



AEROSPACE RECOMMENDED PRACTICE

ARP1482**REV. B**

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Reaffirmed 2013-08

Superseding ARP1482A

Recommendations for Fuel and Oil System Schematics

RATIONALE

ARP1482B has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

This document recommends and sets forth a set of symbols representing the components making up aircraft fuel and oil systems. The intended result is uniformity in system schematics so that they may be easily understood throughout the aerospace industry.

1.1 Purpose:

This document defines a standard set of symbols for use in functional schematics of aircraft fuel and oil systems and components.

2. REFERENCES:

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AS1290	Graphic Symbols for Aircraft Hydraulic and Pneumatic Systems
AIR1615	Thesaurus for Fuel System Components
AIR1660	Fuel Level Control Valves/Systems

3. SCHEMATIC:

For purposes of this document, a schematic is defined as a diagram descriptive of the functions and flow paths of a system or component. Such a schematic is intended only to provide a general understanding of the system or component depicted in an easily understood format. As such, portrayal of the physical positions and aspects of the components is not required and may, in fact, be undesirable.

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4. COMPONENTS:

The following figures set forth the basic component symbols, as well as modifiers that specify drives and accessories.

5. SPECIAL COMPONENTS:

It is recognized that most systems will require the occasional use of unique components not described in this document. Where possible, these should be represented by combinations of the symbols herein. The resulting combination for a given component should be surrounded by a dashed line, if necessary to make it clear that it is a single component. Several examples of composite symbols are presented in the figures.

6. PLUMBING:

Tubing and hoses should be represented by solid double lines. Each line should be identified as to function by use of the appropriate cross-hatch code described in the figures. It is recommended that line size (outside diameter for tubing, inside diameter for hose) be specified in the format $\varnothing$ X.XX, suffixed with the appropriate material/type letter code listed in this document.

7. LEGENDS:

It is recommended that each system schematic contain a legend identifying the nomenclature of all symbols used. Numerical codes should be used to relate the symbols in the legend to the appropriate locations on the schematic.

8. COMPONENT DRAWINGS:

It is recommended that each component drawing include a schematic of the component represented thereon.

9. OTHER SYMBOLS AND SYSTEMS:

Refer to SAE AS1290 for symbols relevant to actuators, control valves, and other components associated with hydraulic and pneumatic systems.

10. NOMENCLATURE:

Refer to SAE AIR1660 and AIR1615 for definitions of the nomenclature used herein.

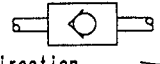
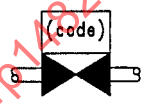
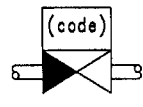
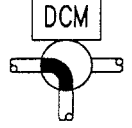
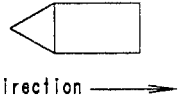
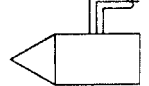
<u>CODES FOR ELECTRICAL DRIVES:</u> AC MOTOR ACM DC MOTOR DCM STEPPER MOTOR SM TORQUE MOTOR TM AC SOLENOID ACS DC SOLENOID DCS	<u>CHECK VALVE:</u> 
<u>CODES FOR PNEUMATIC DRIVES:</u> AIR TURBINE MOTOR ATM AIR PRESSURE MOTOR APM	<u>SHUTOFF VALVES:</u> MANUAL  ACTUATED, NORMALLY-OPEN  ACTUATED, NORMALLY-CLOSED 
<u>CODES FOR HYDRAULIC DRIVES:</u> FUEL TURBINE MOTOR FTM HYDRAULIC MOTOR HM FUEL PRESSURE MOTOR FPM	<u>ROTARY VALVES:</u> BASIC SYMBOL  EXAMPLE- 3 WAY, 2 POSITION, DC MOTOR ACTUATED 
<u>CODES/SYMBOLS FOR MECHANICAL DRIVES:</u> ENGINE DRIVEN ED FLOAT ACTUATED  MANUAL  GRAVITY ACTUATED 	<u>LEVEL CONTROL SHUTOFF VALVES:</u> BASIC SYMBOLS INTEGRAL  REMOTE PILOT-OPERATED 
<u>MISCELLANEOUS CODES:</u> NORMALLY-OPEN NO NORMALLY-CLOSED NC	

FIGURE 1

<u>LEVEL CONTROL SHUTOFF VALVES:</u> (continued)		<u>LEVEL CONTROL PILOT VALVES:</u>	
MOUNTING		BASIC SYMBOLS	
TANK MOUNTED (REFUEL)		SINGLE	
LINE MOUNTED (REFUEL OR DEFUEL)		DUAL	
REDUNDANCY		VARIATIONS	
DUAL, SERIES (REFUEL, TANK MOUNTED)		SINGLE, DC SOLENOID PRECHECK	
DUAL, PARALLEL, (REFUEL, TANK MOUNTED)		DUAL, AC SOLENOID PRECHECK	
VARIATIONS		SINGLE, FLOTA- TION PRECHECK	
DEFUEL, INTEGRAL, TANK MOUNTED		<u>RELIEF VALVE:</u> 	
REFUEL/DEFUEL, INTEGRAL, TANK MOUNTED		flow direction →	
DUAL, REFUEL, TANK MOUNTED, REMOTE PILOT, DC SOLENOID PRECHECK		<u>VENT VALVES:</u>	
		BASIC SYMBOL	
		FLOAT OPERATED	

FIGURE 1 (Continued)

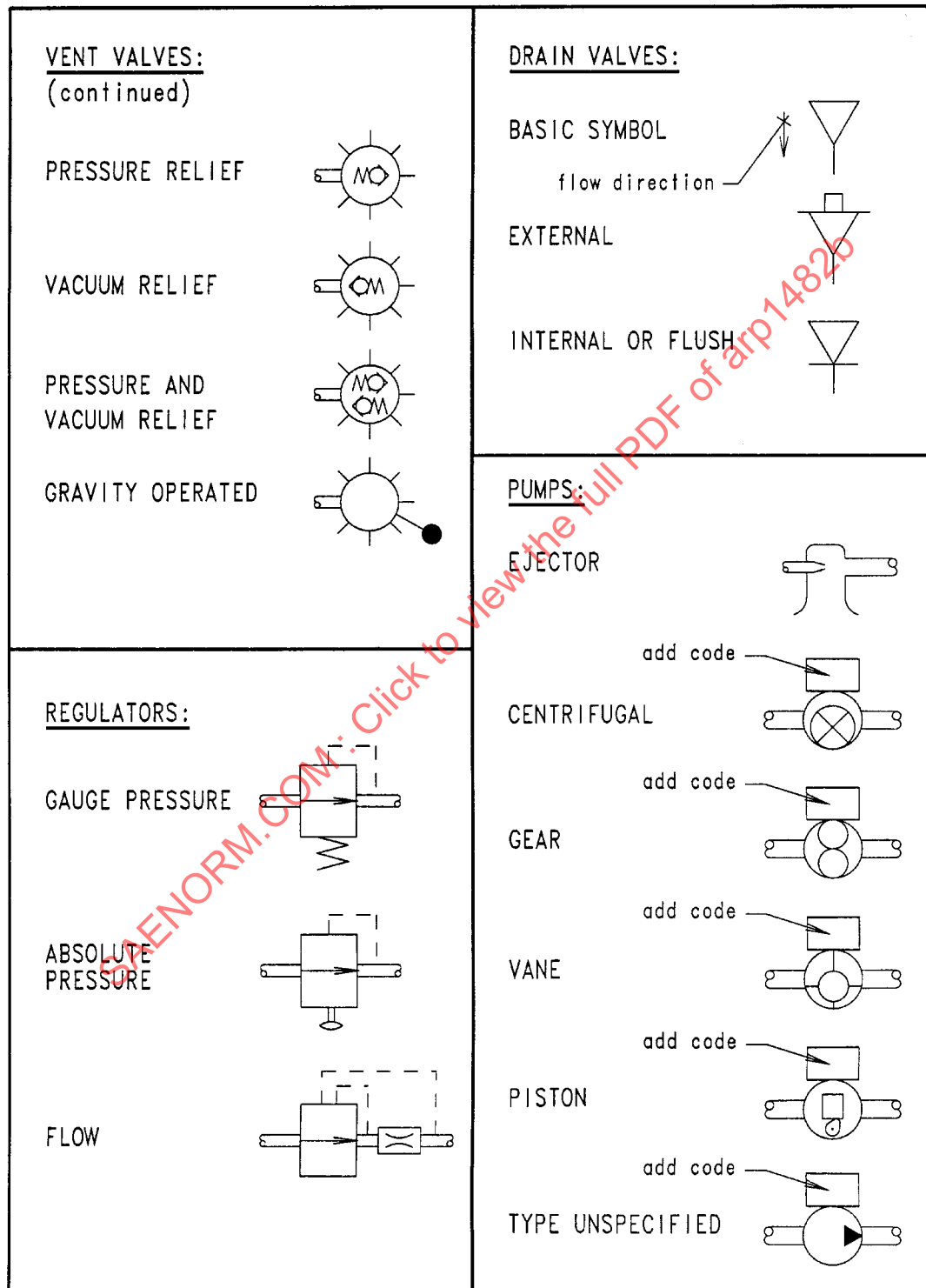


FIGURE 1 (Continued)

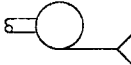
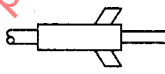
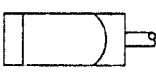
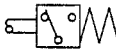
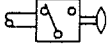
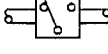
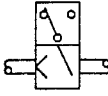
<u>GRAVITY REFUELING CONNECTIONS:</u>	<u>AERIAL REFUELING CONNECTIONS:</u>
CAP- BASIC SYMBOL 	REFUELING HOSE AND DROGUE (mates with probe) 
FLUSH CAP 	RECEIVER PROBE (mates with drogue) 
EXTENDED CAP 	REFUELING BOOM (mates with receptacle) 
SCUPPER 	RECEIVER RECEPTACLE (mates with boom) 
<u>PRESSURE REFUELING CONNECTIONS:</u>	<u>INDICATOR SWITCHES:</u>
SINGLE POINT CAP AND ADAPTER (BASIC SYMBOL) 	GAUGE PRESSURE 
FLUSH CAP AND ADAPTER 	ABSOLUTE PRESSURE 
EXTENDED CAP AND ADAPTER 	DIFFERENTIAL PRESSURE 
CLOSED CIRCUIT RECEPTACLE (RETURN TO REFUEL STATION) 	FLOAT 
	TEMPERATURE 
	FLOW RATE 

FIGURE 1 (Continued)

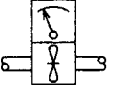
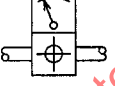
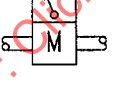
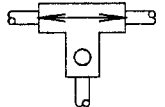
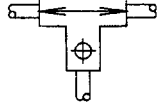
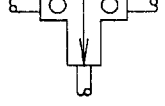
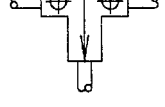
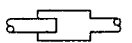
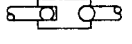
<u>TRANSDUCERS:</u> GAUGE PRESSURE  ABSOLUTE PRESSURE  DIFFERENTIAL PRESSURE  FLOAT  TEMPERATURE  FLOW RATE (VOLUMETRIC)  FLOW RATE (POSITIVE DISPLACEMENT)  MASS FLOW RATE (ANGULAR MOMENTUM RECOVERY TYPE) 	<u>QUANTITY MEASURING DEVICES:</u> (continued) DENSITOMETER  DRIP STICK  DIP STICK 
<u>QUANTITY MEASURING DEVICES:</u> ELECTRONIC (BASIC SYMBOL)  EXTERNAL COMPENSATION  SELF COMPENSATION 	<u>FLOWRATE PROPORTIONERS:</u> VOLUMETRIC DIVIDER  POSITIVE DISPLACEMENT DIVIDER  VOLUMETRIC EQUALIZER  POSITIVE DISPLACEMENT EQUALIZER  <u>COUPLINGS:</u> QUICK DISCONNECT-NON-SELF-SEALING  QUICK DISCONNECT-SELF-SEALING 

FIGURE 1 (Continued)

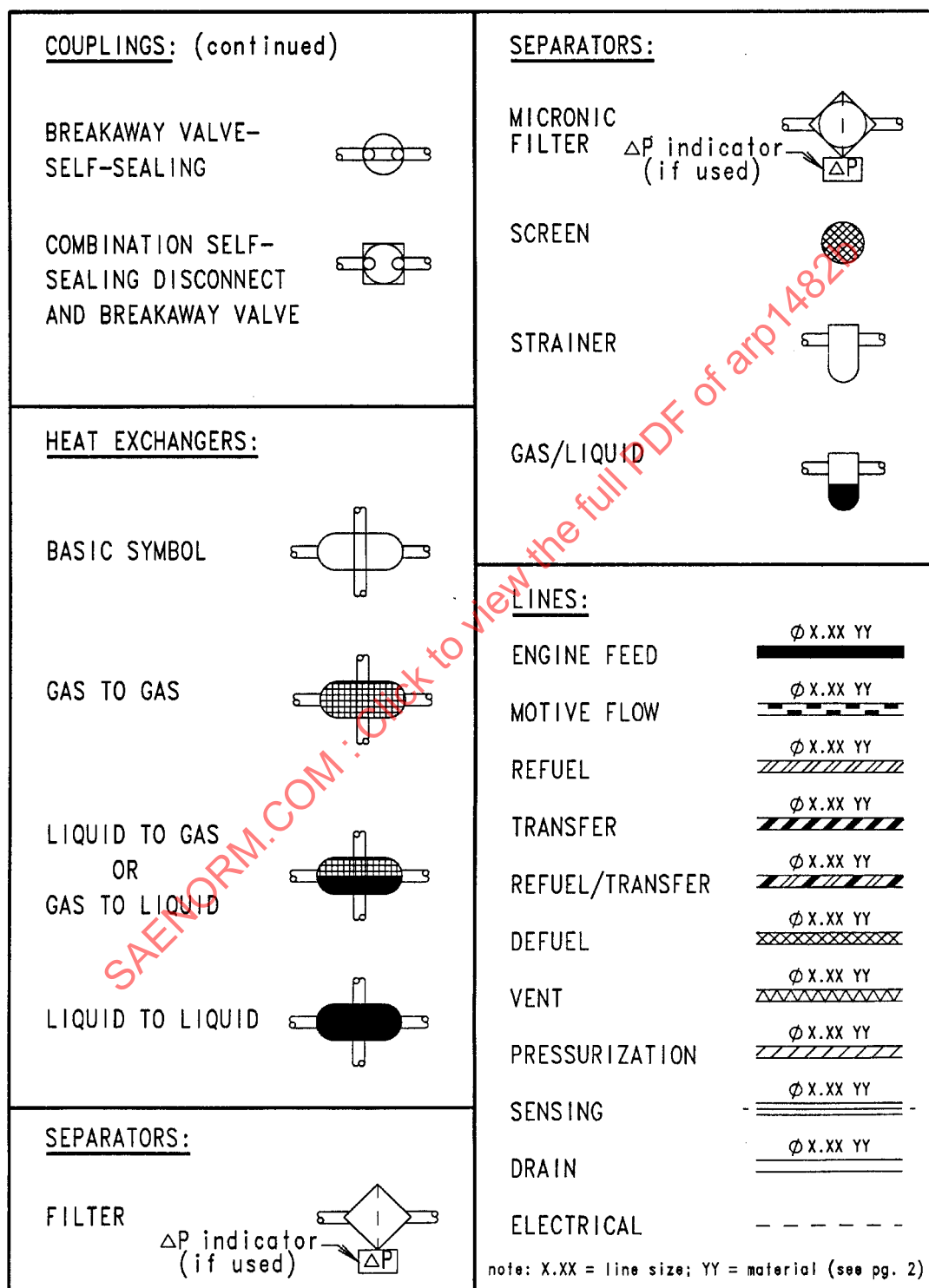


FIGURE 1 (Continued)