



**DEPARTMENT OF THE ARMY
ARMY NATIONAL GUARD MANEUVER TRAINING CENTER
FORT PICKETT
BLACKSTONE, VA 23824-9000**

NGVA-MTC-PTD

11 September 2012

**BLACKSTONE ARMY AIRFIELD
HOT REFUELING OPERATIONS
STANDING OPERATING PROCEDURE**

1. **PURPOSE:** To define the parameters for military aircraft hot refueling operations by the Town of Blackstone employees on Town property located on Blackstone Army Airfield. This document is developed and maintained by the Division of Plans Training and Security, ARNG Maneuver Training Center, Fort Pickett, VA.

2. **APPLICIABILITY:** This Standard Operating Procedure (SOP) shall apply to all military rotary wing aircraft wishing to avoid shut down for fueling operations. Hot refueling is provided as a service by the Town. Failure to comply with these procedures will result in the unit being denied the service.

3. **GENERAL**

A. The Town of Blackstone has an In-To-Plane contract for Commercial Jet A with PRIST. Due to liability issues and lack of training in refueling with the rotors turning, the Town employees are not able to conduct hot refueling operations for rotary wing aircraft.

B. PRIST Hi-Flash anti-icing aviation fuel additive is authorized by the United States Armed Forces under Military Specification Mil-DTL-85470(B), and by the ASTM under Standard D4171 for use in civilian jet fuels as a fuel system icing inhibitor. As part of its ASTM approval process, the formulation of PRIST Hi-Flash additive was reviewed and approved by turbine engine and turbine aircraft airframe manufacturers worldwide. This fuel type has been not been an issue during multiple military exercises, although long term use may involve additional maintenance requirements (i.e. changing filters, etc.).

C. The Town fuel handlers will provide the facility and manpower to assist in rotary wing hot refueling operations. They are limited to set up and breakdown of equipment, hoses and static grounding points/cables and operation of the pumping system. They cannot make the connections for grounding cables or conductive hose to the aircraft nor can they get under the rotor blades. During actual refueling operations, their responsibility starts and ends with turning the pump on and off.

D. Hot refueling operations cannot be conducted without a crew chief on board the aircraft that is familiar with and trained in hot refueling operations. Necessary nozzle and bonding connections will be done by a crew chief or aircraft fuel handler trained in hot refueling operations and capable of making the necessary nozzle and bonding connections. Additional personnel on the aircraft will be used as fire guards.

E. Passengers on the aircraft not directly involved in fueling or aircraft operation will deplane and move to the left side of the aircraft at a marshalling area designated by the crew chief and will remain there until directed to re-board after completion of fueling and all fuel/grounding connections have been severed.

F. The Town personnel must be contacted NLT 24 hours in advance for hot refueling operations. The phone numbers are: duty refueler: cellular (434) 294-7558, Town Office: (434) 292-7251.

G. The area for conducting single aircraft operations is confined to ramp area "C" which is wholly owned and operated by the Town. The ramp space is confined but feasibility testing and actual operations have been conducted with H-53 aircraft in day light and H-60 series aircraft under conditions of darkness.

H. The system consists of a 100 foot long conductive hose (1 ¼ diameter) with a static grounding cable and single point nozzle. The static grounding cable is connected to the fuel farm grounding system, thereby establishing grounding and bonding between all components of the airframe/fueling system. The hose is connected via pumps and piping to a 12,000 gallon Jet A bulk tank. The following are limiting factors:

(1) Hose length – correct positioning of the aircraft is paramount or the hose will not reach the aircraft and blade tip clearance could become an issue. As currently configured, all obstacles may be avoided even with the limited length of hose.

(2) Pressure at the pump will not exceed 45 psi for two reasons; the hose diameter is smaller than the hoses on refueling vehicles which is normally 3 ½ inches and the volume counter is designed for 40 psi. Fuel flow, based on observations, is a maximum of one gallon per second.

4. PROCEDURES

A. Navy and Marine Corps aircraft must comply with the provisions outlined in NAVAIR 00-80T-109, Aircraft Refueling NATOPS Manual, dated 15 June 2002.

B.. Aircraft will enter the ramp area via air or ground taxi from "C" taxiway, making approximately a left forty five (45) degree turn, followed by a right twenty (20) degree turn to the fueling port mark on the pavement (see attached diagram). Dismounting the crew chief prior to movement onto "C" ramp to function as a taxi director is highly recommended. The crew chief should coordinate with the Town

employee to identify the marking spot and the maneuvers necessary for obstacle avoidance prior to directing the aircraft forward.

C. Aircraft in the H-53 series are advised to cant the nose gear to the right limit prior to any movement away from the refueling spot which has the effect of a tighter turning radius and providing the maximum blade tip clearance possible.

D. H-60 series aircraft are advised to exercise caution when departing the fueling spot and avoid a sharp right turn that might result in a tail rotor strike.

5. SAFETY:

A. Town personnel will verify that Foreign Object Debris (FOD), open doors and vehicles have been removed or secured and all electrical items not part of the fuel farm equipment have been disconnected.

B. Prior to making any fueling connection to the aircraft, the fueling equipment shall be bonded to the aircraft by use of a cable, thus providing a conductive path to equalize the potential between the fueling equipment and aircraft. Bonding clamps and plugs are provided. Ground plug receptacles are available on the airframe, they shall be used. Connectivity to a painted surface is not sufficient to guarantee bonding. The bond shall be maintained until fueling connections have been removed, thus allowing separated charges that could be generated during the fueling operation to reunite. Establishing a bond during aircraft fueling shall not be permitted; all grounding should be completed prior to fuel nozzle connection with the aircraft.

C. Bonding and fueling connections shall be disconnected in the reverse order of connection.

D. Conductive hose shall be used to prevent electrostatic discharge but shall not be used to accomplish required bonding.

E. There is a portable one hundred fifty (150) pound CO₂ fire extinguisher plus two pole-mounted ten (10) pound ABC units in the vicinity of the pump for immediate fire suppression in the event of an accident or fuel spill. Hazardous material containment supplies are also available.

F. Explosive-safe flashlights shall be used in place of helicopter searchlight/landing light for night fueling operations.

G. No electrical apparatus, supplied by or connected to outside power (electrical cords, droplights, floodlights, etc.), shall be in or near the helicopter.

6. FUTURE PLANS: Adding an additional section of hose is being considered by the Town management but will probably be tabled until usage figures are developed.

7. EFFECTIVE DATE AND REVIEW: This document is effective on 1 December 2007 and will be reviewed annually unless deemed necessary because of changes to the apron, fueling equipment or personnel. The service may be withdrawn at the sole discretion of the Town Manager or his designee. Changes may be directed to the Airfield Manager, (434) 292-2193.

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