER:

1. ECS airflow remains very noisy and very distracting.

2. P-1 trim rates are too slow.

3. Alternate gear extension times vary with airspeed. At 150 KIAS, time for extension is 45 seconds.

4. When raising gear after using alternate system, it takes 20-30 seconds for red light in gear handle to go out. This compares to about 10 seconds for normal gear retraction.

5. During touch and go landings, it's very difficult to keep nosewheel off runway if you touchdown below 90 KIAS.

6. RECOMMENDATIONS

Increase trim rates on production aircraft. Fix ECS flow problem ASAP.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1049	B. FLIGHT NO/DATA POINTS 173/PER TIS	C. DATE 18 FEB 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG 8702/21.9	I. WEATHER 60SCT/30
J. TO TIME/SORTIE TIME 1233/0.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 360107
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/HERRING	O. CHASE TO TIME/SORTIE TIME 1233/1.0

4. PURPOSE OF FLIGHT/TEST POINTS
FLUTTER PHASE II

5. RESULTS OF TESTS *(Continue on reverse if needed)*

No data acquired.

The AFFTC engineers wanted to add a complete set of data points that were not on the flight card after being airborne. The data points were all within the previous Phase I envelope and previously cleared.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1057	B. FLIGHT NO/DATA POINTS 23/PER TIS	C. DATE 19 FEB 87
D. FRONT COCKPIT *(Left Seat)* CAMPANO	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 7493/20.29	I. WEATHER 120SCT/85
J. TO TIME/SORTIE TIME 0926/1.2	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 180/03
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS
OT&E AND PERFORMANCE

5. RESULTS OF TESTS *(Continue on reverse if needed)*
SHAWLER:

1. Left engine start - battery - 29 seconds 710 degrees.
   Right engine start - 23 seconds 690 degrees.
2. Speed power points not accomplished at 5,000 feet due to turbulence.
3. Speed power points 15,000 feet: 150 KIAS, 120 KIAS, 110 KIAS, 200 KIAS, 250 KIAS and 270 KIAS. 25,000 feet 150 KIAS.
4. No further points were flown due to the left engine rolling back to sub-idle. The conditions were straight and level at 25,000 feet, 200 KIAS. Left fuel flow 260, right 264; core RPM left 92.5, right 92.5. A comparison with the right engine with both engines at idle were:

20,000 - 21,000 Feet

	LEFT	RIGHT
N1	30 percent	45 percent
N2	60 percent	74 percent
ITT	380 degrees	520 degrees
OIL	40 PSI	40 PSI
FF	20 lbs	100 lbs

The left engine was switched to manual and worked normally.

5. The elevator trim is inop.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO VIP DEMO/G1058	B. FLIGHT NO/DATA POINTS 24/PER TIS	C. DATE 20 FEB 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MILAM	H. START UP GR WT/CG 7493/20.29	I. WEATHER 50SCT/85
J. TO TIME/SORTIE TIME 0428/1.4	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 020/15G20
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS
DEMO FLIGHT FOR COL MILAM

5. RESULTS OF TESTS *(Continue on reverse if needed)*
SHAWLER:
The demo flight was flown as briefed. The left engine had a roll back again at 17,500 feet; 120 KIAS. This time it rolled back to near idle. The engine did not respond to throttle movement. After approximately 90 seconds the left engine returned to normal without doing anything, and worked normally the rest of the flight.
Col Milam's comments as recalled by W. Shawler:
1. The performance was good.
2. It flew very well in very gusty wind conditions. All SAS OFF.
3. Did not believe the curved stick was a problem.
4. Nosewheel steering sensitive.
5. Rotation on takeoff was not as severe as he was lead to believe. Minor problem.
6. Difficult to hold airspeed during climb. Maybe speed stability.
7. Good control harmony, and good control forces.
8. Good visibility although not too good to the rear.
9. Landings are very easy and very forgiving.
10. Very high roll damping - good.
11. Slight stall warning in the stick 2-3 knots before stall/1 "G", and adequate for the accelerated stall case.
12. Stall characteristics excellent.
13. Excellent trainer aircraft.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1072	B. FLIGHT NO/DATA POINTS 175/PER TIS	C. DATE 26 FEB 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* NONE	H. START UP GR WT/CG 8693/22.09	I. WEATHER 6SCT/20
J. TO TIME/SORTIE TIME 0941/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 180/02
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/G+9	O. CHASE TO TIME/SORTIE TIME 0941/1.6

4. PURPOSE OF FLIGHT/TEST POINTS

PHASE II FLUTTER ENVELOPE EXPANSION
25,000 FT PA 265 KIAS/0.65M
25,000 FT PA 279 KIAS/0.68M

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:
As good a flutter mission as we have ever had, but there was not much expansion accomplished. The majority of the mission was consumed at 265 KIAS doing wing bursts, tail sweeps, and tail bursts. SAS on and off was tested on the tail. Wind up turns were flown at 3.0 g's to evaluate the buckled response on the wing and tail. All the planned test points were completed at 265 KIAS as well as stick raps and wing sweeps at 279 KIAS. The excitation system worked well and data appeared to be good. Real time data indicated all damping both wing and tail looked good, i.e. high. Diving at 25,000 and 279 KIAS consumes a lot of sky in a short amount of time. Speeds above 279 KIAS/.68M will be difficult and time consuming.

6. RECOMMENDATIONS

Next mission complete the .68M investigation. Postpone the higher Mach tests at 25,000 feet for a later date and proceed down to the 11,500 feet next. Need SPO concurrence to do this ASAP.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1073	B. FLIGHT NO/DATA POINTS 66/PER TIS	C. DATE 26 FEB 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MANKE	H. START UP GR WT/CG 8712/17.9	I. WEATHER 30SCT/40
J. TO TIME/SORTIE TIME 1352/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 330/03
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW EDMONDSON/OKUBARA	O. CHASE TO TIME/SORTIE TIME 1352/1.6

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES - 7,500 FT Hp - 107 KIAS POWER APPROACH CONFIGURATION
119 KIAS CRUISE CONFIGURATION
167 KIAS GEAR/FLAPS DOWN
169 KIAS CRUISE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:
First flight with lightest downspring installed in pitch system. No noticeable difference in takeoff characteristics.
Inflight conditions extremely turbulent for FQ data. TM was noisy and onboard tape jammed - no data obtained.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER	B. FLIGHT NO/DATA POINTS 176/PER TIS	C. DATE 27 FEB 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG 8689/22.1	I. WEATHER CLR/80
J. TO TIME/SORTIE TIME 1339/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW EDMONDSON/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1339/1.7

4. PURPOSE OF FLIGHT/TEST POINTS

FLUTTER/ENVELOPE EXPANSION
25,000 FT Hp, 279 KIAS/0.68M
WING AND TAIL SWEEPS AND BURSTS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:
Excellent flying conditions - data appear good.
Extremely high rates of descent (approximately 4,000 fpm) required to obtain entry conditions. Climb to 32,000 to 34,000 feet required to obtain entry airspeed of 279 KIAS at 27,000 feet.
Flutter system appeared to work satisfactorily.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS	C. DATE
FCF	25/PER TIS	27 FEB 87
D. FRONT COCKPIT *(Left Seat)*	E. FUEL LOAD	F. JON
EDMONDSON	1240	2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG	I. WEATHER
CAMPANO	7493/20.29	CLEAR
J. TO TIME/SORTIE TIME	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS
1624/1.2	PER TIS	CALM
M. CHASE ACFT/SERIAL NO	N. CHASE CREW	O. CHASE TO TIME/SORTIE TIME
N/A	N/A	N/A

4. PURPOSE OF FLIGHT/TEST POINTS

MAINTENANCE FUNCTIONAL CHECK FLIGHT (FCF) FOR ENGINE CONTROL UNIT (ECU) CHANGE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:

This mission was flown as a result of the left engine rolling back to idle on the last two missions (Flights 23 and 24). The first occurrence was on Flight 23, and a ground check found no problem so it was flown again on Flight 24 with no corrective action taken. It reoccurred on Flight 24. For this mission the ECU was changed from engine to engine, a right to left swap. Thinking being, the problem (roll back) "might" be caused by the ECU and since no new ECU's are available in the whole world a swap was in order. During the mission, the problem reoccurred on the same (left) engine. The obvious conclusion is that the problem is not caused by the ECU. But the sixty four dollar question is, what is causing the problem? No one here at the CTF knows. There is no tech data available to trouble shoot the problem. We need help to solve this one, but the help to date has been mostly finger pointing between FRC andd GTEC and no solution. Details of the situation on this mission are as follows:

Altitude 21,000 FT
Airspeed 120 KIAS
Wings Level
Unaccelerated Flight
Throttles Set At 75 Percent Fan - No Transients

From this stable condition the left engine rolled back to idle at which time the following cockpit gage readings were recorded:

	LEFT ENGINE	RIGHT ENGINE
FAN RPM	42	75
T 4.5	490	580
CORE RPM	67	86

(Continued on next page)

6. RECOMMENDATIONS

We need assistance from both FRC and GTEC to solve this problem. Recommend the SPO ask them to help.

COMPLETED BY	SIGNATURE	DATE

	LEFT ENGINE	RIGHT ENGINE
OIL PRESSURE	40	45
FUEL FLOW	80	200

After these readings were taken, the pilot selected "manual" fuel control on the left engine and the engine immediately responsed to power lever (throttle) movement. The engine did not automatically revert to manual. After the manual check the ECU was engaged again by the pilot selecting "auto", and the engine still did not follow the trottle. After approximately five minutes at 120 KIAS, the pilot slowly descended, and the engine began to respond normal in "auto". The aircraft was flown for another 30 minutes up to 25,000 feet and speeds between 120 and 200 KIAS with no reoccurrence of the problem.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1075	B. FLIGHT NO/DATA POINTS 67/PER TIS	C. DATE 27 FEB 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* GAMBLE	H. START UP GR WT/CG 8707/17.9	I. WEATHER CLR/50
J. TO TIME/SORTIE TIME 0932/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/WOODFORD	O. CHASE TO TIME/SORTIE TIME 0932/1.6

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES AT 7,500 FT AND 11,000 FT - DYNAMICS - LONGITUDINAL AND LATERAL DIRECTIONAL. LONGITUDINAL STATIC STABILITY AND MANEUVERING FLIGHT. AILERON ROLLS - PURPOSE WAS QUALIFICATION AND EVALUATION OF NEW LONGITUDINAL DOWN SPRING.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:
Excellent mission. The following maneuvers were flown:

1. Trim Point
2. Pitch Doublet - Stick Fixed
3. Pitch Doublet - Stick Free
4. Yaw/Roll Doublet - SAS OFF - Stick Fixed
5. Yaw Doublet - SAS ON - Stick Fixed
6. Sideslips - Full Left and Right
7. Aileron Rolls - One half Stick and Full - Both Left and Right - SAS ON and SAS OFF
8. Pull Ups and Pushovers to +2.0G and - 1.0G
9. Wind Up Turns To Stall or 4.0G's
10. Speed Stability

The test conditions flown included two altitudes:

1. 7,500 FT - 107 KIAS (PA), 119 KIAS (CR), 167 KIAS (GA)
2. 11,500 FT - 241 KIAS (CR)

The longitudinal control system was modified for this flight to include a down spring. The low speed points indicated there is a noticeably greater pull force. At higher speeds the force is not very noticeable. This change is better but stronger springs should be evaluated.

6. RECOMMENDATIONS

Continue to investigate the down springs.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1081	B. FLIGHT NO/DATA POINTS 177/PER TIS	C. DATE 2 MAR 87
D. FRONT COCKPIT *(Left Seat)* MOSS	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG 8685/22.19	I. WEATHER 200BKN/30
J. TO TIME/SORTIE TIME 1104/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 210/05
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/G+9	O. CHASE TO TIME/SORTIE TIME 1104/1.7

4. PURPOSE OF FLIGHT/TEST POINTS

FLUTTER, PHASE II - SAS OFF

283 KIAS/0.52M 11,500 FT - STICK RAPS, WING/TAIL SWEEPS AND BURSTS

295 KIAS/0.55M 11,500 FT - STICK RAPS, WING/TAIL SWEEPS AND BURSTS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:

Mission very productive. Did not accomplish all points, but did most of the card. For attaining the initial conditions, dives of 10 degrees and 15 degrees were used for the 283 and 295 KIAS test points respectively. Initially, an airspeed "pad" of 5 knots was used, but reduced to a one half knot pad as experience was gathered. About 15 to 25 minutes of loiter was required for engineering analysis of data between sweep points.

6. RECOMMENDATIONS

Continue Phase II Flutter

Investigate methods of reducing the time required to analyze the sweep data between test points.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLYING QUALITIES	B. FLIGHT NO/DATA POINTS 68	C. DATE 2 MAR 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* KOSTELNIK	H. START UP GR WT/CG 8716/17.8	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 1534L/1.7	K. CONFIGURATION/LOADING N/A	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33A/84TB	N. CHASE CREW MOSS/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1610/1.2

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES - QUALIFICATION AND LONGITUDINAL CONTROL SYSTEM EVALUATION

7,500 FT 169 KIAS

25,000 FT 119 KIAS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:

This was a somewhat abbreviated mission because the chase aircraft ground aborted with radio problems. Chase got his radio repaired and joined the test aircraft which was already airborne for 30 minutes.

The major objective of the mission was to evaluate the new (4.33LB/IN) down spring installed in the longitudinal control system. The spring does appear to increase the pull force associated with a decrease in air speed, but the force cradient is still quite light and could be increased. Recommend the large spring (13.16 LB/IN) be evaluated next.

Test maneuvers included:

1. Trim Point
2. Pitch Doublet - Stick Fixed
3. Pitch Doublet - Stick Free
4. Yaw Doublet (SAS ON) - Stick Fixed
5. Yaw and Roll Doublets (SAS OFF) - Stick Fixed
6. Steady Heading Side slips - Left and Right
7. Rolls (SAS OFF)
8. Rolls (SAS ON)
9. Roller coasters to -1.0 and +2.0 g's
10. Maneuvering Flight Up To Stall
11. Speed Stability

At 119 KIAS and 25,000 feet, the side slips generated approximately 20 degrees of beta at full pedal deflection. Also at this condition the full rudder deflection caused airframe buffet in both directions. It felt like the rudders were beginning to stall, but there was no force lightning on the pedals.

This mission was flown with Col Mike Kostelnik (6510 TW/TEV) in the right seat. He flew approximately 10 landings and 50 percent of the test points. An additional flight report will follow with his comments.

Colonel Kostelnik's comments attached.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLYING QUALITIES	B. FLIGHT NO/DATA POINTS 68	C. DATE 2 MAR 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* KOSTELNIK	H. START UP GR WT/CG 8716/17.8	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 1534L/1.7	K. CONFIGURATION/LOADING N/A	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33A/84TB	N. CHASE CREW MOSS/WOODFORD	O. CHASE TO TIME/SORTIE TIME 1610/1.2

4. PURPOSE OF FLIGHT/TEST POINTS

VIP ORIENTATION DURING FLYING QUALITIES TEST

5. RESULTS OF TESTS *(Continue on reverse if needed)*

COL KOSTELNIK

- Storage capacity for x-country flight is impressive and needed.

- Start procedures are excellent, simple, straight forward, excellent for new pilots.

- General cockpit layout acceptable; cockpit visibility excellent.

- Takeoff stick forces/nonlinearity as aircraft transitions through nosewheel liftoff is unacceptable. Need lighter stick forces initially and smoother transition to takeoff attitude.

- Light speed stability is similar to F-15 system and acceptable in that speed changes require little trim. I personally would prefer heavier forces/gradient to warn young pilots of speed (inadvertent) change.

- Up and away flying qualities generally good; no adverse impressions.

- Aircraft is simple to land, and that is excellent for ATC.

- Aircraft is, however, too clean in PA configuration. Speed brakes are required for normal pattern, but aircraft still must be flown like a glider. More drag in PA configuration would make the aircraft fly more like fighter aircraft in the inventory.

- I personally do not like having to use speed brakes to land the aircraft. It would be better to generate increased drag from larger flaps and have slower landing speed as well. Will always be tendency for young pilots to leave speed brakes out during go-around.

- Overall assessment: With some improvements in workmanship, takeoff stick force gradients, and PA drag, the aircraft would be a real asset for ATC.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 496

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1084	B. FLIGHT NO/DATA POINTS 69/PER TIS	C. DATE 3 MAR 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MARKS	H. START UP GR WT/CG 8696/18.1	I. WEATHER 250SCT/35
J. TO TIME/SORTIE TIME 1346/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 030/03
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/G+9	O. CHASE TO TIME/SORTIE TIME 1346/1.8

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES - LONGITUDINAL DOWN SPRING (4.33 LB/IN)

25,000 FT 119 KIAS (CR) 246 KIAS (CR)

27,500 FT 172 KIAS (CR)

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON:

Excellent mission. The entire mission was flown by Col Mike Marks, the Commandant of the USAF Test Pilot School. All the planned test points were accomplished. The following flight maneuvers were flown at each airspeed used above:

1. Trim Shot
2. Pitch Doublet - Stick Fixed
3. Pitch Doublet - Stick Free
4. Yaw Doublet (SAS ON) - Stick Fixed
5. Yaw/Roll Doublet (SAS OFF) - Stick Fixed
6. Steady Heading Sideslips
7. Aileron Rolls (SAS OFF)
8. Aileron Rolls (SAS ON)
9. Roller Coaster From -1.0g to +2.0g's
10. Wind Up Turns To Stall
11. Speed Stability

Again as on the previous mission, rudder buffet could be felt at full rudder pedal deflection sideslips at 119 KIAS and 25,000 feet. The cockpit beta gauge read about 18 degrees.

Col Marks made the following general comments about the aircraft since he had never flown it before:

1. Cockpit noise on the ground with the canopy open was louder than he expected.
2. The nosewheel steering is too sensitive during ground taxi.
3. The takeoff control forces are too high and the pitch attitude did not track as he expected during the initial aft stick input during rotation.
4. The cockpit is very comfortable and well layed out. The switches and gauges are in a very logical location.
5. Outside visibility from the cockpit was very good.

(continued on next page)

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

6. The roll rate during aileron rolls is a little too slow.
7. Formation wing work was very nice and easy to perform.
8. The landing pattern was extremely easy as were landings. More drag during the final turn and on final approach is required (he flew the 43/35 degree speed brake configuration).

Overall, he enjoyed the flight and appeared to like the aircraft.

DAILY/INITIAL FLIGHT TEST REPORT

1. AIRCRAFT TYPE	2. SERIAL NUMBER
T46	492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLUTTER/G1085	B. FLIGHT NO/DATA POINTS 178/PER TIS	C. DATE 4 MAR 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG 8689/22.4	I. WEATHER 100SCT/85
J. TO TIME/SORTIE TIME 0921/1.3	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW MOSS/MANKE	O. CHASE TO TIME/SORTIE TIME 0921/1.

4. PURPOSE OF FLIGHT/TEST POINTS

FLUTTER - ENVELOPE EXPANSIONS: 11,500 FT Hp, SAS OFF
295 KIAS - TAIL SWEEPS, 3G WIND UP TURNS
315 KIAS - WING AND TAIL SWEEPS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MAJ RICHE:

295 KIAS - One tail sweep and four wind-up turns to 3g's accomplished. Approximately 1800-2000 fpm rate of descent.

315 KIAS - Three wing sweeps and three tail sweeps accomplished. Approximately 6000 feet required to obtain entry airspeed at the top of the data band (13,500 ft). Once established, rate of descent required to maintain 315 KIAS was approximately 3200 fpm indicated. Descent rate significantly higher than predicted.

Landing - Was able to maintain approximately 12 degree nose high pitch attitude during landing roll-out to 65 KIAS before loss of elevator control. This is a significantly lower airspeed than previously observed.

VOR evaluated in flight - display is random and not reliable.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

MDE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1085	B. FLIGHT NO/DATA POINTS 70/PER TIS	C. DATE 4 MAR 87
D. FRONT COCKPIT *(Left Seat)* MOSS	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* MINK	H. START UP GR WT/CG 8708/17.9	I. WEATHER 100SCT/85
J. TO TIME/SORTIE TIME 1336/1.9	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW EDMONDSON/G+9	O. CHASE TO TIME/SORTIE TIME 1338/1.5

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES - TO EVALUATE THE AIRCRAFT'S LONGITUDINAL CHARACTERISTICS WITH THE HEAVIER -5 DOWNSPRING.

TEST POINTS CONSISTED OF TAKEOFFS USING FULL AFT STICK OR FORWARD NOSE TRIM; AND AREA WORK OF WIND-UP TURNS AND SPEED STABILITY.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CAPT MOSS:

The mission was flown as briefed. Quantitative data were collected on the instrumentation system to appease the engineers. All test points were flown properly using valid flight test techniques.

SUBJECTIVE EVALUATION OF THE -5 DOWNSPRING

- The -5 spring is measurably stiffer than the original spring, but not overwhelmingly so. The end results are: higher stick forces per g, higher stick forces during takeoffs and landings, and a slightly steeper speed stability slope.

-- Higher stick forces per g: Several wind-up turns were accomplished. At 169 KIAS it required approximately 70-80 lbs. of force to pull 3 g's. I consider this to be a bit too high for a fully acrobatic aircraft.

-- Higher stick forces during takeoffs and landings: Both heavyweight (1050 lb. fuel) and lightweight (350 lb. fuel) takeoffs were accomplished using:

(a) normal techniques,
(b) full aft stick until nosewheel unstick,
(c) 1/2 nose-down trim, and
(d) full nose-down trim.

The stick forces required for all these takeoffs was considered too high, but only modestly so. The highest stick force encountered was with the stick full aft, then full nose-down, then 1/2 nose-down, then using normal techniques. The stick forces were higher with the aircraft at the higher gross weights.

(continued on next page)

6. RECOMMENDATIONS

Incorporate the -5 downspring for the purpose of improved speed stability, but pursue other methods to lighten the stick forces during takeoff and maneuvering flight.

COMPLETED BY	SIGNATURE	DATE

-- During landings there was a slightly perceptible improvement in speed stability (steeper slope) compared to the original downspring. However, at final approach airspeeds in the Power Approach (PA) configuration, the aircraft ran out of aft longitudinal trim. Therefore, this out of trim condition masked the improvement in speed stability.

- Overall, the -5 downspring is an improvement over the original spring, but it does not solve both problems of:

(a) light speed stability and
(b) heavy stick forces during takeoff and maneuvering flight.

Although it improves (steepens) the speed stability, it worsens the heavy stick forces during takeoff and maneuvering flight. Any final solution would have to address both problems.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46A	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1101	B. FLIGHT NO/DATA POINTS 72/PER TIS	C. DATE 9 MAR 87
D. FRONT COCKPIT *(Left Seat)* EDMONDSON	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* CAMPANO	H. START UP GR WT/CG 8892/22.7	I. WEATHER 60SCT/40
J. TO TIME/SORTIE TIME 1355/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW RICHE/POFF	O. CHASE TO TIME/SORTIE TIME 1355/1.7

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES AT AFT CG WITH LIGHT DOWN SPRING
7,500 FT 107 KIAS (.19M) PA, 119 KIAS (.21M) CR
167 KIAS (.30M) GA, 169 KIAS (.30M) CR

5. RESULTS OF TESTS *(Continue on reverse if needed)*

LT COL EDMONDSON
Mission was flown with the 4.33 lb/in longitudinal control system down spring installed. Aft CG dynamics appear to be the same both longitudinal and directional as with mid CG. The light down spring is detectible during static tests by a trained observer, but a student pilot would probably never notice it. The aft CG appeared to reduce control force for the initial rotation during takeoff as well as reducing the aft stick force during landing. The aft CG tested on this flight appears to be quite satisfactory.

MAJ CAMPANO
Rotation: Noticeably lighter forces to rotate. I unintentionally anticipated heavier forces which caused a higher than normal climbout attitude greater than 15 deg. Stick shaker activated due to high pitch attitude. I slowly lowered attitude to normal, and shaker went off. I think shaker onset was good to tell pilot he was too nose high. Aircraft rotated to 2-point attitude at 95 KIAS off runway at 103 KIAS.

Landing: Again, noticeable lighter forces in flare. Unlike mid- to forward-range CGs. Did not have to steadily increase forces to keep proper attitude. Could hold landing picture satisfactorily. Not as "touchy" as I had first envisioned when flew aft CG before.

No notice of any changes to changes in stick forces with added spring.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46A	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FORM/G1102B	B. FLIGHT NO/DATA POINTS 73/PER TIS	C. DATE 10 MAR 87
D. FRONT COCKPIT *(Left Seat)* MOSS	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SCHULZ	H. START UP GR WT/CG 8803/22.3	I. WEATHER 2500VC/35
J. TO TIME/SORTIE TIME 0933/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T46/492	N. CHASE CREW MANKE/RICHE	O. CHASE TO TIME/SORTIE TIME 0933/1.7

4. PURPOSE OF FLIGHT/TEST POINTS

FORMATION (AFT CG)

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Wing Takeoff - Nosewheel steering was very sensitive for a wing takeoff and should probably not be used above approximately 20 KIAS. Lead made a smooth steady rotation to takeoff attitude. In my attempt to match him, I rotated well past a normal takeoff attitude due to a rapid pitch rate (aft CG). We lifted off early with the stick shaker shaking and ended up well above lead.

Area Work - In general, it was difficult to maintain a reasonable energy level at altitudes above 15,000 ft. Handling qualities were generally good, although pitch control was sensitive at this CG. During cross cockpit maneuvering, the canopy bow was bothersome due to its thickness. The side mirrors are too small to effectively monitor the wingman cross cockpit. Speedbrakes were excellent for wing formation work.

Patterns and Landings - The aircraft handled well, and leading a wing approach was a relatively easy task, as was the go around. Patterns were easy to fly, but the aircraft needs more drag on final. Landings were not difficult, but pitch control in the flare was noticeably more sensitive at this CG. The light in the gear handle is incredibly difficult to see. At cooler temperature settings, the air conditioner spit snow.

6. RECOMMENDATIONS

1. Improve takeoff characteristics.
2. Increase drag in the pattern.
3. Make the gear handle light visible.
4. Improve mirror design.
5. Decrease drag in the area.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46A	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1103	B. FLIGHT NO/DATA POINTS 74/PER TIS	C. DATE 10 MAR 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* GAMBLE	H. START UP GR WT/CG 8887/22.8	I. WEATHER 50SCT/45
J. TO TIME/SORTIE TIME 1354/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 030/05
M. CHASE ACFT/SERIAL NO T33/84TB	N. CHASE CREW EDMONDSON/HERRING	O. CHASE TO TIME/SORTIE TIME 1355/1.2

4. PURPOSE OF FLIGHT/TEST POINTS

FLYING QUALITIES 11,000 FT, 241 KIAS, CRUISE
25,000 FT, 119 KIAS, CRUISE

IP-1

5. RESULTS OF TESTS *(Continue on reverse if needed)*

RICHE

Maneuver block "A" accomplished at 11,000 ft Hp/241 KIAS and 25,000 ft Hp/119 KIAS, as well as speed stability. Very little stick forces noted at the airspeed extremes of the speed stability test points. All other data appeared good.

Aft CG produced noticeably lighter stick forces during takeoff and landing, but not significant.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO	B. FLIGHT NO/DATA POINTS	C. DATE
OT&E/G1108	29/PER TIS	11 MAR 87
D. FRONT COCKPIT *(Left Seat)*	E. FUEL LOAD	F. JON
SCHULZ	1240	2591A0
G. REAR COCKPIT *(Right Seat)*	H. START UP GR WT/CG	I. WEATHER
GAMBLE	7493/20.29	CLEAR
J. TO TIME/SORTIE TIME	K. CONFIGURATION/LOADING	L. SURFACE CONDITIONS
1527/1.8	PER TIS	200/10
M. CHASE ACFT/SERIAL NO	N. CHASE CREW	O. CHASE TO TIME/SORTIE TIME
N/A	N/A	N/A

4. PURPOSE OF FLIGHT/TEST POINTS

IP TRAINING FOR MAJ SCHULZ
OT&E SIMULATED EMERGENCY PROCEDURES PROFILE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Maj Gamble
Maj Schulz performed exceptionally well, and his instruction was noteworthy.
ECS airflow still noisy and distracting.
Engines ran flawlessly in auto mode for entire sortie.
Simulated single engine go-around performance was better than I expected.

Maj Schulz
All of the performed maneuvers were easy to accomplish. At 250 KIAS the speedbrakes produced quite a bit of buffet and were very effective. Runaway trim at 200 KIAS in all direction was easy to handle. Stick forces were noticeably less than they would be in a T-37 under the same circumstances. Alternate gear extension times at 150 KIAS were:

15 M	40 sec
10 M	37 sec
5 M	37 sec
Pattern	32 sec

The light in the gear handle was difficult to see, and more drag in the pattern would be helpful. The ECS airflow was very noisy. During landings, when the throttles were brought to idle, there was a noticeable delay until the airflow noise died down, which gave the aural illusion that engine power had not been reduced when the throttles were retarded.

6. RECOMMENDATIONS
Reduce airflow noise.
Make the gear handle light visible.
Increase drag available in the pattern.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1106	B. FLIGHT NO/DATA POINTS 28/PER TIS	C. DATE 11 MAR 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG 7493/20.29	I. WEATHER 40SCT/85
J. TO TIME/SORTIE TIME 1205/2.1	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 290/3G10
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

INSTRUCTOR PILOT UPGRADE EVAL FOR MAJ GAMBLE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Maj Gamble flew an excellent checkride.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT

1. AIRCRAFT TYPE	2. SERIAL NUMBER
T46	596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO AVIONICS/G1104	B. FLIGHT NO/DATA POINTS 27/PER TIS	C. DATE 11 MAR 87
D. FRONT COCKPIT *(Left Seat)* MINK	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG 7493/20.29	I. WEATHER 50SCT/85
J. TO TIME/SORTIE TIME 0820/2.2	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/15G19
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

AVIONICS TEST
MAX ALTITUDE ATTEMPT

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Flown as briefed.
With about 500 lbs fuel, 145 KIAS was obtained at 39,400 ft. Then, a zoom climb was initiated. Maximum altitude reached was 41,650 ft, with 29.92 set in Kolsman window.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

AFSC Form 5314, NOV 86 REPLACES AFFTC FORM 365, MAR 84, WHICH WILL BE USED

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1105	B. FLIGHT NO/DATA POINTS 182/PER TIS	C. DATE 11 MAR 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8885/19.6	I. WEATHER 50SCT/85
J. TO TIME/SORTIE TIME 0907/1.9	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/15G19
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OPERATIONAL TEST AND EVALUATION
STALLS/SLOW FLIGHT
AEROBATICS
PATTERNS AND LANDINGS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Stalls: Altitude lost in accelerated stall is minimal (less than 50 ft). Altitude lost in 1G configured stalls is approximately 200-300 ft.

Aerobatics: A split "S" maneuver requires 3500 ft to accomplish (entry 120 KIAS, 80 percent core). Lateral stick forces are heavy during slow speed rolls.

Patterns: Speedbrakes and 0 deg flaps appear to create an appropriate amount of pattern drag on the test aircraft for single engine operations.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FORM/G1102A	B. FLIGHT NO/DATA POINTS 181/PER TIS	C. DATE 10 MAR 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8887/19.69	I. WEATHER 2500VC/35
J. TO TIME/SORTIE TIME 0933/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO T-46/493	N. CHASE CREW MOSS/SCHULZ	O. CHASE TO TIME/SORTIE TIME 0933/1.7

4. PURPOSE OF FLIGHT/TEST POINTS

FORMATION OPERATIONAL TEST AND EVALUATION

5. RESULTS OF TESTS *(Continue on reverse if needed)*

1. Test aircraft are unable to maintain satisfactory energy level in formation above 20,000' MSL.

2. Cross-cockpit visibility in fingertip is poor. Canopy bow is too thick. Visibility to the rear is marginal during trail and rejoins.

3. All rejoins are easy to perform. Speedbrakes are excellent for depleting airspeed late in the rejoin.

4. Formation approach and landing: Aircraft is very stable during wing approach and landing.

5. Power response appears to be slower at altitude greater than 20,000'.

6. Throttle friction too high. Extremely noticeable in fingertip maneuvering. Combination of friction and power response makes power anticipation mandatory.

6. RECOMMENDATIONS

Reduce the amount of throttle friction at the lowest setting.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO IP-1/G1100	B. FLIGHT NO/DATA POINTS 180/PER TIS	C. DATE 9 MAR 87
D. FRONT COCKPIT *(Left Seat)* RICHE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG 8887/19.7	I. WEATHER 60SCT/35
J. TO TIME/SORTIE TIME 0946/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 220/07
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

INSTRUCTOR UPGRADE IP-1 FOR CAPT MOSS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

No discrepancies. Flight was flown according to the syllabus requirements.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

AFSC Form 5214, NOV 86 REPLACES AFTC FORM 265, MAR 84, WHICH WILL BE USED

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FORM & DEMO/G1088A	B. FLIGHT NO/DATA POINTS 179/PER TIS	C. DATE 5 MAR 87
D. FRONT COCKPIT *(Left Seat)* CHOATE	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* RICHE	H. START UP GR WT/CG 8887/19.69	I. WEATHER 40BKN/25
J. TO TIME/SORTIE TIME 1053/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/10
M. CHASE ACFT/SERIAL NO T46/493	N. CHASE CREW SLADEK/EDMONDSON	O. CHASE TO TIME/SORTIE TIME 1348/1.6

4. PURPOSE OF FLIGHT/TEST POINTS

AIRCRAFT EVALUATION FLIGHT BY MAJ CHOATE AND MAJ SLADEK
FLIGHT INCLUDED SINGLE SHIP T/O. AREA WORK: STALLS (1G AND ACC.) 3G TURNS; AILERON ROLLS, SLOW FLT. FORMATION WITH T-2: WING WORK, APPROACHES, PATTERNS: 1500 FT & 1000 FT. NORMAL, SINGLE-ENG, NO FLAP: BOTH LEFT BASE AND RIGHT BASE.

5. RESULTS OF TESTS *(Continue on reverse if needed)*

CHOATE

Overall, this aircraft is easy to fly. It's responsible to control inputs; visibility is excellent, cockpit layout outstanding. Engine starts very easy. Noise level canopy open is low; canopy closed is very nice (could talk without interphone). Throttle friction even in MIN is too tight. Taxi--good visibility. Nose wheel steering is responsive. Brakes hold at Mil power, but peddle angle is too far down (feels like your feet may slip off). Takeoff: Heavy aft stick forces required to rotate; pitch rate is quick but controllable; forward stick required to stop at proper altitude. 1G stalls have no warning. When stall occurs, there is a clean break. Accelerated stalls have sufficient warning. Pitch & roll control is positive and responds quickly to inputs. Formation wing work: stable wing position easy to maintain. Visibility is good including cross-cockpit. Patterns: Both 1500 ft and 1000 ft, left and right patterns. Normal, S. eng and no flap. All patterns required use of idle power for most of the pattern. Short final and touchdowns required heavy aft stick forces even with full nose up trim. Directional control on touch and go is easy to maintain. Visibility is excellent in both left and right patterns.

6. RECOMMENDATIONS

Work on heavy stick forces in flare, touchdowns, and takeoff. Throttle friction too tight; throttle grips need redesign for grip and starter buttons. Flap lever is hard to reach. Need stall warning for 1G stalls. Work some solution that does not require the use of idle power for the patterns.

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46	2. SERIAL NUMBER 492

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO QUAL/G1110	B. FLIGHT NO/DATA POINTS 183/PER TIS	C. DATE 12 MAR 87
D. FRONT COCKPIT *(Left Seat)* COUCH	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG 8887/19.7	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 0943/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

QUAL FLIGHT

1. FORMATION TAKEOFF - WING
2. WING WORK
3. FORMATION LEAD
4. STALLS--1G, 3G, CLEAN
5. STALLS--1G, 2G, PA
6. SLOW FLIGHT--PA
7. ACROBATICS
8. OPEN LOOP HQ
9. TRAFFIC PATTERNS (8 T&GS, VAR PA CONFIGURATION)
10. WING LOW APPROACH
11. FORMATION FULL STOP (LEAD)

5. RESULTS OF TESTS *(Continue on reverse if needed)*

COUCH

General Comments: The T-46 is a very comfortable, easy-to-fly trainer. It possesses the performance, handling qualities, ride quality, and human factor qualities which are desirable for an intermediate-level trainer. The only noteworthy shortcomings which were observed in this limited evaluation were the slow engine response and the non-linearity of the outward mold lines of the aircraft, which caused some difficulty in getting into the "perfect" position and holding it during formation flying. The traffic patterns were extremely easy to fly in all configurations.

Specific Comments

1. Formation: Flying was easy with absolutely no tendency to overcontrol the aircraft. There was no PIO tendency. Power response was poor due to engine spool-up time, but once this became apparent, it was easy to compensate and make timely changes. The aircraft does not provide a very symmetric platform off of which to fly fingertip, but neither does the T-37. This makes the "perfect" position hard to find and stay in. As lead, it is hard to keep the wingman in sight.

2. Air Work: The aircraft was controllable to the G break in 1G and accelerated stalls. There was no stall warning except for slight stick buffet about 5-10 kts prior to the accelerated stall. Stall recovery was simple, and it was possible to recover with little altitude loss. Stick forces during all maneuvers were relatively light. There was good control harmony between the lateral and longitudinal forces. Simulated engine losses resulted in very little, if any, yaw. Rudder forces during engine-out flight were light. Configuration changes during flight resulted in little, if any, trim changes except for the speedbrakes extension/retraction. Close attention would be required during speedbrake operation in weather or in formation.

(Continued on next page)

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

3. Pattern: Traffic patterns flown from 3300 ft MSL (1000 ft AGL) were very comfortable. Airspeeds were maintainable within ± 5 kts even when the speedbrakes were not used. Tight patterns required idle power throughout the base turn and final approach. Touchdowns within the first 1000 ft were easily obtainable. Jet wash and wake vortices were very noticeable, and on one approach behind another T-46, a ground-around from jet upset was initiated. This tendency would warrant a closer look.

4. Ground Handling: The aircraft showed very good ground handling even up to speeds of 45-50 KIAS. The nose wheel steering became more sensitive at higher speed, but there is not a tendency to get into a ground PIO.

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1106	B. FLIGHT NO/DATA POINTS 30/PER TIS	C. DATE 12 MAR 87
D. FRONT COCKPIT *(Left Seat)* SCHULZ	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SHAWLER	H. START UP GR WT/CG 7493/20.29	I. WEATHER CLR/25
J. TO TIME/SORTIE TIME 1003/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OT&E, PERF AND IP CHECK

5. RESULTS OF TESTS *(Continue on reverse if needed)*

1. OT&E objectives completed.

2. a. Speed power points completed at 5,000 ft, 150K, 200K, 250K, and Vmax.
   b. Max power climb accomplished from 5,000 ft to 35,000 ft.
   c. Vmax points completed at 35,000 ft and 25,000 ft.

3. IP check for Maj Schulz completed.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1113	B. FLIGHT NO/DATA POINTS 31/PER TIS	C. DATE 12 MAR 87
D. FRONT COCKPIT *(Left Seat)* MANKE	E. FUEL LOAD 1248	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* EDMONDSON	H. START UP GR WT/CG 7493/20.29	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 1243/1.5	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OT&E MISSION AND INSTRUCTOR PILOT FLIGHT CHECK FOR CAPT MANKE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Stalls: Stick shaker comes on appropriately at all altitudes tested. (3-6 KIAS prior to 1G stalls)

Split S: Altitude loss is approximately 3,000 ft. (entry: 120 KIAS, 80 percent C, 2-3 G pull)

Immelmann: Extremely easy to perform using 260 KIAS entry and 3 to 3-1/2 G pull.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G7107	B. FLIGHT NO/DATA POINTS 32/PER TIS	C. DATE 12 MAR 87
D. FRONT COCKPIT *(Left Seat)* GAMBLE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* SCHULZ	H. START UP GR WT/CG 7493/20.29	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 1557/1.8	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OT&E SIMULATED EMERGENCY PROCEDURES PROFILE

5. RESULTS OF TESTS *(Continue on reverse if needed)*

Most maneuvers were easy to perform, but it was hard to maintain a good energy level above 20,000 MSL. The light in the gear handle was still hard to see, and the air conditioner was still noisy. We flew some steep finals for the first time in quite a while and found that it was easy to develop a sink rate on final that required a large power correction to arrest.

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46A	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO FLY QUAL/G1112	B. FLIGHT NO/DATA POINTS 77/PER TIS	C. DATE 12 MAR 87
D. FRONT COCKPIT *(Left Seat)* MOORE	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG 8878/19.76	I. WEATHER CLEAR
J. TO TIME/SORTIE TIME 1437/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS CALM
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME NA/

4. PURPOSE OF FLIGHT/TEST POINTS

QUALITATIVE EVALUATION OF THE T-46A IN ITS MISSION AS A FUTURE GENERATION TRAINER

5. RESULTS OF TESTS *(Continue on reverse if needed)*

MOORE

Cockpit

-- Circuit braker panel on stick pedestal extremely difficult to access
-- Hard to step into (footstep is too high)
-- Ejection seat: Arm/disarm indicators and procedure (no pins) excellent
-- UHF and VHF radio excellent
-- Duplicate instruments excellent
-- An extra instrument for student to look at (core and FAM RPM)
-- Visibility: Side and forward excellent, aft poor

Start

-- Extremely simple, easy

Taxi

-- Slight breakout, causes undue oversensitivity
-- Nose wheel movement/rudder displacement large

Takeoff

-- Brakes (with pumps) held aircraft in MIL
-- Abrupt pitch-up as stick force increased for rotation. Reverse (push) stick force was necessary to attain the desired pitch attitude.
-- No noticeable configuration trim requirements

(continued on next page)

6. RECOMMENDATIONS

1. Improve (decrease) nose wheel movement/rudder displacement.
2. Improve power plant (more thrust).

COMPLETED BY	SIGNATURE	DATE

Climbout

-- Extremely stable in climb

-- Dynamics: s.p. deadbeat - (2-3 cycles per sec)
dutch roll - yaw (1) - 1 overshoot (.6 cycles per sec) (SAS - on)
(0) - 10 overshoots (SAS - off)
spiral - neutral
roll mode time constant - approx. 0

Level Off

-- Cruise: 520 lbs/hr

-- Wind up: Man flight, linear nice feel in gradient (200 kts, 20K)

Stalls

-- 1g clean: stick shaker (1) - 102 kts, 12 AOA
stick shaker (0) - 97 kts, 18 AOA, 1 kt warning, mild g break

-- Mid flaps: stick shaker (0) - 92 kts, 18 AOA, 1 kt warning, mild g break

-- Full flaps: stick shaker (0) - 85 kts, 18 AOA, 1 kt warning, abrupt g break and lateral divergence

Acro

-- Easy to perform, Immelman - altitude 1500 ft

Tracking Tasks

-- Pitch: gross - one overshoot
fine - easy

-- Roll: gross - one overshoot
fine - easy

Formation

-- Rejoin: cross cockpit poor visibility

-- Fingertip: Straight and level - desired moderate compensation
Roll - Excellent control
Pitch - Slightly sensitive (light stick forces)

Patterns and Landing

-- Normal: Easy, speed schedule hard to maintain = f(drag)

-- No flap: Easy, speed schedule hard to maintain = f(drag)

-- No flap: S.E., speed schedule hard to maintain = f(drag)
Go around fully configured - VVI = 0
gear up - VVI = 500
speedbrake in - VVI = 800

General

-- Long spool-up time in engines (approx. 7 sec); pilot must be always conscious of power deficiency

-- Underpowered (or too much drag); (R-2)

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T-46A	2. SERIAL NUMBER 493

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO QUAL/G1115	B. FLIGHT NO/DATA POINTS 78/PER TIS	C. DATE 13 MAR 87
D. FRONT COCKPIT *(Left Seat)* BOWER	E. FUEL LOAD 1240	F. JON 2591AO
G. REAR COCKPIT *(Right Seat)* MOSS	H. START UP GR WT/CG 8878/22.95	I. WEATHER 30SCT/50
J. TO TIME/SORTIE TIME 0925/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/17G23
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME NA/

4. PURPOSE OF FLIGHT/TEST POINTS

QUAL/EVAL FLIGHT

MISSION PROFILE (TWO-SHIP FORMATION)
- -- FINGERTIP MANEUVERING UP TO 3.3G
- -- PITCHOUT/REJOINS
- -- TRAIL MANEUVERING
- -- FORMATION WING APPROACH/LANDING

PROFILE (SINGLE SHIP)
- -- STALL INVESTIGATIONS
- -- LIMITED AEROBATICS
- -- 3G TURNS
- -- OVERHEAD PATTERNS/LANDINGS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

BOWER

Preflight--very easy and simple (desirable)

Start/Taxi/Interior Checks
- -- Flap lever location was poor, hard to reach
- -- Speedbrake switch recessed and would take several attempts to get used to
- -- Unable to observe flight control movements
- -- Large, roomy cockpit; very comfortable
- -- Circuit breakers hard to get to
- -- Nose wheel steering is sensitive; on/off switch would be better. Hard for a basic student to do cockpit duties while taxiing.

Takeoff
- -- Brake pedals rotate too far forward; be easy for feet to slip off
- -- Rotation force was ok, but rate increased divergently and had to be stopped

Stall Investigations
- -- Very sharp stall break with almost no warning; unacceptable for basic students
- -- With stall warning (stick shaker), good

Aerobatics
- -- Able to perform with little effort; good handling characteristics

Formation
- -- Easy to stop in position at 190 KIAS rejoins, but more difficult at lower speeds
- -- Slow throttle response, fanning speedbrakes worked better for power/speed control

(continued on next page)

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

-- Cross-cockpit formation references poor; hard to judge wingtip spacing
-- Formation approach, aircraft tended to wallow around with no good ques for speed

Patterns/Landings
-- Formation landing easy
-- Overhead patterns (1000 ft/1500 ft) easy to fly
-- Landings would be easy to instruct and fly

Miscellaneous
-- Emergency gear extension, too much time required for gear to come down

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1114	B. FLIGHT NO/DATA POINTS 34/PER TIS	C. DATE 13 MAR 87
D. FRONT COCKPIT *(Left Seat)* SHAWLER	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* MINK	H. START UP GR WT/CG 7493/20.29	I. WEATHER 30SCT/50
J. TO TIME/SORTIE TIME 1000/1.7	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 230/17G23
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

PERF, IOT&E AND IP CHECK

5. RESULTS OF TESTS *(Continue on reverse if needed)*

1. All objectives completed.

2. Performance

Speed power points

15,000 ft	150K, 200K and Vmax
25,000 ft	150K, 200K and Vmax
30,000 ft	130K, 150K and Vmax

LAST FLIGHT

6. RECOMMENDATIONS

COMPLETED BY	SIGNATURE	DATE

DAILY/INITIAL FLIGHT TEST REPORT	1. AIRCRAFT TYPE T46	2. SERIAL NUMBER 596

3. CONDITIONS RELATIVE TO TEST

A. PROJECT/MISSION NO OT&E/G1099	B. FLIGHT NO/DATA POINTS 33/PER TIS	C. DATE 13 MAR 87
D. FRONT COCKPIT *(Left Seat)* SCHULZ	E. FUEL LOAD 1240	F. JON 2591A0
G. REAR COCKPIT *(Right Seat)* GAMBLE	H. START UP GR WT/CG 7493/20.29	I. WEATHER CLR/85
J. TO TIME/SORTIE TIME 0723/1.6	K. CONFIGURATION/LOADING PER TIS	L. SURFACE CONDITIONS 240/18
M. CHASE ACFT/SERIAL NO N/A	N. CHASE CREW N/A	O. CHASE TO TIME/SORTIE TIME N/A

4. PURPOSE OF FLIGHT/TEST POINTS

OT&E - HEAVYWEIGHT PATTERNS, STALLS, AEROBATICS

5. RESULTS OF TESTS *(Continue on reverse if needed)*

1. Patterns flown in strong wind conditions. Aircraft performed well and no appreciable difference in performance associated with heavyweight patterns.

2. The artificial stall warning installed on P-1 worked OK at altitudes and in configurations flown on this mission. Artificial stall warning is not apparent to pilot not flying aircraft.

3. Flew immelmans up to 28,000 ft MSL wing 300 KIAS entry airspeed. Individual maneuvers easy to accomplish. However, the ability to maintain energy for successive maneuvers is suspect.

6. RECOMMENDATIONS

Continue high altitude block acro testing and further examination of artificial stall warning.

COMPLETED BY	SIGNATURE	DATE