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From: Commanding Officer, USS PRINCETON (CVA-37)
To: Chief of Naval Operations
Via: (1) Commander Task Force SEVENTY-SEVEN
(2) Commander SEVENTH Fleet
(3) Commander Naval Forces, Far East
(4) Commander in Chief, U.S. Pacific Fleet

Subj: Action Report of the USS PRINCETON (CVA-37) and CARRIER AIR GROUP FIFTEEN; submission of

Ref: (a) OPNAV Instruction 3480.4
(b) CVG-15 conf ltr ser 026 of 29 June 1953 (Air Attack Reports for 11, 12, 13, 14 June 1953)
(c) CVG-15 conf ltr ser 027 of 29 June 1953 (Air Attack Reports for 15, 16, 17, 19 June 1953)
(d) CVG-15 conf ltr ser 029 of 8 July 1953 (Air Attack Reports for 24, 25, 29, 30 June 1953)
(e) CVG-15 conf ltr ser 033 of 12 August 1953 (Air Attack Reports for 1, 2, 3, 5, 7 July 1953)
(f) CVG-15 conf ltr ser 034 of 12 August 1953 (Air Attack Reports for 8, 9, 10, 11, 12, 13 July 1953)
(g) CVG-15 conf ltr ser 035 of 12 August 1953 (Air Attack Reports for 14, 15, 16, 17, 18, 19 July 1953)
(h) CVG-15 conf ltr ser 036 of 12 August 1953 (Air Attack Reports for 20, 22, 23, 24 July 1953)
(i) CVG-15 conf ltr ser 037 of 12 August 1953 (Air Attack Reports for 25, 26, 27 July 1953)

Encl: (1) Action Report; 9 June 1953 through 3 August 1953

1. In accordance with reference (a), the action report of the USS PRINCETON (CVA-37) and CARRIER AIR GROUP FIFTEEN for the period 9 June 1953 through 3 August 1953 is submitted as enclosure (1).

O. C. GREGG

[redacted]
SECURITY INFORMATION

ORIGINAL

CNO (2) Advance
CINCPACFLT (2) Advance
CINCPACFLT EVALUATION GROUP
COMNAVFE (1) Advance
COMNAVFE EVALUATION GROUP
COMSEVENTHFLT (1) Advance
CTF 77 (1) Advance
CTF 92
COMAIRPAC (5)
COMSERVPAC
COMFAIRALAMEDA
COMFAIRHAWAII
COMFAIRJAPAN
NAVAL WAR COLLEGE
COMCARDIV ONE
COMCARDIV THREE
COMCARDIV FIVE
COMCARDIV FIFTEEN
COMCARDIV SEVENTEEN
USS ESSEX (CVA-9)
USS YORKTOWN (CVA-10)
USS RANDOLPH (CVA-15)
USS HANCOCK (CVA-19)
USS BOXER (CVA-21)
USS KEARSARGE (CVA-33)
USS ORISKANY (CVA-34)
USS LAKE CHAMPLAIN (CVA-39)
USS PHILIPPINE SEA (CVA-47)
USS BATAAN (CVL-29)
USS RENDOVA (CVE-114)
USS BAIROKO (CVE-115)
USS BADOENG STRAIT (CVE-116)
USS SICILY (CVE-118)
USS POINT CRUZ (CVE-119)
CARRIER AIR GROUP TWO
CARRIER AIR GROUP FIVE
CARRIER AIR GROUP SEVEN
CARRIER AIR GROUP NINE
CARRIER AIR GROUP ELEVEN
CARRIER AIR GROUP FIFTEEN
CARRIER AIR GROUP NINETEEN
CARRIER AIR GROUP FOURTEEN
CARRIER AIR GROUP TWELVE
CARRIER AIR TASK GROUP ONE
CARRIER AIR TASK GROUP TWO

CO, FAIRBETUPAC (2)
CO, COMPOSITE SQUADRON THREE
CO, COMPOSITE SQUADRON ELEVEN
CO, COMPOSITE SQUADRON THIRTY-FIVE
CO, COMPOSITE SQUADRON SIXTY-ONE

ACTION REPORT
U.S.S. PRINCETON (CVA-37)
CARRIER AIR GROUP 15
9 June 1953 through 3 August 1953

[redacted]
SECURITY INFORMATION

PART I GENERAL NARRATIVE

During the period covered by this report the USS PRINCETON (CVA-37) operated as a unit of Task Force SEVENTY-SEVEN.

Task Force SEVENTY-SEVEN was composed of the carriers USS BOXER (CVA-21), USS PHILIPPINE SEA (CVA-47), USS LAKE CHAMPLAIN (CVA-39) and USS PRINCETON (CVA-37), along with various heavy support and screening ships.

The above mentioned carriers operated with the Task Force during the following dates within the duration of the period reported on:

USS LAKE CHAMPLAIN (CVA-39):

13 June to 27 June 1953;
13 July to 28 July 1953;
1 August to 3 August 1953.

USS PHILIPPINE SEA (CVA-47):

9 June to 4 July 1953;
17 July to 28 July 1953.

USS BOXER (CVA-21):

9 June to 19 June 1953;
4 July to 3 August 1953.

Commander Carrier Division ONE was embarked in the USS LAKE CHAMPLAIN (CVA-39). Commander Carrier Division THREE was embarked in the USS PHILIPPINE SEA (CVA-47) from 9 June to 21 June 1953, and in the USS PRINCETON (CVA-37) from 22 June 1953, through the end date of this report.

The mission of this task Force was set forth in Commander Task Force SEVENTY-SEVEN Operation Order No. 2-52.

The period covered in this action report is an especially significant one for several reasons. It is believed to be the longest sustained combat operation conducted continuously at sea by any aircraft carrier during the Korean Conflict. Furthermore, and of greater

importance, on two separate occasions, the combat sortie record for aircraft carriers is believed to have been broken when one hundred seventy-two and one hundred eighty-four sorties were launched during two single days' operations. Lastly, this report includes the final phases of the war, down to the signing of the truce, during which period three thousand four hundred twenty-one sorties were flown; two million seventy thousand gallons of aviation gasoline, five million three hundred thousand gallons of fuel oil, two thousand seven hundred tons of ammunition and five hundred twenty tons of provisions were transferred at sea; and a record rate of two hundred fifty seven tons per hour, for transfer of ammunition at sea, was established.

PART II CHRONOLOGICAL ORDER OF EVENTS

9 June - Departed Yokosuka, Honshu, Japan. Recovered thirty-six PRINCETON aircraft from Naval Air Station, Atsugi.

10 June - Enroute Task Force SEVENTY-SEVEN.

11 June - Joined Task Force SEVENTY-SEVEN. RADM W. N. JOHNSON, Commander Carrier Division ONE, embarked on the USS LAKE CHAMPLAIN (CVA-39), was Commander Task Force SEVENTY-SEVEN. Flew 135 sorties. Re-armed.

12 June - Flew sixty-eight sorties. Re-fueled.

13 June - Flew 138 sorties. Re-armed.

14 June - Flew 152 sorties. Re-fueled.

15 June - One hundred eighty-four sorties flown - - a number believed to be a new one day record for carrier aircraft sorties. Re-armed.

16 June - Flew 110 sorties. Re-fueled.

17 June - Flew thirty-six sorties. Re-armed.

18 June - No air operations due weather.

19 June - Flew seventy-three sorties.

20 June - No air operations due weather. Re-armed.

21 June - No air operations due weather.

22 June - No air operations due weather. Two F4U-5N aircraft were sent to K-14 for Seoul night air defense operations. Commander Carrier Division THREE, RADM R. E. BLICK, USN and staff embarked this vessel.

23 June - No air operations due weather.

24 June - Flew ninety sorties.

25 June - Flew 172 sorties. RADM R. E. BLICK, USN, Commander Carrier Division THREE, relieved RADM W. N. JOHNSON, USN, Commander Carrier Division ONE, embarked on the USS LAKE CHAMPLAIN (CVA-39) as Commander Task Force SEVENTY-SEVEN.

26 June - No air operations due weather.

27 June - No air operations due weather. Received freight from other vessels.

28 June - No air operations due weather.

29 June - Flew seventy-six sorties.

30 June - Re-provisioned; re-armed; re-fueled. LT BORDELON of VC-3, TAD to Seoul Defense, shot down two YAK-18 aircraft during a night intercept flight.

1 July - Flew 108 sorties.

2 July - Flew forty-one sorties. Re-armed and re-fueled.

3 July - Flew eighty sorties. Re-armed and re-fueled. VADM J. J. CLARK, Commander SEVENTH Fleet, visited this ship via helicopter from the USS NEW JERSEY (BB-62).

4 July - No air operations due weather.

5 July - Flew forty-three sorties. Re-armed and re-fueled. VADM J. J. CLARK, Commander SEVENTH Fleet, visited this ship via helicopter from the USS NEW JERSEY (BB-62). LT BORDELON shot down his third and fourth "Bedcheck Charlies" over Seoul.

6 July - Flew four sorties.

7 July - Flew fifty-five sorties.

8 July - Flew 162 sorties. Re-fueled.

9 July - Flew thirty-four sorties. Re-fueled; re-armed; received aviation supplies.

10 July - Flew fifty-two sorties. Re-provisioned.

11 July - Flew ninety-six sorties. Re-fueled; re-armed.

12 July - Flew 122 sorties.

13 July - Flew sixty sorties. Re-fueled and re-armed.

14 July - Flew thirty sorties. VADM J. J. CLARK, Commander SEVENTH Fleet, visited this ship via helicopter from the USS NEW JERSEY (BB-62).

RADM W. N. JOHNSON, USN, Commander Carrier Division ONE, embarked on the USS LAKE CHAMPLAIN (CVA-39), relieved RADM R. E. BLICK, USN, Commander Carrier Division THREE, as Commander Task Force SEVENTY-SEVEN.

15 July - Flew thirty-four sorties.

16 July - Flew 119 sorties. LT BORDELON of VC-3, TAD to Seoul Night Defense Command, shot down a fifth night intruder to become the first Navy (and propeller) ace of the Korean war.

17 July - Flew twenty-six sorties. Re-armed.

18 July - Flew thirty-three sorties. Re-fueled.

19 July - Flew eighty-seven sorties. Re-armed.

20 July - Flew twenty-nine sorties. Re-provisioned.

21 July - Flew three sorties. Re-fueled.

22 July - Flew sixty-three sorties.

23 July - Flew 136 sorties. Re-fueled and re-armed.

24 July - Flew 160 sorties. Re-fueled.

25 July - Flew 147 sorties. Re-armed.

26 July - Flew 167 sorties. Re-fueled and received aviation supplies.

27 July - Flew 124 sorties. Re-armed. The Korean Truce was signed at 1000I; the cease fire was set for 2200I.

28 July - No air operations were conducted. Re-fueled. RADM R. E. BLICK, USN, Commander Carrier Division THREE, relieved RADM W. N. JOHNSON, Commander Carrier Division ONE, as Commander Task Force SEVENTY-SEVEN.

29 July - Flew nine sorties. Special search flights for downed USAF RB-50 and gunnery were conducted.

30 July - Flew twenty sorties. Gunnery and special search and rescue missions were conducted.

31 July - No air operations conducted. Re-fueled and re-provisioned.

1 August - Departed Task Force, enroute Yokosuka, Honshu, Japan. Three aircraft from VC-35 were launched for ferry to Japan. RADM W. N. JOHNSON, Commander Carrier Division ONE, relieved RADM R. E. BLICK, Commander Carrier Division THREE, as Commander Task Force SEVENTY-SEVEN.

2 August - Enroute Yokosuka, Honshu, Japan.

3 August - Arrived Yokosuka, Honshu, Japan.

PART III ORDNANCE

A. Ship

1. Performance

a. Fire Control equipment

Fire control equipment functioned in a satisfactory manner during this period. The three following equipments sustained disorders which were repaired aboard by ship's personnel (Equipment failure reports, where applicable, are being submitted through established channels):

(1) Director 52 (GFCS MK 56 MOD, 2 Serial #50): This director oscillated and hunted in elevation when the radar-optical switch was "in radar". When the radar-optical switch was "in optical", however, the disorder occurred only intermittently. Upon investigation, it was discovered that the cable terminal tubes had been packed improperly and, therefore, were not watertight. Water from the cockpit had, as a result, leaked into the cockpit junction-box. An investigation of the cockpit junction-box was made through the slip-rings and it was found that the "E2333-3" and "E2333-5" leads indicated a reading of one meghom to ground. Lead "E2333-3" was disconnected and taped with the result that approximately seventy per cent of the oscillation in elevation was removed. Lead "E2333-5" was then cleared at the key - - an action which removed the remaining oscillation in the elevation amplydine circuit. Finally, after satisfactory ground and static tests were made, the system was energized and operated normally.

(2) Director 54 (GFCS MK-56, MOD 2): This director would not respond in elevation to a signal from either the console controls or the optical control tracking unit. A ground, caused by worn insulation on the coaxial cable leading out of the terminal tube, was found to cable "15GSSMP12, S.N.S.N. 15-C-12201-650". This cable is between terminal board "E4551" and "E2196". In order to repair the system, new packing was placed around the defective cable. After all the leads had been re-connected and a check for grounds had been made, the system operated normally again.

(3) Director 419 (GFCS MK-63) and 40 MM mounts 416 and 419: During transmission checks it was found that 40 MM mounts 416 and 419 would not follow Director 419 (GFCS MK-63) in elevation. The casualty was a result of a burned out elevation synchro transmitter. Because of excessive vibration, the screw (ord dwg #146426-648)

securing the brush cover to the elevation synchro transmitter had fallen out and allowed the brush cover to come in contact with the rotor brushes. The rotor supply was, thereby, shorted and the elevator synchro transmitter burned out. The synchro was replaced and normal operation restored.

b. Ordnance Equipment

Firing exercises were held during this period on 29 and 30 July. No casualties occurred. The maintenance and upkeep of ordnance equipment has been especially stressed throughout the period of this report because of the increased seasonal humidity and inclement weather.

2. Expenditures

Quantity	Code	Description
161	D1	5"/38 Projectile, AAC
2,317	H1	40 MM HEIT-SD

B. Aviation

For ordnance performance and expenditures by the Air Group (CVG-15) see PART VI, Section A.

PART IV BATTLE DAMAGE

A. Own

The ship sustained no battle damage. See references (b) through (i) for battle damage sustained by PRINCETON aircraft.

B. Enemy

See references (b) through (i) for damage inflicted upon the enemy.

PART V PERSONNEL PERFORMANCE AND CASUALTIES

A. Performance

1. The performance of Ship's Company and Air Group personnel was outstanding.

B. Complement

1. The average on-board count during the period was as follows:

	Officer	Enlisted	Total
Ship's Company	118	2,088	2,206
Marine Detachment	2	62	64
Air Group	122	624	746
Flag	29	79	108
		Total	3,124

2. During the period the following promotions and advancements took place:

One to Commander
Three to Lieutenant Commander
One to Lieutenant
Four to Lieutenant (junior grade)
Four to Warrant Officer (pay grade W-3)
Two to Chief Petty Officer (acting appointments)

3. During the period there were no critical shortages in any rating that prevented this vessel from accomplishing its mission.

C. Replenishment

1. The irregular scheduling of replenishment and the consequent mustering of working parties on short notices required departments to keep their working party muster lists current at all times. Alternates were listed to provide for the contingency of a watch of a particular man on the working party coinciding with the time of replenishment. Despite the fact that all available personnel from offices and supply divisions were placed on working parties, the demands made on the Engineering, Deck, and Air Divisions have been great, especially when it is noted that furnishing personnel for the working parties is but one phase of the replenishment responsibilities

of these departments. This additional load is more difficult to absorb when replenishment is conducted at night between operating days.

2. The results of night replenishments on the Engineering Department are summarized below:

a. Ammunition and provision replenishment required the service of approximately two hundred men. Inasmuch as the striking below of ammunition and provisions is generally an all-night evolution, the services of these men are lost to the department the following day as well. The divisions hardest hit during these evolutions are the Boiler Division and, to a lesser degree, the Main Engines Division. The personnel allowance of these divisions affords a watch on a four-hours-on and eight-hours-off basis. Any material reduction in personnel, such as is required during unscheduled replenishments, requires these divisions to resort to a watch and watch basis, resulting in a noticeable lowering of watch standing efficiency. This adverse condition is further aggravated in the Boiler Division inasmuch as the number of personnel left to stand watches when steaming on eight boilers is considerably below that considered necessary for efficient and safe operations.

b. It is apparent that the adverse working conditions caused by unscheduled replenishment operations are a major element in the lowering of efficiency. It is felt that the resultant lowering of watch standing efficiency was a contributing factor to two near-serious casualties suffered within this reporting period. In order to maintain satisfactory safety standards, non-scheduled replenishment and night replenishment should be kept to a minimum.

D. Statistics of Public Information and band activities:

1. Public Information Releases:

124 Hometown news stories (to FHTNC)
146 Hometown news photos (to FHTNC)
56 News dispatches (by radio)
16 News features
41 Photos
18 Hometown radio interviews
52 Daily newspaper published
53 Daily radio newscasts

2. At the request of Commander Naval Forces, Far East the following dispatches and public information messages were sent out

on the emergency water landing made by ENS R.W. TURNER and his subsequent recovery by the USS FLETCHER (DDE-445):

200126Z July 1953
230214Z July 1953
240436Z July 1953
250532Z July 1953
280646Z July 1953

3. LT G. P. BORDELON, who had been on loan to the Fifth Air Force in Korea, returned back aboard. He had become the Navy's first Prop Ace of the Korean Conflict. He was received aboard by "Five" marine sideboys, the band, signs and banners of welcome, and personally greeted by the Commanding Officer. Movies and still pictures were taken.

4. Band activities:

13 Concerts - average attendance 80 men
25 Concerts for replenishment ships
6 Morning Colors
8 Divine Services (5 musicians)
1 Division Party (7 musicians)
1 Welcoming first PRINCETON Ace back aboard

E. Morale and Welfare

1. In general the morale of all personnel aboard including that of the Air Group pilots was excellent in spite of the prolonged tour at sea. The unpredictable nature of flight operations due to poor weather conditions did, however, adversely affect morale for short periods of time. The fourth-day replenishment schedule which allowed pilots to relax periodically was sorely missed by the Air Group. It is felt that this schedule should be used whenever operations permit. (For further comment see Medical Department Report, PART VI, Section E).

F. Casualties

1. Ship's Company

a. On 1 July, WATSON, T.B., AB3, serial number 297-24-21, USN, was fatally injured when the flywheel on a portable hydraulic test stand which he was servicing disintegrated. Partial decapitation caused almost immediate death.

2. Air Group

a. On 1 July, LT W.A. JENSEN, 429203/1315, USNR, of VF-152, ditched after his aircraft was hit by enemy anti-aircraft fire. He suffered possible compression fracture of a lumbar vertebra and was admitted to the U.S. Naval Hospital, Yokosuka, Japan, on 8 July 1953, without being returned to this command.

b. On 2 July, LTJG G. BENAS, 521247/1310, USN, of VF-153, received lacerations about the face and neck when his aircraft was hit by an enemy AA fire. LTJG BENAS flew his damaged plane back to the PRINCETON and received treatment aboard.

c. On 14 July, LTJG J.L. PAWER, 452883/1310, USN, Flag Lieutenant of ComCarDiv THREE, was killed when the AD4N which he was flying on a routine ASP escort flight failed to pull out of a practice rocket run.

d. On 19 July, ENS R.W. TURNER, 554759/1325, USNR, of VF-152, crashed into the water on take off. He received comminuted fractures of the left humerus, radius, and ulna. Because of the fractures, he was unable to be hoisted by the helicopter and was taken from water by the crew of a whaleboat from the USS FLETCHER (DDE-445). He remained aboard the FLETCHER overnight and was transferred back to the PRINCETON on the following morning for further treatment. It is anticipated that he will be transferred shortly to the U.S. Naval Hospital at Yokosuka for physio-therapy and other convalescent care.

e. On 20 July, LCDR Charles Moye JONES, 99776/1310, USN, Operations Officer of CVG-15 Staff, was killed when his F9F crashed into a hillside apparently after having been hit by flak.

f. On 26 July, LT W.C. BLACKFORD, 453727/1315, USNR, of VF-152, was shot down and presumed killed in action while on a reconnaissance mission over enemy territory.

(For Medical Department Statistical summaries see PART VI, Section E).

PART VI SPECIAL COMMENTS

A. Air Group

1. Composition of Air Group FIFTEEN:

Unit	Type	Aircraft on Board			
		11 June	1 July	15 July	28 July
Carrier Air Group FIFTEEN CDR John E. PARKS, USN					
Fighter Squadron 152 LCDR Robert STANEK, USN	F4U-4	16	14	14	15
Fighter Squadron 153 LCDR Gerald E. MILLER, USN	F9F-5	16	13	11	11
Fighter Squadron 154 LCDR Bruce A. BELL, USNR	F9F-5	16	16	15	13
Attack Squadron 155 LCDR Ray S. OSTERHOUDT, USN	AD-4	16	16	15	15
Composite Squadron 3 Det. "D" LT Guy BORDELON, USN, O-in-C	F4U-5N	4	2	2	2
Composite Squadron 11 Det. "D" LT Joseph PIERCE, USNR, O-in-C	AD-4W	3	3	3	3
Composite Squadron 35 Det. "D" LT J.C. HOLLOWAY, USN, O-in-C	AD-4N	4	4	4	4
Composite Squadron 61 Det. "D" LCDR G.A. WHITE, USN, O-in-C	F9FP	3	3	3	3

2. Summary of Flights: June 11 - 3 August 1953

Mission	VF 153. F9F-5	VF 154. F9F-5	VF 152. F4U-4	VC 3 .F4U-5N	VA 155. AD-4A	VC 35. AD-4N	VC 11. AD-4W	VC 61. F9F-5P	Total
DEFENSIVE:									
CAP	140	147							287
ASP							56		56
ASP-Esc					23	31			54
Total	140	147			23	31	56		397

(Summary of Flights Continued)

Mission	VF 153 F9F-5	VF 154 F9F-5	VF 152 F4U-4	VC 3 F4U-5N	VA 155 AD-4A	VC 35 AD-4N	VC 11 AD-4W	VC 61 F9F-5P	Total
OFFENSIVE:									
Strike	532	518	23	1	34	8			1,116
Recco	230	255		14	4	17			520
CAS			522		526			103	1,048
Photo	38	50							191
ECM			1	3	4	22			30
WX Rec						1	1		2
NGF			2	5	1	4			32
Total	800	823	568	23	569	52	1	103	2,939
MISC:					2	6	9		17
SAR					10				37
Training	6	10	11		5	11	3		19
Ferry					1				12
Slowtime			8	3					85
Total	6	10	19	3	18	17	12		
TOTAL SORTIES	946	974	587	26	610	98	69	103	3,421
ABORTS	15	10	10	2	8			2	47
TOTAL	961	984	597	28	618	98	69	105	3,468
Average Flights Per Pilot	51.8	50	31.4	5.6	26.8	20.4	12.6	26.2	

3. Operations

a. Offensive operations during the period consisted almost wholly of close air support for propeller aircraft and strikes against supplies and troop concentrations in the Cherokee areas close behind the lines for the jets. Close air support took priority, however, and several times jets were diverted from their primary targets to that type of mission. Some effort was also expended against airfields, roads, and bridges in North Korea. No missions coordinating jets with props were flown this period. Night heckler sorties were very limited because of inclement weather.

b. Shortly before the USS PRINCETON's return to the line this period, the peace talks at Panmunjom took a very favorable turn and there arose the possibility of an early truce. The change in offensive strategy of Task Force SEVENTY-SEVEN was occasioned by the United Nations maximum effort to stabilize the main line of resistance in the face of strong enemy efforts to push the lines farther south before the signing of the truce.

(1) Two results of the maximum effort were:

(a) An increase in the average number of scheduled sorties per day from 110 to 165.

(b) Full flight schedules every day, with replenishing being done in the operating area at night or during inclement weather.

c. Air Group FIFTEEN and attached VC detachments flew 3,439 combat sorties during this combat tour. It is believed that an all time record was set on 15 June 1953, when the Air Group flew 184 combat sorties. On this same day VF-154 flew fifty-four jet combat sorties--also believed to be a record for a squadron in one day. These records were made possible only because of high aircraft availability and highly efficient, hard working, flight, hangar deck, and ordnance crews.

d. Ditchings:

(1) During this period two jets on different occasions ditched off shore from K-18 because of inclement weather. The circumstances in each case, however, were similar. The flights were diverted to K-18--in one case due to a broken hook point and in the other due to adverse weather in the operating area. At the time of the diversions the K-18 weather, as reported by the K-18 tower, was within acceptable limits. However, upon arrival the pilots found conditions considerably worse than reported (the tower continued to report the original weather conditions). The actual state of the weather encountered during the approach was very poor. There was a fifty to seventy-five foot ceiling, and visibility was only one-eighth of a mile. Since the aircraft had descended from altitude, low fuel states precluded their proceeding to another field.

(2) The result was that, after several unsuccessful passes at the field, one pilot in each flight was forced to ditch while the remaining twelve pilots landed safely. A further handicap during low ceiling and visibility approaching is the thirty-five foot high sand dunes at the approach end of the K-18 runway. The pilots

flying low to maintain contact with the water are unable to see over the sand dunes in time to become orientated for a safe landing. Steps have been taken to get the extension of the runway marked out to the beach. This arrangement would enable the pilot to line up with the runway without actually seeing it. The fact still remains, though, that the primary cause of these accidents was the erroneous weather reports received from Korea. Had the true weather condition been known in time both flights could have been diverted to an all weather field.

(3) The second ditching was done after an aircraft experienced a fuel exhaustion flameout. One interesting note on this ditching: while the fuel gauge indicated two hundred pounds of fuel remaining after flameout, the pilot had to let down to fifty feet before seeing the water because visibility was lowered to less than fifty yards. Upon seeing the water he leveled off high for touchdown and began to settle. By utilizing his "Shot Gun" ignition he lighted off and advanced his throttle. There was enough residual fuel left in the system to give him approximately fifty per cent RPM which definitely checked his rate of decent and possibly saved him from making a fatally hard landing.

(4) It was noted that in the ditchings described the nose fairings came loose from the locked position. In the first case it moved forward two or three inches and in the second case about a foot. It seems the downward force of a water landing had a tendency to break off the nose section of the F9F. (It has been observed that nose sections coming off on arrested landings have, in most cases, been accompanied by a hard landing). On a previous ditching the nose section was observed to come off completely resulting in nearly comple disintergration of the plane and loss of the pilot.

e. There is a tendency on the part of pilots doing close air support to break at the same point and follow the flight path of the preceeding plane to the target. The dangers of affording enemy gunners this advance information on one's position are obvious. On several occasions heavy flak concentrations were seen at the leader's break point at about the time the next plane would have been there had he used the same break point.

f. When the USS LAKE CHAMPLAIN (CVA-39) joined the task force, four division leaders were exchanged with VA-45 from that ship for three days. This exchange system is believed to be the best so far used to familiarize new groups with the Korean operating procedures. It is better than having a flight from the "new" group rendezvous in the air with a flight from the "old" group and be led to the target. The briefing and debriefing is much more valuable when

all pilots of the strike are present. Informal pre-briefing and having strike leaders join the new group the day prior to scheduled combined air operations proved very valuable.

g. During this period only one case of aileron snatch was encountered in F4U-4's. It is believed that this decrease in the incidence of aileron snatch is the result of several corrective measures. However, the specific reason for aileron snatch has not yet been definitely determined. All pilots have been cautioned: to use a dive speed below 360 knots; to be smoother on controls in the dive; and to be more meticulous about trim in dives. The installation of wing trim tab "A/N VS 55016" did not completely solve the aileron snatch problem; rather, it was in a plane that had had this change incorporated that the one case of aileron snatch was encountered.

h. It has been found that little fuel can be saved in the F9F-5 by climbing to altitude in excess of ten thousand feet when operating whithin a small radious of action. Most likely more fuel will be burned in the climb than will be saved at altitude. Only when long range flights are scheduled is it necessary to go to higher altitudes.

i. The force was hampered by low overcasts in the target area throughout the entire tour. Since a maximum effort was being exerted at this time, and since targets were often obscured by low clouds, flights would climb through the weather at the force, report over the approximate target area, be directed to their drop point by radar control stations, and would drop on signal from the ground controller. While the results obtained cannot be accurately assessed, such bombing tactics undoubtedly have at least a psychological and harrassing effect on the enemy.

j. On numerous occasions squadrons have found it necessary to make IFR let-downs upon their return to the force due to conditions of extremely low visibility and ceilings. The results of a study of carrier controlled let-down procedures is being made the subject of separate correspondence.

k. Bombs were preferred over HVAR's and ATAR's as weapons against most recco targets encountered by both jet squadrons during this period. Mixed loads of bombs and rockets were not found satisfactory. Rockets were preferred only for special targets such as tanks, tunnels, or caves. The twenty millimeter gun has been found to be the most effective weapon against trucks and oxcarts.

l. On 23 June, two pilots and aircraft of VC-3 were deployed to K-6 to intercept enemy night hecklers. During the period

1 to 20 July 1953, LT BORDELON of VC-3, was credited with destroying five enemy night hecklers. LT BORDELON stated that when he reported contact with the enemy night hecklers they began to take violent evasive action--an indication that either they or their ground controllers are monitoring our radio frequencies.

m. The AD-4W aircraft with "APS-20" radar has proved to be a very effective plane for Search and Rescue work. The utilization of the radar operator for navigation purposes insures a full and thorough coverage of the search area in a minimum of time. The "APS-20" was used by PRINCETON planes in the effective rescue of a downed BOXER pilot on 19 June 1953, during inclement weather.

n. Photography

(1) Photographic missions for this period consisted primarily of the mapping of areas of the Cherokee sector and of the airfields of North Korea. Very little bomb damage assessment photography assignments were received.

(2) Low overcasts placed restrictions on approximately forty per cent of the photo missions. With the procurement of the K-22 and/or the K-17-6"B cameras, low altitude oblique photography might be obtained when cloud cover made vertical photography impossible. It is known that the development and procurement program for these cameras is well underway and no further comment will be made here.

(3) In contrast to the first period, cameras and related equipment stood up remarkably well. Magazine failures of the K-38 camera (after home-made modifications and adjustments) were practically non-existent. The light, flimsy construction of the magazine was made the subject of a RUDM.

(4) Because of the type of mapping assignments received, the large 395 foot film roll was used almost exclusively. The winding mechanism of the magazine does not seem designed well enough to overcome the inertia of this mass without adjustment of the clutch system. No further troubles, however, were experienced.

(5) The Image Motion Compensator, as originated by Detachment Mike of the USS PHILIPPINE SEA (CVA-47) was manufactured and installed in each of the three photo planes. The Dog Detachment version of the compensator differs slightly from the original in the electric drive mechanism. It has operated continuously and successfully since its installation.

4. Ordnance

a. The twenty millimeter gun performance was considered outstanding during this tour. Structural failure of armament parts was the only problem encountered. Reports, where applicable, are being submitted through established channels. Due to the heavy operational schedule, maintenance was difficult during the day and almost all maintenance was accomplished by night ordnance crews.

b. The "Aero 14A" bomb rack situation now appears to be good. Periodic inspection and lubrication has improved their performance. Further shortages are not anticipated. Although some Aero 14A parts are not available, it is believed that present spare parts and a small number of Aero 14A racks in stock will suffice. Fighter Squadron 152 reported a twenty-five per cent increase in reliability of these racks on F4U-4 aircraft by the use of the canvas covers reported in the previous Action Report.

c. One squadron reports that only limited maintenance of the "MK6 Model 0" AFCS has been necessary this tour. Parts usage has been almost negligible on the manual part of the system; only minor adjustments have been required. Pilots check the system on every flight.

d. Hung ordnance in the form of rockets with broken pigtails has been a big headache. In spite of all the precautions and devices that were used, this problem seems to persist. Some rockets have dropped off on arrested landings. When the Aero 14A and 14B rack with hung rocket (HVAR or ATAR) is subjected to an arrested landing and drops ordnance, the shear pin in the bomb rack is always changed to prevent future malfunctioning.

e. Twenty Millimeter Guns

(1) The use of a safety block or yoke has continued to be a time saver as well as an excellent safety device for the twenty millimeter guns. The safety block is inserted between the gas cylinder yoke and the retraction push rods. Thus, the breech block is prevented from going to battery in event of the inadvertent release of the sear. No appreciable permanent driving spring set has resulted from the use of the safety block. However, leaving the feed mechanisms continually "wound in" may result in the eventual loss of tension and thus cause jams at the feed mouth.

(2) Considerable trouble has resulted due to the rusting of twenty millimeter guns on the AD4NA aircraft. The rusting of "Aero 13A" gun chargers is due to the water based Hydrolube. Use

of this Hydrolube makes it necessary to frequently replace the charger seals. This is a constant problem. A report via established channels is being made.

f. In two instances jettisoned unarmed ordnance has exploded on contact. Both cases occurred over water. One 250 pound GP was fused Inst/ND. One 500 pound GP was fused Inst/.01. The cause has not been determined.

g. Total Ammunition Expended 11 June through 27 July 1953:

Quantity	Code	Description
506	K1	2000# GP
1,618	K2	1000# GP
172	K3	5000# GP
5,431	K4	250# GP
3,590	K5	100# GP
2	K8	350# DEPTH BOMB, AN-MK 54
387	K9	220/260# FRAG
6,014	K20	FUZE, NOSE, AN-M1 39A1
5,175	K21	FUZE, NOSE, AN-M140A1
2	K23	FUZE, NOSE, AN-M146
9	K26	FUZE, NOSE, VT, T2OE1
92	K27	FUZE, NOSE, VT, T5OE4
223	K30	FUZE, NOSE, AN-MK 219
8,917	K35	AN-M100A2 (ND)
177	K36	AN-M101A2 (.025)
2,096	K37	AN-M102A2 (.025)
4	K42C	FUZE, TAIL M124/A1 (6 hr)
199	K45T	ANTI PERSONNEL BOMB FUZE EXTENSION
11	K48	FUZE, BOMB, TAIL, (HYDROSTATIC) AN-MK 230
2,102	K49A	PRIMER DETONATOR M14 NON DELAY
2,214	K49D	PRIMER DETONATOR M14 (0.01)
7,213	K49E	PRIMER DETONATOR M14 (0.025)
24	L1	3.5" ROCKET COMPLETE ROUND
447	L5	5" HAVAR COMPLETE ROUND
499	L7	ATAR COMPLETE ROUND
97,753	M1	20MM HEI M97
81,106	M2	20MM INC M96
81,106	M3	20MM AP-T M96
259,966	M4	LINK, 20MM M8/M8E1
11,592	M6	CAL., 50API M8
11,592	M7	CAL., 50 INC M1
5,798	M8	CAL., 50 API-T M20
28,982	M9	LINK, CAL., 50 M2
183,794	M10	CAL., 50 BELTED (2-2-1)

(Total Ammunition Expended 11 June through 27 July 1953 Continued)

Quantity	Code	Description
1,470	N1	THICKENER M2 (lbs)
64	N5	XYLENOL (gallons)
37	N6	IGNITER, M15, EXTERNAL WP
38	N8	IGNITER, M16, INTERNAL WP
39	N14	FIRE, BOMB, MK 78.5
16	P2	FLARE, PARACHUTE, MK .5
52	P3	FLARE MK 6 PARACHUTE
16	P15	LIGHT, FLOAT, AIRCRAFT, AN MK 6
521	PP1	CARTRIDGE, BOMB EJECTOR MK 1
150	PP7	CARTRIDGE II J48 JET ENGINE

h. Ordnance Expended per Squadron:

Type Ordnance	VF-153	VF-154	VF-152	VA-155	VC-3	VC-35
2000#				506		
1000#			492	1,112		
500#	4	40	1	54	14	40
350#				2		
260#	104	48	30	60	120	93
250#	1,954	1,972	1,095	128	7	160
100#	1,761	1,811				
NAPALM			36			
5" ATAR	215	206	71		6	12
3.5" AR				11		6
20MM	145,295	138,124		39,290	13,760	7,070
50 CAL			219,208			
5" HVAR	242	208				12
LEAFLETS	8	7	2			

i. Hung Ordnance:

Type A/C	Type Ordnance	Releases by Jerking	Drop Offs on Landing	Remaining on Racks	Type Rack
F9F-5	100#			8	Aero 14A
"	250#		1	10	"
"	260#			6	"
F4U-4	250#	1		3	"
AD-4N	250#			2	"
"	260#			1	"
AD-4NA	250#			1	"
F9F-5	ATAR			30	"
"	HVAR		4	33	"
F4U-4	ATAR			8	"
F4U-5N	ATAR			1	MK9
AD-4N	3.5 ARS			1	Aero 14A
AD-4N	ATAR			1	Aero 14A

(1)Aero 14A rack malfunctions in most cases were due to failures within the aircraft's electrical system. Structural failures of Aero 14A racks resulted in only .06 per cent of all bombs carried being returned aboard.

(2) Of all rockets carried five per cent were returned aboard due to broken pigtails, two per cent due to dud rocket motors and, .007 per cent to pigtail plugs vibrating loose from their recepticles. Four rockets fell off as the shear pins of the Aero14A broke on arrested landings.

(3) Fifty caliber guns averaged one stoppage per each six thousand rounds fired.

(4) Twenty millimeter guns averaged one stoppage each seventeen hundred rounds fired.

5. Maintenance and Material

a. Routine checks and corrective maintenance comprised the major work-load during this tour on the line. Maximum effort and night replenishment by the Task Force made maintenance difficult and required sound planning and excellent night maintenance crews to obtain the required availability.

b. Commander Air Force, Pacific Fleet dispatch 171950Z of July, which requires inspection of all F9F fuel cells, and Bureau of Aeronautics dispatch 032124Z of July, requiring inspection of the installation of the main accessory drive gear assembly bearing, contributed to the maintenance workload. These inspections have not as yet been completed on all aircraft.

c. Six "J48" and two "R-2800" engine changes were performed during the period; sixteen Holley fuel controls also were changed. A major factor contributing to the large number of fuel control changes is believed to have been the prior use of the alcohol additive by one of the squadrons.

d. A "J48P6A" engine had to be changed because of large nicks found in the compressor. This engine had only one hundred hours of operation and had no noticeable nicks on previous inspections. Disassembly revealed that pieces of metal such as screws, arming wire, and pieces of what appeared to be blast shield metal had entered the engine. It is therefore recommended that:

(1) Blast shields be rigidly inspected for signs of deterioration to reduce the possibility of pieces coming loose and entering the intake ducts.

(2) That flight deck personnel conduct continuous policing of the flight deck, particularly in the drain scuppers.

(3) That ordnance personnel should police the area for pieces of arming wire before leaving a job.

(4) That squadron personnel of the flight deck also continually police the area for pieces of metal that could be blown or sucked into engine intake ducts.

The Pratt and Whitney representative concurs in the above recommendations and believes that premature engine changes due to inducer nicks can be reduced fifty to seventy-five per cent aboard aircraft carriers by a program of increased flight deck cleanliness.

e. Spark plug troubles in "R3350" engines have been materially reduced since some new "RB-19" and "RB-27" plugs have become available.

f. The F4U-5N's were plauged with numerous hydraulic leaks during this period. Periods of inactivity seem to increase the number of such instances while a decrease is evident when the aircraft

are operated daily. Regular exercise of the hydraulic units seems to keep seals in better condition and reduces the number of leaks experienced.

g. Wingfold cylinders on two AD aircraft had to be replaced as a result of failure during the folding operation while the wings were carrying an excessive ordnance load.

h. One F9F, while being towed with the wings folded, was blown over by the blast from another F9F and required a wing change. The F9F-5 is not very stable when subjected to a large side airload when the wings are in the folded position, and extreme care should be exercised to prevent such situations arising.

i. Aircraft handling accidents were materially reduced over the preceding tour. This fact is especially noteworthy in view of the increased night handling brought about by night replenishment. Continued vigilance on the part of flight and hangar deck crews is necessary if such accidents are to be kept to a minimum.

j. No hook point failures occurred. One F9F squadron has completed well over 1,900 arrested landings without a single failure. This squadron continues the practice of greasing the hook point before each flight and follows up with a close inspection for chipping and cracking following each landing. The crossdeck pendants are greased daily. A total of seventy-three hook points and sixteen shanks were issued for F9F aircraft. These were changed largely because the units had reached their maximum permissible number of engagements.

k. Other major parts issued for F9F aircraft included: seven starters, 150 low pressure fuel filters, eight tip tanks, fourteen aileron boost solenoids, two rudders, and five elevators.

l. There were two carbureters, seven hook shanks, eighteen hook points, two magnetos, three wings, four elevators, and two propellers issued for AD aircraft. Two propellers, four carbureters, one wing, two elevators, and five tailhooks were issued for the F4U's. A total of 139 main landing gear tires were issued for F9F aircraft, six for the F4Us, and four for the ADs. One aircraft battery was issued during the period.

m. Some difficulty is still being experienced in obtaining spots for full power turn-ups of prop planes and for such operations as drop checks, wing changes, and engine changes. Cooperation between ship and air group personnel, however, is excellent.

n. The substitution of night replenishment for fourth day replenishment somewhat hampered maintenance work because of the time during which lights were off on the hangar deck. In spite of this fact, all squadrons and VC detachments maintained their usual high standards of availability. As computed in accordance with the Naval Air Warfare Reporting Manual, availability was as follows:

VF-152	VF-153	VF-154	VF-155	VC-3	VC-11	VC-35	VC-61
95.5%	96.6%	95.2%	97.6%	90.3%	100%	98.0%	96.5%

The ratio of missions regularly scheduled to those flown by their own aircraft is shown below, expressed on a percentage basis:

VF-152	VF-153	VF-154	VA-155	VC-3	VC-11	VC-35	VC-61
97.9%	90.8%	102.9%	97.9%	100%	100%	100%	100%

o. Material support and cooperation from the ship's supply department continues to be excellent both in the spare parts available and the procurement of ACOG items. The following is a breakdown of the ACOG's experienced during this period:

Model	Nomenclature	Stock Number	Allowance Non-Allow	Plane Days ACOG
AD-4W	Tube Assembly	R82-DQ-5265548	Non-Allow	49
F4U-4	Control Assembly	R82-CV-VS-48660	Non-Allow	26
F4U-4	Stabilizer Assembly	R83-CV-VS-40103	Non-Allow	2
F9F-5	Valve Assembly	R83-AP-25400-20	Allowance	5
F9F-5	Valve Assembly	R83-AP-25400-20	Allowance	5
F9F-5P	Inverter	R17-I-7476-1	Non-Allow	4
F4U-4	Cylinder Assembly	R85-PW-136918	Allowance	2
F9F-5	Thermostat	R17-VCH-49B92	Non-Allow	2
AD-4NA	Cylinder Assembly	R82-DG-5255155-17	Allowance	2
AD-4N	Indicator	R88-I-1325-15	Allowance	6
AD-4N	Indicator	R88-I-1651-100	Allowance	1
F9F-5	Cover Assembly	R85-PW-151979	Non-Allow	1
AD-4	Wing Assembly	R82-DG-5256004-534	Allowance	16
F4U-5N	Rod Assembly	R82-CV-VS-10938	Non-Allow	4
AD-4N	Indicator	R88-I-1651-100	Allowance	1
F9F-5	Cover Assembly	R85-DW-151979	Non-Allow	4
F9F-5	Valve	R83-AP-13701-20	Allowance	1
F9F-5	Valve	R83-AP-13701-20	Allowance	1
F9F-5	Valve	R83-AP-13701-20	Allowance	2
F4U-4	Cylinder	R85-PW-136918	Allowance	1

p. The FASRON Detachment at K-18 has rendered invaluable assistance to the Air Group pilots and aircraft on numerous occasions and is performing an excellent job with the limited facilities it has at hand. On one occasion, the Marine detachment from K-13 also did an excellent job of replacing both wings on an F9F (BuNr. 126170) after it had been severely damaged by enemy fire. This job was done overnight.

6. Aircraft Damage:

a. Combat Loss of Aircraft:

Date	Unit	Type A/C	BuNo	Cause	Code
7/1/53	VF-152	F4U-4	80822	Enemy Anti-Aircraft Fire	L
7/16/53	VA-155	AD4	126904	A/A Fire. Pilot Bailed Out	L
7/20/53	VF-153	F9F-5	125557	Enemy Anti-Aircraft Fire	L
7/26/53	VF-152	F4U-4	81834	Enemy Anti-Aircraft Fire	L

b. Damage Inflicted by Enemy to Own Aircraft:

Date	Unit	Type A/C	BuNo	Cause	Code
6/14/53	VF-152	F4U-4	97086	Small Arms Fire	D3
6/14/53	VF-153	F9F-5	126207	Automatic Weapons	D3
6/15/53	VC-3	F4U-5N	124452	Small Arms	D3
6/15/53	VF-154	F9F-5	126229	Small Arms	D3
6/16/53	VF-154	F9F-5	126241	Small Arms	D3
6/16/53	VF-153	F9F-5	125557	Automatic Weapons	D3
6/17/53	VF-153	F9F-5	126230	Small Arms	D3
6/25/53	VC-3	F4U-5N	124452	Automatic Weapons	D3
7/1/53	VC-3	F4U-5N	122038	Small Arms	D3
7/1/53	VF-152	F4U-4	82117	Automatic Weapons	D3
7/2/53	VF-153	F9F-5	125557	Automatic Weapons	D3
7/2/53	VF-153	F9F-5	125961	Small Arms	D3
7/3/53	VF-153	F9F-5	125590	Automatic Weapons	D2
7/3/53	VF-154	F9F-5	126251	Bomb Blast	D3
7/6/53	VF-154	F9F-5	125543	Bomb Blast	D2
7/9/53	VC-3	F4U-5N	122038	Small Arms	D3
7/11/53	VF-154	F9F-5	126235	Automatic Weapons	D3
7/11/53	VF-154	F9F-5	126238	Small Arms	D3
7/18/53	VF-153	F9F-5	126230	Small Arms	D3
7/19/53	VF-153	F9F-5	126170	Automatic Weapons	D3
7/24/53	VF-154	F9F-5	125952	Small Arms	D3
7/24/53	VF-153	F9F-5	215591	Automatic Weapons	D3
7/25/53	VF-153	F9F-5	126243	Automatic Weapons	D3

c. Operational Loss of Aircraft:

Date	Unit	Type A/C	BuNo	Cause	Code
6/13/53	VF-153	F9F-5	125573	Ditched, Low Fuel	L
7/9/53	VF-153	F9F-5	125462	Ditched, Flame Out	L
7/12/53	VA-155	AD4	125757	Crashed	L
7/19/53	VF-152	F4U-4	81331	Crashed on take-off	L
7/25/53	VA-155	AD4	126922	Ditched due to engine trouble	L

7. Air Intelligence

a. General

(1) During this tour the Air Intelligence team continued to operate effectively and smoothly, and its relations with the ship's intelligence personnel were excellent. Despite the rather heavy briefing schedule brought about by the continuous all out effort of the Task Force, the lessons learned during the first two tours were put to effective use.

b. Maps

(1) The preponderant scheduling of propeller close air support and jet Cherokee missions during this period presented somewhat of a map problem. To provide a suitable target chart of each corps area and annotated with the current bombline and prominent terrain features used by CAS controllers. These were carried by many CAS flight leaders.

(2) An additional briefing aid was a strip map of the bombline area constructed of 1:50,000 Army Map Service charts. The chart covered all areas of CAS operations and was annotated with the current bombline, anti-aircraft positions, terrain features, "K" and "A" fields, corps and division level headquarters, Tactical Air Direction Center, "MPQ" (Ground Radar Controlled Drop) controllers, et cetera. This chart has proved invaluable in briefing as well as debriefing during current operations.

(3) The majority of pilots began their original tour using the AMS "L552" series map. The disadvantage of having elevations in meters and light grid lines in this map is overcome by the ease of readability due to north lighting. This map is still preferred by most pilots.

(4) The AMS "L552" terrain map has been used for many briefings. Flak, furthermore, is plotted in the ready room on the AMS "L552" series. In addition a single sheet of the terrain map series has been used to brief each pilot individually. Each pilot is, therefore, able to see a closeup, in three dimensions, of exactly where his target is located in relation to the surrounding terrain. This method actually lessens the briefing time required and enables the pilots in the back row to get a "front row" briefing.

(5) The U.S. Navy flight chart "NC Miscellaneous 156 A2-1 'Texoprint'", has been used somewhat by squadrons during this tour for evaluation purposes. The results obtained with this durable chart have been excellent. The map folds compactly without surface cracking and grease pencil marks may be wiped off with a cloth. The map provides excellent coverage on one sheet. The shading on this map is also good.

c. In preparing map folders for the pilots, scotch tape was used at the beginning of the cruise. It was found, however, that it tended to crack and discolor. Since then it has been replaced by "Mystick" type ordnance tape and this tape has proved highly satisfactory.

d. The use of 1:30,000 target photographs inaugurated during this tour on the line has proved to be of tremendous value. This scale photography is of value to the squadron intelligence officer and to the pilot because:

(1) It provides an accurate, easily read map. This quality is especially important in the low rice paddy areas where rivers and roads may have changed positions.

(2) It shows the target location in relation to predominent terrain features which may not be shown on 1:50,000 photography due to the size of the area covered.

(3) The 1:50,000 photograph, however, is still a necessary part of the briefing and flight. It is used to locate buildings, roads, and terrain features not readily visible in the smaller scale photography.

e. Availability of more bomb damage assessment photographs would be a great boost for the pilots' morale. In addition it would be a basis for an analysis of present attack procedures and tactics based on target damage.

(4) The AMS "L552" terrain map has been used for many briefings. Flak, furthermore, is plotted in the ready room on the AMS "L552" series. In addition a single sheet of the terrain map series has been used to brief each pilot individually. Each pilot is, therefore, able to see a closeup, in three dimensions, of exactly where his target is located in relation to the surrounding terrain. This method actually lessens the briefing time required and enables the pilots in the back row to get a "front row" briefing.

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e. Availability of more bomb damage assessment photographs would be a great boost for the pilots' morale. In addition it would be a basis for an analysis of present attack procedures and tactics based on target damage.

8. Electronics

a. In general, overall performance of electronics equipment has been good to excellent for the entire operating period.

b. The procurement of ruggedized "6AD 5" tubes has improved the operational availability of the "AN/ARC-1" considerably and discrepancies have been reduced a great deal.

c. It is impossible to over-emphasize the necessity for properly functioning ADF equipment when working jets close to their maximum endurance and under varying weather conditions. The PRINCETON is equipped with only a fifty watt homer beacon. This beacon has caused undue headaches on many occasions due to short range and being blanked out by other stronger stations close to the same frequency. The inability of incoming aircraft to receive the beam causes many avoidable radio transmissions in requests and answers to "steers". Under IFR conditions the situation gets very critical when each division of jets must be very carefully tracked on radar until visual contact is made with the force. To a fast moving jet at high altitude, "ZB" is of use only in bringing flights close to the force, and other means of navigation are necessary when these flights get inside the radar screen in low visibility. The USS LAKE CHAMPLAIN (CVA-39) is equipped with a five hundred watt homer beacon and the pilots who have been in the air when this ship has the ADF guard report that this makes the difference between wandering around on "ZB" and calling for "steers", or being able to home on the force and being certain of navigation when over an overcast. It is, therefore, recommended that the type homer gear installed on the USS LAKE CHAMPLAIN (CVA-39) be installed in other CVA's.

d. The "AN/APG 30" has withstood an average of slightly over ten catapult shots and arrested landings between bench adjustments. Approximately two and one-half man hours of maintenance is required per ten catapult shots and arrested landings. Predominant failures have been due to:

(1) Tubes: Three or four particular tubes, for which rugged versions are manufactured but not easily available, have caused the most trouble.

(2) Lock-On sensitivity adjustment: As an experiment, this unit wired one plane so that the lock-on sensitivity could be adjusted in the cockpit during flight. The pilot would then get a lock-on at a range fifty per cent greater than with the gear installed in any other plane. The gear in this plane has not required re-alignment since the "fix" was installed although it has taken more than

thirty catapult shots and landings. A comprehensive report on all operational aspects of the APC 30 is nearly complete and will be given full distribution by separate correspondence.

e. The performance and availability of the "ARN-6", "APR-2" and "APX-6" has been excellent.

9. Survival

a. Ditchings

(1) There were four cases of water ditchings during this tour on the line: Two were made by F9F-5 pilots due fuel exhaustion, one by an F4U pilot due to battle damage, and one by an AD pilot due to engine failure. In all except one case the emergency survival gear used functioned successfully. In the one instance the PRC-17 radio failed to operate due to a large amount of water and mold inside the case. From all indications the seepage occurred sometime prior to the ditching and steps are now being taken to check all transreceivers for the possible cause.

(2) The F4U pilot mentioned above, received a back injury during his ditching. The pilot apparently leveled off too high due to slick sea conditions and an oil obscured windshield and received a badly wrenched back.

(3) In the case of the AD pilot, the ditching was made after an attempted emergency landing on Yodo Island. After overshooting on his first approach the engine failed completely and the ditching was made without incident.

b. Bailouts

(1) During this tour one successful bailout occurred. An AD, after being hit by flak on a CAS mission, suffered such severe elevator damage that level flight could only be maintained by full forward stick pressure and a speed of less than eighty-five knots. After reaching friendly territory the pilot was able to hold the forward pressure while climbing from the cockpit and made a successful low altitude bailout. He landed near a minefield area but remained stationary until rescued by helo.

c. Survival Kits

(1) The "PSK-1" survival kits which were received were placed in the life rafts in place of certain gear that was considered unnecessary in the Korean area. The plastic containers in these

kits have frayed and torn with normal wear. It is recommended that a stronger material be used for these containers and that one PSK-1 be issued each pilot for personal care.

d. Exposure suits

(1) It is felt that exposure suits should be returned to the United States for renovation as soon as possible after the completion of the winter phase of the tour. They are serving no useful purpose in the forward area and are deteriorating in stowage.

10. Air Group Personnel

a. Morale

(1) Despite a fifty-two day tour on the line (during which an all-out effort was made and frequent replenishments were conducted during both day and night) the morale of the officers and men of the Air Group remained at a high level. All personnel proved equal to the requirements of the sustained effort. Nevertheless, a tremendous strain was imposed upon the pilots during these operations.

(2) The pilot fatigue resultant from a continued six hour per day per pilot routine was supposed to have been relieved by the frequent cancellations of events due to bad weather. This situation, however, was deceiving. Actually, whether or not the pilots flew the missions for which they were scheduled, they underwent the major part of the strain and the entire portion of the preparations necessary to each flight, since for every mission scheduled, pilots reported for briefings and suited-up in anticipation of the flight. If, however, the event had been postponed they were placed on one hour notice. This last condition only increased the strain for each individual in what is a most difficult part of each mission - the waiting to man aircraft. Fatigue, consequently, was not relieved at all, but increased instead by the nervous tension of being "on call". For these reasons, it is recommended that for tours of over twenty days on the line that definite breaks in operations be scheduled for carriers. These breaks could be alternated between various CVA's. It is felt that scheduling of definite rest periods would prove greatly beneficial to pilots and improve both their morale and flying efficiency; it is, furthermore, the opinion of this command that it is fallacious reasoning to look upon events cancelled or set on stand-by basis as restful or beneficial to the pilots.

(3) It has been found that morale is higher among all personnel when they are kept informed of what "their" planes and "their" pilots are doing to the enemy. This information has been disseminated by information sheets, newspapers, lectures, and radio news programs.

b. Training

(1) During the last rating examination a total of 337 men took tests. Of this number 204 or 60.8 per cent passed. However, due to lack of quotas only 118 or 35.1 per cent of those having passed were finally rated.

B. Air Department

1. Aircraft Handling

a. No new or unusual problems were encountered in the handling of aircraft. Equipment failure reports, where applicable, are being submitted through established channels.

b. In spite of the handling and spotting problems present during the period of "maximum effort", the fact that plane directors and plane handling crews have become very experienced minimized delays.

c. Another contributing factor to the success of deck handling crews in meeting the heavy demands during this period was the ideal schedule. It required a minimum number of re-spots and enabled the plane handlers to develop a set routine.

d. It is understood that a test project is underway to evaluate the necessity of greasing cross deck pendants daily. This daily application of grease causes the Fly III landing area to become extremely slippery and creates a hazardous condition for the chock men during deck launches of propeller aircraft. The condition was aggravated during this tour on the line since the "maximum effort" type of operations being conducted offered no opportunity to scrub down the Fly III area.

e. The effect of jet blast on the flight deck continues to create a serious problem. The heat from these blasts melts the pitch between the deck planking and causes the caulking to loosen. When possible, jets are parked outboard for turn up; but with large launches some planes must be parked fore-and-aft. The melted pitch not only causes the flight deck to deteriorate, but results in a slippery deck which is hazardous to personnel and moving planes.

2. Aviation Ordnance

a. The bomb elevators installed on this ship were not designed to carry heavy loads for such prolonged periods as are required by flight operations in Task Force 77. The track guide-shoes have become worn beyond the adjustment tolerances of the electric stop switches, and the car tilts toward the side with too heavy loads. This situation causes the car to stop either two inches too high or two inches too low. Temporary repairs by the ship's force have been accomplished and new track shoes will be installed during navy yard availability.

b. Planes being towed over bomb elevator hatches have sprung the hatches to the point where they are no longer water tight. During heavy rains elevator switches and relays have short circuited. Water drains on the bomb elevator coaming are of three-quarter inch pipe and become clogged with debris adrift on the flight deck. Larger drains of one and one half to two inch pipe would facilitate water run-off during rainy periods and increase the effectiveness of the bomb elevators.

c. The lug channel of the Mark 1 Bomb Skid has a tendency to fail due to breakage or bending after hard usage; it thereby allows five hundred pound and one thousand pound bombs to slide forward on the skid while being moved on the flight deck. It is recommended that the lug channels be strengthened with angle irons, or that they be manufactured of heavier gauge metal.

d. Rocket pigtails continue to break at high speeds, causing dud rocket motors. A satisfactory method of preventing the pigtails from breaking has not been devised.

e. When assembling bombs for high speed aircraft a modified tail-fin locking-nut must be used. This nut employs four Allen Head set-screws that require excessive time to tighten; however, the use of the extended-reach Allen Wrench (approximately fifteen inches long with a "T" handle) has solved this problem.

3. Aircraft Maintenance

a. Due to the long stretches of bad weather encountered during this tour, aircraft shop loads were less than normal. Free periods were devoted to the painting of spaces and the overhauling of equipment.

b. A fatal accident marred an otherwise perfect safety record when the engine flywheel on a portable hydraulic test stand (Model 8278 139, Serial #N288S-21178, manufactured by Wisconsin Motor Corporation) disintegrated while the machine was being serviced. A report of unsatisfactory or defective material (USS PRINCETON (CVA-37) RUDM, Serial 1-53) has been submitted.

c. One R-2800-18 engine and one Hamilton Standard 24E60 propellor were built up during the period to replace engines issued by the Supply Department.

4. Automotive Maintenance

a. Routine servicing and upkeep were sufficient to keep eight tractors in service throughout the tour. Two tractors with cracked rear axle housings are being returned to the ComFairJapan pool for overhaul. Mobile electric power plants required only routine servicing.

5. Aviation Gasoline

a. The plug-valves of the aviation gasoline system have required constant care and regular lubrication. It has been necessary to drain the station filters daily to remove grease and particles that have been picked up internally from plug valves.

b. Refueling at sea has been uneventful. A six-inch flange-type hose has been used to take gasoline aboard. The rate of receiving gasoline has been approximately forty thousand gallons per hour. As specified in Commander Air Force, Pacific Fleet Instruction 09150.1 of 12 February 1953, maximum head pressures during refueling are 10.9 pounds per square inch forward and 8.9 pounds per square inch aft. The rate of flow realized during the fueling of inner tanks has been the determining factor in fueling the outer tanks so that the system will not be filled to greater than ninety-five per cent of capacity.

c. Through the efforts of the gasoline officer, a mechanical cam device for attachment to the Robb Quick Release Coupling has been evaluated. This device provides for automatic actuation of the quick-release coupling in an emergency. To effect a breakaway only the hosemessenger pelican hook is released. As the ships separate the coupling clears the side and then breaks automatically clear of the ship. This procedure prevents gasoline spillage on the deck. A report of the device, with pictures and detailed description, is being forwarded separately (Commanding Officer, U.S.S. PRINCETON (CVA-37) ltr CVA37/30, L9-2 ser 2567 of 3 Aug 1953).

d. To strike below aviation lube oil during replenishment, a rectangular funnel is fitted in the deck filler. A portable ramp is placed alongside. The filler plugs of the drums are removed and replaced by a pipe nipple, globe valve, and ninety degree elbow. The drums are then rolled up the ramps and the vent plug removed. The valve at the bottom is opened and air pressure is applied through the vent plug opening thereby permitting four drums to be emptied simultaneously.

(4) Number of above shots at maximum pressure (4,000 lbs. psi)

Port	739
Stbd	923
Total	1,662

b. Due to critical wind conditions, three-fourths of all launches were made at a maximum firing pressure of four thousand pounds per square inch. This procedure greatly increased oil leaks and other routine maintenance problems. However, the only major repair necessary during this period was the installation of a new oil gear pump on the starboard catapult which was accomplished at sea by the ship's force. The entire change of pumps was completed within ten hours. The use of a hydraulic type track-oiler, manufactured by the catapult crew from an aircraft hydraulic accumulator, proved highly efficient. Track lubrication was improved with the result that shuttle slipper wear decreased and resulted in less frequent changing of slippers.

c. The launching capacity of the Type H Mark 4B Catapult during this period was often inadequate for scheduled ordnance loadings of the F9F-5. This inadequacy was due to higher seasonal temperatures and resultant marginal winds.

d. In general, the availability of both catapults was excellent during this operating period.

7. Helicopter Operation

a. An analysis of summer weather in the operating area shows that it would be impossible in some conditions of air density and wind velocity to hoist a survivor from the water with the normal plane guard loading of a helicopter. It is recommended that all helicopter units flying HO3S-1 helicopters and based aboard ship in the Korean area reduce their gasoline loads and strip the helicopters in no-wind or light-wind conditions. The wind is a critical factor (the lift of the helicopter is increased about one hundred pounds per five knots of wind velocity) and at this time of the year there are many operating days with no wind. The high humidity in this area during the summer months further reduces the lift of the helicopter. The condition of lowest lift would make hovering the helicopter dangerous and hoisting a survivor impossible with normal plane guard loading.

C. Engineering Department

1. Engineering plant maintenance and repair, particularly in regards to boilers, has been a continuing problem due to the lack of equipment availability.

2. Two policies were established in an effort to alleviate the situation:

a. The Officers-of-the-Deck were trained to be alert for changing operational and weather conditions (in relation to engineering plant requirements).

b. At the beginning of each bridge watch the situation was analyzed, decisions were made, the Officer-of-the-Watch was called, and the problems involved were discussed.

c. These policies not only have maintained good liaison between the bridge and main control, allowing the Officer-of-the-Watch to take full advantage of operating conditions, but also have brought about the timely securing of boilers, and availability for repair and maintenance for as much as four hours per day.

3. Boiler Tube Casualty

a. At about 0209 on 23 June 1953, while steaming at 110 R.P.M., the number three ship's boiler suffered a tube failure. At the time of the casualty, boilers numbers one, three, five and eight were on the line in a split plant arrangement. Investigation revealed that the last tube (a one inch generating tube in the outboard (AA) row, the one most removed from the boiler burners) had sheared off flush with the exterior surface of the mud drum. Further investigation disclosed that eight additional tubes were in various stages of deterioration apparently due to external corrosion. The questionable condition of these tubes led to the decision to plug and mechanically rupture four tubes. The remaining four are also being scheduled for replacement as soon as possible.

b. Upon the conclusion of the temporary repairs outlined above, the boiler was given a hydrostatic test of 750 pounds. This test revealed an additional leak in number twelve economizer element approximately two inches from the header in a "no flame" area. No external tube corrosion was apparent. The defective element was plugged and, after a satisfactory hydrostatic test, was placed back in service. It did appear, however, that this element had been leaking for some time prior to the rupture of the one inch generating tube. Frequent subsequent daily inspections have failed to indicate any unusual condition.

4. On 14 July 1953, the distillate from the number two set of evaporators indicated excessive salinity. By 19 July 1953, the salinity reached such a proportion that further distillation to ship's tanks was no longer acceptable. The unit was secured and investigation revealed that one section of the tube sheet surface on the after part of the distiller-condenser was considerably pitted. This same erosion had, in addition, eroded the inner surface of the tube where it entered the tube sheet causing the tube's failure. Removal of the tube and plugging of the holes was necessary in order to effect a positive seal. Although zincs are checked every thirty days, this experience points up to the desirability of more frequent and closer inspections of zincs throughout the plant. This point is especially true when operating under the severe operation conditions imposed by long periods on the line with minimum maintenance time available.

D. Gunnery

1. Replenishment at sea

a. Daylight replenishments

(1) Daylight replenishments were carried out in a routine manner.

b. Night replenishments

(1) Night replenishments were carried out on numerous occasions. Fueling and gasoline transfers were conducted by the "span wire", "modified span wire", and "oiler inhaul" methods. Of these, the "span wire" method is undoubtedly the most satisfactory for night operations.

(2) An occasional night of low visibility created some difficulties when either the "modified span wire" or "inhaul" methods were used. The oilers, furthermore, encountered special difficulty in coordinating the handling of the inhaul line with the hook-up crews in the darkness. A further encumberment has been the small working space at the after fueling station on this vessel. This small area made a safe hook-up of the oiler inhaul virtually impossible at night.

c. Night re-arming

(1) No serious problems were encountered in night re-arming. A program of "safety first" was emphasized and the rate

of transfer of ammunition was, consequently, slightly lower than the normal daylight rate.

(2) Standard signals and markings as prescribed in NWP-38 were used.

d. The PRINCETON replenished on all but fifteen of the fifty-six days covered by this report.

e. Record replenishment

(1) On 13 July 1953, the PRINCETON replenished from the USS FIREDRAKE (AE-14). Ammunition and other supplies were transferred to this vessel at a rate of 257.4 tons per hour-- a rate believed to be a record one for this sort of operation.

2. Ordnance and Fire Control

a. Firing exercises were held on 29 and 30 August. See Part III, ORDNANCE.

E. Medical Department

1. Supplies and Equipment

a. No shortage of Medical Department supplies occurred and there was no significant breakdown of equipment.

2. Medical Department Evaluation of Ship's Company and Air Group:

a. The morale of the ship's company and air group pilots has been excellent in spite of the extended period on the line. This period has been depressing not only because of its length, but because normal replenishment day periods of relaxation have been missed, and weather has been of such a poor caliber that at times lethargy has been noted.

b. It is still felt that a three-week assignment on the line is the optimum period of deployment. Also day replenishment periods offer a certain longed for relaxation that has been greatly missed in the night replenishment program.

F. Operations Department

1. Aerology

a. There are two wind direction indicating systems and three wind intensity indicating systems installed in this vessel. The readings obtained from the wind indicators when connected to the port or starboard wind vanes and anemometers located on the yardarms, have been found to be dissimilar when one system is compared with the other under identical conditions. In addition, under certain temperature conditions, variations have been found between the wind intensity readings obtained from the indicators and the actual relative wind conditions existing at the forward end of the flight deck. Furthermore, it has been observed that considerable differences in simultaneous wind readings obtained from two or more carriers have been reported at various times when weather conditions do not appear to warrant it.

b. With the critical need for accurate true and relative wind direction and intensity indicators, this command began taking wind direction and intensity readings under various weather conditions using the regular wind indicator systems and simultaneously comparing them with those obtained from a portable anemometer positioned at the leading edge of the flight deck. The differences which were found to exist between the wind indicator readings and actual relative wind over the flight deck were determined as being a result of the following:

(1) Wind direction differences apparently were caused by the turbulence effect of the island structure.

(2) Wind intensity differences apparently were caused by a shallow and strong temperature inversion existing near the surface. This type of inversion exists whenever the sea water temperature is less than the air temperature, resulting in lighter winds over the flight deck than at the height of the yardarm anemometers.

c. As a result of an analysis of the above readings the following correction factors which enable the observer of the various wind indicators to determine the corrected reading for the actual relative wind direction and intensity over the flight deck have been obtained and are used on this ship:

(1) Wind Direction

The following correction factors should be applied to the readings of the relative wind direction indicators to obtain the correct relative wind direction over the flight deck:

Indicator Reading	Port System	Starboard System
000-019	- 06	≠ 06
020-034	- 10	≠ 04
035-049	- 13	≠ 04
050-129	unreliable	≠ 00
130-159	unreliable	- 05
160-199	≠ 10	- 10
200-229	≠ 05	unreliable
230-309	00	unreliable
310-325	- 04	≠ 13
325-339	- 04	≠ 10
340-359	- 06	≠ 06

(2) Wind Intensity

Except for calm wind conditions, the following correction factors should be applied to the readings of the wind intensity indicators to obtain the correct relative wind intensity over the flight deck, whenever the temperature differences (in degrees fahrenheit) indicated below exist between the air and water:

Temperature Difference	*Correction Factor
(-) - 0	-1
1 - 2	-2
3 - 7	-3
8 - 11	-4
12 - 15	-5

*Note - An additional correction factor of plus two (≠2) knots should be applied to the windward anemometer when the relative wind is between 10 and 25 degrees on the bow.

d. In view of the above information, it is recommended that all aircraft carriers ascertain whether similar correction factors are required for their wind indicating systems and that after each periodic overhaul a recheck of the correction factors be made. It is further recommended that corrected relative wind direction and intensity indicator readings always be reported by aircraft carriers whenever comparisons are made.

2. Combat Information Center

a. The notable feature of this period was the large amount of flying conducted in weather unfavorable to air operations. To cope with this difficulty a foul weather let-down procedure was

developed to accomplish the safe recovery of aircraft. Flights were let down in sequence by divisions from a point located at a distance approximately one mile for each thousand feet of break-up altitude plus five miles. Standard rates of descent used were two thousand feet per minute for propeller aircraft, and four thousand feet per minute for jet aircraft with rate of descent reduced to standard rate at lower altitudes. This procedure proved very satisfactory and was carried out in weather in which the ceiling was as low as five hundred feet and in which visibility was reduced to as little as two thousand yards.

b. An exercise for the evaluation of air defense performance (Exercise Adept) was conducted on three occasions. The success of task force elements in detecting and tracking jet aircraft, determining altitude, and acquiring the aircraft with fire control radar were used as a measure of force efficiency. The procedure involved vectoring a division of F9F's out 125 miles from the task force and having them return without IFF. By recording the times of initial pick-up and lock-on, a group of data was obtained by which efficiency in air defense fundamentals could be accurately evaluated.

c. Further training was afforded CIC officers by the setting up of a program whereby they were required to stand six watches on the bridge as Junior Officers of the Watch. The JOOW on one watch was left permanently unassigned and has been filled alternately by two CIC officers. This arrangement has proved very satisfactory from the standpoint of further acquainting CIC officers with the elements of ship handling and maneuvering during air operations.

3. Electronics

a. The absence of scheduled replenishment days allowed no opportunity for necessary preventive maintenance on primary radar equipment and VHF antennas. Continuous corrective maintenance was performed on equipment with no undue hardship inflicted on either personnel or plant.

b. The VHF/UHF antenna and transmission line system presented a problem of insulation deterioration which resulted from moisture, salt, and stack gasses. The transmission line couplings at the foot of the foremast are highly susceptible to moisture penetration and were the cause of periodic breakdowns in VHF communications. This problem was overcome by wrapping the entire coupling joints with rubber tape and then wiping them with plastic cement. The VHF antennas, although cleaned externally at daily intervals, suffered insulation breakdowns whenever the ship entered a fog bank or area

of high humidity from a comparatively dry area. The only solution to such a condition was to remove the antennas singly and completely dismantle and clean the internal spacers and surfaces. This can be, and was accomplished under conditions of continuous operation; although, from the point of view of personnel safety, such procedure is not recommended as routine maintenance. A higher degree of sealing for VHF antennas, however, is recommended. The UHF antennas, are completely inaccessible during operations at sea, and at the completion of forty-five days operation, nine of the thirteen UHF antennas installed were either open or shorted internally. It is recommended that UHF extension arms be hinged at the mast in order that they may be lowered for maintenance work.

c. The excessive vibration to which Radio III is subjected resulted in a casualty to the power supply chassis of a TCK transmitter. Investigation of the breakdown revealed that the aluminum chassis was cracked and shattered in several places as though crystallization had occurred. A new chassis was constructed on board.

d. Two identical casualties occurred in the one thousand volt winding of the low voltage armature of the motor generator associated with the TBM transmitter in Radio III. The actual cause is not known. The most logical assumption, however, is that it was an insulation breakdown resulting from age and storage. The lack of a spare necessitated rewinding the armature on board.

e. Daily lectures were given to technicians and familiarization tours and explanatory talks were given to new SA ratings in the division.

4. Photographic Laboratory

a. Photographic reconnaissance planes from unit "Dog" of VC-61 flew a total of thirty-nine sorties and obtained a total of 4,417 exposures during the period. The chief difficulty experienced in processing the film arose from the fact that the laboratory is not equipped to process four hundred foot rolls. These rolls have to be cut in half and only one roll can be processed at a time.

b. Another difficulty encountered is due to the fact that the laboratory possesses only one "ALOA" dryer. This dryer broke down on two occasions during the period and is a source of constant maintenance troubles. The cut-back in distribution requirements (from six to two) allowed the photographic section to get all its work out on time, however, in spite of the breakdowns.

c. During the days in which no photographic reconnaissance missions were flown, ninety-five per cent of the 240 pages of photographs for this year's cruise book, "Attack Carrier", were produced.

5. Remarks on Replenishment Procedures

a. The time required to prepare a carrier for re-arming, provisioning, and re-fueling and to make it ready again for flight operations after the completion of these evolutions is a major planning consideration. The personnel required for working parties in many instances are the same men who may have just completed work with air operations and who will again be required at their stations for the operations which follow replenishment. Preparations required for re-fueling on the other hand, involve little time and few personnel.

b. An analysis of the replenishments conducted during the period of this report resulted in the following conclusions being drawn with respect to the time and work load factors involved:

(1) Re-arming

(a) Preparation

1. Involves removal of about thirty aircraft from hangar bays one and two to the flight deck with attendant interruption of maintenance. The time required to complete the evolution is about one and one-fourth hours.

2. The assembly of a two hundred man working party requires about forty-five minutes.

(b) After Prep hauled down

1. The assembly and stowage of miscellaneous ammunition requires about two hours for each hour alongside the ammunition ship based on an average arming rate.

2. Aircraft respotting for the next launch can commence at about one-half the ammunition stowage time and be completed simultaneously therewith.

3. Re-arming for the next launch normally cannot be commenced until after ammunition stowage is completed inasmuch as the same personnel are required for both evolutions. An average time interval between leaving the ammunition ship until aircraft can be ready for the next launch is three and one-half hours.

(2) Provisioning

(a) Preparation

1. Involves clearing of the starboard half of bays number one and two and nearly all of bay number three. The time required to accomplish this is about one and one-fourth hours.

(b) After Prep hauled down

1. The striking below of provisions from accumulation points in hangar bay number three requires about two hours. Re-spotting for next launch cannot commence before one hour after leaving the provisioning ship.

2. The time required to be ready for the next launch after provisioning will normally be two hours.

(3) Re-fueling

(a) Preparation

1. Involves respotting of about five aircraft to clear the starboard side of bay one. The time required is negligible.

2. The superheat in the boilers must be lowered from 850°F, full power condition, to 600°F. in order to allow for stopping engines if required during the approach to the replenishment vessel. Time required to accomplish this is a minimum of thirty-five minutes. One hour notice is desirable to comply with safe engineering practice.

(b) After Prep hauled down

1. Aircraft can be ready for launch on completion of re-fueling.

2. Superheat must again be raised to 800°F. and additional boilers cut in to have full power available. Time required is thirty-five minutes to one hour.

c. It is recommended that due consideration be given to appropriate time and workload factors in planning replenishment operations, particularly for aircraft carriers when operating with a task force.

G. Navigation Department

1. Standard Tactical Diameter for Fast Carrier Operations

a. The operations of this ship with Task Force SEVENTY-SEVEN have demonstrated that turns made with a standard tactical diameter of one thousand five hundred yards are undesirable and that turns made with an increased diameter are essential to the efficient conduct of present day fast carrier operations. The heavier aircraft now in use and the increased bomb loads have increased carrier top side weight to such an extent that the degree of heel in a standard turn is so excessive that all aircraft maintenance and respotting must be stopped until a turn is completed. Some of the unacceptable conditions which result therefrom and which seriously interfere with the meeting of scheduled operations are as follows:

(1) Aircraft must be secured with additional tie down lines over and above the three tie down reels normally used during air operations. (The high center of gravity of the jet type aircraft with folded wings renders them unstable. In one instance three tie down reels failed and an F9F-5 airplane would have gone over the side if it had not been stopped by falling against another plane.)

(2) All movements of automotive equipment must be stopped and all portable maintenance equipment secured.

(3) Re-arming and re-fueling operations are either stopped or retarded.

(4) Aircraft which have been placed on hydraulic wing jacks for routine maintenance are endangered.

(5) Personnel are exposed to additional hazards when the deck is wet.

b. The limited endurance of jet aircraft requires frequent launch and recovery operations and a proportionate increase in the number of formation turns into and out of the wind. The loss of efficiency which results from the frequent stoppage of work as outlined above is unacceptable. Turns of increased diameter must be employed in the interest of personnel and material safety and in order to obtain uninterrupted flight and hangar deck operations.

c. Experience with the use of a 2000 yard tactical diameter, which was recommended by this command and directed to be used for standard turns by Commander Task Force 77 on 27 June 1953, proved it to be highly satisfactory. It is recommended that a tactical diameter of 2000 yards be adopted as standard for all fast carrier operations.

2. Lighting for Night Replenishment Operations.

a. The operations during this period afforded the most concentrated and varied experience with night replenishment of the Korean War. The procedures involved became commonplace with practice and were refined and modified by the lessons learned by experience. In general, the special lighting prescribed by NWP-38 for tackle and gear at transfer stations was found to be satisfactory. However, no provision was made for the lighting of the delivering ships which would serve as aids to the receiving ships in making approaches and in keeping station alongside. In an attempt to develop a suitable lighting system for these purposes, this command recommended to Commander Task Force SEVENTY-SEVEN the evaluation of the following lighting arrangements on replenishment and receiving vessels:

(1) One dim red light located on the main deck of the delivering ship, at a point opposite the desired position of the bridge of the receiving ship, so as to reflect outward and downward at the deck edge at an angle of approximately 45°. (This light not only indicates the best position for the receiving ship, but serves to eliminate the tendency toward vertigo which results from observing a single light, for protracted lengths of time.)

(2) Another dim red light, similarly rigged, located as far forward as practicable, to indicate the fore and aft axis as well as the side of the replenishment ship.

(3) Two dimmed lights, of the same intensity as those described in paragraph 360 of NWP-38, rigged on top of each of the after king posts of the delivering ship to form athwartship range of lights. (These two lights provide a means for detecting the relative fore and aft movement of the two ships.)

(4) Two dim red lights located forward on the replenishing side of the receiving ship to form a range of lights along the fore and aft axis. (These lights, and the one described in subparagraph (b) above, provide an indication of the movement of the bows of the two ships, toward or away from each other. On this ship, the forward deck edge lights on the flight deck serve this purpose.)

(5) For approaches to the replenishment ship; the screened wake light and the red truck lights of the replenishment vessel. (These lights, in conjunction with the station keeping lights prescribed above, provide the orientation and depth perception necessary to make night approaches with confidence. On the contrary, particularly on dark or foggy nights, the stern light and/or unscreened deck flood lights are too bright in contrast to the other lights on the replenishment ship which are essential to proper orientation.)

b. In view of the unprecedented opportunity which was afforded the units of Task Force SEVENTY-SEVEN to replenish at night and to develop those improvements in the lighting systems for approach and station keeping, it is recommended that the above lighting measures be adopted for standard use.

H. Supply Department

1. The department functioned normally throughout this extended period although the length of time on the line proved to be the most severe test of "staying power" sustained by it to date. Only two items ran critically low: tires and tubes for the F9F aircraft.

2. One hundred fifty-one F9F main landing gear tires were expended in the forty-three operating days covered by this report. It is considered that the principal factor in the unexpectedly high usage of these items was the use of K-18 as a "weather alternate" landing field at times when the Task Force was fogged in. The K-18 runways are composed of worn Marston Matting which rips tires to shreds. The acute shortage was relieved by prompt action on the part of the USS BOXER (CVA-21). A re-supply from the USS JUPITER (AVS-3) has subsequently been received.

3. Because of the need for optimum coordination and cooperation between Task Force ships during the period of maximum effort, a conference was requested by the PRINCETON and convened by Commander Carrier Division ONE. Attending were the Supply Officers of all four CVAs on the line and the Staff Supply Officers of Commander Carrier Division ONE and THREE. An agenda was drawn up and agreements were reached upon the following subjects:

a. Demand channels.
b. Logistic communication procedures.
c. Responsibility for action.

The minutes of the meeting are in the possession of Commander Carrier Division ONE and the USS LAKE CHAMPLAIN (CVA-39), and an early amplification of the Logistic Annex to the Task Force Operation Order is anticipated. It is recommended that a program to insure maximum continuity of effort and information on immediate logistic programs between the relieving Task Force Command Staffs and major units within the Force be pursued.

PART VII RECOMMENDATIONS:

1. Page 24 (VI, A, 5, d)

a. It is recommended that:

(1) Blast shields be rigidly inspected for signs of deterioration to reduce the possibility of pieces coming loose and entering the intake ducts.

(2) That flight deck personnel conduct continuous policing of the flight deck, particularly in the drain scuppers.

(3) That ordnance personnel police the area for pieces of arming wire before leaving a job.

(4) That squadron personnel of the flight deck also continually police the area for pieces of metal that could be blown or sucked into engine intake ducts.

2. Page 30 (VI, A, 8, c)

a. It is recommended that the type homer gear installed in the USS LAKE CHAMPLAIN (CVA-39) be installed in all other CVA's.

3. Page 32 (VI, A, 9, c)

a. It is recommended that a stronger material be used for PSK-1 survival kit containers and that one PSK-1 be issued each pilot for personal care. A RUDM is being submitted.

4. Page 32 (VI, A,10, a(2))

a. It is recommended that, for a tour of over twenty days on the line, and when operations permit, an occasional break in operations be scheduled.

5. Page 35 (VI, B, 2, c)

a. It is recommended that the lug channels (of the Mark 1 Bomb Skid) be strengthened with angle irons, or that they be manufactured of heavier gauge metal. An RUDAOE is being submitted.

6. Page 38 (VI, B, 7, a)

a. It is recommended that all helicopter units flying HO3S-1 helicopters and based aboard ship in the Korean area reduce their gasoline loads and strip the helicopters in no-wind or light-wind conditions.

7. Page 44 (VI, F, 1, d)

a. It is recommended that all aircraft carriers ascertain whether similar correction factors are required for their wind indicating systems and that after each periodic overhaul a re-check of the correction factors be made. It is further recommended that corrected relative wind direction and intensity indicator readings always be reported by aircraft carriers whenever comparisons are made. A letter is being submitted to Commander Air Force, Pacific Fleet on this subject.

8. Page 46 (VI, F, 3, b)

a. It is recommended that UHF extension arms be hinged at the mast in order that they may be lowered for maintenance.

9. Page 48 (VI, F, 5, c)

a. It is recommended that due consideration be given to time and workload factors in planning all replenishment operations.

10. Page 49 (VI, G, 1, c)

a. It is recommended that a two thousand yard tactical diameter be adopted as standard for all fast carrier task force operations. A letter is being submitted on this subject to the Chief of Naval Operations.

11. Page 51 (VI, G, 2, b)

a. It is recommended that a standard lighting system for the purpose of assisting receiving ships in making approaches and in station keeping during night replenishment be incorporated in NWP-38 for use by all naval vessels.

12. Page 51 (VI, H, 3)

a. It is recommended that a program to insure maximum continuity of effort and information on immediate logistic programs between the relieving Task Force Command Staffs and major units within the task force be pursued.

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CATG-2
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CO, VC-61

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