NAVAL AIR TRANSPORT SQUADRON SIX
1600TH AIR TRANSPORT GROUP, ATLD-MATS
WESTOVER AIR FORCE BASE, MASS.

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From: Commanding Officer, Naval Air Transport Squadron SIX
To: Chief of Naval Operations (Aviation History Unit)

Subj: Semi-annual Historical Report, 1 July to 31 December 1949

Ref: (a) Aviation Circular letter 18-49

Encl: (1) Historical Report

1. Enclosure (1) is hereby submitted in accordance with reference(a).

2. This history includes a brief summary of the squadron's airlift experiences. Though much of the work occurred prior to 1 July, the earliest date of this report, it is felt the "Vittles" project warrants the added emphasis. Records of the airlift are the best testimonial of the tremendous potential of air transport. In addition, the "lift" proved an excellent test stand for standard procedures and resulted in some new worthwhile operating and maintenance techniques.

H. P. Badger

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HISTORICAL REPORT
for period
1 July to 31 December, 1949

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Enclosure 1

CHRONOLOGY

1 July, 1949

The Commanding Officer of VR-6 during the entire period of this report was Captain H. P. BADGER, USN. The squadron was assigned to the 513th Troop Carrier Group, 61st Troop Carrier Wing, the Combined Air Lift Task Force under the USAF in Europe during July. For administrative purposes, the squadron also operated under the cognizance of Commander, Naval Forces for Germany. Headquarters were located at Rhein-Main Air Force Base, Germany, with detachments at Guam, Sangley, P. I., Tokyo, Shanghai and Okinawa. Airlift operations of VR-6 ceased on 31 July, 1949.

1 August, 1949

On 5 August, 1949 the first VR-6 plane left for the United States; the last aircraft departed 10 August, 1949. Temporary headquarters were established at Patuxent River Naval Air Station, until receipt of official orders to Westover Air Force Base, Massachusetts. Westover became VR-6's home port on 1 August, 1949.

15 August to 31 December, 1949

VR-6 is currently assigned to hhe 1600th Air Transport Group, 1600th Air Transport Wing, Atlantic Division of Military Air Transport Service. The squadron maintains detachments at Argentia, Newfoundland, Port Lyautey, French Morocco, with a liason officer at Rhein-Main, Germany. Authorization exists for the establishment of additional detachments at Lagens, Azores, and Tripoli, Lybia, if future commitments require such action.

Narrative

The first month of this report covers the last month that VR-6 was employed on the Berlin Airlift. During this period a reduced schedule was flown by reason of the termination of the blockade.

Operations (Rhein-Main)

One of the problems of the operations department was alerting crews for flight. This was further complicated by crews being quartered forty minutes by bus from the airfield. A system of alerting crews two hours prior to the "blocking out" of a scheduled flight was inaugurated. This resulted in a smooth and expeditious flow of crews to meet their scheduled take-off times.

Extra flights were flown by stepping up the schedules at night when the route was less crowded. Such additional flights were flown to augment the 513th Troop Carrier Group's commitments. Usually one crew, consisting of a plane commander, co-pilot and flight mechanic, was assigned two round trips to Berlin per day of duty. This meant each flying crew spent approximately twelve hours in a duty status from alert to secure. During the month of July the flying time for the squadron totaled 4347 hours, an average of 35.1 round-trips to Berlin per day. Ninety-one pilots--ten of which held administrative positions--and thirty-three flight mechanics accomplished this schedule.

Maintenance (Rhein-Main)

With the maximum schedule assigned the squadron's twelve R5D's, a high degree of efficiency was required of the maintenance department. How this maximum effort was achieved is fully detailed in the Commanding Officer's letter to ComMATS of 28 July. [1]

1. VR-6 letter serial 1009 dated 28 July, 1949. (copy on file - VR-6

Narrative (Continued)

By June, 1949, all VR-6 pilots had been properly indoctrinated in the use of revised power settings. Devised by the squadron in an effort to operate aircraft at the lowest feasible BMEP (not in excess of 125 psi), this innovation aided considerably in cutting down the number of engine failures and engine changes.

Take-off manifold pressure was reduced from the usual fifty inches to a maximum of forty-five inches on take-off and for all flight conditions except emergencies. Reduction to rated power was made as soon as practicable after take-off.

In April, 1949, permission was obtained to use the RB19R2 platinum spark plug in place of the RC-345. A service test was conducted on one set of plugs (4 engines). These plugs were run 621 hours without a change. They were backed off and reset every 200 hours in order to redistribute the graphite anti-seize compound. Normal life of the RB19R2 spark plug was established at 200 hours, which allowed a considerable safety factor.

Cooling of the blowers while in "high" position is dependent upon ram-air and colder temperatures at altitude. Considerable blower clutch trouble was being experienced in the squadron due to heating and resultant sludging, while blowers were in "high" on the ground. A squadron directive was issued prohibiting the shifting of blowers on the ground, the system of exercising blowers during the final 10 minutes of the two hour Berlin flight was inaugurated.

Water-proof covering was placed on all magneto ground leads installed in VR-6 aircraft to prevent the leads' collecting moisture. Dow-Corning compound was applied directly to the mesh lead cables themselves to reduce condensation.

Narrative (Continued)

A concentrated program was initiated to instruct all pilots on proper starting procedure from the maintenance standpoint. The major point in this regard was to insure that ignition switches were not turned on until the propeller made two complete revolutions. The possibility of a liquid-lock developing in the engine was thereby greatly reduced. A check-off list, showing the recommended starting procedure used by this squadron is included in the appendices.

It is felt that maintenance innovations such as these and other preventive methods employed were the greatest factor in setting the record of 130 days flying for a total of 32,540 engine operating hours without an engine failure.

Two hundred hour checks were performed by squadron personnel at Rhein-Main in six to eight hours. Fifty maintenance hours were required to complete the same 200 hour check in Burtonwood, England. In addition, planes sent to the Air Force Base at Burtonwood for checks were lost to the squadron for three days. Furthermore a safety check requiring four to five maintenance hours was necessary upon the plane's return to Rhein-Main before it could go back on the line. No attempt is made to evaluate the marked difference in time required by squadron maintenance personnel and Burtonwood maintenance personnel, or the occasional inadequacy of finished work.

Medical (Rhein-Main)

During VR-6's duty in Germany, the squadron flight surgeon was stationed at the dispensary in the Atterberry-Betts area of Frankfurt. This is where all flying personnel from the airlift units stationed at Rhein-Main were billeted. This dispensary served approximately 1000 U. S. Naval personnel and 2000 U. S. Air Force personnel. Hospitalization was available at the 97th General Hospital in Frankfurt. One of the major problems not related to flying, was the inadequacy of the messing facilities, poor equipment, and the high incidence of veneral disease due to inadequate enlisted athletic facilities,

Narrative (Continued)

and social clubs. The medical problems associated with flying were primarily those of fatigue. This was caused by the abnormally high number of flying hours per month and the irregularity of those hours. Fatigue plus the high incidence of upper respiratory infections associated with the seasonal and climatic weather conditions combined to produce many groundings.

Disbursing

Squadron personnel were paid in military payment certificates, procured from the American express Company in Frankfurt. The squadron disbursing officer was located in a small office in one of the barracks in the Atterberry-Betts area. All equipment was procured from Army units and much of this, including safes, desks, and typewriters was inadequate. There was a lack of qualified personnel. The around-the-clock scheduling of flights further complicated pay problems.

Supply

Supply was made extremely complex as nearly all procurement was from USAF. Items peculiar to the R5D had to be requisitioned and transported from Patuxent River, Maryland. Only expendable maintenance items could be carried in stock. All recoverable material had to be drawn from the Air Force Supply at Rhein-Main, and was not always available. Due to the existing regulations, an exceedingly great amount of paper work was required and often an abnormal length of time was needed to get the requisitioned part. The supply department was handicapped by lack of space and adequate equipment.

Narrative (Continued)

Squadron Movement

On 31 July 1949, shortly before noon, the last VR-6 aircraft headed for Berlin with its load of coal. This flight terminated almost nine months of continuous flying on one of the most difficult peacetime operations in history. Full and complete preparations for the proposed exodus to the U.S. had been prepared beforehand and the first VR-6 plane left five days later, on 5 August, 1949. Two aircraft a day departed thereafter and on 10 August 1949, the last VR-6 plane, the Commanding officer at the controls, became airborne and headed west. Eighteen officers and 363 men were sent by rail to Bremerhaven and returned to the U.S. on the U.S. Army Transport MAURICE E. ROSE.

Temporary headquarters were set up at NAS, Patuxent River, Maryland. During this period leave was granted to as many officers and men as possible. Many of those taking leave on the west coast were transported in the squadron's aircraft being sent to Moffett field. In early August, orders were received designating Westover AFB as the permanent home port of VR-6.

Westover AFB

The squadron was in a state of flux and "settling down" during the rest of August and much of September. However, 11 flights were scheduled and 22 were actually flown during the latter part of September. By 1 September, 250 men were aboard, by 15 September, 550 men had reported for duty at Westover.

Naval Air Transport Squadron SIX is a class "C" squadron, with sufficient allowances and personnel to make it a self-sufficient unit, relying upon the supporting air station for permanent installations and "housekeeping" facilities only. Base shop work is exchanged on a personnel-trade-for-work basis. Forty men from engineering are assigned to base shops to compensate for the additional work load the base must carry.

Narrative (Continued)

However, to date, squadron maintenance and engineering work has been carried out entirely by the squadron itself.

The procurement and issue of material is still somewhat complicated due to the squadron's being based with the Air Force and the local differences in the supply setup. Common aircraft spare parts--parts common to both Navy R5Ds and AF C54s--are supplied by the Air Force. Parts peculiar to the R5D are being procured directly from NAS Quonset Point. Section "U" and "G" tools and equipment come from NAS Quonset Point. Office supplies are requisitioned on a monthly basis from the Air Force. Despite paper differences, supplies have been ample and the flow smooth enough to prevent delays awaiting supplies.

Disbursing is handled by squadron supply personnel and is in conformance with general Navy procedures.

The squadron has a flight surgeon and eight corpsmen attached to the Base hospital, which doubles as the Navy's dispensary.

Since being transferred from Germany to Westover, operations have been routine with little exception. The squadron is averaging from 1800 to 2000 hours per month, with about 10 to 15% of these hours allotted to training. (Breakdown in appendices.)

There has been approximately a 50% turnover of officer personnel since the squadron's arrival at Westover. This can be attributed to the termination and conversion of USNR and USN(T) contracts.

Ground and flight training has been further emphasized to keep a sufficient number of trained navigators, co-pilots and plane commanders aboard to meet flight schedule requirements.

Narrative (Continued)

A navigation refresher course is in continuous session, giving incoming pilots from 10 days to two weeks of class room navigation before they go out on the line. New officers also receive one week of C-54/R5D instruction in the Air Force Mobile Training Unit.

Appendice

HEADQUARTERS
MILITARY AIR TRANSPORT SERVICE COMMAND
AIR TRANSPORT SQUADRON SIX
WESTOVER, AFB, MASS.

R5D CHECK OFF LIST

BEFORE STARTING ENGINES

1. Ignition "OFF"
2. Props pulled thru 12 blades "OK"
3. Battery Switch "Off" (on cart)
4. Instrument Switch "On"
5. Landing lights "set"
6. Trim tabs 5° each side "set"
7. Wing Tanks "on mains"
8. Carburetor air "cold"
9. Cross Feed "off"
10. Propellers "low"
11. Brakes "set"
12. Radar "off"
13. Auto Pilot Servo "off"
14. Mixtures "idle cut off"
15. Gear Handle "down"
16. Aux Tanks "off"
17. Wing Flaps "up"
18. Cowl Flaps "open"
19. Blowers "low" & "locked"
20. Hyd by Pass "down"
21. Hand Hyd Selector Valve "forward"
22. Gear Extension "back"
23. Emergency Air Pressure "1000 lbs."
24. Fuel Gauges "check"
25. Oil Gauges "check"
26. Gyros "uncaged"
27. Fire Extinguisher Selector & Control Valves "in"
28. Pitot Static Selector "normal"
29. Generators "off"
30. Fuel Boosters "off"
31. Prop Deicers "on" Checked and "off"
32. Interphone Switch "on"
33. Navigation lights "as required"
34. Ground Crew Standing By (Engine Starting Procedure)

LEAVING BLOCKS

1. Three Pins & Tail Posts Aboard "all secure aft"
2. Run Flaps Thru "flaps check OK"
3. Check Suction "all positions"
4. Generators "ON"

BEFORE TAKE-OFF

(Engine Run-up)

1. Radio Altimeters "on low range"
2. Altimeters "set"
3. Gust Lock "off"
4. Auto Pilot "bleed & off"
5. Controls "free"
6. Wing Tanks "on-main"
7. Carburetor Air "cold"
8. Cross Feeds "off"
9. Propellers "low & locked"
10. Mixtures "take-off & climb"
11. Wing Flaps "as desired"
12. Blowers "low & locked"
13. Cowl Flaps "trail"
14. Emergency Gear Extension Handle "forward"
15. Wing Deicers "off"
16. Fuel Booster Pumps "on"
17. Gyros "uncaged & set"
18. Cockpit lights "as desired"
19. Generators "on"
20. Cockpit Windows "locked"
21. Trim Tabs "set"
22. (IFF if required)
23. Pitot heat "ON"

CLIMB

1. Gear Handle "neutral"
2. Wing Flap Handle "up"
3. Hydraulic By-pass "up"
4. Gear Extension "back"
5. Fuel Boosters "off"
6. Generators "check"
7. Landing Lights "retracted"

CRUISE

1. Cowl Flaps "closed"
2. Mixtures "auto lean"
3. Aux Tanks "check"
4. Fuel System "as required"
5. Altimeters "set"
6. Gear Extension "FORWARD"

BEFORE LANDING CHECK

1. Altimeters "set field press"
2. Radio Altimeters "on"
3. Wing Tanks "on main"
4. Carburetor Air "cold"
5. Cross Feed "off"
6. Mixtures "takeoff & climb"
7. Aux Tanks "off"
8. Blowers "low"
9. Radar "off"
10. Cowl Flaps "as required"
11. Hyd By-pass "down"
12. Gear Ext. Handle "forward"
13. Brakes "off"
14. Ignition Checked at 25″ MP
15. Deicers "off"
16. Trailing Antenna "in"
17. Drift Sight "caged"
18. Heaters "off"
19. Props 2300
20. Flaps Down 20°
21. Gear Down 3 Green
[illegible] Lights Pressure Up
22. Flaps as required
23. Nose Heater Fan "AS REQUIRED"

AFTER LANDING

1. Generators "off"
2. Props "low"
3. Gear Ext. Handle "back"
4. Cowl Flaps "open"
5. Wing Flaps "up"
6. CYL Head Temp. 1500 or less secure outboard engines
7. Gust Lock "set"
8. Pitot Heat (OFF)
9. Nose Heater "OFF"

SECURE COCKPIT

1. Nose Wheel "fore & aft"
2. Mixtures "idle cut off"
3. Throttles "open"
4. Brakes "off wheels chocked"
5. Ignition "off"
6. Radio Altimeters "off"
7. Main Tank Selectors & Cross Feeds "off"
8. Instrument Switch "off"
9. Landing Lights "retracted"
10. Unnecessary Instrument Cockpit & Cabin Lights "off"
11. Radios "off"
12. Navigation Lights "off"
13. Interphone Switch "off"
14. Battery Switch "off"
15. Pins & Tail Post in place
16. Generators "OFF"

STARTING PROCEDURE

1. Observe M. P. Reading (should read same as field barometeric pressure.)
2. Ignition "Off"
3. Mixture "Idle Cut Off"
4. Throttle open ¼ to ⅓ of quadrant.
5. "Break" then energize starter for 10-15 seconds (Extreme cold weather may require more time.
6. Fuel Boost pump on "high".
7. Engage starter and watch prop make two revolutions and note any stoppage or hesitation.
8. Ignition on "Both" after two revolutions of the prop.
9. Prime intermittently until engine fires then steady prime until engine runs smoothly at 600 RPM and oil pressure reaches [illegible]40 PSI.
10. Move Control gradually to take off & climb position. Return control to "Idle Cut-Off" if engine does not continue to run or flooding results.
11. Disengage starter, discontinue priming and turn booster pump off.

RUN-UP PROCEDURE

1. Warm up engines at 1000 RPM oil temp 40° - 80°, oil press 60 - 90 PSI; Cyl Head Temp. 125° minimum.
2. Wing De-Icers on, check - off
3. Hydraulic Press. 2600 - 3050 lbs.
4. Vacuum selector left and right pumps (3.5 to 4.5 inches Hq at 1200 RPMS)
5. Throttles 1600 to 1700 RPM.
6. Generators "ON"
7. Props High Pitch (Gov. speed 1200+ or − 50 RPM)
8. Carburetor heat "ON"
9. Props low pitch
10. Check carburetor heat rise 25° - 50°
11. Check carburetor alcohol anti-icers
12. Carburetor air "COLD"
13. Prop high pitch (Second Time)
14. Props low pitch (Second Time)
15. Reduce to 1000 RPM.
16. Check engines 1-2-3-4- as follows:
    (a) Increase to M. P. noted before starting. (RPM should read 2250 RPM+ or —50
    (b) Check instruments: oil pressure 85+ or —5 PSI: oil temp 85° MAX; Fuel press 22+ or —1 lb; Cyl heads 150°
    (c) Check ignition 100 RPM drop MAX
    (d) Check engine visually for loose cowling
    (e) Reduce to 1000 RPM

CRUISE POWER SETTINGS
70,000# GROSS WT. TO 63,000#
650 BRAKE HORSE POWER — AUTO LEAN MIXTURE

PRESS ALT.	ST'D TEMP.	RPM	MP	BMEP	PRESS ALT.	ST'D TEMP.	RPM	MP	BMEP
2000′	11	2050	30.0	126	9000′	—3	2000	28.5	129
3000′	9	2050	29.7	126	10,000′	—5	2000	28.2	129
4000′	7	2050	29.5	126	11,000′	—7	2000	28.0	129
5000′	5	2050	29.2	126	12,000′	—9	2100	26.8	123
6000′	3	2050	29.0	126	13,000′	—11	2100	26.7	123
7000′	1	2000	29.1	129	14,000′	—13	2100	29.2	123
8000′	—1	2000	28.8	129	15,000′	—15	2100	29.0	123

NOTE: (1) Reduce manifold pressure ¼ inch for each 6 deg. C. CAT below standard; increase manifold pressure ¼ inch for each 6 deg. C CAT above standard. (2) If full throttle setting does not allow for required manifold pressure setting or temperature correction, approximately constant power may be maintained by advancing the RPM 25 for each ½ inch manifold pressure. After the RPM correction has been made reposition the throttle to the manifold pressure setting realized prior to addition of the RPM correction. If this is not done, higher horsepower than desired will result. (3) These settings will deliver an average airspeed of 184 knots true airspeed.

600 BRAKE HORSE POWER—AUTO LEAN MIXTURE
63,000# GROSS WT. AND BELOW

PRESS ALT.	ST'D TEMP.	RPM	MP	BMEP	PRESS ALT.	ST'D TEMP.	RPM	MP	BMEP
2000′	11.0	1800	32.5	132	9000′	2.8	1850	28.5	132
3000′	9.1	1800	31.5	132	10,000′	4.8	1850	28.0	128
4000′	7.1	1800	31.0	132	11,000′	6.8	1900	27.5	125
5000′	5.1	1800	30.5	132	12,000′	8.8	1950	27.0	122
6000′	3.1	1800	30.0	132	13,000′	10.8	2000	26.0	119
7000′	1.1	1800	29.5	132	14,000′	12.7	2050	25.0	117
8000′	0.8	1800	29.0	132	15,000′	14.7	2100	25.0	117

TAKE-OFF PRESSURE

TEMP° C	Manifold Pressure
−25 to −20	43.0 Inches Hq.
−20 to −10	44.0 " "
−10 to 0	45.0 " "
0 to +10	46.0 " "
+10 to +20	46.5 " "
+20 to +30	47.0 " "
+30 to ABOVE	48.0 " "

FIRST REDUCTION

38.0 inches
2550 RPM

CLIMB (130 knots) 33.0 inches
(Min IAS) 2300 RPM

THREE ENGINE CRUISE POWER SETTINGS
DO NOT APPLY CARBURETOR AIR TEMPERATURE CORRECTIONS

BRAKE HORSEPOWER	PRESSURE ALT	RPM	Carburetor Air Temperatures Deg. C. −20 to 0	0 to +20	+20 to +40
800 BHP	0 - 3000′	2150	31.0	32.0	32.5
AUTO-RICH	3000 - 6000′	2150	30.0	31.0	32.0
80 GPH/ENG	6000 - 9000′	2150	29.5	30.5	31.0
	9000 - 12000′	2250	28.0	29.0	30.0
685 BHP	0 - 3000′	2050	30.5	31.5	32.0
AUTO-RICH	3000 - 6000′	2050	30.0	30.5	31.5
56 GPH/ENG	6000 - 9000′	2050	29.0	30.0	31.0
	9000 - 12000′	2050	28.5	29.5	F. T.

NOTE: Reduce three engine power to 650 HHP or 600 BHP as soon as practicable.

NOTE:
1. Avoid continuous operation in 1600 - 1700 and 2310-2510 range.
2. For 4 or 3 engine maximum range set power to obtain 135 knots IAS.
3. For 2 engine maximum range set POER to obtain 120 knots IAS.
4. For 4 engine maximum endurance set 1600 RPM and MP for 115 knots.
5. For 3 engine maximum endurance set POER to obtain 115 knots IAS.

Appendices

Engine failures versus hours flown during 1949.

Month	# Eng. Failures	Hours flown
January	13	2766.2
February	9	2532.0
March	15	3234.0
April	11	4221.0
May	6	3436.0
June	3	3346.0
July	0	4347.0
August	0	450.0
September	0	691.3
October	0	1852.7
November	1	2202.3
December	2	1758.2