STANDARD SAFETY PROCEDURES

STANDARD EQUIPMENT LIST FOR FUELING VEHICLES

OBJECTIVE: To ensure the safety of property and personnel, the following minimum operational/equipment list, for each fueling vehicle, shall be met prior to vehicle operation by all ASIG employees.

FILTER/SEPARATOR OR FULL-FLOW MONITOR

1. All aircraft fueling equipment shall have a Filter/Separator or a Full-Flow Fuel Monitor.

Note:

Full Flow Fuel Monitors meeting the requirements of API/ IP 1583 “Specifications and Qualification Procedures – Aviation Fuel Filter Monitors with Absorbent Type Elements”, latest edition, may be used in lieu of Filter/separators with water defense systems.

2. Filter/separators shall meet the specifications of API 1581, Group II, Class C, and latest edition.

3. Filter/separators shall be equipped with an automatic water defense system, which will cause fueling to stop when activated by excessive water. Float or electronic probe systems shall include provisions for an operational test.

4. Full-Flow Fuel Monitors, when used in systems with static fuel pressure in excess of 180 psig, must be equipped with a differential pressure limiting device, which will prevent excessive inlet pressure from rupturing elements in the event of complete blockage.

All hydrant trucks and carts that have had the coalescers replaced with 6 inch water absorbing elements must be equipped with a differential pressure limiting device, which will prevent excessive inlet pressure from rupturing elements in the event of complete blockage.

Failure to comply with the above, shall constitute a violation of company policy.

Printed copies are for reference only.
All filtration vessels shall include:

a) Air elimination provisions.
b) Direct reading pressure differential gauges. Piston type pressure differential gauges shall have a scale that can give a reading up to 30 psi differential.
c) Manual sump drains – Valves with handles spring loaded to the closed position are recommended.
d) Upstream and downstream membrane sampling connections, including probes and dust covers.
e) Pressure relief valves or other devices, which will prevent over pressurization due to thermal expansion of fuel.
f) A placard or stencil indicating the completion date (only month and year are required) of the current filter change.
g) All vessel interiors shall be protected with a suitable organic coating (i.e. approved epoxy coating).

PRESSURE CONTROLS

1. All aircraft fueling equipment shall have separate and independent primary and secondary fuel pressure control devices.

   a) Primary fuel pressure control is intended to protect the aircraft under conditions of constant flow and also from pressure surge caused during aircraft valve closure.

   b) Secondary fuel pressure control is intended to protect the aircraft in the event of primary fuel control failure.

CAUTION: Fueling pressure control systems shall never allow the actual fuel pressure, measured at the fuel nozzle, to exceed the pressure indicated by the fueling panel gauge.
Fuel pressure control systems may utilize the following:

i) Pressure controlling hydrant pit valves.
ii) Pressure controlling hydrant pit couplers.
iii) In-line pressure control valves.
iv) Hose End Pressure Control Valves (HEPCV).
v) Pressure switches, which will cause rapid shutdown of fuel, flow in the event of high fueling pressure being sensed.

d) Primary fuel pressure control devices shall limit fuel pressure, at the fuel nozzle, to a maximum of 40 psig or less under conditions of constant flow.

e) Secondary fuel pressure control devices shall limit fuel pressure, at the fuel nozzle, to a maximum of 45 psig or less under conditions of constant flow.

The primary and secondary pressure regulator controls are normally set by GSE Maintenance or Quality Control Technicians during routine maintenance or quality control inspections. These devices are secured by anti-tampering devices or other means and shall only be adjusted by Maintenance personnel or other Authorized employees.

DEADMEN CONTROL SYSTEM

All aircraft fueling equipment shall have a hand held deadman control system, which must completely stop fuel flow within 5 percent of the fuel flow rate at the time the deadman is released.

EXAMPLES: If actual fuel flow rate at the time of deadman control release is 500 gpm, total overrun must not exceed 25 gallons. If actual fuel flow rate at the time of deadman control release is 100 gpm, total overrun must not exceed 5 gallons.
EMERGENCY FUEL SHUTOFF SYSTEM

2. Hydrant trucks, hydrant carts and fueling cabinets shall be equipped with an emergency fuel shutoff system in addition to the deadman control.
   a) Each unit shall have an emergency fuel shutoff control accessible from the ground.
   b) Units equipped with a lift or platform shall have an emergency fuel shutoff control accessible from the lift or platform, in addition to the deadman control.

3. The system should stop the fuel flow by automatically closing the hydrant pit valve upon activation.

   Tanker trucks shall be equipped with an emergency fuel shutoff controls accessible from each side of the truck.
   a) Units equipped with a lift or platform, shall have an emergency fuel shutoff control accessible from the lift or platform, in addition to the deadman control.
   b) The emergency fuel shutoff system should also close the tank outlet (internal) valve(s).

4. Each emergency fuel shutoff control, when activated, shall completely stop fuel flow within a maximum of 5 percent overrun.

   EXAMPLES: If actual fuel flow rate at the time of activation of an emergency fuel shutoff control is 500 gpm, total overrun must not exceed 25 gallons. If actual fuel flow rate at the time of activation of an emergency fuel shutoff control is 100 gpm, total overrun must not exceed 5 gallons.
FIRE EXTINGUISHERS

1. Hydrant trucks, hydrant carts and fueling cabinets shall be equipped with a minimum of one listed fire extinguisher having a rating of at least 20 BC, securely mounted and readily accessible.

2. Tanker trucks shall be equipped with a minimum of two listed fire extinguishers, each having a rating of at least 20 BC, securely mounted on opposite sides of the truck and readily accessible.

3. Extinguishers shall be kept clear of ice, snow, etc. Extinguishers located in enclosed compartments shall be readily accessible and their location shall be clearly marked in letters at least 2 inches high.

4. Safety pin(s), if applicable, and safety seals shall be intact.

5. Current inspection (monthly & annual), testing and recharging records must be attached.

SAFETY INTERLOCK SYSTEM

The interlock system is a safety system that is designed to prevent the accidental movement of a fueling vehicle while conducting fuel transfer. The brake interlock system may be engaged by the removal of a fuel nozzle from its cradle, the PTO on a tanker truck is engaged, raised lift deck/platform rails, or a bottom load port is open. The interlock system may stop the engine on motorized equipment, but should also apply the vehicle brakes.
Interlock Over Ride

This is a device that will over ride the interlock safety system. This device is designed to allow the movement of the vehicle should an Emergency situation arise. The over ride will also provide a means to allow the movement of the vehicle should a malfunction of the Brake Inter Lock system occur. This control device is normally guarded and always has a sheer wire or plastic break-away associated with it to prevent accidental activation. Placards shall identify normal and override control positions. A light, indicating override activation should be prominently located in the vehicle cab.

The Brake override is in place to facilitate the emergency egress of the fueling vehicle in *Emergency situation only* such as a fire. Only then may the operator activate the brake over ride system.

The Brake override system is also in place should a mechanical issue arise with the inter lock system. This is to be activated by *Maintenance personnel or Management only*. The vehicle must then be driven to GSE immediately for inspection and repair.

**AIRCRAFT FUELING HOSES**

6. Hoses and couplings shall meet one or more of the following standards:
   a) API 1529, Grade 2, Type C, latest edition.
   b) API 1529, Grade 2, Type F, latest edition, may be used for “Jac Risor” hoses.

7. Nozzle swivels shall have the collar secured by lock rings or safety wired collar retention screws.

**MANUAL ISOLATION VALVES**

All fuel hoses, hydrant and dispensing, shall have a manual isolation valve installed upstream of the hose.

**DUST COVERS**

Dust covers or other protective devices shall be used to prevent debris from accumulating on mating surfaces of hydrant couplers and aircraft fueling nozzles.
NOZZLE / NOZZLES STRAINERS

1. Aircraft fueling nozzles shall be equipped with 100 mesh screens.
2. All Jet fuel overwing fueling nozzles shall be equipped with a “Duckbill” or “J” anti-misfueling style spout only.
3. All AvGas overwing fueling nozzles shall be equipped with a round style spout only.
4. All overwing fueling nozzles shall be equipped with a means for bonding the nozzle to an aircraft.
8. Nozzles for underwing (singlepoint) fueling shall be designed to be securely attached to the aircraft adapter before the nozzle can be opened. It shall not be possible to disengage the nozzle from the aircraft adapter until the nozzle is fully closed.

PRESSURE GAUGES

1. Pressure gauges are required for monitoring aircraft fueling pressures on underwing (singlepoint) fueling systems.
2. Gauges shall be located where they will be visible to the fueler during aircraft fueling operations.
9. Gauges should have a minimum face diameter of 4 inches and accuracy of ± 2% of full scale.

FUEL QUANTITY MEASUREMENT METER

1. Meters shall be capable of maintaining accuracy of 1/10 of one percent (0.1%) and repeatability of 1/20 of one percent (0.05%) at flow rates ranging from 100 gpm to the maximum rated flow of the fueling equipment.
2. Meters shall have N.I.S.T. calibration capabilities. 3. Calibrator/adjuster shall be sealed.
ELECTROSTATIC GROUNDING/BONDING SYSTEM

1. All fueling equipment shall be equipped with an electrostatic grounding/bonding system.
2. Electrostatic grounding/bonding system shall have 10 ohms or less total resistance.

SIGNS, PLACARDS AND LABELS

The following signs, placards or labels shall be placed on the equipment as indicated:

1. Product identification on each side, rear and in cab.
2. “No Defueling” decal posted in cab and near pump controls on trucks equipped with monitors.
3. “Have you disconnected” placards in cab and adjacent to meters.
4. “Make slow wide turns” decals in tanker truck cabs.
5. “Flammable” on each side and rear.
6. “No Smoking” on each side, rear and in cab.
7. “EMERGENCY FUEL SHUTOFF” placard adjacent to each emergency fuel shutoff control.
8. Mode of operation placards adjacent to each emergency shutoff control (i.e. PUSH, PULL, and TURN).
9. Fire extinguishers located in enclosed compartments shall have their location clearly marked, such as, “Fire Extinguisher Inside”.

10. Aircraft fueling pressure and filter differential pressure gauges shall be identified.

8. Filter and tank drains shall be identified.
9. A placard indicating the date (Month and Year) during which the filter elements were last changed shall be posted on the filter housing.

10. A Conversion Data Tag shall be posted on all filter vessels, noting the current number of and model of elements installed.

11. A label on the filter differential pressure gauge noting the last filter element change (if equipped).

12. A placard posted on the filter/separator vessel indicating the last test date of the water defense system.
13. A sign or placard indicating proper procedure for engaging the pumping system shall be prominently displayed adjacent to pump controls.

14. Post “Danger- Confined Space Entry” placards on or near all tank entrance manways.

15. DOT Hazmat placards or signs on all four (4) sides of a tanker truck (i.e. 1863 or 1203).

11. A sign posted on a lift deck assembly noting the maximum lifting capacity, in pounds, of the unit.

Note:
Additional signs and placards may be required by your local governing authorities. Refer to the ASIG Fuel QC manual, for letter size specification

ADDITIONAL REQUIREMENTS FOR TANKER TRUCKS

1. Cargo tanks shall be constructed of stainless steel, aluminum or internally light color epoxy coated carbon steel.

2. Dome covers shall be provided with:
   a) A forward mounted hinge and latches that will automatically cause the lid to close with forward motion of the vehicle.
   b) Water-tight, fuel resistant seals and gaskets.

3. Each tank compartment shall be equipped with a water drain located at the lowest point. Valves with handles spring loaded to the closed position are recommended.

4. Tank outlets should be equipped with shutoff valves located inside the tank shell.

5. Tanker trucks with bottom loading capability shall be equipped with a high-level shutoff system, including provisions for ensuring the satisfactory operation of the system (Known as a “Pre-Check” system).

6. Recirculation connections are recommended.
MISCELLANEOUS ITEMS

All mobile fueling tanker trucks and hydrant trucks shall be equipped with:

1. A set of wheel chocks.
2. A safety cone (and pit flag or cone for hydrants).
3. Panel flags
4. A back up and list deck ascent/descent beeper/alarm system.
5. A spill kit, which includes absorbent pads, portable dikes and/or bags of cob/speedy-dry. Must be able to contain and clean up to a 50 gallon fuel spill.
6. Protective driveshaft shroud.

7. ADDITIONAL FUELING EQUIPMENT

12. Portable fuel stands can be used in conjunction with fuel trucks, hydrant carts and hydrant trucks, when appropriate.