

Gulfstream G150

AIRPLANE FLIGHT MANUAL

Section VII
Systems

EXHAUST

GENERAL

The main structural components of the exhaust system are the jet pipe, two thrust reverser doors, the tail pipe, inner fan duct and fixed after body.

THRUST REVERSER

Description

The thrust reversers (T/R) are used on ground only. Reverse thrust is applied by pulling the T/R sub-levers, located on the power levers, aft to reverse thrust.

The T/R model 5040AS system is hydraulically actuated and electrically controlled. The T/R assists in slowing the aircraft during landing by reversing the thrust of the engines.

The T/R is powered from the auxiliary hydraulic system with two actuators for each T/R assembly to ensure symmetrical door actuation. Latch monitoring circuitry continuously monitors T/R latch status. Power lever retard actuators automatically retard to idle thrust if the T/R is not fully stowed or deployed.

Interlocks positively prevent thrust reverser deployment unless the power lever is in idle position; and restrict engine power to idle if thrust reverser doors are not fully open. Engine power will be retarded to idle power in case of an inadvertent deployment.

When the T/R is stowed, a T/R door seal forms a barrier between the jet pipe and the doors, minimizing exhaust gas losses. Differential pressure holds the doors against the latch hooks and it is sufficient to prevent the T/R actuators from retracting (causing T/R doors to open) in flight.

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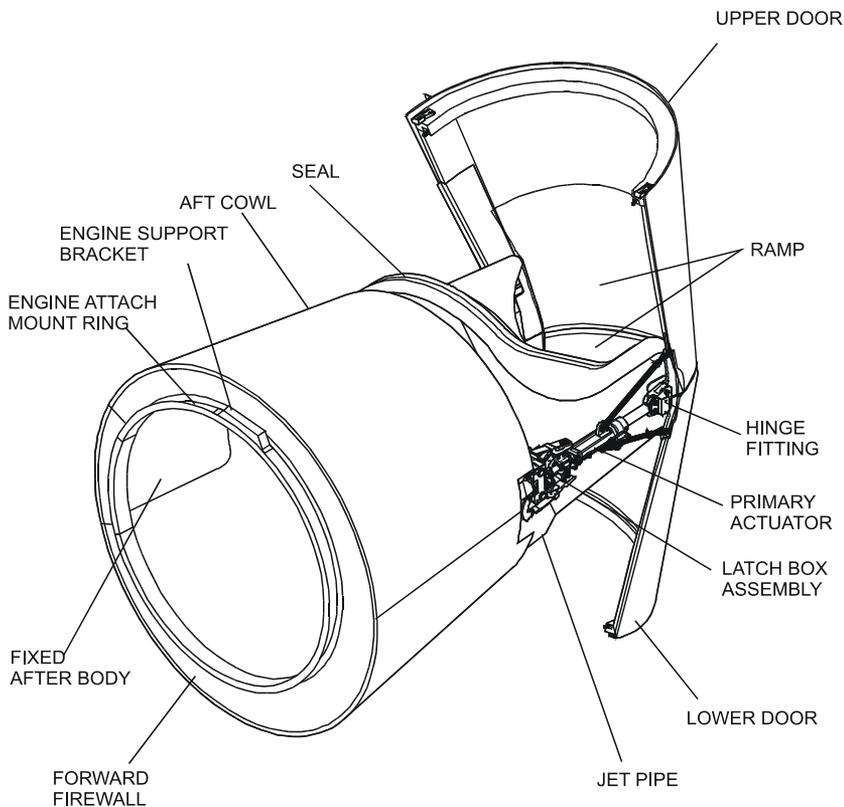


Figure 7-78-1. Thrust Reverser Assembly

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Operation

The thrust reverser is considered armed when:

- Electrical power is available
- Aircraft is on the ground
- ARM annunciator is on

Thrust reverser operation starts by movement of the power lever sub-lever to reverse thrust position. Information is provided to the electronic control unit (ECU) by the main gear weight on wheel (WOW) switches. Pressing THRUST REVERSE ARM pushbutton is followed by the ECU deploy input when the power lever reaches reverse idle position. The ECU then powers the unlatch, stow and isolation valve solenoids. The respective valves are opened and thrust reverser deployment starts.

Energizing of the isolation valve solenoid and the subsequent opening of the valve introduces hydraulic pressure to the stow and unlatch valves and directs pressure to the stow sides of the primary actuators. Pressurization of the primary actuators stow sides moves the thrust reverser doors into the overstow position. This movement removes the interference of the doors receptacles with the latch hook guards and allows the latch hooks to fully retract in response to the latch actuators pressurization, prior to full retraction, as the latch hooks move from their locked positions into contact with the receptacles.

The power lever retard actuator limits engine thrust to idle (regardless of power lever position) when stow pressure is applied during the overstow sequence.

Energizing of the stow valve solenoid directs hydraulic pressure to the stow side of the primary actuators, moving the thrust reverser doors from their fully deployed position.

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When the thrust reverser doors approach the stowed positions, the door latch receptacles engage the latch box springs, deflecting the springs as the doors continue into their overstow positions. This allows the latch hooks to return to locked positions. The latch switches open, removing power from the ECU to the isolation and stow valve solenoids.

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THRUST REVERSER SYSTEM CONTROLS AND INDICATORS

THRUST REVERSE ARM pushbutton (L/R) - Located on the pedestal between the FMS CDU's. Energizes (arms) or deenergizes T/R system. White T/R indication on EICAS comes on to indicate that the system is energized (armed).

T/R Sub-lever (2) - Located on each power lever. It controls operation of thrust reverser system.

STOW - Buckets are closed and locked, in streamline position.

DEPLOY - Buckets are Locked in fully open position. This position can be selected only when power lever is in Idle position. Green T/R indication on EICAS comes on.

MAX REVERSE - Increases reverse thrust engine speed to maximum. This position can be selected only when buckets are fully deployed.

Caution Messages

T/R FAIL (L/R) -

1. Thrust reverser system failure.
2. In flight: if both L and R messages simultaneously ON - weight on wheel switch failure

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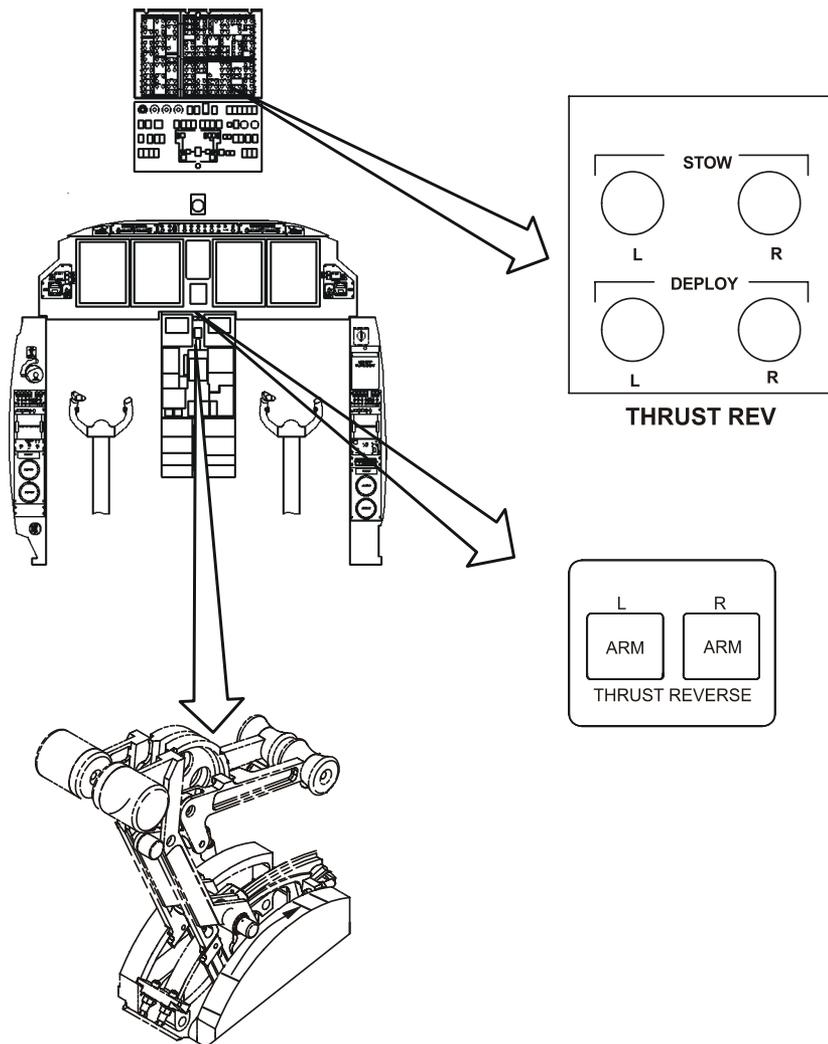


Figure 7-78-2. Thrust Reverser System Controls and Indicators