

SUBJECT: PETROLEUM TECHNICAL ADVISORY MESSAGE 11-001, GUIDANCE ON RECIRCULATION OF PETROLEUM SYSTEMS AND REFUELING VEHICLES

Originator: HQAMC/USAPC DTG: 242034Z Feb 11

Precedence: ROUTINE

DAC: General

To: ALL ACTIVE ARMY, ARNG AND NGB ORGIZINATIONS

UNCLASSIFIED//

1. THE PURPOSE OF THIS DOCUMENT IS TO CLARIFY THE PROCEDURES FOR RECIRCULATION IN ARMY FUEL SYSTEMS AND VEHICLES. RECIRCULATION OF FUEL IS VITAL TO ENSURING THE CLEANLINESS AND QUALITY OF FUEL ISSUED MEETS ARMY AND DOD STANDARDS.
  
2. THERE IS CONFUSION AS TO THE REQUIREMENT AND PURPOSE OF RECIRCULATION. RECIRCULATION, CIRCULATION, PRODUCT CONSOLIDATION, FLUSHING AND FUEL LINE DISPLACEMENT ARE COMMONLY USED TERMS THAT ARE INTERCHANGED AND MANY TIMES REFER TO THE SAME THING. EACH OF THESE OPERATIONS HAVE DIFFERENT PROCEDURES AND CAN HAVE SPECIFIC PURPOSES. HOWEVER, THE END RESULT IS THE SAME, REPLACING THE FUEL CONTAINED IN HOSES /PIPE DOWNSTREAM OF THE FILTER SEPARATOR WITH FUEL THAT HAS PASSED THROUGH A FILTER SEPARATOR. HOWEVER, FOR THE PURPOSE OF THIS DOCUMENT ALL THESE OPERATIONS WILL BE SYNONYMOUS WITH RECIRCULATION. ALSO, DEPENDING ON THE MISSION AND LAYOUT OF THE REFUELING SYSTEM, IT MAY BE NECESSARY TO USE ONE OR A COMBINATION OF THE FOLLOWING METHODS TO MEET THE DAILY REQUIREMENTS TO ENSURE THE QUALITY OF THE FUEL:
  - A. PUMPING FUEL THROUGH SYSTEM COMPONENTS TO INCLUDE FILTER SEPARATORS, HOSES/PIPES AND REFUELING NOZZLES BACK INTO THE SAME TANK/TRUCK /CONTAINER THAT THE FUEL CAME FROM.
  
  - B. CONSOLIDATING PRODUCT BY PUMPING FUEL THROUGH SYSTEM COMPONENTS TO INCLUDE FILTER SEPARATORS, HOSES/PIPES BACK INTO A TANK/CONTAINER WITHIN THE SYSTEM OTHER THAN THE ONE THE FUEL CAME FROM.
  
  - C. DISPLACING THE AMOUNT OF FUEL CONTAINED IN HOSES / PIPES DOWNSTREAM OF THE FILTER SEPARATOR TO THE NOZZLE/ISSUE POINT WITH PRODUCT THAT HAS BEEN PUMPED THROUGH THE FILTER SEPARATOR. THE FUEL BEING DISPLACED IS PUSHED OUT THE NOZZLE/ISSUE POINT INTO A TANK VEHICLE OR CONTAINER WHICH IS NOT PART OF THE REFUELING SYSTEM.

3. FOR **TACTICAL AND FIXED TYPE SYSTEMS**, DISPLACING/REPLACING/ RECIRCULATING/FLUSHING TWICE THE AMOUNT OF FUEL CONTAINED IN THE INSTALLED HOSES/PIPES WHICH ARE DOWNSTREAM OF THE FILTER SEPARATOR TO THE NOZZLE IS SUFFICIENT. TO CALCULATE THE AMOUNT OF FUEL CONTAINED IN THE HOSES, TAKE THE AMOUNT OF FUEL CONTAINED IN A LENGTH OF HOSE AND MULTIPLY IT BY THE NUMBER OF HOSES BETWEEN THE FILTER SEPARATOR AND THE NOZZLE. DOUBLING THIS NUMBER GIVES YOU THE AMOUNT OF FUEL REQUIRED TO BE RECIRCULATED.

4. FOR **REFUELING VEHICLES**, DISPLACING/REPLACING/RECIRCULATING/FLUSHING TWICE THE AMOUNT OF FUEL CONTAINED IN THE INSTALLED HOSES/PIPES WHICH ARE DOWNSTREAM OF THE FILTER SEPARATOR TO THE NOZZLE IS NECESSARY/ SUFFICIENT. IF THERE IS A RECIRCULATION ADAPTER ON THE VEHICLE RECIRCULATION OF THREE TO FIVE MINUTES WILL ENSURE THE PRODUCT DOWNSTREAM OF THE FILTER SEPARATOR HAS BEEN REPLACED WITH CLEAN PRODUCT, AND HAS DISPLACED TWICE THE AMOUNT OF FUEL CONTAINED IN THE INSTALLED HOSES/PIPES DOWNSTREAM OF THE FILTER SEPARATOR. NOTE: REFER TO VEHICLE TECHNICAL MANUAL FOR QUANTITY OF FUEL REQUIRED IN VEHICLE TANK COMPARTMENT TO BE ABLE TO PERFORM THIS OPERATION.

5. THE FOLLOWING IS THE AMOUNT OF FUEL IN HOSE/PIPE:

SUCTION HOSE:

DIAMETER X LENGTH (IN x FT)	WORKING PRESSURE (PSI)	BURST PRESSURE (PSI)	FUEL CONTENT (GALLONS)
2 x 10	100	400	1.7
2 x 25	100	400	4.3
4 x 10	75	300	6.6
4 x 25	75	300	16.5
6 x 10	75	300	15

DISCHARGE HOSE:

DIAMETER X LENGTH (IN x FT)	WORKING PRESSURE (PSI)	BURST PRESSURE (PSI)	FUEL CONTENT (GALLONS)
2 x 25	150	600	4.3
2 x 50	150	600	8.5
4 x 50	150	600	33
6 x 50	150	600	75

NOTE: WORKING / BURST PRESSURES MAY VARY BY MANUFACTURER.

FUEL CONTENT PER FOOT:

<b>DIAMETER</b>	<b>QUANTITY PER FOOT</b>
2 INCH	0.17 GALLONS
4 INCH	0.66 GALLONS
6 INCH	1.5 GALLONS

6. IT IS MANDATORY RECIRCULATION BE PERFORMED PRIOR TO REFUELING THE FIRST AIRCRAFT OF THE DAY. THIS SHOULD BE ACCOMPLISHED IN CONJUNCTION WITH DAILY PMCS FOR THE REFUELING SYSTEM OR VEHICLE. RECIRCULATION DURING THE PMCS ALLOWS THE DIFFERENTIAL PRESSURE TO BE CHECKED ON THE FILTER SEPARATOR AND IF REQUIRED, THE AQUA-GLO TEST PERFORMED. IT IS ALSO MANDATORY TO PERFORM RECIRCULATION WHEN A SAMPLE IS REQUIRED FROM FILTER SEPARATOR OR THE NOZZLE, E.G. THE FILTER EFFECTIVENESS TEST OR TYPE "C" TESTING.

7. THE USAPC POC FOR THIS MESSAGE CAN BE CONTACTED AT USAPC PLANS AND OPERATIONS, ROOM 0543, MAIL STOP 6241, 8725 JOHN J KINGMAN ROAD, FORT BELVOIR, VA, 220606241, COMM: 7037670663, DSN: 4270663, OR EMAIL: APC.HELPDESK@conus.army.mil .

Classification: UNCLASSIFIED Caveats: NONE