

APPENDIX I

GLOSSARY

ABRASION— Wearing away of a surface by friction, either by motion while in contact with another part, or by mechanical cleaning or resurfacing with abrasive cloth or compound.

ADDITIVES— Chemicals added in minor proportions to fuels or lubricants to create, enhance, or inhibit selected properties; for example, fuel system icing inhibitor (FSII).

ADHESIVE— Sticky or tenacious; glue.

AMBIENT— Encompassing on all sides, as temperature.

AMMETER— Electrical instrument for measuring the flow of current.

ANODE— The positively charged electrode of an electrolytic cell.

ANSI— Abbreviation for American National Standards Institute.

ANTIFREEZE— A substance having a low freezing point, usually used to inhibit freezing of cooling system fluids in engines.

API— Abbreviation for American Petroleum Institute.

API GRAVITY— Petroleum industry scale for measuring the density of oils, adopted by the American Petroleum Institute.

ARC— A luminous, electrical discharge across a gap in a circuit or two electrodes, as in arc welding.

ASTM— Abbreviation for the American Society for Testing Materials.

AUTOIGNITION TEMPERATURE— The temperature at which a substance will ignite without further addition of energy (heat, spark, or flame) from an outside source.

AVGAS— Common term for aviation gasoline.

BALLAST— Water, usually salt water, earned in cargo tanks when free of petroleum products to reduce buoyancy and improve stability and sea-keeping qualities. Ballast may be clean or dirty, depending on whether it is contaminated with petroleum products.

BARREL— Measure of volume as used in the petroleum industry, equivalent to 42 U.S. gallons.

BLACK OIL— general term applied to crude oil and the heavier and the darker colored petroleum products such as residual fuel oils.

BONDING— See GROUND.

BOOM— Flexible floating barrier consisting of linked segments designed to contain free oil on the surface of a body of water.

BOOSTER PUMP— Pump installed along the run of a long pipeline to increase (boost) the pressure.

BOTTOM LOADING— Method of filling tank trucks or tank cars through a leakproof connection at the bottom.

BREAKAWAY COUPLING— Coupling designed to part easily with a moderate pull.

BREATHING— The movement of vapors in and out of the vent lines of storage tanks because of natural heating or cooling.

BS&W— Common abbreviation for bottom sediment and water; a test made on some heavier petroleum products to show the approximate amount of sediment and water.

Btu— Abbreviation for British thermal unit, a unit of heat commonly used in heat engineering. It is the amount of heat necessary to raise the temperature of 1 pound of water one degree Fahrenheit.

BULK STORAGE TANK— A fixed tank used to receive, store, and issue fuel for further transportation, storage, handling, or treatment before it reaches art operating tank.

CALIBRATION— Adjustment of the scale of a graduated device (such as a pressure gage) to meet an established standard.

CO₂—Chemical Chemical notation for carbon dioxide, a heavy, colorless gas that will not support combustion. It is used for fighting small fires and in protection systems in MOGAS and JP-5 spaces aboard ship.

CATHODE— The negatively charged electrode of an electrolytic cell.

CATHODIC PROTECTION— A method for preventing the corrosion of metals by electrolysis.

CENTRIFUGAL— Moving or tending to move away from the center axis of a rotating or turning object.

CENTRIFUGAL PUMP— A rotating device that moves liquids and develops liquid pressure by imparting centrifugal force.

CENTRIFUGAL PURIFIER— A rotating device that cleans fuel by using centrifugal force.

CLEAR AND BRIGHT— Term for uncontaminated fuel; indicating a complete absence of haze, free water, or particulate matter that would be visible to the naked eye.

CLEAVAGE— The point of interface between two different liquids, such as oil and water.

CLOUD POINT— The temperature at which a fuel develops a cloudy or hazy appearance due to the precipitation of wax or moisture.

COALESCER— A tube (unit or element) that unites water droplets when fuel passes through it.

COFFERDAM— The space surrounding the MOGAS storage tanks aboard ship; a watertight box.

COMBUSTIBLE LIQUID— A liquid having a flash-point at or above 100°F.

COMMINGLING— Tie mixture of two or more petroleum products resulting from improper handling, particularly in pipeline or tanker operations.

CONSOLIDATE— To merge into one. To consolidate a nest of tanks means to pump the remaining fuel from several partially empty tanks into a single tank.

CONTAMINATION— The addition of some material not normally present in a petroleum product, such as dirt, rust, water, or another petroleum product.

CONTINUITY— To have a complete, uninterrupted electrical circuit.

CORROSION— The process of dissolving, especially of metals, due to exposure to electrolytes.

CRUDE OIL— Petroleum in its natural state.

CV— Aircraft Carrier.

CVN— Aircraft Carrier (nuclear-powered).

DAY TANK— Fuel storage tank used for daily issue of fuel.

DEADMAN CONTROL— A control device requiring manual operation, such as a switch or valve, designed to stop flow if the operator releases it.

DIAPHRAGM— Separating device of rubber composition used to regulate all hydraulically operated valves.

DIFFUSE— To spread widely, scatter,

DIFFUSER— A mechanical device used to diffuse.

DIKE— An embankment or wall, usually of earth or concrete, surrounding a storage tank to impound the tank's contents in case of a leak or spill.

DISSOLVED WATER— Water absorbed into the fuel that is not visible. The amount of dissolved water a fuel will hold depends upon the fuel's temperature.

DISTILLATE— Common term for several fuels obtained directly from distillation of crude petroleum; typically includes kerosene, JP-5, light-diesel, and other light-burner fuels.

DOUBLE-WALLED PIPING— Piping with two independent chambers, one surrounding the other (an inner and an outer). Typically used in shipboard gasoline systems. The inside chamber carries the fuel, the outside chamber holds a protective gas (such as CO₂ or N₂).

DOWNGRADE— To designate a fuel for a lesser purpose than originally specified, often because of contamination.

EARTHING— *See* **GROUND**.

EDUCTOR— A jet-type pump with no moving parts. An eductor moves liquid by entraining the pumped liquid in a rapidly flowing stream of water (venturi effect). Normally used to dewater bilges and tanks.

EMULSION— The suspension of fine droplets of one liquid in a second liquid with which the first will not mix.

ENTRAINED WATER— Free-water contaminant in a fuel in the form of very small droplets, fog, or mist. It may or may not be visible.

EVAPORATE— To change into vapor.

EVAPORATION LOSS— Loss of liquid petroleum into the atmosphere caused by evaporation.

FILTER— A porous object through which a liquid is passed to remove unwanted particles of solid matter.

- FILTER SEPARATOR**— A filter or combination of filters designed to remove particulate matter and to coalesce entrained water.
- FLAMMABLE LIQUID**— A liquid having a flash-point below 100°F.
- FLASHPOINT**— The lowest temperature at which a fuel will vaporize enough to form a combustible air-vapor mixture.
- FLOATING-ROOF TANK**— Storage tank with a roof that floats on the liquid surface and rises and falls with the liquid level.
- FLUSHING**— Pumping fuel through a system to clean the system or component.
- FREE-WATER**— Undissolved water contaminant in fuel. The water may be in the form of a cloud, emulsion, entrained droplets, or in gross amounts.
- FREEZE POINT**— The temperature at which wax crystals form in fuels.
- FUEL-QUALITY MONITOR**— Special type of filter designed to stop the flow of fuel if water or sediment contamination becomes too large.
- GAS-FREE**— Clear of any gaseous vapors.
- GASOLINE**— A blend of light, volatile, liquid hydrocarbons used mainly as fuel for spark-ignition, internal combustion engines.
- GPM**— Abbreviation for gallons per minute.
- GROUND**— To connect a conductor (usually a heavy gage wire) between the earth and an object to allow for the dissipation of the static charge in that object. On shore activities this is also called **BONDING** or **EARTHING**.
- HEADER**— A horizontal run of piping used to group the components of a system.
- HOT REFUELING**— Aircraft refueling with one or more of the aircraft's engines operating.
- HYDRANT SYSTEM**— Distribution and dispensing system for aviation fuels, consisting of a series of fixed outlets or hydrants connected by piping.
- HYDROMETER**— An instrument used for determining the specific gravity of a liquid.
- HYDROSTATIC TEST**— A test for leaks in a piping system (including hoses) using liquid under pressure as the test medium.
- INHIBITORS**— Chemical compounds that reduce the rates of chemical reactions.
- INNAGE**— Depth of liquid in a tank, measured from the liquid's surface to the bottom of the tank.
- JP FUEL** — Fuel used in turbine engines.
- LHA**— Amphibious Assault Ship (general purpose).
- LPD**— Amphibious Transport Dock.
- LPH**— Amphibious Assault Ship.
- LOX**— Abbreviation for liquid oxygen.
- LUBE OIL**— Common term for lubricating oil; used to reduce friction and cool machinery.
- MAXIMUM**— The largest allowable quantity.
- MICRON**— A unit of length equal to one-millionth of a meter.
- MILITARY SPECIFICATIONS (MILSPECS)**— Guides for determining the quality requirements for materials and equipment used by the military services.
- MINIMUM**— The smallest allowable quantity.
- MOGAS**— Common term for motor gasoline.
- N₂**—Chemical notation for nitrogen.
- NAVEDTRA**— Naval Education and Training.
- NONSPARKING TOOLS**— Tools made of a metal alloy that when struck against other objects, will not cause sparks of sufficient temperature to ignite fuel vapors.
- NON-VORTEX**— An attempt by mechanical means to stop the swirling motion of a liquid.
- OHM**— Measured unit of electrical resistance equal to that of a circuit in which a potential difference of 1 volt between two points will produce a flow current of 1 ampere.
- ORIFICE**— A device used for narrowing the inside diameter of a pipe and restricting the flow for metering purposes.
- OUTAGE**— *See* ULLAGE.
- PANTOGRAPH**— A series of pipes, joined by flexible joints, used to connect fueling equipment to aircraft.
- PARTICULATE MATTER**— refers to the solid particles of fuel contaminants, such as dirt, grit, or rust.
- PICKLING**— Name given to the procedure of filling a new hose with fuel and letting it stand for several days when preparing the hose for use.

POL— A broad term that includes all petroleum products used by the Armed Forces. It originated as an abbreviation for *petrol, oil, and lubricants*.

PSI— Abbreviation for pounds per square inch, the unit of pressure measurement.

QUADRANT— Commonly refers to one quarter of a fuels system on an aircraft carrier. Quadrants are divided into forward port, forward starboard, aft port, and aft starboard. Each quadrant is designed to operate independently of the other, if required.

RECLAMATION— Procedure required to restore or change the quality of contaminated fuel to meet desired specifications.

REFUELER— Tank vehicle used to resupply aircraft with fuel. (DEFUELER is a tank vehicle used to remove fuel from aircraft).

RELAXATION TANK— Small tank in a piping system designed to remove static electricity from the liquid stream.

RHEOSTAT— A variable resistor used to regulate the amount of electrical current.

RISER— A vertical section of piping usually connected to the discharge side of a pump.

ROTARY PUMP— A positive displacement pump that operates in a rotary fashion, such as vane, gear, or screw pump.

RPM— Abbreviation for rounds per minute.

SIGHT GLASS GAGE— A glass gage installed in piping to visually check the liquid flow.

SPECIFIC GRAVITY— The ratio of the weight of a given volume of material at 60°F to the weight of an equal volume of distilled water at the same temperature.

STATIC ELECTRICITY— Term applied to the accumulation of electrical charges on materials and objects and the later recombination (relaxation or discharge) of these charges. Static charges are created when two materials (or objects of different composition) are rubbed or passed across each other.

STRIPPING— The act of removing settled liquids and solids from selected fuel tanks.

SUMP— A low area or depression that collects drainage.

SURGE— Sudden increase in fluid pressure caused by the stopping of a moving stream, as by quickly closing a valve; hydraulic shock.

SURGE SUPPRESSOR— Device to control or reduce surges.

THERMOMETER— Device used for measuring temperature.

THROTTLE— To increase or decrease the flow rate or pressure of a liquid through a pipe with a valve (normally a globe valve).

ULLAGE— The distance from a reference point at the top of tank to the liquid content. Used to determine the volume of the contents.

VENTURI— A tapered portion of a piping system that reduces pressure and increases flow. Used in some MOGAS systems.

VORTEX— A swirling mass of liquid forming a vacuum at its center.

WICK— A solid, such as clothing, that has absorbed fuel. JP-5 can easily ignite in this manner even at a temperature well below its flashpoint.

APPENDIX II

REFERENCES USED TO DEVELOP THE TRAMAN

NOTE: Although the following references were current when this TRAMAN was published, their continued currency cannot be assured. Therefore, be sure you study the latest revision.

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