HEADQUARTERS
11th AIR ASSUALT DIVISION
Fort Benning, Georgia

1 March 1965

TO:

SUBJECT: Extended Range of OV-1 by Aeriel Refueling

1. Based on the experimental nature of the 11th AIR ASSAULT DIVISION Charter and a prerequisite to deploy the OV-1 aircraft for a distance of at least 2,200 nautical miles for GOLDFIRE II, The Commanding General, 11th AIR ASSAULT DIVISION directed a test program be initiated to determine the feasibility of in-flight refueling utilizing the OV-2B aircraft as a tanker. This would extend the present range of the OV-1 aircraft by use of an additional refueling tank contained within the OV-2B aircraft.

2. This test program was mutually conducted by the 10th AIR TRANSPORT BRIGADE and the 11th AVIATION GROUP, 11th AIR ASSAULT DIVISION, and was initiated with a letter of agreement for the plan of test between the two units involved.

3. Initial phase of the testing began on 14 Jan 1965 with the arrival of one (1) Fletcher Buddy Refueling Tanker system from Quonset Point NAS ,Rhode Island and a second tank received on 21 Jan 1965 from Kelly AFB, Texas. After assembling necessary hardware to adapt the refueler to the OV-2B aircraft, ground testing began. This testing included mounting the refueler in the OV-2B, checking electrical and hydraulic systems, ground extension and retraction of the hose and drogue assembly, and dry hook-up on the ground of refueler coupling to the OV-1 probe. Refueling checklists for tanker and receiver aircraft systems were formulated during this period. This phase was completed on 5 Feb 1965.

4. Phase II was commenced on 6 Feb 1965 with a flight to determine inflight compatability of the OV-1 with the OV-2. During this formation flight, the OV-1 was flown in the refueling position to determine slip stream turbulence areas, airspeed limitations, visibility limitations and formation turns. No unfavorable characteristics or unsafe conditions were experienced in this type formation flying. The hose and drogue were extended to determine slant angle of the hose, stability and position of the drogue in relation to the fuselage of the OV-2B and its reaction during changes of airspeed and direction of flight. The OV-1 during this test was utilized as an observation aircraft only and no hook-ups were attempted. After completion, the hose and drogue were retracted. No detrimental conditions were found to exist.

5. Phase III was begun on 10 Feb 1965. After thorough briefing and flight planning, and with the assistance of Capt. DR Butler, Aeriel Refueling Instructor Pilot, a flight was conducted to test a dry hook-up of the OV-1 probe to the refueling drogue. Several hook-ups and disconnects were successfully accomplished. All systems operated satisfactorily and no difficult or hazardous condition existed. An actual ground transfer of fuel was accomplished on 11 Feb 1965. The transfer rate on the ground was determined to be approximately 60-75 gallons per minute

rate of flow which is considered satisfactory. A thorough examination of all lines and connections for evidence of fuel leaks was conducted and no leaks were found.

5. In-flight hook-up and actual transfer of fuel was included in Phase III. On 18 Feb 1965 fuel was transferred from the OV-2B refueler to the OV-1 in flight. Several hook-ups and actual transfer of fuel were conducted and in each operation the transfer was successful. This refueling was also accomplished with the OV-1 receiving a full load of fuel to determine flight characteristics under maximum fuel loads. No favorable conditions existed. The flight testing was completed on 25 Feb 1965.

7. To complete further testing, there is a requirement for one (1) Buddy Tanker Refueling system. This will be utilized in a third tanker aircraft which will be located at the second refueling point as a stand-by aircraft. Two (2) additional OV-1 aerial refueling kits would also be necessary. Since this kit is permanently installed on the OV-1, training time would be lost and continuity of the program hindered should the single OV-1 be down for required maintenance. Aircraft with additional kits mounted could also be used for the training of additional crews in both the OV-1 and OV-2 aircraft since both aircraft are required for in-flight refueling training. In addition, the necessary radio navigational equipment for an overwater rendezvous would be required.

8. Upon successful completion of all testing, a training program for all flight crew members of the 37th AIR TRANSPORT BATTALION and the 226th AERIAL SURVAILLIANCE AND ESCORT BATTALION will be initiated. It is estimated that five (5) hours of ground school and five (5) hours of in-flight training using refueling equipment will be needed to thoroughly accomplish a check out. Test personnel will be utilized as instructors.

9. For the most expeditious continuance of the present test program, it is requested that permission be granted for additional testing within the 11th AIR ASSAULT DIVISION.

Further, that the following equipment, to include spare parts, be made available to continue the testing:

a. One (1) Fletcher Universal Aerial Refueling System.
b. Two (2) OV-1 Refueler Probe Kits.
c. Six (6) UHF/ADF navigational radios.

Further request permission be granted to conduct extended range training flights in excess of 2,500 nautical miles within the continental United States.

Upon the successful completion of these flights, be permitted to conduct extended overwater flights from the West Coast of the United States to Hawaii. This being the longest overwater flight necessary for the tactical or strategical deployment of the OV-1 aircraft. In addition, this flight is necessary to completely prove the in-flight refueling system and install confidence in the crews with the systems. Also to determine the capability of integral Army aircraft to effect an overwater rendezvous and refueling.