Report Date: 25 Aug 2017

101-92F-1422
Provide Petroleum Products using Tank Vehicles
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the CASCOM-TD, Fort Lee, Va foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

Conditions: In an operational environment (OE) given the requirement to load and dispense petroleum products from tank vehicles. The Soldier (assigned to a petroleum element) must perform operator's preventive maintenance checks and services (PMCS), load, and dispense products from petroleum tank vehicles. Materials required to perform task: risk management procedures; applicableSafety Data Sheets (SDS); personal protective equipment (PPE) such as face shield/goggles and chemical protective gloves; 1,200-, 2,500-, and 5,000-gallon tank vehicles full or empty; Tank and Pump Unit (TPU); Movement Tracking System (MTS), an operational Fuel System Supply Point (FSSP) or other fuel source; spill containers; fire extinguishers; American Petroleum Institute (API) gravity equipment; a cup-case thermometer; appropriate gauging equipment (stick or other); gauge worksheets; rags; DA Form 3643 (Daily Issues of Petroleum Products); DD Form 1970 (Motor Equipment Utilization Record) or DA Form 5987-E (Motor Equipment Dispatch (EGA)); DA Form 2404 (Equipment Inspection and Maintenance Worksheet) or DA Form 5988-E (Equipment Inspection Maintenance Worksheet (EGA)); Facility Response Plan (FRP); Spill Prevention Control and Countermeasures (SPCC) plan; the unit hazardous waste/ hazardous material (HW/HM) management policy; unit standing operating procedure (SOP); oral or written operations order (OPORD); and full access to all reference materials. Some iterations of this task should be performed in MOPP 4.

Standards: Perform operator's PMCS and dispatch equipment. Position vehicle at site, load, dispense products from petroleum tank vehicles, and maintain fuel accountability record without injury to personnel or damage to equipment and surrounding area.

Special Conditions: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: None

DANGER

Failure to perform this task correctly may result in damage to equipment or injury or death to personnel.

NOTE: In this task, as with any task involving extensive handling of petroleum products, make sure that equipment is on hand to contain and clean up spills. Unpack, inspect, and position the equipment for convenient access before beginning the task. Review the requirements before performing the task to ensure that drip pans and waste fuel containers are the appropriate size to contain waste fuel generated by the task. Use drip pans at any point that a spill is likely to occur (such as valves or nozzles). Continually observe equipment and take care while performing the task to minimize the possibility of petroleum spills. If a spill occurs, immediately stop operations and take steps to stop, contain, and clean up the spill. Report all spills immediately to your supervisor.

WARNING

None

CAUTION

None

Remarks: None

Notes: None

Performance Steps

1. Peform risk assessment measures according to health/safety task 101-92F-1160, per supervisor's guidance.

2. Employ Environmental Stewardship Measures according to shared task 101-000-0003.

3. Read and understand unit or installation standing operating procedures (SOP)/OPORD requirements for requisitioning, storing, handling, and disposing of hazardous materials.

CAUTION

Gloves, hearing protection, and goggles need to be worn when performing any fueling operation. (Refer to step 4).

4. Wear appropriate Personnel Protective Equipment as required.

5. Perform before-, during-, and after-operations PMCS on system's components according to appropriate TMs. Annotate on DA Form 2404 or DA Form 5988-E any faults found while performing PMCS.

6. Safety considerations for tank vehicles:

a. Position tank vehicle facing nearest exit.

b. Do not block exit routes.

c. Conduct petroleum operations on level ground.

d. Choke wheels and set parking brake on tank vehicle.

e. Keep at least 25 feet between tank vehicles during all fuel servicing operations.

f. Open manhole cover during all loading, unloading, and fuel servicing operations.

g. Post NO SMOKING signs within 50 feet of fueling operations.

h. Position fire extinguisher within five to ten feet of fuel servicing operations.

i. Bond and ground all equipment.

j. Protect yourself and others against fumes and vapors.

k. Use spill containers.

7. Dispatch vehicle using DD Form 1970 or DA Form 5987-E and DA Form 2404 or DA Form 5988-E.

a. Present your OF Form 346 (US Government Motor Vehicle Operator's Identification Card) or DA Form 5984-E (Operator's Permit Record (EGA)) to motor pool dispatcher to dispatch equipment.

b. Obtain equipment record folder from dispatcher once he/she has verified you are qualified to operate equipment.

c. Perform before-operations PMCS on equipment using appropriate technical manual (TM). Annotate on DA Form 2404 or DA Form 5988-E appropriately.

8. Gauge petroleum tank vehicles according to task 101-92F-1408.

9. Operate TPU according to appropriate TM.

a. Dispense fuel.

(1) Lower tailgate and install grounding rod according to ATP 4-43. Connect grounding cable from grounding rod to TPU unit.

(2) Place fire extinguisher within five to ten feet of operation.

(3) Perform before-operations PMCS on TPU according to TM.

WARNING

Open manhole slowly to relieve pressure. If there is pressure build up, personnel may be injured. (Refer to step 9b(4)).

(4) Open manhole cover on tanks.

(5) Connect ON-OFF switch/cable assembly to junction box.

(6) Connect inter-vehicular power cable and adapter, if required, to junction box receptacle and vehicle North Atlantic Treaty Organization (NATO) slave receptacle.

(7) Attach a second ground wire to receptacle or vehicle to be fueled.

(8) Pull out dispensing hose to desired length and attach nozzle bonding clip to fuel receptacle.

(9) Place spill container under nozzle port of vehicle.

WARNING

An overheated pump creates a potential fire hazard and will cause pump damage. Do not allow pump to run longer than one minute with nozzles closed. Do not run pump with tank valves closed. (Refer to step 9b(10)).

(10) Pull either or both tank valve control levers to the ON position.

(11) Open fuel receptacle and insert nozzle into tank being fueled and squeeze nozzle lever. Maintain metal-to-metal contact.

(12) Move ON-OFF switch to ON position.

(13) When tank is full, release nozzle lever.

(14) Move ON-OFF switch to OFF position and store cable on truck.

(15) Remove dispensing nozzle from tank, disconnect nozzle ground clamp or plug, and rewind hose onto hose reel.

(16) Move tank valve control levers to OFF position.

(17) Record issue on DA Form 3643 (Daily Issues of Petroleum Products) according to DA Pamphlet 710-2-1.

(18) Perform after-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.

b. Filling tanks through bottom loading port.

(1) Perform grounding procedures according to steps (a)(1) and (2) above.

(2) Place spill containers under vehicles.

(3) Open manhole latch and fill cap on both tanks.

(4) Position both tank valve levers in OFF position.

CAUTION

The manhole fill cap must be open during bottom loading operation. Failure to open the manhole will cause a pressure build up within the tanks that could cause the tanks to rupture or explode. (Refer to step 9c(5)).

(5) Remove cover from bottom loading port and attach filling pump nozzle to bottom loading port.

(a) Remove dust cover from end of nozzle body.

(b) Grasp handles and hold nozzle in alignment with TPU refueling adapter.

(c) Press nozzle body against adapter and turn handles to right until end of nozzle mates and locks to TPU refueling adapter.

(d) Rotate control lever to full OPEN position.

(6) Start pump.

(7) Operate filling pump nozzle to load fuel. Monitor 600 gallon fuel tanks being filled.

(8) Perform during-operations PMCS according to TM.

(9) Stop pump when filling operation is complete.

(10) Disconnect nozzle and replace cover on bottom loading port and nozzle.

(a) Rotate control lever to full CLOSED position.

(b) Grasp handles and rotate nozzle body to left until it disconnects from TPU adapter.

(11) Close and latch both manhole fill caps.

(12) Gauge tanks and note amount of fuel received on DA Form 3643 (Daily Issues of Petroleum Product).

(13) Disconnect and stow grounding equipment and spill containers.

(14) Perform after-operation PMCS according to TM 10-4930-236-13&P. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by the operator. Inform your supervisor if system is found to be NMC.

c. Obtaining a fuel sample according to task 101-92F-1405.

(1) Perform steps 1 through 3 in 8b above.

(2) Attach sample probe adapter to filter separator outlet then connect outlet hose to sample probe adapter.

(3) Dispense fuel following steps in 8b above. While fuel is being dispensed, remove cap from probe and extract fuel sample.

(4) Install cap on probe.

(5) Move ON/OFF switch to OFF position.

(6) Squeeze dispensing nozzle lever to release any built up fuel pressure.

WARNING

Fuel spills create a potential fire hazard. When disconnecting outlet hose, some fuel within outlet hose and sample probe adapter will be released. Use drip pan to catch fuel. (Refer to step 9d(8)).

(7) Provide suitable container to catch spilled fuel, then disconnect outlet hose to outlet.

d. Perform after-operation PMCS shutdown procedures.

(1) Check to see both fuel dispensing hoses are fully wound onto hose reels.

(2) Check that static ground cable is fully wound onto static reel.

(3) Check that both fill caps on manholes are closed securely.

(4) Remove gauge stick from A-Frame.

(5) Gauge both tanks to measure quantity of fuel remaining in each fuel tank.

(6) Return gauge stick to its stowed position on A-Frame.

(7) Make certain ON/OFF switch cable is in OFF position. Coil and secure to unit or stow in tool box.

(8) Move both tank valve control levers to OFF position.

(9) Make certain ground rod is secured in its stowed position on A-Frame. Secure fire extinguisher.

(10) Open drain cock on filter separator to release water from filter separator. Once water has drained, close drain cock.

(11) Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.

10. Operate Heavy Expanded Mobility Tactical Trucks (HEMTT) according to appropriate TM.

a. Bottom load tank with exterior pump.

(1) Prepare tanker for operation.

(a) Connect SR1 and SR2 static cables to source of fuel and grounding devices.

(b) Perform before-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by the operator. Inform your supervisor if the system is found to be NMC.

WARNING

Stand clear to avoid injury when operating pump module doors. When each door is about halfway open, gas pistons push doors open quickly and with much force. Failure to comply may result in injury or death to personnel. (Refer to steps 10a(1c)).

(c) Remove and stow lock (if so equipped). Open pump module rear doors.

(d) Position tanker controls in accordance to TM.

(e) Place grounding rod in ground according to ATP 4-43. Connect static line from HEMTT to grounding rod.

Note: Both vehicles and equipment involved must be bonded and grounded before performing fueling procedures.

(f) Position fire extinguisher within five to ten feet of operation.

(g) Gauge fuel gauge:

1. Set TL1/TANK LEVEL INDICATOR switch to ON.
2. Read tank fuel level on indicator gauge.

NOTE: If TL1/TANK LEVEL INDICATOR gauge does not show fuel level reading, check fuel level with dipstick according to TM.

3. Set TL1/TANK LEVEL INDICATOR switch to OFF.

(2) Connect SR1 and SR2 static cables to source of fuel and to grounding devices.

(3) Remove dust cap from A B/L RECEPTACLE.

(4) Remove D1 adapter from stowage.

(5) Place end of D1 adapter on A B/L RECEPTACLE and align key ways.

(6) Push in and turn D1 adapter clockwise until locked in place.

(7) Check that D1 adapter valve lever is in CLOSE position.

(8) Open stowage tube cover and remove suction hose.

(9) Remove 3-inch adapter coupling from stowage and connect to one end of suction hose.

(10) Connect 3-inch adapter coupling to D1 adapter.

(11) Connect other end of suction hose to fuel supply.

(12) After fuel flow is started by fuel station operator, move D1 adapter valve lever to OPEN position.

CAUTION

Do not continue fuel loading if fuel flow does not stop within about 15 seconds after V12 B/L PRECHECK VALVE is opened or tanker may be damaged. (Refer to step 10a(13)).

(13) As soon as fuel starts flowing, open V12 B/L PRECHECK VALVE. If fuel flow stops within approximately 15 seconds, close V12 B/L PRECHECK VALVE and continue fuel loading. If fuel flow does not stop within approximately 15 seconds, stop fuel loading and notify organizational maintenance.

(14) When tank is full and fuel flow stops automatically, move D1 adapter valve lever to CLOSE position.

(15) After fuel station operator shuts off fuel, disconnect 3-inch adapter coupling from D1 adapter.

(16) Remove D1 adapter.

(17) Drain fuel from suction hose and dispose of fuel in accordance with unit SOP.

(18) Disconnect suction hose from fuel supply.

(19) Remove 3-inch adapter coupling from suction hose.

(20) Stow suction hose, 3-inch adapter coupling, and D1 adapter.

(21) Install dust cap on A B/L RECEPTACLE.

(22) Perform after-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.

(23) Disconnect and rewind SR1 and SR2 static cables.

(24) Close pump module rear doors.

b. Bottom load tank with tanker fuel pump.

(1) Start engine and position vehicle to load fuel according to TM.

(2) Park vehicle according to TM.

(3) If vehicle is equipped with self recovery winch, check that PTO ENGAGE switch is set to OFF.

(4) Push in SELECTOR VALVE for tanker pump operation.

(5) Set PTO engage switch to ON position.

WARNING

Stand clear to avoid injury when operating pump module doors. When each door is about halfway open, gas pistons push doors open quickly and with much force. Failure to comply may result in injury or death to personnel. (Refer to steps 10b6).

(6) Open pump module rear doors.

(7) Position tanker controls.

(8) Position fire extinguisher within five to ten feet of operation

(9) Connect static cables to vehicle being serviced and to grounding devices (bond and ground).

(10) Remove dust caps from A B/L, B GRAVITY and C Bulk RECEPTACLES. Remove 3-inch adapter coupling and D1 adapter from stowage. Place end of D1 adapter on A B/L RECEPTACLE and aline key ways.

(11) Push in and turn D1 adapter clockwise until locked in place. Check that D1 adapter valve lever is in CLOSE position.

(12) Connect 3-inch adapter coupling to end of suction hose and then to D1 adapter. Connect other end of suction hose to C BULK RECEPTACLE (UNFIL).

(13) Connect one end of fuel station suction hose to B GRAVITY RECEPTACLE and the other end of the fuel station hose to fuel supply.

(14) After fuel flow control valve on fuel supply is opened by fuel station operator, set D1 adapter valve lever to OPEN position.

(15) Open V17 GRAVITY VALVE.

(16) Open V18 BULK DEL VALVE.

(17) Push PUMP ENGAGEMENT LEVER forward.

(18) Set TC/THROTTLE CONTROL switch up to ON position.

(19) Press HI/HIGH IDLE switch.

(20) Pull out HAV HAND ACTUATED CONTROL valve.

Note: HAV HAND ACTUATED CONTROL valve must be open for fuel to flow.

CAUTION

Do not continue fuel loading if fuel flow does not stop within about 15 seconds after V12 B/L PRECHECK VALVE is opened or tanker may be damaged. (Refer to step 10b(21).

(21) Squeeze and hold lever to open HAV HAND ACTUATED CONTROL valve. As soon as fuel starts flowing, open V12 B/L PRECHECK VALVE. If fuel flow stops within approximately 15 seconds, close V12 B/L PRECHECK VALVE and continue fuel loading.

(22) When tank is full and fuel flow stops automatically, let go of HAV HAND ACTUATED CONTROL valve lever.

(23) Pull back on PUMP ENGAGEMENT LEVER until locked.

CAUTION

Guide hoses back onto reel. Carefully guide control through access hole onto reel. Failure to do so may result in equipment damage. (Refer to step 10b(24)).

(24) Rewind HAV HAND ACTUATED CONTROL valve hoses onto reel.

(25) Set TC/THROTTLE CONTROL switch down to OFF.

(26) After fuel station operator shuts off fuel flow from fuel supply, close V18 Bulk DEL VALVE.

(27) Close V17 GRAVITY VALVE. Disconnect fuel station suction hose from B GRAVITY RECEPTACLE. Drain fuel from fuel station suction hose and dispose of fuel in accordance with unit SOP.

(28) Disconnect fuel station suction hose from fuel supply.

(29) Set D1 adapter valve lever to CLOSE position.

(30) Remove D1 adapter from A B/L RECEPTACLE. Drain fuel from fuel station suction hose and dispose of fuel in accordance with unit SOP.

(31) Disconnect 3-inch adapter coupling from D1 adapter. Disconnect suction hose from C BULK RECEPTACLE (UNFIL).

(32) Remove 3-inch adapter coupling from suction hose. Stow 3-inch adapter coupling and D1 adapter. Stow suction hose and return fuel station suction hose to fuel station operation.

(33) Install dust caps on A B/L, B GRAVITY, and C BULK RECEPTACLES.

(34) Perform after-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.

(35) Disconnect and rewind SR1 and SR2 static cables and close pump module rear doors.

(36) Set PTO ENGAGE switch to OFF. Check that indicator light goes out.

(37) Shut off engine.

WARNING

Top loading will be done in emergency situations only (when bottom loading is not possible and only by order of unit commander). Top loading causes static electricity and vapors. To prevent fire or explosion, no smoking, flame, sparks, and glowing or hot objects are allowed within 50 feet (15 m) of vehicle. Fire or explosion may cause personal injury or death. To prevent explosion caused by electrostatic charge, ground self and equipment before opening manhole cover. (Refer to step 10c).

c. Top load tank with tanker fuel pump.

(1) Position tanker controls.

(2) Ensure pump module rear doors are closed.

(3) Connect SR1 and SR2 static cables to fuel source and to grounding devices.

(4) Position fire extinguisher within five to ten feet of operation.

WARNING

Open manhole cover slowly to relieve pressure. If there is a pressure buildup, personnel may be injured. (Refer to step 10c(5)).

(5) Open manhole cover.

(6) Place fill stand downspout in manhole fill opening or place hose through manhole fill opening so that it touches bottom of tank.

Note: Top loading tanker at fixed facilities does not require the Commander's Approval if utilizing the facilities drop tube. If top loading with a hose, the commander's approval is required.

(7) After fuel station operator fills tank to desired level and stops fuel flow, remove fill stand downspout or hose from manhole fill opening and close manhole cover and secure latch.

(8) Disconnect and rewind SR1 and SR2 static cables.

(9) Stow fire extinguishers.

d. Load vehicle or aircraft over wing fuel servicing.

WARNING

No smoking, flame, sparks, and glowing or hot objects are allowed within 50 feet of vehicle. Fire or explosion may cause personal injury or death.

CAUTION: Do not run tanker without fuel in system. This may cause damage to fuel pump and hydraulic motor. Do not press accelerator during tanker primary fuel pump operation. Engine speeds higher than 1,500 RPM may cause damage to hydraulic motor and primary pump. Drain and flush tank compartment, filter separator, and piping system with new product when changing to different fuel or different grades of fuel from last one carried. Notify organizational maintenance to change all filter elements. Failure to do so may result in equipment damage.

(1) Prepare vehicle.

(a) Start engine and position vehicle for fuel servicing.

(b) Park vehicle according to TM.

(c) If vehicle is equipped with self recovery winch, check that PTO ENGAGE switch is set to OFF.

(d) If vehicle is equipped with self recovery winch, push in SELECTOR VALVE for tanker pump operation.

(e) Set PTO engage switch to ON position.

WARNING

Stand clear to avoid injury when operating pump module doors. When each door is about halfway open, gas pistons push doors open quickly and with much force. Failure to comply may result in injury or death to personnel. (Refer to steps 10d(1f)).

(f) Open pump module rear doors.

(g) Position tanker controls.

(h) Connect static cables to vehicle being serviced and to grounding devices (bond and ground). Position fire extinguisher within five to ten feet of operation.

(2) Fuel servicing.

(a) Disengage hose reel tension knob.

(b) Remove dust cap from end of hose.

(c) Pull hose completely out from hose reel.

(d) Engage hose reel tighten knob.

(e) Remove fuel service nozzle or over wing nozzle from stowage.

(f) Remove reducer adapter from storage and install reducer adapter on hose.

(g) Install fuel service nozzle or over wing nozzle on hose or reducer adapter.

(h) Push in V-6 FUEL/DEFUEL VALVE control rod.

(i) Pull back MC MANUAL CONTROL EM VALVE lever.

(j) Adjust V7 REEL VALVE to control rate of fuel delivery through the hose.

(k) Push PUMP ENGAGEMENT LEVER forward.

(l) Set TC/THROTTLE CONTROL switch up to ON position.

(m) Press HI/HIGH IDLE switch.

(n) Pull out HAV HAND ACTUATED CONTROL valve.

(o) Remove fuel filler cover from receiving vehicle or aircraft.

Note: HAV HAND ACTUATED CONTROL valve must be open for fuel to flow.

(p) Insert fuel service nozzle or over wing nozzle through fuel filler of receiving vehicle or air craft.

(q) Squeeze and hold lever to open HAV HAND ACTUATED CONTROL valve.

(r) Squeeze and hold lever on fuel service nozzle or lever on over wing nozzle to start fuel flow.

(s) When filled to desired level, release lever and HAV HAND ACTUATED control valve lever.

(t) Remove fuel servicing nozzle or over wing nozzle from receiving vehicle or aircraft filler.

(u) Install fuel filler cover on receiving vehicle or aircraft.

Note: Tanker must have at least 300 gallons of fuel remaining in order to perform fuel hose evacuation.

(v) Pull out V6 FUEL/DEFUEL VALVE control rod. Squeeze and hold lever to open HAV HAND ACTUATED CONTROL valve.

(w) Squeeze and hold lever on fuel service nozzle or lever on over wing nozzle to evacuate fuel from hose. Dispose of fuel accordance with unit SOP. When all fuel is evacuated from hose, release lever and lever on HAV HAND ACTUATED CONTROL valve.

(x) Let HAV HAND ACUATED CONTROL valve hose rewind onto reel and stow inside pump module.

(y) Set TC/THROTTLE CONTROL switch down to OFF position.

(aa) Pull back on PUMP ENGAGE LEVER until locked.

(bb) Push MC MANUAL CONTROL EM valve lever forward.

(cc) Close V7 REEL VALVE.

(dd) Place fuel service nozzle in stowage position and secure with rubber tie down strap.

(ee) Remove fuel service nozzle or over wing nozzle from adapter.

NOTE: Reducer adapter is used with over wink nozzle only. If over wing nozzle was not used skip step (ff).

(ff) Remove reducer adapter from hose.

(gg) Put fuel service nozzle or over wing nozzle and reducer adapter in stowage.

(hh) Remove crank from stowage.

(ii) Release hose reel tension knob.

(jj) Put crank on crank shaft, turn crank to rewind hose onto reel.

(kk) Install dust cap on end of hose.

(ll) Engage hose reel tension knob.

(mm) Return crank to stowage.

(nn) Disconnect and rewind SR1 and SR2 static cables & stow fire extinguishers.

(oo) Perform after-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by the operator. Inform supervisor if the system is found to be NMC.

(pp) Close pump modular rear doors.

(qq) Set PTO ENGAGE switch to OFF position.

(rr) Shut off engine.

e. Recirculate fuel.

(1) Prepare vehicle.

(a) Start the engine and park vehicle.

CAUTION

Do not move SELECTOR VALVE while PTO is engaged or vehicle hydraulic equipment may be damaged. (Refer to step 10e(1b)).

(b) If vehicle is equipped with a self recovery winch, check that PTO ENGAGE switch is set to OFF.

(c) Push in SELECTOR VALVE for tanker pump operation.

(d) Set PTO ENGAGE switch to ON position. The indicator light should come on.

WARNING

Stand clear to avoid injury when opening pump module rear doors. When doors are about halfway open, gas pistons push doors open quickly and with much force. (Refer to step 10e(1e)).

(e) Open pump module rear doors.

(f) Position tanker controls.

(g) Connect SR1 and SR2 static cables to grounding devices.

(h) Position fire extinguisher within five to ten feet of operation.

(i) Remove dust cap from A B/L RECEPTACLE.

(j) Remove dust cap from hose.

(k) Disengage the hose reel tension knob.

(l) Pull out about 15 feet of hose from the reel.

(m) Engage hose reel tension knob.

(n) Remove D1 adapter from stowage.

(o) Connect D1 adapter to A B/L RECEPTACLE.

(p) Connect hose to D1 adapter.

(2) Recirculate fuel.

(a) Push in V6 FUEL/DEFUEL valve control rod.

(b) Pull back MC MANUAL CONTROL EM VALVE lever.

(c) Push PUMP ENGAGEMENT LEVER forward.

(d) Set TC/THROTTLE CONTROL switch up to ON position.

(e) Press HI/HIGH IDLE switch.

(f) Open V7 REEL VALVE.

(g) Pull out HAV HAND ACTUATED CONTROL valve.

(h) Squeeze and hold HAV HAND ACTUATED CONTROL valve lever to recirculate fuel.

(i) When re-circulation is completed, release HAV HAND ACTUATED CONTROL valve lever.

(j) Move D1 adapter valve lever to CLOSE position.
Note: Tanker must be holding at least 300 gallons of fuel in order to perform fuel hose evacuation.

(k) Pull out V6 FUEL/DEFUEL VALVE control rod.

(l) Close V7 Reel VALVE.

(3) Shut down recirculation.

(a) Disconnect D1 adapter from A B/L RECEPTACLE.

(b) Disconnect hose from D1 adapter.

(c) Stow D1 adapter.

(d) Squeeze and hold HAV HAND ACTUATED CONTROL valve lever to evacuate fuel from hose. Dispose of fuel according to unit SOP.

(e) When all fuel is emptied from hose, release HAV HAND ACTUATED CONTROL valve lever.

(f) Install dust cap on A B/L RECEPTACLE.

(g) Set TC/THROTTLE CONTROL switch down to OFF position.

(h) Pull back on PUMP ENGAGEMENT LEVER until locked.

(i) Push MC MANUAL CONTROL EM VALVE lever forward.

(j) Rewind HAV HAND ACTUATED CONTROL valve hoses onto reel and stow inside pump module.

(k) Remove crank from stowage on pump module.

(l) Release hose reel tension knob.

(m) Put crank on crankshaft.

(n) Turn crank to rewind hose on reel.

(o) Install dust cap on hose.

(p) Engage hose reel tension knob.

(q) Return crank to stowage.

(r) Perform after-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.

(s) Disconnect and rewind SR1 and SR2 static cables.

(t) Stow fire extinguisher.

(u) Close pump module rear doors.

(v) Set PTO ENGAGE switch to OFF position. The indicator light should go out.

(w) Shut off engine.

f. Unload fuel.

(1) Filter bulk unloading.

(a) Start engine and position vehicle for bulk unloading.

(b) Park vehicle.

CAUTION

Do not move SELECTOR VALVE while PTO is engaged or vehicle hydraulic equipment may be damaged. (Refer to step 10f(1c)).

(c) If vehicle is equipped with self recovery winch, check that PTO ENGAGE switch is set to OFF.

(d) Push in SELECTOR VALVE for tanker pump operation.

(e) Set PTO ENGAGE switch to ON position. Indicator light should come on.

WARNING

Stand clear to avoid injury when operating pump module doors. When each door is about halfway open, gas pistons push doors open quickly and with much force. Failure to comply may result in injury or death to personnel. (Refer to steps 10f(1f)).

(f) Open pump module rear doors.

(g) Position tanker controls.

(h) Connect static cables to vehicle being serviced and to the grounding devices (bond and ground).

(i) Position fire extinguisher within five to ten feet of operation.

(j) Remove dust cap from C Bulk RECEPTACLE.

(k) Open stowage tube cover and remove suction hose. Connect one end of suction hose to C BULK RECEPTACLE and other end to receiving receptacle.

(l) Pull back MC MANUAL CONTROL EM VALVE lever.

(m) Open V18 BULK DELIVERY VALVE.

(n) Push PUMP ENGAGEMENT LEVER forward.

(o) Pull out HAV HAND ACTUATED CONTROL valve.

(p) Set TC/THROTTLE CONTROL switch up to ON position.

(q) Press HI/HIGH IDLE switch.
Note: HAV HAND ACTUATED CONTROL valve must be open for fuel to flow.

(r) Squeeze and hold HAV HAND ACTUATE CONTROL valve lever to unload fuel.

(s) When unloading is finished, release HAV HAND ACTUATED CONTROL valve lever.

(t) Set TC/THROTTLE CONTROL switch down to OFF position.

(u) Pull back on PUMP ENGAGEMENT LEVER until locked.

(v) Push MC MANUAL CONTROL EM VALVE lever forward.

(w) Close V18 BULK DELIVERY VALVE.

CAUTION

Guide hoses back onto reel. Carefully guide control through access hole onto reel. Failure to do so may result in equipment damage. (Refer to step 10f(1x)).

(x) Rewind HAV HAND ACTUATED CONTROL valve hoses and stow in pump module.

Note: Remove remaining fuel in suction hose by walking out suction hose.

(y) Remove suction hose drain fuel and dispose of fuel in accordance with unit SOP. Stow suction hose. Install dust cap on C BULK RECEPTACLE.

(z) Perform after-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.

(aa) Disconnect and rewind SR1 and SR2 static cables.

(ab) Stow fire extinguisher.

(ac) Close pump module rear doors.

(ad) Set PTO ENGAGE switch to OFF position. Indicator light should go out.

(ae) Shut off engine.

(2) Unfiltered gravity bulk unloading.

(a) Prepare tanker for operation.

1. Perform before-operations PMCS according to TM. Annotate on DA Form 2404 or DA Form 5988-E any deficiencies found that cannot be repaired by operator. Inform your supervisor if system is found to be NMC.
2. Position controls in accordance to TM.

(b) Place grounding rod in ground according to ATP 4-43. Connect static line from HEMTT to grounding rod.

Note: Both vehicles and equipment involved must be bonded and grounded before performing fueling procedures.

(c) Position fire extinguisher within five to ten feet of the operation.

(d) Gauge fuel gauge:

1. Open right side pump module rear door.
2. Set TL1/TANK LEVEL INDICATOR switch to ON.
3. Read tank fuel level on indicator gauge.

NOTE: If TL1/TANK LEVEL INDICATOR gauge does not show fuel level reading, check fuel level with dipstick according to TM.

4. Set TL1/TANK LEVEL INDICATOR switch to OFF.
5. Close right side pump module rear door.

(e) Connect SR1 and SR2 static cables to equipment receiving fuel and to grounding devices.

(f) Position fire extinguisher within five to ten feet of operation.

(g) Remove dust cap from B GRAVITY RECEPTACLE.

(h) Open stowage tube cover and remove suction hose.

Note: B GRAVITY RECEPTACLE is designed for a 4-inch hose. Use an Army supplied hose for gravity discharge of fuel.

(i) Connect one end of suction hose to B GRAVITY RECEPTACLE and the other end to receiving receptacle.

(j) Pull back MC MANUAL CONTROL EM VALVE lever.

(k) Open V17 GRAVITY VALVE to unload fuel. When unloading is finished, close V17 GRAVITY VALVE.

(l) Push MC MANUAL CONTROL EM VALVE lever forward. Remove suction hose, drain fuel, and dispose of fuel in accordance with unit SOP. Stow suction hose.

Note: Remove remaining fuel in suction hose by walking out suction hose.

(m) Install dust cap on B GRAVITY RECEPTACLE. Disconnect and rewind SR1 and SR2 static cables. Stow fire extinguisher.

(n) Close pump module rear doors.

11. Operate M900-series tank vehicles (M967, and M969) according to appropriate TM.

a. Perform PMCS on M900-series tank vehicles. Consult the most current TM for details of checks and services.

b. Load, unload, and dispense products from 900-series (M967 and M969) fuel tankers according to TM.

(1) Operate auxiliary engine and pump assembly on M967, and M969 tank semitrailers.

(a) Park semitrailer on level ground and set brakes. Chock wheels by placing a wooden block in between front and rear tandem tires of rear axle.

(b) Bond and ground semitrailer.

(c) Turn engine switch to RUN.

(d) Turn preheater switch ON for about one minute. Be sure indicator light has come on.

(e) After one minute, continue to hold preheater switch and turn starter switch to START.

(f) Release starter switch and preheater switch after engine starts. Do not engage starter for more than 10 seconds at a time.

(g) Check gauges for correct indication. Stop engine if a system malfunction is indicated.

(h) After engine is warm, check for leaks and loose connections. If you see any, fix them at once or take vehicle to organizational maintenance.

(i) To stop auxiliary engine and pump assembly do the following:

1. Throttle engine to fast idle (1,200 revolutions per minute [RPM]) for about five minutes before stopping to allow for gradual cooling of engine.
2. Release throttle to low idle.
3. Turn engine switch to STOP.

(j) Remove bonding and grounding wires.

(2) Top loading with a hose (product is not filtered or metered by vehicle).

(a) Be sure all valves are closed.

(b) Ground semitrailer. The loading hose from storage facility may have a metal fitting on free end and hose may not be bonded internally. Such a fitting is insulated and it could become charged. Bond and ground semitrailer before opening fill cover.

(c) Remove fire extinguishers and bring them to point of operation.

(d) Slowly open fill cover. Insert hose far enough to keep end of hose in contact with bottom of tank.

(e) Slowly begin flow and fill tank no further than to bottom of capacity indicator.

(f) Remove fill hose. Close and secure manhole cover.

(g) Drain accumulated water. Close all valves. Put container under manifold drain in piping control cabinet. Open emergency operator valve. Slowly open system drain valves.

(h) On M969 models, also drain filter separator. Open filter separator inlet valve (M valve). Put a container under filter separator drain valve. Slowly open valve. Allow filter separator to drain until fuel begins to flow. Close all valves.

(i) On M969 models, drain pilot lines. Open drain valves behind piping control assembly, behind emergency off take valve, and hose reel cabinet. Allow any water to drain into an appropriate container.

(j) Remove grounding wire. Store fire extinguishers.

(3) Bottom loading (product is not filtered by the vehicle).

(a) Be sure all valves are closed.

(b) Bond and ground vehicle.

(c) Remove cover from bottom loading connection and connect bottom loading hose to bottom loading connection.

(d) Remove fire extinguishers and bring them to point of operation.

(e) On M967 and M969, put selector valve in LOAD position.

(f) Open emergency valve operator A.

(g) Begin flow from outside source.

(h) After flow has begun, open valve D to pre-check the shutoff float. Flow should stop after about 20 to 25 seconds to indicate that float is functional. If it is not working, stop all operations and notify higher maintenance.

(i) Close pre-check valve. The flow will resume in about 20 seconds.

(j) When tank is full, flow should stop automatically. Close all valves, replace all covers, and disconnect hoses.

Note: Be prepared to stop fuel supply at loading facility in event of shutoff float malfunction or if leaks or other unusual conditions are apparent.

(k) Drain accumulated water in same manner as with top loading.

(l) Remove grounding wires.

(m) Store fire extinguishers.

(4) Self loading using vehicle engine and pump (M967 and M969). Product is not filtered or metered by vehicle.

(a) Be sure all valves are closed.

(b) Bond and ground vehicle.

(c) Remove fire extinguishers and bring them to point of operation.

(d) Start engine and pump assembly as described in this task. When engine is warm, adjust it to idle speed (1,000 to 1,200 RPM).

(e) Remove 4-inch bulk fuel hose from hose trough. Do this by disconnecting spring pins and turning hose through bars out of way.

(f) Remove dust cap from fuel outlets. Connect one end of bulk fuel hose to outlet and other end to storage facility.

(g) Put selector valve E in LOAD position.

(h) Open operator valve A, fuel outlet valve B, and manifold outlet valve G.

(i) Adjust engine throttle for desired flow rate.

(j) Shortly after flow has started, open pre-check valve D to pre-check the shutoff float. After about 20 to 25 seconds, flow should stop to let you know float is working properly. If it is not working, stop all operations and notify higher maintenance.

(k) Close valve D. Flow will resume in about 20 seconds.

WARNING

In an emergency, close operator's valve or pull emergency valve shutoff on opposite side of semitrailer. (Refer to step 11b(4l)).

(l) When tank is full, flow should stop automatically.

(m) At end of operation, idle down engine.

(n) Close all valves.

(o) Disconnect 4-inch bulk fuel hose and put in hose trough. Secure hose trough latches.

(p) Stop engine.

(q) Drain accumulated water in same manner as with top loading.

(r) Remove grounding wires.

(s) Store fire extinguishers.

(5) Unload 900 series trailers by gravity discharge using a 4-inch suction hose. Product is not filtered or metered by vehicle.

(a) Be sure all valves are closed.

(b) Bond and ground vehicle.

(c) Remove 4-inch bulk delivery hose from trough. Do this by disconnecting spring pins and turning hose trough bars out of way.

(d) Remove dust cap from fuel outlet.

(e) Connect hose to outlet B and storage facility.

(f) Remove fire extinguishers and bring them to point of operation.

(g) On M967 and M969, make sure selector valve E is in UNLOAD position.

(h) Open valves A, H, G, and B to begin flow.

(i) At end of operation, close all valves.

(j) Disconnect hose, put it in hose trough, and secure hose trough latches.

(k) Reinstall dust cap on fuel outlet B.

(l) Drain accumulated water in same manner as in loading procedure.

(m) Remove bonding and grounding wires.

(n) Store fire extinguishers.

c. Discharge product under pressure using vehicle pump and 4-inch suction hose. Product is not filtered or metered by vehicle.

(1) Be sure all valves are closed.

(2) Bond and ground vehicle and semitrailer.

(3) Remove fire extinguishers and bring them to point of operation.

(4) Start engine and pump as described in this task. When engine is warm, adjust throttle to idle speed (1,000 to 1,200 RPM).

(5) Remove 4-inch bulk delivery hose from trough. Do this by disconnecting spring pins and turning hose trough bars out of way.

(6) Remove dust cap from fuel outlet B.

(7) Connect hose to outlet B and to storage facility.

(8) On M967 and M969, put valve E in UNLOAD position.

(9) Open valves A, B, F, and H.

(10) Adjust engine throttle for desired flow rate.

(11) At end of operation, idle down engine.

(12) Close all valves, disconnect hose, and reinstall dust caps.

(13) Put bulk fuel hose in hose trough and secure latches.

(14) Stop engine.

(15) Drain accumulated water in same manner as with loading procedure.

(16) Remove bonding and grounding wire.

(17) Store fire extinguishers.

d. Pressure discharge using vehicle pump and 4-inch hose (M969). Product is filtered but not metered by vehicle.

(1) Be sure all valves are closed.

(2) Bond and ground vehicle.

(3) Remove 4-inch bulk delivery hose from trough. Do this by disconnecting spring pins and turning hose trough bars out of way.

(4) Remove dust cap from fuel discharge nozzle.

(5) Connect bulk fuel hose to outlet B and to storage facility.

(6) Remove fire extinguishers and bring them to point of operation.

(7) Start engine and pump as described in this task. When engine is warm, adjust throttle to idle speed (1,000 to 1,200 RPM).

(8) Put selector valve E in UNLOAD position.

(9) Open valves A, B, H, M, and K.

(10) Adjust engine throttle for desired flow rate.

Note: Do not exceed 100 GPM through filter separator when pumping diesel fuel. Gasoline can be pumped at rates of up to 200 GPM.

(11) At end of operation, adjust engine to idle speed (1,000 to 1,200 RPM).

(12) Close all valves.

(13) Remove hose and store in hose trough. Secure latches.

(14) Reinstall dust cap on outlet B.

(15) Stop engine.

(16) Remove bonding and grounding wires.

(17) Store fire extinguishers.

e. Dispense non filtered using vehicle pump and 1 1/4-inch discharge hose (M969).

(1) Be sure all valve are closed.

(2) Bond and ground vehicle.

Note: If two vehicles are being serviced, make sure they are both grounded using separate static reels. The M969 is equipped with two static reels.

(3) Remove fire extinguishers and bring them to point of operation.

(4) Start engine and pump as described in this task. When engine is warm, adjust throttle to idle speed (1,000 to 1,200 RPM).

(5) Put selector valve E in UNLOAD position.

(6) Open valves A, F, H, and K.

(7) Reset meter to zero by pushing in reset knob and turning it clockwise.

(8) Open hose reel inlet valves P or R.

(9) Adjust engine throttle for desired flow rate.

(10) Release lock on hose reel and unreel hose.

(11) Insert nozzle into vehicle fuel tank or container. Squeeze nozzle trigger to start flow.

(12) Release nozzle trigger. Remove nozzle from vehicle fuel tank or container at end of operation.

(13) Idle down engine to 1,000 to 1,200 RPM.

(14) Rewind hose as described in this task. Tighten hose reel lock.

(15) Close all valves.

(16) Stop engine.

CAUTION

When using static ground cable reel, do not let go of static reel cable when rewinding until ball stop is firmly touching reel. (Refer to step 14q).

(17) Remove bonding and grounding wires.

(18) Store fire extinguishers.

f. Dispense filtered using vehicle pump and 1 1/4-inch discharge hose (M969). Product is metered and filtered by vehicle.

(1) Be sure all valves are closed.

(2) Bond and ground vehicle.

(3) Remove fire extinguishers and bring them to point of operation.

(4) Start engine and pump as described in this task. When engine is warm, adjust idle speed to 1,000 to 1,200 RPM.

(5) Put selector valve E in UNLOAD position.

(6) Open valves A, H, M, and either P or R, depending on which hose reel is to be used.

(7) Reset meter to zero by pushing in reset knob and turning it clockwise.

(8) Adjust engine throttle for proper flow rate.

(9) Release lock on hose reel to be used. Unreel hose completely.

(10) Insert nozzle into vehicle being serviced. Squeeze nozzle trigger to start flow.

(11) Release nozzle trigger at end of operation and remove nozzle from vehicle.

(12) Adjust engine to idle speed (1,000 to 1,200 RPM).

(13) Rewind hose as described in this task. Tighten hose reel lock.

(14) Close all valves.

(15) Stop engine.

CAUTION

When using static ground cable reel, do not let go of cable when rewinding until ball stop is firmly touching reel. (Refer to step 15p).

(16) Remove bonding and grounding wires.

(17) Store fire extinguishers.

g. Load and dispense petroleum products from M969A3 5,000 gallon tanker according to appropriate TM.

(1) Bottom loading (non-filtered). Using self-contained overfill prevention system.

(a) Ensure all valves are closed.

(b) Remove fire extinguisher and bring to point of operation.

(c) Ground and bond semitrailer.

(d) Hook up vapor recovery system if available. If vapor recovery system is not available, open vapor recovery outlet slowly on opposite side of loading operation. This will let fumes vent away from operator while loading.

(e) Remove cover from bottom loading connection. Connect bottom loading hose to bottom loading connection.

(f) Open valve D and begin flow.

WARNING

When filling tank by means of bottom loading, a test of pre-check system is mandatory. If this system is not functioning, stop all operations. Determine problem and have it corrected by a qualified technician. Failure of automatic shutoff to function may result in uncontrolled fuel spillage and danger of fire and explosion. (Refer to step 16a7).

(g) After flow has begun, close valve D to pre-check shutoff float. If float is functional, flow should stop after about 20 to 25 seconds.

(h) Open D valve. Flow should resume in about 20 seconds.

(i) When tank is full, flow should stop automatically. Close all valves, disconnect hoses, and replace all covers.

(j) Drain accumulated water.

_1_ Ensure all valves are closed.

_2_ Put a container under manifold drain in piping control cabinet. Open valves A and D. Slowly open valves H and J. Allow water to drain until pure fuel begins to flow.

_3_ Close all valves and vapor recovery system vent cap.

_4_ Remove grounding wires, store, and cover fire extinguisher.

(2) Bottom loading using rack monitored electronic overfill prevention system.

(a) Ensure all valves are closed.

(b) Ground semitrailer tanker.

WARNING

Always stand to side when opening vapor recovery outlet. (Refer to step 16b3).

(c) Hook up vapor recovery system if available. If vapor recovery system is not available, open vapor recovery outlet on opposite side of loading operation. This will let fumes vent away from operator while loading.

(d) Remove cover from bottom loading connection. Connect rack's bottom loading hose to bottom loading connection.

(e) Bring fire extinguisher to point of operation.

(f) Connect overfill prevention cable at terminal to proper overfill socket on tank. Check Civacon monitor for errors and make sure Green permit light is lit.

(g) Open valve D and begin flow.

(h) After flow has begun, close valve D to pre-check shutoff float. If float is functional, flow should stop after about 20 to 25 seconds.

(i) Open valve D. Flow should resume in about 20 seconds.

(j) When tank is filled, close valve D, disconnect hoses and overfill prevention cable, and replace all covers.

(k) Drain accumulated water.

_1_ Ensure all valves are closed.

_2_ Put container under manifold drain in piping control cabinet. Open valves A and D.

_3_ Slowly open valves H and J. Allow water to drain until pure fuel begins to flow.

_4_ Close all valves and vapor recovery system vent cap.

_5_ Remove grounding wires, store, and cover fire extinguishers.

h. Gravity unload M969A3.

(1) Ensure all valves are closed.

(2) Connect grounding wire to storage facility and grounding stud on semitrailer.

(3) Remove 4-inch bulk delivery hose(s) from tanker hose tube.

(4) Remove dust cover from outlet B and connect hose to outlet B and to storage facility.

(5) Open vapor recovery outlet cap on vapor recovery line to allow airflow into tank during unloading process.

(6) Remove fire extinguishers and bring to point of operation.

(7) Open valves A, B, D, G and H to begin flow.

(8) At the end of operation, close all valves. Disconnect hose and put it in hose tube. Secure hose tube latch.

(9) Reinstall dust cover on outlet B. Reinstall cap on vapor recovery outlet.

(10) Drain accumulated water.

(a) Ensure all valves are closed.

(b) Put a container under manifold drain in piping control cabinet. Open valves A and D.

(c) Slowly open valves H and J. Allow water to drain until pure fuel begins to flow.

(d) Close all valves and vapor recovery system vent cap.

(11) Remove grounding wires.

(12) Store and cover fire extinguisher.

i. Self load non-filtered fuel servicing involving use of engine and pump.

(1) Ensure all valves are closed.

(2) Connect static reel to storage facility. Bring fire extinguisher to point of operation.

(3) Start engine. When engine is warm, adjust to idle speed (1,000 to 1,200 RPM).

(4) Remove 4-inch bulk fuel hose from hose tube.

(5) Remove dust cover from outlet B and connect bulk fuel hose to outlet and storage facility.

(6) Open vapor recovery outlet.

(7) Open valves B, E, D, and G.

(8) Adjust engine throttle for desired flow rate.

(9) Shortly after flow has started, close valve D to pre-check the shutoff float. If float is functional, flow should stop after 20 to 25 seconds.

(10) Open valve D. Flow will resume in about 20 seconds.

(11) When tank is full, flow should stop automatically.

(12) At end of operation, idle down engine. Close all valves. Disconnect 4-inch bulk fuel hose(s) and put them in hose tube. Secure hose tube latches.

(13) Stop engine.

(14) Drain accumulated water in same manner as with top loading.

(15) Remove grounding wire, store, and recover fire extinguishers

j. Hose evacuation (M969A3 only). Purging or removing fuel from dispensing system must be done after every operation that uses dispensing hoses. Use following procedures to purge hoses.

(1) Ensure all valves are closed.

(2) Bring fire extinguishers to point of operation.

(3) Start engine and when warm, adjust to idle speed (1,000 to 1,200 RPM).

(4) Open valves A, G, E, and K. Open valve P or R (whichever was used) to evacuate the 1 1/4-inch hose.

(5) Set engine throttle to maximum speed (2,400 RPM) for a few seconds until evacuation is completed (meter turns backward slowly until fuel is evacuated).

(6) Idle down engine. Close all valves. Stop engine.

(7) Store and recover fire extinguishers.

k. Non-filtered dispensing.

(1) Ensure that all valves are closed.

(2) Unreel static reel cable and connect it to a suitable ground and to automotive unit/container. Bring fire extinguishers to point of operation.

(3) Start engine. When engine is warm, adjust throttle to idle speed (1,000 to 1,200 RPM).

(4) Remove cap on vapor recovery outlet.

(5) On M969 and M969A1 tankers put valve E in UNLOAD position.

(6) Open valves A, H, F, and K.

(7) Open hose reel cabinet door. Reset meter to zero by pushing reset knob and turning clockwise.

(8) Unreel dispensing hose that you are using. Open corresponding valve P or R of hose being used. Make sure fuel dispensing nozzle is on end of hose being used.

(9) Adjust engine throttle for desired flow rate.

(10) Insert nozzle into vehicle fuel tank/container. Squeeze nozzle trigger to start flow.

(11) At the end of operation, release nozzle trigger and remove nozzle from vehicle fuel tank/container.

(12) Idle down engine to 1,000 to 1,200 RPM.

(13) Close all valves and vapor recovery system vent cap.

(14) Evacuate hose(s).

(a) Ensure all valves are closed.

(b) Open valves A, G, E, and K. Open valve P or R (whichever was used) to evacuate the 1 1/4-inch hose.

(c) Set engine throttle to maximum speed (2,400 RPM) for a few seconds until evacuation is completed (meter turns backward slowly until fuel is evacuated).

(d) Idle down engine. Close all valves.

(e) Rewind hose(s).

(f) Stop engine. Disconnect and rewind static ground wire.

(g) Store and recover fire extinguishers.

l. Filtered bulk delivery.

(1) Ensure that all valves are closed.

(2) Connect grounding wire to storage facility and semitrailer.

(3) Remove 4-inch bulk fuel hose from hose tube and connect it to the receiving facility.

(4) Remove dust cap from outlet B and connect bulk fuel hose to outlet.

(5) Bring fire extinguishers to point of operation.

(6) Start engine and when warm, adjust idle speed to 1,000 to 1,200 RPM.

(7) Remove cap on vapor recovery outlet to allow air to flow back into tank.

(8) On M969 and M969A1 tankers put valve E in UNLOAD position.

(9) Open valves A, B, H, M and K.

(10) Adjust engine throttle for desired flow rate.

(11) At end of operation, decrease engine to idle speed (1,000 to 1,200 RPM).

(12) Close all valves. Remove all hoses and store in hose tubes.

(13) Close hose tube doors. Reinstall dust cover on outlet B.

(14) Shut off engine. Remove grounding wire. Cover and store fire extinguishers.

m. Filtered fuel dispensing.

(1) Ensure all valves are closed.

(2) Unreel static reel and connect cable first to grounding stud, then to vehicle.

(3) Bring fire extinguishers to point of operation.

(4) Start engine and when warm, adjust engine speed to 1,000 to 1,200 RPM.

(5) Remove cap on vapor recovery outlet to allow air to flow back into the tank.

(6) On M969 and M969A1 tankers put valve E in UNLOAD position.

(7) Open valves A, H, M, and P or R, depending on which hose reel is to be used. If both hose reels are to be used, open both valves P and R. Reset meter to zero by pushing in meter reset knob and turning clockwise.

(8) Adjust engine throttle for desired flow rate.

(9) Unreel hose(s) completely. Make sure fuel dispensing nozzle is on end of hose(s).

(10) Open safety valve on nozzle. Insert nozzle into vehicle being serviced and squeeze nozzle trigger to start flow.

(11) Release nozzle trigger at end of operation and remove nozzle from vehicle.

(12) Decrease engine to idle speed (1,000 to 1,200 RPM).

(13) Close all valves.

(14) Evacuate hose(s).

(a) Ensure all valves are closed.

(b) Open valves A, E, G, and K. Open valve P or R (whichever was used) to evacuate the 1 1/4-inch hose.

(c) Set engine throttle to maximum speed (2,400 RPM) for a few seconds until evacuation is completed (meter turns backward slowly until fuel is evacuated).

(d) Idle down engine. Close all valves.

(15) Rewind hose(s). You can use automatic rewind button and then use handle to rewind last few feet. Do not rewind both hose reels at same time.

(16) Replace vapor recovery outlet cap.

(17) Shut off engine.

(18) Disconnect static reel cables first from vehicle, then from ground. Rewind static reel cable.

(19) Cover and store fire extinguishers.

n. Re-circulation operation with 1 1/4-inch hose reel.

(1) Ensure all valves are closed.

(2) Unreel static reel cable and connect to an approved earth ground.

(3) Bring fire extinguishers to point of operation.

(4) Remove one or both vapor recovery system caps.

(5) Start engine and when warm, adjust engine speed to 1,000 to 1,200 RPM.

(6) Open valves A, H, and M.

(7) Install D-1 recirculation nozzle onto 1-1/4 in hose and recirculation port.

(8) Open valve P or R (depending on which hose reel you use).

(9) Open D-1 nozzle to begin recirculation and adjust engine speed to desired flow rate.

(10) Shut off engine after recirculation is complete.

(11) Remove D-1 recirculation nozzle from port and 1-1/4 in. hose.

(12) Close all valves.

(13) Rewind hoses. Shut off engine.

(14) Disconnect static reel cable from its ground connection and rewind.

(15) Store and cover fire extinguishers.

o. Top loading.

(1) Make sure all valves are closed.

WARNING

Top loading should only be done when bottom loading is not possible. When top loading, there is no automatic shutdown system. Man the loading hose to avoid fuel spillage. Use capacity indicator gauge and dipstick gauge to determine the amount of fuel loaded. Failure to follow this warning may result in a fire or explosion hazard. (Refer to step 28b).

(2) Ground semitrailer tanker.

(a) Loading with rack or stand. Connect bonding and grounding cable of loading rack or stand to grounding stud on top of tank or one of two on lower side of tank before opening fill cover.

Note: Top loading tanker at fixed facilities does not require the Commander's Approval if utilizing the facilities drop tube. If top loading with a hose, the commander's approval is required.

(b) Loading with a hose. The loading hose from storage facility may have a metal fitting on free end and hose may not be bonded internally. Before opening fill cover, connect vehicle bonding and grounding cable to grounding stud on top of tank and to some part of permanent piping of loading facility.

(3) Bring fire extinguisher to point of operation.

(4) Slowly open fill cover and insert hose far enough to keep end of hose in contact with bottom of tank.

(5) Remove dust cover from outlet B and connect fuel hose to outlet B and storage facility.

(6) Slowly begin flow and fill tank no further than to bottom of capacity indicator.

Note: The capacity indicator gauge is located inside tank near the fill cover. The capacity indicator is a 14-inch long threaded stainless steel rod bolted to the manhole collar. Threaded onto the rod is one 2-inch diameter round disc. The disc can be adjusted on rod to indicate desired liquid capacity level.

12. Complete DA Form 3643 and DA Form 2404 or DA Form 5988-E and turn in to supervisor.

13. Maintain communications with higher HQ using MTS.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-Go if any performance measure is failed. If the Soldier scores NO-GO, show the Soldier what was done wrong and how to do it correctly.

Evaluation Preparation: See Task Conditions and Standards.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Performed risk assessment measures according to health/safety task 101-92F-1160, per supervisor's guidance.			
2. Employed Environmental Stewardship Measures according to shared task 101-000-0003.			
3. Read and understood unit or installation standing operating procedures (SOP)/OPORD requirements for requisitioning, storing, handling, and disposing of hazardous materials.			
4. Wore appropriate PPE as required.			
5. Performed before-, during-, and after-operations PMCS on system's components according to appropriate TMs. Annotated on DA Form 2404 or DA Form 5988-E any faults found while performing PMCS.			
6. Followed safety considerations for tank vehicles.			
7. Dispatched vehicle using DD Form 1970 or DA Form 5987-E and DA Form 2404 or DA Form 5988-E.			
8. Gauged petroleum tank vehicles according to task 101-92F-1408.			
9. Operated TPU according to appropriate TM.			
10. Operated HEMTT according to appropriate TM.			
11. Operated M900-series tank vehicles (M967, and M969) according to appropriate TM.			
12. Completed DA Form 3643 and DA Form 2404 or DA Form 5988-E and turn in to supervisor.			
13. Maintained communications with higher HQ using MTS.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	ATP 3-34.5	Environmental Considerations	No	No
	ATP 4-43	Petroleum Supply Operations	No	No
	DA FORM 2404	EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET	Yes	No
	DA FORM 3643	DAILY ISSUES OF PETROLEUM PRODUCTS	Yes	Yes
	DA FORM 5987-E	MOTOR EQUIPMENT DISPATCH (EGA)	Yes	Yes
	DA FORM 5988-E	Equipment Inspection Maintenance Worksheet	Yes	Yes
	DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual	No	No
	DD FORM 1970	MOTOR EQUIPMENT UTILIZATION RECORD (AVAILABLE ON DOD WEB SITE)	Yes	No
	STP 21-1-SMCT	SOLDIER`S MANUAL OF COMMON TASKS WARRIOR SKILLS LEVEL 1	No	No
	TM 10-4930-236-13&P	OPERATORS, UNIT, AND DIRECT SUPPORT MAINTENANCE MANUAL AND REPAIR PARTS AND SPECIAL TOOLS LIST FOR TANK AND PUMP UNIT, LIQUID DISPENSING;FOR TRUCK MOUNTING MIL DESIGN TANK AND PUMP UNIT, ELECTRIC MOTOR	Yes	Yes
	TM 9-2320-429-10	TRUCK, TANK, 8X8 M978 W/WINCH (NSN 2320-01-097-0249)(EIC B2C) M978 W/O WINCH (2320-01-100-7672)(EIC B2H)	No	No
	TM 9-2330-330-13	TECHNICAL MANUAL OPERATOR AND FIELD MAINTENANCE MANUAL FOR SEMITRAILER, TANK, 5000 GALLON, FUEL-DISPENSING, AUTOMOTIVE M969A3 NSN 2330-01-495-0043 (EIC CK5) M969A3P1 NSN 2330-01-538-8513 (EIC C6M)	Yes	Yes
	TM 9-2330-356-14	OPERATORS, UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL FOR SEMITRAILER, TANK: 5000 GALLON, BULK HAUL, SELF-LOAD/ UNLOAD M967 (NSN 2330-01-050-5632) M967A1 (2330-01-155-0046) SEMITRAILER,	Yes	Yes

TADSS : None

Equipment Items (LIN):

LIN	Name
S73372	Semitrailer Tank: 5000 Gallon Fuel Dispensing Automotive WE
V12141	Tank and Pump Unit, Fuel Dispensing, Truck Mounting
X40831	Truck Cargo: 5 Ton 6x6 LWB W/E: M813
S10059	STLR TANK FUEL M967

T87243	Truck Tank: Fuel Servicing 2500 Gallon 8x8 Heavy Expanded Mobility: M978

Materiel Items (NSN) :

Step ID	NSN	LIN	Title	Qty
9.	4320-01-212-2166	P96640	Pumping Assembly Flammable Liquid Bulk Transfer: QM2D	1
9.	4930-01-130-7281	V12141	Tank and Pump Unit, Fuel Dispensing, Truck Mounting: 13217E7130	1
9.	4930-01-274-0021	V12141	Tank and Pump Unit, Fuel Dispensing, Truck Mounting: 126ETP	1

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card. Ensure spills are cleaned up, reported as required by unit policies, procedures, and applicable environmental laws.

Safety: In a training environment, leaders must perform a risk assessment in accordance with current Risk Management Doctrine. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW current CBRN doctrine. Apply risk management programs, Verify that applicable Safety Data Sheets (SDS) are maintained, Check the appropriate personal protective equipment (PPE) is being worn and maintained.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
101-92F-1408	Account for Petroleum Products	101 - Quartermaster (Individual)	Approved
101-92F-1405	Perform Quality Surveillance on Petroleum Products	101 - Quartermaster (Individual)	Approved
101-92F-1302	Provide Petroleum Products using Forward Aerial Refueling Systems	101 - Quartermaster (Individual)	Approved
101-92F-1160	React to Petroleum Products Health / Safety Hazards	101 - Quartermaster (Individual)	Approved
101-92F-1410	Perform Refuel on the Move (ROM) Operations	101 - Quartermaster (Individual)	Approved

Supported Individual Tasks :

Task Number	Title	Proponent	Status
101-92F-1302	Provide Petroleum Products using Forward Aerial Refueling Systems	101 - Quartermaster (Individual)	Approved

Supported Collective Tasks : None

Knowledges :

Knowledge ID	Knowledge Name
101-K-P10012	Knowledge of safety procedures when handling petroleum products
101-K-P10011	Knowledge of unit's SOP and local policy requirements and their location
101-K-P10010	Knowledge of Personal Protective Equipment (PPE) and its usage
101-K-P10008	Knowledge of Material Safety Data Sheets (MSDS)
101-K-P10007	Knowledge of Risk Management procedures and control measures
101-K-P10040	Knowledge of how to re-circulate fuel with petroleum tank vehicles
101-K-P10041	Know how to read petroleum tank vehicle fuel dispensing meters
101-K-P10042	Know how to load and dispense fuel using various types of nozzles (close circuit refueling (CCR)
101-K-P10019	Knowledge of firefighting equipment and its uses
101-K-P10017	Know how to read and interpret appropriate Field Manuals and Technical Manuals
101-K-P10016	Knowledge of the Environmental Stewardship Protection Program measures
101-K-M014	Know how to perform PMCS on equipment used.
101-K-P10013	Knowledge on how to prevent hazardous material spills
101-K-P10028	Know how to examine products for water and sediment
551-K-0070	How to read and interpret MTS screen messages

K22412	Know how to operate petroleum tank vehicles (1,200-, 2,500-, and 5,000-gallons)
101-K-P10037	Know how to operate M900 series tank vehicles (M967, M969, M970) and M49CA2 IAW appropriate TM a
551-K-0075	How to gauge fuel level on a tank semitrailer
K22411	Know how to perform operator Preventive Maintenance Checks and Services on petroleum tank vehicles (1,200-, 2,500, and 5,000-gallons)
101-K-P10039	Knowledge of how to load and dispense fuel with petroleum tankers IAW technical manuals and unit
101-K-P10035	Know how to operate Tank and Pump units IAW TM 10-4930-236-13&P and unit's SOP
101-K-P10036	Know how to operate the HEMTT tanker IAW TM 9-2320-279-10-1 and unit's SOP
101-K-P10004	Know how to prepare petroleum accountability forms (DA Form 3643, 2765-1 and DD Form 1898)
101-K-P10032	Know how to complete DA Form 2404, 5988-E, 5987-E, 3643, DD Form 1970 and 1898
101-K-P10034	Know how to manipulate gauging equipment and how to gauge petroleum tank vehicles

Skills :

Skill ID	Skill Name
101-S-P10018	Ability to read and interpret appropriate Field Manuals and Technical Manuals
101-S-P10017	Ability to apply Environmental Stewardship Protection Program measures
S-551-E-0012	Ability to gauge fuel level on a tank semitrailer
101-S-P10013	Ability to apply safety procedures when handling petroleum products
101-S-P10012	Ability to read, understand, and comply with unit's SOP and local policies
101-S-P10011	Ability to wear Personal Protective Equipment (PPE)
101-S-K10058	Ability to wear Personal Protective Equipment
101-S-P10042	Ability to read petroleum tank vehicle fuel dispensing meters
101-S-P10007	Ability to apply Risk Management procedures and control measures
101-S-P10038	Ability to operate M900 series tank vehicles (M967, M969, M970) and M49CA2 IAW appropriate TM an
101-S-P10037	Ability to operate the HEMTT tanker IAW TM 9-2320-279-10-1 and unit's SOP
101-S-P10041	Ability to re-circulate fuel with petroleum tank vehicles
101-S-P10040	Ability to load and dispense fuel with petroleum tankers IAW technical manuals and unit's SOP
101-S-10009	Ability to determine safety measures from Material Safety Data Sheets (MSDS)
101-S-P10033	Ability to complete DA Form 2404, 5988-E, 5987-E, 3643, DD Form 1970 and 1898
101-S-P10036	Ability to operate Tank and Pump units IAW TM 10-4930-236-13&P and unit's SOP
101-S-10008	Ability to extract information from Material Safety Data Sheets (MSDS)
551-S-0008	Ability to read and interpret MTS screen messages
101-S-P10019	Ability to perform Preventive Maintenance Checks and Services (PMCS)

ICTL Data :

ICTL Title	Personnel Type	MOS Data
92F Petroleum Supply Specialist SL10	Enlisted	MOS: 92F, Skill Level: SL1, Duty Pos: QFQ