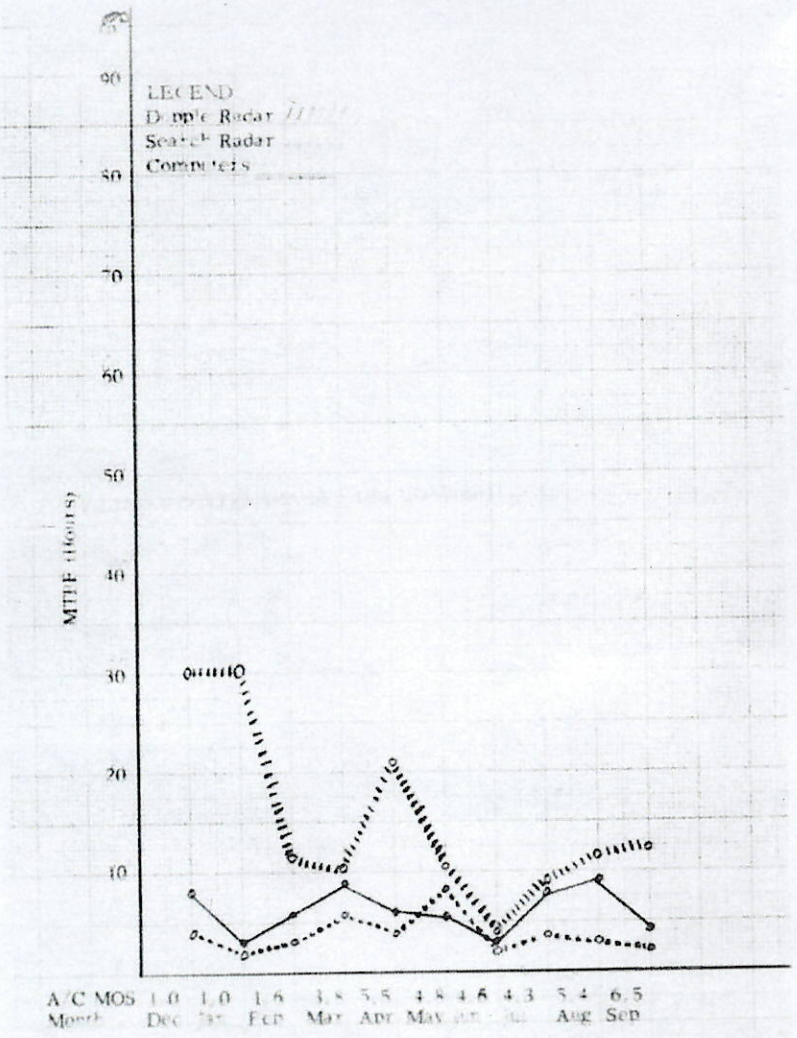

Fig. 3 Operational Reliability

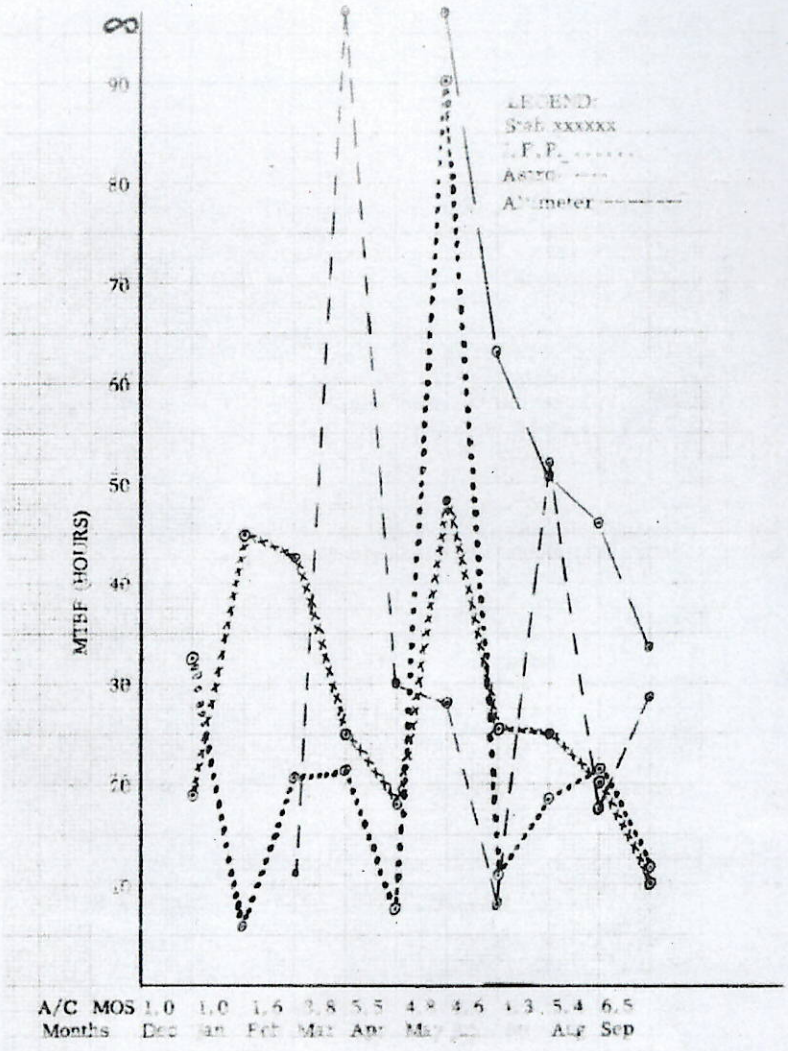

Fig 4 Operational Reliability

sub-systems is indefinite for those months and no point appears on the graph.

(c) Large deviations in MTBF's from month to month can be expected for some sub-systems due to large amounts of ground "on time" being imposed on the sub-system with few or no failures occurring. As an example: Figure 4 shows an MTBF of 11.0 hours on the astrotracker in February and an indefinite MTBF in March because there were no failures on the astrotracker in March.

b. Maintainability.

(1) Table IV is a tabulation of Bomb-Nav flight line maintenance manhours per month per sub-system. Aircraft 2436 is shown at the bottom as a separate entry. Other figures include man-hours for aircraft 428-434. Also shown is the aircraft months per month.

(2) It must be realized that the sub-system having the larger number of circuits and components normally require the most maintenance man-hours.

(a) As an example: the computer sub-system has nineteen LRU s as compared to the search radar which has nine LRU's. The search radar has had 1504 maintenance man-hours expended as compared to computers which has had 1983 maintenance man-hours. (Ref. Table IV.)

(b) The MTBF of a sub-system is directly related to the maintenance man-hours. The search radar sub-system, having a lower MTBF than the computer sub-system, has required approximately the same number of maintenance man-hours. (Ref. Table IV.)

TABLE IV

SUB-SYSTEM FLIGHT LINE MAINTENANCE MAN-HOUR SUMMARY

Months	Computers	Stabilization	Search Radar	Doppler Radar	Astro-tracker	Inflight Printer	Radio Alt	A/C Months
Dec	137	35	182	13	1	4	0	1
Jan	55	9	223	2	2	5	0	1
Feb	161	27	67	30	26	9	0	1.6
Mar	183	167	119	97	72	11	0	3.8
Apr	242	147	165	76	108	41	0	5.5
May	156	43	97	45	44	25	4	4.8

SUB-SYSTEM FLIGHT AIDS MAINTENANCE MAN-HOUR SUMMARY (Cont'd)

Months	Computers	Stabilization	Search Radar	Doppler Radar	Astro-trainer	Inflight Printer	Radio Alt.	A/C Months
Jun	231	62	53	14	4	30	35	4.6
Jul	367	172	170	15+	21	17	13	4.3
Aug	462	345	398	139	105	21	13	5.4
Sep	186	30	213	96	96	13	6	5.6
TOTAL (428-434)	2170	1097	1717	702	421	176	71	37.6
Sep (436)	83	57	11	0	4	3	2	1

(3) Table V is a tabulation of LRU removals of the Bomb-Nav system divided into sub-systems to show the average A&B Field Shop maintenance man-hours per removal and the meantime between removal (MTBR).

(4) The "total removal" column was not used in computing the "average man-hour per removal" because the shop man-hours were not known for all removals. The column headed "removal shop man-hours known" was used for computing the "average man-hours per removal."

(5) The average man-hours per removal was determined by dividing the total man-hours expended by the total number of removals for which man-hours were known.

(6) The meantime between removals (MTBR) column is broken down to show average air time (A), average ground time 'G' and average total time (A-G) per removal. These MTBR's were determined by dividing the total times (air, ground, and air plus ground) by the total removals for each LRU. Only those LRU's which have been removed as often as five times or more are shown.

TABLE V

LINE REPLACEABLE UNIT (LRU) REMOVAL SUMMARY

LRU	Total Removals	Removals Shop M-Hrs Known	Ave. Shop M-Hr per Removal	MTBR A	MTBR G	MTBR A-G
Sub-System Computers						
PDI	13	9	1.1	46.1	92.5	138.0
Astro Panel	18	15	5.1	27.7	66.8	100.0

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LINE REPLACEABLE UNIT (LRU) REMOVAL SUMMARY (Cont'd)

LRU	Total Removals	Removals Shop M-Hrs Known	Ave. Shop M-Hr per Removal	MTBR A	MTBR G	MTBR A+G
Sub-System: Computers (Cont'd)						
Indicator Panel	38	30	6.5	13.2	31.6	47.5
Off-Set & Storage Panel	9	9	6.4	55.1	133.0	200.0
Malfunction Control Panel	9	6	4.6	66.5	134.0	200.0
Nav. Control Panel	14	11	7.7	35.6	85.6	127.0
Sighting & Test Panel	41	39	9.2	12.3	29.3	44.0
Navigation Rack	13	10	4.3	38.4	92.5	138.2
Heading Rack	11	6	7.7	54.5	109.0	163.6
Sighting Range Rack	27	22	7.8	22.2	44.5	66.7
Steering Rack	8	5	5.6	75.0	150.0	225.0
Sighting Rack	14	12	5.3	42.8	85.6	128.0
Airspeed Comp. Rack	24	18	11.9	25.0	50.0	75.2
Voltage Regulator	8	7	7.2	75.0	150.0	225.0
TOTAL	247	199				
Sub-System: Stabilization						
Prime Nav. Stab. Unit	7	5	6.2	85.5	163.0	248.0
Auxiliary Ref. Unit	24	10	7.4	24.8	47.6	72.5
Stab. Comp Amp Unit	7	7	8.6	85.5	163.0	248.0
Stab Amp Unit	5	4	8.0	119.4	228.0	348.0
TOTAL	43	26				
Sub-System: Astrotracker						
Tracker Unit	9	5	5.4	66.0	34.0	96.5
Tracker Amp Unit	25	17	4.1	23.6	11.1	34.6
TOTAL	34	22				
Sub-System: Radio Altimeter						
Electronic Control Amp	7	5	3.2	84.5	12.5	121.5
Receiver Transmitter	7	6	2.3	84.5	12.5	121.5
TOTAL	14	11				

LINE REPLACEABLE UNIT (LRU) REMOVAL SUMMARY (cont'd)

LRU	Total Removals	Removals Shop M-hrs Known	Ave Shop M-hr per Removal	MTBR A	MTBR O	MTBR A-O
Sub-System: In-Flight Printer						
Printer Unit	26	23	3.7	23.0	7.1	30.0
Printer Control	20	19	6.6	19.8	9.3	39.0
TOTAL	46	42				
Sub-System: Doppler Radar						
Receiver Ant Assy	7	2	9.5	84.0	28.9	111.3
Freq Trackers	24	19	3.7	28.9	8.5	38.0
A.F.-I.F. Amp	5	5	4.2	65.6	22.5	88.0
TOTAL	40	26				
Sub-System: Search Radar						
Indicator Console	107	69	6.7	5.9	4.9	10.6
Receiver Trans Modulator	53	34	13.2	11.3	8.9	21.2
Control Servo Unit	35	23	3.4	17.1	15.1	32.2
Photo Recorder Unit	23	17	6.7	26.0	22.9	49.0
Indicator Power Supply	5	5	1.4	115.5	105.0	220.5
Search Filter Unit	33	16	1.6	18.1	16.0	34.2
Search Antenna	5	0	Unk	115.5	105.0	220.5
TOTAL	261	169				

3. Passive Defense System (Defensive Electronic Counter Measures)

a. Reliability

(1) This section of the report covers reliability data of the Passive Defense System for the months of August and September only.

(2) Reliability data collected prior to August does not readily lend itself to being reported under the concept of this report. A revised system of data gathering was initiated 1 August.

(3) The data collected since 1 August 1960 is insufficient to determine trends or significant findings. Therefore, the data is presented in a tabular form as shown in Table VI, VII and VIII.

(4) Since the larger percentage of "on" time imposed on the Passive Defense System is "operate" time, the Mean Time Between Failures (MTBF) is computed by using "operate" time only.

TABLE VI

PASSIVE DEFENSE SYSTEM RELIABILITY SUMMARY

	T-2	T-4	ALR-12
Operate Time	13.9	33.7	109.7
Inherent Failures	2	6	1
Operational Failures	13	23	1
Inherent MTBF	7.0	5.7	109.7
Operational MTBF	1.0	1.5	109.7

(5) Table VII shows the Line Replaceable Unit (LRU) failures for September and total to date (August plus September). N/A indicates "not applicable."

TABLE VII

PASSIVE DEFENSE LRU FAILURE SUMMARY

LRU	T-2		T-4		ALR-12	
	Sep	Total	Sep	Total	Sep	Total
Receiver Locked Oscillator	1	5	3	12	N/A	N/A
Driver Amplifier	1	3	1	5	N/A	N/A
Power Amplifier	1	3	1	2	N/A	N/A
Solenoid Power Supply	0	2	1	4	N/A	N/A
Amplifier Indicator	N/A	N/A	N/A	N/A	0	1
TOTALS	3	13	6	23	0	1

b. Maintainability.

Maintainability Data of the Passive Defense System is shown in Table VIII. Both shop and flight line maintenance man-hours expended since 1 August 1960 are shown in Table VIII.

TABLE VIII

PASSIVE DEFENSE SYSTEM MAN-HOUR SUMMARY

	T-2	T-4	ALR-12
Flight Line	60	160	46
Shop	31	48	0
TOTAL	91	208	46

4. Active Defense System

a. Reliability

(1) This section of the report covers the inherent and operational reliability of the MD-7 Active Defense System.

(a) Definitions of inherent and operational reliability are shown in paragraph 1b.

(b) Both types of reliability are indicated as a mean time between failure (MTBF) in hours (See Figure 5).

(c) The weapon and ammo feed system reliability is not shown as an MTBF but as a percentage of fireout. This is necessary because the weapon and ammo feed system reliability cannot be realistically computed as a function of "on" time of the Active Defense System, but must be computed as a function of the number of rounds fired per rounds loaded. The percentage of fireout per mission is shown in Figure 6.

b. Maintainability

(1) Maintainability of an electronic system may be partially determined by considering the maintenance man-hours expended in support of the system.

(2) Table IX represents the maintenance man-hours per aircraft per month in support of the Active Defense System. Also shown is the aircraft months per month which support the total maintenance man-hours. Table IX shows flight line maintenance man-hours only. Shop maintenance man-hours are shown in Table X.

TABLE IX

ACTIVE DEFENSE SYSTEM
FLIGHT LINE MAINTENANCE MAN-HOURS SUMMARY

A/C	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
59-2428	159	18	70	117	50	1	55	104	135	3	712
59-2429			4	59	171	0	148	22	13	71	528
59-2430			118	142	160	51	1	57	2	120	651
59-2431				92	63	53	0	0	0	28	238
59-2432				18	84	118	175	0	74	108	577
59-2433						65	195	24	89	32	405
59-2434					29	0	46	116	12	0	203
59-2436										236	236
TOTAL	159	18	192	468	557	288	620	323	325	598	3548
Aircraft Months	1	1	1.6	3.8	5.5	4.8	4.6	4.3	5.4	6.5	38.5

(3) Table X represents the meantime between removal MTBR average of shop maintenance man-hours per removal and total LRU removals for the Active Defense System.

(a) Average shop man-hours per removal was computed by dividing the total shop maintenance man-hours by the number of removals shown in the column headed "Removals, Man-Hours Known."

(b) The MTBR's were computed by dividing the "on" times, Air, Ground, and Air and Ground by the removals shown in the column headed "Total Removals." Only those LRU's which have been removed five times or more are shown.

TABLE X
ACTIVE DEFENSE SYSTEM
LINE REPLACEABLE UNIT (LRU) SHOP MAN-HOUR AND MTBR SUMMARY

LRU	Total Removals	Removals Man-Hrs Known	Ave. Shop Man-Hrs Removals	MTBR		
				Air	GND	Air & Ground
Tracking Cont Assy	22	22	12.3	11.8	9.5	21.3
Control Indicator	18	8	13.3	14.5	11.6	26.1
Freq Converter Trans	18	18	17.2	14.5	11.6	26.1
Computer	13	9	24.1	20.0	16.0	36.1
Antenna	8	7	6.7	32.6	26.0	58.6
TOTAL	79	64	14.7	3.3	2.6	5.9

(.) Line Replaceable Unit (LRU) Failures.

1. Table XI is a breakdown of failures by LRU's showing failures which occurred in August and total failures to date. Only those LRU s which have failed are shown

TABLE XI

MD-7 ACTIVE DEFENSE LRU FAILURE SUMMARY

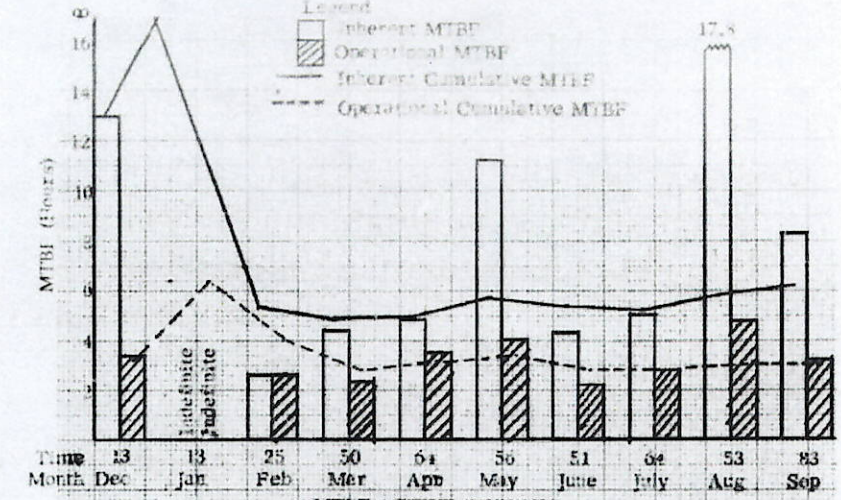
LRU	September	Total to Date
Antenna	1	16
Waveguide	1	2
Platform	0	2
Frequency Converter Transmitter	5	31
Computer	11	21
Tracking Control Assy.	6	41
Gun Control Pkg.	0	1
F.C.S. Control	2	4
Control Indicator	0	19
Turret	0	17
TOTAL	26	154

2. Table XII is a list of high failure LRU's showing total failures and primary cause. An LRU is classified as a high failure type if it exceeds the average failure per LRU for the system. Average failure is determined by dividing the total failures of the system by the number of LRU s in the system. The average failure for all LRU s is 13 failures.

TABLE XII
MD-7 ACTIVE DEFENSE SYSTEM
HIGH FAILURE LINE REPLACEABLE UNIT (LRU) SUMMARY

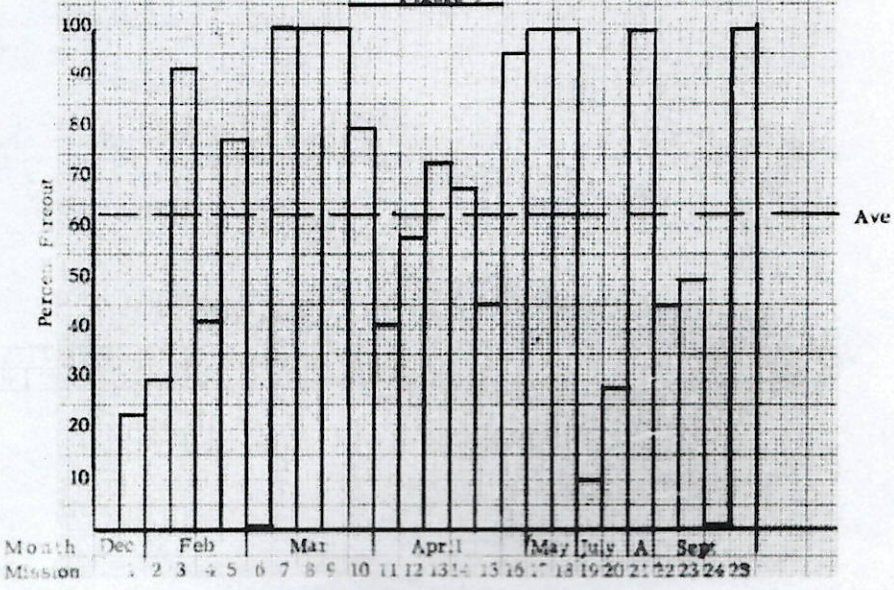
LRU	Total Failures	Failure Classification		
		Quality Cont	Unconfirmed	Random
Tracking Control	41	2	7	32
Freq Converter Trans.	31	0	5	26
Computer	21	0	3	18
Control Indicator	19	5	4	10
Turret	17* **	0	0	17
Antenna	16	10	2	4

*Five (5) failures were confirmed flex fairing failures
**Six (6) failures were due to deficient TQSE.



MTBF ACTIVE DEPUNSE

Figure 5



Percent Fireout/Mission

Figure 6

(d) Operational and Inherent Reliability.

1. Figure 5 gives the meantime between failures (MTBF) for the Active Defense System. As an aid in establishing trends both the monthly MTBF and cumulative MTBF are shown. The inherent and operational MTBF are indicated on the same graph.

(e) Fireout percentage.

1. The fireout percentage per mission for the weapon and ammo feed system is shown in Figure 6.

2. Percentages are determined by dividing the total rounds fired by the total rounds loaded. The normal or average ammunition load per mission is 1200 rounds. The fireout percentages are based on a loading of 1200 rounds.

3. The total rounds fired were divided by total rounds loaded for all missions to indicate average percent of fireout for all missions.

5. Communications Systems Reliability.

a. Reliability.

(1) A surveillance of failures and "flight squawks" is being maintained to determine the communications reliability.

(2) Thirty-two sorties were flown during August with an average flight time of 4 hours, 9 5 minutes. Thirty-three sorties were flown during September with an average flight time of 4 hours, 10 minutes. All systems are either in full operation or standby throughout the entire flight.

(3) Table XIII is a breakdown of failures of each system, showing failures occurring in August and September and total to date.

TABLE XIII

System	Component	August Failures	September Failures	Total to Date
AN/ARC-57	RT-377	2	4	6
	C-1941	0	2	2
	Antenna	1	0	1
AN/ARC-74	---	0	0	0

System	Component	August Failures	September Failures	Total to Date
AN/ARN-50	R-753	2	1	3
AN/APX-47	RT-467	1	0	1
AN/APX-48	---	0	0	0
AN/APN-135	RT-544	3	1	4
	AT-921	0	1	1
AN/APN-136	---	0	0	0
HACON*	RT-Unit	-	1	1

*No HACON in use in August. 2 in use in September for 6 sorties.

6. Reliability Summary.

a. Table XIV is a summary of the reliability data on aircraft 428-434 and covers the period 1 December 1959 through 30 September 1960. The data represents 37.5 aircraft months of operation. Aircraft 59-2436 is not represented due to the short period of time this aircraft has been in the inventory.

b. The abbreviations in Table XIV are listed below.

(1) A - Air.

(2) G - Ground.

(3) I - Inherent.

(4) O - Operational.

(5) MTBF - Meantime Between Failure.

(6) LRU - Line Replaceable Unit.

(7) MTBR - Meantime Between Removal.

(8) A&G - Air and Ground.

c. Definitions for I, O, MTBR, A, G, and A&G are listed in paragraph B-1a, this Section.

TABLE XIV

RELIABILITY DATA SUMMARY OF ELECTRONIC SYSTEMS ON B-58 A/C

System	On Time		Failures		MTBF		LRU	MTBR		
	A	G	I	O	I	O	Removals	A	G	A&G
1. Bomb-Nav										
Computers	599	1200	221	295	8.1	6.1	247	2.4	4.9	7.3
Stabilization	599	1140	67	86	26.0	20.2	43	12.9	26.5	4.0
Search Radar	597	527	197	306	5.7	3.7	256	2.3	2.0	4.4
Doppler Radar	589	202	37	77	21.4	10.3	40	14.7	5.1	19.8
Astrotracker	590	277	15	36	58.0	24.1	34	17.4	8.2	25.4
Radio Altimeter	590	88	8	14	84.8	48.4	14	42.0	6.3	41.3
In-Flight Printer	597	185	36	50	21.7	15.6	46	13.0	4.0	17.0
2. Passive Defense										
T-2	5.2	8.5	2	13	6.9	1.0	12	0.4	0.7	1.1
T-4	2.7	31.0	6	23	5.6	1.5	11	0.3	2.8	3.0
ALR-12	108.1	1.6	1	1	181.7	181.7	1	108.1	1.6	109.7
3. Active Defense	261	208	76	154	6.2	3.1	79	3.3	2.6	5.9
4. Communications*										

*Data gathered is insignificant.

III TGSE DIVISION SUMMARY

1. The American Electronics Air Conditioner, GSEL 3006, P/N SE2935, continues to be deficient with no effective corrective action having been accomplished during the month of September.

2. The Recony Air Conditioner, GSEL 8094, P/N A/M 32C-6, was delivered on 10 September and accrued approximately 50 hours of operating time at Carswell AFB. Minor problems have been encountered with the GFP Packette engine. One major problem occurred on the basic Air Conditioner in that the one micron air inlet filters collapsed at approximately twenty hours of operation. A new filter is being obtained and the possibility of pre-filtering the air through a ten or twenty micron filter is being investigated.

3. The First Article Demonstration (FAD) of the two major Bomb/Nav automated testers continued through the month. Areas presently not checked are (a) equipment modifications not yet installed, (b) technical data corrections or additions not yet received, (c) tape programmed tests not verified and (d) latent capability not yet available (i.e. TGSE module testing).

4. The evaluation of the Flight Control Mobile Test Set tape data has progressed to an 80% completion point. Of the data analyzed, 57% has required either deletion (29%) or correction (28%). Completion of the task with subsequent generation of a new tape ready for system-tester evaluation is still estimated for completion by 15 October 60. Similar analysis will be required for the major Flight Control automated shop tester.

5. The DECM TGSE status is one of considerable confusion as to the TGSE capability to support the prime system. The confusion centers around lack of adequate maintenance technical data for the Mobile trailer, the lack of definite compatibility with the prime system, and inadequate information and/or equipment to properly calibrate the TGSE.

6. Communications System TGSE continues to present a problem as a result of twenty RFA conditions noted during the First Article Demonstration in August which have not yet been corrected. This lack of corrective action has limited seriously the use of the equipment in the ARC-74 and HACON areas and has restricted several areas of usage in the ARC-57 area.

7. The Tactical Pod Positioning Trailer, GSEL 4310.1, P/N SE8550-1, has several minor deficiencies which have contributed to causing three pod-aircraft damage incidents since May 60. There has been limited opportunity to train personnel in the use of the trailer since (a) a limited number of tactical pods have been available, (b) limited aircraft availability for pod loading training has prevailed and (c) no formal AF training program exists for the use of this equipment. The prime cause factor in the damage incidents

has been the unbalanced load condition of the pod on the trailer at the time of pod-aircraft separation. Tilting of the pod and/or aircraft at this time with concurrent possible pod travel along the rails of the trailer because of inadequate pod cradle to rail brakes has caused the pod and aircraft to come in contact with resultant damage. This problem is being resolved by pinning the pod cradle to the trailer rails to prevent pod movement at breakaway. In addition procedures are being developed to more adequately balance the pod on the trailer prior to instituting breakaway.

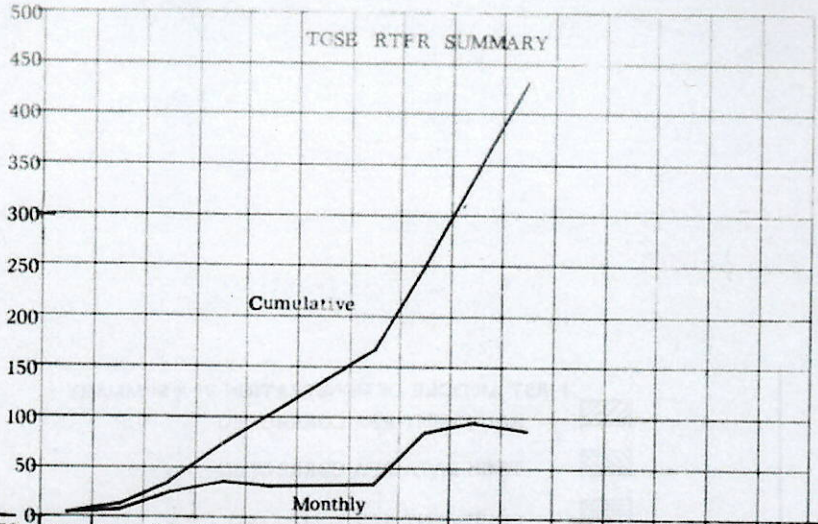
8. TGSE Technical Data continues to be deficient in four areas (Communications, Bomb/Nav, BDA, and DECM Mobile Trailer). Continued aggressive action by all personnel will be required to expeditiously correct these deficiencies.

9. Calibration requirements for TGSE is becoming an ever increasing problem. Delineation of AF areas of responsibility between the Field Maintenance Shops, Base PME Lab and the Depot is a major area of confusion. Prior to resolution of this problem however a full review of calibration (or alignment) procedures from a technical data, equipment required, and basic requirement viewpoint is necessary. This problem has been brought to the attention of all TGSE working groups and definition of the exact scope of the problem is being sought. Further action is necessary but at this time the full extent of the problem has not been determined.

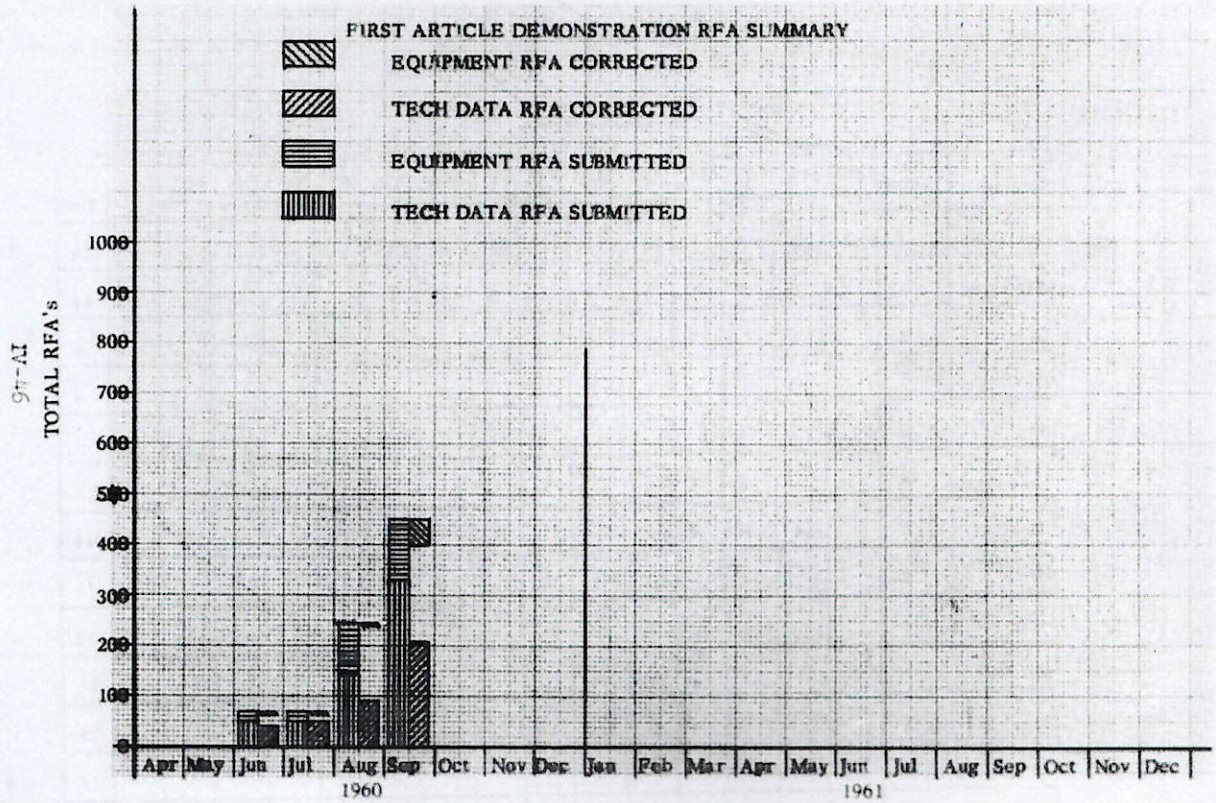
10. The Soroban Reader Head used to interrogate the TGSE Tape in the Bomb/Nav Flight Control and Fire Control System TGSE automated testers is a definite problem area. The units have demonstrated low reliability and the problem has been compounded by lack of spare parts in an adequate quantity to support the units. Information is presently being collected and analyzed to define the full problem and recommend necessary corrective action. Meanwhile the Contractor has been asked to provide expedited action to resolve the individual problems.

11. A summary of the Reliability and Trouble Failure Reports (RTFR) submitted by Contractor personnel collecting reliability data at Carswell AFB on TGSE is indicated on page IV-45. As of this date, no formal engineering analysis information of CAFB generated TGSE RTFR's has been received by the 43BW. In addition it has been particularly noted that Convair Reliability Synopses have been conspicuous in their lack of RTFR information from in-plant use of TGSE. In addition, there has been no apparent RTFR generation on deficient items of TGSE that have been sent to Convair (for repair and/or modification) from Carswell AFB.

12. A graphic presentation of the RFA's (Request for Alteration) submitted during First Article Demonstrations of TGSE is presented on page IV-46. This graph shows RFA's submitted on equipment and on technical data as well as the number of RFA's that have been corrected in these areas. Technical data is considered corrected for this report if supplemental data has been received or if the formal T.O. revision has been received.



System	Line Items Rptd	Dec 1959	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 1961	Feb	Tot
			← 1960 →														
Air Cond	2	2	3	5	7	10	11	13	26	15	26						118
Airframe	1		1	4	9	5	5	3	6	7	4						44
Comm	2				2		3				1						6
DECM	2				1	1	2										4
Bmb Rcr	1			1													1
Fire Cont	4			2	1	1		3	1								8
Flt Cont	6		4	6	4	1		1	7	9	12						44
Hydr	2			1	5	10	8	7	21	9	14						75
IBDA	1			1	1	1	2	6			1						12
Mil Nav	2			5	4	2											11
Bomb Nav	3				1				22	56	29						108
Beacon	1						2										2
TOTAL		2	8	25	35	31	33	33	83	96	87						433


FIRST ARTICLE DEMONSTRATION RFA SUMMARY
EQUIPMENT RFA CORRECTED
TECH DATA RFA CORRECTED
EQUIPMENT RFA SUBMITTED
TECH DATA RFA SUBMITTED
TOTAL RFA's
1000
900
800
700
600
500
400
300
200
100
0
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1960
1961

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-18	B-58 Flight Control System Reliability Improvement (U)
REPORT SECTION: C-1 of Part IV	PROJECT OFFICER: Major V. M. Kummel and Capt T. P. Crichton

PROBLEM

The B-58 Flight Control System has not reached the degree of reliability desired for an operational tactical weapon system. Discrepancies are being reported on approximately 50% of all flights and occur most frequently in the autopilot or control surface dampers. Because there are numerous electronic and electro-mechanical components in the system whose failure can result in the types of discrepancies being encountered, a special malfunction analysis effort is needed so that faulty components needing improvement can be identified. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
43rd Bomb Wing	1 September 1960	Indefinite	AFR 80-14 SACR 80-2

STATUS

30 September 1960:

A. General. (U)

A team consisting of engineering personnel from the 43rd Bomb Wing, Convair and Eclipse-Pioneer has been appointed to: (U)

1. Monitor all flight control system and IGSE discrepancies. (U)

2. Assist maintenance personnel in trouble shooting discrepancies and recommend special trouble shooting procedures where necessary. (U)

3. Conduct an on-the-spot analysis of malfunctioning items whenever possible. (U)

4. Monitor and evaluate results of analyses made in Convair Labs and at vendor facilities on malfunctioned items. (U)

5. Recommend procedural and handbook changes as necessary. (U)

6. Forward system design problems to appropriate design groups for study. (U)

B. Progress to date. (U)

Problems encountered and acted on thus far are. (U)

Problem 1: Lateral-Directional oscillation at low altitude and high speeds. (U)

Action: Analysis of reported flight discrepancies indicated a possible design deficiency. Problem was forwarded to the automatic

CARS FORM [illegible] 69 PC: 2730

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-18	B-58 Flight Control System Reliability Improvement (U)

STATUS

controls design group at Convair for study and it was determined that the lateral acceleration gain was too high on airplanes with T.O. 1B-58-645 accomplished (final Mach 1.5 fix). This problem will be corrected by accomplishment of T.O. 1B-58-693 (Mach 2.0 fix).(U)

Problem 2: Improper operation of autopilot and damper servos due to hydraulic system contamination. (U)

Action: A design study has been initiated by Convair with the aim of obtaining a servo control valve that will have a higher degree of tolerance to contamination. In the interim, to cut down maintenance time when these discrepancies occur, a procedure for flushing the PCLA hydraulic system while the PCLA is installed on the aircraft has been tested. The procedure proved satisfactory and appropriate action has been taken to incorporate it in maintenance handbooks. (U)

Problem 3: Aircraft lateral oscillations when operating in the autopilot Heading-Navigate Bomb mode. (U)

Action: Convair has provided a B/N-Autopilot Tie-In specialist to assist maintenance personnel in trouble shooting discrepancies of this nature. Special trouble shooting procedures were successful in isolating the problem existing on Acft 59-2431. The trouble was found to exist in the B/N sighting and test panel. Further study will be necessary to pinpoint the source of trouble in other aircraft. (U)

Problem 4: Pitch oscillations in flight during normal flight control operation. (U)

Action: The cause of a severe pitch oscillation in Acft 59-2431 was found to be due to a defective pitch rate gyro. The cause was not found, however, until after extensive trouble shooting had been performed because of the inaccessibility of the rate gyro and accelerometer package and inability to check its operation while installed on the aircraft. A proposal to purchase more reliable gyros has been made by Convair in ECP 40DN. Also a design study is being conducted to provide a method of testing the RG&A package without removing it from the aircraft. (U)

Problem 5: Inadvertent actuation of the elevator ratio changer mode switch. (U)

Information: The elevator ratio changer master switch is in close proximity to the throttles. The switch has inadvertently been

CARS FORM 69a RC-1226

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-18	B-58 Flight Control System Reliability Improvement (U)

STATUS

positioned to automatic during the take-off procedures as reported in emergency UR 43EW-60-17. The switch was actuated either by the pilot's hand brushing against it or the sleeve of the flying suit dragging against it when the throttles were advanced. (U)

Action: An evaluation will be made to determine if the switch detent should be made more pronounced and/or if a slotted plastic guard should be placed around the switch. (U)

IV-54

CARS FORM NO. 69a FC: 2730

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-19	B-58 Tactical Generator-Drive Evaluation
REPORT SECTION C-1 of Part IV	PROJECT OFFICER Lt D. R. Hicke

PROBLEM

The tactical generator-drive assembly, P/N A50J237-8, incorporates several improvements over the test article, P/N A50J237-3A, including hardened bearings, leak-resistant rotating seals, and improved rotating rectifiers. A large number of failures of the constant-speed drive, however, necessitates an evaluation of these improvements.

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
43DTE	30 September 1960	Indefinite	AFR 80-14 SACR 80-2

STATUS

30 September 1960:

The following is a list of all unscheduled removals, i.e., removal from the aircraft because of failure before the end of service life, of the tactical generator-drive assembly, P/N A50J237-8, resulting from failure of the constant-speed drive (the first failure occurred in April 1960):

Metal particles on magnetic drain plug	4
Oil leaks discovered during ground operation	9
Overheats and destruction of drive	6

The four drives in which metal particles were found failed from unknown causes (tear-down of the drives is not permitted at field level). Three of the nine leaking drives were restored to service by replacing the affected seals or O-rings. Six of the overheats (caused by oil starvation) occurred in flight. Of these, four were caused by drive oil leaks and two were caused by engine oil leaks. Data will continue to be collected on failures of the constant-speed drive to determine trends and to recommend product improvement where necessary. Tear-down reports, compiled during overhaul of the drives, are being requested from Air Material Command to help identify problem areas.

CARS FORM AGP 69 PCN 8706

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-18	B-69 Flight Control System Reliability Improvement (U)

STATUS

positioned to automatic during the take-off procedures as reported in emergency UR 43BW-60-17. The switch was actuated either by the pilot's hand brushing against it or the sleeve of the flying suit dragging against it when the throttles were advanced. (U)

Action: An evaluation will be made to determine if the switch detent should be made more pronounced and/or if a slotted plastic guard should be placed around the switch. (U)

IV-51

CARS FORM SEP 65 69c FC: 3730

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-19	B-58 Tactical Generator-Drive Evaluation
REPORT SECTION C-1 of Part IV	PROJECT OFFICER Lt D. R. Hicke

PROBLEM

The tactical generator-drive assembly, P/N A50J237-8, incorporates several improvements over the test article, P/N A50J237-3A, including hardened bearings, leak-resistant rotating seals, and improved rotating rectifiers. A large number of failures of the constant-speed drive, however, necessitates an evaluation of these improvements.

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
43DIE	30 September 1960	Indefinite	AFR 80-14 SACR 80-2

STATUS

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CARS FORM AGP 69 FC: 8780

SECTION C PROJECTS

2. Projects completed during the month.

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-1	Failure of B-58 Drag Chute Compartment Doors to Remain Latched (U)
REPORT SECTION: C-3 of Part IV	PROJECT OFFICER: Capt H. D. Farris

PROBLEM

The drag chute when packed forms a package slightly larger than the chute compartment. In order to latch the doors it is necessary to apply high torque to the latching mechanism resulting in bending of the actuating rod for the aft hooks. When the actuating rod is bent a locked indication can be obtained with the aft hooks not fully engaged. Vibration during taxi and/or take-off can cause the aft hooks to unlatch allowing the chute to fall from the aircraft. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 60	Estimated Sep 60	AFR 80-14 SACR 80-2

STATUS

31 May 60:

Evaluation of this problem by the B-58 Test Force, Convair and AFFR resulted in a TCTO (1B-58A-611) which provided for an inspection and new rigging procedure for the parachute compartment door linkage and a new design parachute. The new parachute has thinner shroud lines which reduce the size of the packed chute allowing the para chute compartment doors to be closed without the application of excess torque. Limited quantities of the new parachute have been received. This technical order has been accomplished on one aircraft, 55-671, with no difficulty reported. New deceleration chutes will be installed in all aircraft after compliance with the inspection and rerigging procedures. Operational testing of this TO and its effects on the drag chute problems will continue. (U)

31 August 1960:

TCTO 1B-58A-611 was complied with on all 43rd Bombardment Wing B-58 aircraft during June and July 1960. New chutes were installed in compliance with the TCTO, and have been in use continuously since. A total of 76 take-offs and landings (excluding touch-and-go's) have been made by those aircraft since the TCTO was complied with. No instance of the new chute dropping out has occurred. In addition, the new chute permits compartment door closure with ease, eliminating the necessity of applying high torque to latch the hooks. (U)

A Specific Item Report is being prepared, finalizing this project.

CARS Form [illegible] FC: 3700

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-1	Failure of B-58 Drag Chute Compartment Doors to Remain Latched (U)

STATUS

30 September 1960:

Specific Item Report Nr. A-1, titled: "Failure of Deceleration Parachute Doors to Remain Latched," dated 30 September 1960, has been forwarded. (U)

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-7	Evaluation of Adequacy of B-58 Taxi Light (U)
REPORT SECTION	**PROJECT OFFICER**
C 3 of Part IV	Lt D R Hicks

PROBLEM

The taxi light presently used on B-58 aircraft is considered inadequate. The angle and distance of coverage are not satisfactory. A new higher powered lamp has been furnished and requires testing. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	April 1960	Estimated September 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960.

The taxi light used on B-58 aircraft is rated at 150 watts. A special 250 watt lamp was furnished by Convair for testing. It is the same physical size as the 150 watt lamp. The 250 watt taxi lamp was installed on Aircraft Nr 55-671 on 11 Apr 60. To date 18 flights have been made, during which nine night landings were accomplished by four different pilots. Three of the pilots considered the new lamp to be a definite improvement over the old, the fourth reported that he did not notice any appreciable difference. Testing will continue until enough operational data are collected to completely evaluate the new lamp. (U)

31 August 1960.

A total of six more flights have been made since the last reporting date, two of which included night landings. Based on reports by the six different pilots who participated in the tests, it appears desirable that the 250 watt taxi light be installed on all B-58 aircraft. (U)

A Specific Item Report is being prepared, finalizing this project. (U)

30 September 1960.

Specific Item Report Nr A-7, titled, "Evaluation of Adequacy of B-58 Taxi Light," dated 30 September 1960, has been forwarded. (U)

CARS FORM SEP 60 69 FC: 2750

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-11	Air Leakage Through C-4 Valve Core on B-58 Aircraft Tires (U)
REPORT SECTION	PROJECT NCO
C-3 of Part IV	MSgt W. B. Cowart

PROBLEM A WADD letter directed a change of valve cores on B-58 aircraft, from C-3 cores to C-4 cores. More valve core leaks have developed since the change was made. The valve cap is considered as a secondary air seal, but in some cases is functioning as a primary seal which is highly undesirable. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 1960	Estimated August 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

A preliminary investigation has disclosed that the valve core pin spring in the C-4 valve core is a weaker spring than the spring that was used in the C-3 valve core. This prevents the valve (C-4) core cup from seating as firmly as the C-3 valve core. A study will be made to determine if the maintenance procedures have any relationship to the problem. Complete disassembly of malfunctioning C-4 valve cores will be made to disclose if foreign particles are inside the core body which would cause the core to leak pressure.(U)

30 August 1960:

The tire pressure loss through the C-4 (IR-C4) valve core P/N Z1-402-AH installed in B-58 tires has been attributed to improper installation and maintenance procedures. The valve cores that were found to be leaking pressure were removed from service and inspection revealed that the valve core was either overtorqued, installed cross threaded, undertorqued or foreign particles were found under the cup seat. (U)

The torque required for the C-4 valve core is from 1½ to 2 inch pounds. (U)

The implementation of proper and thorough installation and maintenance procedures of the C-4 valve core has reduced the core leakage problem to zero for the past 30 days. (U)

A Specific Item Report is being prepared, finalizing this project. (U)

CARS FORM SEP 60 69 PC: 2730

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-11	Air Leakage Through TR-C4 Valve Core on B-58 Aircraft Tires (U)

STATUS

30 September 1960

Specific Item Report Nr. A-11, "Air Leakage Through TR-C4 Valve Core Installed in B-58 Aircraft Tires," dated 30 September 1960, has been forwarded (U)

SECTION C PROJECTS

3. Active Projects being conducted.

Aircraft System Series

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-2	Flight Evaluation of a Deflector to Reduce Wind Blast Effects on the Pilot in the Event of Inflight Canopy Loss (U)
REPORT SECTION	**PROJECT OFFICER**
C-3 of Part IV	Capt H. D. Parcis

PROBLEM

In the event the first station canopy should be lost in flight, wind blast effects on the pilot may render him incapable of controlling the aircraft. Convair manufactured a deflector to be mounted above the canopy still forward of the pilot's head, to deflect air flow above the pilot's head and thereby reduce wind blast effects. The deflector was tested by the Test Force. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 1960	Estimated Nov 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960.

Four scheduled test flights have been completed. All tests were made on B-58 Aircraft Nr 55-663, as follows: (U)

Flt Nr	Date	Configuration	Altitude	Max Speed (KIAS)
1	17 May 60	Canopy removed, deflector installed	5000 ft MSL	380
1	17 May 60	" "	10000 "	400
2	23 May 60	" "	5000 "	475
2	23 May 60	" "	10000 "	*Aborted
3	24 May 60	Canopy removed, deflector not installed	5000 "	300
3	24 May 60	" "	10000 "	325
4	25 May 60	" "	4000 "	350
4	25 May 60	" "	10000 "	300

*An approximate 6 inch diameter section of bulkhead web immediately aft and to right of pilot was torn out during the 5,000 ft, 475 K run, necessitating termination of the run. Evaluation of the tests is being made to determine the requirements necessary to equip the aircraft or establish procedure to minimize blast effects. (U)

31 August 1960.

Letter report, subject "B-58 Wind Blast Deflector Tests," dated 25 July 1960, has been forwarded to WADD, ARDC (WWZSE). It was concluded that it may be possible to provide adequate wind blast protection by use of a rigid (non-retractable) deflector. Such a device would be of smaller area than the item tested because it must fit in the space remaining when the canopy is closed.

CARS FORM REP 69 FC: 2730

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-2	Flight Evaluation of a Deflector to Reduce Wind Blast Effects on the Pilot in the Event of Inflight Canopy Loss (U)

STATUS

The report recommended that such a deflector be manufactured for installation on all B-58 aircraft. No report of action taken by WADD has been received. (U)

30 September 1960.

The B-58 WSPO has requested Convair to prepare a mock-up of a rigid (non-retractable) deflector, which will fit in the space remaining when the canopy is closed. The mock-up is to be available for demonstration before the October 1960 ECP Review Board. The Board will consider initiating ECP action to obtain the deflectors for all aircraft. (U)

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-3	Investigation of Panel Fasteners on B-58 Aircraft (U)
REPORT SECTION	**PROJECT OFFICER**
C-3 of Part IV	Capt H. D. Farris

PROBLEM

The service and inspection panels of the B-58 furnish structural strength to the aircraft. This required the development of a new type fastener for these panels. The present type fastener (Milson) is a high strength type with a retainer ring placed beneath the panel to hold the bolt with the panel when removed. The present rings which are relatively expensive fail in use. This causes the loss of the more expensive bolt and allows the ring to fall into the aircraft, which can cause many difficulties. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 1960	Estimated Indefinite	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

A set of redesigned retainer rings and fastener bolts was installed in the right hand stable table access panel of Aircraft Nr 59-2433 for test. The new rings are stiffer and the bolt retainer ring groove is deeper than in the old configuration. After 14 days, during which the panel had been removed an estimated 8 times, it was found that 23 of the new rings had failed to function, and that a number of these had fallen inside the aircraft. Failure to function evidently is caused by the spread ring being pinned between the panel face and the aircraft mating face when the panel is installed. When the bolt is removed, the ring is maintained in the spread condition and is not free to assume the smaller inside diameter necessary to engage the bolt groove. This problem is under study by Convair and the Test Force. (U)

31 August 1960:

A new retainer ring, designed by the Directorate of Test and Evaluation, is being manufactured by SAAMA for test. A small number of these items is expected to arrive during early September. The contractor has not developed a new ring, but is taking all possible action to reduce the malfunction rate through development of techniques in handling the fasteners. (U)

The failure to function rate of the standard retainer ring continues at an estimated 3% per panel per panel removal operation. (U)

CARS FORM SEP 69 FC: 2750

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-3	Investigation of Panel Fasteners on B-58 Aircraft (U)

STATUS

30 September 1960

Manufacturing difficulties developed in the process of forming the new retainer rings designed by the Directorate of Test and Evaluation. These difficulties are being investigated to determine a possible solution. No rings of this design are yet available for test. (U)

Recent improvements in fastener handling, developed by Convair, have been published in official instructions and made available to the 43rd Bomb Wing. These instructions are being distributed to using personnel. (U)

CARS FORM SEP 59 69a FC: 2730

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
	Accelerated Service Test on J79-5 & 5A Engines on [illegible] Aircraft (U)
REPORT SECTION	PROJECT OFFICER
C-5 Of Part IV	Capt W. Lee

PROBLEM

The J79-5 (5A) engine accelerated service test was established to investigate the functional reliability and engine component service life over an accelerated 500 hours flight test program. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
WADD	July 1959	Indefinite	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

The Accelerated Service Test (AST) was formally initiated on 31 July 59 with the completion of Acft Nr 12 (AF 55-671) modifications by Convair and return to the Test Force. The modifications consisted primarily of addition of tactical fuel system, structural strengthening, automatic CG system, inflight refuel capability, changed from -1 to -5A engines and added Bendix Hamilton Hydraulic pumps and the configuration of the aircraft was planned to be without BN, DECM and Fire Control, but to include a VGH Recorder. (U)

The test was programmed for 500 hours at the rate of 50 flight hours per month with primary emphasis on the J79GE-5A engine evaluation with secondary emphasis on basic aircraft system evaluations. (U)

The general results to date have been that very minor engine discrepancies have been encountered, but the major delays have been attributed to malfunctions of the basic aircraft systems. (U)

Aircraft flew 10 sorties for a total of 66.25 hours during May. 50 hour postflight was accomplished 16-26 May with eight man-hours expended on the test engines. Total AST time is 322.30. During postflight both -5A afterburner flameholders were discovered burned on Nr 2 ring, 6 o clock position. Acft 55-671, the accelerated service test vehicle, has now been placed under SACR 60-9 scheduling with two-day turn around between flights to continue the test program. Since the last periodic at 204:40 hours, AST time, supersonic testing is being accomplished. Total supersonic time to date is 7:39 hours. Supersonic time since the last period is 6.38 hours. (U)

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

OJECT NUMBER	PROJECT TITLE
A-4	Accelerated Service Test on J79-5 & 5A Engines on B-58 Aircraft (U)

STATUS

31 August 1960:

Aircraft has flown 6 sorties for a total of 38:35 flight hours during this period. Total ASI time to date is 361.15 hours, total supersonic time is 9:59 hours. T.O.C's accomplishment account for the major down time during this period. Parts replaced on the engines were: #2 engine control alternator for no temperature limiting, #1 engine AIB ignition unit and fuel signal valve were replaced when afterburner failed to light. (U)

30 September 1960:

During this period the AST aircraft S/N 55-671 was not flown. The four AST engines were removed to be transferred to a better maintainable tactical aircraft, S/N 59-2428, presently undergoing Cycle I modification. This aircraft should return to the 43rd Bomb Wing on 21 November. In accordance with SAC message DORQ 26191, dated 26 September 1960, the flying of the aircraft should be on a priority basis to advance the ASI project. (U)

CAIRS FORM SEP 65 69a FC: 2790

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-5	Evaluation of Throttle Movement Forces on B-58 Tactical Aircraft During Flight (U)
REPORT SECTION C-3 of Part IV	PROJECT OFFICER Capt W. Loar

PROBLEM

Throttle forces necessary to obtain power adjustments on B-58 production A/C 59-2428 and on during air refueling operations are objectionable to the pilot. HIAD specifies that no more than 7.5 lbs will be required to move individual power levers. However, with the small frequent power adjustments required during air refueling, 7.5 lbs per throttle appears excessive. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	March 1960	Indefinite	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

In the tactical aircraft, 59-2428 and on, changes were made both in the aircraft throttle system and in the engine torque booster. As a result of these changes the total force required to obtain power adjustments is considered by the pilots to be excessive. Evaluation of the throttle system on Acft 59-2428 revealed that the aircraft system alone required more than 4 lbs to move the throttle linkage. This coupled with the force necessary to overcome the breakaway force of engine torque booster will require 6.5 to 7 lbs force to obtain power adjustments. Further investigation is necessary to determine the reason for excessive stiffness in the aircraft linkage and the optimum breakaway force in the torque booster to provide minimum force at the throttle quadrants to meet operational requirements. (U)

31 August 1960:

Investigation of pilots reaction to throttle forces indicate 5 to 5.5 pounds to be the desired force. Tests of the aircraft throttle system design shows a maximum force of 4 pounds. In addition to the aircraft system, 15 in-lbs torque or an equivalent of approximately 2 to 3 pounds throttle force is required for breakaway of the engine torque booster. These tests show that the combination of aircraft linkage and torque booster forces are from 6 to 7 pounds and are above that acceptable to the pilot. Convair design effort or a new model torque booster (which is available at General Electric) will be required to reduce the force. Pilot interrogation is continuing to establish magnitude of the problem. (U)

CARS FORM 68P 60 69 FC: 2750

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-5	Evaluation of Throttle Movement Forces on B-58 Tactical Aircraft During Flight (U)

STATUS

30 September 1960

Pilot interrogation which included 43rd Bomb Wing, AFFRO Acceptance, and Convair pilots has been completed. Results were. (U)

a.	Pilots interviewed	18	100%
b.	Pilots who considered the throttle system detrimental to flight safety	2	10%
c.	Pilots who considered the throttle system detrimental to mission accomplishment	6	33%
d.	Pilots who complained about throttle force	8	44%
e.	Pilots who complained of left arm fatigue during refueling	4	22%
f.	Pilots who noticed a force increase at altitude cruise	2	11%

(U)

This problem was closed in the engine reliability group during this period in view of the above survey and because the system meets all established specifications. (U)

Study will be made to determine if proper rigging procedures will aid in lowering the present forces. Also, further evaluation will be made of Air Force pilots as they are B-58 qualified. (U)

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-6	B-58 Fire Warning System Evaluation (U)
REPORT SECTION	PROJECT OFFICER
C-3 of Part IV	Lt D. R. Hicks

PROBLEM

Repeated breakage of the fire warning sensing cable in the engine nacelle of the B-58 was attributed to movement of the mounting clips caused by vibration. The cables were rerouted and the mounting clips modified to give a more rigid structure by ECP 11Y (TO 1B-58-589). While evaluating this fix a large number of other troubles have occurred. These include controller defects, fire pull switch failures, and miscellaneous malfunctions. This requires the entire system be evaluated. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	April 1960	Estimated November 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

ECP 11Y has been accomplished on Acft 55-671 and 59-2428 and on. During the period 1 Jan 60 to 31 May 60 there was only one case of sensing cable replacement. This was due to the cable being bent, not broken. On aircraft not having the 11Y configuration 25 cables have been replaced because they were either broken, open circuited, or worn through. The breakdown of other failures, which ECP 11Y did not affect during this same period, is as follows: (U)

Control Unit, Detecting System, P/N 871500-03	11
Switch Assembly, Fire Control, P/N A43-5A	11
Warning Light Failures	6
Miscellaneous - Loose leads, bolts, grease, etc.	13

Malfunctions of the fire warning system are continuing to be monitored to establish trends and provide fix requirements. (U)

31 August 1960:

The following malfunctions of tactical fire detector systems have occurred since the last reporting date. (U)

Broken sensing cables, P/N 706120	2
Intermittent or inoperative control units, P/N 871500-03	2
Defective sensing cable connectors	2

Both of the subject sensing cables broke from sonic vibrations in the engine afterburner area on two different aircraft in the same manner as had been experienced on non-tactical systems. The contractor has designed new sensing cable mounting clips with silicon

CARS FORM DEP 69 FC: 2730

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-6	B-58 Fire Warning System Evaluation (U)

STATUS

rubber or asbestos inserts to help damp the cable vibrations. Samples have been fabricated and are presently awaiting tests at the contractor's sonic test chamber facilities. (U)

30 September 1960

The following malfunctions have occurred since the last reporting date: (U)

Broken sensing cable, P/N 70608	1
Inoperative control unit, P/N 871600-03	1
Miscellaneous - loose ground wire	1 (U)

All three of these malfunctions were evidenced by failure of the press-to-test circuits to illuminate the warning lamp during ground checks of the system. The broken sensing cable was located in the afterburner area of the engine. It broke adjacent to one of the mounting clips in the same manner as has occurred before. The contractor is still awaiting tests on the rubber inserts designed to solve the problem. (U)

CARS FORM [illegible] PG. AT20

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-8	B-58 Oxygen Servicing Filler Valve Evaluation (U)
REPORT SECTION	PROJECT OFFICER
C-3 01 Part IV	Lt J R Moseley, Jr

PROBLEM

The B-58 liquid oxygen filler valve design and physical location in the aircraft cause difficulty and a safety hazard when servicing the aircraft with oxygen. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 1960	Estimated November 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

Evaluation of servicing the B-58 with liquid oxygen has revealed deficiencies in the design of the filler valve and in the physical location of the valve with regards to service accessibility. Lack of locking detents for the service hose is being investigated by the Test Force and Convair to produce a design with positive lock. A 30° forward inclined valve to allow service accessibility from forward of the nose wheel has been proposed by Convair and will be evaluated. (U)

31 August 1960:

Further study of the proposal to incline the filler valves 30° forward in their present position indicates this to be an unsatisfactory solution. Inclining the valves forward still requires servicing personnel to work up inside the nose wheel well area. A letter has been submitted to the B-58 WSPO requesting that Convair study feasibility of relocating the valves to a position in the nose wheel well which can be reached from the ground versus feasibility of relocating the filler valves to the external skin of the aircraft. Any location of the filler valves that requires personnel to work up in the congested nose wheel well area during liquid oxygen servicing is not considered satisfactory. (U)

30 September 1960:

WADD message WWZSE-16-9-751, dated 20 September 1960, was directed to Headquarters SAC (DORQ and DM-A) for concurrence or nonconcurrence in a recommendation to relocate the B-58 liquid oxygen filler valve to the right outboard fuselage area adjacent to the nose wheel well. The outboard location is extremely desirable from a servicing

CARS FORM SEP 60 69 FC 2730

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-8	B-52 Oxygen Servicing Filler Valve Evaluation (U)

STATUS

and personnel safety standpoint. However, it is believed that the valves should be located in the left-hand side of the fuselage to prevent close proximity of the filler valves to the refueling receptacle and fuel manifold. A message to Headquarters SAC is being prepared outlining this view. No ECP action has been initiated yet. (U)

CARS FORM SDP 69a FC: 2790

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-9	B-58 Windshield Rain Removal System Evaluation (U)
REPORT SECTION	**PROJECT OFFICER**
C-3 of Part IV	Lt J. R. Moseley, Jr.

PROBLEM

Inadequacy of the rain removal system to properly clear the windshield when flying in rain during GCA approach and touchdown. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 1960	January 1961	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

The designed clearing area of the rain removal system has been evaluated and will provide the pilot with adequate area vision during landing approach. Data available on the actual clearing of the windshield by the system in operation is limited because requirements for use of the system have been extremely rare. The use of the syst to date indicates that the pilot is not afforded adequate forward vision during landing approach in rain. Further testing of the system is to be conducted under actual flight conditions in rain to make a realistic appraisal of the performance of the system. Testing of the rain removal is scheduled on all B-58 flights where rain conditions during flight are encountered. (U)

31 August 1960:

In-flight testing of the rain removal system under final approach flight conditions involving rain was accomplished on two flights of a tactical B-58 aircraft. Results of these tests indicate that the system does not clear that portion of the windshield required for proper pilot forward vision during rain. An interim windshield retainer, which could possibly cause interference with the rain removal airflow, is installed on the aircraft on which the tests were accomplished and further testing of the system is to be accomplished on aircraft equipped with latest configuration windshield retainers to obtain a more realistic evaluation of system performance. (U)

30 September 1960:

Testing of the rain removal system was not accomplished during this reporting period because operations during rain did not occur. Further

CARS FORM [illegible] 69 FCI: 2739

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-9	B-58 Windshield Rain Removal System Evaluation (U)

STATUS

testing of the system is to be accomplished on B-58 aircraft which are equipped with the latest configuration windshield retainers (ACA4-102-5037) whenever rain conditions are encountered during flight. (U)

CARS FORM AGP 69a PC: 2730

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-10	B-58 Tire Pressure Loss During Taxi and Flight (U)
REPORT SECTION: C-3 of Part IV	PROJECT ENGINEER: MSgt W. B. Cowart

PROBLEM

The high performance tires used on B-58 aircraft have a tendency to lose pressure during taxi, take-off and during flight. Tire pressure is critical to a point that if a tire should fail and the companion tire is excessively over or under inflated it will also fail immediately, due to the increased load. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 WSPO	May 1960	Estimated October 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

The B-58 WSPO as well as tire manufacturers and Convair are vitally interested and concerned with tire problems on the B-58. Data taken in this project are furnished the WSPO to aid in further tire development. Data has been collected on leakage of 20 aircraft tires two hours prior to take-off and four hours after landing. Results revealed only a slight loss (approximately 10 psi) on random tires. Data of this type will continue to be taken. (U)

Sixteen main and four nose tires and wheels at operating pressure were submerged in water for leakage tests--no leakage was detected. (U)

Air leakage possibilities around the wheel seals, valve stem area and the tire bead are to be investigated. (U)

31 August 1960:

T.O. 1B-58A-6 requires that B-58 tire pressure measurements be taken two hours before take-off. In order to determine tire pressure loss during taxi and flight another pressure measurement (authorized by this project) is taken four hours after landing. The difference between the two pressure measurements represents the pressure loss or gain as dictated by the ambient temperature. As much as a 25 PSIG loss has been recorded on a few tires. Theoretically, approximately 34 PSIG variation in tire pressure may be expected, with a 21°F temperature change. Tire pressure losses are continuing to be investigated. (U)

Twenty additional sets of tire pressure measurements have been recorded for a total of 40 sets. (U)

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TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-10	B-58 Tire Pressure Loss During Taxi and Flight (U)

STATUS

30 September 1960

The twenty-five additional sets of tires have been checked two hours before take-off and 4 hours after landing for pressure losses. This completes the number of tires that were to be checked for pressure loss during this project. A total of 810 individual tire pressure checks have been completed. The data collected from these checks are being analyzed. (U)

Arrangements are being made between the B-58 WSPO and Convair to cold soak a complete set of mounted tires to determine if pressure loss occurs during flight. (U)

An improved rubber grommet, P/N 9524964, that forms a seal between the wheel and the valve stem has been developed and is available for issue. (U)

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-12	Fuel Spillage through Forward and Aft Overflow Vent Valves During Ground Refueling (U)
REPORT SECTION: C-3 of Part IV	PROJECT OFFICER: Capt C. A. Read, Jr.

PROBLEM

During ground refueling, failure of the refuel valve to shut off when fuel reaches the high level shut-off causes fuel to spill overboard through the vent valve. The problem is attributed to improper operation of the high level shut off valve, and/or the pilot valve which precludes sending the proper signal to the refuel valve. This has necessitated underloading the forward and aft tanks by 1000# to 2000# respectively during ground servicing. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	May 1960	Estimated December 1960	AFR 80-14 SACR 80-2

STATUS

31 May 1960:

The forward and aft refuel valves on all test aircraft had a design deficiency which allowed an air lock to form in the line between the pilot valve and the refuel valve. Testing revealed the failure of the refuel valve to remain "seated" when fuel reached the high level shut off and caused fuel spillage through the vent valve. A new refuel valve was incorporated in the tactical aircraft per ACA 4-101-16271 that precluded formation of the air lock. Operational usage however shows fuel spillage is still being experienced, this is attributed to improper operation of the high level shut off valve and/or pilot valve. Convair is in the process of evaluating this malfunction and should submit a corrective proposal within 30 days. (U)

31 August 1960:

Convair has completed the evaluation of the fuel spillage problem for the aircraft and pod. This evaluation was accomplished on the full scale fuel model which provided the capability to visually observe the internal fuel reaction during all phases of ground refueling. Through this means, the individual tank spillage causes were defined. In general, the two (2) major causes were insufficient internal tank venting and improper location of the high level shut off valves. (U)

Since these causes are design deficiencies, the corrective action will be accomplished under an ACA rather than an ECP. The engineering work statements have been completed and the tasks will be completed under ACA 4-102-5096-1, -2, -3, -4 and -5. The revised system will be service tested when available. (U)

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TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-12	Fuel Spillage through Forward and Aft Overflow Vent Valves During Ground Refueling (U)

STATUS

30 September 1960.

No aircraft assigned to the 43rd Bomb Wing has yet been modified in accordance with ACA 4-102-5096-1, -2, -3, -4, and -5. Production effectivity of these changes will be aircraft #55, but retrofit action will be accomplished on a routine IOC with hardware expected to be available in October 1960. (U)

Service test will be conducted as soon as the first 43rd Bomb Wing aircraft is modified. (U)

CARS FORM 69a FCI 2780

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-13	Evaluation of B-58 Fuel Dump Airspeed Limits (U)
REPORT SECTION	PROJECT OFFICER
2-3 of Part IV	Capt C. A. Reed, Jr.

PROBLEM

Fuel dump is presently limited to .+5 Mach. This mach number is not satisfactory for tactical use since it limits dumping from heavy weight to below 10,000 ft. Above this Mach number, the fuel impinges on the aft fuselage and presents a potential fire hazard with the electronic equipment stored in the aft section of the aircraft. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Comm	May 1960	Estimated Indefinite	AFR 80-14 SACR 80-2

STATUS

31 May 60:

Base line data will be obtained on two flights during June 60. These two flights will establish the airspeed at which fuel begins to "feather" back up the dump probe and the airspeed at which the fuel begins to impinge on the aft fuselage. The airspeed at which the fuel begins to "feather" back up the dump probe will be used to initiate the fuel dumps on prototype dump probes that will be provided by Convair. It is planned that six flights will be required to evaluate the prototype probes. (U)

31 August 1960.

Three (3) fuel dump evaluations have been completed during this period. The first mission was to obtain base line data using the dump probe and the two additional tests were completed using prototype probe adapters. All tests were conducted at 15000' MSL with the following results. (U)

AIRSPEED KIAS	BEHAVIOR OF DUMPED FUEL		
	Production Probe	Adapter P/N 4R7677-21	Adapter P/N 4R7677-27
225	Normal	---	---
250	Halfway up probe	Normal	Normal
265	---	Normal	---
275	---	Halfway up probe	Halfway up probe
285	1" short of fuselage	---	---

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-13	Evaluation of B-58 Fuel Dump Airspeed Limits (U)

STATUS

300	All the way up probe and spraying aft fuselage	All the way up probe and spraying aft fuselage	All the way up probe and spraying aft fuselage
316	Coating aft fuselage	---	Coating aft fuselage

The preliminary results to date indicate that the prototype adapters did not appreciably increase the dump speed capability. However, an increase of indicated speeds with the present system over the published handbook data does appear feasible. An indicated airspeed of 275 knots at 15000' does exceed the recommended 0.45 Mach limitation. Since the contractor has not furnished additional adapters for evaluation at this time, additional base line data flights will be made at 10,000 and 20,000' to ascertain if the presently published dump envelope can be increased as preliminary data appears to indicate. These additional flights are scheduled to be completed during September 1960. (U)

30 September 1960:

Two additional base line data missions were completed at 10,000' and 20,000' during this period. The quantitative data resulted in the two basic conclusions that the dump envelope is unsatisfactory for operational use and the present envelope could be increased using the existing aircraft system. Since Convair has not provided the 43rd Bomb Wing with additional test adapters, the following action was taken. (U)

A letter was forwarded to Headquarters 2AF during September outlining the results of this evaluation and which also contained interim conclusions and recommendations for consideration. It was requested that this letter be forwarded to Headquarters SAC, Attn: DORQ, and WADD, Attn: WWZSE, for action. (U)

CARS FORM AFSC 69a PCL 2700

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-14	B-58 Inflight Crew Feeding (U)
REPORT SECTION C-3 of Part IV	PROJECT OFFICER Maj. V. Robinson

PROBLEM

The B-58 presents a new problem in inflight feeding because of compartment configuration and operational envelope.(U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
WADD	May 60	Dec 60	AFR 80-14 SACR 80-2

STATUS

31 May 60:

Four different types of food are presently being evaluated by aircrews of the B-58 Test Force. These are: (U)

1. Inflight Box Lunches
2. Bite size inflight lunches
3. IFG's
4. Tubed foods.

Questionnaires are to be filled out by aircrew members when food is consumed in flight. Eighteen individual evaluations have been completed. Data collection and evaluation is continuing. (U)

31 August 1960:

An inflight food survey form is being placed in each flight folder prior to each flight. Crews are required to complete the form after each flight. Collection and evaluation of data taken from these forms is continuing. Due to the limited supply of semi-solid food, only the longest flights are supplied with the tube foods. On these flights each member of the crew will be required to evaluate four of the semi-solid foods. A feeding sequence has been established whereby each member of each crew will at one time or another evaluate each of the seven meats, three desserts, and three juices available. (U)

Results of the tube feeding are limited due to the small number of long flights (those involving inflight refueling) flown this period. To date a total of three crew evaluations have been received from two missions. (U)

CARS FORM [illegible] 69 PCS 5730

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-1-	B-58 Inflight Crew Feeding

STATUS

30 September 1962

During the month 18 sets food meals were supplied to B-58 crew members. Each meal consists of two tubes of meat, one of juice and one of dessert. Five survey forms containing the crew member's evaluation of each meal have been completed. The remaining forms are in the process of completion. (U)

Efforts are being made to include all training missions in the inflight crew feeding program. (U)

CARS FORM 69a FC: 2730

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-15	Brake Wear and Service Life [illegible] Aircraft (U)
REPORT SECTION: C-3 of Part IV	PROJECT NCO: M/S W.B. Cowart

PROBLEM

A brake failure occurred during taxi. Investigation of the failed brake revealed that the brake had worn past the specified clearance. A check of all brakes installed revealed that 15 other brakes were worn to or past the maximum allowable clearance. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
DTE	9 Sept 60	1 Feb 61	AFR 80-14 SACR 80-2

STATUS

The present brake clearance criteria outlined in T01B-58A-6 requires a brake check at each periodic inspection. The frequency of the brake clearance checks as outlined in the -6 T.O. may not be often enough to prevent other brake failures. This project will determine brake wear, which will establish the frequency of the clearance check. It is anticipated that the brake wear will be checked at each wheel removal, which will not exceed more than 5 take-offs and landings. (U)

30 September 1960:

New brakes were installed on A/C 55-3431 on 24 August 1960 in positions 5, 6, 7 and 8 (all four brakes on the right-hand gear). At the end of four (4) operations the four brakes had accumulated an average wear of .063" per brake per landing. Additional wear during the next two landings was found to be negligible. The major brake wear during the first four landings was considered to have been caused by "wearing-in" of the brake discs. The brakes have a total of six landings and 1.20 hours flying time. (U

There have been no other new brakes installed during this period (U)

CARS Form [illegible] 69 FC: 2730

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-16	Tactical Hydraulic Power System Malfunctions (U)
REPORT SECTION	PROJECT OFFICER
C-3 of Part IV	Capt O. A. Reed, Jr.

PROBLEM

A total of 22 tactical, Bendix Hamilton, hydraulic pressure switch is unreliable and gives intermittent operation. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
43 BW - Test & Evaluation	1 Sep 60	15 Jan 61	AFR 80-14 SACR 80-2

STATUS

1 Sep 60

1. A total of 22 tactical hydraulic pumps have been replaced since they have been retrofitted on Carswell AFP aircraft. A tabulation of these replacements is as follows: (U)

a.	Seal Leaks	8
b.	Sheared shafts	2
c.	Cavitation due to break in system line resulting in "contamination" in the pump scavenge line	11
d.	Over pressure	1

2. The contractor has been unable to resolve the problem of seal leaks, but is isolating the problem with relation to pumps with the improved seal material. Preliminary data indicates that the majority of the seal leaks have occurred on pumps that incorporate unqualified seal material. (U)

3. ECP 394 has been proposed to incorporate a filter on the pump scavenge line that should preclude system contamination resulting from pump cavitation. Whenever a pump cavitates, small metal particles are generated from the pump through the scavenge line and into the system. The results of the contractor's evaluations were satisfactory and it is recommended that this ECP be incorporated on all aircraft. (U)

4. Hydraulic Pressure Switches - Faulty indications from the hydraulic pressure switch have resulted in unnecessary inflight emergencies. The present switch, CVAC P/N 4-074-4, has indicated failures when none existed and has failed to indicate a malfunction when one existed. A new switch, CVAC P/N 4-074-5, has been designed, built and is being procured. This switch is believed to be superior to the old switch in eliminating intermittent operation and will be incorporated in Aircraft S/N 59-2436. (U)

CARS FORM SEP 60 69 FCI: 2750

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
A-17	B-58 Air Conditioning System Problem Areas (U)
REPORT SECTION: C-3 Part IV	PROJECT OFFICER: Lt J. R. Moseley, Jr.

PROBLEM

Excessive in-flight malfunctioning of the tactical B-58 air conditioning and pressurization system. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
43DTE	1 Sep 60	1 Feb 61	AFR 80-14 SACR 80-2

STATUS

31 August 1960. Excessive in flight malfunctioning of the B-58 air conditioning system has occurred during the past two months. To date air conditioning system discrepancies have been encountered on 21% of all sorties flown by tactical aircraft. These failures fall primarily into the four following major categories: (U)

a. Cabin cold in automatic mode of operation: satisfactory in MANUAL Mode of operation - This discrepancy is caused primarily by a faulty cabin temperature controller or excessive cabin leakage. (U)

b. System cycling in flight. This discrepancy has been limited to one aircraft although the problem occurred on five sorties. On three of these sorties, the problem recurred after corrective action had been taken. The exact cause of this malfunction has not been isolated. (U)

c. Cabin Overpressurization - This discrepancy has occurred on two tactical B-58 aircraft for a total of three occurrences. A faulty cabin pressure regulator caused one malfunction. The exact cause of the malfunction on the other two sorties has not been isolated. (U)

d. Water and Fog in the cockpit during ground operations and low altitude flight - Problems of this nature have been caused by clogged drain lines on the air conditioning water separator units and by saturated and dirty coalescer units within the water separator. Preflight and post flight procedures are being devised to preclude flight of an aircraft on which the water separator drains are clogged. The present time-change intervals of the coalescer units are being studied to determine if these intervals should be changed to preclude saturation and over contamination of the filters. (U)

e. These problem areas are being studied to determine if engineering deficiencies exist in the aircraft components of the air conditioning system and/or in the ground test equipment and procedures used for isolation of problems within the system. Corrective action will be initiated as rapidly as engineering deficiencies can be isolated. (U)

CARS FORM SEP 65 69 FC: 2750

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
A-17	B-58 Air Conditioning System Problem Areas (U)

STATUS

30 September 1960:

1. Tests are being conducted on two aircraft to determine the effect on the system of a modification to shift the cabin temperature control range in automatic mode upward by approximately 15°F. Test results to date indicate safisfactory system operation and comfortable cabin temperatures can be maintained in automatic mode of operation with the temperature control centered between cool and warm positions. Further testing of this modification will be accomplished to determine effect on system operation for all temperature control settings.(U)

2. Three additional cases of cabin pressurization discrepancies occurred during this reporting period. Of the total of six pressurization discrepancies to date, one malfunction was caused by a faulty cabin pressure regulator, while one other was caused by a faulty cabin pressure selector switch (cabin pressure pneumatic control). The remaining four instances were caused by loose fittings on the sensing and servo tubing in the pressurization system. The feasibility of performing a leakage check on these lines at periodic inspection when the fittings are more readily accessible is under study. (U)

3. Water and fog in the cockpit has not been a problem during this reporting period. One instance occurred and the cause was dirty coalescer units within the water separators. Preflight and postflight procedures have been devised and are being used to preclude flight of SN aircraft with clogged water separator drain lines. The time change intervals of the coalescer units are still under study. (U)

4. The only major reliability problem encountered with the tactical B-58 air conditioning and pressurization system components is the cabin temperature controller. A later configuration of the controller is now being received in new production aircraft and for spare usage in other tactical aircraft. Evaluation of this controller is not completed at this time. (U)

CARS FORM [illegible] FC: 2720

SECTION C PROJECTS

3. Active projects being conducted

Electronic System Series

TEST AND EVALUATION PROJECT STATUS SHEET

PROJECT NUMBER	PROJECT TITLE
B-3	Tactical Evaluation of MD-7 Active Defense System Maintenance Techniques and Procedures. (U)
REPORT SECTION: C-3 of Part IV	PROJECT NCO: M/Sgt M. O. Webb

PROBLEM

To determine the most effective means of maintaining the MD-7 Active Defense System. (U)

REQUEST AGENCY	DATE INITIATED	COMPLETION DATE	AUTHORIZATION
B-58 Test Force	June 60	December 1960	AFR 80-14 SACR 80-2

STATUS

This evaluation includes maintenance techniques and procedures both at the aircraft and in the shop. In addition, the method of ammo linking and loading will be studied. (U)

31 August 1960

1. Loading time for ammunition on B-58 aircraft has been reduced by 50% by using pre-loaded B-47 ammunition cans. These cans hold 250 rounds of belted ammunition. A prototype ammunition can and loading table is being devised to further reduce loading time. Estimated date for completion of locally fabricated loading table and can is 25 September 60. Convair FZI 4-149-9-1C, Ammunition loading procedure, does not give detailed instructions regarding type inspections to be performed on gun, ammo box, chute, turret, links, roll over procedure and ammunition before being loaded into the B-58 ammunition box. An ammunition loading and inspection procedure is being written and will be ready for field use by 10ctober 1960. Inspection of ammunition, links and roll over procedures is being conducted by team chiefs of the Fire Control System maintenance shop at the munitions site. This action eliminates ammo loading personnel from having to accomplish this inspection at the aircraft. The ammunition is being delivered to the aircraft in sealed cans with the inspectors initials on an attached tag. (U)

2. Turret Hinge Installation: During the month of August seven (7) turret anchor nut plates had to be replaced due to stripping of threads. This problem was caused by improper alignment and adjustment of tactical turret hinge after installation. Proper indoctrination of personnel for installation and adjustments of the tactical turret hinge before turret is opened have been accomplished.

3. Ground Safety: Safety precautions have been explained and appropriate written documentation regarding microwave radiation hazards of the MD-7 radar to personnel, fuel carrying vehicles, and other aircraft. (U)

CARS FORM DEP 69 PCS 2750

TEST AND EVALUATION PROJECT STATUS CONTINUATION SHEET

PROJECT NUMBER	PROJECT TITLE
E-3	Tactical Evaluation of MD-7 Active Defense System Maintenance Techniques and Procedures.

STATUS

30 September 1960:

The ammunition inspection and loading procedures are being finalized.

Materials have been requisitioned and work order initiated for the local fabrication of the prototype ammunition box and loading table. Necessary priority for work to be accomplished will be established when materials are available.

Functional compatibility tests less radar with the Active Defense System Tactical mobile tester have been performed on production aircraft number 436. During these compatibility tests, minor technical data discrepancies were noted. Appropriate corrective action is being taken by the Contractor.

CARS FORM DRP 69a PCL 2700