

	HYDRAULIC DESCRIPTION		1.29.10	P 1
			SEQ 100	REV 15

GENERAL

The aircraft has three continuously-operating hydraulic systems : Blue, green, and yellow. Each system has its own hydraulic reservoir. Normal system operating pressure is 3000 PSI (2500 PSI when powered by the RAT). Hydraulic fluid cannot be transferred from one system to another.

The system is monitored by a Hydraulic System Monitoring Unit (HSMU).

GENERATION

GREEN SYSTEM PUMPS

Two pumps, driven by Engines 1 and 4, pressurize the green system.

An electric pump, which can be manually-controlled, can also pressurize the green system.

In an emergency, a pump driven by a ram air turbine (RAT) pressurizes the green system. When the RAT pressurizes the green system, the operating speeds of the aileron, elevator and spoiler servo-control are reduced.

BLUE SYSTEM PUMPS

A pump, driven by Engine 2, pressurizes the blue system.

A manually-controlled electric pump can also pressurize the system.

YELLOW SYSTEM PUMPS

A pump, driven by Engine 3, pressurizes the yellow system.

In addition, an electric pump which can be manually-controlled can also pressurize the yellow system.

This enables ground operations when the engines are stopped.

The electric pump runs :

- On the ground during cargo door operation.

Crewmembers can also use a hand pump to pressurize the yellow system, in order to operate the cargo doors when no electrical power is available.

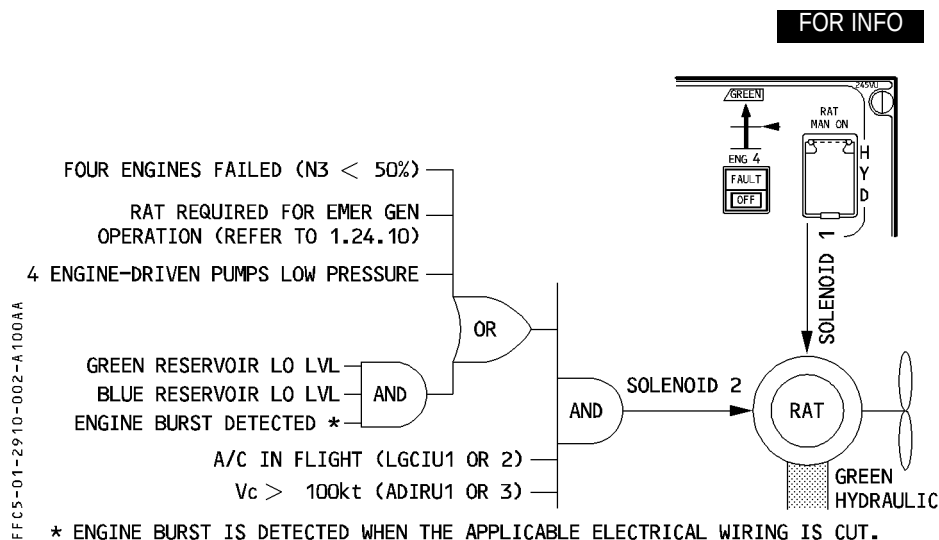
Note : On each system, the electric pump flow is about 18 % of the engine-driven pump flow capacity. It can be used to retract the surfaces, but should not be used to replace the engine-driven pumps.

RAM AIR TURBINE (RAT)

A drop-out RAT, coupled to a hydraulic pump, allows the green system to function.

The RAT may be extended at any time by pressing the RAT MAN ON pushbutton.

The RAT automatically deploys in the event of four engine failure, or electrical power loss when engines 1 and 4 are stopped (RAT required for EMER GEN operation), or when there is a low level in the green and blue reservoirs coupled with an engine burst detected, or in case of four engine-driven pumps low pressure. It can be manually deployed from the overhead panel. It can only be stowed when the aircraft is on the ground.



Note : The RAT flow varies between 15 % and 45 % of an engine-driven pump flow capability, depending on the aircraft's speed.

SYSTEM ACCUMULATORS

An accumulator in each system helps maintain constant pressure by covering transient demands during normal operation.

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PRIORITY VALVES

A priority valve cuts off hydraulic power to heavy load users if green system hydraulic pressure gets low.

FIRE SHUTOFF VALVES

Each of the green, blue and yellow systems has a fire shutoff valve in its line upstream of its engine-driven pump. The flight crew can close it by pushing the FIRE pushbutton.

The ENG 1 and ENG 4 fire shutoff valves are automatically closed by the HSMU in the event of green reservoir low level. This enables isolation of a possible leak in the engine pylon allowing restoration of the green system using the RAT, in the event of a further blue reservoir low level. The flight crew cannot re-open the fire shutoff valves in flight once they have been automatically closed.

LEAK MEASUREMENT VALVES

Each system has a leak measurement valve upstream of the primary flight controls.

These valves, which measure the leakage in each circuit, are closed by operation of the LEAK MEASUREMENT VALVES pushbutton switch on the maintenance panel.

Yellow valve is automatically closed during cargo door operation.

FILTERS

FOR INFO

Filters clean the hydraulic fluid as follows :

- HP filters on each system and on the reservoir filling system and the normal braking system
- return line filters on each line
- case drain filters on engine pumps (which permit maintenance to monitor engine wear by inspecting the filters for the presence of metallic particles).

HYDRAULIC SYSTEM MONITORING UNIT (HSMU)

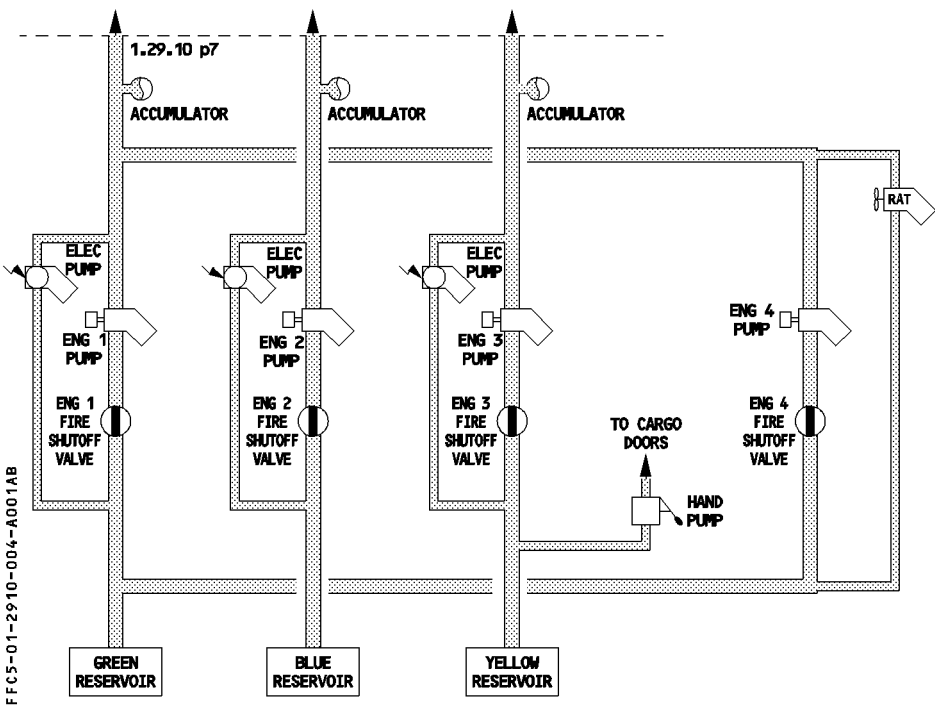
The HSMU monitors the hydraulic system.

It processes :

- Control of electric pumps
- RAT extension
- ENG 1 and ENG 4 fire shutoff valve closure in case of green reservoir low level
- Hydraulic quantity indication correction for fluid temperature
- Reservoir overheat warning
- FAULT light illumination logic
- LEAK MEASUREMENT VALVE control (closure inhibited in flight, closure of yellow valve during cargo door operation).

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HYDRAULIC GENERATION

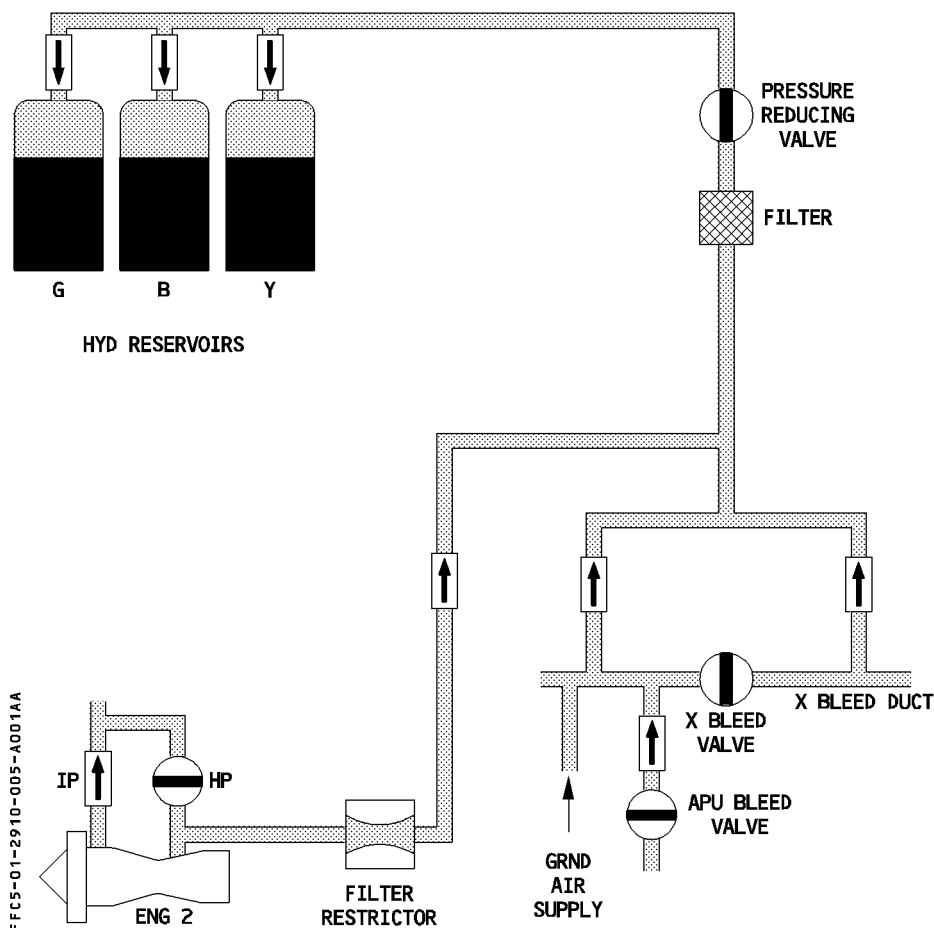


RESERVOIR PRESSURIZATION

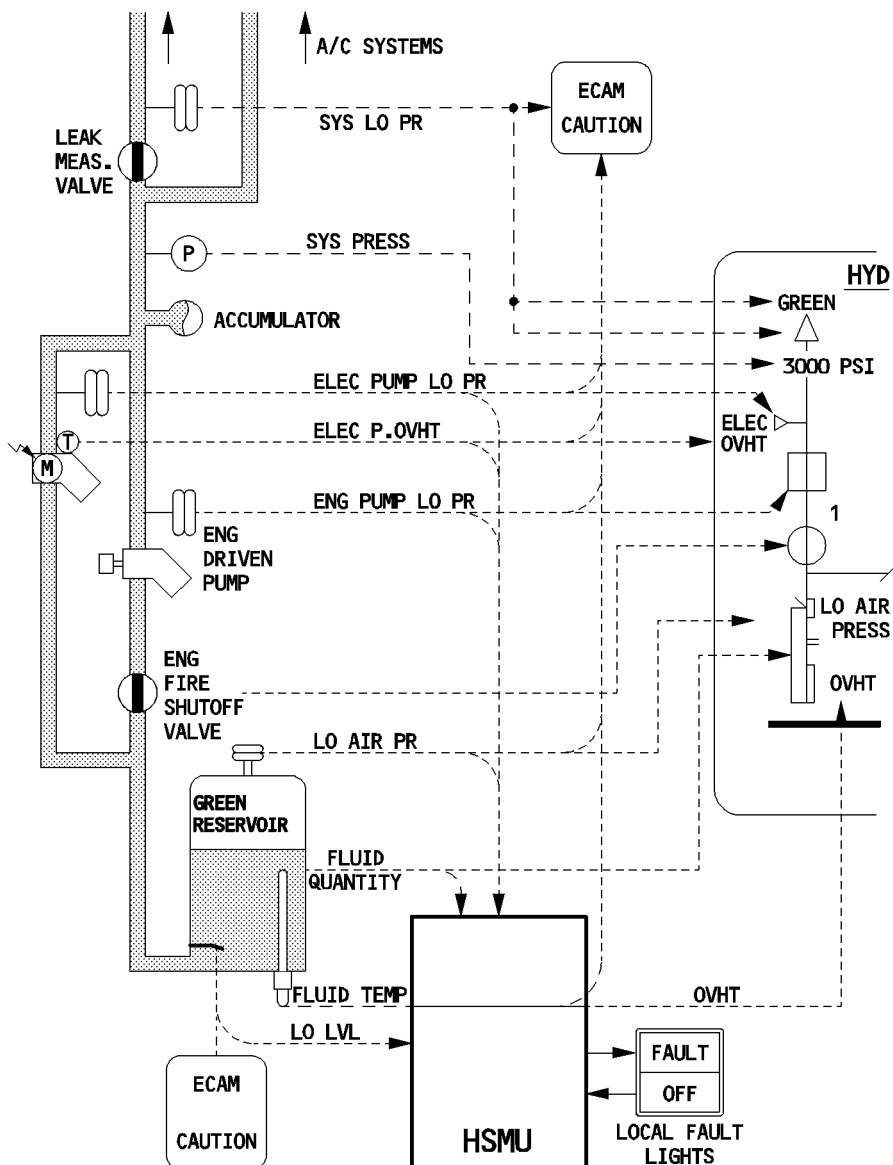
Normally, HP bleed air from engine 2 pressurizes the hydraulic reservoirs automatically. If the bleed air pressure is too low, the system takes bleed air pressure from the crossbleed duct.

The systems maintain a high enough pressure to prevent their pumps from cavitating.

FOR INFO

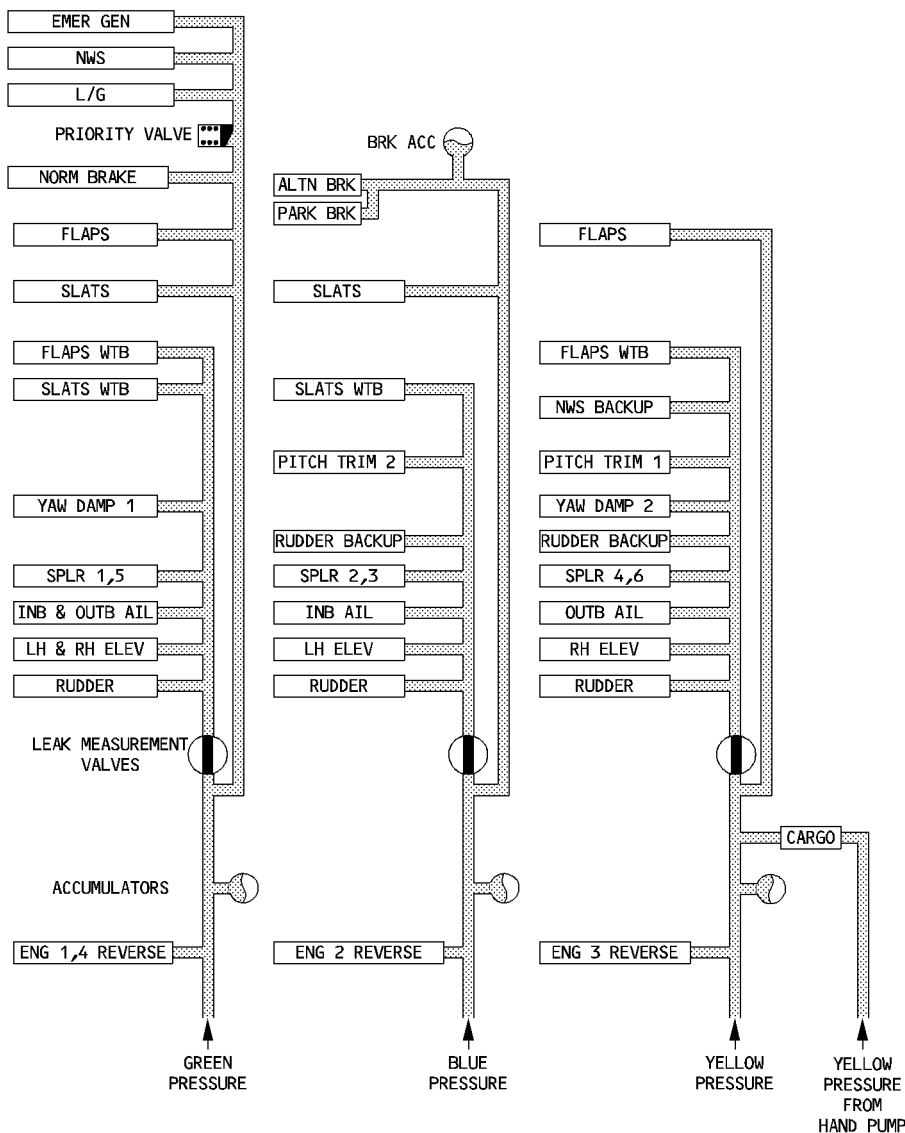


INDICATIONS



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