

	SURFACE VEHICLE RECOMMENDED PRACTICE	SAE J2898 NOV2012
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Hydraulic Hybrid Terminology and Definitions		

RATIONALE

This SAE Recommended Practice provides industry standard terms, definitions, abbreviations, and acronyms to enable common terminology for diagnostic tools and publications.

1. SCOPE

As the number of Hydraulic Hybrid Powertrain equipped motor vehicles has increased, the number of terms, abbreviations, and acronyms which describe various components of these systems has increased. For the sake of industry standardization and to bring some order to the proliferation of such terms, abbreviations, and acronyms, the SAE Truck and Bus Hydraulic Hybrid committee prepared this document.

2. DEFINITIONS

2.1 ACCUMULATOR CAPACITY (L)

The internal volume of an accumulator that can hold a combination of liquid and gas.

2.2 ACCUMULATOR CYCLE

The period commencing from the start of one pressure charge/discharge to the start of the next charge/discharge where said period includes discharge time, dwell time, and charge time. The depth of discharge (or percentage of capacity) associated with each cycle must be specified.

2.3 ACCUMULATOR CYCLE LIFE

The number of cycles, each to specified discharge and charge termination criteria, that an accumulator can undergo before reaching its specified end-of-life criteria.

2.4 ACCUMULATOR DISCHARGE

The flow of fluid from a hydraulic accumulator.

2.5 ACCUMULATOR DISCHARGE PRESSURE LIMIT (kPa)

The minimum pressure to which the high pressure accumulator may be operated

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2.6 ACCUMULATOR DISCHARGE RATE (L/Min)

The fluid flow rate during discharge of an accumulator.

2.7 ACCUMULATOR DRY WEIGHT (kg)

The weight of the accumulator components with no hydraulic fluid or gas charge installed.

2.8 ACCUMULATOR EXTERIOR VOLUME (M³)

The volume of fluid displaced if the accumulator is submerged.

2.9 ACCUMULATOR GAS CHARGING SYSTEM

External equipment used to charge a hydraulic accumulator with gas (usually nitrogen).

2.10 ACCUMULATOR MAXIMUM PRESSURE (kPa)

The maximum pressure within the accumulator certified by the manufacturer for repeated operation of the hydraulic system.

2.11 ACCUMULATOR PRE-CHARGE PRESSURE (kPa)

The pressure specified for initial charge of the accumulator with gas at ambient temperature (with no fluid present).

2.12 ACCUMULATOR SERVICE CRITERIA

Specific performance characteristics that indicate the accumulator requires maintenance in order to perform its intended function to specification.

2.13 ACCUMULATOR SYSTEM

Vessel or vessels with movable barrier separating gas from fluid, and including fluid port connector, gas charge valve, and other necessary or auxiliary valves.

2.14 ACCUMULATOR SYSTEM DENSITY (kg/L)

This measurement is made based on The weight of the Accumulator System divided by external volume.

2.15 ACCUMULATOR WET WEIGHT (kg)

The weight of the accumulator components including full hydraulic fluid and gas charge installed, at specified temperature and maximum accumulator pressure.

2.16 ALL HYDRAULIC RANGE (m)

The distance a vehicle can drive in all hydraulic mode without engaging the Hybrid Power Unit (HPU) on a specific cycle.

2.17 ANTI-EXTRUSION VALVE

The device that prevents an accumulator bladder from extruding as it reaches its full discharge state (Also called a foot valve).

2.18 AVERAGE POWER (kW)

Total energy withdrawn (or returned) from (or to) an accumulator divided by the time of discharge (or charge).

2.19 BARRIER

A component to separate the fluid and gas sides of an accumulator.

2.20 BREAKDOWN OF BARRIER MATERIAL

A failure within an energy storage device that allows substantial mixing of gas and fluid.

2.21 CHARGE FITTING

A device that establishes a flow path to the hydraulic system for the purpose of charging an accumulator or hydraulic system with fluid or gas.

2.22 CHARGE PROFILE

The schedule used for charging an accumulator, usually defined by pressure, flow, and time.

2.23 CHARGING

Conversion of hydraulic kinetic energy into hydraulic potential energy achieved by applying a flow to the accumulator.

2.24 COOPERATIVE REGENERATIVE BRAKING

Actively controlling the blending of hydraulic regenerative braking in coordination with the friction braking system (typically used to maximize energy recovery while maintaining vehicle control).

2.25 DISCHARGING

Conversion of hydraulic potential energy into hydraulic kinetic energy achieved by releasing a flow from the accumulator.

2.26 DISCHARGE PROFILE

The schedule used for accumulator discharging that follows a particular flow rate, pressure or power versus time sequence.

2.27 DRIVING PROFILE

Some times called a Drive Cycle. A vehicle speed-versus-time schedule that is used to test a vehicle.

2.28 DYNAMIC CHARGE/DISCHARGE RATE (L/min)

The fluid flow rate during operation of the accumulator.

2.29 ENERGY CAPACITY (kW-hr)

See energy output.

2.30 ENERGY DENSITY (kW-hr/ m³)

The rated energy of an accumulator (kW-hr) divided by the total accumulator external volume m³.